Response to Coastkeeper Letter Regarding Prior Lawful Approval dated October 8, 2014

On October 8, 2014 the San Diego Regional Water Quality Control Board ("RWQCB") conducted a workshop to accept public testimony regarding possible amendments to the Regional MS4 Permit ("Permit"). During the workshop testimony was presented by the County of San Diego and the Coalition[1] regarding Permit section E.3.e.(1)(a). Coastkeeper and the Coastal Environmental Rights Foundation submitted a comment letter ("Coastkeeper Letter').

After the presentations and questions by various board members, Chairman Abarbanel requested that the Coalition prepare further briefing concerning its views on the Coastkeeper letter and specifically on what issues it agrees with the Coastkeeper Letter. This briefing paper constitutes both that response as well as the Coalition's comments on suggested revisions to the Permit.

Purpose of Workshop

The Coastkeeper Letter states "it would be inappropriate for the Board to take any action on un-agenized matters at the workshop, CERF and Coastkeeper believe interested parties may urge the Board to consider amendments to the MS4 Permit to redefine "prior lawful approval"". The Coalition agrees.

The Coalition understands that the purpose of the workshop was to take testimony from interested parties and, while it failed to do so, direct RWQCB staff to draft revised language where appropriate for insertion into the Draft MS4 permit. The Coalition further understands that any amendments to the current permit would be subject to public review and comment prior to the RWQCB taking any formal action.

[1] The Coalition consists of environmental groups and associations representing various private stakeholders who have a keen interest in achieving water quality objectives within the San Diego region in the most efficient and cost effective manner. Coalition members include: San Diego Building Industry Association, Building Industry Association of Southern California; Associated General Contractors; Associated Builders and Contractors; San Diego Regional Chamber of Commerce; Business Leadership Alliance; San Diego Association of Realtors; San Diego Apartment Association; NAIOP (National Association of Industrial & Office Properties); BOMA (Building Office & Management Association; San Diego Chapter of the American Society of Landscape Architects.

Purpose of the Prior Lawful Approval Provision

Both the MS4 Permit and its associated fact sheet are silent on the rationale behind Permit section E.3.e.(1)(a). The Coastkeeper Letter states "If the Regional Board is interested in specifically defining prior lawful approval, a reconsideration should focus on traditional vested rights doctrines". The Coalition agrees that this is part of the rationale behind the PLA provision but disagrees that this is its entire purpose.

While the provisions that constitute Permit section E.3.e.(1)(a) has been modified over the last several permit cycles, the Coalition believes the purpose of the provision has always remained the same. That is, to allow Copermittees to use their land use authority to appropriately balance their obligation to achieve water quality objectives to the Maximum Extent Practical ("MEP") while honoring the property rights associated with public and private development projects whose entitlement cycles do not coincide with the MS4 permit cycles. The Coalition further believes that section E.3.e.(1)(a) is also intended to recognize that MEP is not a fixed standard but will vary based on the circumstances. The Coalition believes that by clarifying the intent of the Permit section E.3.e.(1)(a) the RWQCB will assist all of the interested parties in understanding the factors that the Copermittees need to balance in applying this provision of the Permit.

Maximum Extent Practical

The Permit explains the concept of Maximum Extent Practical ("MEP") as follows:

> The technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) for storm water that operators of MS4s must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of source control and treatment control BMPs. MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense). MEP considers economics and is generally, but not necessarily, less stringent than BAT. A definition for MEP is not provided either in the statute or in the regulations. Instead the definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their runoff management programs. Their total collective and individual activities conducted pursuant to the runoff management programs becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for MS4 maintenance). In the absence of a proposal acceptable to the San Diego Water Board, the San Diego Water Board defines MEP.

As described above, the concept of MEP includes consideration of:

- Economic feasibility;
- Technically feasibility of various source controls and treatment controls; and
- The impact that any single project may have on the collective and individual activities to address water quality objectives.

As applied to sectionE.3.e.(1)(a), the Coalition believes that MEP provides an overarching standard of review when considering when and how a Copermittee should use its discretion when allowing previous land development requirements to apply where the project has a recognized PLA. While the Coalition believes that it is the intent of the RWQCB to allow Copermittees to apply these factors on a case by case basis, the Coalition also believes that some additional guidance would be helpful for all parties concerned in two areas. These are:

- What constitutes a PLA?
- How should a Copermittee apply its discretion to projects that have a PLA?

The Coalition does not believe that providing such a clarification is antithetical to the position taken by the Coastkeeper Letter.

What constitutes a PLA

On May 8, 2013 the RWQCB, adopted the Permit. Section E.3.e.(1)(a) of the New MS4 Permit states:

> Each Copermittee must require and confirm that for all Priority Development Project applications **that have not received prior lawful approval** by the Copermittee by the time the BMP Design Manual is updated pursuant to Provision E.3.d, the requirements of Provision E.3 are implemented. For **project applications that have received prior lawful approval** before the BMP Design Manual is updated pursuant to Provision E.3.d, the Copermittee **may** allow previous land development requirements to apply. [Emphasis added.]

The Coalition interprets the intent of section E.3.e.(1)(a) to ensure that projects which have been granted a PLA that incorporates a final, or substantially final, drainage concept and site layout that includes water quality treatment based on the performance criteria set forth in the Copermittee' s storm water ordinances, regulations and manuals at the time the PLA was granted, are not required to redesign their proposed projects for the purposes of complying with the Permit unless doing so is necessary for the Copermittee to remain in compliance with the Maximum Extent Practicable standard as described in the Permit.

The Permit does not define the term "Prior Lawful Approval". Therefore, the Coalition relies on the plain meaning rule of statutory and regulatory interpretation. The plain meaning rule dictates that permit language is to be interpreted using the ordinary meaning of the language. In other words, Section E.3.e.(1)(a) is to be read word for word and is to be interpreted according to the ordinary meaning of the language, unless a statute explicitly defines some of its terms otherwise or unless the result would be cruel or absurd. Ordinary words are given their ordinary meaning, technical terms are given their technical meaning, and local, cultural terms are recognized as applicable. The Coalition relies on Merriam Webster for the plain meaning of each word.

- Prior – existing earlier in time.
- Lawful – constituted, authorized, or established by law
- Approval – an act or instance of approving.

Based on the plain meaning rule and the definitions above the Coalition defines a Prior Lawful Approval as any ministerial or discretionary approval granted to a project by a Copermittee prior to the Effective Date. Thus, PLAs include, but are not limited to, the approval or issuance of, building permits, grading permits, development agreements, tentative maps, vesting tentative maps, CEQA Notices of Determination, and conditional use permits. However, as discussed in further detail below, the Coalition considers a PLA as a necessary, but not determinative criterion, for granting an exemption from the requirements of section E.3 pursuant to section E.3.e.(1)(a). The Coalition believes that there are three situations in which a Copermittee should recognize a project as having a PLA. These are:

- Where the project has a statutory vested right to proceed under the prior permit. These include projects with Development Agreements or Vesting Tentative Maps pursuant to government code section 65864 et seq and 66498.1 et seq.
- Where the project is so far advanced by performing substantial work and incurring substantial liabilities in good faith reliance on the permit prior to the effective date of the new law. (Avco Community Developers, Inc. v. South Coast Reg'l Comm'n, 17 Cal. 3d. 785, 791 (1976)).
- Where the project has received some other form of approval which addresses water quality objectives and where it would be economically or technically infeasible to fully comply with the MS4 permit standard described in section E.3.e and remain in substantial conformity with the previously granted approval.

The Coastkeeper Letter seems to imply that recognizing anything other than common law vested rights as discussed in Avco would constitute "backsliding". The Coalition respectfully

disagrees. The term backsliding refers to an action taken to diminish a water quality objective necessary to achieve a beneficial use.[2] The recognition of other vested rights or discretionary permits is not backsliding where the discretion to do so is balanced against the MEP standard.

How should the Copermittees apply their discretion?

Where a project has a statutorily vested right to proceed under a prior permit, the Copermittee must still use its discretionary authority to determine whether to allow previous land development requirements to apply. However, that discretionary authority is limited to situations in which the imposition of new permit requirements is necessary for reasons of health and safety or where the Copermittee chooses to use its eminent domain powers. As such, the Coalition believes that Copermittees should be provided with guidance that the use of its discretionary authority to allow a project with a statutorily vested right to proceed under previous land development requirements would be presumed to meet the MEP standard.

Where a project is so far advanced by performing substantial work and incurring substantial liabilities in good faith reliance on the permit prior to the effective date of Permit section E.3.e.(1)(a), the Coalition believes that Copermittees should be provided with guidance that the use of its discretionary authority to allow a project with a statutorily vested right to proceed under previous land development requirements would be presumed to meet the MEP standard. The Coalition believes that this suggestion is in harmony with the Coastkeeper Letter.

Where a project has received some other form of approval which addresses water quality objectives and where it would be economically or technically infeasible to fully comply with the MS4 permit standard described in section E.3.e and remain in substantial conformity with the previously granted approval, the Coalition believes that the presumption must shift. That is, the project proponent must demonstrate with substantial evidence the following:

1. The project design complies with the previous land development requirements.
2. It is not economically or technically feasible to fully comply with the new Permit requirements.
3. By allowing the project to comply with less than the new Permit requirements the Copermittee will still be in compliance with the MEP standard as described in the new Permit.

[2] In the Water Quality Act of 1987, Congress statutorily approved the antibacksliding policy adopted by EPA through regulations prohibiting backsliding from water quality based permit limits under sections 301(b)(1)(C) or 303(d) or (e). It is not clear that Congress intended to apply the antibacksliding policy to strategies intended to implement the MEP standard.

Proposed Guidance

The Coalition suggests that in order to provide the Copermittees, RWQCB staff and interested parties with clear guidance on this matter, the following language be incorporated into the draft permit for consideration and comment by all parties. While the Coalition believes that this language should be adopted as proposed, it also recognizes the importance of providing all interested parties with an opportunity to address this issue if they so see fit and, therefore presents this language as a "straw man" and a place to begin the discussions.

Proposed Clarifying Language

(Replaces Section E.3.e(1)(a); does not alter (b) through (d)

(a) Each Copermittee must require and confirm that for all Priority Development Project applications that have not received prior lawful approval by the Copermittee by the time the BMP Design Manual is implemented pursuant to Provision E3.d, the requirements of Provision E.3 are implemented. For project applications that have received prior lawful approval before the BMP Design Manual is implemented pursuant to Provision E.3.d, the Copermittee may allow previous land development requirements to apply.

i. For private development project, "Prior Lawful Approval" means projects that have entered into a development agreement as defined by the California Government Code or have received a first discretionary approval or ministerial permit which incorporates by design or reference the applicable water quality and hydromodification standards prior to the time the BMP Design Manual is implemented. A Prior Lawful Approval shall include any subsequent discretionary or ministerial entitlements necessary to implement the initial Prior Lawful Approval.

ii. For public projects, the Copermittee shall develop and adopt as part of its JURMP an equivalent approach to that for private projects described in Section i above.

iii. For project application that have obtained a Prior Lawful Approval before the BMP Design Manual is implemented pursuant to Provision E.3.d, the Copermittee shall use its discretion to allow previous land development requirements to apply provided that the Copermittee does not determine that to do so would prevent the Copermittee from achieving water quality objectives to the MEP.

iv. Projects with Prior Lawful Approvals that predate the water quality and hydromodification requirements of Order No. R9-2007-0001 for San Diego Copermittees, Order No. R9-2009-0002 for Orange County Copermittees, and Order

No. R9-2010-0016 for Riverside County Copermittees shall be required to incorporate Treatment Control BMPs necessary to achieve water quality standards set forth in the applicable Orders identified above to the Maximum Extent Practicable, as determined by the Copermittee on a case by case basis.

November 19, 2014

Board Chair Henry Abarbanel
San Diego Regional Water Quality Control Board
2375 Northside Drive, Suite 100
San Diego, CA 92108

Re: Response to Workshop Request:Proposed Prior Lawful Approval Language for Regional MS4 Permit

Sent via Email: Laurie.Walsh@waterboards.ca.gov

Dear Chair Abarbanel:

This letter is to follow up on an earlier communication regarding changes in the 2013 MS4 Permit, which removed references to grading from a footnote defining "prior lawful approval." The Coastal Environmental Rights Foundation and San Diego Coastkeeper appreciate the Regional Board taking time to consider the issue.

For the reasons stated below, our organizations do not believe it is necessary to take any action to define "prior lawful approval," or "grandfather" projects into the 2007 MS4 Permit. If, however, the Regional Board does choose to act we urge the Board to reject the straw man language proposed by the Coalition and instead reinsert references to grading in the last iteration of the MS4 permit.

In earlier discussions, the Board indicated the language was changed because "circumstances that legally prevent the imposition of updated requirements" may "differ among jurisdictions." There was concern that either the judicial vested rights doctrine or statutory vested rights could prevent retrospective application. However, it seems clear that correctly applied, neither judicial nor statutory vested rights would prevent the imposition of updated stormwater requirements in any jurisdiction subject to the Regional Board authority.

Avco remains the principal governing case law on the issue of judicial vested rights as applied to development. In *Avco*, the California Supreme Court held that no vested right existed where a plaintiff had not *both* obtained a final building permit *and* begun grading. *Avco Cmty. Developers, Inc. v. S. Coast Reg'l Com*., 17 Cal. 3d 785, 791 (1976). Courts of Appeal continue to follow the *Avco* model, holding that public entities may enforce changes in regulations notwithstanding prior subdivision approval unless the owner or developer "(1) has obtained a building permit for an identifiable structure, and (2) has performed substantial work in reliance thereon." *Hafen v. Cnty. of Orange*, 128 Cal. App. 4th 133, 143 (2005). A leading treatise further explains: "The vested rights rule requires that the government agency exercise its *final discretion* to issue a grant of authority or permit which *specifically describes* a particular approval or work of improvement. Thereafter, *if the developer begins to perform the work described* in the grant or permit, he or she may acquire a vested right to complete the *specific and particular* work that is described. The grant or permit does not give any rights to complete any work not specifically described." (emphasis added) *Miller & Starr, Cal. Real Estate* (3d ed.2001) § 25:70, pp. 324-325, 327-328. Therefore, the Coalition's proposed language would give

developers the right to proceed under an old permit even if they obtained only a preliminary ministerial approval and no work had begun.

If adopted, the proposed language would expand developers' rights beyond what is required by *Avco* and its progeny. Perhaps more importantly, such a provision would be inconsistent with and contrary to federal law. Following *Avco*, the state legislature enacted statutes that allow some development rights to vest earlier when particular conditions are met, such as entry into a development agreement or approval of a subdivision map. These statutory vested rights prevent local governments from applying certain new regulations retroactively. Importantly, however, they do not apply to local actions that are required by state or federal law. Because MS4 requirements are set by a state agency pursuant to the federal Clean Water Act, no statutory vested rights apply.

While Cal. Gov't Code section 65866 provides that, where a development agreement is in place, the regulations and official policies in force at the time of the agreement will be applied, section 65869.5 qualifies the above: "If state or federal laws or regulations, enacted after a development agreement has been entered into, prevent or preclude compliance with one or more provisions of the development agreement, such provisions of the agreement shall be modified or suspended as may be necessary to comply with such state or federal laws or regulations." Thus, even where statutory vested rights are expressly granted, the Legislature has made it clear that compliance with state and federal law is still an overriding concern.

Likewise, pursuant to the Subdivision Map Act, Gov Code section 66498.1(c) limits the scope of vested rights: "Notwithstanding subdivision (b), the local agency may condition or deny a permit, approval, extension, or entitlement" if "required in order to comply with state or federal law."

Thus, where necessary, a copermittee may deny a permit at any stage in the process in order to bring a project into compliance with the state-mandated MS4 requirements. The Coalition's proposed changes thus attempt to create a right where none existed before.

It is important to note that the Coalition/BIA's proposed language would also be inconsistent with other provisions of the MS4 Permit. Section E.1.a of the Permit requires each copermittee to "establish, maintain, and enforce adequate legal authority within its jurisdiction to control pollutant discharges into and from its MS4," and adequate legal authority includes, at a minimum, "requiring the use of BMPs to prevent or reduce the discharge of pollutants into MS4s." (*Order No. R9-2013-0001 E.1.a.(7)*). As explained above, it is well within all copermittees' legal authority to apply new BMPs to projects that have not yet begun work. Pursuant to section E.1.a., copermittees are required to use the full extent of that authority to apply updated requirements.

As the Coalition/BIA concedes, it is the municipality that is ultimately responsible for compliance with the MS4 Permit and meeting the MEP standard. As the Regional Board explained in support of its 2007 MS4 Permit, copermittees are responsible for discharges into and out of their MS4s, in part, because they have the legal authority that authorizes the very development and land uses which generate the pollutants and increased flows in the first place. (Fact Sheet, p. 28, Order NO. R9-2007-0001). The copermittees also have the legal authority to ensure all grading activities are protective of water quality – they can withhold issuance of the grading permit. (*Id*.). In the 2007 San Diego MS4 Permit, it was clear that updated SUSMP and hydromodification

requirements would apply to all priority projects which had not begun grading or construction at the time of any update. (Order NO. R9-2007-0001, p. 17, FN 3).

As further noted by the Coalition, MEP is defined in the Permit: “In the absence of a proposal acceptable to the San Diego Water Board, the San Diego Water Board defines MEP.” (Order No. R9-2013-0001, p. C-7). The Regional Board has effectively defined MEP by adopting the 2013 MS4 Permit – over a year ago. The Coalition asks the Regional Board to delay implementation of MEP by grandfathering projects under the guise of consistency. If the Coalition seeks a consistent, bright line rule, the more appropriate route is to track the 2007 MS4 Permit language which is consistent with vested rights doctrine. Rather, the Coalition suggests a more complicated approach which includes applying 2007 MS4 Permit standards to any ministerial approval that merely references the old standards. This is inconsistent with the increased stringency of the Regional MS4 Permit and iterative approach. It also runs contrary to MEP and *Avco*.

For the reasons stated above, CERF and San Diego Coastkeeper request that the Board not adopt a policy or amendment that could allow for vested rights or prior lawful approval that run counter to the widely accepted law. Should the Board decide it is necessary to adopt such a policy or amendment for clarity or conformity, we urge the Board to reinstate the prior footnote language from the previous MS4 permit.

Again, we appreciate your careful consideration of this issue.

Sincerely,

Matt O’Malley, Waterkeeper
San Diego Coastkeeper

Livia Borak, Legal Advisor
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Substantially Prepared By
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VIA E-MAIL

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January 11, 2013
Mr. Wayne Chiu, P.E.
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, Ca 92123-4340

Re: Comment Letter– Tentative Order No.R9-2013-0001, Regional MS4 Permit, Place ID: 786088Wchiu."

Dear: Mr. Chiu,

On behalf of Building Industry Association of Southern California, Inc. (BIASC), Construction Industry Coalition on Water Quality (CICWQ) and the members of both, we appreciate the opportunity to provide comments on the San Diego Regional Water Quality Control Board Tentative Order No. R9-2013-0001; NPDES No. CAS0109266, National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems ("MS4s") Draining the Watersheds within the San Diego Region (the "Tentative Order"). In addition, we respectfully request that our comment letter submitted to the Regional Board on September 14, 2012 be made a part of our overall comments to the Tentative Order and admitted into the formal administrative record, because the constructive suggestions for permit improvement remain relevant at this point in the Tentative Order development.

BIASC is a nonprofit trade association representing nearly 1,000 member companies, which together have nearly 100,000 employees. For decades, BIASC's members have built the majority of the new homes in Ventura, Los Angeles, Orange, Riverside, and San Bernardino Counties in southern California. CICWQ is an education, research, and advocacy water quality coalition comprised of representatives from five industry trade associations (in addition to BIASC) which are involved in the development of public and private building, infrastructure and roads throughout California (Associated General Contractors, Engineering Contractors Association, Southern California Contractors Association, Engineering and General Contractors Association, and United Contractors). All of the above trade associations, their members and the union labor work force are affected by the post-construction runoff control requirements proposed in the Tentative Order, and this letter is meant to provide the San Diego Regional Board with constructive suggestions for improvement.

We appreciate the Regional Board's earlier release of a precursor to the Tentative Order as an Administrative Draft, and the extensive stakeholder involvement process that ensued over the summer and autumn of 2012. Unfortunately, the Tentative Order does not reflect critically important changes to the Tentative Order's Development Planning requirements which we and many other public and private stakeholders recommended, both during the focused stakeholder meetings and in comments submitted to the Regional Board. Moreover, Regional Board staff does not provide sufficient findings of fact to support the priority project water quality and hydromodification control design criteria and performance standards in the Tentative Order. The requirements proposed in the Tentative Order are vastly different from those contained in the 2010 South Orange and South Riverside County MS4 permits, and there is simply insufficient performance data to demonstrate the need for any change.

We are concerned that key water quality and hydromodification control provisions within the Development Planning section (Section C.3) are (i) unsupported by substantial evidence, (ii) very bad public policy, and (iii) not properly considered as legally required. Specifically, certain provisions: (i) lack sufficient auditing or performance data showing the need for or advisability of such requirements, (ii) lack technical or scientific basis, and (iii) depart without any justification from required and approved technical documents that have been issued by the San Diego Regional Board for priority development projects in San Diego, Orange, and Riverside Counties. In addition, the hydromodification control provisions illuminate the Regional Board's failure to consider the factors required by California Water Code section 13241 – especially subsection (b) thereof.

1. There are no findings of fact to support changes in the requirements to evaluate, design and install LID BMPs (Section E.3.c) when comparing the proposed requirements in the Tentative Order with that of the requirements in the 2010 adopted South Orange and South Riverside County MS4 permits.

The Orange and Riverside County permits have been in effect for a short period of time (<2 years); and there is no data (program audits or annual report data, for example) that we can find that would support any changes to priority development project water quality control design criteria (found in Section E.3.C of the Tentative Order). Moreover, in one particular instance concerning which we and others have repeatedly commented to Regional Board staff, there is no technical justification provided by staff for requiring biofiltration LID BMP to be sized at 1.5 times the remaining design capture volume not reliably retained on-site. Section E.3.c.(3)(b)(i)[c] requires that if biofiltration is used as an alternative compliance method the biofiltration BMP is required to be sized to 1.5 times the design capture volume, which is an increase from the existing South Orange County permit. The permit and the fact sheet provide no technical justification for the 1.5 factor and therefore this requirement should be deleted from the permit. BIASC and CICWQ comment letter submitted to the Regional Board on September

14, 2012 and attachments including suggested permit redline remains relevant in this matter. We have provided this here as Attachment1.

2. There are no findings of fact or supporting technical and scientific data indicating the need for changes in hydromodification control requirements for priority development projects.

As we have commented before, there needs to be (i) an in-stream hydromodification control performance standard using the erosion potential (EP) approach; and (ii) the permit must recognize that there are a number of different types of channel hardening that have been used for armoring in stream systems besides concrete. In Attachment 1, we again make suggestions for improving the consistency of hydromodification control standards with those identified and allowed in the South Orange County MS4 permit.

The Tentative Order provides an "on-site" option for addressing hydromodification through flow duration control. This is an important element of the hydromodification control standard. However the Tentative Order is incomplete in that it lacks an option to assess and demonstrate hydromodification control through in-stream metrics. In many cases, significant development within a watershed has already caused hydromodification impacts. Requiring project-by-project flow duration control for each new project may not address the existing issue as effectively as a regionally-coordinated approach that combines upland control with in-stream remedies. Including the EP standard—as BIASC and CICWQ urge--would enable the development of more comprehensive approaches that include both upland controls and stream modifications (i.e., restoration). This option is critical for more effectively and efficiently protecting the region's aquatic resources.

Additionally, the Tentative Order includes an unnecessarily narrow definition of hardened channels that includes only those channels lined with concrete. Other forms of artificial hardening may be comparably resistant to hydromodification impacts, such as channels that are lined with rip rap, armored with soil cement, or armored with other practices. While the co-permittees or the project proponent should be responsible for demonstrating that a specific channel material is sufficiently stable, the narrow definition currently provided by the Tentative Order does not allow the use of sound engineering judgment and does not allow for use of innovative materials.

The comment letter submitted by BIASC and CICWQ to the Regional Board on September 14, 2012 remains relevant here, as the Regional Board staff did not make any changes to the hydromodification control requirements except for minor exemption allowances for using USGB council's LEED for redevelopment program standards. Exemptions, generally, are welcome and appropriate. But, in practice, referencing a voluntary, national green building and

development certification program for use as part of a NPDES permit does not provide a viable pathway for most priority development projects that are located in already urbanized areas that are served by existing MS4 infrastructure. Exemptions identified in the adopted San Diego Hydromodification Management Plan are appropriate and should be cited and referenced in the Tentative Order, and any reference to USGB LEED standards deleted.

3. Preserve the 2010 adopted San Diego County Hydromodification Management Plan elements

The Regional Board staff has provided no technical justification for the new hydromodification provisions. The HMPs for San Diego and South Orange County are based on sound science and should be allowed time to understand if they are adequate for mitigating hydromodification impacts. The Regional Board adopted the San Diego Hydromodification Management Plan (HMP) in July 2010. Significant work, technical analysis and stakeholder input have gone into the development of the HMP and these requirements have been in effect for just 16 months. Rather than providing separate criteria, the permit should acknowledge implementation of the Regional Board approved HMP as a sufficient mechanism for meeting hydromodification requirements. Of particular note and concern is the removal of exemptions for certain priority development projects (projects in urban areas with greater than 70% existing impervious surface, for example) that discharge to an MS4 system that then discharges into a significantly hardened channel system. It is unquestionably bad public policy to require installation of controls (or payment of in-lieu fees to compensate for the inability to install controls) when there is no threat to the receiving water.

To this end--and for sake of brevity, we support and encourage the Regional Board to accept comments from Orange County Public Works which pertain to the hydromodification control requirements. Changes in permit language as indicated in the County's redline of the Tentative Order would sufficiently address our concerns about the tentative hydromodification control requirements, and we urge the Regional Board to accept these changes.

Regional Board staff has publically stated that the proposed hydromodification control requirements in the Tentative Order are consistent with the 2010 adopted HMP and that only minor adaptation is necessary. That assertion is simply not true and in fact adoption of the Tentative Order requirements will render the HMP obsolete and require a total overhaul. According to the County of San Diego and the co-permittees within the County (and private developer stakeholders), more than $1.5 million have been spent to date developing the plan and conducting required monitoring. By changing the performance standards, requiring hydromodification controls at all priority development projects, and removing standard exemptions that are found in all other 4th term MS4 permits in California, the Regional Board is sweeping away years of program development activities and turning program implementation on

its head. The Tentative Order should explicitly recognize the findings of hydromodification management plans (HMPs) that have been previously approved by this Regional Board. The South Orange County HMP and the San Diego County HMPs were both the products of rigorous technical analysis based on the state of the practice, which were reviewed in detail by Regional Board Staff. The findings of these efforts must not be jeopardized under the new terms of the Tentative Order. *S*pecifically, findings regarding exempt water bodies must be appreciated and upheld, and they should be explicitly recognized in the Tentative Order.

4. The Tentative Order's proposed hydromodification control measures betray the Regional Board's failure to take into account the considerations required by California Water Code section 13241

For years, BIASC and CICWQ have been urging the water boards when developing MS4 permit requirements to address and respect their longstanding legal obligation to take into account the six, specified, non-exclusive factors which are set forth in California Government Code section 13241. The water boards have persistently refused. Most recently (just months ago), the Los Angeles Regional Board dismissed its obligation to consider the Section 13241 factors by noting that it had, in fact, more or less considered two of them (economics and some technical considerations). If the Regional Board here were to adhere to such a position, it would act in violation of California law and without justification.

There is perhaps no greater example of a permit condition written pursuant to a failure to consider the Section 13241 factors than the hydromodification control measures in the Tentative Order – particularly those which impose heroic, expensive engineering standards on development that drains into hardened flood control channels. Section 13241, subsection (b), requires consideration of the "[e]nvironmental characteristics of the hydrological unit under consideration…." By imposing expensive hydromodification control measures even where a receiving flood control system is already firmly hardened, the Tentative Order ignores this Section 13241, subsection (b), factor (obviously so, and regrettably consistent with the Regional Board's general refusal to take into account all six Section 13241 considerations).

BIASC and CICWQ believe that the water boards' persistent refusal to take demonstrably and meaningfully into account the Section 13241 required considerations results from a mistaken view of the applicable law. Specifically, the water boards' seemingly hold to the belief that the "maximum extent practicable" standard in federal law absolves the state agencies of any obligation to apply Section 13241when issuing MS4 permits. If indeed the water boards' legal position is thus, then it reflects a mistaken view of the degree of "federalism" reflected in the Clean Water Act and its interplay with the California Water Code. Moreover, such a position would reflect a failure to apply basic "federal preemption principles," which apply any time a party claims that federal law displaces state law.

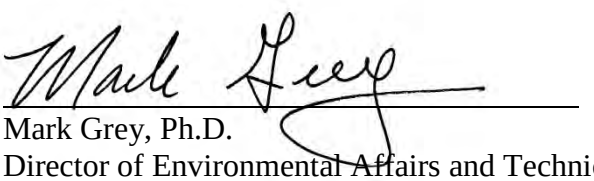
BIASC and CICWQ urge the Regional Board to reconsider and reverse its refusal to apply meaningfully all six Section 13241 considerations, and to correct the Tentative Order accordingly.

Concluding Remarks:

BIASC and CICWQ have been active participants and contributors to the creation of improved MS4 permits across southern California. We continue to believe that rational, *implementable,* and *effective* permit requirements are critical to achieving great progress concerning water quality and our environment. We hope that these comments are received in the manner in which they are intended – to create a workable permit that improves water quality to the maximum extent practicable. We remain committed to a positive dialog with the Regional Board and its staff – one that will result in an informed, balanced and effective permit.

If you have any questions or want to discuss the content of our comment letter, please feel free to contact me at (951) 781-7310, ext. 213, (909) 525-0623, cell phone, or mgrey@biasc.org.

Sincerely,



Mark Grey, Ph.D.
Director of Environmental Affairs and Technical Director
Building Industry Association of Southern California and
Construction Industry Coalition on Water Quality

Enclosures:
Attachment 1

cc. Andy Henderson, Esq., Building Industry Legal Defense Foundation

VIA E-MAIL

Building Industry Association of Southern California, Inc.

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September 14, 2012
Ms. Laurie Walsh, Senior Engineer
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, Ca 92123-4340

Re: ADMINISTRATIVE DRAFT REGIONAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (Tentative Order No. R9-2012-0011)

Dear: Ms. Walsh

On behalf of the Building Industry Association of Southern California, Inc. (BIA/SC) and the Construction Industry Coalition on Water Quality (CICWQ) and the members of both, we appreciate the opportunity to provide comments on the Administrative Draft of the San Diego County Regional MS4 Permit (Administrative Draft Permit). We submit these comments in addition to and in support of comments made by our affiliate in San Diego County, the Building Industry Association of San Diego and its coalition partners, and comments submitted by Rancho Mission Viejo.

BIA/SC is a nonprofit trade association representing nearly 1,000 member companies, which together have nearly 100,000 employees. BIA/SC's members have, for decades, built the majority of the homes in Ventura, Los Angeles, Orange, Riverside, and San Bernardino Counties in southern California. CICWQ is a water quality coalition comprised of representatives from five industry trade associations (in addition to BIA/SC) involved in the development of public and private building, infrastructure and roads throughout California (Associated General Contractors, Engineering Contractors Association, Southern California Contractors Association, Engineering and General Contractors Association, and United Contractors). All of the above trade associations and their members and the union labor work force are affected by the post-construction runoff control requirements proposed in the Draft Permit, and this letter and supporting attachments are intended to provide the San Diego Regional Board staff with constructive suggestions for improvement.

We appreciate the Regional Board's release of the Administrative Draft Permit in April 2012, and the extensive stakeholder involvement process that ensued over the summer of 2012. The comments provided here are intended to further meet the permit's underlying objective of protecting and improving water quality within the watersheds administered by the San Diego Regional Board. Our comments, supporting attachments, and suggested redline permit language

modifications reflect years of working not only on MS4 permits issued by the San Diego Board, but other MS4 permits administered by the Los Angeles, Santa Ana, and San Francisco Bay Regional Water Quality Control Boards.

We have four primary concerns with the Administrative Draft Permit content and the following discussion summarizes those concerns and provides the technical basis for those concerns including supporting attachments:

1. **Administrative Draft Permit Provision E. 3.c.(2)(c) establishes a zero discharge standard for biofiltration-type LID BMPs that are designed with an outlet/underdrain. This type of LID BMP cannot meet the on-site design capture volume standard as it is written. Such a zero discharge standard is scientifically and technically unsound and unsupported.**

Biofiltration is an established LID BMP for use in attempting to mimic pre-development hydrology. The US EPA, in multiple guidance documents produced since 2006, have recognized the use of biofiltration-type systems such as curb contained biofilters, bioswales, rain gardens, and using landscape areas for impervious area disconnection as essential LID BMP elements to include in land development projects, a few of which are cited below. The inclusion of biofiltration BMPs in US EPA's menu is a reflection of the practical limitations to retention of stormwater – retention practices are not universally feasible or desirable. When appropriately selected and designed, biofiltration BMPs achieve high levels of pollutant removal, which may exceed pollutant removal achieved in retention BMPs, particularly in cases where retention BMPs are inappropriately applied.

The retention requirement is contrary to EPA's definition of LID because it disfavors development strategies designed to appropriately "filter" runoff, such as bioretention cells or other vegetated LID BMPs. There are five principal EPA documents regarding LID; and four of them identify the appropriate roles of biotreatment-type BMP, such as detention (i.e., slow down, treat through vegetation, and then release across property lines), filtration, and surface release of stormwater.

In a compilation of case studies by EPA, most of 17 exemplary projects included biotreatment elements, such as bioretention, swales, and wetlands. *See* U.S. EPA 841-F-07-006. Each of two case studies described in another EPA document (s*ee* Attachment 1 at pp. 1-2, EPA 841-B-00-005) included the use of underdrains, and the example in one of the two specifically fed into the MS4 system at issue. Another EPA document updated in January 2009 refers to the many practices used to adhere to LID principles of promoting a watershed's hydrologic and ecological functions, such as bioretention facilities and rain gardens. *See* Attachment 2 at p. 2, EPA-560-F-07-231 (describing "an under-drain system to release treated stormwater off site," permitting planted areas to "safely allow filtration and evapotranspiration of stormwater");

http://www.epa.gov/owow/nps/lid/ (fact sheet describing under-drains used to release treated stormwater off site and permitting planted areas to safely allow filtration of stormwater). Thus, EPA's literature and guidance clearly recognize the important and even necessary role that biofiltration/biotreatment approaches play in real-world implementation of LID principles.

The National Research Council, in their 2008 Report to Congress titled "Urban Stormwater Management in the United States" cite the use of biofiltration and bioretention systems in improving water quality and in attempting to mimic predevelopment hydrology at many different site contexts and locations across the United States. The 2008 NRC report contains and cites numerous examples of using biofiltration type systems to reduce runoff volume and pollutant loads. The 2008 NRC Report clearly recognizes the role that biofiltration systems play in the LID BMP feasibility and selection process, and in achieving runoff management goals. The report states "In some situations ARCD (Aquatic Resources Conservation Design) practices will not be feasible, at least not entirely, and the SCMs [stormwater control measures] conventionally used now and in the recent past (e.g., retention/detention basins, biofiltration without soil enhancement, and sand filters) should be integrated into the overall system to realize the highest management potential." Note that the NRC report definition of ARCD includes both retention and biofiltration elements.

From a management perspective, a review of 4th Term Phase I MS4 permits within California (San Francisco Bay Area, Sacramento Area, North and South Orange County, Western and Southern Riverside County, and San Bernardino County) shows that the use of biofiltration to meet water quality volume and flow control performance standards is clearly allowed (See matrices submitted by BIA/SC_CICWQ at the August 22, 2012 Stakeholder Meeting and provided to the Regional Board by Mark Grey on August 24, 2012). These Regional Boards in California recognize that biofilter-type LID BMPs are an integral component of applying site design principles which seek to mimic pre-development hydrology. Furthermore, these permits implement a clear LID BMP feasibility and selection process, one that first requires examination of on-site retention systems (infiltration, harvest and use, and evapotranspiration), before moving to the evaluation and potential selection of bioinfiltration (some infiltration achieved) and biofiltration systems. This feasibility evaluation hierarchy, which is clearly explained in the South Orange County and South Riverside County MS4 permits adopted by the San Diego Regional Board in 2009 and 2010, respectively, must be preserved and included in the next version of the Administrative Draft Permit.

In summary, the zero discharge standard established by the Administrative Draft Permit significantly narrows the definition of LID, which is contrary to US EPA guidance, the 2008 NRC Report, and the standards established in recently-adopted Permits by the San Diego Regional Board and other Regional Boards. In essence, the proposed provisions would establish a standard that (i) will be impracticable in a relatively large proportion of sites, and (ii) has not

been demonstrated to be necessary to protect receiving water quality. We provide in Attachment 3 suggested permit language to address the continued use of biofiltration.

2. **A mitigation requirement is established when using flow-thru biofiltration-type LID BMPs to manage that portion of the SWQDv that is not retained on-site. This requirement is inconsistent with all other adopted Phase I MS4 permits in California and nationally. Biofiltration and bioretention BMPs are established LID practices; requiring accompanying mitigation of SWQDv that has already been biofiltered penalizes and dis-incentivizes use of these controls.**

Equally problematic, because it does not allow biofiltration type LID BMPs to meet the on-site storm water quality design volume (SWQDv) standard, is the current requirement in Administrative Draft Permit Provision E. 3.c.(2)(c) to "perform mitigation for the portion of the pollutant load that is not retained on-site." In other words, the draft provisions would require that, if a project proponent cannot retain 100 percent of the SWQDv on-site, and must therefore use biofiltration LID BMPs (with a treated discharge), then the use and installation of these systems will trigger an off-site mitigation or in-lieu fee program participation requirement. This provision in the Administrative Draft Permit is technically unjustified, disfavors the use of all types of recognized biofiltration LID BMPs, and could theoretically require a project proponent to not only pay for the installation and O&M of a biofiltration LID BMP, but also require mitigation or fee payment for that portion of runoff managed by it.

Biofiltration BMPs including natural treatment systems such as those that are part of the Irvine Ranch Water District's Natural Treatment System in Orange County (a regional example) can remove vast quantities of pollutant load, and provide other benefits such as habitat, flood control, and aesthetic, recreational and educational value. To relegate multi-benefit biofiltration or biotreatment BMPs applied at a site scale to a status inferior to on-site retention BMPs is not justified on a water quality basis, and is poor public policy, essentially depriving the region of an extremely important and effective approach to managing water quality.

While we agree that project proponents should be required to retain stormwater where technically and economically feasible, there are numerous conditions beyond a project's control that make retention infeasible, undesirable and/or ineffective. For example, in achieving a zero discharge standard, it is necessary to either maintain pre-project ET (which is generally impracticable) or increase the volume of stormwater that is infiltrated (which is the common result). Over-infiltrating rainwater can have adverse consequences such as altering the natural flow regime of the receiving waters such that riparian habitat changes, mobilizing pre-existing contamination in shallow groundwater, increasing inflow and infiltration to sanitary sewers, causing damage from rising groundwater, and other potential effects. By discouraging the use of biofiltration LID BMPs where there are more appropriate than retention, the Administrative

Draft Permit irresponsibly encourages the use of retention where it may have adverse consequences.

Retention BMPs are not necessarily more effective than biofiltration BMPs as the Administrative Draft Permit implies, especially considering the back-to-back-to-back nature of storm systems that arrive in southern California during winter months and deliver the majority of total rainfall volume. The Administrative Draft Permit establishes a SWQDv that must be retained, but does not specify the time over which this volume must be drawn down (i.e., drained) in order to have capacity for the volume from subsequent storms. The rate at which the SWQDv can be drained is a function of the infiltration rates of soils and the demand for harvested water. Where soils are not sufficiently permeable and/or where harvested water demands are moderate to low, the drawdown time of retention BMPs can be in the range of several days to several weeks.

In comparison, biofiltration BMPs are designed with engineered soils that can generally drain the SWQDv much more quickly, on the order of several hours. In cases where retention opportunities are limited, this results in a higher level of capture and treatment by biofiltration BMPs than retention BMPs, which can more than offset the lower "treatment efficiency" afforded by biofiltration compared to full retention. For example, based on rigorous technical analysis contained in the Orange County Technical Guidance Document (Figure III.2, Page III-11), a hypothetical biofiltration BMP draining in 12 hours would achieve approximately 25 percent greater treatment of average annual stormwater runoff volume than an equivalently sized retention BMP that drains in 72 hours and approximately 60 percent greater treatment than a retention BMP that drains in 10 days.

Because drawdown time is an important factor in (i) assessing BMP effectiveness and (ii) evaluating the site-specific determination of whether retention or biofiltration are preferable, we strongly recommend (in addition to allowing the use of biofiltration or biotreatment systems to meet the retention standard) including a secondary performance metric of managing 80 percent of annual runoff volume using continuous simulation modeling. This provides a means of accounting for the performance of strictly on-site retention BMPs versus the addition of biofiltration or biotreatment BMPs which can be designed to manage a greater volume of average annual runoff volume than retention BMPs of the same size. The total amount of water captured and treated and associated pollutant load reduction should be a primary deciding factor in whether retention or biofiltration BMPs are selected for a given project. As written, the Administrative Draft Permit strongly discourages an entire group of effective practices which have the potential to provide better protection of water quality, when compared to retention, in a wide range of cases. Attachment 3 provides suggestions for permit language which corrects these deficiencies.

3. Hydromodification control measures should allow use of the EP method to meet in stream standards; recognize multiple types of channel hardening when evaluating applications for hydromodification control exemptions

In Attachment 3, we also make suggestions for improving the consistency of hydromodification control standards with those identified and allowed in the South Orange County MS4 permit. Specifically, we recommend providing for an in-stream hydromodification control performance standard using the erosion potential (EP) approach and recognizing that there are a number of different types of channel hardening that have been used for armoring in stream systems besides concrete.

The Administrative Draft Permit provides an "on-site" option for addressing hydromodification through flow duration control. This is an important element of the hydromodification control standard. However the Administrative Draft Permit is incomplete without an option to assess and demonstrate hydromodification control through in-stream metrics. In many cases, significant development within a watershed has already caused hydromodification impacts. Requiring project-by-project flow duration control for each new project may not address the existing issue as effectively as a regionally-coordinated approach that combines upland control with in-stream remedies. Including the EP standard enables the development of more comprehensive approaches that include both upland controls and stream modifications (i.e., restoration). This option is critical for more effectively and efficiently protecting the region's aquatic resources.

Additionally, the Administrative Draft Permit includes an unnecessarily narrow definition of hardened channels that includes only those channels lined with concrete. Other forms of artificial hardening may be comparably resistant to hydromodification impacts, such as channels that are lined with rip rap, armored with soil cement, or armored with other practices. While the Permittees or the project proponent should be responsible for demonstrating that a specific channel material is sufficiently stable, the narrow definition currently provided by the Administrative Draft Permit does not allow the use of sound engineering judgment and does not allow for use of innovative materials.

Finally, the Administrative Draft Permit should explicitly recognize the findings of hydromodification management plans (HMPs) that have been previously approved by this Board. The South Orange County HMP and the San Diego County HMPs were both the products of rigorous technical analysis based on the state of the practice, which were reviewed in detail by Board Staff. The findings of these efforts must not be jeopardized under the new terms of the Administrative Draft Permit. Specifically, findings regarding exempt water bodies must be appreciated and upheld, and they should be explicitly recognized in the Administrative Draft Permit per our suggested redline.

4. The Permit must preserve important provisions for watershed level design and implementation of LID BMPs.

The proposed development project criteria and requirements in the Administrative Draft Permit do not include the language in the current South Orange County Permit that provides for Alternative Compliance for Watershed-Based Planning (See page 40-41 of the 2009 Permit). We ask that the Regional Board continue to recognize the protections to water quality and enhancements to water bodies which are achieved through watershed-based projects such as the Rancho Mission Viejo Ranch Plan, as it has in the current South County MS4 permit, and define Watershed Planning as an alternative and co-equal approach to the project-specific requirements. Attachment 3 to this submittal contains suggested redline language for addition to the Administrative Draft Permit.

Concluding Remarks:

BIA/SC and CICWQ have been active participants and contributors to the creation of improved MS4 permits across southern California. We continue to believe that rational, *implementable,* and *effective* permit requirements are critical to achieving great progress concerning water quality and our environment. We hope that these comments are received in the manner in which they are intended – to continue the discussion of how we can create a workable permit that improves water quality to the maximum extent practicable. We remain committed to a positive dialog with the Board and its staff – one that will result in an informed, balanced and effective permit.

If you have any questions or want to discuss the content of our comment letter, please feel free to contact me at (951) 781-7310, ext. 213, (909) 525-0623, cell phone, or mgrey@biasc.org.

Sincerely,

Mark Grey, Ph.D.
Director of Environmental Affairs and Technical Director
Building Industry Association of Southern California and
Construction Industry Coalition on Water Quality

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD DRAFT MS4 PERMIT: A CASE STUDY

Dennis Bowling, PE, MS; Mark Grey, Ph.D; Luis Parra, Ph.D, PE, MS, CPSWQ, ToR, D.WRE; Tory Walker, PE, CFM; Shawn Foy Weeden, GE, PE

On March 27, 2013, the San Diego Regional Water Quality Control Board (Region 9) ("RWQCB") released its Revised Tentative Order No. R9-2013-0001 (National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region) (hereafter, "Revised Draft Permit"). This article analyzes four components of the Revised Draft Permit, and identifies concerns with the Revised Draft Permit's treatment of those components based on the evidence that was before the RWQCB during its crafting of the Revised Draft Permit. The four components of the Revised Draft Permit are: hydromodification BMP requirements, the identification of a "pre-development" condition, Low Impact Development and the removal of pollutants in lieu of retaining stormwater onsite, and sediment transport requirements.

I. Hydromodification BMP Requirements

The Revised Draft Permit's Requirements

The Revised Draft Permit mandates that Copermittees require Priority Development Projects[1] to implement onsite Best Management Practices[2] ("BMPs") to manage hydromodification that may be caused by storm water runoff discharged from a project such that post-project runoff conditions must not exceed pre-development runoff conditions by more than 10 percent (for the range of flows that result in increased potential for erosion, or degraded instream habitat downstream of Priority Development Projects). (Revised Draft Permit, Provision E.3.c.(2)(a).)

[1] Priority Development Projects include: new development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site), or redevelopment projects that create or replace 5,000 square feet or more of impervious surface (collectively over the entire project site); new projects that create 5,000 square feet or more of impervious surface (collectively over the entire project site), and support restaurant, hillside development project, parking lot, or street, road, highway, freeway and driveway uses; new or redevelopment projects that create or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharge directly to an Environmentally Sensitive Area; new development projects that support use of an automotive repair shop or retail gasoline outlet, and new or redevelopment projects that result in the disturbance of one or more acre of land and are expected to generate pollutants post construction. (Revised Draft Permit, Provision E.3.b.(1))

[2] The Revised Draft Permit defines Best Management Practices as "Defined in 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage." (Revised Draft Permit, Attachment C, p. C-2.)

Copermittees have the discretion to exempt a Priority Development Project from Provision E.3.c.(2)(a)'s hydromodification management BMP performance requirements in three limited circumstances: where the project discharges storm water runoff to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean; where the project discharges stormwater runoff to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific ocean; where the project discharges storm water runoff to an area identified by the Copermitee as appropriate for an exemption by the Watershed Management Area Analysis incorporated into the Water Quality Improvement Plan pursuant to Provision B.3.b.(4). (Revised Draft Permit, Provision E.3.c.(2)(d).) The Fact Sheet in support of the Revised Draft Permit ("Fact Sheet') states that, other than the projects exempted through the Watershed Management Area Analysis, the exemptions are considered appropriative because there is no threat of erosion to downstream receiving waters. (Fact Sheet, page F-102.)

The RWQCB describes its position regarding its ability to include the hydromodification management requirements in the Revised Draft Permit in its Response to Comments on Tentative Order No. R9-2013-0001 ("Response to Comments"). Specifically, the Board states that federal law mandates that MS4 permits require management practices that will result in reducing pollutants to the maximum extent possible. The RWQCB states that the Revised Draft Permit's requirement that Copermittees require Priority Development Projects to control post-project runoff flow rates and durations so that they do not exceed pre-development runoff flow rates and durations by more than ten percent is appropriate and necessary to reduce erosion and the discharge of pollutants into receiving waters. (Response to Comments, pages 43-45.) In response to concerns regarding the potential requirement of hydromodification management BMPs in instances where hydromodification would not take place, the RWQCB included in the Revised Draft Permit the exemption described above for projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to the receiving waters. (*Id*.) The RWQCB, however, did not identify the extent to which such channels exist and would be a practical response to the challenge presented by complying with the hydromodification requirements in various venues.

In response to comments regarding the RWQCB's ability to regulate storm flow through hydromodification management requirements, the RWQCB states that the hydromodification management BMP requirements are for the control of pollutants in storm water discharges from the MS4. (Response to Comments, pages. 58-60.) While storm flow itself may be regulated as a result of the regulation of the pollutants within those flows, the RWQCB states that the hydromodification management BMP requirements are necessary to control the discharge of pollutants generated by new development and significant redevelopment projects in storm water discharges from the MS4 to the MEP. (*Id*.)

The Revised Draft Permit's Requirements are Unsupported

Both the Fact Sheet in support of the Revised Draft Permit and the RWQCB's Response to Comments cite to certain evidence that the RWQCB claims supports the hydromodification BMP requirements included in the Revised Draft Permit. However, as described below, this evidence

does not support the manner in which the RWQCB has incorporated hydromodification BMP requirements, particularly in regard to the Revised Draft Permit's failure to categorically exempt from compliance with the Hydromodification BMP requirements those projects that will discharge to a hardened channel that is not lined with concrete.

The Fact Sheet cites Assessing the Health of Southern California Streams, Stormwater Monitoring Coalition, Fact Sheet (Fact Sheet page F-89, Footnote 29[3]) ("SWMC Fact Sheet") in support of its claim that hydromodification is largely responsible for stream system degradation in San Diego County and that steam stressors including percent sands and fines present, channel alteration, and riparian disturbance are related to physical habitat changes caused by hydromodification. In the preparation of the SWMC Fact Sheet, more than 120 sites were sampled to provide data to make this determination, and the Southern California index of biotic integrity used to differentiate stream biological condition. The determination of relative degradation of stream (as compared to minimally disturbed reference sites) was made using a statistical method known as relative risk analysis. However, the SWMC Fact Sheet contains no discussion or presentation of the stream channel conditions found at the more than 120 sites used for the risk analysis.

Further, the SWMC Fact Sheet does not provide any data or support for modifying the existing hydromodification control requirements for significantly hardened channels defined in the 2007 version of the San Diego County MS4 Permit, or the process for obtaining a waiver from onsite compliance per the 2009 approved San Diego Hydromodification Management Program. The SWMC Fact Sheet describes an on-going study of Southern California streams and their biological characteristics relative to changes potentially caused by hydromodification. However, the SWMC Fact Sheet makes no distinction in stream susceptibility to hydromodification for those systems that are already significantly hardened. Accordingly, the SWMC Fact Sheet does not support any conclusions regarding the specific effects of or susceptibility to hydromodification on creeks, streams and associated habitats in San Diego County, or limiting the Draft Revised Permit's hydromodification exemption to only concrete lined channels.

The Fact Sheet cites Schueler and Holland, 2000, Storm Water Strategies for Arid and Semi-Arid Watersheds (article 66) The Practice of Watershed Protection (Fact Sheet page F-90, Footnote 30) to support its finding that increases in watershed imperviousness of 9-22% can result in increased peak flow rates and that these increased flow rates have an effect on channel morphology. This article describes climatalogical and hydrological variables that influence stormwater runoff generation in the arid west, in general, and provides recommendations for managing stormwater runoff using best practices to control pollutants in runoff and protect receiving waters from geomorphological changes. It does not include or address any issue related to already hardened channels systems or their susceptibility to the effects of hydromodification as a result of urban development.

[3] All references to footnotes within the Fact Sheet are in reference to the footnotes as they appear in the March 27, 2013 strikeout version of the Fact Sheet, recognizing that footnote references may change in the final version of the Fact Sheet.

The Fact Sheet cites Stein, E. and Zaleski S., 2005. Technical Report 475. Managing Runoff to Protect Natural Streams: The Latest Developments on Investigation and Management of Hydromodification in California. December 30, 2005. (Fact Sheet page F-90, Footnote 31) for the proposition that increases in uncontrolled imperviousness of as little as 3-10% can result in physical degradation of intermittent and ephemeral streams, and that stream systems in California are more susceptible to morphological changes than other areas in the US. However, the technical paper itself contains qualifying findings, not addressed by RWQCB in the Fact Sheet, concerning management of hydromodification effects. Specifically, Stein and Zaleski conclude that "not all streams will respond in the same manner [to the effects of hydromodification]" and that "Certain management strategies need to account for differences in stream type, stage of channel adjustment, current and expected amount of basin impervious cover, and existing or planned BMPs." (*Stein & Zaleski*, at page 15.)

Further, from a planning perspective, the authors of the technical report recommend that hydromodification should be addressed in both General and Specific Plans in terms of the location and design of new development, as site-by-site or project-specific approaches tend to be less effective and more costly to implement. (*Id.*, pages 11-12.) The authors go on to recommend that streams be surveyed and classified in order to identify areas with the greatest risk of impact from hydromodification. (*Id.*, page 15.) Taken collectively, these statements support recognition of the nature of channel condition in establishing the need for protection from hydromodification effects, which the Draft Revised Permit does not do. To rely on this article for support, the RWQCB would need to defer the proposed hydromodification provision to watershed specific implementation under each WQIP rather than the broad implementation proposed in the Draft Revised Permit.

The Fact Sheet further cites the USEPA, Reducing Stormwater Costs through Low Impact Development Strategies and Practices, December 2007 (Fact Sheet, page F-90 Footnote 32) to support the use of water quality and hydromodification control approaches using Low Impact Development ("LID") type controls, applied at a site scale regardless of receiving water or watershed condition. This USEPA study includes conclusions drawn from case studies done throughout the United States. The Fact Sheet cites the study to support and justify the development of hydromodification control requirements for all projects in San Diego County, yet the document does not include citation to specific evidence as to the need for or effectiveness of controls or whether they would be effective in the San Diego region as opposed to the specific case studies. The study highlights seventeen case studies of the implementation of LID principles into urban stormwater runoff management, with an emphasis on comparing the cost of installing LID BMPs to traditional or conventional stormwater management controls. However, there is no data or analysis presented concerning hydromodification; rather, LID principles are emphasized generally.

The Fact Sheet cites the website www.lowimpactdevelopment.org (Fact Sheet, page F-92 Footnote 34) in support of the Revised Draft Permit's use of the definition of Low Impact Development as crafted by the Low Impact Development Center, located in Maryland. However, this general citation offers no specific evidence or support other than to bolster the RWQCB's emphasis on LID BMPs applied at the site scale as a minimum compliance measure with MS4 permit conditions.

The Fact Sheet cites Managing Wet Weather with Green Infrastructure – Municipal Handbook: Green Streets (USEPA 2008) (Fact Sheet, page F-95 Footnote 38) to support the use of USEPA Green Streets Guidance to design and construct new roadways or significant roadway re-construction, which, if followed, allows project proponents to be exempted from Priority Development Project status. (Fact Sheet, pages F-94-F-95.) It is also cited in support of granting exemptions for construction of new or retrofit paved sidewalks, bicycle lanes, or trails that are designed to direct runoff to vegetated pervious areas (biofiltration systems, for example). According to the Fact Sheet, the exemptions are provided to "encourage these types of projects because they provide multiple environmental benefits such as promoting walking rather than driving, which will in turn improve air quality." (Fact Sheet, page F-94.)

However, the data in the publication do not address any specific requirement related to hydromodification control, but highlight the necessary consideration of the nature of the existing built environment encountered when building in urban areas. The publication's intent is clearly stated in its introduction: "This paper will evaluate programs and policies that have been used to successfully integrate green infrastructure into roads and right-of-ways." Integration of runoff controls into the context of the existing built environment is an essential consideration.

In fact, the logic cited by the RWQCB in the Fact Sheet in allowing exemptions for projects in dense urban areas that use green infrastructure techniques to the maximum extent practicable must be considered and extended to exemptions for hydromodification control when the ultimate receiving waters are significantly hardened using concrete or other armoring techniques. The Fact Sheet finds that by retrofitting the urban landscape with roadways using green infrastructure, it "recognizes that there are spatial constraints associated with these projects, and implementation of structural BMPs are not always feasible." (Fact Sheet, page F-95.) This recognition must be made equally with the need to consider or install hydromodification controls, especially when there is no threat to receiving water channel stability, and/or space constraints may preclude installation of large structural controls.

Housing, retail, and commercial development are now regulated to occur primarily in existing urban areas in order to concentrate population and employment in already dense or increasingly dense urban areas. *See* SANDAG 2050 Regional Transportation Plan, p.3-3 ["[The San Diego] region will meet or exceed [the SB 375] targets by, among other means, using land in ways that make developments more compact, conserving open space, and investing in a transportation network…"]; California Gov't Code § 65584.04(d)(2)(B) [California's metropolitan planning organizations are directed by SB 375 to consider the "availability of land suitable for urban development" -- including "opportunities for infill development and increased residential densities."]; California: A Primer on AB 32 and SB 375, Partnership for Sustainable Communities [an "[I]ncreasing the number of people living in cities and compact suburbs where transit and amenities are already in place may have a bigger impact on regional emissions, because those people will tend to walk to stores and take transit to work.".) Projects located in urban areas must comply with water quality LID treatment control requirements to the MEP, which will provide multiple environmental benefits, including improving receiving water quality for those runoff events up to the 85th percentile 24-hour storm. As urban areas are already served by hardened storm drain systems and flood control channels, there will be no effect on beneficial

uses in the receiving water from runoff greater than the water quality design capture volume. In fact, water quality would be expected to improve through the implementation of LID BMPs, and other benefits will be realized including decreases in traffic and associated pollutant load production, improved air quality through a reduction in vehicle traffic, and an overall increase in urban vegetation through the introduction of vegetated bioretention devices and urban street vegetation plantings as recommended in the Green Streets Guidance document.

Both the Fact Sheet and the Response to Comments cite E.D. Stein, F. Federico, D.B. Booth, B.P. Bledsoe, C. Bowles, Z. Rubin, G.M. Kondolf, A. Sengupta. Technical Report 667. Southern California Coastal Water Research Project. Costa Mesa, CA (2012) (Fact Sheet page F-101 Footnote 41; Response to Comments, pages 171, 183-184). The Fact Sheet cites Technical Report 667 in support of the development and use of an Alternative Compliance Program for those Priority Development Projects that cannot manage the applicable hydromodification control volume onsite, and instead require an off-site location in order to provide equivalent control or in-lieu payments to a fund providing resources to upstream or across watershed boundary projects. (Fact Sheet, page 101.) In addition, the RWQCB's Response to Comments cites the Technical Report in response to stakeholder comments in support of the very limited granting of exemptions to Priority Development Projects for installing onsite hydromodification control.

An Alternative Compliance Program is an established element of fourth term Phase I MS4 permits in California. However, with respect to considering and granting limited hydromodification control exemptions as described in the Response to Comments, at pages 171, 183-184, and 190, the RWQCB misinterprets the Technical Report's findings and the findings of an underlying scientific study cited in the report, and it does not consider other important findings and statements made in the report to support consideration of such exemptions.

In responding to comments regarding Hydromodification BMP requirements, the RWQCB cites two of the Technical Report's findings to support the statement that it "disagrees conceptually that blanket exemptions should be granted to all redevelopment projects that discharge to hardened channels." (Response to Comments, pages 183-184). First, the Regional Board incorrectly cites the Technical Report's finding that "the exemption of many small projects from hydromodification controls can result in cumulative impacts to downstream waterbodies...." (Technical Report 667, page 26; see Response to Comments, pages 183 and 190) This finding was made relative to receiving waters that are known to be susceptible to the additive effects of hydromodification, not with specific respect to receiving waters that are already concrete lined or otherwise significantly hardened. Moreover, the quotation's placement in the report is (i) found within a discussion of watershed scale hydromodification management concepts (especially as it applies to known or potentially susceptible receiving waters), not with specific respect to receiving waters that are already significantly hardened, and (ii) within a specific discussion of how current management strategies in municipal stormwater permits apply hydromodification standards; the author's note that requiring LID at all projects is positive measure for hydromodification, but the RWQCB's citation to Technical Report 667 does not appear to acknowledge this point.

The RWQCB cites the Technical Report work done by Booth and Jackson (1997) in King County, Washington to support its position that blanket exemptions not be granted to Priority Development Projects. This peer reviewed article described work done in an area undergoing rapid urbanization in east King County, Washington, where stream hydromodification sensitivity to land development was being recognized and measured. The empirical underpinning of the article was the changes noted in watershed imperviousness as a result of land development and corresponding changes in receiving water geomorphology as a result of development induced hydromodification. The watersheds and streams draining those watersheds were predominately under forest cover (see Booth and Jackson (1997) Table 1), which is unlike any receiving water system in San Diego County, and the specific stream systems were "natural" in channel condition. The article did not mention or address watersheds containing hardened receiving water channels. The conditions described by Booth and Jackson (1997) are much different and not representative of the conditions experienced by projects being developed within urban areas served by already hardened channel systems, and therefore do not support the RWQCB's position.

Technical Report 667 addresses the fact that stormwater permits may offer exemptions "for projects discharging to hardened channels or waterbodies," and cautions that "these exemptions may not be supportive of future stream restoration possibilities." Yet, its authors hedge such statements by stating that "a further limitation of the current permit structure is that there is no consideration of project characteristics such as position within the watershed and sensitivity of the receiving water reach....." (Technical Report 667, page 26.)

Second, the RWQCB repeatedly quotes Technical Report 667's finding that "an effective management program will likely include combinations of onsite measures (e.g., low-impact development techniques), in-stream measures (e.g., stream habitat restoration), and off-site measures. Off-site measures may include compensatory mitigation measures at upstream locations that are designed to help restore and manage flow and sediment yield in the watershed." (Technical Report 667, Page 26; see Response to Comments, pages 171, 184, 190; Fact Sheet, Page F-101).

The RWQCB cites to this quote to (i) support inclusion of the Alternative Compliance Program (Response to Comments, page 171), and (ii) support granting limited exemptions to Priority Development Projects for hydromodification control (Response to Comments, pages 184 and 190). While it is true that alternative compliance options should exist for those projects that drain to receiving waters known or believed to be susceptible to hydromodification effects, it is inappropriate to consider such options for projects that drain to already hardened channel systems because there is no threat, now or in the future, to downstream beneficial uses as a result of redevelopment. There is no scientific or technical nexus between the impact on the receiving water and the need for control. At worst case, any redevelopment project qualifying as a Priority Development Projects will contribute at least the same amount of runoff to the receiving water and likely much less if LID BMPs are feasible for implementation.

In the same section of comprehensive approaches to hydromodification management described in Technical Report 667 from where the quotation is derived, Technical Report 667's authors state that "the variety of types and conditions of receiving waters should result in a range of

requirements. This also means that objectives, and the management strategies employed to reach them, will need to acknowledge pre-existing impacts associated with historical land uses." The RWQCB must also consider this type of information in establishing appropriate exemptions for already hardened channel systems in urban areas within its jurisdiction.

The Revised Draft Permit's treatment of hydromodification management BMPs represents a significant change from the Final Hydromodification Plan for San Diego County, dated March 2011 ("San Diego HMP"). For redevelopment projects, these performance requirements are more stringent than the performance requirements of the San Diego HMP because they require evaluation of pre-development runoff conditions rather than pre-project runoff conditions.[4] Pre-development runoff conditions are defined as approximate flow rates and durations that exist or existed onsite before land development occurs. (Revised Draft Permit, Attachment C, page C-9.) For redevelopment projects, this equates to runoff conditions from the project footprint assuming infiltration characteristics of the underlying soil, and existing grade (i.e., using the parameters of a pervious area rather than an impervious area).

For many redevelopment projects, the difference between pre-development conditions and pre-project conditions is significant. This would require redevelopment projects on sites that are fully built to size hydromodification management BMPs as large as they would have been sized for a new development based on an estimate of the pre-project condition, yet they must be fit within the constraints of an already developed site. Furthermore, the change from a pre-project condition to pre-development condition requirement effectively invalidates some of the potential exemptions that certain redevelopment projects could have applied for under the approved San Diego HMP. Those approved exemptions could have facilitated the redevelopment process, encouraging redevelopment over new development. The exemptions are reasonable and are supported by extensive science and evidence. For example, under the San Diego HMP, projects that reduce impervious areas and reduce 2-year and 10-year peak flows to all outlets would be exempt. This exemption was a simple way to encourage redevelopment by removing the significant burden of hydromodification management BMPs, while achieving a net improvement to the watershed. Under the Revised Draft Permit, if adopted, this exemption would be effectively invalidated by the requirement to consider pre-development condition instead of pre-project condition because no project can reduce imperviousness below a pre-development condition. (Brown and Caldwell, Final Hydromodification Management Plan, prepared for County of San Diego, California, January 13, 2011.)

The other San Diego HMP exemption that may be invalidated or made more difficult to achieve by the Revised Draft Permit requirement to consider pre-development condition is its urban infill exemption. In the case of the urban infill exemption, a considerable effort was expended by the Copermittees, the San Diego HMP consultant, and the Technical Advisory Committee to prepare a cumulative impacts analysis to determine the thresholds and criteria for this exemption, and it was approved by the RWQCB as part of the San Diego HMP.

[4] The State Water Resources Control Board recently concluded that determining pre-development conditions and using them as the baseline was not feasible at this time. (See e.g. SWRCB California Department of Transportation Municipal Separate Storm Sewer System (MS4) Permit Comment Response Report (April 27, 2012), at page 4.).

The Revised Draft Permit also presents a list of criteria for exemptions from hydromodification management BMP performance requirements. (Provision E.3.c.(2)(d)) This list of criteria omits certain exemptions that were included in the RWQCB's 2007 MS4 permit, pursuant to Order No. R9-2007-0001. Exemptions available under R9-2007-0001 that are not included in the Revised Draft Permit are: channels that are "significantly hardened (e.g., with rip-rap, sackcrete, etc.)" (note this means channels hardened with materials other than concrete – channels that are concrete lined to the Ocean will still be exempt), and projects where "the sub-watersheds below the projects' discharge points are highly impervious (e.g., >70%) and the potential for single-project and/or cumulative impacts is minimal." The list also does not include exempt river reaches that were approved as part of the Final HMP dated March 2011 (portions of Otay River, San Diego River, San Dieguito River, San Luis Rey River, and Sweetwater River). These exemptions were based on extensive studies. (*See* Brown and Caldwell, Final Hydromodification Management Plan, prepared for County of San Diego, California, January 13, 2011.) While the Revised Draft Permit does not preclude these previously exempt channels, rivers, or highly impervious watershed areas from being exempt under a Water Quality Improvement Plan (WQIP), it requires a complete new analysis ("Watershed Management Area Analysis" defined in Provision B.3.b.(4)(a)), and vetting through the public review and approval process of the WQIP in order to re-establish the exemptions through the WQIP. Copermittees, the San Diego HMP consultant, and the Technical Advisory Committee have already expended considerable efforts to identify criteria for exempt river reaches. The Revised Draft Permit does not identify any evidence that supports this change. Copermittees should not have to prepare a new study to maintain these exemptions, as they have already been reviewed and approved during the development of the San Diego HMP.

Finally, pursuant to Provision E.3.(d) of the Revised Draft Permit, the updated performance requirements for hydromodification management BMPs must be incorporated into the BMP Design Manual (formerly Standard Urban Stormwater Mitigation Plan). Based on Provision F.2.b, this will be due three months following approval of the WQIPs. Pursuant to Provision E.3.d, until a Copermittee has updated its BMP Design Manual, the Copermittee must continue implementing its current BMP Design Manual. On this basis, until the BMP Design Manual is updated and implemented, a pre-project condition rather than pre-development condition will be the standard for curve-matching to meet the San Diego HMP criteria, and all exemptions currently available in the approved San Diego HMP will remain available. New HMP exemptions may be created where appropriate through the WQIP process.

II. **Hydromodification Baseline: Pre-Development Runoff Conditions**

The Revised Draft Permit's Requirements

The Revised Draft Order requires that post-project runoff conditions mimic "pre-*development* runoff conditions", as opposed to pre-*project* runoff conditions. (Revised Draft Order, Provision E.3.c.(2)(a); Fact Sheet, p. F-99.) The Revised Draft Order defines Pre-Development Runoff Conditions as "Approximate flow rates and durations that exist or existed onsite before land development occurs. For new development projects, this equates to runoff conditions immediately before project construction. For redevelopment projects, this equates to runoff conditions from the project footprint assuming infiltration characteristics of the underlying soil,

and existing grade. Runoff coefficients of concrete or asphalt must not be used. A redevelopment Priority Development Project must use available information pertaining to existing underlying soil type and onsite existing grade to estimate pre-development runoff conditions." (Revised Draft Permit, p. C-8.)

The RWQCB stated, without evidence, that using a hydrology baseline that approximates that of an undeveloped, natural watershed is the only way to facilitate the return of more natural hydrological conditions to already built-out watersheds, and ultimately improved stream health, and that using pre-*project* hydrology as a baseline for redevelopment projects would result in propagating the unnatural hydrology of urbanized areas, which would not support conditions for restoring degraded or channelized stream segments. Furthermore, reducing the volume of storm water runoff associated with the urbanized flow regime will also result in reducing the discharge of pollutants into receiving waters, since storm water runoff from impervious surfaces contains untreated pollutants. (Fact Sheet, page F-99.)

The Revised Draft Permit indicates that the RWQCB understands that approximating the pre-development runoff condition associated with a redevelopment site is not straightforward because factors such as natural grade and native vegetation for the site cannot be precisely known. (Fact Sheet, page F-99) For this reason, the RWQCB expects project designers and the Copermittees to approximate pre-development runoff conditions using existing onsite grade and assuming the infiltration characteristics of the underlying soil. (Fact Sheet, pages F-99 – F-100). Redevelopment projects are to use available information pertaining to existing underlying soil types (such as soil maps published by the National Resource Conservation Service), onsite existing grade, and any other readily available pertinent information to estimate pre-development runoff conditions. (*Id*.) The RWQCB asserts that an area's pre-development hydrology can only be roughly estimated and cannot be precisely known, but that using the hydrology of a natural condition, even if not precisely known, will provide significant benefit to receiving waters over using the hydrology associated with developed surfaces. The RWQCB finds that in order to achieve the goals of the Clean Water Act to "restore and maintain the chemical, physical, and biological integrity of the nation's waters [emphasis added]," the most appropriate standard to use for hydromodification management is the standard associated with the pre-development condition. (Fact Sheet, pages F-99-F-100.)

The Revised Draft Permit's Requirements are Unsupported

The RWQCB's findings in support of these hydromodification requirements are contradicted, however, by the California State Water Resources Control Board's ("SWRCB") statements as part of the 2012 renewal of the California Department of Transportation's multiple separate storm sewer system permit. In its April 27, 2012 response to comments regarding hydromodification, the SWRCB stated that the use of a "pre-development" standard for hydromodification is not feasible at this time. (See SWRCB California Department of Transportation Municipal Separate Storm Sewer System (MS4) Permit Comment Response Report (April 27, 2012), at page 4.) Specifically, the Board stated:

> It is not possible to develop a mutually agreed-upon standard for pre-development hydrology without a lengthy stakeholder process.

> One of the biggest complicating factors is that our hydrology has been significantly altered by the addition of dry weather flows, sometimes in volumes that are 3-5 times the volume of stormwater flows. Biocriteria need to be developed for the state and the ecological limits of flow alteration that can be tolerated and still have some favorable biological outcome need to be determined. This is still 5-10 years away. The pre-project standard is appropriate at this time.

The RWQCB should not take action to implement an approach that the SWRCB has determined to be infeasible. (See United States v. California (SWRCB) (1986) 182 Cal.App.3d 82, 109.)

III. LID and Onsite Retention of Stormwater

The Revised Draft Permit's Requirements

The Revised Draft Permit modifies its prior provisions relating to structural BMP performance requirements for Priority Development Projects, requiring that those projects implement onsite structural BMPs to control pollutants in storm water that may be discharged from a project. Specifically, under Provision E.3.c.(1)(a) of the Revised Draft Permit, Priority Development Projects are required to implement Low Impact Development (LID) BMPs that are designed to retain onsite 100 percent of the pollutants contained in the volume of storm water runoff produced from a 24-hour 85th percentile storm event.[5] (Revised Draft Permit, p. 93.)

The Fact Sheet for the Revised Draft Permit indicates that the 85th percentile storm event is the design capture volume that has been used for treatment control BMPs previously, and that it is the MEP standard recognized by the RWQCB and is consistent with the Fourth Term MS4 permits for Los Angeles, Orange, Riverside and Ventura Counties. (Fact Sheet, page F-96.)

Under Provision E.3.c.(1)(a)'s onsite retention requirements, the designer of a Priority Development Project would select a system of BMPs that would retain onsite – through interception, storage, infiltration or evaporation – 100 percent of the pollutants in the 85th percentile storm event design capture volume. (See Fact Sheet, page F-97.) The Fact Sheet for the Revised Draft Permit states that such retention BMPs are necessary to capture and retain the pollutants generated from a Priority Development Project. (*Id*.) Pursuant to Provision E.3.c.(1)(b), in the event a Priority Development Project determines that onsite retention is not

[5] The Revised Draft Permit describes a 24-hour 85th percentile storm event as follows: "This volume is not a single volume to be applied to all areas covered by this Order. The size of the 85th percentile storm event is different for various parts of the San Diego Region. The Copermittees are encouraged to calculate the 85th percentile storm event for each of its jurisdictions using local rain data pertinent to its particular jurisdiction. In addition, isopluvial maps may be used to extrapolate rainfall data to areas where insufficient data exists in order to determine the volume of the local 85th percentile storm event in such areas. Where the Copermittees will use isopluvial maps to determine the 85th percentile storm event in areas lacking rain data, the Copermittees must describe their method for using isopluvial maps in its BMP Design Manuals." (Revised Draft Permit, page. 93, former Footnote 27.)

feasible, it may utilize flow-through treatment control BMPs to achieve the equivalent pollutant load removal that would have been achieved if the design capture volume were fully retained onsite. However, "In any event, no matter what types of BMPs (or combination of BMPs) are chosen, 100 percent of the pollutants contained in the design capture volume must not be allowed to be discharged from the Priority Development Project." (*Id*.)

Finally, if onsite retention is found to be cost prohibitive or not to provide the water quality benefit to the watershed as would implementing BMPs elsewhere in the watershed, Provision E.3.c.(1)(c) allows for the use of a combination of onsite retention BMPs, and the implementation of an Alternative Compliance Program described in Provision E.3.c.(3).

The Revised Draft Permit's Requirements are Infeasible within the Region

As described below, the requirement is infeasible and not supported by evidence cited to in the Revised Draft Permit, the Fact Sheet that supports it, the RWQCB's Response to Comment, or elsewhere.

Infiltration is Largely Infeasible in Region 9

The soil types in Region 9, and particularly San Diego County, are likely infeasible for infiltration where stormwater could eventually reach the underground aquifer. More than 70 percent of the soil types found in San Diego County possess a Soil Hydrologic Group classification of C and D (USDA, 1973). A large majority of the land area possesses a classification of C or D (SANDAG, 2007) and soft/hard rock (CGS, 2007). Using infiltration as a preferred method of stormwater remediation county-wide, therefore, is unsupported. Clearly stated, in the appropriate soil type, infiltration is a preferred alternative. In the wrong soil type the results could be catastrophic. (See photos 1 & 2).

Photo 1 – La Jolla Landslide (Ardath Shale Formation, Claystone, Hydrologic Group D)

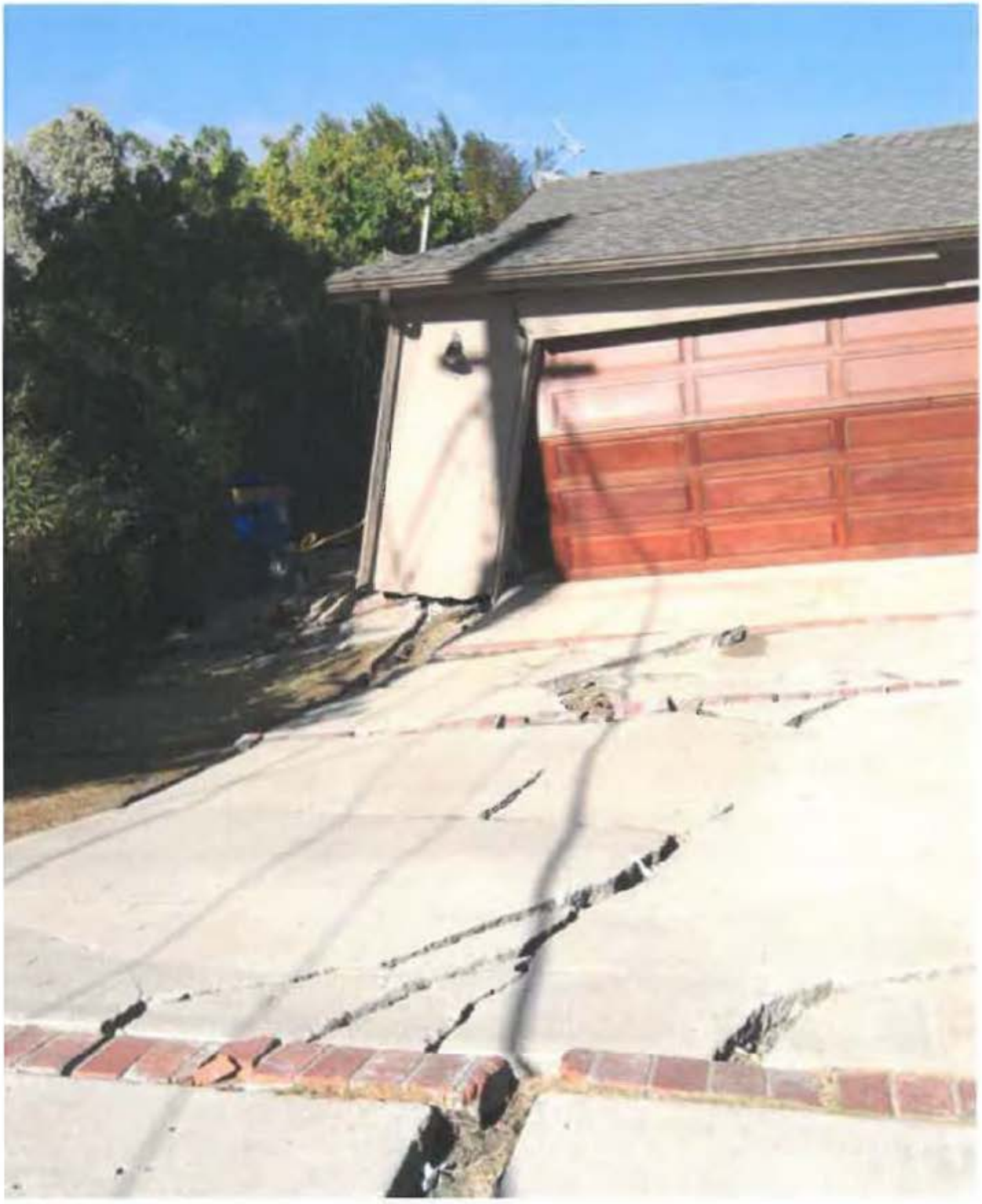


Photo 2 – La Jolla landslide (Ardath Shale Formation, Claystone, Hydrologic D)

For 70 years or more, both geotechnical engineers and civil engineers have designed projects to minimize water infiltration into the soils around and adjacent to buildings. A majority of geotechnical construction litigation is water intrusion related. (See Das, Braja M., Principles of

Geotechnical Engineering, 1994.) Water in clay based soils causes heaving, settling and failure of pavement, retaining walls and buildings. In extreme cases, these soils are prone to slippage, sinkholes or landslides. Additionally, when water enters these soil types it can travel laterally until it finds a utility trench, water or sewer line and then can undermine those systems. (Living with Expansive Soils, Marshall Addison, PhD. http://milliondollarstudent.com/ramjack/PDF/Living_with_Expansive_Soils.pdf; Low Impact Development Handbook, Stormwater Management Strategies, December 31, 2007, Page 39.) The water in these soils cannot infiltrate deep into the ground but moves as it can find voids and areas of better permeability. (Low Impact Development Handbook, Stormwater Management Strategies, December 31, 2007, Page 39.) (See photo 3, below.)

Photo 3 – Perched water visible on lower half of hillside (water migration)

Additionally, there are areas of the County where the soils are hard rock and infiltration cannot occur because water does not easily infiltrate into rock. (United States Department of Agriculture (USDA), Soil Survey, San Diego Area, California, December, 1973; SANDAG, County of San Diego Hydrology Manual Soil Hydrologic Group Map, 2007. California Geologic Survey (CGS), Preliminary Surface Geologic Materials Map, 2007.)

Since much of the construction within San Diego County is slab on grade construction, retaining water onsite through infiltration can even cause minor health and safety problems. Cured

concrete is still a porous material. If water is present in the soil, the slab can wick up water into the building (photos 4, 5 & 6). As buildings are well insulated and energy efficient, this water can lead to mold growth and damage anything placed on the slab (floor coverings, cabinets, furnishings). (Uniform Building Code, Title 24[6].) Water in a warm environment, without sufficient airflow exchange (because of better insulation, windows, etc.) provides the ideal conditions that lead to mold growth. This could create a major construction defect litigation problem for a builder or developer. Again, the geotechnical engineers and civil engineers have stressed the importance of moving water away from building as efficiently and quickly as possible for just this reason. (Building Code Requirements for Structural Concrete (ACI 318-08) and Commentary, American Concrete Institute [requires water barriers below slabs].) While ACI requires this, typically the entire footing doesn't receive a water barrier. Additionally, during construction the water barrier often may be punctured or moved and may not be as effective as called for in the ACI standard.

Photo 4- water migration through slab into cabinetry

[6] This section of the Uniform Building Code includes energy conservation measures, including requirements for better windows, improved weatherstripping, and additional insulation, which all lead to "tighter" and more energy efficient buildings. This is contrasted with older buildings, which "breathe" meaning that they have sufficient air flow to evaporate water wicking up through the slab before it becomes a problem. In newer buildings, water cannot evaporate and problem, such as mold, result.

Photo 5 – water migration through slab (mold under vinyl flooring)

Photo 6 – water migration through slab (white coating is efflorescence)

Retention and Re-use Requirements Raise Additional Concerns

Where onsite infiltration is not feasible, the next option is the capture and storage of stormwater for re-use. If a project will capture water in order to store it, a storage container must be constructed. Since an 85th percentile, 24 hour duration rain event can produce between ½" to ¾" of rainfall in a given area of San Diego (and up to 1-½" in mountainous areas, according to the 85th Percentile Precipitation Isopluvial Map of the San Diego County Hydrology Manual; see also http://www.projectcleanwater.org/html/wg_susmp.html), the amount of water to be stored could be considerable.

The Revised Draft Permit does not effectively address what happens with the retained water or how quickly it needs to be used, since the storage capacity would need to be utilized again for future rain events. Rain barrels are often mentioned as a solution, but care must be taken with regard to water breeding insects. Additionally, most commercially available rain barrels are made of plastic which degrades in the UV from sunlight. After a few years they become brittle and are prone to failure, putting water into the surrounding soils next to the building. Additionally, utilizing the optimum number of rain barrels is impractical, as it is too large to have a significant impact on water usage due to the erratic and clustered nature of the precipitation in San Diego County. According to a continuous simulation study prepared with hourly precipitation data of Lindbergh Airport in San Diego (the best precipitation data set in the County), the optimum rain barrel volume for retention purposes is about 12 – 50 gallon barrels for every 1,000 sq-ft of roof, using the theory of Diminishing Returns. (Parra, StormCon 2010.) Cisterns are another option mentioned as a potentially viable solution. Burying a tank in the ground may not be feasible for infill and redevelopment projects due to various Building Code issues.

Unintended Consequences

Both California AB 32 and SB 375 are landmark environmental laws addressing climate change and land use adaptation to reduce production of greenhouse gases. The intent of this legislation is to:

1. Use the regional transportation planning process to achieve reductions in greenhouse gas emissions consistent with AB 32's goals;
2. Offer California Environmental Quality Act incentives to encourage projects that are consistent with a regional plan that achieves greenhouse gas emission reductions; and
3. Coordinate the regional housing needs allocation process with the regional transportation process while maintaining local authority over land use decisions

The result is to encourage growth to occur inwards into the existing urban footprint. This is defined as "in-fill" development. An unintended consequence of the Revised Draft Permit is that its requirements actually make it more attractive and cost effective to build away from the existing urban footprint because of the land necessary to comply with the new requirements in the Revised Draft Permit. The 100% pollutant capture requirement and the removal of

hydromodification exemptions on infill development render these projects both technically and financially infeasible. (Refer to photograph 7.)

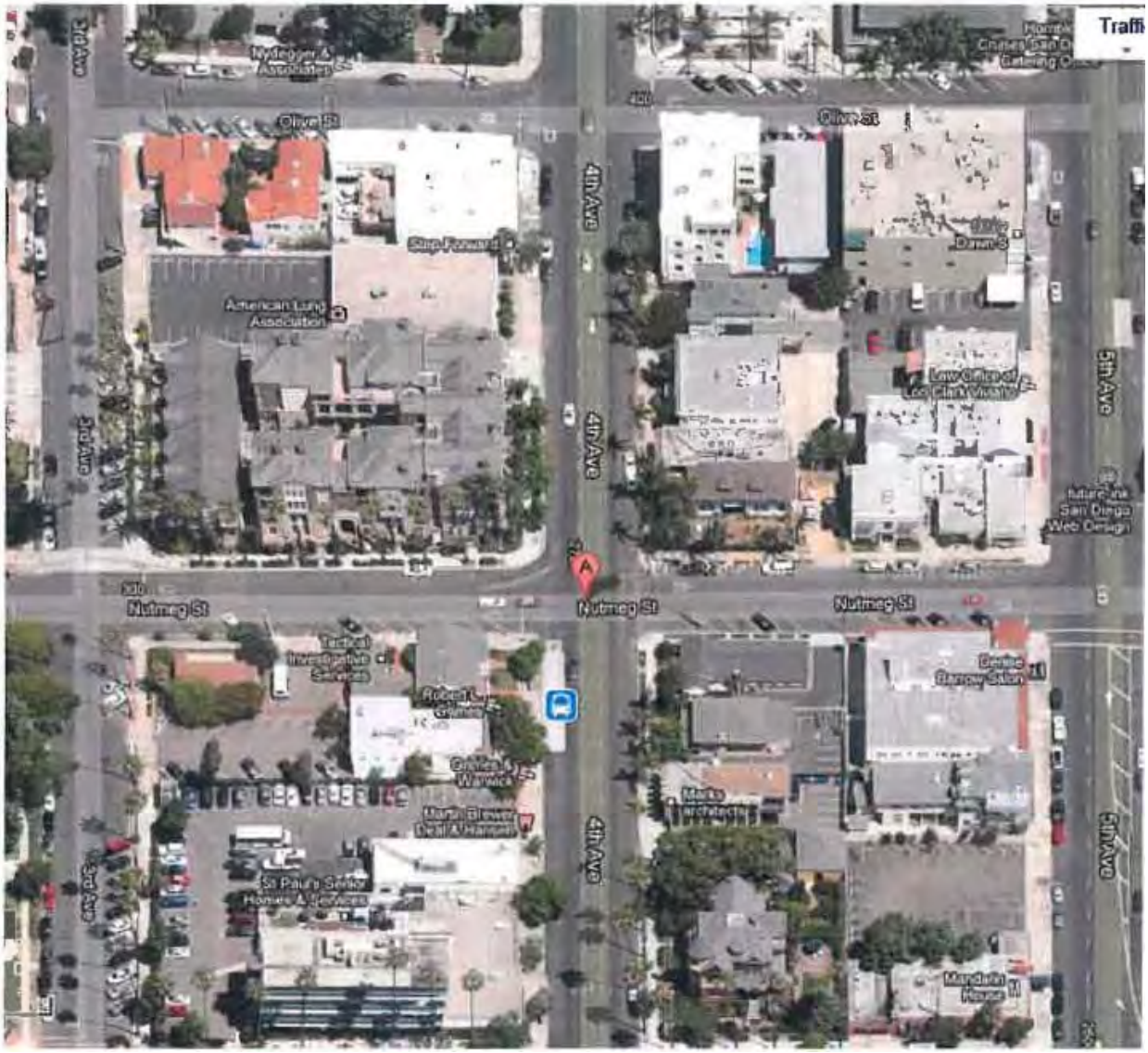


Photo 7 mid-rise condo project at the NW corner of 4th and Nutmeg, San Diego

Photo 7 shows a smart growth project on the northwest corner of 4th & Nutmeg in San Diego's highly urbanized Banker's Hill neighborhood: transit friendly (transit oriented development, TOD); walkable neighborhood; near parks, shopping and recreation (2 blocks from Balboa Park); near San Diego's airport; near Downtown/Hillcrest/Mission Valley work environments; and within the Smart Car (car 2 go) user footprint. Under the Revised Draft Permit, this project would become infeasible because of the 100% pollutant capture (infiltration/reuse) requirement and the loss of the hydromodification exemption previously included in the HMP.

The soil type at this location will not allow for infiltration. Additionally, to achieve the requisite density there is not enough land available to allow for supersizing of BMPs. There is no place to put a retention tank except under the building's parking structure. It may be infeasible to place a

tank under a building for a number of reasons: the difficulty or repairing a tank located below a building; the cost to integrate the tank into the building's foundation; if the tank were to leak, the entire building is subject to settlement issues, or failure, based on the water leaking into the surrounding soils; the added cost to operate and maintain the tank in perpetuity.

Photo 8 (street level) shows the building and that parking is located underneath the building. This is "podium" type construction and next to high-rise development, the most expensive type of construction for "smart growth" infill development. Complying with the Revised Draft Permit means this type of project becomes infeasible, both technically and financially. The Revised Draft Permit is silent on this issue and has not addressed this concern. The current language, whether intended or not, seems to eliminate this type of development project which is mandated and encouraged under SB 375.

Photo 8 – Street view: 4th and Nutmeg, San Diego (notice living units at ground level)

Whether or not water is infiltrated or stored onsite for reuse, the Revised Draft Permit includes no consideration of the fate of the pollutants existent in that water. In a storage tank or cistern, like a septic tank, gravity will cause most of the pollutants to fall to the bottom of the tank where they will remain and build up. Over time, the tank would gather year's worth of pollutants. If the tank owner is drawing the water for re-use, the water typically in any tank is drawn from the bottom, so the pollutants could be redistributed onsite. This raises questions of whether compliance with the Revised Draft Permit requirements would cause a health and safety concern to the person re-using the water, how often such a tank or cistern be emptied for cleaning, whether the mass of pollutants at the bottom of the tank would be considered a regulated waste,

and how and where a property owner could dispose of such a waste. An infiltration trench or basin would have the same pollutant disposal issues. The media (soil, sand gravel, etc.) in the trench or basin would need to be excavated and disposed of.

Another major concern with the new permit standard (infiltration or retention) is that it will deprive watersheds of the water that feeds riparian ecosystems. As the Revised Draft Permit offers creek and stream restoration or rehabilitation as an alternative compliance option to onsite hydromodification management, this raises the question of how can one restore those watercourses without the water that supplies them. (33 U.S.C. §1251(a) [the Clean Water Act was enacted "to restore and maintain the chemical, physical, and biological integrity of Nation's waters"].)

The Revised Draft Permit Includes no Support for the Ability to Comply with its Requirements

As described above, the phrase "retain onsite 100% of the pollutants" was recently added to the water quality management performance standard contained in the Revised Draft Permit (San Diego Regional MS4 permit Section E.3.c.(1)(a)). Unless a Priority Development Project can infiltrate the entire design capture volume, or reliably use the runoff collected in a harvest and use cistern system, retention of 100% of pollutants is impossible, and this is especially true for several pollutants of concern including bacteria or nutrients such as nitrogen or phosphorus.

The Revised Draft Permit offers no technical support for such a standard, including studies or data cited in the Fact Sheet, Response to Comments, or otherwise, that demonstrate 100% of pollutant can be prevented from being discharged from Priority Development Projects into the MS4 and into receiving waters. On the surface, such a requirement is conceptually feasible: no discharge equals no pollutants. However, the selection and application of retention type LID BMPs, principally soil infiltration systems and rainfall harvest and use systems, are subject to a myriad of technical infeasibility constraints, of which the RWQCB and others have identified (See for example, Orange County Model WQMP requirements and supporting Technical Guidance Document--TGD). In the absence of feasible application of infiltration or harvest and use, such a standard is unachievable. Rather, Regional Boards in California use water quality treatment design criteria that require project proponents to demonstrate that it cannot reliably retain 100% of the storm water quality design volume onsite before allowing the proponent to use biofiltration or biotreatment type LID BMPs. Only until the feasibility of these systems is exhausted may the proponent be allowed to use other types of management practices.

In the discussion in the Staff Report regarding justification for using the runoff created by the 24-hr 85th percentile rainfall event as the basis for a project's design capture volume, the RWQCB cites a Southern California Coastal Water Research Project ("SCCWRP") report prepared in 2007. This report includes findings that show the majority of pollutants from urban locations in the Los Angeles area of southern California arrive in receiving waters during the "early" part of storm events, and that the "highest constituent loading was observed early in the storm season, with inter-annual variability driven more by antecedent dry period that amount of rainfall."

The SCCWRP 2007 report also found that the "first flush" effect at land use sites was a function of watershed size. In other words, the smaller the watershed, the more pronounced the first flush

effect. Therefore, the author's note that "capturing constituent loads should focus on more than just the initial portion of the storm at moderate to large catchments". This statement, therefore, supports using the entire suite of LID type BMPs to manage urban runoff, including biofiltration systems, and supports using a secondary metric of sizing LID BMPs for retaining and treating 80% of the annual runoff volume in addition to capturing and treating individual rainfall events. In no case or instance cited in the SCCWRP 2007 report is there a recommendation or finding that supports a retention standard that achieves 100% pollutant containment. The aforementioned Orange County Model WQMP and TGD describe the LID BMP selection process and sizing criteria in detail (using both the 24-hr 85th percentile design storm and 80% annual runoff volume as sizing metrics), and provide several case study examples for support.

Such a restrictive and narrow definition of allowable LID BMPs is inconsistent with U.S. EPA guidance which promotes biofiltration and biotreatment as part of LID. Of five U.S. EPA sources regarding LID, four included biotreatment-type terms, such as detention (i.e., slow down, treat, then release), filtration, and surface release of storm water. In a compilation of case studies by U.S. EPA, most of 17 exemplary projects included biotreatment elements, such as bioretention, swales, wetlands, and green roofs. *See* U.S. EPA 841-F-07-006, discussed in a 2009 submittal from Mr. Eric Strecker, Geosyntec Consultants for the Construction Industry Coalition on Water Quality. In Mr. Strecker's analysis, each of two case studies described in another EPA document, s*ee* EPA 841-B-00-005, included the use of under-drains, and one of them specifically fed into the main storm drain system. A U.S. EPA document updated in January 2009 references additional resources, one of which refers to the many practices used to adhere to LID principles of promoting a watershed's hydrologic and ecological functions, such as bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements. *See* EPA-560-F-07-231. A fact sheet used in conjunction with that document describes under-drains used to release treated storm water off site, permitting planted areas to safely allow filtration of storm water.

The State Water Resources Control Board (SWRCB) identifies LID as a sustainable practice that benefits water supply and contributes to water quality protection, stating that, "The goal of LID is to mimic a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to the source of rainfall" (emphasis added). SWRCB also states that, "LID practices include; bioretention facilities or rain gardens, grass swales and channels, vegetated rooftops, rain barrels, cisterns, vegetated filter strips, and permeable pavements" (emphasis added). As can be seen, SWRCB defines LID as including filtration, detention, and bioretention, and other practices, each of which produce runoff and would not be part of the LID standard under the tentative order and instead moves a project into "Alternative Compliance". In addition, SWRCB characterizes mimicking pre-development hydrology as a "goal," not an enforceable standard. *Found at*: http://www.waterboards.ca.gov/water_issues/programs/low_impact_development/.

The language in the current tentative Order, while clearly specifying a volume capture approach to sizing LID BMPs, introduces an incorrect definition of LID through restrictive application of BMPs to only those that infiltrate, harvest and use rainwater, and/or evapotranspire all of the captured water. In other words, permit language now requires that projects would be limited to zero discharge of a design storm volume with no runoff whatsoever allowed.

The US EPA defines LID as follows:

> *A comprehensive stormwater management and site-design technique. Within the LID framework, the goal of any construction project is* ***to design a hydrologically functional site that mimics predevelopment conditions.*** *This is achieved by using design techniques that infiltrate,* **filter***, evaporate, and store runoff close to its source.* (emphasis added)

http://cfpub1.epa.gov/npdes/greeninfrastructure/information.cfm#glossary .

Mandating the complete onsite retention of any sizable storm volume (i.e. runoff that never leaves as surface flows) is not a reasonable approach and the tentative Order attempts in places to redefine the allowable site design elements necessary to implement this concept. The tentative Order may implement LID in a way that is contrary to the EPA definition of LID by restricting BMPs to those that only achieve zero discharge—not allowing any BMPs that appropriately "filter" runoff, such as bioretention cells or other vegetated LID BMPs. Total, 100-percent retention remains impractical and unwise in most circumstances, and is not a goal that can be achieved for most projects within reasonable costs, despite best efforts. Moreover, such a mandate abandons the goal to mimic predevelopment conditions to the extent practicable, as EPA encourages.

The retention BMPs of infiltration, harvesting, and evapotranspiration ("ET") may be described as a first tier of LID BMPs, but they should not be universally mandated to the exclusion of all other options. As the EPA definition of LID indicates, biofiltration, bioretention, filter strips, and other BMPs based on using vegetation to promote stormwater treatment via filtration are fundamental to LID implementation. These BMPs may be specified as second tier options (although they best mimic pre-development conditions), but project proponents should have considerable discretion to use these BMPs, and should not be required to apply for a feasibility exception to do so.

The use of conventional BMPs (structural treatment installations) as the principal approach for stormwater management should be a last resort, available only when objective infeasibility criteria are satisfied, and when off-site opportunities are not readily available. When LID BMPs are infeasible, and nearby off-site options are not available, the use of conventional BMPs that have been demonstrated to be effective on the pollutants of concern should be a compliance option.

IV. Sediment Transport Requirements

The Revised Draft Permit's Requirements

The Revised Draft Permit requires Priority Development Projects to avoid known critical sediment yield areas or implement measures that allow coarse sediment to be discharged to receiving waters, such that the sediment supply is unaffected by the project. (Revised Draft Permit, Provision E.3.c.(2)(b).) The Revised Draft Permit does not define "coarse sediment"[7] as

[7] According to the technical literature, the beginning of sediment motion is not defined by the term "coarse sediment" but by more specific terms such as (1) Nearly Uniform Cohesionless

it is used in this section. The Fact Sheet supporting the Revised Draft Permit states that the requirement is necessary because coarse sediment supply is as much an issue for causing erosive conditions to receiving streams as are accelerated flows.[8] (Fact Sheet, page F-100.)

All development involves some loss of sediment. The Revised Draft Permit requires that "critical sediment yield areas" will be identified by studying the watersheds (through the Watershed Management Area Analyses[9]). These analyses would then be incorporated into the Water Quality Improvement Plans for each watershed. Thus, a new category of "Environmentally Sensitive Areas" will be identified and protected. This would be incompatible with development on that property. To understand why introducing a new category of sensitive area into the development planning process is such a concern requires an explanation of hydromodification basics and impacts on receiving waters.

Hydromodification Basics regarding Sediment Transport

Hydromodification is primarily understood within the context of impacts, potential or realized; that is, the effects of changes within a watershed on downstream fluvial systems (i.e., canyons, creeks, streams, rivers, lakes, lagoons, etc.). A change, or a number of changes, can cause or contribute to an imbalance within a fluvial system that has been in a state of dynamic equilibrium (relative stability within a range of erosivity/degradation and sedimentation/aggradation). Related secondary impacts (secondary as a consequence, not necessarily in importance) include habitat degradation, slope failures, infrastructure failures, and increased flooding risks, among others. (ADWR, 1996, 1998; USACOE, 1994).

The most common example of hydromodification is the covering of land with impervious surfaces, which deprives the waterways of naturally occurring sediment yield, while increasing runoff volumes, durations and peaks in those same waterways. Another example is the presence of a flood control dam upstream, which tends to trap sediment but also reduces damaging peak flows and volumes. (Aspen Environmental, 2006.) For the purposes of this paper, hydromodification will be understood as a direct consequence of urbanization, the covering over of land with impervious surfaces.

Sediment (Shields, 1936; Maidment, 1992), (2) Incipient Motion on Ripple and Dune Beds (Chabery et al, 1963; Mantz, 1977) ; Mixture of Nonuniform Cohesionless Sediment Sizes (Egiazoroff, Little and Meyer, Hayashi et al, among many others), and Cohesive Sediment (Mehta, (3 studies, 1986, 1989 and 1989)).

[8] This statement oversimplifies a complex issue, as in some watersheds, fine sands, dunes and ripples, and cohesive sediments can be an important geomorphic factor. (*See* Lane and Carson; Shen and Liu; Task Committee; previous studies).

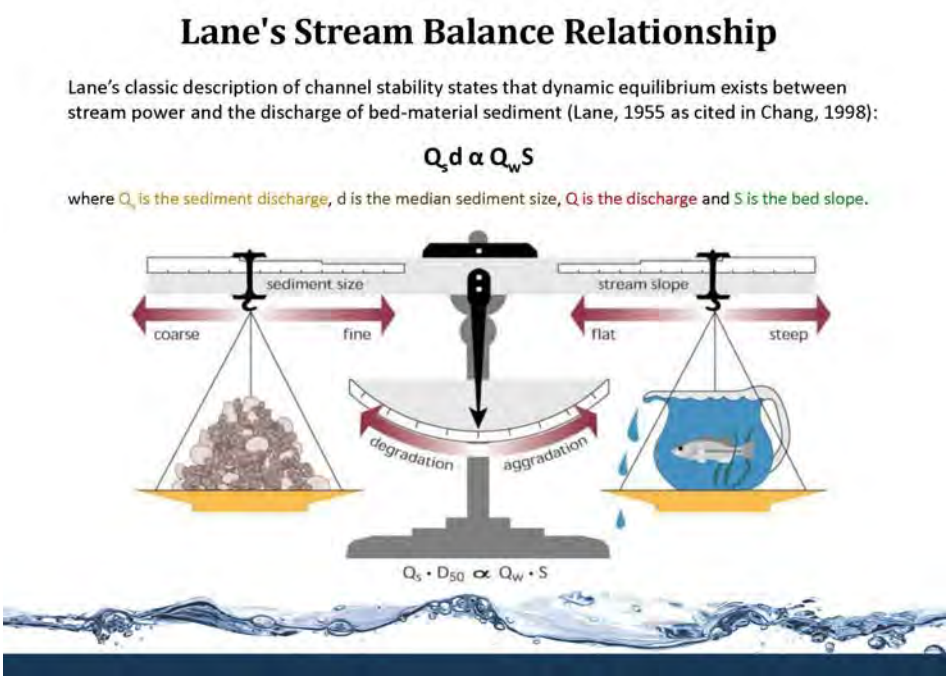
[9] The Revised Draft Permit is silent as to the method to determine such critical yield areas, which could conceivably be established based upon the USLE equation (Wischmeier et al, 1971), by sediment-delivery ratio equations (Roehl, 1962), by sediment yield empirical formulas based on real measurements (Dendy and Bolton, 1976), or by more complex mathematical formulations (Ponce, 1989).

Understanding Fluvial Processes

Lane's Stream Balance Relationship states that dynamic equilibrium exists between stream power and the discharge of bed material sediment. (Lane, 1947.) It is usually stated as:

$$Q_s * D_{50} \alpha Q_w * S$$

Where Q_s is the sediment discharge, D_{50} is the sediment size, Q_w is the (water) discharge, and S is the bed slope. This proportional relationship is often graphically illustrated with a balance, as shown below, and it is not intended to be used as an equation. Some attempts to convert this relationship into an equation have been carried out. (Ponce, 1999.) The Lane relationship shows that where adjustments or modifications occur in the watershed or in the channel (in terms of Q_w, for example), another adjustment will begin to occur to preserve the equilibrium (in terms of S or Qs, for example).



Three Local Examples

Hydromodification impacts vary, sometimes by orders of magnitude. (Hastings, 2005; Hecht, 2000.) The following three examples of fluvial systems within our region illustrate this well. Each is different, and each only represents one reach of the creek. As one travels upstream or downstream each of these creeks, impacts will vary widely.

<u>Oso Creek</u>

The photo below shows a portion of Oso Creek, approximately 1 kilometer (0.7 miles) downstream of a hardened channel. The severe degradation evident in this photo has occurred

within the past 20 years, due to development of a master planned community upstream. The composition of the bed and banks is primarily loose alluvium, so erosion has not been halted. The sediment from this reach is deposited in downstream reaches and has resulted in slope failures, biological degradation and flooding impacts downstream.

Oso Creek, approximately 1 kilometer (0.7 miles) downstream of a hardened channel

Escondido Creek

By contrast, the photo below indicates a creek in dynamic equilibrium 0.7 kilometers downstream of a hardened channel. The City of Escondido, incorporated in 1888, has certainly experienced its share of development, with most of the city draining to this natural channel for more than 100 years. This photo is typical of Escondido Creek for the remaining 23 kilometers (14 miles) to the ocean. That is not to say this creek is not subject to any degradation, only that over the decades the creek has mostly adjusted to a new state of dynamic equilibrium.

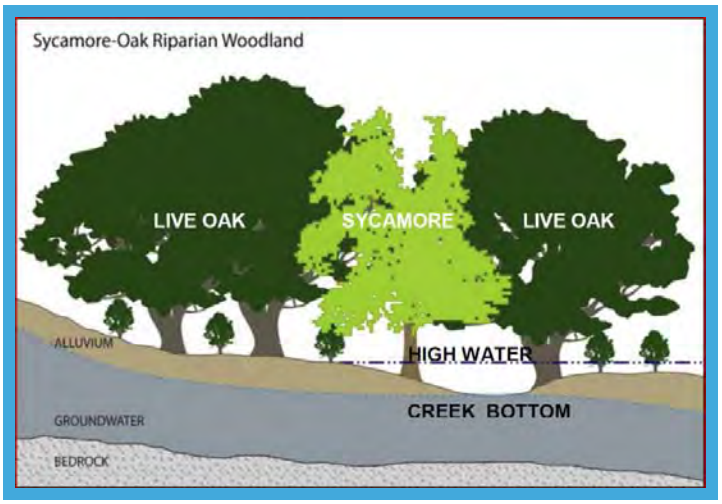
Escondido Creek in dynamic equilibrium 0.7 kilometers downstream of a hardened channel

Agua Hedionda Creek

The Agua Hedionda Creek watershed is in portions of several north San Diego jurisdictions. A 2008 Watershed Management Plan (TetraTech, 2008) identified a reach of the creek as a high priority project; Tory R. Walker Engineering, Inc. assembled a multi-disciplined team, which prepared a Preliminary Design Report for the rehabilitation of that reach. (Tory R. Walker Engineering, 2010.) The photo below illustrates the typical impacts of hydromodification within the reach, where an established Oak woodland is threatened.

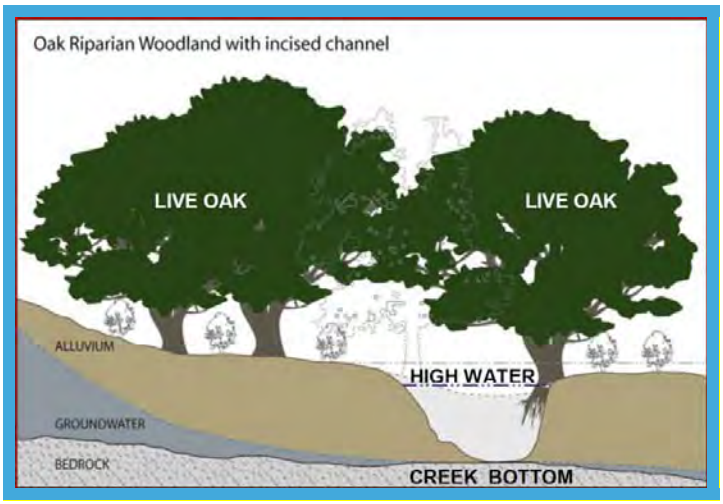
Agua Hedionda Creek in Buena Vista Park near Melrose Avenue

The figures below illustrate the effects of hydromodification over time on hypothetical stream systems. (TRWE, 2010.)



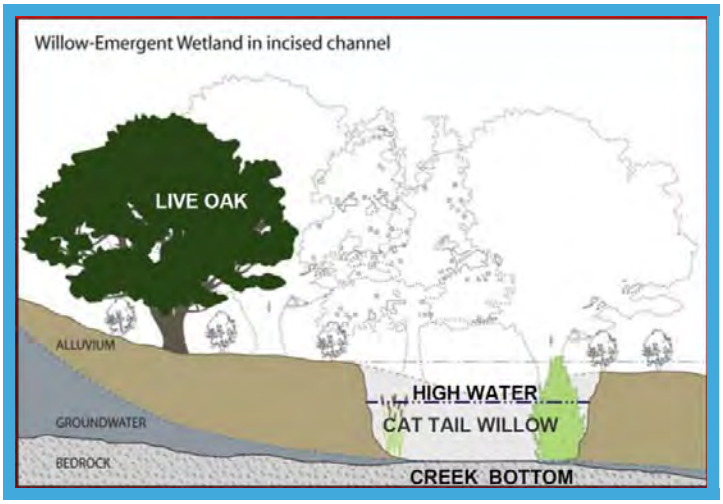
Stable System (circa 1900)

- High Groundwater Recharge
- Equilibrium Sediment Transport
- High Floodplain Function
- Low Discharge Velocities
- Dynamic and Broad Riparian Zone
- Diverse Riparian Habitat
- Sustainable Vegetation Mosaic
- Cool Seasonal Aquatic System



Early Incised System (Present)

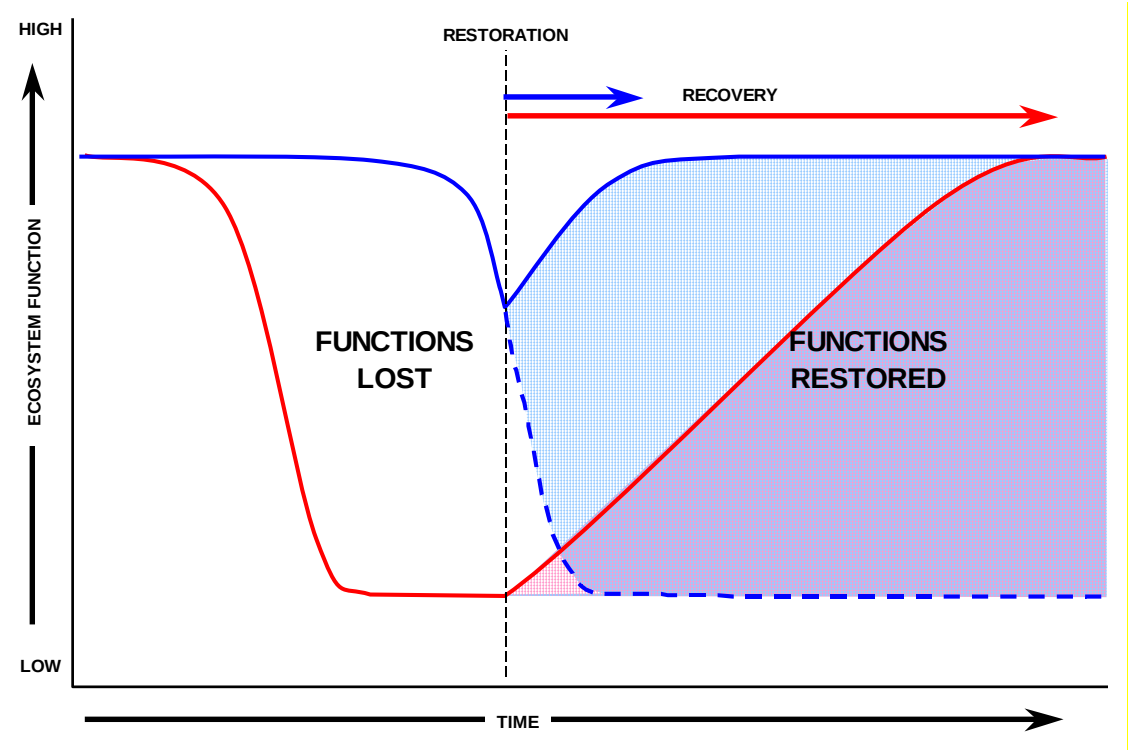
- Depressed Groundwater Table
- High Groundwater Export
- Low Groundwater Recharge
- High Channel Bank Erosion
- Confined Low Floodplain Function
- High Discharge Velocities
- Diminishing Riparian Zone Width
- Low Diversity Riparian Habitat
- Poor Riparian Plant Recruitment
- Cool Seasonal/Perennial Aquatic System



Mature Incised System (circa 2040)

- Groundwater Conditions Same as Now
- High Channel Bank Erosion
- Confined Low Floodplain Function
- High Discharge Velocities
- Diminishing Riparian Zone Width
- Low Diversity, Narrow Riparian Habitat
- High Scour Plant Loss
- Opportunistic Exotic Plant Recruitment
- Warm Seasonal/Perennial Aquatic System

Restoration of ecosystem functions that have been lost due to hydromodification may be accomplished through different mechanisms. The figure below illustrates two paths to the restoration of ecosystem functions over time – with and without human intervention to restore the lost functions. The shorter length of the "blue path" demonstrates the value of restoration/rehabilitation in a creek, whereas the length of the "red path" shows how a much longer period of time is needed for recovery of ecosystem functions when no human restorative action is taken. In the case of Agua Hedionda Creek, those ecosystem functions would be different.



Effects of Ecosystem Trajectory on Restoration Values (TRWE, 2010.)

Stabilization

Stabilization of fluvial systems has generally been considered the typical "fix" to hydromodification. (USACOE, 1994.) Stabilization can be understood very broadly to include everything from concrete lining and piping underground to streambed or bank stabilization utilizing bioengineering techniques exclusively. Between these two "ends of the spectrum" are quite a number of techniques and types of materials, used in combination or separately, to "stabilize" these dynamic systems. Common techniques include grading of new "stable" channels, creating "benches" beside channels (thus increasing flood capacity and stability), constructing drop structures to flatten the longitudinal slopes, or meandering the stream channel to lengthen it. In addition to concrete lining, materials have typically included rock riprap, natural stone, concrete block systems, turf reinforcement mats, vegetation, imported sediment and/or cobbles of a certain gradation, gabion baskets, logs, and root wads. (NRCS, 2002; WSAHGP, 2003.)

Restoration and Rehabilitation

"Restoration" usually refers to attempts to restore a system back to a previous condition, while "rehabilitation" usually refers to attempts to improve a system while accounting for mostly irreversible changes (like a hydromodified watershed). This should not be understood as "giving up" on all efforts to lessen impacts within a watershed; rather, it should be understood within the context of the graph above. Time marches on, as the saying goes, so intervention requires an understanding of where a fluvial system is currently, along with an understanding of the current and future conditions of the watershed. For this reason, most work within fluvial systems is no longer described as "restoration," but rather "rehabilitation."

Onsite Approach Presented in Draft Permit

Attempts to address sediment balance through a directive within a permit will almost always fail; the complexity of the issue defies such an approach. The desire to compensate for the loss of course sediment due to development (even LID), or to avoid sediment yield areas altogether (both of which have been put forth in revisions of the Revised Draft Permit) shows a misunderstanding and a wrong focus on the issue by attempting to address it at the source. The currently proposed language in Section E.3.c.(2)(b) introduces a further complication, in that its implementation must necessarily prohibit the use of land for any compatible use other than allowing erosion to occur so that the downstream system has a supply of coarse sediment. This then becomes a land use decision.

Natural areas have produced sediment as part of a natural cycle of random precipitation events, vegetative cover and burns for millennia. Urbanization introduces a sudden and sometimes dramatic change to an equilibrium that has existed for a very long time (as in Oso Creek). In almost all cases throughout the San Diego Region, the effects of urbanization have already done most of the "work" on the downstream systems, so an onsite approach to the problem is much like closing the barn door after the horse has escaped. With that consideration, attempting to identify critical sediment yield areas within most of the watersheds will be an exercise in futility, as such areas would not typically be able to provide even a fraction of the amount of course sediment required to balance sediment through downstream reaches.

Another unintended consequence of the Revised Draft Permit Provision E.3.c.(2)(b) is that it will create a new land use restriction. The way this will likely proceed is that "critical sediment yield areas" will be identified by studying the watersheds (through the Watershed Management Area Analyses). Specifically, Copermittees will be required to prepare sediment yield studies of watersheds based on watershed-wide models and criteria that will approximately identify these critical sediment yield areas. These analyses would then be incorporated into the Water Quality Improvement Plans for each watershed. Thus, a new category of "Environmentally Sensitive Areas" will be identified and protected. After all, there is no other compatible use of such property, not even roads, so such property will become open space.

Sediment Balance Summary

In summary, sediment balance is very complicated and requires careful study of each watershed and fluvial system to understand how best to approach the issue. Fluvial systems, to transport the same amount of incoming sediment to downstream reaches, and eventually to the ocean, must often be modified. Many such systems are already modified, either as part of a natural process (degradation) or as the result of man-made modification. Attempts to address sediment balance through a directive within a permit will almost always fail; the complexity of the issue defies such an approach. The desire to compensate for the loss of coarse sediment due to development (even LID), or to avoid sediment yield areas altogether (both of which have been put forth in revisions of the Revised Draft Permit) shows a misunderstanding and a wrong focus on the issue by attempting to address it at the source. The currently proposed language in Section E.3.c.(2)(b) of the Revised Draft Permit introduces a further complication, in that its implementation must necessarily prohibit the use of land for any compatible use other than allowing erosion to occur so that the downstream system has a supply of coarse sediment. This

then becomes a land use decision. The best focus for this issue remains the water bodies themselves on a watershed by watershed and reach by reach basis.

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Via Email: Laurie.Walsh@waterboards.ca.gov

RE: Comment - Tentative Order No. R9-2015-0001, Place ID: 658018LWalsh

Dear Ms. Walsh:

The Construction Industry Coalition on Water Quality (CICWQ) is submitting comments concerning Tentative Order No. R9-2015-0001 (National Pollutant Discharge Elimination System (NPDES) Permit for Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region). We are submitting this letter on behalf of the CICWQ membership, which is described below.

CICWQ is an advocacy, education, and research 501(c)(6) non-profit group of trade associations representing builders and trade contractors, home builders, labor unions, landowners, and project developers. CICWQ membership is comprised of members of four construction and building industry trade associations in southern California: The Associated General Contractors of California, Building Industry Association of Southern California, Engineering Contractors Association, and Southern California Contractors Association, as well as the United Contractors located in San Ramon in northern California. Collectively, members of these associations build a significant portion of the transportation, public and private infrastructure, and commercial and residential land development projects in California.

We present two main points for Regional Board consideration:

I. The Regional Board is requiring increasingly stringent on-site stormwater retention requirements without evidence the existing, 2010 South Orange County MS4 permit water quality requirements are not working to protect water quality and maintain beneficial uses.

With the release of the Draft Regional Permit to incorporate watersheds in South Orange County within the San Diego Regional Water Quality Control Board (Regional Board) jurisdiction, the Regional Board is proposing to enact the most stringent on-site requirements for stormwater runoff anywhere in California. Despite the demonstrable improvements in water quality runoff noted by the Orange County permittees in their

Report of Waste Discharge, and their presentations to the Regional Board in 2014 during stakeholder and Board workshops, Regional Board staff continue to require additional and less flexible on-site prescriptive performance measures for retaining stormwater runoff.

The program changes proposed in the Draft Regional Permit are being made without presenting any factual evidence that the existing low impact development water quality performance standards are not working, which the County of Orange has required since the requirements became effective in 2012. We believe that because the current South Orange County Permit requirements are working well to protect water quality, presenting any evidence to the contrary is not actually possible. We note no Findings in the Draft Regional Permit that would suggest a need for any changes to program implementation and management.

II. The Regional Board is eliminating exemptions for hydromodification control, even when stormwater runoff is conveyed in the MS4 system to significantly hardened or engineered channels.

CICWQ and its membership believe that the regulations are tending, at some point, to require hydromodification control for all priority development projects regardless of receiving water susceptibility to hydromodification effects. This regulatory direction is undoubtedly driven by environmental NGO advocacy for removal of all concrete lined channels and receiving waters and complete restoration of all significantly or completely lined channels to "natural" conditions, regardless of the existing land uses and feasibility. This effort ignores the vital role flood control facilities play in urban infrastructure and the protection of life and property, and it ignores the significant public investment in these systems. Loss of hardened channel exemptions will result undoubtedly in increased costs for new and redevelopment of most public and private properties within the Regional Board's jurisdiction, and require project proponents to engage in a potentially costly and cumbersome bureaucratic process to "mitigate" for the effects (even the lack of) of hydromodification with no environmental benefit.

According to the Regional Board, hydromodification control requirements are being required to maintain geomorphic stability in receiving waters in southern California. However, it is clear that the alignment, grade and cross section of many urban streams has been irrevocably altered. A regulatory requirement to return flows to pre-development conditions will not allow stream restoration to occur. For urban areas, the Permit should support projects that enhance the functions and values of the receiving water within the constraints of the urban environment. Removing exemptions without consideration, or requiring extensive additional study to support exemptions that have been granted for years, appears to be a poor policy decision and one that is not supported technically.

Specifically, nowhere in the Draft Regional Permit is the lack of clear evidence for program changes more evident than the requirements for installing hydromodification controls at priority development sites in Provision E.3.c.(2). In particular, we note the

Regional Board is on a path to remove long-standing exemptions from hydromodification control requirements for certain projects whose discharge is conveyed to receiving waters via significantly or completely hardened and engineered channels. In the Draft Regional MS4 Permit for South Orange County, the Regional Board has provided "interim" exemptions that, while welcome in the interim, should be granted outright and without any additional study or consideration. Nor should additional updates or study be required on the part of the co-permittees to support granting exemptions, as required in the BMP Design Manual update referenced in Provision E.3.c.(2)(e). We would expect that at a minimum, these same conditions are afforded to the Riverside County permittees when their MS4 permit is considered for renewal by the Regional Board in 2015.

And, as we commented on during the adoption process for the San Diego County Regional MS4 permit in 2012 and 2013, new hydromodification control requirements that require a priority project to "avoid critical sediment yield areas" are unnecessarily restrictive, and do not reflect the dynamic and variable nature of the sediment supply that is delivered to stream systems in southern California. Our membership reports several instances where priority development projects are being significantly delayed or stopped all together, because of the inability to comply with the requirement to avoid critical sediment yield areas. The most prevalent reason given is lack of engineering tools and techniques to comply with such a sweeping provision.

In summary, we have commented to the Regional Board about hydromodification control requirements in MS4 permits within its jurisdiction in a number of instances in the recent past, and many of our concerns and comments remain relevant in the current proceedings. While we note many of our suggestions have been ignored or discounted, we incorporate nonetheless those comments by reference here and cite specifically:

1) Administrative Draft Regional Municipal Separate Storm Sewer System (Tentative Order No. R9-2012-0011); submitted September 14, 2012. See Item No. 3, page 6.

2) Comment Letter– Tentative Order No.R9-2013-0001, Regional MS4 Permit, Place ID: 786088Wchiu; submitted January 13, 2013; See Items 3 and 4, pages 4-6.

3) San Diego Regional Water Quality Control Board's Draft MS4 Permit: A case study; submitted May, 2013. See pages 3-8.

These documents are included as attachments to this comment letter.

CICWQ's membership is in the forefront of water quality regulation, providing to water quality regulators practical ideas and solutions that are implementable and that have as their goal clean water outcomes. If you have any questions or want to discuss the content of our comment letter, please feel free to contact me at (951) 781-7310, ext. 210, (909) 525-0623, cell phone, or mgrey@biasc.org.

Construction Industry Coalition on Water Quality (CICWQ)
2149 E. Garvey Avenue N., Suite A-11, West Covina, CA 91791. Phone: (626) 858-4611 Fax: (626) 858-4610
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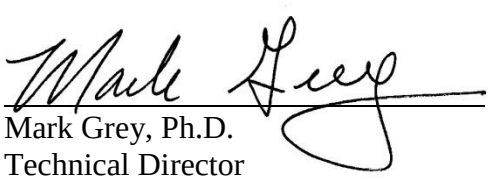
Respectfully submitted,



Mark Grey, Ph.D.
Technical Director
Construction Industry Coalition on Water Quality

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November 19, 2014

David Gibson
Executive Officer
C/O Laurie Walsh
Water Resources Control Engineer
California Regional Water Quality Control Board, San Diego Region
2375 Northside Drive, Suite 100
San Diego, CA 92108-2700

Re: Comment – Tentative Order No. R9-2015-0001, Place ID: 658018LWalsh

Dear Mr. Gibson:

Best Best & Krieger LLP serves as City Attorney for the City of Aliso Viejo ("City"). The City has reviewed the comments submitted by the County of Orange on San Diego Regional Water Quality Control Board Tentative Order No. R9-2015-0001 ("Draft Permit"). The City supports the County's comments and has requested that the City be listed as a "concurring entity" on the County's comment letter. Please consider the City's support for the County's comments when considering revisions to the Draft Permit.

If you have any questions on the City's position on the Draft Permit please do not hesitate to contact me, or Mr. Moy Yahya, the stormwater program director for the City.

Sincerely,

J. G. Andre Monette
of BEST BEST & KRIEGER LLP

cc: Moy Yahya, City of Aliso Viejo

City of Del Mar

November 19, 2014

Ms. Laurie Walsh
California Regional Water Quality Control Board, San Diego Region
2375 Northside Drive, Suite 100
San Diego, California 92108

SUBJECT: Comment – Tentative Order No. R9-2015-0001, Place ID:658010LWalsh

Dear Ms. Walsh:

The City of Del Mar (City) appreciates the process and effort the Regional Water Quality Control Board staff has made to facilitate stakeholder participation in the development of the Tentative Order. The City is providing specific comments to ensure Attachment E accurately reflects the Basin Plan Amendment to incorporate the Total Maximum Daily Load (TMDL) for Sedimentation in Los Peñasquitos Lagoon (Resolution No. R9-2012-0033).

The City participated in the three-year collaborative third party effort to develop the TMDL for Sediment in Los Peñasquitos Lagoon. At the request of the Regional Board, the City of San Diego led and funded the effort, with input from other Responsible Parties, and guidance from the Regional Board, US Environmental Protection Agency, and other stakeholders. The Responsible Parties (City of San Diego, County of San Diego, City of Poway, Caltrans, and the City of Del Mar) dedicated staff time to the development of the TMDL by preparing and reviewing documents and attending frequent meetings. The City of Del Mar generally supported the adoption of the Basin Plan Amendment and would like to ensure the language remains consistent.

Attachment E – 7. Total Maximum Daily Loads for Sediment in Los Peñasquitos Lagoon
The City requests the following revisions to make the language in Attachment E consistent with the language in the Basin Plan Amendment to incorporate the TMDL for Sedimentation in the Los Peñasquitos Lagoon and consistent with other TMDLs incorporated into the MS4 Permit Attachment E. The strikethrough text represents recommended deletions and the underlined bolded text represents recommended additions.

The City requests the following language, similar to adopted Resolution No. R9-2012-0033 page 3, be added to Attachment E on page E-53 section 7.b.(2)(a). Final Water Quality Based Effluent Limitations:

(a) Final Receiving Water Limitations

Discharges from the MS4s must not prohibit the sustainable restoration of **80 percent of the 1973 acreage of the lagoon (tidal and non-tidal)** saltmarsh **habitat** ~~vegetation of at least~~ (346 acres**) OR**

(b) Demonstrate that implementation actions are active on and/or affecting 346 acres with continued monitoring to ensure 80 percent target achievement.

The City also requests the following language, similar to adopted Resolution No. R9-2012-0033 page 3 and other TMDLs included in Attachment E, be added to Attachment E on page E-54 section 7.b.(3):

(a) Successful restoration of **80 percent of the 1973 acreage of lagoon (tidal and non-tidal) salt marsh habitat (346 acres)** ~~346 total acres of tidal and non-tidal saltmarsh vegetation in Los Peñasquitos Lagoon;~~ OR

(b) Demonstrate that implementation actions are active on and/or affecting 346 acres with continued monitoring to ensure 80 percent target achievement; OR

(c) There is no direct or indirect discharge from the Responsible Copermittee's MS4 to the receiving water; OR

(d) The final receiving water limitation under Specific Provision 7.b.(2)(a) is met.

The City also requests the following language for interim compliance options be included to be consistent with other TMDLs incorporated into the MS4 Permit in Attachment E on page E-55 Section 7.c. Interim TMDL Compliance Requirements:

(b) There is no direct or indirect discharge from the Responsible Copermittee's MS4 to the receiving water; OR

(c) The final receiving water limitation under Specific Provision 7.b.(2)(a) is met; OR

(d) ~~The Responsible Copermittees must comply with the interim WQBELs, expressed as annual loads, by December 31 of the interim compliance year set forth in Table 7.2.~~**There are no exceedances of the Copermittee portion of interim effluent limitations under Table 7.2 at the Responsible Copermittee's MS4 outfalls; OR**

(e) The Responsible Copermittee has submitted and is fully implementing a Water Quality Improvement Plan, accepted by the Regional Board, which provides reasonable assurance that the Copermittee portion of interim TMDL compliance requirements will be achieved by the interim compliance date.

The City requests that the heading on column 2 of Table 7.2 in section 7.c on page E-55 be revised to accurately reflect the TMDL Basin Plan Amendment. It should be changed to "Interim Effluent Limitations (tons/~~year~~ **wet season)**

The City also requests the addition of a footnote to Table 7.2 on page E-55 to acknowledge the sediment load contributions of other Responsible Parties listed in the TMDL Basin Plan Amendment:

Responsible Parties include the following: Phase I Municipal Separate Storm Sewer Systems (MS4s) Copermittees (the County of San Diego, City of San Diego, City of Del Mar, and the City of Poway), Phase II MS4 permittees, and general construction storm water NPDES permittees, and general industrial storm water NPDES permittees as presented in Resolution No. R9-2012-0033 Attachment A, page A-5.

The Assessment and Reporting Requirements on page E-56 Section 7.d(3)(c) needs to be revised to require monitoring to start the first full wet season after the WQIP is accepted by the Regional Board:

(c) For assessing and determining compliance with the final effluent limitations under Specific Provision 7.b.(2)(b), the Responsible Copermittees must use the data acquired under Specific Provision 7.d.(1) to estimate sediment loading into Los Peñasquitos Lagoon. Sediment loading must be evaluated using a 3-year, weighted rolling average. The first reported average shall be calculated using data collected in the **3** years ~~2014-15, 2015-2016, and 2016-2017 wet seasons~~**following Regional Board acceptance of the WQIP.**

The City looks forward to continuing our dialog with Regional Water Quality Control Board staff during the next phases of the permit reissuance process. If you have any questions, please contact me at (619) 994-7074.

Sincerely,

Mikhail Ogawa, P.E.
Clean Water Manager

c: Kathleen A. Garcia, Planning and Community Development Director
File

CITY OF LAKE FOREST

November 19, 2014

By email: laurie.walsh@waterboards.ca.gov

Mr. David Gibson
Executive Officer
C/O Laurie Walsh, P.E.
California Regional Water Quality Control Board, San Diego Region
2375 Northside Drive, Suite 100
San Diego, CA 92108-2700

Subject: Comments – Tentative Order No. R9-2015-0001, Place ID: 658018LWalsh

Dear Mr. Gibson:

The City of Lake Forest ("City") submits these comments on the San Diego Regional Water Quality Control Board's Tentative Order No. R9-2015-0001 ("Draft Permit").

As the Regional Board is aware, the City's municipal separate storm sewer system has been subject to regulation by the Santa Ana Regional Water Quality Control Board ("Santa Ana Regional Board") and by the San Diego Regional Water Quality Control Board ("San Diego Regional Board"). Pursuant to Water Code section 13228, the City requested regulation by a single board, the Santa Ana Water Board. The Draft Permit notes that the Santa Ana Water Board and the San Diego Water Board have entered into an agreement allowing the City's stormwater discharges to be subject to the municipal stormwater permit issued by the Santa Ana Board in lieu of regulation under the Draft Permit.

We would like to express our support and appreciation for the efforts of each Regional Board in reaching this agreement. Allowing the City to participate in watershed based programs in the San Diego Region while implementing the Santa Ana Regional Board's permit will reduce costs and administrative burdens currently imposed on the City. The City is grateful for both Boards' efforts in coming to this agreement and supports the proposed change.

In an effort to streamline and clarify regulation of the City by a single water board, the City requests minor revisions to the wording of the Draft Permit. Specifically, the City seeks to conform the Draft Permit language designating the Santa Ana Water Board as the City's regulatory authority with language used in previous permits making a similar designation. This request seeks four changes to the Draft Permit, as follows:

1. Remove "Lake Forest" from Table 1b.

Table 1b. Orange County Copermittees

City of Aliso Viejo	City of Rancho Santa Margarita
City of Dana Point	City of San Clemente
City of Laguna Beach	City of San Juan Capistrano
City of Laguna Hills	City of Laguna Woods
City of Laguna Niguel	County of Orange
~~City of Lake Forest1~~	Orange County Flood Control District
City of Mission Viejo	

2. Remove footnote 1 to Table 1b.

~~1 The MS4 discharges within the jurisdiction of the City of Lake Forest located in the San Diego Region will be regulated by the Santa Ana Water Board Order No. R8-2014-0002 (NPDES No. CAS618030) and any reissuance thereto subject to the terms of the agreement between San Diego Water Board and Santa Ana Water Board.~~

3. Revise footnote 2 to Table B-1 to read as follows:

~~The MS4 discharges within the jurisdiction of~~ The City of Lake Forest ~~located in the San Diego Region will be~~ is wholly regulated by the Santa Ana Water Board under Order No. R8-2014-0002 (NPDES No. CAS618030) ~~and any reissuance thereto.~~ or the most recent iteration thereof, including those portions of the City of Lake Forest within the San Diego Water Board's region. In accordance with the terms of the agreement between San Diego Water Board and Santa Ana Water Board, the City of Lake Forest must ~~also comply with~~ implement the requirements of the Bacteria TMDL in Attachment E of this Order, participate in preparation and implementation of the Water Quality Improvement Plan for the Aliso Creek Watershed Management Area as described in Provision B of this Order and continue implementation of its over-irrigation discharge prohibition in Title 15, Chapter 15, section 14.030, List (b).

4. Revise Finding 29 as follows:

Regional Water Board Designation. The Cities of Laguna Hills, Laguna Woods, and Lake Forest are located partially within the jurisdictions of the California Regional Water Quality Control Board, Santa Ana Region (Santa Ana Water Board) and the San Diego Water Board and their ~~dischargers~~ discharges are subject to regulation by both Regional Water Boards. Pursuant to CWC section 13228, the Cities of Laguna Hills, Laguna Woods, and Lake Forest submitted written requests that one Regional Water Board be designated to regulate Phase I MS4 discharges for each of the Cities. The Santa Ana Water Board and the San Diego Water Board have entered into an agreement whereby the Cities of Laguna Woods and Laguna Hills are wholly regulated by the San Diego Water Board ~~is designated to regulate Phase I~~

~~MS4 discharges within the jurisdiction~~ under this Order, including those portions of the Cities of Laguna Woods and Laguna Hills ~~and~~ not within the ~~Santa Ana~~ San Diego Water Board's ~~is designated to regulate Phase I MS4 discharges within the jurisdiction's~~ region. Similarly, the City of Lake Forest, including those portions of the City of Lake Forest ~~pursuant to MS4 permits administered by each Regional Water Board~~ within the San Diego Water Board's region, is wholly regulated by the Santa Ana Water Board under Order No. R8-2014-0002 (NPDES No. CAS618030) or the most recent iteration thereof. The agreement provides that the City of Lake Forest will be required to retain, and continue implementation of, its over-irrigation discharge prohibition in Title 15, Chapter 14.030, List (b) of the City Municipal Code for regulating storm water quality throughout its jurisdiction. The City of Lake Forest will also be required to actively participate during development and implementation of the Aliso Creek Watershed Management Area Water Quality Improvement Plan required pursuant to this Order. Each Regional Water Board retains the authority to enforce provisions of the Phase I MS4 permits issued to each city but compliance will be determined based upon the Phase I MS4 permit in which a particular city is regulated as a Copermittee (Water Code section 13228 (b)). Under the terms of the agreement, any TMDL and associated MS4 permit requirements issued by the San Diego Water Board or the Santa Ana Water Board which include the Cities of Laguna Woods, Laguna Hills or Lake Forest as a responsible party, will be incorporated into the appropriate Phase I MS4 permit by reference. Enforcement of the applicable TMDL will remain with the Regional Water Board which has jurisdiction over the targeted impaired water body. Applicable TMDLs subject to the terms of the agreement include, but are not limited to, the Santa Ana Water Board's San Diego Creek/Newport Bay TMDL and the San Diego Water Board's Indicator Bacteria Project I Beaches and Creeks TMDL. The San Diego Water Board will periodically review the effectiveness of the agreement during each MS4 permit reissuance. Based on this periodic review the San Diego Water Board may terminate the agreement with Santa Ana Water Board or otherwise modify the agreement subject to the approval of the Santa Ana Water Board.

In addition to the above, the City is aware that the County of Orange is submitting comments on the Tentative Order. The City supports the County's comments and is listed as a concurring entity on the County's comment letter.

Many of the City's concerns with the Regional Permit issued to the San Diego County permittees (San Diego Regional Board Order R9-2013-0001(NPDES No. CAS0109266)) have not been resolved in the Draft Permit. The City therefore resubmits its prior comments and its petition of the Regional Permit as comments on the Draft Permit. If the City's above requested changes are granted, the City will be largely regulated under the Santa Ana Regional Board's permit for Orange County and many of its existing concerns will be rendered moot. Nonetheless, to ensure the City exhausts all administrative remedies, the City submits the attached additional comments.

The City believes that the changes requested in this letter will ease the regulatory burden consistent with Water Code section 13228. The City is committed to the goal of improving

water quality and to working with the San Diego Regional Board in developing and implementing the Aliso Creek Watershed Management Area Water Quality Improvement Plan.

If you should have any questions, please contact Devin Slaven, Environmental Manager at (949) 461-3436 or me at (949) 461-3481.

Sincerely,

CITY OF LAKE FOREST

Thomas Wheeler, P.E.
Director of Public Work/City Engineer

Attachments: Comment Letter on Tentative Order R9-2013-0001, dated January 11, 2013
Petition for Review of Action Issuing Order R9-2013-0001, dated June 7, 2013

cc: Robert Dunek, City Manager
Devin Slaven, Environmental Manager
Scott Smith, City Attorney
J.G. Andre Monette, Special Counsel
Mary Anne Skorpanich, County of Orange, OC Environmental Resources

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CITY OF LAKE FOREST

January 11, 2013

Via US Mail and E-mail

Mr. David Gibson
Executive Officer
California Regional Water Quality Control Board,
San Diego Region
C/O Mr. Wayne Chiu, P.E.
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Subject: **Comments – Tentative Order No. R9-2013-0001, Regional MS4 Permit, Place ID: 786088Wchiu.**

Dear Mr. Gibson:

The City of Lake Forest ("City") submits this letter to the California Regional Water Quality Control Board, San Diego Region ("SDRWQCB") to convey the City's formal written comments on Tentative Order No. R9-2013-0001/NPDES Permit No. CAS0109266 ("Draft Permit"). The Draft Permit is intended by the SDRWQCB to serve as the basis for stormwater regulation for the City upon the expiration of current Order R9-2009-0002. The City appreciates the efforts of the SDRWQCB staff in the development of the Draft Permit including the most recent revisions from the former Administrative Draft; however, significant concerns remain.

The City is aware that the County of Orange ("County") is submitting a comment letter documenting comprehensive technical and legal concerns identified during the review of the Draft Permit. The County's submittal also includes proposed revisions to the Draft Permit provided via "red line" format per SDRWQCB staff request. City staff have participated closely in the collaborative development of this comprehensive set of comments and the City has requested to be named as a concurring entity in the County's letter. The City would like to express its full support for the County's comments and proposed revisions. While detailed comments are provided within the County's submittal, the City would like to note and specifically highlight several key issues of concern as follows:

- The Receiving Water Limitations provisions in the Tentative Order could expose the City to Clean Water Act liabilities for discharges that cause or contribute to an exceedance of a water quality standard. A clear linkage between the compliance provisions and prohibitions, receiving water limitations, and effluent limitations must be established.

The provisions dealing with land development, Low Impact Development (LID) and hydromodification control are significantly ratcheted up while existing permit programs are only just being implemented and/or pending approval. The City is particularly concerned with the elimination of all exemptions for the hydromodification control requirements, including for discharges to channels that have been engineered to prevent erosion. Exemptions for hydromodification management should include discharges to certain types of receiving waters and certain types of projects. The City additionally questions the Regional Board's authority to impose *any* flow related limitations in an NPDES permit following the District Court's decision in Virgina Dept. of Transportation v. EPA, No. 1:12-CV-775, slip op. (E.D. Va. Jan. 3, 2013).

- The provisions implementing the Beaches and Creeks Total Maximum Daily Load (TMDL) bacteria requirements are inconsistent with the TMDL as it was developed and pose additional significant liabilities. Federal law does not require NPDES permits for municipal discharges to include TMDLs. (*Defenders of Wildlife v. Browner* 191 F.3d 1159 (9th Cir. 1999); 40 C.F.R. § 122.44(d).) Pursuant to state law, permit provisions must be consistent with the corresponding Basin Plan amendments (Cal Water Code § 13263), and may only be included after consideration of "the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of Section 13241." (*Id.*)

- The provisions requiring the development and implementation of a Water Quality Improvement Plan need to be aligned with the Jurisdictional Runoff Management Program requirements so that the programs are complimentary and prioritized instead of additive.

Thank you for your attention to our comments. The City is committed to the goal of water quality improvement and wants to work with the SDRWQCB in developing the most prudent and cost effective permit possible. If you should have any questions, please contact Devin Slaven, Water Quality Administrator, at (949) 461-3436, or dslaven@lakeforestca.gov.

Sincerely,

CITY OF LAKE FOREST

FOR

Thomas Wheeler, P.E.
Director of Public Works/City Engineer

cc: Robert C. Dunek, City Manager
Devin E. Slaven, CPSWQ, QSD/QSP, Water Quality Administrator
Scott Smith, City Attorney, Best Best & Krieger, LLP
Mary Anne Skorpanich, County of Orange, OC Watersheds

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STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

In the matter of the Petition of: THE CITY OF LAKE FOREST FOR REVIEW OF ACTION BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO REGION, IN ISSUING ORDER NO. R9-2013-0001 (NPDES NO. CAS0109266)	PETITION FOR REVIEW [Water Code § 13320(a)]

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Attorneys for Petitioner:
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I.

INTRODUCTION

Petitioner, the City of Lake Forest, California ("City" or "Petitioner") seeks review and reversal of the California Regional Water Quality Control Board, San Diego Region's ("Regional Board") actions in adopting Order No. R9-2013-0001 (NPDES No. CAS0109266) ("Permit"), on May 8, 2013. A copy of the Permit is attached hereto as Exhibit "A" and incorporated herein by reference.

The City is a municipal corporation organized pursuant to California law and the California Constitution. As of 2011, the City had a population of 77,490 people, and is located in Orange County, approximately 40 miles south of the City of Los Angeles. The City owns and operates a large municipal separate storm sewer system ("MS4") within the Regional Board's jurisdiction and as such is subject to regulation under the Permit. Due to the boundary line between the Santa Ana and San Diego Regional Boards, the City is also subject to regulation under the Large MS4 Permit for North Orange County issued by the Santa Ana Regional Board. At all times mentioned herein, the City has acted pursuant to applicable legal requirements, and with great concern for the impacts that discharges from its MS4 may have on surrounding surface waters, and the environment in general.

II.

BACKGROUND

The City fully supports the Permit's goal of attaining water quality improvement throughout south Orange County. In order to ensure that this goal could be attained with minimal negative repercussions for the City, the City participated in the Permit development process. Although the Regional Board removed or modified some requirements at the request of the City and other dischargers, as adopted the Permit retains many requirements that exceed applicable law.

Although the Regional Board pursued an informal Permit development process beginning in March, 2012, the first "official" draft of the Permit was issued in October 2012 with a comment period open until early January 2013. The City participated in the informal Permit

development process. The City also submitted written comments to the Regional Board on the "official" drafts within the time frame permitted. A second draft was issued on March 27, 2013, but the Regional Board did not allow additional time for written comments. The Regional Board held its adoption hearing on the Permit in April, 2013 and continued the hearing to May 8, 2013. At its May 8, 2013 hearing, the Regional Board approved the Permit, but introduced changes prior to the adoption hearing without sufficient time for comment.

As described more fully below, by adopting the Permit in its current form the Regional Board exceeded state and/or federal law. The Cities therefore submits this Petition pursuant to Water Code section 13320 and Title 23 of the California Code of Regulations, and respectfully requests that the State Board correct the Regional Board's actions.

III.

NAMES AND ADDRESSES OF PETITIONERS

The names and contact information for Petitioners is as follows:

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THE ACTION OR INACTION OF THE REGIONAL WATER BOARD BEING PETITIONED

The Cities seek review and set aside of the Regional Board's actions in adopting Order No. R9-2013-0001 (NPDES No. CAS0109266) on May 8, 2013. A copy of the Permit is attached hereto as Exhibit "A" and incorporated herein by reference.

IV.

DATE THE REGIONAL BOARD ACTED

The Regional Board adopted Order No. R9-2013-0001 (NPDES No. CAS0109266) on May 8, 2013.

V.

STATEMENT OF THE REASONS THE ACTION WAS INAPPROPRIATE OR IMPROPER

The Regional Board exceeded its legal authority, thereby abusing its discretion when issuing the Permit. Among other things, the Regional Board imposed requirements in the Permit that exceed its authority under State and/or Federal law, are not supported by the evidence in the record, and/or exceed the requirements of State and/or Federal law. Specifically, in adopting the Permit in its current form, the Regional Board:

(1) Required strict compliance with Receiving Water Limitations discharge prohibitions without including a BMP-based compliance option in violation of precedential State Board orders;

(2) Imposed infeasible permit conditions on dischargers including the City;

(3) Improperly applied a heightened compliance standard to discharges into and from the MS4;

(4) Imposed post construction, site-design requirements on municipal projects to control the volume of water leaving a completed project site in excess of the Regional Board's (and the City's) authority under State and Federal law including but not limited to the United States Supreme Court's decisions in *Nollan v.*

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California Coastal Commission (1987) 483 U.S. 825 and *Dolan v. City of Tigard* (1994) 512 U.S. 374;

(5) Required dischargers to expend resources and public funds beyond their jurisdictional boundaries or risk violation of the Permit;

(6) Violated State and Federal law by including the Bacterial Indicators TMDL for Beaches and Inland Streams in the Permit without regard to the limitations of Water Code section 13263, the Ninth Circuit Court of Appeals decision in *Defenders of Wildlife v. Browner,* 191 F.3d 1159 (9th Cir. 1999), or the terms and conditions of the TMDL itself;

(7) Included stormwater and non-stormwater "Action Levels" in the Permit that are inconsistent with State and Federal law and could be interpreted as numeric effluent limitations and that otherwise lack findings;

(8) Imposed a regional permit on the City without authority under State or Federal law;

(9) Unlawfully classified natural waters as part of the MS4, and classified natural waters as both a MS4 and Receiving Water;

(10) Violated Due Process requirements in the Permit development process;

(11) Failed to conduct an adequate economic analysis in violation of Water Code sections 13263, and 13241; and

(12) Imposed a federal scheme on the City without an option for compliance in violation of the 10th Amendment to the United States Constitution as defined by Supreme Court's decisions in *Printz v. United States*, 521 U.S. 898, 925 (1997), and *New York v. United States*, 505 U.S. 144, 168 (1992)).

The City, other Permittees and interested parties submitted comment letters to the Regional Board during the Permit renewal process raising these concerns. The City additionally made oral comments at the Permit adoption hearings in support of its comment letters, and the comments of the other Permittees to again raise the above listed concerns. The Regional Board nonetheless adopted the Permit over these objections, in violation of state and federal law.

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VI.

HOW PETITIONER IS AGGRIEVED

Petitioner, City of Lake Forest, owns and operates an MS4 within the Regional Board's jurisdiction and as such is subject to regulation under the Permit. The City, along with other Permittees, is required to implement the Permit's programs, and comply with its technical limitations. The City is aggrieved because the challenged Permit requirements exceed the Regional Board's authority. These requirements will require the City to impose severe restrictions on development within City limits, hinder the Cities' ability to exercise their land use authority in a manner that benefits their residents' economic and environmental interests, and require the Cities to invest significant time and resources complying with arbitrarily selected "WQBELs."

VII.

ACTIONS PETITIONER REQUESTS THE STATE WATER BOARD TAKE

The Cities respectfully requests that the State Board remand the Permit to the Regional Board, and direct the Regional Board to amend the Permit to address the deficiencies raised in Section V, above.

VIII.

MEMORANDUM OF POINTS AND AUTHORITIES IN SUPPORT OF PETITION

The requisite Memorandum of Points and Authorities is attached to this Petition. The City additionally reserve the right to supplement the legal arguments and authorities raised in the attached memorandum of points and authorities if and when such actions is necessary in support of the Petition.

IX.

STATEMENT OF COPIES FURNISHED

In accordance with the requirements of Title 23, Section 2050(a)(8) of the California Code of Regulations, a copy of this Petition has been sent to the California Regional Water Quality Control Board, San Diego Region.

X.

STATEMENT OF ISSUES RAISED

As illustrated in Exhibit "A" attached hereto and incorporated herein, Petitioner, and/or other interested parties submitted written and oral comments on the Permit outlining the above described issues. Through their written and oral comments, Petitioner requested that the Regional Board revise the Permit to address Petitioner's concerns.

XI.

CONCLUSION

For the reasons set forth in this Petition and in the related documents filed herewith, the City of Lake Forest respectfully requests that the State Water Resources Control Board remand the Permit to the Regional Board with direction to revise it to address the concerns raised herein, and take any other actions that the State Board deems necessary and appropriate to address the City's claims.

Dated: June 7, 2013

BEST BEST & KRIEGER LLP

By: _____

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STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

In the matter of the Petition of: THE CITY OF LAKE FOREST FOR REVIEW OF ACTION BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO REGION, IN ISSUING ORDER NO. R9-2013-0001 (NPDES NO. CAS0109266)	MEMORANDUM OF POINTS AND AUTHORITIES IN SUPPORT OF PETITION FOR REVIEW [Water Code § 13320(a)]

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MEMORANDUM OF POINTS AND AUTHORITIES

Petitioner, the City of Lake Forest ("City" or "Petitioner") submits these points and authorities in support of its Petition to the State Water Resources Control Board ("State Board") requesting that the State Board review and set aside all or portions of Order No. R9-2013-0001, NPDES Permit No. CAS0109266 ("Permit"), as adopted by the California Regional Water Quality Control Board, San Diego Region ("Regional Board") on May 8, 2013. The Regional Board's adoption of the Permit was not supported by sufficient evidence and findings, and is arbitrary, capricious and otherwise contrary to law.

The City respectfully requests that the subject petition be granted, and that the challenged terms of the Permit be voided, as the Permit and the terms have not been adopted in accordance with the requirements of State and/or federal law, and because there is insufficient evidence and findings in the record to support its adoption.[1]

I. THE PERMIT SHOULD BE REVISED TO ALLOW BMP-BASED COMPLIANCE WITH RECEIVING WATER LIMITATIONS.

Permit, section II.A.2. governing "Receiving Water Limitations," provides that "discharges from MS4s must not cause or contribute to the violation of water quality standards and/or receiving waters ..." This blanket prohibition is standard permit language that until 2011, was interpreted as a management practice based compliance target. In 2011, the Ninth Circuit Court of Appeals, in *Natural Resources Defense Counsel v. County of Los Angeles* (9th Cir. 2011) 673 F.3d 880, *rev'd on other grounds* by 133 S.Ct. 710 (2013), interpreted this standard language as a stand- alone prohibition requiring strict compliance with Water Quality Standards.

By retaining the Receiving Water Limitations prohibition in the Permit as it was considered by the Ninth Circuit, the Regional Board is holding the City responsible for compliance with numeric Water Quality Standards as an end of pipe limit. For the reasons set

[1] In order to comply with 23 C.C.R.§2050 (a), the City submits a copy of Order R9-2013-0001 with its petition; however, since the entire administrative record will be lodged by the Regional Board with the State Water Board, most citations to the record herein will not be accompanied by duplicative exhibits. As of this filing, the complete transcripts of the three hearing dates are not believed to be available for specific citations. The City reserves the right to submit supplemental or amended points and authorities with specific transcript citations when available for review.

forth below, the Permit's Receiving Water Limitations prohibition is inconsistent with State and Federal law and must be revised.

A. *Federal law does not require Numeric Effluent Limits or strict compliance with Water Quality Standards*

The Federal Clean Water Act and its implementing regulations do not require municipal stormwater permits to include numeric effluent limits or to strictly adhere to Water Quality Standards. The Ninth Circuit Court of Appeals addressed both issues in *Defenders of Wildlife v. Browner*, 191 F.3d 1159 (9th Cir. 1999).

In *Defenders*, the Ninth Circuit held that the United States Environmental Protection Agency ("US EPA") has the authority to impose numeric effluent limits in MS4 Permits, but that the Clean Water Act does not require numeric effluent limits. The Ninth Circuit additionally held that municipal stormwater permits do not need to comply with Water Quality Standards, stating "industrial discharges must comply strictly with state water-quality standards," while Congress chose "not to include a similar provision for municipal storm-sewer discharges."

The decision highlights the difference between traditional, industrial discharges and municipal stormwater. The Ninth Circuit focused on the approach Congress took to addressing this difference holding that Congress replaced the requirements applicable to industrial discharges "with the requirement that municipal storm-sewer dischargers "reduce the discharge of pollutants to the maximum extent practicable. . ." and that the statute "unambiguously demonstrates" that Congress did not require municipal storm-sewer discharges to comply strictly with Water Quality Standards. (*Defenders of Wildlife v. Browner*, 191 F.3d at 1165.)

The Ninth Circuit's holding that has been adopted by California courts. In *Divers' Environmental Conservation Organization v. State Water Resources Control Board (Divers' Environmental)* (2006) 145 Cal.App.4th 246, the plaintiff brought suit claiming that an NPDES Permit issued to the United States Navy by the San Diego Regional Board was contrary to law because it did not incorporate waste load allocations ("WLAs") from a TMDL as numeric effluent limits.

After discussing the relevant requirements of the Clean Water Act, as well as governing

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case authority, the Court of Appeal acknowledged that in regulating stormwater permits EPA "has repeatedly expressed a preference for doing so by the way of BMPs, rather than by way of imposing either technology-based or water quality-based numerical limitations." (*Id.* at 256.) The Court went on to find that "it is now clear that in implementing numeric water quality standards, such as those set forth in CTR, permitting agencies are not required to do so solely by means of a corresponding numeric WQBEL's [Water Quality Based Effluent Limit]." (Id. at 262.)

Likewise, in *Building Industry Association of San Diego County v. State Water Resources Control Board* (2004) 124 Cal.App.4th 866, 874, the Court of Appeal found that Congress intentionally gave the EPA "the authority to fashion NPDES permit requirements to meet water quality standards without specific numeric effluent limits and instead to impose `controls to reduce the discharge of pollutants to the maximum extent practicable."

Federal law simply does not require numeric effluent limits or direct incorporation of Water Quality Standards into municipal stormwater permits. The Clean Water Act instead establishes a unique regulatory structure to address the unique nature of discharges from MS4s. Recognizing that, because of the open nature of the system and wide variability in flow, municipal stormwater discharges are different than other discharges regulated by the Clean Water Act, Congress expressly exempted municipal stormwater discharges from strict compliance with water quality standards. The Permit's infeasible requirement of strict compliance with water quality standards at all times and in all receiving waters is contrary to the Congressional policy reflected in the CWA related to discharges from municipal stormwater systems. To conform to Congressional policy, the Permit should have included a compliance option.

B. ***The Receiving Water Limitations prohibition is inconsistent with precedential State Board Orders.***

Pursuant to Government Code section 11425.60, unless otherwise stated in the decision, all State Board orders are binding precedent on both the State Board itself and the nine Regional Water Quality Control Boards. (State Board Order WR 96-01, fn 11.) Compliance with precedential orders is mandatory. (*See California Assn. of Sanitation Agencies v. State Water*

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Resources Control Board (2012) 208 Cal. App. 4th 1438, 1465, fn 20; *see also* State Board statement on precedential orders: "The State Water Board and the nine Regional Water Quality Control Boards (Regional Water Boards) ordinarily will follow State Water Board precedents, or provide a reasoned analysis for not doing so." http://www.swrcb.ca.gov/board_decisions/adopted_orders/ [as of June 1, 2013, emphasis added].)

The State Board has held on numerous occasions, in multiple precedential orders, that its standard receiving water limitations language "does not require strict compliance with water quality standards." (State Water Board Order WQ 2001-15.) Rather, compliance with water quality standards is "to be achieved over time, through an iterative approach requiring improved BMPs." (State Water Board Order WQ 2001-15.) Because the Permit's Receiving Water Limitations prohibition is inconsistent with these precedential State Board orders, it must be revised.

The State Board's position that Water Quality Standards are to be achieved over time through the iterative process was most recently reiterated in State Board Order WQ 2001-15, *In the Matter of the Petitions of Building Industry Assoc. of San Diego County and Western States Petroleum Assoc.* (2001). The State Board issued Order WQ 2001-15 in response to the building industry's claim that the Ninth Circuit's decision in *Defenders of Wildlife v. Browner* rendered requirements in the 2001 San Diego County MS4 Permit unnecessary and contrary to the MEP standard. While retaining the requirement that the San Diego permit prohibit discharges that cause or contribute to violations of water quality standards, the State Board made clear that compliance with this requirement was to be achieved through the iterative process, and that the Water Quality Standards themselves were not hard compliance targets.

In discussing the propriety of requiring strict compliance with water quality standards, and the applicability of the MEP standard in State Board Order WQ 2001-15, the State Board held:

> While we will continue to address water quality standards in municipal storm water permits, we also continue to believe that the iterative approach, which focuses on timely improvements of BMPs, is appropriate. ***We will generally not require "strict compliance" with water quality standards through numeric effluent limits and we will continue to follow a iterative approach, which seeks compliance over time.*** The iterative

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> approach is protective of water quality, but at the same time considers the difficulties of achieving full compliance through BMPs that must be enforced through large and medium municipal storm sewer systems.
>
> (Order 2001-15, p. 7-8 [emphasis added].)

State Board policy is, and has been, that Water Quality Standards are to be achieved over time through the iterative process. In State Board Order WQ 2001-15, the State Board further explained, in the context of its review of the 2001 San Diego MS4 Permit, that:

> In reviewing the language in this permit, and that in Board Order WQ 99-05, we point out that ***our language, similar to U.S. EPA's permit language discussed in the Browner case, does not require strict compliance with water quality standards***. Our language requires that storm water management plans be designed to achieve compliance with water quality standards. ***Compliance is to be achieved over time, through an iterative approach requiring improved BMPs.***
>
> (*Id.*, at 7 [emphasis added].)

The State Board thus established a "middle ground" position where MS4 permits had to require compliance with water quality standards but where compliance was to be achieved over time in recognition of the unique nature of stormwater discharges:

> We are concerned, however, with the language in Discharge Prohibition A.2, which is challenged by BIA. This discharge prohibition is similar to the Receiving Water Limitation, prohibiting discharges that cause or contribute to exceedance of water quality objectives. ***The difficulty with this language, however, is that it is not modified by the iterative process. To clarify that this prohibition also must be complied with through the iterative process, Receiving Water Limitation C.2 must state that it is also applicable to Discharge Prohibition A.2.*** The permit, in Discharge Prohibition A.5, also incorporates a list of Basin Plan prohibitions, one of which also prohibits discharges that are not in compliance with water quality objectives. (See, Attachment A, prohibition 5.) Language clarifying that the iterative approach applies to that prohibition is also necessary.
>
> (*Id.*, at 8-9 [emphasis added].)

The State Board's position on the receiving water limitations language has been consistent and clear: Water Quality Standards are to be achieved over time through the iterative process. Because the language in the Permit is modeled after the State Board's language, it must be revised to align the language with the State Board's precedential orders.

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II. THE PERMIT NEEDS TO BE REVISED TO GIVE THE CITY A FEASIBLE PATH TO ATTAINING COMPLIANCE WITH PERMIT REQUIREMENTS.

As a matter of law, the Clean Water Act does not require permittees to achieve the impossible. That is nonetheless what the Regional Board has asked the City to do by including the Receiving Water Limitations prohibition (and other requirements including but not limited to the TMDL requirements in Attachment E), in the Permit. Compliance with numeric effluent limits tied directly to Water Quality Standards or TMDLs is simply not feasible.

The State Board has recognized that municipal stormwater discharges are different. In 2006, the State Board convened a "Blue Ribbon Panel" of experts to determine whether compliance with numeric effluent limits in stormwater permits was feasible. The panel found that "[m]ost all existing development rely on non-structural control measures, making it difficult, if not impossible to set numeric effluent limits for these areas" and that "[i]t is not feasible at this time to set enforceable numeric effluent criteria for municipal BMPs and in particular urban discharges." (Storm Water Quality Panel Recommendations to the California State Water Resources Control Board – *The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities*, June 19, 2006, pp. 8, 12.)

In *Hughey v. JMS Dev. Corp.*, 78 F.3d 1523 (11th Cir.) *cert. den.*, 519 U.S. 993 (1996), the plaintiff sued JMS Development Corporation ("JMS") for failing to obtain a storm water permit that would authorize the discharge of storm water from its construction project. The plaintiff argued JMS had no authority to discharge any quantity or type of storm water from the project, *i.e.* a "zero discharge standard," until JMS had first obtained an NPDES permit. (*Id.* at 1527.) JMS did not dispute that storm water was being discharged from its property and that it had not obtained an NPDES permit, but claimed it was not in violation of the Clean Water Act (even though the Act required the permit) because the Georgia Environmental Protection Division, the agency responsible for issuing the permit, was not yet prepared to issue such permits. As a result, it was impossible for JMS to comply. (*Id.*)

The Eleventh Circuit Court of Appeal held that the CWA does not require a permittee to

achieve the impossible, finding that "Congress is presumed not to have intended an absurd (impossible) result." (*Id.* at 1529.) The Court then found that:

> In this case, once JMS began the development, compliance with the zero discharge standard would have been impossible. Congress could not have intended a strict application of the zero discharge standard in section 1311(a) when compliance is factually impossible. The evidence was uncontroverted that whenever it rained in Gwinnett County some discharge was going to occur; nothing JMS could do would prevent all rain water discharge.
>
> (*Id.* at 1530.)

The Court concluded, "*Lex non cogit ad impossibilia*: The law does not compel the doing of impossibilities." (*Id.*) The same rule applies here. (See also *Atl. States Legal Found., Inc. v. Eastman Kodak Co.*, 12 F.3d 353, 357 (2d Cir. 1994) ["it is impossible to identify and rationally limit every chemical or compound present in a discharge of pollutants . . . Compliance with such a permit would be impossible and anybody seeking to harass a permittee need only analyze that permittee's discharge until determining the presence of a substance not identified in the permit"].)

The Clean Water Act does not require municipal permittees to do the impossible. Nor does State law. Because municipal permittees are involuntary permittees, that is, because they have no choice but to obtain a municipal storm water permit, the Permit, as a matter of law, cannot impose terms that are unobtainable. (*Id.*) In this case, as reflected in the numerous comments submitted during the permit adoption process, complying with numeric limits is simply not achievable by the permittees, given the variability of the potential sources of pollutants and urban runoff, as well as the unpredictability of the climate in Southern California.

In fact, as discussed above in *Divers, supra*, 145 Cal.App.4th 246: "In regulating storm water permits the EPA has repeatedly expressed the preference for doing so by way of BMPs, rather than by way of imposing either technology-based or water quality-based numeric limitations." (*Id.* at 256.) According to the *Divers* Court: "EPA has repeatedly noted, storm water consists of a variable stew of pollutants, including toxic pollutants, from a variety of sources which impact the receiving body on a basis which is only as predictable as the weather." (*Id.* at 258.)

Similarly, in *BIA v. State Board, supra*, 124 Cal.App.4th 866, 889-90, after having

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recognized the "practical realities of municipal storm sewer regulation," and the "physical differences between municipal storm water runoff and other pollutant discharges," and finding that the maximum extent practical approach was a "workable enforcement mechanism" (*id.* at 873, 884), the Court concluded that the MEP standard was purposefully intended to be highly flexible concept that balances numerous factors including "technical feasibility, costs, public acceptance, regulatory compliance and effectiveness." (*Id.* at 889-90.)

It is technically and economically infeasible to strictly comply with Water Quality Standards as end of pipe numeric limits. Imposing such requirements goes beyond "the limits of practicability" (*Defenders of Wildlife v. Browner* (1999) 191 F.3d 1159, 1162). Accordingly, the imposition of the Receiving Water Limitations prohibition is not only an attempt to impose an obligation that goes beyond the requirements of State and Federal law, but equally important, represents an attempt to impose provisions that go beyond what is "feasible." These aspects of the Permit must be stricken.

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III. THE PERMIT IMPROPERLY APPLIES A HEIGHTENED COMPLIANCE STANDARD TO DISCHARGES INTO AND FROM THE MS4.

Permit, section II.A.1. entitled "Discharge Prohibitions," requires the Permittees to not only "effectively prohibit" non-storm water discharges, but also, through subsection II.E.2 (entitled "Illicit Discharge Retention and Elimination"), to take action to prevent "non-stormwater" from entering the MS4. In effect, all "non-storm water discharges," unless they are otherwise conditionally permitted to be discharged under subsection E.2. of the Permit, are prohibited. The Permit further treats dry weather discharges *from* the MS4 as industrial discharges and applies an end of pipe standard that violates Section 402(p) of the Clean Water Act. Because both Permit requirements violate State and Federal law, they must be revised.

A. *All discharges from the MS4 are subject to the MEP standard.*

The Regional Board has attempted to create a new standard under the Clean Water Act – ***non-stormwater*** discharges ***from*** the MS4. Permit Finding 15 states:

> Non-Storm Water and Storm Water Discharges. Non-storm water discharges from the MS4s are not considered storm water discharges and therefore are not subject to the MEP standard of

> CWA section 402(p)(3)(B)(iii), which is explicitly for "Municipal …Stormwater Discharges (emphasis added)"from the MS4s. Pursuant to CWA 402(p)(3)(B)(ii), non-storm water discharges into the MS4s must be effectively prohibited.

Because all discharges from the MS4 are subject to the Maximum Extent Practicable ("MEP") standard, all Permit requirements based on the false standard referenced in Finding 15 must be removed from the Permit.

Section 402(p)(3)(B) of the Clean Water Act entitled "Municipal Discharge" provides, in its entirety, as follows:

> Permits for discharges from municipal storm sewers –
>
> (i) may be issued on a system– or jurisdictional– wide basis;
>
> (ii) shall include a requirement to ***effectively prohibit non-stormwater discharges into the storm sewers***; and
>
> (iii) shall require controls to reduce ***the discharge of pollutants to the maximum extent practicable***, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.
>
> (33 U.S.C. § 1342(p)(3)(B) *[emphasis added]*.)

Thus, the plain language of the CWA requires MS4 Permits to "require controls to reduce the discharge of pollutants to the maximum extent practicable." (*Id.*) The CWA applies the MEP standard to the "discharge of pollutants" from the MS4. There is no distinction between the discharge of "stormwater" or "non-stormwater" or dry weather flows and wet weather flows. As such, the Regional Board's attempt to "prohibit non-stormwater discharges through the MS4 to receiving waters" exceeds Federal law.

B. ***The Permit prohibits discharges into the MS4 in a manner that is inconsistent with the Federal Clean Water Act and precedential State Board Orders.***

Permit, section II.A.1. entitled "Discharge Prohibitions," requires the Permittees to not only "effectively prohibit," non-storm water discharges, but also, through subsection II.E.2 (entitled "Illicit Discharge Retention and Elimination"), to take action to prevent "non-stormwater" from entering the MS4. In effect, all "non-storm water discharges," unless they are

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otherwise conditionally permitted to be discharged under subsection E.2. of the Permit, are prohibited.

The Clean Water Act requires only a permit condition that says the Co-Permittee shall effectively prohibit discharges of non-stormwater into the MS4. Section 402(p)(3)(B)(ii) provides that permit for discharges from municipal storm sewers "shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewer . . . ." (33 USC § 1342(p)(3)(B)(ii).) (*Id.*) The proposed regional permit uses Section 402(p)(3)(B)(ii) expansively.

"Effectively prohibit" is not the same as prohibit or eliminate. The draft permit appears to strictly prohibit discharges of non-stormwater and holds the Co-Permittees liable for preventing or eliminating such discharges. This exceeds what is required by the CWA.

Federal regulations make clear this only requires the Co-Permittees to prohibit such discharges in their ordinances. (40 C.F.R. § 122.26(d)(2)(i).) Moreover, the State Board addressed this issue in Order WQ-2001-15, expressly stating that discharges into an MS4 are subject to a more flexible standard, holding:

> We find that ***the permit language is overly broad because it applies the MEP standard not only to discharges "from" MS4s, but also to discharges "into" MS4s***. . . the specific language in this prohibition too broadly restricts all discharges "into" an MS4, and does not allow flexibility to use regional solutions, where they could be applied in a manner that fully protects receiving waters.
>
> (*Id.*, at 7 [emphasis added].)

A strict prevention or prohibition of all non-stormwater discharges into the MS4 is not feasible. This requirement therefore exceeds the requirements of Federal Law as well as the State Board's direction on how to manage discharges into the MS4 as set forth in precedential order WQ-2001-015.

IV. THE PERMIT'S NEW DEVELOPMENT AND REDEVELOPMENT REQUIREMENTS ARE UNNECESSARY AND, AS INCORPORATED INTO THE PERMIT, VIOLATE STATE AND FEDERAL LAW.

The Permit imposes site design requirements new development and significant redevelopment projects. The overarching requirement is that the completed project site retain the

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runoff from the 85th percentile storm event. If the project site is unable to retain the runoff because of soil conditions or other site restrictions, the Permit will require some projects to provide additional mitigation. Moreover, in the case of redevelopment projects, the Permit will require a return to pre-project hydrologic conditions.

These Permit requirements are regulating the discharge of stormwater as a pollutant, rather than the pollutants in the stormwater, and are void under the Clean Water Act. They additionally exceed both the City's the Regional Board's authority under the United States Supreme Court's decisions in *Nollan v. California Coastal Commission* (1987) 483 U.S. 825 and *Dolan v. City of Tigard* (1994) 512 U.S. 374, and must be removed from the Permit.

A. *The Permit imposes post construction, site-design requirements on municipal projects to control the volume of water leaving a completed project site in excess of the Regional Board's authority under both the Clean Water Act and Porter Cologne.*

Permit section E.3.c imposes BMP requirements for all priority projects as defined in the Permit. Priority projects include areas of new development and redevelopment. Section E.3.c.(1)(a) requires the following:

> Each Priority Development Project must be required to implement LID BMPs that are designed to retain (i.e. intercept, store, infiltrate, evaporate, and evapotranspire) onsite the pollutants contained in the volume of storm water runoff produced from a 24-hour 85th percentile storm event (design capture volume)

Section E.3.c.(2) imposes requirements based solely on the volume of stormwater leaving a completed project site:

> Each Copermittee must require each Priority Development Project to implement onsite BMPs to manage hydromodification that may be caused by storm water runoff discharged from a project

Because these Permit requirements regulate the discharge of stormwater alone, rather than pollutants or waste in stormwater, they exceed the Regional Board's authority under both the Clean Water Act and Porter Cologne.

Regulation of stormwater discharges on a volumetric basis was recently rejected in *Virginia Department of Transportation v. EPA* (2013) U.S. Dist. Lexis 981, 43 ELR. 20002 (E.D. Va.), In that case, US EPA established a TMDL for Accotink Creek to limit the flow of stormwater into the creek. The purpose of the TMDL was to regulate the amount of sediment

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into Accotink, based on EPA's belief that the sediment was the primary cause of its impairment. The parties to the case agreed that sediment is a "pollutant" under the CWA, and that stormwater is not. EPA, however, claimed that the storm water flow rate was a "surrogate" for sediment thereby justifying the stormwater flow TMDL.

The Court found that EPA had no authority to regulate the flow of storm water into the creek, holding finding the Clean Water Act did not authorize it to do so. According to the District Court:

> The language of § 1313(d)(1)(C) is clear. EPA is authorized to set TMDLs to regulate pollutants, and pollutants are carefully defined. Stormwater runoff is not a pollutant, so EPA is not authorized to regulate it via TMDL. Claiming that the stormwater maximum load is a surrogate for sediment, which is a pollutant and therefore regulatable, does not bring stormwater within the ambit of EPA's TMDL authority. Whatever reason EPA has for thinking that a stormwater flow rate TMDL is a better way of limiting sediment load than a sediment load TMDL, EPA cannot be allowed to exceed its limited statutory authority.
>
> (Id. at 14-15.)

Accordingly, the Regional Board in this case has no authority under the Clean Water Act to regulate discharges from completed project sites without specifically identifying a particular pollutant of concern. Similar restrictions exist in State law. Porter Cologne prohibits the discharge of "Waste" without a permit. (Cal Water Code §§ 13260; 12363; 13264.) Waste is defined as:

> sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.
>
> (Cal Water Code § 13050(d).)

Stormwater itself is not Waste, though it may contain Waste. The Water Code only authorizes the Regional Board to regulate the discharge of Waste. Permit terms that seek to regulate stormwater flows without identifying specific pollutants in such flows are beyond the authority of the Regional Board and must be removed from the Permit.

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B. *The Permit requires the City to impose exactions on projects within their jurisdictions in excess of the City's authority.*

As applied to areas of redevelopment, and offsite mitigation where retention of the 85th percentile storm is not feasible, the Permit's hydromodification requirements exceed the scope of both the City's and the Regional Board's authority under State and Federal law. Permit section E.3.c.(2)(a) states:

> Post-project runoff conditions (flow rates and durations) must not exceed pre-development runoff conditions by more than 10 percent (for the range of flows that result in increased potential for erosion, or degraded instream habitat downstream of Priority Development Projects).

Section E.3.c.(1)(a) requires the following:

> Each Priority Development Project must be required to implement LID BMPs that are designed to retain (i.e. intercept, store, infiltrate, evaporate, and evapotranspire) onsite the pollutants contained in the volume of storm water runoff produced from a 24-hour 85th percentile storm event (design capture volume)

In areas of redevelopment, compliance with Section E.3.c.(2)(a) will require a project proponent to return the project site to a condition that predates construction of the original project. The Permit will thus require the City to impose mitigation and/or exactions for impacts that are not a result of the redevelopment project itself.

When imposing a condition on a development permit, a local government is required under the federal and state constitutions to establish that the condition bears a reasonable relationship to the impacts of the project. This rule applies to legislatively enacted requirements and impact fees or exactions. *Building Indus. Ass'n v. City of Patterson*, 171 Cal. App. 4th 886, 898 (2009). Moreover, fees imposed on a discretionary ad hoc basis are subject to heightened scrutiny under a two-part test. First, local governments must show that there is a substantial relationship between the burden created by the impact of development and any fee or exaction. *Nollan v. California Coastal Comm'n*, 483 U.S. 825, 837 (1987). Second, a project's impacts must bear a "rough proportionality" to any development fee or exaction. *Dolan v. City of Tigard*, 512 U.S. 374, 391 (1994).

Under California law, the *Nollan/Dolan* heightened scrutiny test also applies to in-lieu

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fees. *Ehrlich v. City of Culver City*, 12 Cal. 4th 854, 876 (1996). The Legislature has memorialized these requirements in the Mitigation Fee Act which establishes procedures that local governments must follow to impose impact fees. Cal. Gov't Code §§ 66000-66025.

By requiring redevelopment projects to mimic pre-development conditions, the City would be requiring a project developer to make changes to the project site that are not related to the project's impacts. Imposing such requirements would exceed the City's (and the State's) authority under *Nollan v. California Coastal Commission* (1987) 483 U.S. 825 and *Dolan v. City of Tigard* (1994) 512 U.S. 374.

Permit conditions requiring mitigation where onsite retention of the 85th percentile storm is not feasible because of local soil or other pre-project conditions also violate the *Nollan/Dolan* limitations. Imposing offsite mitigation requirements when the original project site is incapable of retaining the 85th percentile storm exceeds the impacts of the proposed project. For that reason, as applied to redevelopment projects, and offsite mitigation where retention of the 85th percentile storm is not feasible, Permit section E.3.c. must be revised to reflect the limitations of the City's authority.

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C. *The Regional Board failed to make adequate findings on the Permit's new development and redevelopment requirements.*

The Permit requires hydromodification controls in every development and redevelopment project with little to no ability to exempt projects where an HMP is infeasible. These requirements are a one size fits all approach across three large counties with varying climates, soil conditions and topography.

The Regional Board had no evidence before it that an across the board requirement to implement hydromodification controls and LID requirements in every development and redevelopment project improves water quality. In fact, the Regional Board has based its entire Permit requirements on one study produced out of the Pacific Northwest, an area that has more pristine steam and site conditions and whose soils better allow for infiltration that do the clay conditions of south Orange County that do not allow infiltration and the capture of on-site pollutants. To that extent, the HMP and LID requirements lack substantial evidence and are

arbitrary and capricious under the California Administrative Procedure Act and violate the Clean Water Act in that the requirements do not on their face demonstrate water quality benefits.

There is also no evidence of water quality benefit to support a pre-development run-off reference requirement. A pre-development standard is entirely subjective. While a project proponent would need to review on-site or nearby soil conditions for this reference, evidence was presented at the adoption hearing that this could not be done as easily as using an Internet website, which was the contention of Regional Board staff in advocating for the new standard. Also, in highly developed concrete areas, it would be difficult to find nearby conditions that could be used as this reference, and is thus, arbitrary and must be removed from the Permit.

V. THE PERMIT WILL REQUIRE THE CITY TO EXPEND RESOURCES AND PUBLIC FUNDS BEYOND ITS JURISDICTIONAL BOUNDARIES AND POTENTIALLY HOLDS THE CITY JOINTLY AND SEVERALLY LIABLE FOR COMPLIANCE.

The Permit's Water Quality Improvement Plan ("WQIP") program includes multiple requirements for joint efforts by the City and other dischargers in a watershed management area, irrespective of the City' jurisdictional boundaries. For example, Permit section B.2.b. states:

> The Copermittees must consider the following, at a minimum, to identify the potential impacts to receiving waters that may be caused or contributed to by discharges from the Copermittees' MS4s . . .
>
> (3) Locations of each Copermittee's MS4 outfalls that discharge to receiving waters;
>
> (4) Locations of MS4 outfalls that are known to persistently discharge non-storm water to receiving waters likely causing or contributing to impacts on receiving water beneficial uses;
>
> (5) Locations of MS4 outfalls that are known to discharge pollutants in storm water causing or contributing to impacts on receiving water beneficial uses; and
>
> (6) The potential improvements in the quality of discharges from the MS4 that can be achieved.

Permit section B.2.c. requires the City to use the information gathered to "develop a list of priority water quality conditions as pollutants, stressors and/or receiving water conditions that are the highest threat to receiving water quality or that most adversely affect the quality of receiving

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waters." The Permit then requires the City to develop goals to address the pollutant sources on the priority list. (Permit section B.2.d.) There are no limitations on jurisdictional boundaries or relative contribution to pollutant loading from individual sources.

Requiring the City to expend resources outside its jurisdiction exceeds the authority granted to the Regional Board under Clean Water Act section 402(p) and the California Water Code. Both statutes hold dischargers responsible for only those pollutants that discharge from their point sources. (33 U.S.C. §§ 1311, 1319, 1342(p)(3)(B) and 1362(12); Water Code §§ 13350(a), 13263(f) and 13376.)[2] For example, although stormwater permits may be issued on a system – or jurisdiction – wide basis, Co-Permittees need only comply with permit conditions relating to discharges from the municipal separate sewers for which they are operating. (33 U.S.C. § 1342(p)(3)(B)(i) and 40 CFR § 122.26(a)(3)(vi).). In addition, EPA has defined the term "Co-Permittee" to mean a permittee who "is only responsible for permit conditions relating to the discharge for which it is operator." (40 CFR § 122.26(b)(1).)

Thus, Co-Permittees are only responsible for pollutants discharged from its MS4, and need only comply with permit conditions related to such discharges. (*So. Fla. Water Mgmt. Dist. v. Miccosukee Tribe of Indians* (2004) 541. U.S. 95, 105; *Jones v. E.R. Shell Contractor, Inc.* (N.D. Ga. 2004) 333 F.Supp.2d 1344; In re *City of Irving, Texas*, Mun. Separate Storm Sewer Sys., 10 E.A.D. 111 (EPA July 16, 2001); 40 CFR §§ 122.26(a)(3)(vi).) Mandatory watershed requirements not linked directly to pollutants discharged from a Co-Permittees MS4 are thus, pursuant to the plaint meaning of the CWA, beyond the responsibility of that Co-Permittee.

Similarly, Porter Cologne focuses on individual discharges (*see, e.g.*, Water Code §§ 13263 and 13350(a)) and makes watershed planning an option that NPDES Co-Permittees may

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[2] The Authority acknowledges that EPA and others believe that the watershed approach would result in better water quality results. (*See, e.g.*, EPA's Watershed-Based NPDES Permitting Policy Statement dated January 7, 2003 and the conclusions of the National Research Council's 2009 Report on Urban Stormwater Management in the United States (concluding that the "course of action most likely to check and reverse degradation of the nation's aquatic resources would be to base all stormwater and other wastewater discharge permits on watershed boundaries instead of political boundaries.").) However, it is also acknowledged that structural changes in the CWA and the laws of authorized states would be required to implement such a watershed permitting approach. (*See, e.g.*, National Research Council Report, p 524 (noting that the "national watershed-based approach to stormwater is likely to require legislative amendments . . . .").) In the absence of such structural changes, the CWA must be applied as currently written, and as currently written its focus is on jurisdictional boundaries.

pursue, not a mandatory requirement with which Co-Permittees must comply.. (Water Code § 16101(a).) The purpose of such voluntary watershed planning is to allow permittees to implement existing and future water quality requirements and regulations on a watershed rather than a jurisdictional level. (*Id.*) If the Regional Board incorporates the watershed plan into the waste discharge requirements issued to a permittee, the implementation of the plan by the permittee may represent compliance with waste discharge requirements. (Water Code § 16102(d) and (c).) Thus, the voluntary watershed approach of Water Code §§ 16100 *et seq.* allows permittees to *elect* the pursue a watershed approach and *offers* the permittee a compliance option as an incentive to move from a jurisdictional approach to a watershed approach.

Moreover, the Clean Water Act is not a contribution statute; dischargers are not jointly and severally liable for water quality conditions in a watershed. Nonetheless, under Attachment E of the Permit, the City could potentially be found out of compliance with an interim or final TMDL target based solely on discharges from other dischargers. Joint liability is imposed by each section of the Permit that sets forth how the dischargers are to establish compliance with the six TMDLs incorporated into the Permit.[3] The following provision is an example of unlawful joint liability imposed by the Permit:

> (3) Interim TMDL Compliance Determination
>
> Compliance with the interim WQBELs, on or after the interim TMDL compliance dates, may be demonstrated via one of the following methods:
>
> . . . .
>
> (d) The pollutant load reductions for discharges from the Responsible *Copermittees'* MS4 outfalls are greater than or equal to the final effluent limitations under Specific Provision 6.b.(2)(b)(ii); OR
>
> (e) The Responsible *Copermittees* can demonstrate that exceedances of the final receiving water limitations under Specific Provision 6.b.(2)(a) in the receiving water are due to loads from natural sources, AND pollutant loads from the *Copermittees'* MS4s are not causing or contributing to the exceedances; OR
>
> (f) There are no exceedances of the interim receiving water

[3] The Permit sections that impose joint liability are: Attachment E, Sections 1.b(3)(d); 2.b(3)(d)(iv-v); 3.b(3)(d); 3.b(3)(e)(iv-v); 3.c(2)(d); 3.c(2)(e); 4.b(3)(d); 4.c(2)(e); 5.b(3)(d-g); 5.c(1)(b)(iv-viii); 6.b(3)(d-f); 6.c(3)(d-h).

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> limitations under Specific Provision 6.c.(2)(a) in the receiving water at, or downstream of the Responsible *Copermittees'* MS4 outfalls; OR
>
> (g) The pollutant load reductions for discharges from the Responsible *Copermittees'* MS4 outfalls are greater than or equal to the interim effluent limitations under Specific Provision 6.c.(2)(b); OR
>
> (h) The Responsible *Copermittees* have submitted and are fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the interim TMDL compliance requirements will be achieved by the interim compliance dates.
>
> Permit at E-46 to E-47 § 6(c)(3) (emphasis added).

Under this provision, which applies to interim compliance determinations for the bacteria TMDL covering twenty beaches and creeks in the San Diego Region, the City would be unable to establish compliance based on its pollutant load reductions, receiving water conditions, or Water Quality Improvement Plan activities unless it can show that all other dischargers are also in full compliance. The Regional Board apparently recognized this problem because it changed "Copermittees" to "Copermittee" in other parts of Attachment E in response to comments from the dischargers, but the Regional Board neglected to make the change consistently.[4]

As a matter of law, the Regional Board cannot impose joint liability on the City. Under Clean Water Act section 402, and California Water Code section 13260, the Regional Board's authority is limited to imposing conditions on a discharge that are reasonably related to the discharge. The Permit's WQIP program provide an additional example of how the Permit could be interpreted as imposing joint liability. The Permit's WQIP requirements will force the City to develop goals and strategies to address sources of pollution in the City' watershed regardless of whether they are in the City' jurisdiction. If they are outside the City' jurisdiction, and the permittee who is responsible refuses to act, the City would not be able to comply with the Permit's WQIP requirements. In that instance, the City could be held liable for failure to develop a WQIP as specified in the Permit.

[4] The Permit sections that the Regional Board changed from "Copermittees" (in the March 27, 2013 Tentative Order) to "Copermittee" (in the Permit) are: Attachment E, Sections 1.b(3)(a)-(c); 4.b(3)(a)-(c); 4.c(2)(a)-(d); 5.b(3)(a)-(c); 5.c(1)(b)(i)-(iii); 6.b(3)(a)-(c); 6.c(3)(a)-(c).

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The Regional Board has no authority to impose such liability on the City. (*City of Modesto Redevelopment Agency v. Superior Court*, (2004) 119 Cal.App.4th 28; *In re Alvin Bacharach and Barbara Borsuk* (Order No. WQ 91-07, SWRCB 1991 ["The Water Code provides for the issuance of cleanup and abatement orders to "'dischargers'"].) Any permit conditions that impose responsibility for discharges that do not originate from point sources owned, operated or controlled by the City exceed the Regional Board's authority and must be stricken from the permit.

VI. THE PERMIT'S INCORPORATION OF THE BACTERIAL INDICATORS TMDL FOR BEACHES AND INLAND STREAMS VIOLATES STATE LAW.

A. *Federal Law does not require the TMDL to be incorporated into the Permit.*

As with Water Quality Standards, there is no question that the Federal Clean Water Act and its implementing regulations do not require municipal stormwater permits to include TMDLs. In *Defenders of Wildlife v. Browner*, 191 F.3d 1159 (9th Cir. 1999), the Ninth Circuit held that municipal stormwater do not need to comply with Water Quality Standards, holding "industrial discharges must comply strictly with state water-quality standards," while Congress chose "not to include a similar provision for municipal storm-sewer discharges."

TMDLs are an expression of Water Quality Standards. (*Pronsolino v. Nastri* (9th Cir. 2002) 291 F.3d 1123, 1129 [TMDLs are primarily informational tools that allow the states to proceed from the identification of waters requiring additional planning to the required plans]; *City of Arcadia v. State Water Resources Control Bd.* (2006) 135 Cal.App.4th 1392, 1415 [TMDL does not establish water quality objectives, but merely implements, under Water Code section 13242, the existing narrative water quality objectives].) The Ninth Circuit's holding that the Clean Water Act and its implementing regulations do not require municipal stormwater permits to include Water Quality Standards therefore applies to TMDLs.

Any inclusion of TMDLs in the Permit is purely a function of State law, and at the discretion of the Regional Board. However, as explained more fully below, the manner in which the Regional Board included the Bacterial Indicators TMDL for Beaches and Inland Streams into the Permit represents an abuse of discretion, and the Permit must be revised.

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B. *To the extent that the TMDL is incorporated as a WQBEL, the Regional Board was required to follow Federal Regulations.*

Although Federal law does not require the inclusion of TMDLs in municipal stormwater permits, when issuing NPDES permits, the Regional Board was required to follow Federal Regulations. (23 Cal Code Regs § 2235.2 ["Waste discharge requirements for discharge from point sources to nagivable waters shall be issued and administered in accordance with the currently applicable federal regulations for the National Pollutant Discharge Elimination System (NPDES) program"].) Thus although inclusion of the TMDL is not required by Federal law, if the Regional Board is going to include it in a permit, it must be in accordance with Federal Regulations. In this case, that meant appropriate development of water quality based effluent limits ("WQBELs") that incorporate the TMDL.

Federal Regulations at 40 C.F.R. § 122.44(d) require the Regional Board to incorporate WQBELs into industrial NPDES permits when it finds there is a "reasonable potential" that the discharge of the pollutant to be regulated "has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard." (40 C.F.R. § 122.44(d)(1)(iii).)[5] To determine whether a permitted discharge has the reasonable potential to "cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard" Federal Regulations require the Regional Board to:

> use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water.
>
> (40 C.F.R. § 122.44(d)(1)(ii).)

The Regional Board must use this information to develop an appropriate WQBEL for the

[5] Pursuant to the *Defenders of Wildlife* decision, 40 CFR § 122.44(d) does not apply to municipal stormwater permits. Section 122.44(d) requires implementation of WQBELs to attain water quality standards. Under the *Defenders* opinion, water quality standards are not required to be incorporated into this MS4 permit; therefore WQBELs necessary to meet water quality standards are not required in this Permit.

regulated discharge. Before a WQBEL can be developed, a need for it must be established. As the Writers' Manual points out:

> The permit writer should always provide justification for the decision to require WQBELs in the permit fact sheet or statement of basis and must do so where required by federal and state regulations. A thorough rationale is particularly important when the decision to include WQBELs is not based on an analysis of effluent data for the pollutant of concern.
>
> (NPDES Permit Writers' Manual, September 2010, page 6-23.)

Basically, if a TMDL has been developed for the pollutant to be regulated, the WQBEL must be "consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA." (40 C.F.R. § 122.44(d)(1)(vii)(B).)

There are two generally accepted approaches to conducting reasonable potential analysis. According to US EPA guidance, "A permit writer can conduct a reasonable potential analysis using effluent and receiving water data and modeling techniques, or using a non-quantitative approach." (NPDES Permit Writers' Manual, September 2010, page 6-23.) The first approach would have required end of pipe monitoring data to be evaluated against in-stream generated ambient (dry weather) data. There is no evidence in the Permit or the Fact Sheet that the Regional Board based the Permit's WQBELs on any such data. (Fact Sheet F-126, F-127.)

As for the second, non-quantitative approach, the Regional Board also failed to provide information in the Permit, or the Fact Sheet stating that it had performed a non-quantitative analysis based on recommended criteria described in US EPA guidance. Neither the administrative record nor the Fact Sheet contains any evidence of the Regional Board having performed a reasonable potential analysis in accordance with either of the two foregoing approaches. (Fact Sheet F-126, F-127.)

Instead both the Permit's Findings, and its Fact Sheet merely recite the requirement that WBELs must be "consistent with the assumptions and requirements of any available wasteload allocation" with no analysis as to how the Permit requirements are consistent or how the WQBELs chosen were based on the required reasonable potential analysis. (Fact Sheet, F-126, F-

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127.) Not only is this a violation of Federal Regulations, but it is also renders the Permit infirm under the California Supreme Court's decision in *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, which requires appropriate findings to "facilitate orderly analysis and minimize the likelihood that the agency will randomly leap from evidence to conclusions." (*Id.*, at 514.)

C. *The Permit's TMDL requirements violate State law.*

Under the California Supreme Court's holding in *Burbank v. State Board* (2005) 35 Cal.4th 613 ("*Burbank*"), a regional board must consider the factors set forth in sections 13263, 13241 and 13000 when adopting an NPDES Permit, unless consideration of those factors "would justify including restrictions that do not comply with federal law." (*Id.* at 627.)

As stated in the *Burbank*, "Section 13263 directs Regional Boards, when issuing waste discharge requirements, to take into account various factors including those set forth in Section 13241." (*Id.* at 625, emphasis added.) Specifically, the Court held that to the extent the NPDES Permit provisions in that case were not compelled by federal law, the Regional Boards were required to consider their "economic" impacts on the dischargers themselves, with the Court finding that such a requirement means that the Water Boards must analyze the "discharger's cost of compliance." (Id. at 618.)

As described above, there is no question that Federal Law does not require TMDLs to be included in municipal stormwater permits. (*Defenders of Wildlife v. Browner*, 191 F.3d 1159 (9th Cir. 1999); 40 C.F.R. § 122.44(d).) Consequently, the Regional Board was required to consider the factors listed in Water Code sections 13000, 13263 and 13241 before including the TMDL in the Permit. (*Burbank v. State Board* (2005) 35 Cal.4th 613.)

Water Code sections 13000, 13263, and 13241 require much more than an economic analysis.[6] First and foremost, they require an analysis of whether the proposed Permit terms are "reasonable, considering all demands being made and to be made on [receiving] waters." (Cal

[6] The Regional Board additionally failed to conduct a sufficient economic analysis of the Permit's requirements. A discussion of the reasons the Regional Board's efforts were deficient is presented in Section XI., below.

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Water Code § 13000.) They further require an analysis of whether specific Permit requirements are necessary given "the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges." (Cal Water Code § 13263(a).)

The Regional Board has failed on both fronts. Permit terms that are infeasible to achieve are by definition, not reasonable. As described in Section II., above, compliance with numeric effluent limits tied directly to Water Quality Standards is simply not feasible. While the Regional Board attempted to "soften the blow" by requiring percentage reductions in bacteria levels instead of strict compliance with the TMDL's WLA, the effect is the same. Stormwater is a diffuse source subject to many areas of input. With regard to bacteria, many of those sources are natural. 100% control is not feasible. If a discharger fails to attain the reductions set forth in the TMDL on a numeric basis, they will be in violation of the Permit.

This kind of strict compliance approach fails to consider "the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges" as required by Water Code section 13263(a). Many of the inland streams to which the TMDL (and the Permit conditions implementing the TMDL) apply are either channelized, fenced, or so shallow as to prevent full body contact recreation. Requiring the City to meet a bacteria standard based on an assumption of full body contact recreation in these areas is an unreasonable abuse of discretion that blatantly fails to consider the true beneficial uses of the waters at issue, and the many naturally occurring sources of bacteria discharges to surface waters in the region.[7] Neither the Permit or the Fact Sheet contain any analysis to the contrary.

More importantly for the purposes of this challenge, the Regional Board's decision to include the TMDL in the Permit violates sections 13263, 13241 and 13000, as well as the California Supreme Court's decision in *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506. For that reason, the TMDL requirements must be removed from the Permit.

[7] Additionally, to the extent the underlying TMDL is flawed, the Regional Board had an obligation to correct the TMDL before imposing it on the City. (*See California Assn. of Sanitation Agencies v. State Water Resources Control Bd.* 208 Cal. App. 4th 1438, 1461 (2012).)

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VII. THE PERMIT'S ACTION LEVEL REQUIREMENTS ARE INCONSISTENT WITH STATE AND FEDERAL LAW.

Permit, section II.C, entitled "Action Levels," imposes a series of Non-stormwater Action Levels ("NALs") and Stormwater Action Levels ("SALs"), as numeric "goals" to be achieved. To the extent an NAL or SAL is based on an interim or final effluent limitation from a TMDL, then such a NAL or SAL becomes an "enforceable effluent limitations" which must be strictly complied with.

A. *The Permit's Action Levels could be interpreted as numeric effluent limitations.*

The Regional Permit, in Provision II.C, sets forth requirements for the incorporation of Non-Storm Water Action Levels ("NALs") and Storm Water Action Levels ("SALs") into Water Quality Implementation Plans ("WQIPs). The preamble to Provision II.C states that the "goal of the action levels is to guide Water Quality Improvement Plan implementation efforts and measure progress towards the protection of water quality and designated beneficial uses of waters of the state from adverse impacts caused or contributed to by MS4 discharges." This language establishes that the NALs and SALs are not intended to be enforceable themselves if not attained by the copermittees.

Unfortunately, the language of the Regional Permit is not entirely clear on this point. Footnotes 7 and 9 of the Regional Permit state that NALs and SALs incorporated into a WQIP "*are not considered* by the San Diego Water Board to be enforceable effluent limitations" (unless based on a water quality based effluent limitation ("WQBEL") expressed as an interim or final effluent limitation for a TMDL and the compliance date for that WQBEL has passed). (emphasis supplied).

Given that the Regional Board has an obligation to make ensure that the provisions of the Regional Permit are clear and unambiguous, the City requests that the State Board either amend the footnotes or text of the Regional Permit to make clear that the NALs and SALs are *not* enforceable effluent limitations or direct the Regional Board to take that action.

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B. ***The Permit lacks adequate findings that the Action Levels are necessary, or compliant with Water Code sections 13263 or 13241.***

The Permit's Action Level requirements (both NAL and SAL) include several predetermined Action Levels for, among other things, dissolved oxygen, turbidity, pH, copper, zinc, and lead. (Permit section C.1.a.) These pre-set levels were selected by the Regional Board as necessary to achieve the Maximum Extent Practicable standard required by the Clean Water Act. As an initial matter, neither SALs or NALs are required by the Clean Water Act or the MEP standard for the same reasons that TMDLs and numeric effluent limitations are not required by the Clean Water Act or the MEP standard.

More importantly, the Permit contains no findings explaining why the specific levels were chosen, or how their inclusion in the permit is necessary to achieve the MEP standard. It likewise lacks any findings as to how the chosen standards are compliant with factors set forth in Water Code sections 13263 and 13241.

The Fact Sheet includes a discussion of where the initial Action Level numbers came from but includes no analysis of whether they are reasonable or attainable. (See Fact Sheet pp. F-57, F-58.) The Fact Sheet additionally fails to explain why the each pollutant level chosen is necessary for inclusion in the Permit. (*Id.*) Instead, the Fact Sheet refers back to the 2009 and 2010 municipal permits issued for South Orange County and Riverside County and states that the Permit's Action Levels were developed for those permits.[8] The Fact Sheet additionally cites an EPA study but does not discuss the propriety of each preset limit. This level of analysis is required to provide the City with the opportunity to review the numeric limits chosen and provide evidence refuting the rationale under which they were chosen. It was further required to ensure that the Regional Board did not "randomly leap from evidence to conclusions." (*Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 514.)

[8] The Fact Sheet fails to note that the dischargers objected to the 2009 South Orange County Permit's Action Levels on the grounds that they were arbitrarily chosen. The Fact Sheet further fails to note that the 2009 South Orange County Permit's Action Levels were appealed via petition to the State Board by several of the permittees. Those petitions are currently in abeyance.

Lastly, both the Permit and the Fact Sheet fail to assess whether the Action Levels meet the requirements of Water Code sections 13263, and 13241. Because the Action Levels are not required by Federal law, the Regional Board must comply with state law in imposing these requirements. This includes considering the water quality conditions that could be reasonably achieved and economic considerations. A substantial body of evidence exists that suggests the proposed NALs and SALs may not be reasonably achievable. If Permittees are required to respond to and address all exceedances without reasonable prioritization, the cost will be significant. Because some exceedances will not be indicative of impacts to water quality, the cost to implement the SALs and NALs may have little if any commensurate environmental benefit. There is nothing in the record that suggests that the Regional Board has considered these water quality and economic factors. (*See Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 514.) For that reason they must be removed from the Permit until such time as the Regional Board demonstrates that they are feasible, cost effective, and necessary.

VIII. THE REGIONAL BOARD HAS UNLAWFULLY ADOPTED A REGIONAL PERMIT IN VIOLATION OF THE WATER CODE AND FEDERAL REGULATIONS.

The Permit covers permittees in three large metropolitan counties – Orange, Riverside and San Diego. In May 2012, Orange and Riverside Counties ("Counties") sent letters to Staff Counsel for the Regional Board requesting the legal authority to issue a region-wide permit to the Counties.[9] The Counties contended that in accordance with federal regulations there was no system-wide, jurisdiction-wide or watershed basis to issue a regional permit. The Counties also asserted that they did not apply for the Permit and that there was no administrative basis or other evidence that allowed the Regional Board to adopt a Permit with provisions expressly regulating the Counties without considering a Report of Waste Discharge.

On September 7, 2012, Staff Counsel responded to the Counties stating that there was a jurisdiction-wide and watershed basis to impose a regional permit on the Counties, but offered no

[9] Letter from Ryan M. F. Baron, Office of County Counsel, County of Orange, to Catherine Hagan, Office of Chief Counsel, State Water Resources Control Board, San Diego Region (May 10, 2012); Letter from David H. K. Huff, Office of County Counsel, County of Riverside, to Catherine Hagan, Office of Chief Counsel, State Water Resources Control Board, San Diego Region (May 21, 2012).

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evidence for these bases. Staff Counsel cited examples in the Bay Area and an Alaskan borough where regional permits had been issued.[10] Despite the Regional Board's contentions to the contrary, no law or regulation gives the Regional Board the authority to issue a regional permit.

A. *There Is No System-wide, Jurisdiction-Wide, Watershed or Other Basis by Which to Legally Impose a Region-wide Permit on the Petitioners.*

Finding 2 in the Permit states that the legal and regulatory authority for implementing a region-wide MS4 Permit stems from Section 402(p)(3)(B) of the Clean Water Act ("CWA") and 40 C.F.R. § 122.26(a)(1)(v). The Permit also cites EPA's Final Rule regarding stormwater discharge permit application procedures that there is flexibility to establish system-wide or region-wide permits. (55 Fed. Reg. 47990, 48039-48042.) In the summer of 2012, the Regional Board staff circulated a draft Permit and conducted Focused Meeting Workshops seeking input on the draft Permit. At workshops held on June 27, 2012 and July 11, 2012, Regional Board staff stated that the only reason for a region-wide Permit was to consolidate the three county permits to lessen the amount of permit writing time and reduce Regional Board costs. Upon adoption of the Permit on May 8, 2013, Finding 2 had been amended to state that the "regional nature of this Order will ensure consistency of regulation within watersheds and is expected to result in overall costs savings for the Copermittees and San Diego Water Board." (Permit section I.2.) There was no evidence presented at the adoption hearing of savings by the Copermittees or Regional Board or that the region-wide permit would ensure consistency of regulation. In any case, neither justification is valid under federal or state law. No other basis was given and no evidence was presented demonstrating why three large, geographically different counties would be covered under one Permit.

In 1987, Congress adopted amendments to the CWA requiring EPA to develop a permitting system for large and medium MS4s. As part of a rulemaking proceeding to adopt regulations implementing the CWA amendments, EPA examined how to define an MS4

[10] Letter from Jessica Jahr, California Regional Water Quality Control Board, San Diego Region, to Ryan M. F. Baron, Office of County Counsel, County of Orange, and David H. K. Huff, Office of County Counsel, County of Riverside (Sept. 7, 2012).

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"system." Under the CWA and EPA rules, a "system," *one system*, would be issued a permit by the EPA or State authority allowing the discharge of stormwater into waters of the U.S. EPA's rulemaking proceeding only examined individual MS4s (*i.e.*, city and county unincorporated area) and MS4s within the same geographic area – defined as the same watershed or the political boundary *of the discharger* (*i.e.*, state owned roads, countywide or regional stormwater management authority).

Multiple smaller systems could be defined as a "system" and issued one permit if there were common physical factors and a unified stormwater management plan. The only instance where a larger geographic area would be covered under one permit is where there was an application by a regional stormwater management authority (*e.g.*, joint powers authority) that was legally empowered to perform all the program functions of smaller MS4s and could apply for such a permit. The EPA did not consider defining a "system" based on cost savings or consistency of regulation, and its final rules do not allow for this interpretation.

In adopting a region-wide Permit, the Regional Board has no basis to define the three counties as "one system" and issue one Permit to 39 different jurisdictions without their application or consent. There are no common physical factors to consider and no unified stormwater management plan between the three counties and 39 permittees. The Petitioners do not operate and are not a member of a regional stormwater management authority. Rather, the Regional Board only considered its internal cost savings and issued the Permit based on the geographic boundary of the Regional Board, and not the dischargers (whereas the Regional Board's political boundary spans across several large distinct and separate MS4 systems).

Federal Regulations look to interconnection and similarities between jurisdictions as the basis by which to issue one permit. (33 U.S.C. § 1342(p)(3)(B)(i); 40 C.F.R. § 122.26(a)(1)(v)).) Federal regulations do not authorize and the EPA Final Rule does not contemplate regional permit issuance based on overall reduced cost savings. (55 Fed. Reg. 47990-01.) Here, overall cost savings have not been demonstrated by the Regional Board, and although it may be administratively convenient to impose a one-size fits all Permit, the EPA Final Rule contemplates such consistency within a watershed and not throughout a geographical area the size of the three

counties.

There is no factual or technical basis in the Permit that meets this criteria or establishes other bases to regulate Orange County under one unified permit. There is also no statistical basis by which to issue a region-wide Permit, as Orange County is comprised of over three million people and is the sixth largest county by population in the U.S. The U.S. Bureau of Census designates Orange County in a different Metropolitan Statistic Area than San Diego County, designating it in a Combined Statistical Area with Los Angeles, Ventura and San Bernardino Counties.

Lastly, the Regional Board cited examples in the Bay Area and in Alaska where region-wide permits were alleged to have been issued. In the Bay Area MS4 permit, various City and counties under that permit [cite] interconnect with one another and drain into the San Francisco Bay. The Bay Area MS4s agreed to end their existing permits early and applied for and consented to a region-wide permit. The Bay Area is also represented by a joint powers organization or regional watershed management program comprised of 8 municipal stormwater programs that performs common watershed functions for its 94 members. In the case of the Alaska example, a "region-wide" permit was issued to the Fairbanks North Star Borough, City of Fairbanks, City of the North Pole, the Alaska Department of Transportation and the University of Alaska Fairbanks. Further review of that permit and the stormwater program maps demonstrate, however, that the region regulated is a borough, the Alaskan equivalent of a county. All of the regulated Alaska permittees are physically interconnected through a storm drain system and roadways and drain into one watershed. In short, neither the Bay Area nor the Fairbanks Borough permits provide sufficient examples of a region-wide permit comparable to the one being issued to the Petitioners.

B. ***There Is No Technical Basis to Regulate the Petitioners Due to the Lack of a Report of Waste Discharge Application.***

In order for an MS4 system to be issued a permit, the operator of the system must apply for it. (40 C.F.R. § 122.21.) The Report of Waste Discharge ("ROWD") is the mechanism by which an MS4 applies to discharge stormwater. Every MS4 permit contains a requirement that a

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ROWD be filed within 180 days of the expiration of the permit so that a new permit can be considered and adopted. A ROWD is a several hundred page application that contains information used to determine provisions of a new permit, including, but not limited to, monitoring, program strengths and other tools that are assessed in the new permit. A ROWD contains quantitative data and other evidence by which to make findings, conclusions of law, establish programs, and approve a permit to a system. In short, a ROWD contains the evidence that a Regional Board uses to regulate the permittee.

The Regional Board has adopted a Permit that expressly covers Orange County water bodies and regulates the actions of the Petitioners, but is not based on any ROWD or other application filed by the City. Thus, there is no technical basis for the Permit or substantial evidence in the record by which to regulate the City under a region-wide Permit, or any permit other than the Petitioners existing permit, (Cal Water Code § 13260; *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506) and the terms and conditions of the Permit are arbitrary and capricious.

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IX. THE PERMIT CANNOT CLASSIFY NATURAL WATERS AS PART OF THE MS4, AND THE MS4 CANNOT BE CLASSIFIED AS BOTH A MS4 AND RECEIVING WATER.

The Permit states that development often makes use of natural drainage patterns and features as conveyances for runoff. Finding 11 goes on to state that rivers, streams and creeks in developed areas are part of the Petitioners' MS4 whether the river, stream or creek is natural, anthropogenic or partially modified. It further states that these natural water bodies are both an MS4 and a receiving water.

Finding 11 is expressly contradicted by Federal Regulations defining what qualifies as an MS4. Federal Regulations define a municipal separate storm sewer as:

> a conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains:
>
> i. Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) ... including special districts under state law such as a sewer district sewer district, flood control district or drainage district, or similar entity, or an

Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges into waters of the United States;

ii. Designed or used for collecting or conveying stormwater;

iii. Which is not a combined sewer; and

iv. Which is not part of a publicly owned treatment works (POTW) as defined at 40 CFR 122.2.

This definition only includes man-made channels and systems and does not encompass natural water bodies simply because an outfall discharges to a receiving water. Improvements to natural rivers, streams and creeks do not make them an MS4, or part of an MS4. They are simply an improved water of the U.S.

Lastly, municipalities do not own, control or operate natural rivers, streams and creeks. Such water bodies are often administrated by the State of California in the public trust for the right of the people to use such waters for certain purposes or are privately owned. The Legislature, acting within the confines of the common law public trust doctrine, is the ultimate administrator of the trust and may often be the final arbiter of permissible uses of trust lands. Such waters are not therefore, part of the City's MS4.

X. THE REGIONAL BOARD VIOLATED DUE PROCESS REQUIREMENTS IN THE PERMIT DEVELOPMENT PROCESS.

The period provided to review and comment on the Permit was unreasonably short given the breadth of the Permit. By denying the Co-Permittees a meaningful opportunity to review and comment on a Permit that so drastically affects their rights and finances, the Regional Board has denied the Co-Permittees due process rights under state and federal law. The United States Constitution, the California Constitution and the California Administrative Procedures Act, as applicable to the Regional Board, all require basic procedural due process. (*See Morongo Band of Mission Indians v. State Water Resources Control Board* (2009) 45 Cal.4th 731; Gov. Code § 11425.10.) The essence of due process is the opportunity to be heard at a meaningful time and in a meaningful manner. (*Mathews v. Eldridge* (1976) 424 U.S. 319, 333; *Spring Valley Water*

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Works v. San Francisco (1890) 82 Cal. 286 (1890) (reasonable notice and opportunity to be heard are essential elements of "due process of law," whatever the nature of the power exercised.); *Arkansas Wildlife Fed'n v. ICI Ams.* (8th Cir. 1994) 29 F.3d 376, 381 ("the overall regulatory scheme affords significant citizen participation, even if the state law does not contain precisely the same public notice and comment provisions as those found in the federal CWA."))

Two examples illustrate the lack of compliance by the Regional Board with this "essence" of due process. First, the Regional Board released the Draft Tentative Order at the close of business on March 27, 2013, just before Easter weekend and a state holiday on April 1, 2013. (See Draft Tentative Order R9-2013-0001 (March 27, 2013).) This release date provided just a few business days to review the Draft Tentative Order before the adoption hearings that were scheduled for April 11 and 12, 2013. As the Authority and other Co-Permittees informed the Regional Board in writing before and orally at the April 11 and 12 hearings, this short time period was insufficient to allow the Authority to properly prepare for the hearings. The Authority was thus deprived the "essence" of due process prior to the April hearings.

The same holds true regarding the Regional Board's May 8, 2013 hearing process. The Regional Board released two errata sheets shortly before the final adoption hearing on May 8, 2013. These errata sheets proposed major changes to the March 27, 2013 Tentative Order, most notable the proposed deletion of the compliance option in one version of the errata. Again, this short notice provided insufficient time for the Authority to prepare for and comment on the Permit. The Authority was thus deprived of fair notice and a meaningful opportunity to be heard on this important issue.

XI. THE REGIONAL BOARD FAILED TO ADEQUATELY CONSIDER ECONOMIC IMPACTS PURSUANT TO WATER CODE SECTION 13241

Under the California Supreme Court's holding in *Burbank v. State Board* (2005) 35 Cal.4th 613, a regional board must consider the factors set forth in sections 13263, 13241 and 13000 when adopting an NPDES Permit, unless consideration of those factors "would justify including restrictions that do not comply with federal law." (*Id.* at 627.)

As stated in the *Burbank*, "Section 13263 directs Regional Boards, when issuing waste

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discharge requirements, to take into account various factors including those set forth in Section 13241." (*Id.* at 625, emphasis added.) Specifically, the Court held that to the extent the NPDES Permit provisions in that case were not compelled by federal law, the Regional Boards were required to consider their "economic" impacts on the dischargers themselves, with the Court finding that such a requirement means that the Water Boards must analyze the "discharger's cost of compliance." (Id. at 618.)

There has not been a full consideration of the section 13241 factors, which would include an analysis of the economic impacts that would result from compliance with the existing stormwater permit compared to the costs of complying with the proposed stormwater permit (thereby the costs of complying with the new requirements). Instead, the Permit's analysis begins by stating, and without any quantification, that it would more expensive to not fully implement programs. Section 13241 is not satisfied by this inverse analysis.

The Permit states that the Petitioners have a significant amount of flexibility to choose how to implement BMPs and that "least expensive measures" can be chosen. (Fact Sheet, F-17.) This statement, however, conflicts with the Permit's definition of MEP at Permit section C-6 which expressly acknowledges Chief Counsel's 1993 MEP memo that only the Regional and State Boards determine whether BMPs meet MEP, and that selection of the least expensive BMPs will likely not result in meeting the MEP standard. The Fact Sheet also fails to cite any recent cost benefit numbers but relies on inapplicable cost data such as a 1999 EPA study on household costs and a California State University, Sacramento ("CSUS") Cost Survey assessed program costs for Phase I City.

Nothing in the Fact Sheet links any of the actual conditions of the Phase I permits of the Phase I City studied by CSUS with any of the requirements of the Permit. Therefore, the study tells the public nothing about the costs to implement the Permit. The data included in the Fact Sheet is also more than a decade old. In short, the Fact Sheet uses old data from Phase I programs that have no linkage to any conditions of the Permit. The full costs of implementing the entire program required by the Permit in 2013 dollars must be assessed.

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In addition to relying on outdated and inapplicable data, the Regional Board's cost analysis is fundamentally flawed because it tells the public nothing at all about the relationship between the cost of any particular BMP and the pollution control benefits to be achieved by implementing that BMP. Under this "generalized" approach, extremely costly requirements that bear little or even no relationship (or even a negative relationship) to the pollution control benefits to be achieved could be "justified" as long as the "overall" program costs are within what the Regional Board deems to be an acceptable range.

This is not a proper way to determine whether a control reduces the discharge of pollutants from the MS4 to the MEP. A more individualized assessment of cost is required. Otherwise, dischargers may be required to implement very costly controls that have no relationship to pollution control benefits, a result inconsistent with MEP. This analytical flaw in the Fact Sheet is compounded by the approach taken to assess the benefits of the Permit. Here again, the assessment approach misses the mark because it tells the public nothing about the pollution control benefits to be achieved by implementation of the controls in the Permit. All the Fact Sheet indicates, in essence, is that people like clean water and in theory may be willing to pay for it, that urban storm water may contribute to beach closures, and that such beach closures have an economic impact. This analysis sheds no light on the relationship between a BMP's costs and the pollution control benefits to be achieved by implementing that BMP.

Finally, stormwater agencies cannot readily establish or raise fees to help pay for the BMPs necessary to comply with either the California Toxics Rule criteria or proposed Site Specific Objectives due to the requirements of Proposition 218, Proposition 26 and the Mitigation Fee Act. For instance, Proposition 218 requires that property-related fees be put to a vote, so City cannot assess fees without the consent of two-thirds of the property owners. Therefore, the costs associated with the implementation and maintenance of the BMPs will almost always be expended using local agency General Funds.

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XII. The Permit unlawfully imposes a Federal scheme on the City with no option for compliance

The Permit violates the Tenth Amendment to the United States Constitution because it compels the City and other copermittees to administer a federal regulatory scheme. The Tenth Amendment states that "[t]he powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people." U.S. Const. amend. X. The U.S. Supreme Court has held that under the Tenth Amendment, "the Federal Government may not compel the States to implement, by legislation or executive action, federal regulatory programs." *Printz v. United States*, 521 U.S. 898, 925 (1997). The protection afforded by the Tenth Amendment extends to local governments such as the City. *Id.* at 931 n.15; *Envtl. Defense Ctr., Inc. v. EPA*, 344 F.3d 832, 847 (9th Cir. 2003).

A state or local government may be persuaded to implement a federal regulatory program but "the residents of the State or municipality must retain 'the ultimate decision' as to whether or not the State or municipality will comply with the federal regulatory program." *Envtl. Defense Ctr.*, 344 F.3d at 847 (citing *New York v. United States*, 505 U.S. 144, 168 (1992)). Permissible methods of "persuasion" include federal funding that is contingent on participation in a federal program. *Id.* (citing *South Dakota v. Dole*, 483 U.S. 203, 205-08 (1987)). Offering an alternative to implementing a federal regulatory program may also be constitutionally permissible, so long as the alternative does not "unduly infringe on the sovereignty of the State or local government." *City of Abilene v. EPA*, 325 F.3d 657, 662 (5th Cir. 2003) (citing *New York*, 505 U.S. at 176).

An example of an alternative that crosses the line into compulsion is the "take title" provision of the Low-Level Radioactive Waste Policy, which gave states the choice of either regulating radioactive waste according to federal standards, or taking possession of that waste. *New York*, 505 U.S. at 174-77. The Supreme Court determined this provision violates the Tenth Amendment because, "[e]ither way, 'the Act commandeers the legislative processes of the States by directly compelling them to enact and enforce a federal regulatory program.'" *New York*, 505 U.S. at 176 (quoting *Hodel v. Virginia Surface Mining & Reclamation Ass'n, Inc.*, 452 U.S. 264, 288 (1981)). "A choice between two unconstitutionally coercive regulatory techniques is no

choice at all." *Id.*

In the storm water context, a Phase I MS4 permit did not violate the Tenth Amendment even though it required the cities to implement storm water management programs regulating new development, construction sites, sanitary sewers, landfills, hazardous waste treatment facilities, and industrial facilities. *City of Abilene*, 325 F.3d at 660, 662. The court reasoned that the cities had a constitutional alternative to implementing this federal program: accept a permit with effluent limitations instead of storm water management requirements. *Id.* at 662. Likewise, the Ninth Circuit Court of Appeals held that the storm water management requirements in EPA's Phase II MS4 permit rule did not run afoul of the Tenth Amendment because cities had the option to enroll in a Phase I MS4 permit instead, and that permit had already been found constitutional in *City of Abilene. Envtl. Defense Ctr.*, 344 F.3d at 848.

Unlike the MS4 permit requirements challenged in *City of Abilene* and *Environmental Defense Center*, the Permit violates the Tenth Amendment because the City and other copermittees have no choice but to implement a federal regulatory program.[11] The Regional Board has taken the management permit and effluent permit alternatives discussed in *City of Abilene* and made them both compulsory in the Permit. The Permit requires the City to implement the storm water management programs such as the Water Quality Improvement Plans in Provision II.B and the Jurisdictional Runoff Management Programs in Provision II.D, *and* to comply with the de facto effluent limitations in Provision II.A. There is no choice here.

The City respectfully requests that the State Board remand the Permit back to the Regional Board with direction to restore the compliance linkage between the Water Quality Improvement Plans in Provision II.B and the receiving water limitations in Provision II.A. This linkage would cure the legal issues addressed here by giving the City and other copermittees a chance to comply with the Permit and providing a constitutional choice instead of compelling

[11] The Regional Board has found that each and every requirement in the Permit is federally mandated under the Clean Water Act. Permit at F-29 to F-30. The City disagrees with this finding, but notes that the Regional Board cannot have it both ways. If the Permit includes only federal requirements, then the Tenth Amendment must be respected. If the Permit includes state law requirements above and beyond what is required under the Clean Water Act, then those requirements are unfunded state mandates.

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both implementation of federal storm water management programs and compliance with effluent limitations.

CONCLUSION

For the reasons expressed in the Petition, and this Memorandum of Points and Authorities the City's Petition should be granted.

Dated: June 7, 2013

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Attachment 1: City of San Diego Comment Table Regarding September 18, 2014 Revisions to Order No. R9-2013-0001
November 19, 2014

Permit Section	Permit Page (Original)	Section Title	Reason for Proposed Changes/Comments	Proposed Changes
General Comment	NA	NA	NA	The proposed amendments do not address any of the issues raised in the City's Petition for Review of San Diego Regional Water Quality Control Board (Regional Board) Order No. R9-2013-0001, filed on June 7, 2013. The City does not waive any of those arguments, and urges the Regional Board to address those issues as part of this permit amendment.
A. Prohibitions and Limitations				
A	13-16	Prohibitions and Limitations	Current permit language lacks linkage between Water Quality Improvement Plans (WQIPs) and compliance. Problems caused by current language: (1) it undermines the stated intent of the Regional Board to encourage prioritization of pollutants; (2) it requires resource-intensive watershed planning efforts that have no benefit to the Copermittees' ability to comply with the Receiving Water Limitations and Discharge Prohibitions; and (3) it calls into question whether WQIPs are properly required under the MS4 Permit. The City envisions WQIPs as the foundation for a BMP-based compliance approach for the Discharge Prohibitions and Receiving Water Limitations. However, the language in Provision A does not clearly link compliance with the iterative process set forth in the WQIPs. In essence, the language suggests that even if Copermittees expend significant resources to develop and fully implement WQIPs that are progressing toward attainment of water quality standards, they may still be found to be out of compliance for single exceedances. The iterative process is a fundamental aspect of MS4 programs, as envisioned by State Water Board Order 99-05 and later reconfirmed in Order WQ 2001-15 (BIA Order), and is the mechanism by which MS4 Copermittees should demonstrate compliance (i.e., implementation of the iterative process equals compliance). The WQIPs now provide a mechanism to "raise the bar" with regard to the detail and quantitative analyses used to identify pollutant sources, implement BMPs to address those sources, and increase the number or size of BMPs until water quality standards are attained. However, as Provision A.4 is written, the envisioned strategic compliance process falls short, and the WQIPs are simply documents that do not appear to have a meaningful linkage to MS4 compliance. An unintended but potentially significant consequence of this compliance uncertainty is that the City and other Copermittees may experience increased difficulty securing program funding because even substantial increases in funding would not lead to achieving	Revise Provision A to allow implementation of WQIPs to demonstrate compliance with Receiving Water Limitations and Discharge Prohibitions.

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November 19, 2014

Permit Section	Permit Page (Original)	Section Title	Reason for Proposed Changes/Comments	Proposed Changes
			compliance.	
B. Water Quality Improvement Plans				
B.1	17	Watershed Management Areas	This NPDES Permit is applicable to discharges from Copermittee MS4s as stated in Section A.1. Discharges from other NPDES permits are governed by requirements within those permits.	Modify Section B.1 as follows: The Copermittees must develop a WQIP for their MS4 discharges within each of the Watershed Management Areas in Table B-1.
E. Jurisdictional Runoff Management Programs				
E	93	Structural BMP Approval and Verification Process	A definition of "prior lawful approval" is necessary. Regional Board counsel has indicated that "prior lawful approval" was intended to refer to an approval that conferred a vested right to proceed without complying with the new development requirements of the 2013 MS4 Permit. However, some stakeholders have argued that any approval is sufficient. The current permit language is unclear. A definition is necessary to ensure that the standard the Copermittees will be held to by the Regional Board is expressed in the permit language. Permit language should address the following: 1. Provide a clear, bright line of what constitutes prior lawful approval; 2. Provide a back stop to ensure that projects with older approvals that do not confer vested rights comply with new requirements; 3. Protect vested rights; and, 4. Preserve Copermittees' land use authority.	Define "prior lawful approval." This could be done in a footnote.
E	93	Structural BMP Approval and Verification Process	Including the date the BMP Design Manual will be updated would provide additional clarity and avoid having to read multiple sections of the Permit to determine the referenced date.	(a) Each Copermittee must require and confirm that, for all Priority Development Project applications that have not received prior lawful approval by the Copermittee by ~~the time the BMP Design Manual is implemented updated pursuant to Provision E.3.d~~December 24, 2015, the requirements of Provision E.3 are implemented. For project applications that have received prior lawful approval before ~~the BMP Design Manual is implemented updated pursuant to Provision E.3.d~~December 24, 2015, the Copermittee may allow previous land development requirements to apply.
Attachment A. Discharge Prohibitions and Special Protections				
A	A-5 to A-6	Compliance Plans for Inclusion in Storm Water Management Plans	The redline strikeout version of draft amendment indicates that the entire Area of Special Biological Significance (ASBS) section has been changed, but the proposed resolution indicates that the only change that was made was to reflect State Board Resolution 2012-0031, which changed the deadline for certain provisions from 4 to 6 years.	Support change to Attachment A, section 2.A.2.d.2.

Attachment 1: City of San Diego Comment Table Regarding September 18, 2014 Revisions to Order No. R9-2013-0001
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Permit Section	Permit Page (Original)	Section Title	Reason for Proposed Changes/Comments	Proposed Changes
Attachment E. Specific Provisions for Total Maximum Daily Loads Applicable to Order No. R9-2015-0001				
Attachment E, Sections 1.b(3)(d) 1.b(3)(d)(iv) 1.b(3)(d)(v) 2.b(3)(d)(iv) 2.b(3)(d)(v) 3.b(3)(d)(iv) 3.b(3)(d)(v) 4.b(3)(d) 4.b(3)(d)(iv) 4.b(3)(d)(v) 5.b(1)(a) 5.b(3)(d) 5.b(3)(e) 5.b(3)(f) 4.b(3)(g) 4.b(3)(g)(iv) 4.b(3)(g)(v) 5.c(1)(b)(iv) 5.c(1)(b)(v) 5.c(1)(b)(vi) 5.c(1)(b)(vii) 5.c(1)(b)(viii) 6.b(2)(b)(ii) 6.b(3)(d) 6.b(3)(e) 6.b(3)(f) 6.b(3)(f)(iv) 6.b(3)(f)(v) 6.c(2)(a)(i) 6.c(2)(a)(ii) 6.c(3)(d) 6.c(3)(e) 6.c(3)(f) 6.c(3)(g) 6.c(3)(h)	E-4 E-8 E-11 E-16 E-19 E-23 E-24 E-25 E-34 E-36 E-37 E-41 E-42 E-47	Final TMDL Compliance Determination	Compliance language requires all Copermittees to implement a WQIP for any of the Copermittees to utilize the WQIP based compliance approach for TMDLs. Copermittees have no authority to compel other Copermittees to implement BMPs and should not be held liable for the actions or inactions of others. Under 40 C.F.R. §§ 122.26(a)(3)(vi) and 122.26(b)(1), a Copermittee is responsible only for conditions relating to the discharges for which it is the operator.	Revise Attachment E Provisions to allow independent jurisdictional compliance. For example, revise Provisions E.1.b(3)(d) as follows: (d) The Responsible ~~Copermittees~~ Copermittee ~~develop~~ develops and ~~implement~~ implements the Water Quality Improvement Plan as follows: . . . . (iv) The Responsible ~~Copermittees~~ Copermittee ~~continue~~ continues to implement the BMPs required under Specific Provision 1.b.(2)(c), AND (v) The Responsible ~~Copermittees~~ Copermittee ~~continue~~ continues to perform the specific monitoring and assessments specified in Specific Provision 1.d, to demonstrate compliance with Specific Provisions 1.b.(3)(a), 1.b.(3)(b) and/or 1.b.(3)(c).
Attachment E, 7.b.2	N/A	Final Effluent Limitations	The Waste Load Allocation is incorrectly stated as an annual load. Instead, the Waste Load Allocation was calculated as loading from the critical wet period of Oct. 1 to Apr. 30, not the entire year. (TMDL Staff Report, Table 6). This error in the MS4 permit makes the Waste Load Allocation, and consequently, the	Modify Table 7.1 heading as follows: Final Effluent Limitations as Expressed as Wet Season (October 1 to April 30) Loads

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			Final Effluent Limitation, inconsistent with the TMDL. Some sediment loading may occur during the dry season (May 1 to Sept. 30) for Los Penasquitos Creek (historically flows year round) and for other creeks during significant rainfall events.	from Responsible Parties to Los Peñasquitos Lagoon Constituent Effluent Regarding "Responsible Parties" above, see comment below.
Attachment E, 7.b.2	E-53	Final Effluent Limitations	It is not appropriate to express a Waste Load Allocation that applies to all responsible parties under the TMDL as a numeric effluent limitation that applies only to the Copermittees. The result is that the other responsible parties would have **zero** allocation of sediment, but the recently adopted Caltrans, Phase II, and Industrial storm water permits do not subject those responsible parties to any numeric effluent limitations: • The General Industrial Permit adopted by the State Board on April 1, 2014, includes the general statement that "discharges addressed by this General Permit are considered to be point source discharges, and therefore must comply with effluent limitations that are consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the state and approved by USEPA." However, the General Industrial Permit has not yet incorporated specific TMDL compliance provisions, let alone effluent limitations. • Similarly, the General Phase II Permit adopted by the State Board on February 5, 2013, states generally that "discharges from Small MS4s are point source discharges subject to TMDLs," and further states that "this Order requires Permittees to comply with all applicable TMDLs." However, the TMDL provisions in Attachment G of the Phase II Permit do not impose any effluent limitations on Phase II MS4s. • The Caltrans storm water permit amendments to incorporate TMDL requirements, dated July 1, 2014, allow for BMP-based compliance instead of imposing numeric effluent limitations. Because of the disparity in the TMDL provisions in these NPDES permits, it is important to separate allocations for Caltrans, Phase II, and Industrial storm water permits so that future revisions of those permits can responsibly address their portion of the Wasteload Allocation.	Two changes are necessary to acknowledge the sediment loading contributions of other Responsible Parties listed in the TMDL: • The sediment loads stated as the final effluent limitation in Table 7.1 should include only the load specific to storm water runoff from Copermittees, and should not include loads associated with runoff from other Responsible Parties with separate NPDES permits (Resolution No. R9-2012-0033, Attachment A, Page 5 lists the other Responsible Parties as Phase II MS4 permittees, Caltrans, and the General Construction and General Industrial Storm Water NPDES permittees). Similar to methods used by Regional Board staff in other TMDLs, this separation of load can be calculated based on land area of each Responsible Party in the watershed. The percentage of the entire watershed area associated each Responsible Party's area can be used as a multiplier times the entire Wasteload Allocation to determine individual sub-allocations. AND • Table 7.1 should include the footnote: "Responsible Parties include the following: Phase I Municipal Separate Storm Sewer Systems (MS4s) Copermittees (the County of San Diego, City of San Diego, City of Del Mar, and the City of Poway), Phase II MS4 permittees, and general construction storm water NPDES permittees, and general industrial storm water NPDES

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				permittees as presented in Resolution No. R9-2012-0033 Attachment A, page A-5."" • Modify Section 7.b.(2)(c) as follows: (ii) The Responsible Copermittees must implement BMPs to achieve the receiving water limitations under Specific Provision 7.b.(2)(a) or the Copermittee portion of effluent limitations under Specific Provision 7.b.(2)(b) for Los Peñasquitos Lagoon.
Attachment E, Section 7.b(3)(a)	E-54	Final TMDL Compliance Determination	This provision is inconsistent with the TMDL for three reasons: (1) It appears to hold the Phase I Copermittees wholly responsible for Lagoon restoration, instead of recognizing that the other Responsible Parties named in the TMDL are also responsible for meeting this goal. R9-2012-0033 and TMDL Staff Report state that all watershed dischargers are responsible for achieving the Lagoon restoration target. (2) Restoration of 346 acres is not required under the TMDL. The requirement is to achieve 346 acres total of tidal and non-tidal salt marsh habitat. Based on the 2010 vegetation survey, there are currently 262 acres of salt marsh vegetation present, so 84 acres would need to be restored to achieve a total of 346 acres. (3) Language for final compliance determination is not consistent with TMDL (see page A-16 and footnote 1 in Resolution. R9-2012-0033, Attachment A).	Modify Provision 7.b.(3) as follows: (3) Final TMDL Compliance Determination Compliance with the final WQBELs, on or after the final TMDL compliance date may be demonstrated via one of the following methods: (a) ~~Successful restoration of~~ Demonstration that there are a combined total of 346 total acres of tidal and non-tidal salt marsh vegetation in Los Peñasquitos Lagoon or demonstration that implementation actions are active and/or affecting 346 acres with continued monitoring to ensure target achievement; OR
Attachment E, Section 7.b(3)(b)	E-54	Final TMDL Compliance Determination	The WQIP-based compliance option appears to reference the wrong section in two places.	Modify Section 7.b(3)(b) as follows: (b) The Responsible Copermittees must develop and implement the Water Quality Improvement Plan as follows: . . . (ii) Include an analysis in the Water Quality Improvement Plan, utilizing a watershed model or other watershed analytical tools, to demonstrate that the implementation of the BMPs required under Provision 7.b.(2)(c)(ii) achieves compliance with Specific Provision 7.b.(~~3~~2)(a),

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				. . . (v) The Responsible Copermittees must continue to perform the specific monitoring and assessments specified in Specific Provision 7.d to demonstrate compliance with Specific Provision 2.b.(~~3~~2)(a).
Attachment E, Section 7.b(3)(b)	E-54	Final TMDL Compliance Determination	Final compliance options should be consistent with other TMDLs incorporated into the MS4 Permit in Attachment E. The language as currently drafted omits several compliance options that should be included.	Modify Section 7.b.(3) as follows: (b)(v) . . . ; OR (c) There is no direct or indirect discharge from the Responsible Copermittee's MS4 to the receiving water; OR (d) The final receiving water limitation under Specific Provision 7.b.(2)(a) is met.
Attachment E, Section 7.c	E-55	Interim TMDL Compliance Requirements	The interim compliance requirements are inconsistent with the TMDL, which allows MS4 Permittees to "show progress in improving Lagoon conditions consistent with the specified targets" as an alternative to sediment load reductions (see Los Peñasquitos Lagoon Sediment TMDL Implementation Compliance Schedule on pages A-17 to A-19 in Regional Board Resolution R9-2012-0033, Attachment A).	Modify Section 7.c. as follows: c. INTERIM TMDL COMPLIANCE REQUIREMENTS Compliance with the interim WQBELs, on or after the interim TMDL compliance dates, may be demonstrated via one of the following methods: (a) The Responsible Copermittee shows progress in improving the Lagoon conditions towards Specific Provision 7.b.(2)(a); OR
Attachment E, Section 7.c	E-55	Interim TMDL Compliance Requirements	Interim compliance options should be consistent with other TMDLs incorporated into the MS4 Permit in Attachment E. The language as currently drafted omits several compliance options that should be included.	Further modify Section 7.c. as follows: (b) There is no direct or indirect discharge from the Responsible Copermittee's MS4 to the receiving water; OR (c) The final receiving water limitation under Specific Provision 7.b.(2)(a) is met; OR (d) ~~The Responsible Copermittees must comply with the interim WQBELs, expressed as annual loads, by December 31 of the interim compliance year set forth in Table 7.2.~~There are no exceedances of the

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				Copermittee portion of interim effluent limitations under Table 7.2 at the Responsible Copermittee's MS4 outfalls; OR (e) The Responsible Copermittee has submitted and is fully implementing a Water Quality Improvement Plan, accepted by the Regional Board, which provides reasonable assurance that the Copermittee portion of interim TMDL compliance requirements will be achieved by the interim compliance date.
Attachment E, Table 7.2	E-55	Interim TMDL Compliance Requirements	For consistency with the Table 7.1 final effluent limitation expressed as a load, "associated percentage of reduction" should be removed from Table 7.2 for interim WQBELs. The percentages in Table 7.2 are not total percent reductions expected of the existing load, but are instead percentages of attaining the 67% load reduction to meet the waste load allocation. Therefore, the percentages listed in Table 7.2 lack context and are misleading because they indicate that substantial load reductions are required to meet interim compliance dates.	Delete Table 7.2, third column.
Attachment E, Table 7.2	E-55	Interim TMDL Compliance Requirements	The interim WQBELs were incorrectly stated as annual loads. Instead, the Waste Load Allocation and associated interim load reductions were calculated as loading from the critical wet period of Oct. 1 to Apr. 30, not the entire year. (TMDL Staff Report, Table 6). This error in the MS4 permit makes the Waste Load Allocation, and consequently, the Interim Effluent Limitations, inconsistent with the TMDL.	Modify Section 7.c as follows The heading on column 2 of Table 7.2 should be changed to "Interim Effluent Limitations (tons/~~year~~wet season)"
Attachment E, Table 7.2	E-55	Interim TMDL Compliance Requirements	It is not appropriate to express interim loads that apply to all responsible parties under the TMDL as a numeric effluent limitation that applies only to the Phase I Copermittees. The result is that the other responsible parties would have **zero** allocation of sediment, but the recently adopted Caltrans, Phase II, and Industrial storm water permits do not subject those responsible parties to any numeric effluent limitations (see detailed summary of the TMDL provisions of these permits above). It is important to separate loads for Caltrans, Phase II, and the General Construction and Industrial storm water permits so that future revisions of those permits can responsibly address their potion of interim load reductions.	Two changes are necessary to acknowledge the sediment load contributions of other Responsible Parties listed in the TMDL: • The sediment loads stated as interim effluent limitations in Table 7.2 column 2 should include only loads specific to storm water runoff from Copermittees, and should not include loads associated with runoff from other Responsible Parties with separate NPDES permits (Resolution No. R9-2012-0033 lists these Responsible Parties as Phase II MS4 permittees, Caltrans, and the General Construction and General Industrial Storm Water NPDES permittees). Similar to methods used by Regional Board staff

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				in other TMDLs, this separation of load can be calculated based on land area of each Responsible Party in the watershed. The percentage of the entire watershed area associated each Responsible Party's area can be used as a multiplier times the entire Waste Load Allocation to determine individual sub-allocations. AND • Table 7.2 should include the footnote: "Responsible Parties include the following: Phase I Municipal Separate Storm Sewer Systems (MS4s) Copermittees (the County of San Diego, City of San Diego, City of Del Mar, and the City of Poway), Phase II MS4 permittees, and general construction storm water NPDES permittees, and general industrial storm water NPDES permittees as presented in Resolution No. R9-2012-0033 Attachment A, page A-5."
Attachment E, Section 7.d(3)(c)	E-56	Assessment and Reporting Requirements	Provision 7.d(3)(c) states that the first reported average shall be calculated using the data collected in years 2014-2015, 2015-2016, and 2016-2017. This would require Copermittees to start Sediment TMDL compliance monitoring before the WQIP is completed and accepted by the Regional Board. The Sediment TMDL Compliance Monitoring is part of the Los Peñasquitos Monitoring and Assessment Program because the WQIP is serving as the Sediment Load Reduction Plan. This provision should be modified to require monitoring to start the first full wet season after the WQIP is accepted by the Regional Board.	(c) For assessing and determining compliance with the final effluent limitations under Specific Provision 7.b.(2)(b), the Responsible Copermittees must use the data acquired under Specific Provision 7.d.(1) to estimate sediment loading into Los Peñasquitos Lagoon. Sediment loading must be evaluated using a 3-year, weighted rolling average. The first reported average shall be calculated using data collected in the 3 years ~~2014-15, 2015-2016, and 2016-2017 wet seasons~~ following Regional Board acceptance of the WQIP.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

RESOLUTION NO. R9-2012-0033

A RESOLUTION AMENDING *THE WATER QUALITY CONTROL PLAN FOR THE SAN DIEGO BASIN (9)* TO INCORPORATE THE TOTAL MAXIMUM DAILY LOAD FOR SEDIMENTATION IN LOS PEÑASQUITOS LAGOON

WHEREAS, The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), finds that:

1. **Water Quality Control Plan:** The federal Clean Water Act[1] (CWA) and state Porter-Cologne Water Quality Control Act[2] require the San Diego Water Board to establish water quality standards for each waterbody within its region. The water quality standards for coastal waters in the San Diego Region are established in the *Water Quality Control Plan for the San Diego Basin (9)* (Basin Plan) and in the *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan). Water quality standards include beneficial uses, water quality objectives (WQOs), and the antidegradation policy. The Basin Plan contains programs of implementation to achieve water quality standards.[3] Waterbodies that do not meet water quality standards are considered impaired.

2. **Clean Water Act Section 303(d) List of Water Quality Limited Segments:** Pursuant to section 303(d) of the Clean Water Act, each state is required to identify impaired waters and establish a total maximum daily load (TMDL) at a level necessary to implement the applicable water quality standards.[4] Each state is required to develop a list that identifies and establishes a priority ranking for those waters requiring TMDLs.[5] The list is known as the CWA section 303(d) List of Water Quality Limited Segments or more commonly, the 303(d) List. For the specific purpose of developing information, states are also required to estimate TMDLs for all other waters that are not identified on the 303(d) List.[6]

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[1] Clean Water Act section 303; U.S. Code section 1313
[2] California Water Code section 13240
[3] See Water Code section 13050(j). A "Water Quality Control Plan" or "Basin Plan" consists of a designation or establishment for the waters within a specified area of all of the following: (1) Beneficial uses to be protected, (2) Water quality objectives and (3) A program of implementation needed for achieving water quality objectives.
[4] Clean Water Act section 303(d)(1)(C); U.S. Code section 1313(d)(1)(C)
[5] Code of Federal Regulations Title 40 section 130.7(b)(1)
[6] Clean Water Act section 303(d)(3) states that "For the specific purpose of developing information, each State shall identify all waters within its boundaries, which it has not identified under paragraph (1)(A) and (1)(B) of this subsection and estimate for such waters the total maximum daily load with seasonal variations and margin of safety..."

3. **Purpose and Definition of Total Maximum Daily Load (TMDL):** The purpose of a TMDL is to restore an impaired waterbody to water quality conditions under which applicable water quality standards can once again be attained. This is done by establishing and implementing a TMDL for the impairing pollutant. Generally, when the TMDL, numeric targets and associated pollutant allocations are attained, water quality standards in the waterbody should be restored. A TMDL is both (1) a calculation of the maximum loading capacity of the impaired waterbody for each impairing pollutant; and (2) an implementation plan to guide actions necessary to cleanup the waterbody and restore water quality standards.

4. **TMDL Basin Plan Amendment:** Upon establishment and approval of TMDLs, the state is required to incorporate TMDLs into the state water quality management plan.[7] Along with various applicable statewide water quality control plans, the Basin Plan for the San Diego Region serves as the water quality management plan for the watersheds under the jurisdiction of the San Diego Water Board. Incorporating TMDLs into the Basin Plan requires an amendment to the Basin Plan and the development of an Implementation Plan. The Implementation Plan must include a description of the actions necessary to achieve the applicable water quality objectives, a time schedule for the actions to be taken, and a description of the monitoring to be undertaken to determine compliance with the objectives.[8]

5. **Water Quality Impairment of Los Peñasquitos Lagoon:** As required by CWA section 303(d), the Los Peñasquitos Lagoon (Lagoon) was placed on the 1996 List of Water Quality Limited Segments due to sedimentation and siltation loads that exceeded water quality objectives. The beneficial uses that are most sensitive to increased sedimentation are estuarine habitat and preservation of biological habitats of special significance. Deposition of watershed sediment contributes to elevation increases within the Lagoon, which is a critical variable that determines the productivity and stability of these uses. Legacy sediments from construction activities within the lagoon (e.g., construction of the railway berms and construction and operation of access roads) also play a role in the Lagoon's sedimentation impairment.

   Other beneficial uses listed in the Basin Plan for the Lagoon include contact water recreation, non-contact water recreation, wildlife habitat, rare, threatened or endangered species, marine habitat, migration of aquatic organisms, spawning, reproduction and/or early development, and shellfish harvesting.

   Other impacts associated with increased and rapid sedimentation include: reduced tidal mixing within Lagoon channels, increased vulnerability to flooding for surrounding urban and industrial developments, increased turbidity associated with siltation in Lagoon channels, and constricted wildlife corridors.

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[7] Code of Federal Regulations Title 40 section 130.6(c)(1)

[8] Pursuant to the requirements of Article 3, commencing with section 13240, of Chapter 4 of the Porter-Cologne Water Quality Control Act, as amended, codified in Division 7, commencing with section 13000, of the Water Code

6. **Water Quality Objective:** The water quality objective for sediment is contained in the Basin Plan. The Basin Plan states, *"The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses."*

7. **Numeric Targets:** One or more quantitative numeric targets must be selected to calculate a TMDL for an impaired waterbody. Numeric targets are derived from and must be able to interpret and implement water quality standards (beneficial uses, water quality objectives, and the antidegradation policy). This means that attainment of the selected numeric targets in the impaired waterbody represents attainment of applicable water quality standards in the waterbody; i.e., when the numeric targets are met, the TMDL should be met, WQOs should be met and the beneficial uses should be restored. While numeric targets and TMDLs are derived from, represent, interpret, and implement water quality standards, they are not water quality standards.

   The narrative sediment water quality objective requires numeric targets to evaluate attainment of the objective. Consideration of various lines of evidence indicates that the Lagoon was likely achieving the water quality standard for sediment in the mid-1970s. Using land-use coverage and Lagoon mapping, a "reference condition" was developed to establish watershed and Lagoon conditions present during the mid-1970s.

   The historic land use distribution was used to calculate the watershed numeric target, which is expressed as 12,360 tons of sediment per wet period (211 days) or 58.6 tons per day. Lagoon mapping was used to establish the Lagoon numeric target, which is expressed as an increasing trend in the total area of tidal saltmarsh and non-tidal saltmarsh toward 346 acres. This target acreage represents 80 percent of the total acreage of tidal and non-tidal saltmarsh present in 1973. As of the year 2010, 262 acres of tidal saltmarsh and non-tidal saltmarsh are present in the Lagoon. The calculation and interpretation of the numeric target as an increasing trend in acreage takes into account other factors impacting the salt marsh habitat in the lagoon, as well as the length of time necessary to successfully restore the biological, physical, chemical, and hydrological structural characteristics of salt marsh habitat. The final lagoon numeric target requires the successful restoration of tidal and non-tidal salt marsh to achieve a lagoon total of 346 acres. This can either mean:
   1. Successful restoration of 80 percent of the 1973 acreage of lagoon salt marsh habitat (346 acres); or
   2. Demonstrate that implementation actions are active on and/or affecting 346 acres with continued monitoring to ensure 80 percent target achievement.

8. **Sources of Sediment:** Sources of sediment to the Lagoon include erosion of canyon banks, bluffs, scouring stream banks, and tidal influx. Some of these processes are exacerbated by anthropogenic disturbances, such as land

development within the watershed. Land development transforms the natural landscape by exposing sediment and converting pervious surfaces to impervious surfaces, which increases the volume and velocity of runoff resulting in scouring of sediment, primarily below storm water outfalls that discharge into canyon areas. Sediment loads are transported downstream to the Lagoon during storm events causing deposits on the salt flats and in Lagoon channels. These sediment deposits have gradually built-up over the years due to increased sediment loading and inadequate flushing, which directly and indirectly affects Lagoon functions and salt marsh characteristics.

9. **Watershed Point and Non-point Sediment Sources:** There are two broad categories of sediment sources to the Lagoon: 1) watershed sources, and 2) the Pacific Ocean. The watershed sources consist of all point and non-point sources of sediment in the watershed area draining to Los Peñasquitos Lagoon. The total sediment contribution from all watershed sources is presented as the total wasteload allocation (WLA). The sediment contributions from the Pacific Ocean are considered a background source and are presented as the Load Allocation (LA). Hence, the responsible parties are assigned the total WLA and are jointly responsible for meeting the wasteload reductions required in this TMDL project.

10. **Responsible Parties Identification:** Responsible parties include the following: Phase I Municipal Separate Storm Sewer Systems (MS4s) copermittees (the County of San Diego, City of San Diego, City of Del Mar, and City of Poway), Phase II MS4 permittees, Caltrans, general construction storm water National Permit Discharge Elimination System (NPDES) permittees, and general industrial storm water NPDES permittees.

11. **Linkage Analysis:** Reducing watershed sediment loads from the year 2000 levels to historic levels is a necessary component for restoring and providing long-term protection of the Lagoon's beneficial uses. Deposition of watershed sediment contributes to elevation increases within the Lagoon, leading to an increase in height relative to mean sea level. Elevation is a critical variable that determines the productivity and stability of saltmarshes. The long-term existence of the saltmarsh depends on the success of the dominant plants, such as *Sarcoconia pacifica* (also referred to as *Salicornia virginica*) and *Frankenia salina*, and their close relationship to sediment supply, sea level change, and tidal range.

    Reduced sediment loading consistent with the watershed numeric target will encourage the establishment of native vegetation in degraded areas. To represent the linkage between source contributions and receiving water response, models were developed to simulate source loadings and transport of sediment into the Lagoon. The models provide an important tool to evaluate year 2000 conditions, to evaluate historic conditions, and to calculate TMDL load reductions.

    The Lagoon was capable of assimilating these historic sediment loads under historic Lagoon conditions. Because the Lagoon has evolved through time and accumulated

over 40 years of watershed sediment loads, it cannot be assumed that the Lagoon, in the year 2010 conditions, can assimilate the same historic sediment loads. Evaluation of the extent of vegetation types in the Lagoon provides the necessary tool to assess how the Lagoon responds to watershed sediment load reductions and to establish a target Lagoon condition under which the Lagoon can again assimilate the historic sediment loads.

12. TMDL Allocations and Reductions:

Wasteload Allocations to Watershed = 2,580 tons/year

As the primary point source to the Lagoon, a wasteload allocation (WLA) of 2,580 tons/year was assigned to the responsible parties. A 67 percent sediment load reduction from the Year 2000 load to the historical (mid-1970s) load is required of the responsible parties.

Load Allocations to Ocean = 9,780 tons/year

The ocean is a nonpoint source of sediment to the Lagoon and was assigned a load allocation (LA) of 9,780 tons/year. Because the ocean is a natural background source, load reductions are not required of the ocean.

Margin of Safety = Implicit

Conservative assumptions were used in selecting the TMDL numeric targets to provide an implicit margin of safety,

13. TMDL Implementation, Monitoring, and Compliance: The Responsible Parties must develop a Load Reduction Plan that will establish a watershed-wide, programmatic, adaptive management approach for implementation. The plan will include a detailed description of implementation actions, as identified and planned by the responsible parties, to meet the requirements of this TMDL. All responsible parties are responsible for reducing their sediment loads to the receiving waterbody or demonstrating that their discharges are not causing exceedances of the wasteload allocation.

Monitoring is required to assess progress towards achieving the wasteload and load allocations and numeric targets. Furthermore, the monitoring program must be capable of monitoring the effectiveness of implementation actions to improve water quality and saltmarsh habitat and remediation actions to remove sediment from the Lagoon.

Full implementation of the TMDL for sediment must be completed within 20 years from the effective date of the Basin Plan amendment. This timeline takes into consideration the planning needs of the responsible parties and other stakeholders to establish a Load Reduction Plan, time needed to address multiple impairments, and provides adequate time to measure temporal disparities between reductions in upland loading and the corresponding Lagoon water quality response.

14. **Scientific Peer Review:** The scientific basis for this TMDL has undergone external peer review pursuant to Health and Safety Code section 57004. The San Diego Water Board has considered and responded to all comments submitted by the peer review panel and has enhanced the Staff Report appropriately. As a result of the peer review process, changes were made to the TMDL including inclusion of the Lagoon numeric target and revision of the adaptive management approach.

15. **California Environmental Quality Act Requirements:** Pursuant to Public Resources Code section 21080.5, the Resources Agency has approved the San Diego Water Board's basin planning process as a "certified regulatory program" that adequately satisfies the California Environmental Quality Act (CEQA) (Public Resources Code, section 21000 et seq.) requirements for preparing environmental documents [14 CCR 15251(g); 23 CCR 3782]. As such, the "substitute environmental documents" that support the San Diego Water Board's proposed basin planning action contain the required environmental documentation under CEQA [23 CCR 3777]. The substitute environmental documents include the environmental checklist, the detailed Staff Report, peer review and public comments and responses to comments, this resolution, and the Basin Plan Amendment. For CEQA purposes, the "project" is the adoption of a Basin Plan amendment establishing a TMDL for sediment in the Lagoon. The CEQA checklist and other portions of the substitute environmental documents contain significant analysis and numerous findings related to impacts.

16. **Program and Project-Level CEQA Analysis:** In preparing the substitute environmental documents, the San Diego Water Board has considered the requirements of Public Resources Code section 21159 and California Code of Regulations, Title 14, section 15187, and intends those documents to serve as a tier 1 environmental review. This analysis is not intended to be an exhaustive analysis of every conceivable impact, but an analysis of the reasonably foreseeable consequences of the adoption of this regulation, from a programmatic perspective. The "Lead" agencies for tier 2 projects will assure compliance with project-level CEQA analysis of this programmatic project. Project level impacts will need to be considered in any subsequent environmental analysis performed by other public agencies, pursuant to Public Resources Code section 21159.2.

17. **CEQA Findings:** The proposed Basin Plan amendment could have a potentially significant adverse effect on historical, archaeological, and paleontological resources. There are feasible mitigation measures that if employed, would substantially lessen the potentially-significant adverse impacts identified in the substitute environmental documents; however such mitigation measures are within the responsibility and jurisdiction of other public agencies, not the San Diego Water Board. When the parties responsible for implementing this TMDL determine how they will proceed, the parties responsible for those parts of the project can and should incorporate such mitigation into any subsequent projects or project approvals as part of the environmental review process. These mitigation measures are described in more detail in the substitute environmental documents included as

Attachment 3 of the Staff Report and incorporated herein to this Resolution (14 CCR 15091(a)(2)). Where any subsequent project requires approval by the San Diego Water Board, the San Diego Water Board will include sufficient mitigation measures to substantially lessen the potentially significant adverse impacts.

18. **Statement of Overriding Consideration:** To the extent significant adverse environmental effects could occur, the San Diego Water Board has balanced the economic, legal, social, technological, and other benefits of the TMDL against the unavoidable environmental risks and finds that specific economic, legal, social, technological, and other benefits of the TMDL outweigh the unavoidable adverse environmental effects, such that those effects are considered acceptable. The basis for this finding is more fully set forth in the substitute environmental documents, included as Attachment 3 of the Staff Report and incorporated herein to this Resolution (14 CCR section 15093).

19. **Economic Analysis:** The San Diego Water Board has considered the costs of the reasonably foreseeable methods of compliance with the load and wasteload allocations specified in this TMDL. The most reasonably foreseeable methods of compliance involve implementation of structural and non-structural controls. Surface water monitoring will be necessary to evaluate the effectiveness of these controls.

20. **Necessity Standard [Government Code section 11353(b)]:** Amendment of the Basin Plan to establish and implement the sediment TMDL for the Lagoon is necessary because the existing water quality in the Lagoon does not meet applicable water quality objectives for sediment. Clean Water Act section 303(d) requires the establishment and implementation of a TMDL under the water quality conditions that exist at the Lagoon. The TMDL for sedimentation is necessary to promote attainment of applicable water quality objectives and restoration of water quality needed to support the beneficial uses designated for the Lagoon.

21. **Stakeholder & Public Participation:** Interested persons and the public have had reasonable opportunity to participate in review of the proposed TMDL. Efforts to solicit public review and comment included a public workshop and CEQA scoping meeting on February 15, 2011, multiple meetings with the Stakeholder Advisory Group, a public review and comment period consisting of 46 days, and a public hearing on June 13, 2012. Notices for all meetings were sent to interested parties including cities and counties with jurisdiction in the Los Peñasquitos watershed. All of the written comments submitted to the San Diego Water Board during the review and comment periods have been considered.

22. **Public Notice:** The San Diego Water Board has notified all known interested parties and the public of its intent to consider adoption of this Basin Plan amendment in accordance with Water Code section 13244.

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NOW, THEREFORE, BE IT RESOLVED THAT

1. **Environmental Documents Certification:** The substitute environmental documents prepared pursuant to Public Resources Code section 21080.5 are hereby certified, and the Executive Officer is directed to file a Notice of Decision with the Resources Agency after State Water Resources Control Board (State Water Board), and Office of Administrative Law (OAL) approval of the Basin Plan amendment, in accordance with section 21080.5(d)(2)(E) of the Public Resources Code and the California Code of Regulations, Title 23, section 3781.

2. **Amendment Adoption:** The San Diego Water Board hereby adopts the attached Basin Plan amendment as set forth in Attachment A hereto to establish a sediment TMDL for the Lagoon.

3. **Agency Approvals:** The Executive Officer is directed to submit this Basin Plan amendment to the State Water Board in accordance with Water Code section 13245.

4. **Non-Substantive Corrections:** If, during the approval process for this amendment, the San Diego Water Board, the State Water Board, or the OAL determines that minor, non-substantive corrections to the language of the amendment are needed for clarity or consistency, the Executive Officer may make such changes, and shall inform the San Diego Water Board of any such changes.

I, David W. Gibson, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, San Diego Region, on June 13, 2012.

David W. Gibson
Executive Officer

ATTACHMENT A
TO RESOLUTION NO. R9-2012-0033

AMENDMENT TO THE *WATER QUALITY CONTROL PLAN FOR THE SAN DIEGO BASIN (9)* TO INCORPORATE THE SEDIMENT TOTAL MAXIMUM DAILY LOAD (TMDL) FOR LOS PEÑASQUITOS LAGOON

This Basin Plan amendment establishes a sediment Total Maximum Daily Load (TMDL) and associated load and wasteload allocations for Los Peñasqutios Lagoon (Lagoon). This amendment includes a program to implement the TMDL and monitor its effectiveness. Chapters 2, 3, and 7 of the Basin Plan are amended as follows:

Chapter 2, *Beneficial Uses*

Table 2-3. *Beneficial Uses of Coastal Waters*
Consecutively number and add the following footnote to Los Peñasqutios Lagoon in Table 2-3:

> Los Peñasquitos Lagoon is designated as a water quality limited segment for sediment pursuant to Clean Water Act section 303(d). A Total Maximum Daily Load has been adopted to address this impairment. See Chapter 3, *Water Quality Objectives*, section entitled "Water Quality Objectives for Sediment." See also Chapter 7, *Total Maximum Daily Loads, section entitled* "Sediment Total Maximum Daily Load for Los Peñasqutios Lagoon."

Renumber any footnotes in Table 2-3 displaced by this new footnote.

Chapter 3, Water Quality Objectives

Water Quality Objectives for Sediment:
Add a second paragraph as follows:

> Los Peñasquitos Lagoon is designated as an impaired water body for sediment pursuant to Clean Water Act section 303(d). A Total Maximum Daily Load has been adopted to address this impairment. See Chapter 2, Beneficial Uses Table 2-3. Beneficial Uses of Coastal Waters, Los Peñasqutios Lagoon, Hydrologic Unit Basin Number 6.10. See also Chapter 7, *Total Maximum Daily Loads, section entitled "Sediment Total Maximum Daily Load for Los Peñasqutios Lagoon."*

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Chapter 7, *Total Maximum Daily Loads*

On June 13, 2012, the San Diego Water Board adopted ***Resolution No. R9-2012-0033, A Resolution Amending the Water Quality Control Plan For The San Diego Basin (9) to Incorporate the Sediment Total Maximum Daily Load for Los Peñasquitos Lagoon.*** The TMDL Basin Plan Amendment was subsequently approved by the State Water Resources Control Board (State Board) on [Insert date], the Office of Administrative Law (OAL) on [Insert date], and the USEPA on [Insert date]. For purposes of state law, Resolution No. R9-2012-0033 became effective following OAL approval on [Insert date],

Technical TMDL Analysis

Component	Key Findings and Regulatory Provisions
Problem Statement	Under section 303(d) of the Clean Water Act (CWA), states are required to identify waters whose beneficial uses have been impaired due to specific constituents. Los Peñasquitos Lagoon was placed on the Section 303(d) list of Water Quality Limited Segments in 1996 for sedimentation and siltation with an estimated 469 acres affected. The Lagoon is subject to the development of a total maximum daily load (TMDL) (US EPA, 2009). The Lagoon is an estuarine system that is part of the Torrey Pines State Natural Reserve. In addition to its marine influence, the Lagoon receives freshwater inputs from an approximately 60,000-acre watershed comprised of three major canyons (Carroll Canyon, Los Peñasquitos Canyon, and Carmel Canyon). Given the status of "Natural Preserve" by the California State Parks, the Lagoon is one of the few remaining native saltmarsh lagoons in southern California, providing a home to several endangered species (California State Parks, 2009). The Lagoon is ecologically diverse, supporting a variety of plant species, and provides nursery grounds and habitat for numerous bird, fish, and small mammal populations. The Lagoon also serves as a stopover for the Pacific Flyway, offering migratory birds a safe place to rest and feed, as well as providing refuge for coastal marine species that use the Lagoon to feed and hide from predators. The San Diego Basin Plan states, "The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses." Beneficial uses listed in the Basin Plan for the Lagoon include contact water recreation; non-contact water recreation (although access is not permitted in

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	some areas per California State Parks); preservation of biological habitats of special significance; estuarine habitat; wildlife habitat; rare, threatened or endangered species; marine habitat; migration of aquatic organisms; spawning, reproduction and/or early development; and shellfish harvesting. The beneficial uses that are most sensitive to increased sedimentation are estuarine habitat (EST) and preservation of biological habitats of special significance (BIOL). Estuarine uses may include preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (such as marine mammals or shorebirds). Impacts associated with increased and rapid sedimentation include: reduced tidal mixing within Lagoon channels, degraded and (in some cases) net loss of saltmarsh vegetation, increased vulnerability to flooding for surrounding urban and industrial developments, increased turbidity associated with siltation in Lagoon channels, and constricted wildlife corridors. The Los Peñasquitos Lagoon Enhancement Plan and Program (1985), San Diego Basin Plan, and Clean Water Act section 303(d) highlight sedimentation as a significant impact associated with urban development and a leading cause in the rapid loss of saltmarsh habitat in the Lagoon. Sediment reduction is a management priority. The Lagoon's 565 acres include 262 acres of tidal saltmarsh (including salt panne, tidal channels, and mudflats) and non-tidal saltmarsh and 132 acres of freshwater marsh, herbaceous wetland, and woody riparian (for example southern willow scrub and mulefat scrub) habitats. The remaining 171 acres of saltmarsh and brackish marsh vegetation are impaired by excessive sedimentation, which converted the coastal saltmarsh to *Lolium perenne* infested non-tidal saltmarsh, freshwater marsh, and woody riparian habitats. (California State Parks, 2011) The environmental processes that support wetland habitats in the Lagoon have been altered by urban development in three ways: 1) Increase in the volume and frequency of freshwater input, 2) Increase in sediment deposition, and 3) Decrease in the tidal prism. These factors have led to decreases in tidal and non-tidal saltmarsh habitats and increases in freshwater habitats and the abundance of non-native species.

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Component	Key Findings and Regulatory Provisions
Numeric Target	**Numeric Target** The sediment water quality standard applies to sediment loading to the Lagoon and the accumulation of sediment in the Lagoon. The minimum protective target would be to reduce watershed sediment loads to non-anthropogenic levels and return the Lagoon to non-anthropogenic conditions with consideration given to background loading and other factors that also lend to impairment of beneficial uses. The numeric targets are calculated upon the historic condition (mid-1970s) when the sediment water quality standard was once met. A historic coverage for the Los Peñasquitos watershed was developed for this period using US Geological Survey topographic maps from the 1970s. This land-use distribution was used to calculate the watershed numeric target using the LSPC watershed model. This historic (mid-1970s) sediment load of 12,360 tons per critical wet period (211 days), or 58.6 tons per day, represents the sediment TMDL watershed numeric target. An analysis of the vegetation types present in the Lagoon was developed for the mid-1970s using historic aerial photographs from which the Lagoon numeric target was calculated. The Lagoon numeric target is expressed as an increasing trend in the total area of tidal and non-tidal saltmarsh toward 346 acres. This target acreage represents 80 percent of the total acreage of tidal and non-tidal saltmarsh present in 1973.
Sources and Responsible Parties	**Watershed Point and Non-point Sediment Sources** Sources of sediment include erosion of canyon banks, exposed soils, bluffs, scouring stream banks, and tidal influx. Some of these processes are exacerbated by anthropogenic disturbances, such as land development within the watershed. Land development transforms the natural landscape by exposing sediment and converting pervious surfaces to impervious surfaces, which increases the volume and velocity of runoff resulting in scouring of sediment, primarily below storm water outfalls that discharge into canyon areas. Sediment loads are transported downstream to the Lagoon during storm events causing deposits on the salt flats and in Lagoon channels. These sediment deposits have gradually built-up over time due to increased sediment loading and inadequate flushing, which directly and indirectly affects Lagoon functions and salt marsh characteristics.

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	There are two broad categories of sediment sources to the Lagoon: 1) watershed sources, and 2) the Pacific Ocean. The watershed sources consist of all of point and non-point sources of sediment in the watershed area draining to Los Peñasquitos Lagoon. The total sediment contribution from all watershed sources, currently, is presented as the total wasteload allocation (WLA). The watershed sources of sediment due to past historical activities that have resulted in accumulated sediment in the Lagoon over time are presented as the Watershed Load Allocation (LA). This source also includes, but is not limited to, in-Lagoon erosion and scouring. Since this loading could not be estimated given the limited data, the Lagoon numeric target is set as the compliance point for meeting this Watershed Load Allocation. The sediment contributions from the Pacific Ocean are considered a background source and are presented as the Load Allocation from the Ocean (LA). Hence, the responsible parties were assigned the total WLA and are jointly responsible for meeting the wasteload reductions required in this TMDL project. **Responsible Parties** Responsible parties include the following: Phase I Municipal Separate Storm Sewer Systems (MS4s) copermittees (the County of San Diego, City of San Diego, City of Del Mar, and City of Poway), Phase II MS4 permittees, Caltrans, general construction storm water NPDES permittees, and general industrial storm water NPDES permittees.
Linkage Analysis	**Linkage Analysis** Reducing watershed sediment loads from the year 2000 levels to historic levels is a necessary component for restoring and providing long-term protection of the Lagoon's beneficial uses. Deposition of watershed sediment contributes to elevation increases within the Lagoon, leading to an increase in height relative to mean sea level. Elevation is a critical variable that determines the productivity, diversity, and stability of saltmarshes. The long-term existence of the saltmarsh depends on the success of the dominant plants, such as *Sarcoconia pacifica* (also referred to as *Salicornia virginica*) and *Frankenia salina*, and their close relationship to sediment supply, soil salinity, sea level change, and tidal range. Reduced sediment loading consistent with the watershed numeric target will encourage the establishment of native vegetation in degraded areas. To represent the linkage between source

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TMDL, Allocations, and Load Reductions	contributions and receiving water response, models were developed to simulate source loadings and transport of sediment into the Lagoon. The models provide an important tool to evaluate year 2000 conditions, to evaluate historic conditions, and to calculate TMDL load reductions. The Lagoon was capable of assimilating these historic sediment loads under historic Lagoon conditions. Because the Lagoon has evolved through time and accumulated over 40 years of watershed sediment loads, it cannot be assumed that the Lagoon, in the year 2010 conditions, can assimilate the same historic sediment loads. Evaluation of the extent of vegetation types in the Lagoon provides the necessary tool to assess how the Lagoon responds to watershed sediment load reductions and to establish a target Lagoon condition under which the Lagoon can again assimilate the historic sediment loads. **TMDL = 12,360 tons of sediment per year** The maximum load of sediment that Los Peñasquitos Lagoon can receive from all sources and still meet the sediment water quality objective is 12,360 tons per year. **Wasteload Allocations to Watershed = 2,580 tons/year** As the primary point source to the Lagoon, a wasteload allocation (WLA) of 2,580 tons/year was assigned to the responsible parties. A 67 percent sediment load reduction from the Year 2000 load to the historical (mid-1970s) load is required of the responsible parties. **Load Allocations to Ocean = 9,780 tons/year** The ocean is a nonpoint source of sediment to the Lagoon and was assigned a load allocation (LA) of 9,780 tons/year. Because the ocean is a natural background source, load reductions are not required of the ocean. **Watershed Load Allocations to Lagoon** Past historical watershed loading has led to accumulated sediment, erosion, and scouring in the Lagoon causing impairment to the Lagoon habitats. The Lagoon numeric target is set as the compliance for this LA: maintain at least 346 acres of tidal and non-tidal saltmarsh, represents 80 percent of the total acreage of tidal and non-tidal saltmarsh present in 1973.

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	Margin of Safety = Implicit Conservative assumptions were used in selecting the TMDL numeric targets to provide an implicit margin of safety.
Critical Conditions	**Critical Location** Due to the variability and dynamic nature of conditions within the Lagoon (e.g., mouth closures, tidal fluctuations, sediment fate and transport, etc.), the entire modeled Lagoon area was assessed as the critical location. Load reductions for sediment were based on achieving the numeric TMDL target across the Lagoon. **Critical Condition** The wet season that includes the 1993 El Nino storm events (October 1, 1992-April 10, 1993) was selected as the critical condition time period for TMDL development. This is one of the wettest periods on record over the past several decades. Because of the large amount of rainfall, sediment loads were significantly higher during this period than in other years with less rainfall.
Seasonal Considerations	**Seasonal Considerations** Sources of sediment are similar for both dry and wet weather seasons (the two general seasons in the San Diego region). Despite the similarity of wet/dry sources, transport mechanisms can vary between the two seasons. Throughout the TMDL monitoring period, the greatest transport of sediment occurred during rainfall events. It is recognized that dry weather will contribute a de minimis discharge of sediment; however, model calibration and TMDL development focused on wet weather conditions as sediment transport is dramatically higher during wet weather.
Margin of Safety	**Margin of Safety (MOS)** An implicit MOS was incorporated through application of conservative assumptions.

Implementation Plan

Component	Key Findings and Regulatory Provisions
Implementation Actions	**Actions San Diego Water Board May Take** The San Diego Water Board may exercise any of its authorities under the Water Code to compel responsible parties to comply with this TMDL.

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	Responsible Parties Identification Under this TMDL, the responsible parties are collectively assigned a single WLA, which they are responsible for meeting. An aggregate WLA allows for flexibility in achieving the load reduction required to meet the TMDL and improve Lagoon conditions. Responsible parties include: Phase I MS4 copermittees (the County of San Diego, City of San Diego, City of Del Mar, and the City of Poway), Phase II MS4 permittees, Caltrans, and the General Construction and General Industrial Storm Water NPDES permittees. The San Diego Water Board encourages cooperation among all the responsible parties. All the responsible parties in the Los Peñasquitos watershed must reduce their collective sediment load. Responsible parties include, but are not limited to, specific identification of General construction and industrial stormwater permittees, such as sand and gravel operation facilities in the watershed *that have capacity for long-term potential loadings into the watershed*. The San Diego Water Board recommends all parties enter into a Memorandum of Understanding (MOU), or a similar formal joint effort, to collaboratively and more successfully implement the adaptive management framework. All responsible entities identified must submit a Comprehensive Load Reduction Plan (CLRP) or SWPPP as appropriate and are strongly encouraged to jointly submit a CLRP to the San Diego Water Board within 18 months of the effective date of the TMDL. The San Diego Water Board expects responsible parties to cooperate in TMDL implementation (e.g., load reduction, lagoon monitoring, lagoon restoration) as necessary to achieve compliance with this TMDL. Responsible Parties that have or are likely to cause or contribute to the CWA Section 303(d) listed impairment for sediment, and are not participating in TMDL implementation, shall be compelled to meet their compliance obligations through other regulatory authorities of the San Diego Water Board. Any Responsible Party identified is required to develop pollutant reduction plan that includes description and schedule for implementing BMPs to reduce sediments from being discharged from their facility, property, etc. The plan must describe how the

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	facility plans to meet the water quality objectives and pollutant reductions set forth in the TMDL. Any Responsible Party as identified for this TMDL shall contribute information regarding the amount of sediments/sedimentation from their facility/entity. This may be produced from existing monitoring plans or by developing a monitoring plan for those entities that currently do not have any discharge monitoring on site. The TMDL has identified a "collective" wasteload allocation that includes several sources of sediments into the watershed. By developing individual site/permitee monitoring plans for flow and TSS discharges, it will be feasible to estimate individual site contributions in the future. Monitoring should address, at minimum, representative values of flow rates and TSS concentrations from the individual permittee's site(s) whenever long-term discharges occur. Individual industrial facilities and construction sites are subject to regulation on two levels: (1) The San Diego Water Board is responsible for ensuring MS4 copermittees comply with the MS4 requirements in the MS4 storm water permit; and (2) each local municipality is responsible, under the MS4 storm water permit, for enforcing its own ordinances and permits (for violations of its ordinances/permits by an individual industrial facility or construction site within its jurisdiction). The San Diego Water Board is also responsible for enforcing the statewide General Industrial and Construction Storm Water NPDES Permits within its jurisdiction. The San Diego Water Board relies upon the municipality to enforce its ordinances/permits and then work with the municipality to coordinate information and actions to compel compliance. **Phased Implementation via the Adaptive Management Approach** A common problem in natural resource management involves a temporal sequence of decisions (or implementation actions), in which the best action at each decision point depends on the state of the managed system. Adaptive management is a structured iterative implementation process that offers flexibility for responsible parties to monitor implementation actions, determine the success of such actions and ultimately, base future management decisions upon the measured results of completed implementation actions and the current state of the system. This process enhances the understanding and estimation of predicted

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	outcomes and ensures refinement of necessary activities to better guarantee desirable results. In this way, understanding of the resource can be enhanced over time, and management can be improved. Adaptive management entails applying the scientific method to the TMDL. A National Research Council review of US EPA's TMDL program strongly suggests that the key to improving the application of science in the TMDL program is to apply the scientific method to TMDL implementation (NRC 2001). For a TMDL, applying the scientific method involves 1) taking immediate actions commensurate with available information, 2) defining and implementing a program for refining the information on which the immediate actions are based, and 3) modifying actions as necessary based on new information. This approach allows the Lagoon to make progress toward attaining water quality standards while regulators and stakeholders improve the understanding of the system through research and observation of how it responds to the immediate actions. Implementation actions to achieve the required WLA and improve the specified numeric targets will be implemented via an iterative process, whereby the information collected at each step will be used to inform the implementation of the next phase. The project will be adjusted, as necessary, based on the latest information collected to optimize the efficiency of implementation efforts. Ultimately, the path moving forward is to create the physical conditions related to remediating sediment impacts associated with this TMDL. The implementation effort can be divided into three primary phases for this TMDL, as described below: • Phase I Implementation includes elements to reduce the amount of sediment that is transported from the watershed to the Lagoon. An important component of Phase I will be to secure the relationships and agreements between cooperating parties and to develop a detailed scope of work with priorities. Phase I includes the following elements: o Incorporate interim limits into WDRs and NPDES permits; o Implement structural and nonstructural BMPs throughout the watershed; and o Develop and initiate a comprehensive monitoring program, which includes compliance monitoring and targeted special studies.

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	If appropriate, the TMDL will be reconsidered by the San Diego Water Board at the end of Phase I to consider completed special studies or policy. • Phase II includes the implementation of additional watershed actions that are targeted to reducing sediment loads from high priority areas, as well as lagoon-specific actions that may be needed to facilitate recovery of beneficial uses that have been affected by various complex processes, including sedimentation, nuisance flows, reduced tidal circulation, and other factors. These actions may include Lagoon sediment remediation efforts, re-connecting the Lagoon's historic tidal channels, and maintenance of the Lagoon inlet in collaboration with State Parks, the San Diego Water Board, the Los Angeles-San Diego-San Luis Obispo (LOSSAN) Rail Corridor Agency, US EPA, and the watershed responsible parties. Phase II may also include additional upstream protections and BMP implementation to further reduce watershed sediment contributions. Responsible parties will develop, prioritize, and implement Phase II elements based on data from compliance monitoring and special studies. • Phase III includes implementation of secondary and additional remediation actions, as necessary, to be in compliance with the required WLA allocation by the end of the compliance schedule. **Develop and Submit a Load Reduction Plan** Responsible parties are required to prepare and submit for San Diego Water Board review, comment, and revision, a Load Reduction Plan that demonstrates how they will comply with this TMDL. The San Diego Water Board expects that Load Reduction Plans will be developed collaboratively by the responsible parties within the watershed. The Load Reduction Plan shall be submitted to the San Diego Water Board within 18 months of the TMDL effective date, and reviewed by the San Diego Water Board Executive Officer within six months of submittal (this period will likely include a round of revisions by the responsible parties based on San Diego Water Board staff comments). The Load Reduction Plan shall establish a watershed-wide, programmatic, adaptive management approach for implementation and include a detailed description of

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	implementation actions, identified and planned by the responsible parties, to meet the requirements of this TMDL. Implementation actions identified by the Load Reduction Plan may include source control techniques, structural and/or non-structural storm water BMPs, and/or special studies that refine the understanding of sediment and pollutant sources within the watershed. The Load Reduction Plan shall include a description and objective of each implementation action, potential BMP locations, a timeline for project or BMP completion, and a monitoring plan to measure the effectiveness of implementation actions. Storm Water Pollution Prevention Plans (SWPPPs) prepared by Phase II MS4s, Industrial Permittees, and Construction Permittees pursuant to their respective statewide general NPDES permits fulfill these entities responsibility to prepare a Load Reduction Plan. Permittees within the Los Peñasquitos watershed shall update their SWPPPs within 12 months of the TMDL effective date with any additional BMPs, monitoring, etc. to account for their site's potential to impact the receiving waterbody with respect to sediment. Sites identified through monitoring data or site inspections as posing an increased risk to the receiving water body may be directed to perform additional monitoring by the San Diego Water Board Executive Officer to quantify sediment load contributions to the receiving waterbody. **Comprehensive Approach** The comprehensive approach to the Load Reduction Plan requires that implementation efforts address all current TMDLs, current 303(d) listed waterbody/pollutant combinations, and other targeted impairments within the Los Peñasquitos watershed. A comprehensive approach to the Load Reduction Plan is consistent with implementation planning currently underway to address all of the impaired segments that were included in the approved bacteria TMDLs for San Diego Region Beaches and Creeks (San Diego Water Board, 2010). The comprehensive approach to the Load Reduction Plan allows the responsible parties to proactively address other listed impairments within the watershed, which requires special studies to investigate sources and the water quality improvements needed to address these pollutants. Such special studies may significantly alter current understanding and refine the TMDL loading and/or allocations. This can impact the selection of subsequent implementation actions and how they are prioritized

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	by responsible parties. A comprehensive approach to development of the Load Reduction Plan will provide a more cost effective and efficient approach for TMDL implementation and will have fewer potential environmental impacts associated with construction of structural BMPs (San Diego Water Board, 2010). **Load Reduction Plan Framework** With increased land development and inadequate management of runoff from impervious areas, increasing amounts of sediment are deposited into the Lagoon annually. To minimize the effects of runoff, proper sediment control can be achieved through the execution of implementation actions such as BMPs. Sediment implementation actions can be grouped into the four categories as summarized below. 1) *Preservation and Restoration:* Significant areas of land have been set aside for open space. Such land acquisition and preservation prevents natural areas from being developed and disturbed. Additionally, the restoration of riparian buffers and wetlands can include the stabilization of steep slopes with native riparian vegetation. This not only helps restore the habitat but also the natural function of the stream. 2) *Education & Outreach:* As a source control technique, education and outreach can function as pollution prevention to reduce or eliminate the amount of sediment generated at its source. Education and outreach can be targeted at specific land user groups and/or staff involved with site maintenance. As an example, implementation actions such as municipal incentives can be used to encourage proper irrigation and landscaping and can significantly reduce volumes of runoff. 3) *Retrofitting, New Development, & Site Management:* Land development (MS4 contribution) is the primary source of anthropogenic sediment contribution above historical conditions. Development can expose sediment and contribute excessive amounts of sediment to the Lagoon. Additionally, increased imperviousness associated with development can lead to increased storm water runoff and soil erosion or gullying within the MS4 and receiving waters. Appropriate site management can partially or fully mitigate the effects of development. The Load Reduction Plan must identify and prioritize BMPs based on an analysis of opportunities and cost/benefit considerations. Furthermore, the Load Reduction Plan must detail BMP

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	projects and locations. Storm water BMPs can be implemented to reduce the effects of pollutant loading and increased storm water flows from development. Structural BMPs include incorporation of low impact development (LID) and storm flow hydrograph matching into new projects. The same structural BMPs can be utilized to retrofit existing sites or be applied as regional MS4 BMPs to treat pollutants and/or flows prior to discharge into receiving waters. 4) *Monitoring:* A coordinated monitoring plan is needed to establish existing watershed conditions (baseline conditions) from which future changes and anticipated improvement in water quality can be measured. Additional monitoring could focus on sensitive species, areas of saltmarsh coverage, extent of invasive plant species, BMP effectiveness, and/or reduction in impervious coverage. Additionally, monitoring is crucial in the assessment of implementation actions to gain an understanding of performance for future adaptive management actions. **Load Reduction Plan Implementation** The Load Reduction Plan must be implemented within 90 days upon receipt of San Diego Water Board comments and recommendation, but in any event, no later than 6 months after submittal. **Monitoring** Monitoring is required to measure the progress of pollutant load reductions and improvements in water and saltmarsh habitat acreage. The information presented below is intended to be a brief overview of the goals of the monitoring. Special studies may be planned to improve understanding of key aspects related to achievement of WLAs and LAs, restore the beneficial uses, and to assist in the modification of structural and non-structural BMPs if necessary. The goals of monitoring include: 1) To determine compliance with the assigned wasteload and load allocations. 2) To monitor the effect of implementation actions proposed by responsible parties to improve water and saltmarsh habitat quality including proposed structural and non-structural BMPs to reduce storm water run-off and sediment loading, and remediation actions to remove sediment from the Lagoon.

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	3) To monitor the extent of vegetation habitat acreages in the Lagoon and determine if additional implementation action should be required. 4) To implement the monitoring in a manner consistent with other TMDL implementation plans and regulatory actions within the Los Peñasquitos watershed. The proposed monitoring program shall be included in the Load Reduction Plan submitted to the San Diego Water Board Executive Officer for review. *Watershed Monitoring* Responsible parties must conduct suspended sediment, bedload, and flow monitoring to calculate total sediment loading to the Lagoon for each wet period (October 1 thru April 30) throughout the 20-year compliance period. The responsible parties must monitor enough storm events throughout to quantify sediment loading over each wet period. The compliance point for the WLA shall be the Lagoon as measured through the cumulative sediment loading from Los Peñasquitos, Carroll Canyon, and Carmel Creeks prior to entering the Lagoon. The responsible parties must monitor as many stations as necessary to quantify sediment loading to the Lagoon. Because of the natural variability in sediment delivery rates, sediment loading shall be evaluated using a 3-year, weighted rolling average. The first average must be calculated following the third critical wet period after the TMDL effective date. Responsible parties are encouraged to collaborate or coordinate their efforts with other regional and local monitoring programs to avoid duplication and reduce associated costs. *Lagoon Monitoring* The responsible parties shall monitor the Lagoon annually in the Fall for changes in extent of the vegetation types. Aerial photos of the Lagoon must be acquired, digitized onscreen (at an approximate 1:2,500 scale), interpreted, and mapped into generalized classifications. Vegetation types must be classified as saltmarsh, non-tidal saltmarsh, freshwater marsh, non-tidal saltmarsh – *Lolium perrene* infested, freshwater marsh, southern willow scrub/mulefat scrub, herbaceous wetland, or upland land cover (urban, beach, dune, upland vegetation, etc.). Vegetation

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Component	Key Findings and Regulatory Provisions
	type classifications are described in the *Sediment TMDL for Los Peñasquitos Lagoon Staff Report*. Ground truthing may be performed after aerial photo interpretation to distinguish between vegetation types. **Compliance Schedule** The implementation schedule for this TMDL follows the form of an adaptive management strategy, tracks implementation progress with established milestones or interim goals, and sets forth a final compliance date. It is impractical for land managers to actually measure sediment loading on a daily basis; thus, compliance with the TMDL is most appropriately expressed as an average annual load and should be evaluated as a long-term running average to account for natural fluctuations and inaccuracies in estimating sediment loads. Pursuant to State Board Resolution No. 2000-015 and 2000-030 a TMDL compliance schedule must be as short as practicable, but in no case shall it exceed 20 years from the effective date of the Basin Plan amendment. This timeline in Table {Insert Table number} takes into consideration the planning needs of the responsible parties and other stakeholders to establish a Load Reduction Plan, time needed to address multiple impairments, and provides adequate time to measure temporal disparities between reductions in upland loading and the corresponding Lagoon water quality response. Current studies and other implementation actions or projects are underway to reduce sediment loading to the Lagoon and to gain a better understanding of source contributions. A variety of such projects will continue throughout the development of the Load Reduction Plan, ensuring there are no gaps in implementation efforts throughout the process. At the end of the TMDL compliance schedule, as outlined in Table {insert table number}, waters must meet the Lagoon's sediment water quality standard and therefore, the Lagoon numeric target. The final lagoon numeric target requires the successful restoration of tidal and non-tidal salt marsh to achieve a lagoon total of 346 acres. This can either mean: 1. Successful restoration of 80 percent of the 1973 acreage of lagoon salt marsh habitat (346 acres); or 2. Demonstrate that implementation actions are active on and/or affecting 346 acres with continued monitoring to ensure 80 percent target achievement.

Resolution No. R9-2012-0033
Attachment A

<table>
<tr><th>Component</th><th>Key Findings and Regulatory Provisions</th></tr>
<tr><td></td><td>If at any point during the implementation plan, monitoring data or special studies indicate that WLAs or LAs will be attained but the Lagoon numeric target may not be achieved, the San Diego Water Board shall reconsider the TMDL to modify WLAs and LAs to ensure that the Lagoon numeric target is attained.

Table {Insert table number}. Los Peñasquitos Lagoon Sediment TMDL Implementation Compliance Schedule
<table>
<tr><th>Item</th><th>Implementation Action</th><th>Responsible Party</th><th>Date</th></tr>
<tr><td>1</td><td>Obtain approval by OAL of Los Peñasquitos Lagoon Sediment TMDL = Establishes effective date of TMDL</td><td>San Diego Water Board, San Diego County, City of San Diego, City of Poway, City of Del Mar, Caltrans, General Storm Industrial and Construction permittees</td><td>Estimated June 2013</td></tr>
<tr><td>2a</td><td>Issue, reissue, or revise general WDRs and NPDES requirements for Phase I MS4s, including Caltrans, to incorporate requirements for complying with TMDL and WLAs</td><td>San Diego Water Board and State Water Board</td><td>Completed during permit renewal - within 5 years of applicable permit date, and every 5 years thereafter.</td></tr>
<tr><td>2b</td><td>Issue, reissue, or revise general WDRs and NPDES requirements for Construction and Industrial NPDES to incorporate requirements for complying with TMDL and WLAs</td><td>San Diego Water Board and State Water Board</td><td>Completed during permit renewal - within 5 years of applicable permit date, and every 5 years thereafter.</td></tr>
<tr><td>2c</td><td>Issue, reissue, or revise general WDRs and NPDES requirements for Phase II NPDES permittees to incorporate requirements for complying with TMDL and WLAs</td><td>San Diego Water Board and State Water Board</td><td>Completed during permit renewal - within 5 years of applicable permit date, and every 5 years thereafter.</td></tr>
<tr><td>3a</td><td>Completion of Load Reduction Plans</td><td>Phase 1 MS4s and Caltrans</td><td>Within 18 months of OAL effective date</td></tr>
</table></td></tr>
</table>

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Component	Key Findings and Regulatory Provisions			
				for sediment TMDL
	3b	Approval of Load Reduction Plan	San Diego Water Board Executive Officer	Within 6 months of submittal
	3c	Phased, adaptive implementation of Load Reduction Plan	Phase 1 MS4s and Caltrans	In accordance with Load Reduction Strategy – ongoing throughout the implementation
	3d	Revision of SWPPPs	Construction, industrial, and Phase II Permittees	Within 12 months of OAL effective date for sediment TMDL
	4a	Submit annual Progress Report to the San Diego Water Board due January 31 each year	Phase 1 MS4s	Annually after reissuance of NPDES WDR
	4b	Submit annual Progress Report to the San Diego Water Board due April 1 each year	Caltrans	Annually after reissuance of NPDES WDR
	5	Enforcement Actions	San Diego Water Board	As needed
	6	Refine Load Reduction Plan	Phase 1 MS4s and Caltrans	As warranted by completion of special studies, additional monitoring and data compilation.
	7	Reopen and reconsider TMDL	San Diego Water Board	As defensible through the collection of additional data and significant findings by the watershed stakeholders.
	8	Meet Interim Milestone #1: Attain 20 percent required reduction in sediment loading (equivalent to 6691 tons of sediment per year) and/or show progress in improving Lagoon	MS4s and NPDES permittees	Within 5 years of approved TMDL

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Component	Key Findings and Regulatory Provisions			
		conditions consistent with the specified targets		
	9	Meet Interim Milestone #2: Attain 40 percent required reduction in sediment loading (equivalent to 5663 tons of sediment per year) and/or show progress in improving Lagoon conditions consistent with the specified targets	MS4s and NPDES permittees	Within 9 years of approved TMDL
	10	Meet Interim Milestone #3: Attain 60 percent required reduction in sediment loading (equivalent to 4636 tons of sediment per year) and/or show progress in improving Lagoon conditions consistent with the specified targets	MS4s and NPDES permittees	Within 13 years of approved TMDL
	11	Meet Interim Milestone #4: Attain 80 percent required reduction in sediment loading (equivalent to 3608 tons of sediment per year) and/or show progress in improving Lagoon conditions consistent with the specified targets	MS4s and NPDES permittees	Within 15 years of approved TMDL
	12	Meet Final Milestone: Achieve Lagoon numeric target: the successful restoration of tidal and non-tidal salt marsh to achieve a lagoon total of 346 acres.[1]	All Phase I, Phase II MS4s, Caltrans, and general construction and industrial NPDES enrollees, and other WDR and NPDES	Within 20 years of approved TMDL

[1] This can either mean:
1. Successful restoration of 80 percent of the 1973 acreage of lagoon salt marsh habitat (346 acres); or
2. Demonstrate that implementation actions are active on and/or affecting 346 acres with continued monitoring to ensure 80 percent target achievement.

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Component	Key Findings and Regulatory Provisions
	permittees in the watershed[2]
	Note: TMDL implementation schedule may be altered due to TMDL reconsideration; additionally, enforcement actions by the San Diego Water Board will be taken as necessary.

[2] For general construction and industrial permittees and other NPDES/WDR permittees, this applies to those facilities that have potential for long-term loadings into the watershed.

THE CITY OF SAN DIEGO

November 19, 2014

VIA EMAIL TO: Laurie.Walsh@waterboards.ca.gov

Laurie Walsh, Water Resource Control Engineer
San Diego Regional Water Quality Control Board
2375 Northside Drive, Suite 100
San Diego, CA 92108

Subject: Comment Letter –Tentative Order No. R9-2015-0001, Place ID:658018LWalsh

Dear Ms. Walsh:

The City of San Diego (City) appreciates the opportunity to provide comments on the Amendment to the Regional Municipal Separate Storm Sewer System (MS4) Permit for the San Diego Region (Tentative Order No. R9-2015-0001, herein referred to as the "Draft Amendments") to incorporate the County of Orange, several Incorporated Cities of South Orange County, and the Orange County Flood Control District as Copermittees. The City is committed to protecting and improving water quality in the San Diego Region. From this perspective, the City provides the following comments below. More detailed comments are included in Attachment 1.

- *The City supports the proposed changes to the Areas of Special Biological Significance and hydromodification management provisions.*
- *The Draft Amendments should include revisions to Provision A to establish a linkage between the implementation of Water Quality Improvement Plans (WQIPs) and compliance with the Receiving Water Limitations and Discharge Prohibitions.* The City is expending significant resources to develop and implement WQIPs that include timely implementation of strategies, control measures, and other actions to make progress towards attainment of water quality standards. Therefore, the City requests that the Draft Amendments include implementation of a WQIP as a valid mechanism for demonstrating

Transportation & Storm Water Department
9370 Chesapeake Drive, Suite 100, MS 1900 • San Diego, CA 92123
Hotline (619) 235-1000 Fax (858) 541-4350

compliance with Receiving Water Limitations and Discharge Prohibitions. The disconnect in the MS4 Permit between the WQIPs and compliance with Receiving Water Limitations raises several significant issues: (1) it undermines the stated intent of the Regional Board to encourage prioritization of pollutants; (2) it requires resource-intensive watershed planning efforts that have no benefit to the Copermittees' ability to comply with the Receiving Water Limitations and Discharge Prohibitions; and (3) it calls into question whether WQIPs are properly required under the MS4 Permit.

- *The Draft Amendments should include a definition of Prior Lawful Approval to clarify the Regional Board's intent in allowing some new development projects to comply with prior requirements.* The current language in the MS4 Permit is unclear. A definition of Prior Lawful Approval should: (1) Provide a clear, bright line; (2) Provide a backstop to ensure that projects with older approvals comply with new requirements unless those approvals confer vested rights; (3) Protect vested rights; and (4) preserve Copermittees' land use authority.
- *The Los Penasquitos Sediment TMDL requirements in the Draft Amendments should be modified to ensure consistency with the TMDL.* The City supported and led the third-party TMDL process, and the resulting TMDL was approved by the Regional Board with broad support from all stakeholders. The City is concerned, however, that the Draft Amendments are inconsistent with the TMDL and place a disproportionate burden on Phase I MS4 Copermittees. In the attached table, the City recommends revisions to reconcile incorrect incorporation of interim and final compliance targets, omission of several compliance pathways indentified in the TMDL, and the assignment of the entire compliance obligation to Phase I MS4 Copermittees without acknowledging the requirements of other Responsible Parties named in the TMDL.
- *MS4 Permit Attachment E should be modified to allow individual jurisdictional compliance with the TMDLs.* The City is committed to protecting and improving water quality and achieving compliance with TMDLs via the implementation of Water Quality Improvement Plans. However, language throughout Attachment E appears to preclude any Copermittee from using the WQIP compliance pathway unless all other Copermittees also are in compliance. The City has no authority to compel other Copermittees to comply and cannot be held liable for the actions or inactions of other agencies. Under federal Clean Water Act regulations that have been incorporated into the MS4 Permit, a Copermittee is responsible only for conditions relating to the discharges for which it is an operator.

Thank you for your time and consideration of these comments. If you have questions, please contact Ruth Kolb at (858) 541-4328 or at rkolb@sandiego.gov.

Sincerely,

Drew Kleis
Deputy Director

DK\rk

Attachments: 1. City of San Diego Comment Table Regarding September 18, 2014 Revisions to Order No. R9-2013-0001
2: Resolution No. R9-2012-0033 and Attachment A

cc: Tony Heinrichs, Deputy Chief Operating Officer
Kris McFadden, Transportation & Storm Water Department Director
Heather Stroud, Deputy City Attorney
Ruth Kolb, Program Manager, Transportation & Storm Water Department
Sumer Hasenin, Senior Engineer, Transportation & Storm Water Department
Mike Hansen, Director of Land Use and Environmental Policy, Office of the Mayor

ATTACHMENT A

ORANGE COUNTY DETAILED COMMENTS ON

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN DIEGO REGION

TENTATIVE ORDER No. R9-2015-0001

NPDES NO. CAS0109266

This document, **Attachment A**, contains the detailed legal and technical comments of the County of Orange and the Orange County Flood Control District (collectively, the "**County**") on Tentative Order No. R9-2015-0001 dated September 18, 2014 ("**Tentative Order**"). These comments are divided into three sections (*General*, *Findings*, and *Permit Provisions*) and address issues relating to specific parts of the Tentative Order. At times, the issues and concerns raised will pertain to more than one section of the Tentative Order. **Attachment B** contains the recommended language changes to the Tentative Order and also includes some minor edits in order to provide additional clarification where necessary.

The County of Orange, as the Principal Permittee, and the cities of Aliso Viejo, Dana Point, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente, and San Juan Capistrano collectively refer to themselves as "San Diego Region Permittees" or "Permittees." The Tentative Order refers to the County and incorporated cities of South Orange County as the "Copermittees." As such, the comments below use the term "Copermittees" to be consistent with the terminology of the Tentative Order.

GENERAL

1. THE DRAFT ORDER DOES NOT RECOGNIZE THE REPORT OF WASTE DISCHARGE OR THE SIGNIFICANT WATER QUALITY OUTCOMES THAT HAVE BEEN ACHIEVED IN ORANGE COUNTY AND, THEREFORE, LACKS SUBSTANTIAL EVIDENCE TO SUPPORT NEW OR MODIFIED PROGRAM REQUIREMENTS.

The Copermittees submitted a Report of Waste Discharge (ROWD) to the San Diego Regional Water Quality Control Board ("Regional Board") on May 20, 2014. Pursuant to federal law, the Copermittees' ROWD is an application to discharge pollutants from a point source to waters of the United States and be covered by a fifth term municipal separate storm sewer system (MS4) National Pollutant Discharge Elimination System (NPDES) Permit.[1] The ROWD evaluates the fourth term MS4 Permit activities and discusses the accomplishments of the Orange County Stormwater Program. Based on the ROWD's assessment and findings, the application identifies the activities that are proposed for the fifth term Permit and including additional pollutant control initiatives. The ROWD is also the technical basis or substantial evidence for what regulations and activities will be required in the fifth term Permit.

The Copermittees' application for a fifth term Permit is predicated on the assessment of the "State of the Environment" (ROWD, Section 2). This assessment describes the results of the

[1] 40 CFR § 122.21.

long-term monitoring and special studies that are used to examine the condition of the surface water environment in Orange County with an emphasis on recreation and aquatic ecosystem health. The analyses focus on bacteria, nutrients, toxicity and improvements in water quality, as well as recommendations for the fifth term Permit intended to ensure further improvements in surface water quality.

However, despite the comprehensive evaluation of the Orange County Stormwater Program presented in the ROWD, there is no discussion in the Draft Order regarding the "State of the Environment." In fact, the Draft Order Findings and Fact Sheet do not reference the Copermittees' application or cite specific areas in the ROWD to provide a basis for or justify particular fifth term stormwater program modifications. Although Finding 38 states that the Fact Sheet "contains background information, regulatory and legal citations, references and additional explanatory information and data in support of the requirements of this Order," many of the requirements within the Tentative Order lack technical justification. The comments provided herein identify many of the areas where new or modified provisions of the Tentative Order lack factual or technical support in the Findings and/or Fact Sheet. Examples of this include, but are not limited to, the following:

- Basis for including Orange County in the regional municipal stormwater permit;
- Basis for requiring uncontaminated pumped ground water, foundation drains, water from crawl space pumps, and footing drains to obtain coverage under the San Diego Region groundwater extraction permits;
- Basis for requiring conventional BMPs onsite in addition to alternative compliance;
- Basis for biofiltration BMPs required to be sized at 1.5 times the design capture volume;
- Basis for biofiltration BMPs not being an effective LID and treatment measure per the requirement to size them at 1.5 times the design capture volume and also require conventional BMPs when they are used;
- Basis for offsite regional BMPs required to be sized at 1.1 times the design capture volume;
- Basis for verification of coverage under all related permits for construction sites; and
- Basis for establishing Water Quality Based Effluent Limits (WQBELs) expressed as numeric effluent limitations, in lieu of WQBELs expressed as BMPs, for the TMDL provisions.

The Findings (Discharge Characteristics and Runoff Management) only contain generic statements about water quality and excludes the key findings from the ROWD. Although the Findings within Section B of the Draft Order may have been the general factual basis for the Copermittees' first and second term permits, they are not appropriate for an advanced fifth term stormwater program.

The absence of any recognition of the significant water quality outcomes that have been achieved in Orange County *(e.g.*, coastal water quality) creates a false case, in many

instances, for regulatory change. Without support from specific findings and other evidence, the requirements of the Draft Order, in many instances lack substantial evidence and are, arbitrary and capricious, and therefore, cannot be lawfully adopted.[2]

Action: The Draft Order needs to include the key findings from the Report of Waste Discharge (including the State of the Environment) and use this information as the basis for the Draft Order's requirements. The Findings and/or Fact Sheet should be modified to include the technical justification for the requirements listed above.

2. THE NUMBERING IN THE TENTATIVE ORDER SHOULD EXPLICITLY IDENTIFY THE MAJOR SECTIONS TO HELP GUIDE THE READER.

The County is recommending that the Regional Board explicitly identify the numbering system within the Tentative Order subsections in order to assist and orient the reader. For example, within the Provisions (Section II of the Tentative Order):

- The sub-sections within Provision A should be listed as:
  - *A.1 Discharge Prohibitions* instead of *1. Discharge Prohibitions*
  - *A.2 Receiving Water Limitations* instead of *2. Receiving Water Limitations*
- The sub-sections within Provision B should be listed as:
  - *B.1 Watershed Management Areas* instead of *1. Watershed Management Areas*
  - *B.2 Priority Water Quality Conditions* instead of *2. Priority Water Quality Conditions*

Given the styles and formatting currently used within the Tentative Order, these edits were not made within Attachment B.

Action: Incorporate a definitive numbering system.

FINDINGS

3. FINDING 2 (PAGE 1 OF 130) – A REGIONAL PERMIT CANNOT BE ISSUED TO ORANGE COUNTY BECAUSE THERE IS NO SYSTEM-WIDE, JURISDICTION-WIDE, WATERSHED OR OTHER BASIS.

The Tentative Order is intended to cover Copermittees in three large metropolitan counties – Orange, Riverside and San Diego. In May 2012, Orange and Riverside Counties ("**Counties**") sent letters to Staff Counsel for the Regional Board requesting the legal authority to issue a regional permit to the three counties.[3] The Counties contended that, in accordance with federal regulations, there was no system-wide, jurisdiction-wide or watershed basis to issue a regional permit. The Counties also asserted that the lack of a Report of Waste Discharge (ROWD) process for either county prior to the initial adoption of

[2] *City of Rancho Cucamonga v. Regional Water Quality Control Bd.*, 135 Cal. App. 4th 1377, 1384–1385 (2006); Code Civ. Proc. § 1094.5(b).

[3] Letter from Ryan M. F. Baron, Office of County Counsel, County of Orange, to Catherine Hagan, Office of Chief Counsel, State Water Resources Control Board, San Diego Region (May 10, 2012); Letter from David H. K. Huff, Office of County Counsel, County of Riverside, to Catherine Hagan, Office of Chief Counsel, State Water Resources Control Board, San Diego Region (May 21, 2012).

the Tentative Order prevented the issuance of a regional permit on the grounds that there was a conflict with both federal and state law. On September 7, 2012, Staff Counsel responded to the Counties stating that there was a jurisdiction-wide and watershed basis to impose a regional permit on the Counties, and cited legal authority and examples in the Bay Area and an Alaskan borough where regional permits had been issued.[4]

For the following reasons, the County continues to believe that the Regional Board lacks authority to issue a regional permit to Orange County:

1. Orange County's MS4 system does not interconnect with Riverside and San Diego Counties,
2. There is no jurisdictional basis to issue a regional permit to Orange County,
3. Orange County's MS4 does not drain into a shared watershed,
4. Orange County's MS4 is not adjacent to Riverside or San Diego's MS4, and
5. The quantity and nature of pollutants differ between the three counties.

Therefore, the Regional Board cannot under federal and state regulations impose a Regional Permit without the Copermittees expressly consenting to the Board's jurisdiction. The Copermittees therefore enroll in the region-wide permit under protest.

a. There Is No System-wide, Jurisdiction-Wide, Watershed or Other Basis by Which to Legally Impose a Regional Permit on Orange County.

Finding 2 in the Tentative Order states that the legal and regulatory authority for implementing a regional MS4 permit stems from Section 402(p)(3)(B) and 40 CFR 122.26(a)(1)(v). The Tentative Order also cites EPA's Final Rule regarding stormwater discharge permit application procedures that there is flexibility to establish system-wide or region-wide permits.[5] During Focused Meeting Workshops conducted on June 27, 2012 and July 11, 2012, Regional Board staff stated that the reason for a regional permit was to consolidate all three permits into one to lessen the amount of permit writing time for three separate permits and reduce internal costs for writing and issuing permits. The justification at Finding 2 is largely the same although it adds that the "regional nature of this Order will ensure consistency of regulation within watersheds and is expected to result in overall costs savings for the Copermittees and San Diego Water Board."[6]

When EPA established regulations for MS4 permit issuance, the Response to Comments contemplated one permit being issued to a single system. And although it allowed

[4] Letter from Jessica Jahr, California Regional Water Quality Control Board, San Diego Region, to Ryan M. F. Baron, Office of County Counsel, County of Orange, and David H. K. Huff, Office of County Counsel, County of Riverside (Sept. 7, 2012) ("Staff Counsel Letter").

[5] 55 Fed. Reg. 47990, 48039-48042 ("EPA Final Rule").

[6] Part I.2.

discretion to define "system," it did so based on the following criteria – interconnectedness, political jurisdiction, and watershed-based.[7]

Interconnection. Although Orange County geographical boundaries abut San Diego and Riverside Counties, Orange County's MS4 does not interconnect with the counties regulated under the regional permit. There is substantial undeveloped area between the developed jurisdictions of Orange County and Riverside Counties. The Santa Ana Mountains and the Cleveland National Forest separate Orange and Riverside Counties encompassing tens of thousands of acres of total land separating the two counties. Camp Pendleton military base separates Orange and San Diego Counties totaling over 122,000 acres with no adjacent cities or interconnected MS4s. Clean Water Act (CWA) regulations expressly state that a permit can be issued on a system-wide basis covering all discharges from MS4s within a large or medium municipal storm sewer system. One of the primary considerations in defining a "large or medium municipal separate storm sewer system" is one that has physical interconnections with other municipal separate storm sewers.[8] In this case, there are no physical interconnections. A depiction of the County's geographical separation have been entered into the record and is included in Appendix 1.

Jurisdiction. There is no jurisdiction-wide basis to issue a regional permit. 40 CFR 122.26(a)(3)(ii) states that one system-wide permit can cover all discharges from MS4s within a large or medium municipal storm sewer system located within the same jurisdiction. Orange, Riverside and San Diego Counties are separate counties with distinct political and geographical boundaries that do not drain into a common watershed and do not share physical interconnections. The three counties are not within the same political jurisdiction. While Region 9 can be considered one jurisdiction for Regional Water Board purposes, federal regulations state that there has to be one stormwater management regional authority in which to issue a permit, and the Regional Board is not such an authority.[9] Regardless, such a permit can only be issued to a multi-jurisdictional entity upon a permit application and upon there being an interconnected MS4 or adjacent MS4. There is no tri-county stormwater management authority, there is no system-wide interconnection and Orange County is not adjacent to San Diego and Riverside Counties due to the large federal lands that separate the counties.

Watershed. Orange County does not drain into a shared watershed with Riverside and San Diego Counties. The Orange County Copermittees drain into various watersheds that drain into the Pacific Ocean. The Riverside County Copermittees drain into the Santa Margarita watershed. San Diego County drains into various watersheds. Orange County's MS4 does not drain into or share one common watershed with either county, and therefore cannot be regulated on this basis. During the prior adoption hearing for the regional permit, it was asserted by Regional Board staff that one permit can be

[7] 33 USC 1342(p)(3)(B)(i); 40 CFR 122.26(a)(1)(v).

[8] 40 CFR 122.26(b)(4) (defining large systems); 40 CFR 122.26(b)(7) (defining medium systems).

[9] 40 CFR § 122.26(a)(3)(iii)(C).

issued based on adjacency. That is, two or more separate MS4s can be issued one permit for discharges into watersheds adjacent to one another, such that they abut one another. The EPA and Army Corps of Engineers' definition of "adjacent," however, does not include mere proximity, but that one waterbody has a significant effect on the other waterbody. "Adjacent" is a waterbody adjacent to navigable waters or waters of the U.S. because the waterbodies are "inseparably bound up."[10] ''Adjacent waters' are wetlands, ponds, lakes and similar water bodies that provide similar functions which have a significant nexus to traditional navigable waters, interstate waters and the territorial seas. These include waters and wetlands that are adjacent to traditional navigable waters, interstate waters, and the territorial seas as well as waters and wetlands adjacent to other jurisdictional waters such as tributaries and impoundments."[11] In its Proposed Rule, EPA sought comment on clarifying the concept of adjacency as those waters that are ''neighboring.'' "Neighboring" is proposed as possessing "a shallow subsurface or confined surface hydrologic connection to a jurisdictional water," that can exchange water, along with chemicals and organisms within that water, and subsequently have a significant effect, particularly in combination with other adjacent waters in the watershed, on the chemical, physical, or biological integrity of a downstream traditional navigable water, interstate water, and the territorial seas."[12]

Quantity and Nature of Pollutants. Orange, Riverside and San Diego Counties are comprised of different climates, soil types, waterbodies and other notable differences. Based on differing permit requirements for the three counties, such as TMDLs, and data filed in annual reports and past ROWDs, the quantity and nature of pollutants are different between the three counties, and do not serve as a basis or determination by which to lump all three counties into a one-size fits all permit (*e.g.*, hydromodification).

Other Support. In the Staff Counsel Letter, Regional Board staff cited examples in the Bay Area and in Alaska where regional permits have been issued. In the Bay Area, various cities and counties under that permit interconnect in some fashion and drain into the San Francisco Bay. The Bay Area is also represented by a joint powers organization or regional watershed management program comprised of 8 municipal stormwater programs that voluntarily agreed to end their existing permits early and enroll in a regional permit. In the case of the Alaska example, a "regional" permit was issued to the Fairbanks North Star Borough, City of Fairbanks, City of the North Pole, the Alaska Department of Transportation and the University of Alaska Fairbanks. Further examination of that permit and the stormwater program maps demonstrate, though,

[10] 79 Fed. Reg. 22188, 22191 ("Proposed Rule"). *United States v. Riverside Bayview Homes*, 474 U.S. 121 (1985).

[11] 79 Fed. Reg. 22188, 22195 and 22207 ("Connectivity is a foundational concept in hydrology and freshwater ecology. Connectivity is the degree to which components of a system are joined, or connected, by various transport mechanisms and is determined by the characteristics of both the physical landscape and the biota of the specific system.").

[12] Id. at 22210.

that the region regulated is a borough, the Alaskan equivalent of a county. All of the regulated Copermittees are physically interconnected through its storm drain system and most drain into one watershed. Therefore, neither the Bay Area nor the Fairbanks Borough permits provide sufficient examples of a regional permit comparable to the one being issued to Orange County.

As previously stated, Regional Board staff indicated in the June 27, 2012 and July 11, 2012 workshops that the rationale for implementing a region-wide permit was minimize costs to the Regional Board in preparing permits. Federal regulations, however, do not authorize and the EPA Final Rule does not contemplate regional permit issuance based on overall reduced cost savings. Moreover, cost savings have not been demonstrated in the Tentative Order.[13] Although it may be convenient to ensure consistency of regulation, the EPA Final Rule contemplates such consistency within a watershed and not throughout a geographical area the size of the three counties. And although the EPA Final Rule does use the term "regional" in the Response to Comments, a careful examination of the term shows that EPA was analyzing whether individual permits should be issued to individual cities, a county and its incorporated cities, a set of Copermittees with interconnected sewer systems and other infrastructure, one state entity or a regional stormwater management authority. The largest area by which one permit could be issued under the Final Rule was a state entity that operated a state highway network or one county and its incorporated cities. There is no factual or technical basis in the Tentative Order that meets this criteria or establishes other bases to regulate Orange County under one unified permit. There is also no statistical basis by which to issue a regional permit as Orange County is comprised of over three million people and is the sixth largest county by population in the U.S. In fact, the U.S. Bureau of Census designates Orange County in a different Metropolitan Statistical Area than San Diego County, and is designated in a Combined Statistical Area with Los Angeles, Ventura and San Bernardino Counties.

b. There Is No Technical Basis to Regulate Orange County Due to the Lack of a Report of Waste Discharge Application.

The ROWD is a federally required application that is the technical basis to draft a new permit for a permittee. The information contained in the ROWD is used to determine prospective provisions of the new permit, including but not limited to monitoring, program strengths and other tools that are assessed in the new permit. In other words, the ROWD is the technical basis or substantial evidence for determining what will be required in the new permit. The initial draft of the Regional Permit did not contain a ROWD requirement for Orange County. The Order was subsequently revised to include a ROWD requirement to determine whether modification to the Order upon enrollment by Orange County is necessary, but the Regional Permit was still adopted by the Regional Board with terms and conditions that would also apply to Orange County that were not based on any federally required application or report.

In short, the Regional Permit was adopted by the Regional Board with provisions that regulate Orange County Copermittees, along with specific numeric and other

[13] 55 Fed. Reg. 47990-01.

requirements that only apply to Orange County that were not based on an application process or other documented technical basis. There is no substantial evidence or basis under the Clean Water Act ("CWA") by which to impose certain regulations on the County. Thus, the lack of a ROWD requirement prior to initial adoption of the regional permit is in conflict with the CWA, the Porter Cologne Water Quality Control Act ("Porter Cologne") and the California Administrative Procedure Act.

Action: The County should be issued an individual permit. Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Finding 2 (page 1)*
- *Finding 28 (page 8)*

4. FINDING 7 (PAGE 3 OF 130) - THE IN-STREAM TREATMENT CONTROL SYSTEMS FINDING WILL PRECLUDE THE USE OF REGIONAL BMPS.

In-stream controls must not adversely impact beneficial uses or result in sustained degradation of water quality of the receiving waters. Copermittees and project applicants should have the flexibility to identify creative solutions that meet the alternative compliance goals of mitigating the volume of stormwater not retained onsite or increased potential erosion of downstream receiving waters.

This finding should not prevent the implementation of stream restoration or stream rehabilitation projects and constructed wetlands, or prevent maintenance of reconstruction of existing stream restoration or rehabilitation projects, constructed wetlands, and regional BMPs.

Action: Finding 7 should be modified to allow for the implementation of stream restoration or stream rehabilitation projects and constructed wetlands, or maintenance of reconstruction of existing stream restoration or rehabilitation projects, constructed wetlands, and regional BMPs.

5. FINDING 8 (PAGE 3 OF 130) – IT SHOULD NOT BE PRESUMED THAT DISCHARGES FROM MS4S ALWAYS CONTAIN WASTE OR POLLUTANTS.

Discharges may contain waste or pollutants, but it should not be presumed that they necessarily always contain waste or pollutants.

Under current law, the Regional Board's issuance of the Permit is a quasi-judicial decision.[14] As a quasi-judicial decision, the Regional Board's action must be supported by legally adequate findings, and those findings must be supported by evidence in the record.[15]

Pursuant to the Supreme Court's decision in *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, findings are intended to "facilitate orderly analysis and minimize the likelihood that the agency will randomly leap from evidence to conclusions."[16] Here, there is no cited evidence that stormwater itself is a pollutant or that in

[14] *City of Rancho Cucamonga v. Regional Water Quality Control Board*, 135 Cal.App.4th 1377, 1385 (2006).

[15] T*opanga Association for a Scenic Community v. County of Los Angeles*, 11 Cal.3d 506 (1974).

[16] *Id.*, at 514 (emphasis added).

every instance it contains pollutants or waste as those terms are defined by the CWA and Porter Cologne respectively. Absent evidence demonstrating that this is the case, in all cases, the Regional Board cannot make this finding.

Moreover, as a matter of law, the Regional Board lacks the authority to regulate pure stormwater as a pollutant. The CWA and its implementing regulations define the term "pollutant" to mean:

> dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.[17]

Federal regulations further define the term "stormwater" to mean "storm water runoff, snow melt runoff, and surface runoff and drainage."[18] Notably, the definition of the term "pollutant" does not include "stormwater." Moreover, the text of the CWA requires the discharge of *pollutants* to be reduced to the Maximum Extent Practicable (MEP).[19] There is no prohibition on or comparable authority to regulate the discharge of pure stormwater.

This rationale was recently adopted by the Eastern District of Virginia, when it held that the EPA has no authority under the Clean Water Act to regulate non-pollutants.[20] Specifically, the Court stated:

> "Pollutant is statutorily defined. (33 U.S.C. § 1362(6).) The Court sees no ambiguity in the wording of this statute. EPA is charged with establishing TMDLs for the appropriate pollutants; that does not give them the authority to regulate nonpollutants. The parties agree that sediment is a pollutant under 33 U.S.C. § 1362(6), and stormwater is not. Then how does EPA claim jurisdiction over setting TMDLs for stormwater?"[21]

Likewise, Porter Cologne defines the term "waste" to mean:

> "sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal."[22]

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[17] 33 U.S.C. § 1362(6); 40 C.F.R. § 122.2.

[18] 40 C.F.R. § 122.26(b)(13).

[19] 33 U.S.C. § 1342(p).

[20] Virginia Dept. of Transportation v. EPA, No. 1:12-CV-775, slip op., 2013 WL 53741 (E.D. Va. Jan. 3, 2013).

[21] *Id.*, at 5.

[22] Water Code § 13050(d).

While the definition is certainly different and potentially broader than the definition of "pollutant" under the CWA, the definition of "waste" does not include stormwater or any other discharge that is not created by human activity. As a matter of law, the Regional Board is therefore without authority to regulate all discharges of stormwater as pollutants or waste.

Action: *Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:*

- *Finding 8 (page 3)*
- *Finding 16 (page 5)*
- *Finding 17 (page 5)*

6. FINDING 11 (PAGE 4 OF 130) – NATURAL WATERS CANNOT LEGALLY BE CLASSIFIED AS PART OF THE MS4, AND CANNOT BE CLASSIFIED AS BOTH A MS4 AND RECEIVING WATER.

Rivers, streams, creeks and other natural waterbodies cannot be legally classified as a MS4. The definition of a "municipal separate storm sewer" means "a conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains" "owned and operated" by a municipality.[23]

In California, natural waterbodies are not "owned" by the municipality through which they flow. Such water bodies are generally administered by the State of California in the public trust for the right of the people to use such waters for certain purposes.[24] The Legislature, acting within the confines of the common law public trust doctrine, is the ultimate administrator of the trust and may often be the final arbiter of permissible uses of trust lands.

"receiving water" cannot also be an MS4, as is plain from the CWA regulations. An MS4 is itself defined as discharging to waters of the United States.[25] An MS4 cannot, in essence, discharge to itself. Moreover, an "outfall" from an MS4 (the point at which the discharge enters a receiving water) does not, pursuant to 40 C.F.R §122.26 (b)(9), include conveyances connecting "segments of the same stream or other waters of the United States and are used to convey waters of the United States."

In EPA's Preamble to the initial version of the MS4 regulations, the agency expressly determined that "streams, wetlands and other water bodies that are waters of the United States are not storm sewers for the purposes of this rule" and that "stream channelization, and stream bed stabilization, which occur in waters of the United States" were not subject to National Pollutant Discharge Elimination System ("NPDES") permits under Section 402 of

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[23] 40 CFR 122.26(b)(8).

[24] *Marks v. Whitney* 6 Cal. 3d 251, 259, 260 (1971).

[25] 40 C.F.R. §122.26(b)(8).

the CWA.[26] In further support of the point that a MS4 is an artificial, not natural, watercourse, the types of "conveyances" identified in the regulation ("roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains") all refer to anthropogenic structures, not natural streams.[27]

In *South Florida Water Management District v. Miccosukee Tribe of Indians*, the U.S. Supreme Court opined on the issue of whether a NPDES permit was needed when water from a channelized canal was pumped across a levee into a reservoir. The Court held that if the two waterbodies were meaningfully distinct, no permit was needed.[28] Likewise, the Court held in *L.A. County Flood Control District v. NRDC* that the flow of water from an improved portion of a navigable flood control channel into an unimproved portion of the same waterway is not a "discharge of a pollutant" under the CWA.[29] Based on these two holdings, there is no discharge of pollutants under the CWA if a waterbody like a flood control channel is both classified as a MS4 and receiving water.

This issue is currently being considered by U.S. EPA in its Proposed Rule. EPA has indicated in ex parte meetings that it did not seek comment and did not intend that MS4s be characterized as waters of the U.S. Therefore, the Regional Board should refrain from issuing this finding until the Proposed Rule is final and EPA has lawfully established this classification. Otherwise, such a finding is made purely under state law.

Action: Finding 11 should be deleted. Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Finding 11 (page 4)*

7. FINDING 12 (PAGE 4 OF 130) – COPERMITTEES DO NOT ACCEPT FREE AND OPEN ACCESS TO MS4S, AND ARE NOT RESPONSIBLE FOR ALL DISCHARGES NOT PROHIBITED.

The Tentative Order states that MS4s provide free and open access and convey discharges to waters of the U.S., and that MS4 operators then accept all responsibility for such discharges not prohibited or otherwise controlled. This is simply not the case and is legally unsupportable. An MS4 is designed to accept stormwater for flood control purposes and prevent damage to life and property. Although it is true that the Copermittees have an obligation to effectively prohibit non-stormwater discharges, namely illicit connections and unlawful dumping, it is also true that the discharger into the MS4 is ultimately responsible for a condition of pollution or violation of a water quality standard. And, in accordance with California state law, MS4s downstream of upstream flows must accept those flows and

[26] 53 Fed. Reg. 49416, 49442 (Dec. 7, 1988).

[27] 40 CFR § 122.26(b)(8).

[28] 541 U.S. 95, 109-112 (2004) (remanding the case to the Florida District Court to determine the hydrological connection between the two waterbodies).

[29] *L.A. County Flood Control District v. National Resources Defense Council*, 133 S.Ct. 710 (Jan. 8, 2013).

cannot attempt to block or divert such flows.[30] Finding 12 attempts to shift all legal responsibility to the MS4s, which is unsupported by federal and state law.

Action: *Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:*

- *Finding 12 (page 4)*

8. FINDING 15 (PAGE 5 OF 130) – THE TENTATIVE ORDER MUST RECOGNIZE THAT THE DISCHARGE OF ALL POLLUTANTS FROM THE MS4 IS SUBJECT TO THE MEP STANDARD.

Section 402(p)(3)(B)(ii) requires the Copermittees to effectively prohibit non-stormwater discharges into the MS4, namely pollutants generated from illicit connections and unlawful dumping.

The Tentative Order at Finding 15, however, states that "non-stormwater discharges from the MS4s are not considered stormwater discharges and therefore are not subject to the MEP standard….". This finding is not supported by federal law. Although federal law regulates "non-stormwater discharges" into the MS4, Section 402(p)(3)(B)(iii) expressly states that the "discharge of pollutants" shall be reduced to MEP. In drafting this section of the CWA, Congress expressly intended all discharges from MS4s to be subject to MEP as it used the term "pollutant" and did not differentiate between stormwater and nonstormwater, as the Tentative Order attempts to do. Therefore, the duty of the Copermittees to reduce the discharge of pollutants from the MS4 to MEP applies to both stormwater and nonstormwater pollutants.

Furthermore, the focus of the CWA and federal regulations is on a management program that includes a comprehensive planning process to reduce the discharge of pollutants to MEP.[31] One of the elements of the management program is the illicit discharge prevention program.[32] The control and limitation of illicit discharges into the MS4 is intended to achieve the overall MEP standard for discharges from the MS4. This is confirmed by the preamble to EPA regulations that discuss the required elements of the management program. According to EPA:

> [Copermittees are required] to develop management programs for four types of pollutant sources which discharge to large and medium municipal storm sewer systems. Discharges from large and medium municipal storm sewer systems are usually expected to be composed primarily of: (1) Runoff from commercial and residential areas; (2) storm water runoff from industrial areas; (3) runoff from construction sites; and *(4) non-storm water discharges*. Part 2 of the permit application has been designed to allow [Copermittees] the opportunity to propose *MEP control measures for each of these components of the discharge*. 55 Fed Reg at 48052 (emphasis

[30] *Keyes v. Romley*, 64 Cal.2d 396 (1966); *Locklin v. City of Lafayette*, 7 Cal. 4th 327 (1994).

[31] 40 CFR 122.26(d)(2)(iv).

[32] 40 CFR 122.26(d)(2)(iv)(B)(1).

> added). *See also* 55 Fed Reg at 48045 (stating "Part 2 of the proposed permit application [which includes the illicit discharge prevention requirement] is designed to . . . provide municipalities with the opportunity of proposing a comprehensive program of structural and non-structural control measures that will *control the discharge of pollutants, to the maximum extent practicable, from municipal storm sewers*.") (Emphasis added).

EPA's position is consistent with existing State Water Resources Control Board policy which states that discharges into the MS4 are to be controlled through an iterative, BMP based approach that is *less* stringent than the MEP standard.[33] The State Board held:

> An NPDES permit is properly issued for "discharge of a pollutant" to waters of the United States. (Clean Water Act § 402(a).) The Clean Water Act defines "discharge of a pollutant" as an "addition" of a pollutant to waters of the United States from a point source. (Clean Water Act section 502(12).) Section 402(p)(3)(B) authorizes the issuance of permits for discharges "from municipal storm sewers."
>
> We find that the permit language is overly broad because it applies the MEP standard not only to discharges "from" MS4s, but also to discharges "into" MS4s. . . [T]he specific language in this prohibition too broadly restricts all discharges "into" an MS4, and does not allow flexibility to use regional solutions, where they could be applied in a manner that fully protects receiving waters. It is important to emphasize that dischargers into MS4s continue to be required to implement a full range of BMPs, including source control. In particular, dischargers subject to industrial and construction permits must comply with all conditions in those permits prior to discharging storm water into MS4s.[34]

The State Board's decision in the BIA Order makes clear that the CWA does not include a blanket prohibition on discharges of non-stormwater into the MS4. To the extent the Tentative Order would hold the dischargers liable in the event that any discharge into the MS4 occurs, the Tentative Order exceeds the requirements of the CWA and violates existing State Board policy.

It is also technically infeasible in some cases to differentiate between non-stormwater or stormwater pollutants discharged from the MS4. Thus, just as the discharge of non-stormwater into the MS4 is subject to the effective prohibition standard, the discharge of pollutants in non-stormwater from the MS4 is subject to the MEP standard. There are several instances where the specific provisions in the Tentative Order need to be modified in order to reflect this approach.

<u>Action</u>: *Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:*

- *Finding 15 (page 5)*

[33] Specifically in State Board in Order No. WQ-2001-15, *In the Matter of the Petitions of Building Industry Assoc. of San Diego County and Western States Petroleum Assoc.* (2001) ("BIA Order").

[34] *Id.*, at 9-10.

- *Provisions, A. Prohibitions and Limitations (page 15)*
- *Provisions, E. Jurisdictional Runoff Management Programs (page 78)*
- *Provisions, E.1.a. Legal Authority Establishment and Enforcement (page 78)*
- *Provisions, E.2.a. Illicit Discharge Detection and Elimination (page 80)*

9. FINDING 31 (PAGE 10 OF 130) – THE REQUIREMENTS IN THE TENTATIVE ORDER ARE MORE STRINGENT THAN FEDERAL LAW, REQUIRING AN ECONOMIC ANALYSIS. IN ADDITION, THE CURRENT ECONOMIC ANALYSIS IS INSUFFICIENT.

Finding 31 states that pollutant restrictions are not more stringent than federal law, yet an economic analysis is still conducted pursuant to Water Code § 13241. Despite the finding that the Tentative Order does not exceed federal law requirements, there are a number of requirements that are more stringent.

There has not been a full consideration of the section 13241 factors, which would include an analysis of the economic impacts that would result from compliance with the existing stormwater permit compared to the costs of complying with the proposed stormwater permit (*i.e.*, the costs of complying with the new requirements). Instead, the Order's analysis begins by stating, and without any quantification, that it would more expensive to not fully implement programs. Section 13241 is not satisfied by this inverse analysis.

Additionally, the Tentative Order states that Copermittees have a significant amount of flexibility to choose how to implement BMPs and that "least expensive measures" can be chosen.[35] This statement, however, conflicts with the Order's definition of MEP at C-6 which expressly acknowledges Chief Counsel's 1993 MEP memo that only the Regional and State Boards determine whether BMPs meet MEP, and that selection of the least expensive BMPs will likely not result in meeting the MEP standard.

The Fact Sheet also fails to cite any recent cost benefit numbers but relies on inapplicable cost data such as a 1999 EPA study on household costs.

The analysis of costs contained in the Fact Sheet is deficient in two additional ways. First, the approach to compliance costs is fundamentally deficient because it tells the public nothing at all about the relationship between the cost of any particular control and the pollution control benefits to be achieved by implementing that control. Under this "generalized" approach, extremely costly requirements that bear little or even no relationship (or even a negative relationship) to the pollution control benefits to be achieved could be "justified" as long as the "overall" program costs are within what the Regional Board deems to be an acceptable range. This is not a proper way to determine whether a control reduces the discharge of pollutants from the MS4 to the MEP. A more individualized assessment of cost is required. Otherwise, dischargers may be required to implement very costly controls that have no relationship to pollution control benefits, a result inconsistent with MEP.

This analytical flaw in the Fact Sheet is compounded by the approach taken to assess the benefits of the Tentative Order. Here again, the assessment approach misses the mark

[35] Fact Sheet, Page F-17.

because it tells the public nothing about the pollution control benefits to be achieved by implementation of the controls in the Tentative Order. All the Fact Sheet says, in essence, is that people like clean water and in theory may be willing to pay for it, that urban storm water may contribute to beach closures and that such beach closures have an economic impact. This analysis sheds no light on the relationship between a BMP's costs and the pollution control benefits to be achieved by implementing that BMP.

Second, the Fact Sheet contains faulty assumptions and relies upon outdated or inapplicable data. The California State University, Sacramento (CSUS) Cost Survey assessed program costs for Phase I cities. Nothing in the Fact Sheet links any of the actual conditions of the Phase I permits of the Phase I cities studied by CSUS with any of the requirements of the Tentative Order. Therefore, the study tells the public nothing about the costs to implement the Tentative Order. The data included in the Fact Sheet is also from seven years to more than a decade old. In short, the Fact Sheet uses old data from Phase I programs that have no linkage to any conditions of the Tentative Order. The full costs of implementing the entire program required by the Tentative Order must be assessed.

Lastly, stormwater agencies cannot readily establish or raise fees to help pay for the BMPs necessary to comply with either the California Toxics Rule (CTR) criteria or proposed Site Specific Objectives (SSOs) due to the requirements of Proposition 218, Proposition 26 and the Mitigation Fee Act. For instance, Proposition 218 requires that property-related fees be put to a vote, so cities cannot assess fees without the consent of a majority (two-thirds) of the property owners. Therefore, the costs associated with the implementation and maintenance of the BMPs are more likely to be covered through the stormwater agency General Funds.

Action: *Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:*

- *Finding 31 (page 10)*

10. FINDING 32 (PAGE 11 OF 130) – THE REGIONAL BOARD HAS NO LEGAL ABILITY TO DETERMINE WHETHER A PARTICULAR MANDATE IS UNFUNDED.

The Tentative Order finds that none of the requirements therein constitute an unfunded local mandate. This finding, however, should be stricken as the Regional Board has no legal ability to determine whether a particular mandate is unfunded. The Commission on State Mandates is the only State agency that has the jurisdiction and ability to make that determination.

The Fact Sheet's discussion of unfunded state mandates is not consistent with applicable legal authority or the Tentative Order, as discussed below.

Article XIII B, Section 6(a) of the California Constitution ("Section 6") provides that whenever "any state agency mandates a new program or higher level of service on any local government, the state shall provide a subvention of funds to reimburse that local government for the costs of the program or increased level of service . . . ." Section 6 applies to storm water permits issued by the State Board and the Regional Boards.[36] Thus, Section 6 applies to the Tentative Order.

[36] *County of Los Angeles v. Commission on State Mandates* (2007) 150 Cal.App.4th 898, 920.

Section 6 was added to the California Constitution by voter approval in 1979, as part of a larger effort that had as its goal both limiting state and local spending and restricting the ability of local entities to raise revenue. Section 6 must be viewed as a "safety valve" designed to protect local governments from being placed in the untenable position of being required by the state, on the one hand, to implement certain state mandated programs while also, on the other hand, being prohibited from raising the money needed to pay for those state mandated programs.[37] Recognizing that such a situation was neither a fair nor a wise approach to governing, the voters enacted Section 6 to prevent state government from shifting financial responsibility for carrying out governmental functions to local agencies without the state paying for them.

To implement Section 6, the Legislature created the Commission on State Mandates ("Commission"). The Commission has sole and exclusive jurisdiction to determine whether a state law or order of a state agency is an unfunded state mandate.[38] In accordance with Section 6, Government Code section 17500 et seq., and case law, the Commission on State Mandates has determined that an unfunded state mandate exists when: (a) the state imposes a new program or higher level of service that is; (b) mandated by state law, not federal law; and (c) when the local government lacks adequate fee authority to pay for the new program or higher level of service.

Whether and how individual stormwater permit conditions constitute unfunded state mandates is currently the subject of pending litigation. In 2009 and 2010, the Commission on State Mandates determined that parts of the Los Angeles Phase I Permit and major components of the San Diego Phase I Permit constituted unfunded state mandates. The State challenged these two decisions in court, and, in the San Diego matter, the court confirmed that only the Commission on State Mandates could make the ultimate determination of whether a permit condition constituted an unfunded state mandate. Specifically, the court in the San Diego case held that the "Commission has exclusive authority to determine whether the Regional Board has imposed a state mandate." The court in the San Diego case further concluded that the Commission on State Mandates should reconsider its decision to assess whether each of the individual permit conditions were required to achieve the MEP standard. Specifically, the court held that "the Commission must determine whether any of the permit conditions exceed the 'maximum extent practicable' standard." (Emphasis added.) Therefore, contrary to the discussion in the Fact Sheet, each permit condition (control) must be assessed to determine whether it is consistent with MEP.

This issue is currently being addressed by the California Supreme Court in *Department of Finance v. Commission on State Mandates*.[39]

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[37] *Department of Finance v. Commission on State Mandates* (2003) 30 Cal.4th 727, 735; *County of San Diego v. State of California* (1997) 15 Cal.4th 68, 81.

[38] Government Code §§ 17551 and 17552; *Kinlaw v. State of California* (1991) 54 Cal.3d 326, 331-334.

[39] (2013) 220 Cal.App.3th 740.

Action: Finding 32 should be deleted. Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Finding 32 (page 11)*

PERMIT PROVISIONS

GENERAL

11. THE TENTATIVE ORDER INCLUDES LANGUAGE THAT PROVIDES AN OVERLY BROAD INTERPRETATION OF THE STORMWATER REGULATIONS BY REQUIRING MS4S TO "ENHANCE" AND/OR "RESTORE" BENEFICIAL USES OR HABITAT.

The Tentative Order recognizes that the overarching objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" and that, in order to carry out this objective, the CWA utilizes a number permitting programs and regulatory tools to regulate the discharge of pollutants and other materials to Waters of the United States (Waters of the U.S.).

However, CWA section 402(p), that section which governs that permitting for municipal and industrial stormwater discharges, is only one regulatory tool within the CWA. Moreover, it requires the MS4s to focus on the quality and impact of their non-stormwater and stormwater discharges, not on the active enhancement and/or restoration of beneficial uses or habitat.

While the Fact Sheet recognizes that the development and implementation of a WQIP will identify the highest priority water quality conditions and that "addressing these threats and/or adverse impacts should restore the physical, chemical, and biological integrity of receiving waters, and result in the restoration and protection of the beneficial uses of the receiving waters in the Watershed Management Area,"[40] the Tentative Order should not explicitly require the enhancement or restoration of beneficial uses as the CWA only requires that the Copermittees protect beneficial uses and prevent nuisance.[41]

This is important from a prioritization and resource allocation perspective because while the Copermittees must control the discharge of pollutants in order to, ultimately, protect the beneficial uses of the receiving waters, they are not required to actively "enhance" or "restore" the beneficial uses and habitat of the receiving waters. It must be recognized that the actions and resources necessary to "protect" the beneficial uses may, in fact, be different than those that would be required to "enhance" or "restore" the beneficial uses of a particular receiving water.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, B. Water Quality Improvement Plans (page 20)*
- *Provisions, E.5.e. Retrofitting and Rehabilitating Areas of Existing Development (page 115)*

[40] Fact Sheet, Page F-45.

[41] 40 CFR 131.12()(1); CWC 13263(a) and 13050.

12. THE TENTATIVE ORDER INCLUDES LANGUAGE THAT PROVIDES AN OVERLY BROAD USE OF THE TERM "PROHIBIT."

Although some changes were made in the Tentative Order language, the Tentative Order should be reviewed for the correct use of the terminology "effectively prohibit" since it appears that there are a couple of cases where this language was not modified.

The term "prohibit" is broader than CWA requirements and should be changed to "effectively prohibit." CWA section 402(p)(3)(B)(ii) reads as follows:

> (B) Municipal Discharge – Permits for discharges from municipal storm sewers –
>
> (ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewer (Emphasis added)

The Tentative Order shall ensure the County "effectively prohibit non-stormwater discharges" but the Regional Board may exempt certain discharges that are not significant sources of pollutants from the prohibition. The section does not require a full prohibition but rather an effective prohibition. The operative word is "effective," which recognizes the constraints of owning and operating a stormwater drainage system that includes hundreds of miles of open channels. The finding/provision should note that non-stormwater discharges are effectively prohibited.[42]

In addition, discharges that are not significant sources of pollutants are exempted from the prohibition. In a practical sense, the use of word "effective" also provides flexibility to assess the impacts of relatively benign discharges such as air condition condensate, individual car washing, and non-emergency fire-fighting flows or non-anthropogenic sources before instituting a prohibition.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.1.a. Legal Authority Establishment and Enforcement (page 78)*

PROVISION A – PROHIBITIONS AND LIMITATIONS

13. PROVISION A (ENTIRE PROVISION; BEGINS PAGE 15 OF 130) – A CLEAR LINKAGE BETWEEN THE COMPLIANCE PROVISIONS AND PROHIBITIONS, RECEIVING WATER LIMITATIONS, AND EFFLUENT LIMITATIONS MUST BE ESTABLISHED.

Provision A.2.a states that "[d[ischarges from MS4s must not cause or contribute to the violation of water quality standards in any receiving water." Numerous comments submitted in the 2013 Permit adoption process demonstrated that complying with the receiving water limitations provision is not achievable everywhere, all the time, given the extensive urbanization of Orange County and the variable nature of pollutants. The Tentative Order, however, does not contain any linkage between the compliance provisions of the Permit and the prohibitions, receiving water limitations and effluent limitations. Provision A then can be construed as a standalone provision that holds the Copermittees strictly liable for any exceedance of a water quality standard determined by water quality

[42] CWA § 402(p)(3)(B)(ii).

monitoring results on an outfall-by-outfall basis.[43] Thus, the Copermittees are immediately out of compliance upon enrollment in the Permit.

Historically, this was not the case. MS4 permittees could maintain compliance by implementing the iterative process by diligently and rigorously implementing and increasing best management practices ("BMPs") in response to an exceedance.[44] This approach is not only consistent with prior State Board and Regional Board policy but in accordance with federal law that MS4s be governed by the MEP standard and are not required to adhere to strict numeric standards.[45] This policy allowed MS4s the ability to adjust their programs and utilize the iterative process to meet water quality standards.

The County requests that the Regional Board establish a compliance pathway that allows the County to comply with all numeric limitations consistent with a prior Tentative Order it issued.[46] This is not only consistent with federal law and prior state policy, but allows the Copermittees the true flexibility to design programs and use program funds effectively by prioritizing those funds for pollutants of concern. The iterative process allows Copermittees to implement innovative programs and projects with assurance that those diligent efforts in doing so are helping achieve compliance.[47]

In addition, compliance with Provisions A.1, A.2 and A.3 should be linked to Provision A.4, Provision B, and Attachment E so that it is clear that the compliance mechanism for A.4 is the WQIP (Provision B) and/or the TMDL (Attachment E), as applicable.

Action: *Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:*

- *Provisions, A. Prohibitions and Limitations (page 15)*
- *Provisions, A.1. Discharge Prohibitions (page 15)*
- *Provisions, A.2. Receiving Water Limitations (page 16)*

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[43] *Natural Resources Defense Council, Inc. v. County of Los Angeles et al* (9th Cir. 2011), 673 F.3d 880, 883, rev'd on other grounds by *Los Angeles County Flood Control District v. Natural Resources Defense Council, Inc.* (2013) 133 S.Ct. 710.

[44] State Water Resources Control Board, WQ 2001-15 at 7 (Nov. 15, 2001). The State Water Board indicated that the precedential receiving water limitations language in WQ 1999-05 does not require strict compliance with water quality standards.

[45] *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159, 1165; *Divers Environmental Conservation Organization v. State Water Quality Resources Control Board* (2006) 145 Cal. App. 4th 246, 256; *Bldg. Indus. Ass'n v. State Water Quality Resources Control Board* (2004) 124 Cal. App. 4th 866, 889-90; Betsy Jennings, State Board Memorandum, *Definition of Maximum Extent Practicable* (1993).

[46] Draft Tentative Order, R9-2013-0001, § II.B.3.c (March 29, 2013).

[47] A permit that does not contain a compliance pathway is impossible to comply with and is not in accordance with federal and state law. *Atlantic States Legal Fdn., Inc. v Eastman Kodak Co.* (2nd Cir, 1994) 12 F.3d 353, 357; *Hughey v. JMS Development Corp.* (11th Cir. 1996) 78 F.3d 1523, 1530.

14. PROVISION A (ENTIRE PROVISION; BEGINS PAGE 13 OF 130) – THE DISCHARGE PROHIBITIONS MUST ESTABLISH A LINKAGE WITH THE APPROVED COMPLIANCE SCHEDULES FOR TMDLS THAT HAVE BEEN INCORPORATED INTO THE BASIN PLAN.

The Discharge Prohibitions do not establish a sufficient linkage with approved compliance schedules for TMDLs that have been incorporated into the Basin Plan. TMDLs adopted within the region include a schedule to provide MS4 Copermittees the time necessary to develop and implement a plan to achieve water quality standards in impaired waters. The compliance schedules for adopted TMDLs have been incorporated into Attachment E and language is recommended in the Receiving Water Limitations provisions (A.2.c.) and the Effluent Limitations provisions (A.3.b.) pointing to the TMDL compliance schedules.

The Receiving Water Limitations language in the Tentative Order conflicts with TMDL compliance schedules. Language should be included to clarify that in instances where a TMDL is in effect, the Copermittees shall achieve compliance with these provisions as outlined in Attachment E (Specific provisions for TMDLs). Without this change, the Receiving Water Limitations language puts Copermittees in immediate and ongoing non-compliance with the permit, as opposed to incorporating TMDL implementation schedules.

In addition, the footnote to A.2.a.(4)(b) requires Copermittees to not cause or contribute to the more stringent of a water quality objective or a CTR criterion. Instances may exist where it has been determined that one or the other is more appropriate given site specific conditions or analysis (i.e., a TMDL has been established).

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, A.1. Discharge Prohibitions (page 15)*
- *Provisions, A.2.a. Receiving Water Limitations (page 16)*
- *Provisions, A.2.c. Receiving Water Limitations (page 17)*
- *Footnote #5 to Provision A.2.a(4)(b) (page 17)*

15. PROVISION A (ENTIRE PROVISION; BEGINS PAGE 18 OF 130) – THE RECEIVING WATER LIMITATIONS LANGUAGE IS DISCRETIONARY AND SHOULD BE REVISED TO PROVIDE A CLEAR COMPLIANCE MECHANISM.

WQIPs provide flexibility with a BMP-based compliance approach for the Discharge Prohibitions and Receiving Water Limitations. The language in the Provision A.4 describes the WQIPs as a document trail rather than a compliance mechanism. In essence, the language suggests that Copermittees shall expend significant resources to develop and implement WQIPs, but taking the actions in the WQIPs has no effect on the Regional Board's compliance determination.

The Receiving Water Limitations language should be revised to expressly state that if exceedances of a water quality objective, water quality standard or any effluent limitation persist, or a discharge prohibition stated as an effluent limitation is not complied with, notwithstanding implementation of control measures, BMPs or compliance with the other water quality control program requirements of the Order, the Copermittee shall take actions to further reduce its discharges of such pollutants over time by complying with the iterative

process, and that diligent implementation of the iterative process (i.e., WQIP) constitutes compliance to MEP.

The iterative process is a fundamental aspect of MS4 programs, as envisioned by State Water Board Order 99-05 and later reconfirmed in Order WQ 2001-15 (BIA Order), and is the mechanism by which MS4 Copermittees should demonstrate compliance. The WQIPs now provide a mechanism to provide the detail and quantitative analyses used to identify pollutant sources and implement BMPs to address those sources.

Language in Provision A.4 should be consistent with the California Stormwater Quality Association (CASQA) proposed receiving water limitation language (see **Attachment B**).

Action: Incorporate the specific modifications to Provision A.4, which are provided in Attachment B.

PROVISION B – WATER QUALITY IMPROVEMENT PLANS

16. PROVISION B (ENTIRE PROVISION; BEGINS PAGE 20 OF 130) – THE WATER QUALITY IMPROVEMENT PLANS SHOULD BE THE FOUNDATION FOR A BMP-BASED COMPLIANCE APPROACH.

The Clean Water Act does not require MS4 permits to include watershed planning provisions.[48] Neither does Porter Cologne.[49] The Watershed Improvement Act of 2009 allows, but does not require, MS4 permittees to develop a watershed improvement plan. The County supports a voluntary watershed-based approach that has compliance linkage between the WQIPs in Provision II.b and the receiving water limitations in Provision II.A. This linkage would provide the Copermittees the opportunity to comply with the Permit while allowing for choice.[50] A watershed-based approach is ideal for the implementation of stormwater programs as it allows for the integration of all program elements, focuses efforts on the highest priorities for each watershed through the customization of actions and strategies, and allows for streamlined reporting. This approach also supports the implementation of TMDLs, which are developed and implemented at the watershed scale.

Although the language for the WQIP recognizes the need for the consideration of provisions A.1, A.2, and A.3 as a part of the assessments and identification of water quality priorities, consistent with the intent described in the Fact Sheet, the language within the Tentative Order should explicitly identify that compliance with those provisions is achieved through the development and implementation of the WQIPs and or TMDLs (Attachment E).

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[48] 33 U.S.C. § 1342(p); 40 C.F.R. § 122.26.

[49] Water Code § 1610(e).

[50] Under the Tenth Amendment of the U.S. Constitution, a state or local government must retain the ultimate decision as to implement a federal regulatory program. The Regional Board has found that each and every requirement in the Permit is federally mandated under the CWA. Permit at F-29-30. The Copermittees disagree with this finding. In this case, involuntary WQIP and JURMP requirements in addition to the de facto effluent limitations established due to the lack of a compliance pathway do not allow for regulatory choice. *Printz v. United States* (1997) 521 U.S. 898, 925; *Environmental Defense Ctr., Inc. v EPA* (2003) (2003) 344 F.3d 832, 847; *City of Abilene v. EPA* (2003) 325 F.3d 657, 662.; *New York v. United States* (1997) 505 U.S. 144, 168, 176.

In particular, the Fact Sheet states:[51]

> *Provision B includes requirements for the Copermittees to develop and implement Water Quality Improvement Plans to ultimately comply with the prohibitions and limitations under Provision A*. The Water Quality Improvement Plans will provide the Copermittees a comprehensive program that can achieve the requirements of the CWA. Implementation of the Water Quality Improvement Plans will also improve the quality of the receiving waters in the San Diego Region…..
>
> The Water Quality Improvement Plan also incorporates a program to monitor and assess the progress of the Copermittees' jurisdictional runoff management programs toward improving the quality of discharges from the MS4s, as well as tracking improvements to the quality of receiving waters. *A process to adapt and improve the effectiveness of the Water Quality Improvement Plans has also been incorporated into the requirements of Provision B to be consistent with the "iterative approach" required to achieve compliance with discharge prohibitions of Provisions A.1.a and A.1.c and receiving water limitations of Provision A.2.a, pursuant to the requirements of Provision A.4.*
>
> [Emphasis added]

In other words, the Water Quality Improvement Plan framework, as outlined within the Tentative Order, is established as the compliance mechanism for Provision A.4. In fact, this would complement the existing language in Provision A.4, which states (as modified below):

> Each Copermittee must achieve compliance with Provisions A.1, A.2, and A.3 of this Order through timely implementation of control measures and other actions as specified in Provisions B and E of this Order, including any modifications. The Water Quality Improvement Plans required under Provision B must be designed and adapted to ultimately achieve compliance with Provisions A.1, A2, and A.3.

In addition, the WQIP should identify the high priority water quality issues and conditions and provide direction for the development and implementation of the JRMPs. The goals for the WQIPs should be clearly identified and directly linked to the JURMPs (and the corresponding flexibility provided within the development of the JURMPs) (See also Provision E).

Lastly, although Regional Water Board staff have indicated that the WQIPs, once developed and approved, will functionally replace the CLRPs and BLRPs, the Tentative Order does not formally recognize this. The County recommends that a footnote be added to clarify that this is the case.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, B Water Quality Improvement Plans (page 20)*

17. PROVISION B (ENTIRE PROVISION; BEGINS PAGE 20 OF 130) – THE WQIP NUMERIC GOALS ARE USED TO SUPPORT THE WQIP IMPLEMENTATION AND MEASURE PROGRESS, THEY ARE NOT ENFORCEABLE COMPLIANCE STANDARDS.

[51] Fact Sheet, Page F-42.

Similar to the footnotes in Provisions C.1.a and C.2.a, Provision B.2.e should explicitly state that the action levels, interim goals and final goals are not enforceable limitations.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, B.3.a.(1), Water Quality Improvement Goals and Schedules (page 26)*

PROVISION C – ACTION LEVELS

18. PROVISION C (ENTIRE PROVISION; BEGINS PAGE 36 OF 130) – THE TENTATIVE ORDER SHOULD ENABLE THE COPERMITTEES TO APPLY NALS/SALS THAT BASED ON THE PRIORITIES OF THE WQIP AND/OR THE IDDE PROGRAM.

Although the Tentative Order states that the Copermittees are to develop and incorporate numeric non-stormwater and numeric stormwater action levels into the Water Quality Improvement Plans (C.1 and C.2, respectively), the Tentative Order appears to contradict this approach by mandating that the Copermittees include all of the numeric actions levels as identified in tables C-1, C-2, C-3, C-4 and C-5.

The mandated action levels are problematic for the following reasons:

1) The NALs for the WQIPs will likely include different constituents and/or values than those values that would be used for the IDDE program.
2) The NALs and SALs will likely include different constituents and/or values between WQIPs depending upon the identified high priority water quality conditions.
3) In Provision B.3 the Copermittees are required to develop and use interim and final numeric goals to measure progress towards the protection of the receiving waters and beneficial uses. The choice of the numeric goals for the watershed may be biological, chemical, or physical based and may include multiple criteria and/or indicators. If the mandated values in Provision C have to be used as action levels within the WQIP, this takes away the flexibility that is should be afforded to the Copermittees. In addition, the NALs may not correspond to the highest priority water quality conditions or the metrics that should be used to measure progress. Thus, the NALs/SALs may direct resources away from the watershed priorities.
4) Source investigations must be focused on the highest priority outfalls, based on the data collected, that are most likely linked to illicit discharges.

It must also be noted that the State's own Blue Ribbon Panel, which was convened specifically to examine the feasibility of incorporating numeric effluent limits in stormwater permits, ultimately concluded that numeric limits were generally infeasible across all three stormwater activities, with few exceptions. However, the Panel did agree that "upset values" or "action levels" could be established to assist Copermittees in identifying "bad actor" catchments which are clearly above the normal observed variability.

The Copermittees had previously developed and implemented an innovative Dry Weather Reconnaissance Program, based upon statistically derived benchmarks to identify illegal discharges and illicit connections during the typically dry summer months of May through

September using a suite of water quality analytes monitored in the field at designated random and targeted drains. A comparison of the probability of an exceedance using the statistical tolerance interval-based approach compared to the NAL-based approach shows that the NALs-based approach can misdirect resources since investigations are triggered at a much higher frequency for many constituents (**Table 1**.).

Table 1. Comparison of 2011-2012 NALs Data Collected in the San Diego Region with the Data from the Dry Weather Reconnaissance Monitoring Program for the 2009-2010 Reporting Period

	NAL Exceedances 2011-2012		Dry Weather Program Action Level Exceedances 2009-2010	
Constituent	**Number**	**%**	**Number**	**%**
pH	1	2	0	0
TDS	42	93	0	0
Dissolved Oxygen	2	4	0	0
Turbidity	3	7	3	1
Surfactants	3	7	14	5
Total Coliform	24	53	0	0
Fecal Coliform	19	42	0	0
Enterococcus	42	93	0	0
Unionized Ammonia	3	7	8	3
Total N / Nitrate	41	91	0	0
Total P / Ortho PO4	38	84	11	4
Cadmium	13	28	0	0
Copper	1	2	0	0
Nickel	7	15	0	0
Zinc	1	2	0	0
Total # of Site Visits	**45**		**274**	

The Dry Weather Reconnaissance Program was specifically designed to detect "abnormal" results that are indicative of illicit discharges, typically short term, transient, non-stormwater discharges. Consequently, the Copermittees perform many more site visits but initiate fewer investigations, as they are able to discern between discharges that are most likely to be illicit and those that are not. In contrast, the NAL-based program is designed to compare urban runoff from an outfall to a water quality objective that has been established

for a receiving water. As demonstrated in the ROWD, aquatic chemistry in many parts of south Orange County results trigger exceedances of the NALs the majority of the time, which does not allow the Copermittees to differentiate between typical site conditions and true illicit discharges.

The Copermittees have monitored water quality for several years and found that naturally derived pollutants in surface waters can often exceed water quality criteria both in undeveloped catchments as well as in developed watersheds. In recent years, efforts led by the County to characterize natural sources related to ambient geology have demonstrated that natural sources in specific areas are the primary contributor for many constituents of concern such as cadmium, nickel, total dissolved solids, chloride, and sulfate. The concentration ranges measured from the natural sources are shown in the table below.

Constituent	Concentration Range	Water Quality Criterion
Arsenic	<1 - 53 ppb	36 ppb[2]
Cadmium	<1 - 200 ppb	7.3 ppb[2]
Copper	1.2 - 23 ppb	18 ppb[2]
Nickel	6.4 - 1300 ppb	169 ppb[2]
Selenium	<1 - 220 ppb	5.0 ppb[2]
Zinc	<1 - 1800 ppb	379 ppb[2]
Chloride	470 - 2400 ppm	250 ppb[1]
Sulfate	1200 - 11000 ppm	250 ppb[1]
Total Dissolved Solids	3700 - 22000 ppm	500 ppb[1]
Total Nitrogen as N	<0.1 - 38 ppm	1.0 ppb[1]

1) Basin Plan Water Quality Objective
2) California Toxics Rule, Criterion Continuous Concentration at hardness of 400 mg/L

The County is currently collaborating with the University of Southern California ("USC") to develop a modeling approach that could "fingerprint" water sources based on isotopic composition. This work will provide a much better understanding about natural and anthropogenic sources of water and contaminants to streams in south Orange County. It is key information since the Copermittees have found strong positive linear relationships between levels of metals associated with runoff and groundwater seepage from the Monterey and Capistrano marine sedimentary formations. Until this work is completed, the Copermittees will be unable to discriminate between instances of illicit discharges and conditions that are essentially artifacts of a constructed storm drain system and/or the local geology.

The conclusions from the implementation of the Orange County NAL-based program to date are:

- The NAL program replaced a previously existing and effective program (the Dry Weather Reconnaissance program);

- The Dry Weather Reconnaissance Program resulted in focused source investigations for key constituents indicative of illicit discharges;
- The NAL program has required increased resources and has resulted in everything being a priority (thus, nothing is a priority). In addition, the NAL-based triggers have, in many cases been the result of constituents attributable to natural sources within the watersheds;
- There have been many exceedances that have been due to non-IDDE factors such as local geology (especially for nickel and cadmium);
- It has been very difficult to determine the endpoints, the sources, of the various non-stormwater discharges since the discharges are so commingled; and
- There is a strong need for a regionally-based prioritization, so that there is not a mis-direction of limited resources.

Regional Board staff needs to evaluate the results of the Orange County program to date and consider the proposed revisions in order to assist with the prioritization of resources and water quality issues. As proposed, the NAL program lacks substantial evidence by which to justify If the Copermittees are required to continue to use the NAL-based program, they will lose the ability to prioritize the water quality issues and discriminate between true instances of IDDE and ambient urban conditions in a storm drain systems draining landscapes underlain by marine sedimentary formations containing phosphorous and a number of metals.

The Copermittees recommend the following in order to address these issues.

- Modify the NALs (Provision C.1) language to recognize that, for the purposes of the IDDE program, the Copermittees should be allowed to develop and/or use previously established NALs, especially if they are shown to be more effective at identifying "true" upset values and allow for a prioritization of resources.
- The mandated NALs should only be considered "default" values if the Copermittees do not develop their own NALs or use previously established values.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, B.3.a.(1), Water Quality Improvement Goals and Schedules (page 26)*
- *Provisions, C. Action Levels (page 36-43)*

PROVISION D – MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS

***19.* PROVISION D (ENTIRE PROVISION; BEGINS PAGE 47 OF 130) – THE COPERMITTEES NEED TO HAVE THE FLEXIBILITY TO DEVELOP OR USE ANALYTICAL MONITORING REQUIREMENTS IN THE WATER QUALITY IMPROVEMENT PLANS BASED ON ASSESSMENTS OF CURRENT SOURCES THAT MAY CONTRIBUTE TO THE SECTION 303(D) WATER BODY IMPAIRMENTS.**

The Regional Board should recognize the inherent difficulties associated with monitoring 303(d) constituents such as the legacy pesticides or the monitoring of aquatic toxicity. Many

existing developments were never subjected to the application of legacy pesticides such as DDT and, as such, these constituents are highly unlikely to be found in modern communities. The Regional Board should also recognize that laboratory toxicity tests provide a cumulative perspective of pollutant effects that may or may not be sampled as part of a monitoring program.

The Copermittees should be relieved of analytical monitoring requirements if supporting information can be provided to document the current pollutant concentrations or may provide historic information to support the absence of usage of these constituents in the MS4 drainage area. Additionally, the Copermittees should be allowed to develop an alternate approach for monitoring that allows the Copermittees to evaluate and identify the cause of toxicity currently affecting receiving waters and to iteratively adapt the monitoring program to address these chemical stressors in their MS4 outfall discharges through the WQIPs.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, D.2.a.(3)(e) Transitional Wet Weather MS4 Outfall Discharge Analytical Monitoring (page 65)*
- *Provisions, D.2.b.(2)(e) Non-Storm Water Persistent Flow MS4 Outfall Discharge Analytical Monitoring (page 69)*
- *Provisions, D.2.c.(5)(f) Wet Weather MS4 Outfall Discharge Analytical Monitoring (page 72)*
- *Provisions, D – Tables D-3 (page 51), D-6 (page 65), D-7 (page 70)*

PROVISION E – JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS

20. PROVISION E (ENTIRE PROVISION; BEGINS PAGE 79 OF 130) – THE JRMP PROVISIONS MUST BE MODIFIED SO AS NOT TO NEGATE THE VERY INTENT AND PURPOSE OF THE WATERSHED APPROACH AND THE FOCUS ON THE HIGHEST PRIORITIES WITHIN EACH WATERSHED MANAGEMENT AREA.

The Tentative Order states that the purpose of the WQIPs is to guide the Copermittees' jurisdictional runoff management programs towards achieving improved water quality by identifying the highest priority water quality conditions within a watershed and implementing strategies through the jurisdictional runoff management programs (Provision B).

Provision E goes on to state that the jurisdictional runoff management programs will be implemented in accordance with the strategies identified in the WQIPs. In addition, the Fact Sheet states:

> "Where the Water Quality Improvement Plan is the '*comprehensive planning process*' on a Watershed Management Area scale, requiring '*intergovernmental coordination*', the jurisdictional runoff management program document is the '*comprehensive planning process*' on a jurisdictional scale that should be coordinated with the other

> Copermittees in the Watershed Management Area to achieve the goals of the Water Quality Improvement Plan."[52]

The Fact Sheet also states:

> "Based on the economic considerations below, the San Diego Water Board has provided the Copermittees a significant amount of flexibility to choose how to implement the requirements of the Order. This Order also allows the Copermittees to customize their plans, programs, and monitoring requirements. In the end, it is up to the Copermittees to determine the effective BMPs and measures necessary to comply with this Order. The Copermittees can choose to implement the least expensive measures that are effective in meeting the requirements of this Order."[53]

Although the Fact Sheet states that "Implementation of the components of each Copermittee's jurisdictional runoff management program must be consistent with the water quality improvement strategies identified within the Water Quality Improvement Plan,"[54] the Tentative Order requires the Copermittees to incorporate all of the requirements identified within Provision E regardless of the high priority water quality conditions that have been identified within the WQIP. If the Copermittees are required to implement all of the requirements in Provision E instead of prioritizing and implementing those requirements that directly address the highest priority water quality conditions and support watershed strategies, then the program is not prioritized and focused and does not allow Copermittee discretion to tailor its WQIP. The approach in Provision E then negates the prioritized and strategic approach outlined in Provision B.

The Tentative Order should provide a clear linkage between Provision B and Provision E and state that the WQIP should guide the customization of the JRMP to meet the highest water quality priorities and strategies in a given watershed.

(See also the corresponding comments under Provision E.2, E.3. E.4, E.5, and E.7)

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E. Jurisdictional Runoff Management Programs (page 79)*

PROVISION E.1 - LEGAL AUTHORITY ESTABLISHMENT AND ENFORCEMENT

21. PROVISION E.1 (PAGE 79 OF 130) – THE COPERMITTEES ARE ONLY RESPONSIBLE FOR ADMINISTERING AND ENFORCING THE CODES AND ORDINANCES APPLICABLE TO THEIR JURISDICTIONS.

Provision E.1.a(2) requires the Copermittees to establish the legal authority to control the contribution of pollutants in discharges of runoff associated with industrial and construction activity within their jurisdictions. Since the Copermittees can only administer and enforce their local codes and ordinances, it is unnecessary to include the language

[52] Fact Sheet, Page F-71.

[53] Fact Sheet, Page F-17.

[54] Fact Sheet, Page F-71.

regarding the Statewide Industrial and Construction General Permits. The sites subject to the Statewide Permits (which are administered and enforced by the State and Regional Boards) are already inspected by state staff and are included within the Copermittee inventories, inspection and enforcement programs.

In addition, language that acknowledges that local codes and ordinances will include the legal authorities identified within the Tentative Order to the extent permitted by the Constitution should be included.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.1.a.(2) Legal Authority Establishment and Enforcement (page 79)*
- *Provisions, E.1.a.(10) Legal Authority Establishment and Enforcement (page 80)*

22. PROVISION E (ENTIRE PROVISION; BEGINS PAGE 79 OF 130) – THE REQUIREMENT FOR THIRD PARTY BMP EFFECTIVENESS DOCUMENTATION IS DUPLICATIVE.

The Tentative Order includes a provision that requires the Copermittees to demonstrate that they have the legal authority to require documentation on the effectiveness of BMPs.

As it is currently written, this provision broadly applies to any aspect of the stormwater program where BMPs have been implemented – the result is that this provision sets up a process for the establishment of multiple third party monitoring programs and expenditure of significant public funds to monitor the effectiveness of BMPs. If the Regional Board's desire is to document the effectiveness of certain types of BMPs, it would be more effective and scientifically defensible to establish special studies by entities qualified to conduct such sampling instead of requiring potentially hundreds of third parties to conduct a monitoring program for every BMP that is implemented.

This provision is redundant with other requirements in the Tentative Order in that it ignores the fact that the New Development/Significant Redevelopment section of the Drainage Area Management Plan (DAMP) (Section 7.0) establishes a process for the selection, design, and long-term maintenance of permanent BMPs for new development and significant redevelopment projects and requires developers to select BMPs that have been demonstrated as effective for their project category.

This provision also ignores the fact that the Copermittees have already established legal authority for their development standards, so that project proponents have to incorporate and implement the required BMPs.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.1.a.(8) Legal Authority Establishment and Enforcement (page 80)*

PROVISION E.2 - ILLICIT DISCHARGE DETECTION AND ELIMINATION

23. PROVISION E.2 (PAGE 81 OF 130) – THE ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM PROVISIONS MUST BE MODIFIED SO AS NOT TO NEGATE THE VERY INTENT AND PURPOSE OF THE WATERSHED APPROACH AND THE FOCUS ON THE HIGHEST PRIORITIES WITHIN EACH WATERSHED MANAGEMENT AREA.

(See the corresponding comments under Provision E – Jurisdictional Runoff Management Programs)

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.2 Illicit Discharge Detection and Elimination (page 81)*

24. PROVISION E.2 (PAGE 81 OF 130) – THE COPERMITTEES SHOULD BE ALLOWED THE FLEXIBILITY TO PRIORITIZE THEIR IDDE PROGRAM TO FOCUS ON THOSE NON-STORMWATER DISCHARGES THAT ARE LIKELY TO BE A SOURCE OF POLLUTANTS.

Provision E.2.a identifies several categories of discharges that are to be considered "non-stormwater discharges" (do not need to be addressed as an illicit discharge). The categories include the following:

- E.2.a.(1) and E.2.a.(2) - Those discharges which have coverage under a separate NPDES Permit;
- E.2.a.(3) - Those discharges which are recognized within the federal regulations as acceptable unless they are identified as a source of pollutants to the receiving waters;
- E.2.a.(4) - Those discharges that are addressed by a set of requirements/BMPs; and
- E.2.a.(5) - Firefighting related discharges that are addressed by a set of requirements/BMPs.

In comparison, 40 C.F.R § 122.26(d)(2)(iv)(B)(1) states that, as a part of an illicit discharge program, the Copermittees shall incorporate a series of items including the following:

> A description of a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal separate storm sewer system; this program description shall address all types of illicit discharges, however the following category of non-storm water discharges or flows shall be addressed where such discharges are identified by the municipality as sources of pollutants to waters of the United States: [Emphasis added and items re-ordered based on Tentative Order (TO) structure]
>
> - landscape irrigation, [not included in TO]
> - irrigation water, [not included in TO]
> - lawn watering, [not included in TO]
> - street wash water [not included in TO]
> - *uncontaminated pumped ground water, [E.2.a.(1)]*
> - *foundation drains, [E.2.a.(3)]; [E.2.a.(1)]*
> - *water from crawl space pumps, [E.2.a.(1)]*
> - *footing drains, [E.2.a.(3)]; [E.2.a.(1)]*
> - water line flushing, [E.2.a.(2)]
> - diverted stream flows, [E.2.a.(3)]

- rising ground waters, [E.2.a.(3)]
- springs, [E.2.a.(3)]
- uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers, [E.2.a.(3)]
- flows from riparian habitats and wetlands, [E.2.a.(3)]
- discharges from potable water sources, [E.2.a.(3)]
- air conditioning condensation, [E.2.a.(4)]
- individual residential car washing, [E.2.a.(4)]
- dechlorinated swimming pool discharges, and [E.2.a.(4)]

(program descriptions shall address discharges or flows from firefighting [E.2.a.(5)] only where such discharges or flows are identified as significant sources of pollutants to waters of the United States);

Although the discharges listed within the Federal Regulations are generally considered to be conditionally exempt from the illicit discharge program (unless they are found to be sources of pollutants), the Regional Board has determined that the following categories of non-stormwater discharges

- uncontaminated pumped ground water [E.2.a.(1)]
- foundation drains [E.2.a.(3)]; [E.2.a.(1)]
- water from crawl space pumps [E.2.a.(1)]
- footing drains [E.2.a.(3)]; [E.2.a.(1)]

will be considered to be illicit discharges unless the discharge has coverage under the following two NPDES Permits (NPDES Permit No. CAG919001 (Order No. R9-2007-0034 and NPDES Permit No. CAG919002 (Order No. R9-2008-002)

The County would submit, however, that it is unnecessary to move these discharges (uncontaminated pumped groundwater, foundation drains, water from crawl space pumps, and footing drains) from the E.2.a.(3) category to the E.2.a.(1) category and require them to obtain coverage under one of these two permits for the following reasons:

- There is no technical basis or demonstrated water quality concern that justifies the need for these discharges to obtain coverage under these permits;
- The two permits are clearly defined for groundwater extraction activities where there is groundwater containing or potentially containing petroleum hydrocarbons, solvents, or other pollutants (in fact, one of the categories of discharges required to obtain coverage is '<u>uncontaminated</u> pumped groundwater');
- One of the permits is clearly defined for temporary discharges, not permanent discharges; and
- The categories of discharges are non-stormwater discharges that are generally not expected to be a source of pollutants to receiving waters.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.2 Illicit Discharge Detection and Elimination (page 81)*
- *Provisions, E.2a.(1) Illicit Discharge Detection and Elimination (page 81)*
- *Provisions, E.2a.(3) Illicit Discharge Detection and Elimination (page 82)*
- *Provisions, E.2a.(4) Illicit Discharge Detection and Elimination (page 82)*

25. PROVISION E.2.A.(5) (PAGE 83 OF 130) – THE FIRE FIGHTING BMP PROVISIONS SHOULD REFLECT THE LANGUAGE INCLUDED IN THE CURRENT ORANGE COUNTY PERMIT.

Provision E.2.a includes a requirement for the Copermittees to establish BMPs for both emergency and non-emergency firefighting activities. While the Copermittees already have established guidelines for non-emergency firefighting activities, it is unclear why the approach and language in the Tentative Order regarding the emergency firefighting activities has been modified from Order R9-2009-0002. In fact, the language in the Tentative Order is actually inconsistent with the Phase I Final Rule (55 FR 48037), which states:

> "In the case of firefighting it is not the intention of these rules to prohibit in any circumstances the protection of life and public and private property through the use of water or other fire retardants that flow into separate storm sewers." [Emphasis added]

Thus, there should not be a circumstance in which the Copermittees or the Regional Board would identify emergency firefighting discharges as illicit discharges or a significant source of pollutants to receiving waters. The language previously adopted by the Regional Board in Order R9-2009-0002 regarding emergency firefighting discharges is recommended.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.2.a.(5) Non-Storm Water Discharges (page 83)*

26. PROVISION E (ENTIRE PROVISION; BEGINS PAGE 81 OF 130) – THE TENTATIVE ORDER SHOULD NOT REQUIRE THE REDUCTION OR ELIMINATION OF ALL NON-STORMWATER DISCHARGES AS A PART OF THE IDDE PROGRAM .

Federal regulations include two provisions designed implement the "effective prohibition"[55] of Clean Water Act Section 402(p)(3)(B)(ii)

- The first provision requires Copermittees to perform a screening analysis, intended to provide sufficient information to develop priorities for a program to detect and remove illicit discharges.[56]

[55] 55 Fed. Reg. 47989, 48037.

[56] 40 CFR § 122.26(d)(1)(iv)(D).

- The second provision requires Copermittees to develop a recommended site-specific management plan to detect and remove illicit discharges (or ensure they are covered by an NPDES permit) and to control improper disposal to MS4s.[57]

Therefore, Provision E.2.a(7) misapplies the federal regulations that require the Copermittees to identify the non-stormwater discharge as an illicit discharge prior to having an obligation to effectively prohibit it. There is not a presumption to reduce or eliminate it otherwise.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, A.1. Discharge Prohibitions (page 20)*
- *Provisions, E.1. Legal Authority Establishment and Enforcement (page 79)*
- *Provisions, E.2. Illicit Discharge Detection and Elimination (page 81)*

PROVISION E.3 – DEVELOPMENT PLANNING

The Tentative Order's land development requirements are some of the most challenging requirements in the Tentative Order. Indeed, a number of the land development requirements, particularly hydromodification controls, potentially pose federal constitutional issues as well as conflict with the CWA, the State Administrative Procedure Act, California Environmental Quality Act (CEQA), the Mitigation Fee Act and federal court decisions.

The following discussion examines the overarching legal concerns with the land development requirements, and is followed by specific technical analyses for individual requirements.

a. Land Development Requirements Expose the Copermittees to Significant Litigation Risk And Will Be Largely Unenforceable.

Many of the land development requirements, such as hydromodification, pose constitutional issues either exposing municipalities to litigation and/or will result in municipalities being unable and unwilling to implement such requirements. Specifically, but not limited to, Orange County is most concerned with the provisions: 1) ultimately requiring Copermittees to compel development projects that have no impact on hydromodification to implement on-site or alternative compliance hydromodification mitigation measures, 2) using pre-development (naturally occurring) runoff reference condition as applied to sites that are, in fact, developed, and 3) ***STREAM***, channel and habitat restoration.

The Copermittees are concerned that implementing these requirements has the potential to subject the Copermittees to liability under the Takings Clauses of the U.S. and California Constitutions and violate the Mitigation Fee Act because of the questionable nexus between a project's impacts on hydromodification and the hydromodification management measures in the Tentative Order. When imposing a condition on a development permit, a local government is required to establish that the condition bears a reasonable relationship to the impacts of the project. This rule applies evenly to legislatively enacted requirements and

[57] 40 CFR §§ 122.26(d)(1)(iv)(D) and 122.26(d)(2)(B).

impact fees or exactions.[58] Moreover, fees imposed on a discretionary ad-hoc basis are subject to heightened scrutiny under a two-part test. First, local governments must show that there is a substantial relationship between the burden created by the impact of development and any fee or exaction.[59] Second, a project's impacts must bear a rough proportionality to any development fee or exaction.[60] Under California law and a recent U.S. Supreme Court opinion, the *Nollan/Dolan* heightened scrutiny test also applies to in-lieu fees.[61]

The Legislature has memorialized these requirements in the Mitigation Fee Act, which establishes procedures that local governments must follow to impose impact fees.[62] Irrespective of whether the hydromodification management requirements are implemented by legislative act or on an ad-hoc basis, the Copermittees attempt to enforce them as proposed in the Tentative Order will likely result in claims alleging unconstitutional takings of private property and violations of the Mitigation Fee Act. This is because a developer could argue that limiting hydromodification impacts of already developed property to its naturally occurring state, or requiring hydromodification mitigation measures for impacts not imposed by the project, would not have a legally sufficient nexus to the impact of the development project.

Additionally, CEQA does not allow a local government discretionary approval to require over-mitigation of a project. The CEQA Guidelines provide that "a lead agency for a project has the authority to require feasible changes in any or all activities involved in the project in order to substantially lessen or avoid significant effects on the environment, consistent with applicable constitutional requirements such as the 'nexus' and 'rough proportionality' standards established by case law."[63] Thus, Copermittees would most assuredly be exposed to CEQA challenges, which are the most prevalent lawsuits against projects.

In all likelihood, municipalities will not risk constitutional challenges and the high litigation costs of such challenges, but will instead exempt projects from certain requirements or limit their applicability based on documented technical and legal reasons. Such actions then would only be addressed through a Regional Board audit years after a project has been approved and developed. Therefore, predevelopment runoff reference conditions and stream, channel and habitat restoration requirements should be eliminated in their entirety.

b. Stream, Channel and Habitat Restoration Cannot Be Required Due to Conflicts with Federal and State Laws.

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[58] *Building Ass'n Industry v. City of Patterson*, 171 Cal. App. 4th 886, 898 (2009).

[59] *Nollan v. Calif. Coastal Comm'n*, 483 U.S. 825, 837 (1987).

[60] *Dolan v. City of Tigard*, 512 U.S. 374, 391 (1994).

[61] *Ehrlich v. City of Culver City*, 12 Cal. 4th 854, 876 (1996).

[62] Gov't Code §§ 66000-66025.

[63] Cal. Code Regs. Tit. 14, § 15041 (citing *Nollan/Dolan*).

The Tentative Order requires stream, channel and habitat restoration and/or retrofitting depending on certain land development projects. The prior analysis above discussed the litigation risk to which municipalities will be exposed. The following discussion focuses on the direct conflicts with federal and state laws that also prohibit such requirements.

The objective of the CWA is to restore and maintain the chemical, physical and biological integrity of the Nation's waters.[64] In carrying out this objective, Section 402(p) requires municipalities to reduce the discharge of pollutants from the MS4 to the MEP standard. The Tentative Order, however, goes well beyond the Congressional intent of the CWA to only address pollutants by requiring both Copermittees and the property owners to restore and/or retrofit streams, channels and habitat, with no technical evidence as to how this will reduce the discharge of pollutants to MEP or under what legal authority these requirements can be imposed.

Not only do such requirements go beyond MEP, but go beyond the scope of the CWA's focus on pollutant reduction. First, there is no evidence in the Order for how restoration requirements reduce pollutants from leaving the MS4. Second, in a recent decision in the Eastern District of Virginia, a federal court has held that the EPA has no authority under the Clean Water Act to regulate non-pollutants.[65] Restoration as described in the Tentative Order does not regulate pollutants directly, but requires costly over-mitigation by project proponents to do more than address pollutants by restoring streams, channels and habitat to a subjective, predevelopment standard. Essentially, the Tentative Order uses restoration as a surrogate for pollutants, and tries to unlawfully regulate the flow of water, not pollutants themselves.

Under state law, the Orange County Flood Control District has been delegated authority by the Legislature to construct flood control channels and infrastructure to protect life and property. Under this authority, the Orange County Flood Control District has exclusive authority to control the flow of water in these channels. Although the State and Regional Boards may have some ability to impose conditions that impact volumetric flows (which is now called into question by the VDOT case), this authority does not extend to NPDES permits.[66] Returning channels to natural conditions impinges on municipal flood control authority as removing concrete and performing other restoration efforts would alter the flow of water in those channels.

Engineered channels serve the public health and safety through flood control protection. A significant portion of Orange County lies in a flood plain whereby property owners are required to carry flood insurance. Concrete channels are used to better control the flow of water and minimize flooding and reduce insurance premiums. State courts have long recognized that residents living near flood control improvements have a right to rely on the

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[64] CWA § 101(a).

[65] *Virginia Dept. of Transportation v. EPA*, No. 1:12-CV-775, slip op. (E.D. Va. Jan. 3, 2013) ("VDOT").

[66] *S.D. Warren Co. v. Me. Bd. of Envtl. Prot.*, 547 U.S. 370 (2006); *PUD No.1 v. Washington Dep't of Ecology*, 511 U.S. 700 (1994).

current standards of a particular channel to protect against flooding.[67] Restoring a stream or channel to a natural state would not ensure against flooding as engineering is used to ensure that stormwater is controlled to certain patterns. Many developments are built up to flood control channels, and thus, restoration would expose residents to threats of flood, potential property damage and loss of life and expose municipalities to claims of inverse condemnation and other torts based on relied upon flood control protections by the public. Restoration in some cases would also require use of eminent domain authority, which the State cannot require municipalities to exercise.

27. PROVISION E.3 (PAGE 94 OF 130) – THE DEVELOPMENT PLANNING PROVISIONS MUST BE MODIFIED SO AS NOT TO NEGATE THE VERY INTENT AND PURPOSE OF THE WATERSHED APPROACH AND THE FOCUS ON THE HIGHEST PRIORITIES WITHIN EACH WATERSHED MANAGEMENT AREA.

See the corresponding comments under Provision E – Jurisdictional Runoff Management Programs.

Action: *Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:*

- *Provisions, E.3. Development Planning (page 94)*

28. PROVISION E.3 (PAGE 98 OF 130) – PORTIONS OF REDEVELOPMENT PROJECTS THAT ALREADY HAVE WATER QUALITY TREATMENT BMPS SHOULD NOT BE SUBJECT TO THE NEW PDP REQUIREMENTS.

Some redevelopment projects already have portions of the project that were subject to previous permit PDP requirements. These portions of redevelopment that were subject to prior PDP requirements should not be subject to the new PDP requirements as these projects already have water quality treatment. Such an approach is consistent with the Los Angeles and Ventura MS4 permits.

Action: *Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:*

- *Provisions, E.3.b.(2) Special Considerations for Redevelopment Projects (page 98)*

29. PROVISION E.3 (PAGE 98 OF 130) – THE REGIONAL PERMIT SHOULD INCLUDE A PRIORITY DEVELOPMENT PROJECT EXEMPTION FOR FLOOD CONTROL AND STREAM RESTORATION PROJECTS.

Exemptions should be added for flood control and stream restoration projects as these projects do not meet the intent of requiring treatment for land development projects as they are not a source of pollutants, and can actually be defined as mitigation projects.

Action: *Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:*

- *Provisions, E.3.b.(3) Priority Development Project Exemptions (page 98)*

[67] *Arreola v. County of Monterey*, 99 Cal.App.4th 722 (2002).

30. PROVISION E.3 (PAGE 98 OF 130) – THE REGIONAL PERMIT SHOULD INCLUDE A PRIORITY DEVELOPMENT PROJECT EXEMPTION FOR EMERGENCY PUBLIC SAFETY PROJECTS WHERE A DELAY DUE TO A STANDARD STORMWATER MITIGATION PLAN (SSMP) WOULD COMPROMISE PUBLIC SAFETY, PUBLIC HEALTH AND/OR THE ENVIRONMENT.

An exemption should be added for emergency public safety projects where a delay due to a Standard Stormwater Mitigation Plan (SSMP) would compromise public safety, public health and/or the environment. In reality, emergency projects will be implemented immediately where public safety, public health and/or the environment is threatened. There will be no time for the development, processing and plan check and revisions of a SSMP prior to these projects. Emergency projects are provided exempt status in many other MS4 permits including the OC Santa Ana Region Permit (Order No. R8-2009-0030 – Section XII.B.2.j) and the Los Angeles County MS4 Permit (Order R4-2012-0175 – Section VI.D.7.b.ii.c.(i)).

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.3.b.(3) Priority Development Project Exemptions (page 98)*

31. PROVISION E.3.C (PAGE 98 OF 130) – FLEXIBILITY SHOULD BE PROVIDED TO THE STRUCTURAL BMP PERFORMANCE STANDARDS IF WATERSHED-SPECIFIC PERFORMANCE STANDARDS ARE DEVELOPED IN THE WATER QUALITY IMPROVEMENT PLANS.

Utilizing the watershed approach, it is conceivable that the Water Quality Improvement Plans will identify an alternate performance standard than do the provisions in E.3.c. . To fully realize the watershed approach, the Copermittees should be given the opportunity to develop alternative BMP performance standards consistent with the goals and objectives developed in the Water Quality Improvement Plans.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.3.c Priority Development Project Structural BMP Performance Requirements (page 98)*

32. PROVISION E.3 (PAGE 98 OF 130) – TERMINOLOGY IS INCONSISTENT ESPECIALLY WITH THE USE OF LOW IMPACT DEVELOPMENT BMPS AND SHOULD BE MODIFIED.

Provision E.3.c. specifies the requirements for structural BMPs. Furthermore, Provision E.3.c.(1) introduces the concepts for onsite structural BMPs and LID BMPs. The County recommends that the Tentative Order be modified to provide more consistency in terminology. The County views LID as a strategy of BMPs that is used to mimic preproject water balance. (See Provision E.3.a(3)). There is also no single definition for LID BMPs that has gained widespread recognition. Although Attachment C includes a definition for LID BMPs, this definition is not widely accepted. LID is rather a concept (the Attachment C definition does adequately capture this concept) made up of various non-structural and structural BMPs. While the onsite BMP requirements should be defined (*e.g.*, retention of the 85% storm) the Tentative Order could be greatly simplified by avoiding multiple terms and uses. The County has provided suggested edits throughout the Development Planning provision to provide better consistency.

33. PROVISION E.3.C (PAGE 100 OF 130) – IF PROJECTS USE ALTERNATIVE COMPLIANCE CONVENTIONAL BMPS SHOULD NOT BE ALSO REQUIRED ONSITE.

Section E.3.c.(1)(c) requires that if projects use alternative compliance, conventional BMPs must also be implemented onsite. Although the Fact Sheet identifies that the intent of this provision is to reduce the pollutants onsite to the MEP there is not adequate technical justification for effectively requiring additional mitigation. This provision requires additional mitigation for projects, and in effect, requires double mitigation that goes well beyond the MEP standard. Providing mitigation offsite for the PDP requirements offsite in itself is adequate to meet the MEP standard.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.3.c.(1) Storm Water Pollutant Control BMP Requirements (page 100)*

34. PROVISION E (ENTIRE PROVISION; BEGINS PAGE 94 OF 130) – THE HYDROMODIFICATION MANAGEMENT REQUIREMENTS SHOULD BE BASED ON A WATERSHED MANAGEMENT APPROACH, BE CONSISTENT WITH THE WQIPS, AND CONSIDER THE CURRENT COPERMITTEE HMPS.

Hydromodification management should be based on the conditions of receiving waters and on the impacts and potential impacts from development projects. The basis to make hydromodification management decisions needs to be an understanding of the watershed and the receiving waters within a watershed. Understanding a watershed is achieved through watershed analysis and analysis of the susceptibility of the receiving waters to hydromodification impacts. This approach of watershed analysis is identified in the Southern California Coastal Water Research Project ("SCCWRP") Technical Report 667 – *Hydromodification Assessment and Management in California* **(Appendix A-2).** The SCCWRP report identifies that watershed analysis is the first step and most critical step in the development of watershed hydromodification management. The SCCWRP report concluded that hydromodification management is not a one size fits all approach, but needs to consider watershed analysis. This was also concluded by the authors of the SCCWRP report at the Hydromodification Management Meeting in August of 2012 and by State Board staff at the California Stormwater Quality Association (CASQA) General Meeting on January 10, 2012. The Tentative Order hydromodification requirements are, however, a one size fits all approach as the requirements do not allow consideration of watershed analysis or receiving water information.

The County believes the best way to implement the vision of the SCCWRP Report for development of effective hydromodification management is to develop clear hydromodification management objectives that are watershed specific and developed through a stakeholder process. The intent of the WQIPs is to improve water quality in the WMAs based on the highest priorities for water quality in the watershed. Unless more is known about the watersheds and their receiving waters, however, including their susceptibility to hydromodification, the appropriate standards and performance criteria cannot be identified. The WQIPs can build on the current Hydromodification Management Plans (HMPs) that have been developed and can use additional watershed and receiving waters information to develop appropriate watershed specific hydromodification standards

and where they should apply in a specific watershed. Instead of hydromodification requirements that do not consider specific watershed analysis and conditions of receiving waters and that were developed unilaterally by Regional Board staff, the County suggests that watershed specific requirements be developed as part of the WQIPs as part of a watershed stakeholder process.

Matching pre-development (naturally occurring) flow rates and duration is identified as the performance standard for hydromodification management. The purpose of the CWA does is not to restore waters to pre-Columbian (pre-development) conditions. Rather, the objective must be taken in context of section 402(p) and reflect the stormwater compliance standard to reduce pollutants to the maximum extent practicable. The hydromodification standard should reflect the developed urban environment. To do otherwise would negate the engineering efforts done to date to protect life and property from floods and create an impractical solution for municipalities. Furthermore, the current hydromodification standard as provided for in numerous municipal permits in California is to match post development with "pre-project" conditions. The current pre-development standard goes well beyond federal law with no technical justification and can only be adopted under state authority.

Hydromodification effects may also be caused from other sources that are not in the Copermittees' jurisdiction. Initial implementation of the pre-development (naturally occurring) hydromodification performance standard has identified that BMPs to comply with the standard are of significant size even for smaller projects. Implementing the hydromodification requirements can disturb a significant area of land, which has its own environmental impacts, including changing the natural hydrology. This is antithetical to the LID concept. This can also cause a decrease in open space, which is in conflict the Orange County General Plan requiring certain thresholds of open space for developments. For smaller redevelopment projects and other infill projects, it may not be technically or economically feasible to build these projects, and will be a lost opportunity to improve water quality through implementation of LID requirements.

In addition, identifying "naturally occurring" conditions for redevelopment sites is difficult and entirely subjective, as in most cases there are no historical records of the natural condition of the site, raising whether there is a technical question as to how far back a Copermittee goes historically in determining the proper predevelopment timeframe. In cases where natural conditions of a site are not known, the best approach is to use an undeveloped natural site in proximity to the re-development site as a reference site. The vegetative cover, soil type and slope will most affect the hydrology of a site and so approximating these conditions for a redevelopment site using a natural reference site where these parameters can be measured is a way to approximate the natural conditions of a redevelopment site. Locating a natural reference site in proximity to a redevelopment site is difficult, however, as the entire sub-watershed or watershed may be developed. Additionally the conditions of the natural reference site may be much different than the "naturally occurring" conditions of the redevelopment site as vegetative cover, soil type and slope may have been very different. Without historical records, there is no way of knowing the actual "naturally occurring" conditions of a redevelopment site. The subjectivity of the pre-development approach not only puts municipalities in a position to violate the U.S. and California Constitutions on unlawful takings, but it also conflicts with the Mitigation Fee

Act, CEQA and the State Administrative Procedure Act in that the Tentative Order does not contain an adequate record justifying the reasonableness of this standard.

The County is therefore suggesting an approach to hydromodification management that is not a one size fits all approach, is consistent with the watershed approach and the intent of the WQIPs, considers the current Copermittee HMPs, and provides an opportunity to develop watershed specific requirements as part of a watershed stakeholder process that have the best chance of improving water quality.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.3.c.(2) Hydromodification Management BMP Requirements (page 100)*

35. PROVISION E.3.C (PAGE 99 OF 130) – BIOFILTRATION BMPS SHOULD BE SIZED FOR THE DESIGN CAPTURE VOLUME AND IF USED FOR ALTERNATIVE COMPLIANCE CONVENTIONAL BMPS SHOULD NOT ALSO BE REQUIRED.

Section E.3.c.(3)(b)(i)[c] requires that if biofiltration is used as an alternative compliance method, the biofiltration BMP is required to be sized to 1.5 times the design capture volume. This is an increase from the prior Orange County permit. The Fact Sheet provides no technical justification for the 1.5 factor.

Studies based on work conducted within Orange County by Geosyntec Consultants provide information contrary to the unsupported inclusion of a 1.5 factor. The following documents are submitted for the record at Appendix A-3 & Appendix A-4.

Storage and Reuse Systems for Stormwater Management – Preliminary Cost and Performance Estimates for Residential Use in Irvine, CA, Eric Strecker (2009 presentation to Santa Ana Regional Board). Assessed the costs and modeled the performance of harvest and use retention BMPs and compared average annual total suspended solids (TSS) load removed and annual TSS concentrations with BMPs. In both scenarios presented, biofiltration provided superior TSS results to harvest and use.

The Water Report Issue #65: Stormwater Retention on Site, An Analysis of Feasibility and Desirability.[68] The paper identified significant limitations with all retention BMPs and states, "There needs to be a more technical vetting of "retain on site" and stormwater harvest and use before these approaches are made mandatory." The authors also caution that a "one size fits all" approach requiring retention may not be desirable and "in many cases would lead to undesirable results."

Based on the above information, the requirement to oversize biofiltration BMPs should be deleted from the Tentative Order. Biofiltration should be considered equivalent to other retention BMPs and should remain a full part of the LID toolbox without penalization.

Section E.3.c.(3)(b)(i)(d) requires that PDPs that use biofiltration as an alternative compliance option must also implement conventional BMPs. This provision requires additional mitigation for projects and in effect requires double mitigation when it is not needed. Biofiltration BMPs are more effective than conventional BMPs, and requiring both does not make technical sense . Furthermore the Fact Sheet provides no technical

[68] Eric Strecker and Aaron Poresky (2009).

justification for requiring conventional treatment in addition to biofiltration and this is not the standard in the current Orange County and Riverside permits or any other permits in California.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.3.c.(1) Storm Water Pollutant Control BMP Requirements (page 99)*

36. PROVISION E.3.C (PAGE 102 OF 130) – THE REGIONAL PERMIT INADVERTENTLY CREATES A TIMING GAP IN COVERAGE FOR EXEMPTIONS TO HYDROMODIFICATION REQUIREMENTS.

A strict reading of the revised permit section E.3.c.(2)(e) suggests that there could be a lapse of the exemptions for engineered channels and the large river even if the WMA Analysis supports keeping the exemptions because once the BMP design manual is submitted with WQIP the interim exemptions appear to expire and it could be some time before the Regional Board approves the WQIP and the WMA Analysis supporting keeping the interim exemptions. We suggest that clarification be provided that notes that the interim timeframe exemptions are in place until the Board approves the BMP Design Manual.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, Development Planning E.3.c.(2)(e) - (page 102)*

37. PROVISION E.3.C (PAGE 104 OF 130) – THE COPERMITTEES SHOULD BE ALLOWED THE FLEXIBILITY PROVIDED UNDER EPA POLICY TO DEVELOP A TRADING AND WATER QUALITY CREDIT SYSTEM.

The Copermittees appreciate the flexibility of the Tentative Order to implement a water quality credit system as an alternative compliance schedule. Trading systems create cost-effective, market-based mechanisms for pollutant reduction, and have been successful in other water quality and air quality contexts. The Copermittees note that any water quality trading system should be implemented in accordance with EPA's 2003 Final Water Quality Trading Policy, which allows for flexibility in generating and trading credits and offsets. The Tentative Order appears to limit a trading system to no net impacts caused by projects meeting the onsite structural BMP performance requirements of Provisions E.3.c(1) and E.3.c(2).

The Copermittees request that this language be stricken and that Copermittees be allowed the flexibility provided under the EPA 2003 Policy. Trading systems differ from program to program and are highly robust and complex credit mechanisms. Therefore, no net impact limitations should be addressed on a case-by-case basis subject to Executive Office approval, and should not immediately be limited by permit language, as certain projects may offer other significant environmental benefits.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, Development Planning E.3.c.(3)(d) - (page 104)*

PROVISION E.4 – CONSTRUCTION MANAGEMENT

38. PROVISION E.4 (PAGE 104 OF 130) – THE CONSTRUCTION MANAGEMENT PROGRAM PROVISIONS MUST BE MODIFIED SO AS NOT TO NEGATE THE VERY INTENT AND PURPOSE OF THE WATERSHED APPROACH AND THE FOCUS ON THE HIGHEST PRIORITIES WITHIN EACH WATERSHED MANAGEMENT AREA.

See the corresponding comments under Provision E – Jurisdictional Runoff Management Programs.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.4. Construction Management (page 104)*

PROVISION E.5 – EXISTING DEVELOPMENT MANAGEMENT

39. PROVISION E.5 (PAGE 108 OF 130) –THE EXISTING DEVELOPMENT PROGRAM PROVISIONS MUST BE MODIFIED SO AS NOT TO NEGATE THE VERY INTENT AND PURPOSE OF THE WATERSHED APPROACH AND THE FOCUS ON THE HIGHEST PRIORITIES WITHIN EACH WATERSHED MANAGEMENT AREA.

(See the corresponding comments under Provision E – Jurisdictional Runoff Management Programs)

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.5. Existing Development Management (page 108)*
- *Provisions, E.5.b Existing Development BMP Implementation and Maintenance (page 110)*

40. PROVISION E.5.E (PAGE 116 OF 130) – REMOVE THE REQUIREMENT TO EVALUATE RETROFIT OF STREAM CHANNELS FROM THE TENTATIVE ORDER.

It is not the responsibility of the Copermittees to restore receiving waters, but rather reduce the discharge of pollutants in stormwater and non-stormwater to the maximum extent practicable.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.5.e.(2) Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development (page 115)*

PROVISION E.6 – ENFORCEMENT RESPONSE PLANS

41. PROVISION E.6 (PAGE 116 OF 130) – THE COPERMITTEES SHOULD BE ALLOWED TO UTILIZE EXISTING GUIDELINES AND PROCEDURES FOR ENFORCEMENT.

As a part of the development and implementation of a robust Illegal Discharge/Illicit Connection (ID/IC) Program, the Copermittees have developed an *Investigative Guidance Document* and *Enforcement Consistency Guide* ("Guide"). The Tentative Order should be modified to allow the Copermittees to continue to use and implement established, equivalent guidelines and procedures for enforcement.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.6 Enforcement Response Plans (page 116)*

42. PROVISION E.6.D (PAGE 118 OF 130) – THE TERM AND DEFINITION FOR "ESCALATED ENFORCEMENT" SHOULD BE REDEFINED.

Although Provision E.6.d requires each Copermittee to include "Escalated Enforcement" in the required Enforcement Response Plan, the definition of what is intended by "Escalated Enforcement" is different within the Tentative Order than the Fact Sheet and may not be enforceable.

The Tentative Order defines "Escalated Enforcement" as "any enforcement scenario where a violation or other non-compliance is determined to cause or contribute to the highest water quality conditions identified in the Water Quality Improvement Plan." This definition seems to indicate that a Copermittee may enforce differently in a particular situation if it involves a high priority pollutant of concern. Not only does the County take exception to the notion that they would enforce differently solely based on the constituent involved, the legality of such an enforcement action is questionable. In fact, when selecting enforcement options, the Copermittee must ensure that violations of a similar nature are subjected to similar-types of enforcement remedies in order to avoid any claim of selective enforcement of the Ordinance.

However, the Fact Sheet seems to indicate that "Escalated Enforcement" would instead require the Copermittee to "take progressively stricter response to enforce its legal authority and achieve compliance…." The County supports this approach, especially since this is consistent with other ID/IC programs in California and the established guidance that has been developed and implemented by the Copermittees. In fact, the established guidance recognizes that a more severe enforcement option may be selected when a violator has either a history of noncompliance or has failed to take good faith actions to eliminate continuing violations or to meet a previously imposed compliance schedule. Ultimately, enforcement is in the prosecutorial discretion of the Copermittee.

The Tentative Order should be modified as indicated below so that it reflects a standard progressive response approach.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.6.d Escalated Enforcement (page 118)*
- *Attachment C*

PROVISION E.7 – PUBLIC EDUCTION AND PARTICIPATION

43. PROVISION E.7 (PAGE 118 OF 130) – THE PUBLIC EDUCATION PROGRAM PROVISIONS MUST BE MODIFIED SO AS NOT TO NEGATE THE VERY INTENT AND PURPOSE OF THE WATERSHED APPROACH AND THE FOCUS ON THE HIGHEST PRIORITIES WITHIN EACH WATERSHED MANAGEMENT AREA.

See the corresponding comments under Provision E – Jurisdictional Runoff Management Programs.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, E.7 Public Education and Participation (page 118)*
- *Provisions, E.7.a Public Education (page 119)*

PROVISION F – REPORTING

44. PROVISION F (ENTIRE PROVISION; BEGINS PAGE 121 OF 130) – THE PROCESS FOR THE DEVELOPMENT AND UPDATES OF THE VARIOUS PLANS NEEDS TO BE ALIGNED AND ALLOW FOR THE TIME NECESSARY TO COMPLETE THE WORK AND TO SUBMIT THE ROWD.

Provision F includes requirements for the documents and reports that Copermittees must prepare and provide to the Regional Board. This provision incorporates significantly expanded requirements for public participation and involvement in the development and implementation of the WQIPs and JRMPs.

However, the timeframe outlined in this section links each step of the development of the WQIP and JRMP to the commencement of coverage under the Order instead of to the development step that precedes it. The three steps outlined for the development of the WQIP need to be sequential so that the Copermittees have adequate time to complete each step and build the program based on comments received. In addition, the timeframe needs to explicitly incorporate adequate time for the Copermittees to review and respond to comments received on the current action before moving on to the next step of development. For example, it is unclear how the Copermittees would establish their water quality improvement strategies (step 2 of development) at the same time as the establishment of the priority water quality conditions and numeric goals (step 1 of development).

It should also be noted that this approach appears to establish a heavy workload for the public, the Copermittees and the Regional Board. A more streamlined approach for the development of the WQIPs should be considered that would provide the Copermittees with the necessary time to develop the final WQIP without extending the overall timeframe. For example, instead of requiring a formal public notice and solicitation of comments by the Regional Board for all three (3) steps of each WQIP, the Copermittees could work with stakeholders to solicit comments for the first two steps of the development of the WQIP and only require formal public noticing for the final approval of the WQIP. Although this is one approach to streamline the development of the WQIP, an alternative approach would be to modify the timelines as indicated below.

It should be noted that the preparation of a regional WQIP will require a CEQA determination by the Copermittee acting as lead agency. This should be recognized in setting the timeline as noted within the table below.

A comparison of the current and recommended approach is provided in the table below.

Steps and Timelines	Existing Approach in Tentative Order	Total Time from Effective Date of Order	Recommended Approach (w/ edits provided in Tentative Order)	Total Time from Effective Date of Order
Establish Priority Water Quality	Within 6 months of commencement of	6 months	Within 6 months of	6 months

Steps and Timelines	Existing Approach in Tentative Order	Total Time from Effective Date of Order	Recommended Approach (w/ edits provided in Tentative Order)	Total Time from Effective Date of Order
Conditions and Numeric Goals	coverage		commencement of coverage	
Request Public Comments	60 days from posting	8 months	30 days from posting	7 months
Revise Priority Water Quality Conditions and Numeric Goals	Not specified	? months	30 days from receiving comments	8 months
Establish Water Quality Improvement Strategies and Schedules	Within 9 months of commencement of coverage	9 months	Within 3 months of finalizing Priority Water Quality Conditions and Numeric Goals	11 months
Request Public Comments	60 days from posting	11 months	30 days with stakeholders	12 months
Revise Water Quality Improvement Strategies and Schedules	Not specified	? months	30 days from receiving comments	13 months
Develop WQIP	Within 18 months of commencement of coverage	18 months	Within 18 months of commencement of coverage	**18 months (this allows 5 months for the development of the document)**
Request Public Comments	30 days from posting	19 months	30 days from posting	19 months
If no hearing, Regional Board notify Copermittees that the WQIP is accepted	Within 6 months of the public request for comments	25 months	Within 6 months of the public request for comments	25 months
Finalize WQIP	Not specified	? months	60 days from receiving comments (this assumes	? months

Steps and Timelines	Existing Approach in Tentative Order	Total Time from Effective Date of Order	Recommended Approach (w/ edits provided in Tentative Order)	Total Time from Effective Date of Order
			that it is concurrent with the Regional Board notification above)	
Review for CEQA Requirements	*It should be noted that the preparation of a regional WQIP may trigger local requirements under CEQA. This should be recognized in setting the timeline. This would likely take 30-60 days.*			
Posting on Regional Clearinghouse	Within 30 days of acceptance by Regional Board	26 months	Within 30 days of acceptance by Regional Board	26 months

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The sections include:

- *Provisions, F.1.a.(2)(f) Reporting (page 122)*
- *Provisions, F.1.a.(3)(d) Reporting (page 123)*
- *Provisions, F.2.a.(5) Updates (page 125)*

ATTACHMENT C – ACRONYMS, ABBREVIATIONS AND DEFINITIONS

45. ATTACHMENT C (ENTIRE ATTACHMENT; BEGINS PAGE C-1) – ATTACHMENT C SHOULD CLARIFY THE MEANING OR INTENT OF SPECIFIC TERMS USED WITHIN THE ORDER.

In addition to the acronyms and abbreviations, Attachment C includes definitions that may provide an explanation or description of the meaning or intent of specific terms or phrases that are used within the Order. The County recommends the addition and/or modification of the following definitions in order to assist in describing the meaning or intent of these terms and to avoid unnecessary confusion.

Action: Incorporate the specific modifications to the Tentative Order, which are provided in Attachment B. The terms include:

- This term did not have a definition - *Channel Rehabilitation and Improvement*
- This definition should provide additional clarification – *Illicit Connection*
- This term did not have a definition - *Progressive Enforcement*
- This definition should provide additional clarification - *Redevelopment*
- This definition should remain consistent with the Federal regulations – *Storm Water*

- This definition should remain consistent with the State regulations – *Waters of the State*
- This term should clarify that a wet weather period should be preceded by a minimum dry weather period, unless defined differently in another regulatory mechanism – *Wet Weather*

ATTACHMENT E – SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS

46. ATTACHMENT E (ENTIRE ATTACHMENT; BEGINS PAGE E-1) – PERMIT PROVISIONS MUST BE CONSISTENT WITH THE CORRESPONDING BASIN PLAN AMENDMENTS.

The Regional Board has adopted two Basin Plan Amendments ("BPAs") to establish Total Maximum Daily Loads ("TMDLs") where the Copermittees are identified as Responsible Parties and assigned wasteload allocations ("WLAs"): (1) Indicator Bacteria in Baby Beach in Dana Point Harbor[69] and (2) Indicator Bacteria, Project I - Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)[70] (Beaches and Creeks Bacteria TMDL).

There are several fundamental and substantive discrepancies, however, between the adopted TMDL BPAs and the provisions of the Tentative Order. These inconsistencies negate the Basin Planning process that occurred to establish the TMDLs and clearly contradict the Board's intent for how the TMDLs would be incorporated into the MS4 Permit. As the TMDLs have been incorporated into the Basin Plan, the TMDLs constitute the "program of implementation needed for achieving water quality objectives"[71] and the provisions in the MS4 Permit must, therefore, be consistent with the Basin Plan.

For example:

- Both the Baby Beach and Beaches and Creeks TMDLs clearly establish mass-based wasteload allocations. These wasteload allocations are entirely absent from the Tentative Order (see additional comments below for further discussion). Instead, the Tentative Order establishes water quality based effluent limits (WQBELs) based upon an effluent concentration (set equal to the numeric targets).
- For the Beaches and Creeks TMDL, the Tentative Order is not consistent with the compliance schedule approach provided for the comprehensive load reduction plans (CLRPs) established in the BPA. The CLRPs that will be submitted by Copermittees will propose interim compliance dates, as allowed by the BPA, to meet the 50% reduction milestone for dry and wet weather. The CLRPs submitted by Copermittees may not all propose the same interim compliance dates and the Tentative Order should acknowledge the flexibility allowed by the TMDL[72]. In fact, this scheduling

[69] Resolution R9-2008-0027.

[70] Resolution R9-2010-0001.

[71] Water Code § 13050(j).

[72] Page 68 of Attachment A of the Basin Plan Amendment.

flexibility was a primary "incentive" for Copermittees to develop CLRPs instead of Bacteria Load Reduction Plans (BLRPs).

- For the Baby Beach TMDL, the BPA includes two paths for the implementation of the TMDL – one where the beach has been delisted from the 303(d) list and one where the beach remains impaired[73]. Where a beach has been delisted, the BPA requires that Responsible Copermittees monitor and continue implementation of existing implementation actions "to ensure REC-1 water quality objectives are maintained" (i.e., the beach is not placed back on the 303(d) list). Only if the beach is placed back on the 303(d), the NPDES permit is to be revised to include "requirements consistent with these TMDLs." As Baby Beach is not on the most recent 303(d) list for REC-1 bacteria objectives, the requirements for Responsible Copermittees must be limited to monitoring and implementation of existing implementation actions. The Tentative Order does not recognize the approach for delisted beaches or recognize that Baby Beach is delisted.
- For the Beaches and Creeks TMDL, the BPA clearly establishes that no additional actions are required for beaches that are delisted[74]. This language is not included in the Tentative Order.
- Monitoring requirements in the Tentative Order must be consistent with the requirements of the BPAs. Both the Baby Beach TMDL and the Beaches and Creeks TMDL provide certain flexibility in monitoring, via the BLRPs and CLRPs, respectively, and this flexibility is not captured in the Tentative Order.
- Both the Baby Beach TMDL and the Beaches and Creeks TMDL clearly acknowledges that exceedances in the receiving water may not be from the MS4 and contains specific compliance language to address such a situation. This language is not provided in the Tentative Order.

These examples are not exhaustive of the inconsistencies between the BPAs and the Tentative Order (additional inconsistencies are identified and modified language is proposed in **Attachment B**).

During the workshops on the Tentative Order, Regional Board members raised the question of feasibility of attaining the TMDLs. The Basin Plan Amendments included many considerations and requirements that cumulatively result in a more feasible program of implementation. If many of the requirements of the BPAs are modified or not included in the MS4 permit, such as the mass-based WLAs, flexible monitoring programs, no further action for delisted beaches, and reconsideration of the TMDLs through reopeners, the Tentative Order establishes requirements that are not only inconsistent with the BPAs, but that make attainment of the TMDLs infeasible.

Action: Modify the requirements in Attachment E to establish provisions that are consistent with the adopted Basin Plan Amendments. Specific modifications to address these inconsistencies are

[73] Basin Plan Amendment, Page A-12.

[74] Basin Plan Amendment, Pages A2, A12, A66.

provided in Attachment B. Certain key inconsistencies are noted in the subsequent comments below. Additional inconsistencies are also captured in the modifications detailed in Attachment B.

47. ATTACHMENT E (ENTIRE ATTACHMENT; BEGINS PAGE E-1) – THE TENTATIVE ORDER'S NUMERIC WQBELS VIOLATE THE REQUIREMENTS OF LAW BECAUSE THEY ARE INFEASIBLE.

Due to the nature of urban runoff and the extensive urbanization of Orange County, the Tentative Order's numeric WQBELs are economically and technically infeasible.[75] The Copermittees transport stormwater for flood control purposes, and do not generate pollutants. The Copermittees are legally and practically unable to control all aspects of the urban landscape and prevent illicit substances, such as copper, from entering the environment. The state and federal government has direct oversight over consumer goods and services and can better regulate these pollutants than can local government which has little jurisdiction over consumer issues due to Commerce Clause in the U.S. Constitution and other limitations. Furthermore, the are insufficient technologies to control and treat all the pollutants that threaten receiving waters, and it is economically infeasible to expend billions of dollars in local government general funds on research and development, particularly when the Permit does not contain a compliance pathway.[76]

Federal law does not require the Copermittees to meet numeric standards.[77] Moreover, meeting numeric standards in all places at all times is technically and economically infeasible and therefore beyond MEP. Any numeric WQBELs that are adopted in the Permit are done under authority of state law.[78]

The State Board has consistently rejected the incorporation of numeric WQBELs as evidenced by its adoption of the Caltrans MS4 Permit, affirming that "it is not feasible at this

[75] A WQBEL is an enforceable translation in an MS4 permit for attaining compliance with a TMDL WLA, which serves to protect beneficial uses of a receiving water. 40 C.F.R. § 130.2.

[76] For example, in the final technical report prepared by the Regional Board, entitled "Revised Total Maximum Daily Loads for Indicator Bacteria Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)" (including beaches in Orange County), the Board concluded that the cost of implementing the particular TMDL in issue may be as high as $973 million, with annual maintenance running as great as $68 million annually. (See TMDL Report, http://www.swrcb.ca.gov/sandiego/ water_issues/programs/tmdls/bacbacte.shtml, at p. 144 ["The cost estimates for treating 10 percent of the watershed with structural BMPs ranged from $50,000 to $973 million, depending on BMP selection, with yearly maintenance costs estimated from $10,000 to $68 million."]; see also Total Maximum Daily Load for Bacteria in the Los Angeles River Watershed, http://www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical_documents/bpa_80_R10-007_td.shtml, at p. 81[estimating the cost to implement the bacteria TMDL for the LA River at "$5.4 billion."].

[77] *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159, 1167.

[78] *Long Beach Unified School District v. State of California* (1990) 225 Cal.App.3d 155, 173; *National Resources Defense Council, Inc. v. U.S. E.P.A.* (9th Cir. 1992) 966 F.2d 1292, 1308.

time to set enforceable numeric effluent criteria for municipal BMPs and in particular urban discharges."[79]

The Caltrans MS4 permit's fact sheet also supports the use of BMP-based WQBELs as a means of meeting TMDLs and other quality standards. The Caltrans MS4 permit is also subject to TMDLs adopted by the Regional Board and USEPA. If this aspect of the Tentative Order is not corrected, Orange County MS4 Copermittees will be compelled to comply strictly with numeric WQBELs and receiving water limitations while Caltrans need only implement WQBEL BMPs to achieve compliance with the same TMDLs. This inconsistency lacks any justification.

48. ATTACHMENT E (ENTIRE ATTACHMENT; BEGINS PAGE E-1) – THE TENTATIVE ORDER'S WQBELS WERE IMPROPERLY FORMULATED.

The Tentative Order fails to provide adequate justification for incorporating numeric WQBELs in the Tentative Order for each of the incorporated TMDLs to which they apply. Further, the Tentative Order fails to establish that an adequate requisite Reasonable Potential Analysis ("RPA") has been conducted.

The Tentative Order fails to establish if discharges from any individual Copermittee's MS4 have the reasonable potential to cause or contribute to an excursion above any State water quality standard including State narrative criteria for water quality.

There are two generally accepted approaches to conducting an RPA. According to USEPA guidance, "A permit writer can conduct a reasonable potential analysis using effluent and receiving water data and modeling techniques . . . or using a non-quantitative approach."[80]

Neither the administrative record nor the Tentative Order's fact sheet contains any evidence of that an RPA has been performed in accordance with the two foregoing approaches. Regarding the first approach, such an analysis would in any case have been impossible to perform given that no outfall (effluent) monitoring has been required for any prior Orange County MS4 permit. No modeling appears to have been conducted either.

Beyond this, federal regulations not only require that an RPA be performed to determine if an excursion above a water quality standard occurred, but also that the storm water discharge must be measured against an "allowable" ambient concentration.[81]

A WQBEL is a means of attaining a TMDL WLA, a translation of a WLA into prescribed actions or limits which has in the past been typically expressed as a BMP. Before a WQBEL can be developed, however, a need for it must be established. As the Permit Writers' Manual indicates:

> The permit writer should always provide justification for the decision to require WQBELs in the permit fact sheet or statement of basis and must do so where

[79] Fact Sheet for NPDES Permit and Waste Discharges Requirements for State of California Department of Transportation, NPDES Permit No. CAS000003, Order No. 2012-0011-DWQ, page 9 (Sept. 7, 2012).

[80] NPDES Permit Writers' Manual, September 2010, page 6-23.

[81] 40 C.F.R. § 122.44(d)(iii).

> required by federal and state regulations. *A thorough rationale is particularly important when the decision to include WQBELs is not based on an analysis of effluent data for the pollutant of concern*.[82]

No such rationale is provided in the Fact Sheet, which in the absence of effluent data derived from outfall monitoring, would have been absolutely necessary to justify the need for a numeric WQBEL.

49. ATTACHMENT E (ENTIRE ATTACHMENT; BEGINS PAGE E-1) – WQBELS FOR BOTH BABY BEACH BACTERIA TMDL AND BEACHES AND CREEKS TMDLS INAPPROPRIATELY INCLUDE TMDL NUMERIC TARGETS.

Federal regulations require that NPDES permits contain effluent limits consistent with the assumptions and requirements of all available WLAs.[83] As currently established in the Tentative Order, the WQBELs are not consistent with the WLAs and are therefore not consistent with federal regulations. Therefore, any adjustment of the TMDL in the Permit is taken under state authority.

The Tentative Order establishes WQBELs based upon the numeric targets (set equal to water quality objectives) in addition to the mass-based WLAs established by the TMDL. To justify this approach, the Fact Sheet states:

> Because *numeric targets* for TMDLs typically include a component that will be protective of water quality standards, a TMDL will likely include one or more numeric receiving water limitations and/or effluent limitations as part of the assumptions or requirements of the TMDL. *Any numeric receiving water limitations and/or effluent limitations developed as part of the assumptions or requirements of a TMDL must be incorporated and included as part of a WQBELs for the MS4s.*[84].
>
> However, federal regulations require that the WLAs, not the numeric targets, are incorporated into the Tentative Order. Further, federal regulations do not require that any receiving water limitation or effluent limitation developed as part of the TMDL must be incorporated. Rather, federal regulations require that the WQBELs are consistent with the assumptions and requirements of the WLAs. Federal regulations expressly state: When developing water quality based effluent limits under this paragraph the permitting authority shall ensure that: (B) Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, *are consistent with the assumptions and requirements of any available wasteload allocation* for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7.[85]

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[82] *Id.*

[83] 40 CFR § 122.44(d)(1)(vii)(B).

[84] Fact Sheet, pg. F-38 (emphasis added).

[85] 40 CFR § 122.44(d)(1)(vii)(B).

While in most cases the numeric targets are a component of the allocations, there are numerous additional assumptions and requirements of the WLAs that are also a component of the WLAs. Wasteload allocations take into account various considerations, including the multiple sources of a pollutant, flow rates, critical conditions and margin of safety. By only incorporating the numeric target component of the WLAs, the Regional Permit fails to include all other assumptions and requirements of the WLAs as required by federal regulations. Only incorporating the numeric targets negates the entire TMDL analysis and Basin Planning process. Otherwise, TMDLs would be as simple as assigning numeric effluent limitations to MS4 discharges equal to the numeric objectives in the Basin Plan, which is explicitly contrary to the TMDLs that have been established in the Basin Plan.

In fact, simply defining the WQBELs as the numeric targets of the TMDL is contrary to the purpose of the Basin Plan itself, which not only requires the establishment of water quality objectives, but also the program of implementation needed to achieve the water quality objectives.[86] A TMDL, once incorporated into the Basin Plan, is exactly that – a program of implementation needed for achieving water quality objectives.

The following language from the Basin Plan Amendment is controlling:

Beaches and Creeks Bacteria TMDL BPA

> TMDLs must be established at levels necessary to attain and maintain the applicable narrative and numerical water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge between effluent limitations and water quality. [87]

Baby Beach Bacteria TMDL BPA:

> The loading capacities are defined as the maximum amount of fecal coliform, total coliform and Enterococcus that the waterbody can receive and still attain water quality objectives necessary for the protection of designated beneficial uses. Each TMDL must accommodate all known sources of a pollutant, whether from natural background, nonpoint sources, or point sources, and must include a margin of safety (MOS) to preclude pollutant loading from exceeding the actual assimilative capacities of the waterbodies. The TMDL calculations also account for seasonal variations and critical conditions and were developed in a manner consistent with guidelines published by USEPA[88]"

In both TMDLs, the WLAs clearly take into consideration factors other than the numeric targets, such as flow rates, as the WLAs are expressed as mass-based limits. If it was the Regional Board's intent to establish a concentration-based TMDL, then the WLAs would be

[86] See Water Code section 13050(j) and as stated in the Beaches and Creeks Bacteria TMDL (Resolution, Pg.2): "A "Water Quality Control Plan" or "Basin Plan" consists of a designation or establishment for the waters within a specified area of all of the following: (1) Beneficial uses to be protected, (2) Water quality objectives and (3) A program of implementation needed for achieving water quality objectives."

[87] Resolution, Page 2.

[88] Resolution, Page 4.

expressed as a concentration. By establishing mass-based WLAs, however, the TMDL purposefully and explicitly establishes WLAs that incorporate many other factors than just the concentrations of the numeric targets. Therefore, establishing WQBELs that fail to incorporate the mass-based WLAs is inconsistent with the assumptions and requirements of the WLAs as well as inconsistent with the intent of the Basin Plan itself.

Action: Modify the requirements in Attachment E to include:

- *Fact Sheet, (page F-38)*
- *Attachment E*

Baby Beach Bacteria TMDL

In addition to the universal issues identified above, there are additional concerns with the WQBELs specific to the Baby Beach Bacteria TMDL.

Of particular concern are the WQBELs established for wet weather for total coliform (TC) and fecal coliform (FC). The BPA establishes WLAs for those indicators based upon existing conditions as the loading capacity was determined to be greater than the current discharges and clearly states that no further reductions are necessary. The BPA states:

> "According to Tables 7-26 and 7-27, no wet weather wasteload reductions are required for total and fecal coliform indicator bacteria. This means that according to the wet weather models for Baby Beach, REC-1 water quality objectives for total and fecal coliform indicator bacteria are not expected to be exceeded due to discharges from the MS4s. The only wet weather wasteload reductions required for MS4s discharging into the receiving waters along the shoreline at Baby Beach is for Enterococcus indicator bacteria."[89]

These existing conditions WLAs were based upon a *load assessment, not a concentration assessment* (e.g., the numeric targets). The final compliance date for these WLAs was set equal to the effective date of the TMDL, given that the WLAs were set to existing conditions and no further reductions were required. Therefore, not only are the WLAs in the Tentative Order not incorporated properly as mass-based WQBELs, but the Copermittees are not provided any time to attain these new and inappropriately established concentration-based WQBELs as the effective date, and therefore final compliance date, was 2009.

Beaches and Creeks Bacteria TMDL

In addition to the universal issues identified above, there are additional concerns with the WQBELs specific to the Beaches and Creeks Bacteria TMDL.

Attachment E specifies WQBELs for dry weather flows as both receiving water and effluent limitations, in terms of zero allowable exceedances of the single sample maximum and the 30-day geometric mean. However, the dry weather component of the TMDL only considered the 30-day geometric mean and did not consider the single sample maximum within its calculation. Incorporating single sample effluent limitations into the Tentative Order goes beyond the TMDL requirements.

[89] Basin Plan Amendment, Page A-23.

In addition, if the TMDL had included single sample limits, there would have been a corresponding allowable exceedance frequency, just as for wet weather. The 22% allowable exceedance rate for wet weather was based on a reference beach within the Los Angeles Region, and although not used in the technical approach for the San Diego Beaches and Creeks TMDL, the reference beach also exhibits exceedances during dry weather, which is incorporated into beach TMDLs in the Los Angeles region.

Action: Modify the Tentative Order to be consistent with the assumptions and requirements of the WLAs by incorporating the WLAs into the Permit. See Attachment B for the specific modifications.

50. ATTACHMENT E (ENTIRE ATTACHMENT; BEGINS PAGE E-1) – WQBELS SHOULD ONLY BE DEFINED AS EFFLUENT LIMITATIONS.

There is a significant legal distinction between the Receiving Water Limitations established in Provision A (Discharge Prohibitions) and the Receiving Water Limitations established as part of the WQBELs in Attachment E (TMDL provisions). As currently (and inappropriately) defined, WQBELs include receiving water limitations based on the numeric targets (set equal to WQOs) in addition to WLAs.

Ensuring that MS4 discharges do not cause or contribute to exceedances of WQOs is already and more appropriately addressed in Provision A.2. When an exceedance occurs under Provision A (Discharge Prohibitions), there is the potential for an enforcement action at the discretion of the Regional Board (*e.g.*, issuing a Notice of Violation). Where an exceedance occurs for a WQBEL, however, the Copermittees may be subject to Mandatory Minimum Penalties (MMPs) where the Regional Board does not have discretion.

As set forth above, the WQBELs are inappropriately defined to include TMDL numeric targets, and not just the WLAs. Ensuring that discharges do not cause or contribute to exceedances of WQOs is already addressed via Provision A.2. Therefore, the inclusion of receiving water limitations in the definition of the WQBELs is inconsistent with the assumptions and requirements of the WLAs and unnecessarily exposes Copermittees to MMPs without any requisite change to the protection of water quality.

Throughout the Beaches and Creeks Bacteria TMDL, the BPA consistently refers to attaining the numeric targets *(e.g.*, the water quality objectives) via receiving water limitations. Therefore, establishing the mass-based WLAs as the WQBELs and the numeric targets as receiving water limitations is consistent with federal regulations for the incorporation of WLAs and the BPA for establishing the receiving water limitations.

The WQBELs should be defined only as the mass-based effluent limitations, consistent with the WLAs in the BPAs. Although the Copermittees prefer that the receiving water limitations are simply addressed with a cross-reference back to Provision A.2, if the Regional Board prefers to keep the receiving water limitations as part of the TMDL provisions, they must be distinct from and excluded from the definition of the WQBELs.

Action: Modify the Tentative Order to be consistent with the assumptions and requirements of the WLAs by defining the WQBELs as equal to the WLAs. Receiving water limitations should be excluded from the definition of WQBELs as they are not part of the WLAs.

51. ATTACHMENT E (ENTIRE ATTACHMENT; BEGINS PAGE E-1) – COMPLIANCE DETERMINATION FOR FINAL WQBELS SHOULD BE BASED ON THE IMPLEMENTATION OF BMPS AND NOT NUMERIC EFFLUENT LIMITATIONS.

For interim water quality-based effluent limitations and receiving water limitations, A BMP-based path to compliance is provided via the implementation of an approved Water Quality Improvement Plan.[90] A voluntary WQIP acknowledges the inherent challenges unique to stormwater management and provides appropriate flexibility to implement the necessary BMPs. However, the same approach is not applied to the final WQBELs.

a. Regional Board has Discretion to Establish BMP-Based Compliance

State and federal law do not require the use of numeric effluent limitations for MS4 Copermittees, but rather encourage flexible implementation of best management practices through an iterative process. Specifically, the choice to include either management practices or numeric limitations in MS4 permits is within the Regional Board's discretion acting under state law.

Over the last decade, EPA has issued a succession of policy memoranda and guidance documents regarding the incorporation of TMDLs into stormwater permits, including:

1) *Guidance for Developing TMDLs in California* (EPA Region 9). January 7, 2000
2) *Establishing Total Maximum Daily Load (TMDL) WLAs for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs* (Wayland and Hanlon). November 22, 2002
3) *TMDLs to Stormwater Permit Handbook* (Draft) (EPA). November 2008
4) Untitled Letter (Kevin Weiss). March 17, 2011

In each of these EPA documents, EPA allows for discretion on the part of the permitting authority in the use of numeric effluent limitations for stormwater or BMP-based effluent limitations.

Further, it is important to note that the EPA documents did not identify any differences in how interim and final WQBELs may be addressed by effluent limitations. In particular, the guidance did not limit BMP-based effluent limitation approaches to interim WQBELs. EPA guidance does emphasize that NPDES provisions implementing TMDLs be enforceable, objective and measurable.

The Tentative Order provides for enforceable, objective and measurable provisions via the Water Quality Improvement Programs (WQIPs). Establishing an additional compliance path for the final WQBELs would therefore be consistent with the approach already provided in the Tentative Order for interim WQBELs as well as guidance issued by EPA over the last.

b. Compliance Mechanism Matters

The Regional Board has the opportunity to exercise discretion in drafting and approving the compliance language in the Order; however, if the Regional Board continues to opt for

[90] Attachment E.5.e.(1)(f)); Attachment E.6.e.(1)(f)

numeric effluent limitations for final WQBELs, the Regional Board will no longer have discretion for enforcement decisions during implementation of the Order as Copermittees may be subject to Mandatory Minimum Penalties (MMPs).

Take for example a watershed where a group of Copermittees implement a suite of BMPs designed to achieve the final WQBELs. The Copermittees work closely with Regional Board staff and non-governmental organizations in developing and implementing the plan. Implementation of the BMPs achieves a 90% reduction in bacteria loads and results in the delisting of the waterbody from the State's 303(d) list, yet the reductions do not attain the WQBELs. Another Copermittee does little to nothing to address the TMDL and achieves no reductions in bacteria loads, the waterbody continues to be listed as impaired on the State's 303(d) list, and the WQBELs are not attained.

If numeric effluent limitations continue as the compliance mechanism for final WQBELs, both Copermittees (the group that achieved the 90% reduction and the Copermittee that did little to nothing) would equally be out of compliance with the Order and equally subject to MMPs. If a BMP-based compliance option is provided for final WQBELs, the Regional Board would have the ability to exercise discretion. The Regional Board could continue to work with the group or Copermittees that are successfully implementing actions and evaluate appropriate additional actions. For the Copermittee that did little to nothing, the Regional Board would still be able to take appropriate enforcement action.

BMP-based compliance is not a request to decrease accountability or the efforts of the Copermittees or the commitment to water quality, it is a request for the Regional Board to utilize its discretion to establish Permit provisions that will support and reward actions taken by Copermittees that are achieving the intended purposes of the TMDLs.

c. Consistent with Regional Board Approach to Enforcement

A BMP-based compliance mechanism for final WQBELs is consistent with the Regional Board's stated approach to enforcement (as noted in the BPA establishing the Indicator Bacteria TMDL for Baby Beach):

> Regional Board typically implements enforcement through an escalating series of actions to:
>
> > (1) assist cooperative dischargers in achieving compliance; (2) compel compliance for repeat violations and recalcitrant violators; and (3) provide a disincentive for noncompliance.[91]

The Regional Board can structure the final WQBEL compliance options to achieve this escalating approach to enforcement. A BMP-based compliance option can be provided via the implementation of the WQIPs where discrete milestones and actions are identified. For Copermittees that do not implement the WQIPs, this compliance mechanism would no longer be an option and Copermittees would be compelled to comply via the other mechanisms (essentially, no discharge or numeric effluent limitations). Such an approach achieves all three of the escalating compliance approaches identified by the Regional Board in the Baby Beach Bacteria TMDL, while numeric effluent limitations remove the Regional

[91] Baby Beach Bacteria TMDL Basin Plan Amendment, Page A-20.

Board's discretion and will require that the Board treat cooperative dischargers and recalcitrant violators equally.

d. Consistent with Basin Plan Amendments

Establishing a BMP-based compliance path is also consistent with the Basin Plan Amendments for both TMDLs.

Beaches and Creeks TMDL:[92]

> The San Diego Water Board will revise and re-issue the WDRs and NPDES requirements for Phase I MS4s to incorporate the following:
>
> WQBELs consistent with the requirements and assumptions of the Municipal MS4 WLAs. WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a BMP program of expanded or better-tailored BMPs.

Baby Beach Bacteria TMDL (emphasis added):

> WQBELs consistent with the requirements and assumptions of the bacteria WLAs described in Tables [Insert table numbers] and a schedule of compliance applicable to the MS4 discharges into the impaired shoreline segments described in Tables [Insert table numbers]. *At a minimum, WQBELs shall include a BMP program to attain the WLAs*.[93]
>
> If the WQBELs consist of BMP programs, then the reporting requirements shall consist of annual progress reports on BMP planning, implementation, and effectiveness in attaining the WQOs in impaired shoreline segments, and annual water quality monitoring reports.[94]
>
> The BLRPs are the municipal dischargers' opportunity to propose methods for assessing compliance with WQBELs that implement TMDLs.[95]

Additionally, the compliance schedule anticipates revisions to the TMDL after the final compliance date, potentially through the Natural Sources Exclusion Approach (NSEA).[96] It is inconsistent with the assumptions and requirements of the BPA to require strict compliance via numeric effluent limitations at Year 10 when the TMDL explicitly anticipates revisions occurring after that final date. The intent from the BPA is to have 10 years of implementation, evaluate progress and assess whether additional regulatory options (such as the NSEA) are necessary and/or warranted. This approach can only be accomplished if BMP-based compliance is provided as an option for the final WQBELs.

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[92] Basin Plan Amendment, Page A-41.

[93] Basin Plan Amendment, Page A-14.

[94] Basin Plan Amendment, Page A-15.

[95] Basin Plan Amendment, Page A-19.

[96] Basin Plan Amendment, Page A-24.

e. BMP-Based Compliance is Not a "Safe Harbor"

BMP-based compliance through the iterative process is not a safe harbor under the law. A safe harbor exists in the law where certain misconduct is deemed not to violate a given rule.[97] For instance, if a purchaser of property conducts a Phase 1 Environmental Assessment of that property prior to purchase, it generally insulates the purchaser from liability related to contamination found to be caused from a prior owner. In this case, BMP-based compliance pathways can be structured to provide accountability and enforceability so long as BMPs are diligently and rigorously being implemented with specific actions and timetables and where progress is being made. This form of BMP implementation is measurable and objective, and can thus be enforced. If BMP-based compliance was a true safe harbor, any BMP-based action would qualify as a safe harbor. This is not what is being recommended by the Copermittees

The concept of "safe harbor" was raised during the hearing for the recently adopted Los Angeles Region MS4 Permit. The Regional Board as well as Executive Officer of the Regional Board directly addressed the question if BMP-based compliance, via the implementation of a Watershed Management Program (equivalent to the WQIPs), constituted a "safe harbor." Both the Board and Executive Officer determined that BMP-based compliance was not a "safe harbor" and the Watershed Management Programs provided objective and measureable elements whereby Copermittees would be required to implement actions and would have clear accountability.

Equating BMP-based compliance as a "safe harbor" is legally inaccurate, as it does not account for the way in which the law defines safe harbors. The Regional Board should frame the issue through accountability, objectivity and enforceability.

f. Numeric Effluent Limitations are Not Feasible

The Regional Board has discretion in how the WLAs are incorporated into the MS4 Permit. The concept of feasibility relates to *achieving* the numeric effluent limitations, not to *calculating* a numeric effluent limitation. As all TMDLs have numeric WLAs, it would be "feasible" for most all TMDLs, from the very first TMDL ever established, to utilize numeric effluent limitations if simply calculating a WQBEL was the intended definition. As Wayland and Hanlon (2002) (EPA's policy memorandum regarding incorporation of TMDLs into stormwater Permits) noted EPA "expects that most WQBELs for NPDES-regulated municipal and small construction storm water discharges will be in the form of BMPs, and that numeric limits will be used only in rare instances." Therefore, in EPA's policy memoranda, the concept of feasibility is not related to the ability to simply calculate the WQBELs. The concept of "feasibility" really relates to whether or not *achieving* numeric effluent limitations are feasible for the stormwater permit.

The State Water Resources Control Board convened a Blue Ribbon Panel in 2006 to investigate this very question – are numeric effluent limitations feasible for stormwater permits? This panel of national experts ultimately concluded that numeric limits were

[97] "Safe Harbor," Black's Law Dictionary, (1996).

generally infeasible across all three stormwater activities (municipal, industrial, and construction), with a few exceptions.[98]

Therefore, without providing the BMP-based compliance option for Copermittees, the Tentative Order directly contradicts the State Water Resources Control Board's finding regarding the feasibility of achieving numeric effluent limitations for municipal stormwater discharges.

Action: Establish a BMP-based compliance path for final WQBELs by adding the following provisions as Attachment E.5.e(2)(f) and as Attachment E.6.e.(2)(e):

> *The Responsible Copermittees have submitted and are fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the final compliance requirements will be achieved by the final compliance dates. A Responsible Copermittee that does not implement its WQIP in accordance with the milestones and compliance schedules shall demonstrate compliance with the final WQBELs pursuant to Attachment E.5.e(2)(a - e)/Attachment E.6.e(2)(a-d).*

52. ATTACHMENT E (ENTIRE ATTACHMENT; BEGINS PAGE E-1) – AN EXPLICIT RE-OPENER PROVISION IS NECESSARY.

In both the Baby Beach TMDL and the Beaches and Creeks TMDL, the BPAs have included an implementation schedule that defines a point at which the TMDL will be reconsidered to incorporate new information and potentially modify targets, allocations and/or implementation requirements. The intent of the approach is clear in both BPAs:

- **Beaches and Creeks TMDL:** There is an entire section of the Basin Plan Amendment that details modifications to the TMDL through a future Basin Plan Amendment. The BPA specifically notes (BPA pg. A49):

  > As the implementation of these TMDLs progress, the San Diego Water Board recognizes that revisions to the Basin Plan may be necessary in the future.

- **Baby Beach TMDL:** The intent to reassess this TMDL is built directly into several sections of the implementation plan as well as the compliance schedule (emphasis added):

  - The San Diego Water Board recognizes that there are potential problems associated with using indicator bacteria WQOs to indicate the presence of human pathogens in receiving waters free of sewage discharges. The indicator bacteria WQOs were developed, in part, based on epidemiological studies in waters with sewage inputs. The risk of contracting a water-borne illness from contact with urban runoff devoid of sewage, or human-source bacteria is not known. Some pathogens, such as giardia and cryptosporidium can be contracted from animal hosts. Likewise, domestic animals can pass on human pathogens through their feces. *These and other uncertainties need to be*

[98] *The Feasibility of Numeric Effluent Limits Applicable to Discharges of Stormwater Associated with Municipal, Industrial and Construction Activities, June 19, 2006.*

addressed through special studies and, as a result, revisions to the TMDLs may be appropriate."[99]

- "Ultimately, the San Diego Water Board supports the idea of measuring pathogens (the agents causing impairment of beneficial uses) or an acceptable alternative indicator, rather than indicator bacteria (surrogates for pathogens). However, as stated previously, indicator bacteria have been used to measure water quality historically because measurement of pathogens is both difficult and costly. The San Diego Water Board is supportive of any efforts by the scientific community to perform epidemiological studies and/or investigate the feasibility of measuring pathogens directly. *The San Diego Water Board further supports subsequent modification of WQOs as a result of such studies. Ultimately, TMDLs will be recalculated if WQOs are modified due to results from future studies.*"[100]
- Excerpt from Baby Beach Bacteria TMDL Compliance Schedule. Revisions to the TMDL are anticipated to occur in Year 10+ (after the final compliance date).

  Table 1. Excerpt from Baby Beach Bacteria TMDL Compliance Schedule.[101] Revisions to the TMDL are anticipated to occur in Year 10+ (after the final compliance date).

Year (after OAL approval)	Required Wasteload Reduction	TMDL Compliance Action
10	100 percent *Enterococcus* reduction	• Water Quality Monitoring • Implement BMPs • Submit request for removal from 303(d) List • (if not requested and removed earlier)
10+	Same as above	• Water Quality Monitoring • Implement BMPs • *Submit request for TMDL revisions based on Natural Sources Exclusion Approach if supported by data (if not requested and recalculated earlier)* • Submit request for removal from

[99] Basin Plan Amendment, Page A-22.

[100] Basin Plan Amendment, Page A-23.

[101] Basin Plan Amendment, Page A-24.

		303(d) List (if not requested and removed earlier)

Although the County is not advocating for technical revisions to the TMDL as part of the Tentative Order issuance (such revisions would appropriately occur through the Basin Plan Amendment process with any subsequent revisions incorporated into the Permit), there is a well-documented level of uncertainty in the BPAs with the existing TMDLs where revisions to the targets, allocations, and implementation plans and schedules may be warranted. Such uncertainty should be incorporated into the provisions via an explicit re-opener in Provision H (Modifications of Programs) of the Tentative Order.

The explicit re-opener provision for the Tentative Order would serve two purposes:

- Provide a trigger to reconsider the compliance mechanism (BMP-based compliance in lieu of numeric effluent limits) prior to any compliance dates; and
- Ensure that the WQBELs are reconsidered, consistent with the intent of the TMDLs to revisit and revise as necessary the targets, allocations, and implementation actions prior to final compliance being required. This aspect is especially critical as the Beaches and Creeks re-opener would occur during this permit term (request must be made by the Copermittees by 2016) and the Baby Beach TMDL has final WQBELs compliance dates within the permit term (2014 and 2019).

While the Copermittees recognize the authority of the Regional Board to re-open the Permit at any time, the explicit re-opener captures the Regional Board's intent to revisit and revise as necessary the TMDL provisions, consistent with the assumption and requirements of the BPAs. Based upon the first year data summary for the on-going San Diego Regional Stream Reference Study,[102] such revisions may likely be warranted. The first year data show that during dry weather, the reference systems demonstrated a 34.1% exceedance rate of the single sample maximum and a 71% exceedance rate of the 30 day geometric mean for enterococci. The TMDL currently allows for a 0% exceedance rate during dry weather. During storm events, the reference systems had a 71% - 100% exceedance rate of the single sample maximum for enterococci. The TMDL currently only allows for a 22% exceedance rate during storm events. Providing for an explicit reopener in the Permit will ensure that such compelling information, such as the results of the Reference Study, are considered prior to subjecting Copermittees to enforcement actions, such as Mandatory Minimum Penalties.

The explicit re-opener is consistent with the Regional Board's stated approach to enforcement, an escalating enforcement approach that contemplates "cooperative dischargers" as well as "recalcitrant violators." Lastly, such an approach was built into the recently adopted Los Angeles MS4 Permit.[103]

[102]Southern California Coastal Water Research Project (SCCWRP). *San Diego Regional Stream Reference Study, Monitoring Progress Report #3 and Year 1 Data Summary, October 2011 through November 2012* (Jan. 3, 2013).

[103] Order R4-2012-0175.

Action: Provide an explicit Permit re-opener to capture the Regional Board's intent to revisit and revise as necessary the TMDL provisions prior to final compliance dates. The following additional language is provided as Provision H.6 and H.7:

H.6. Modifications of the Order shall be initiated to incorporate provisions as a result of future amendments to the Basin Plan, such as new or revised water quality objectives or the adoption or reconsideration of a TMDL, including the program of implementation. As soon as practicable, but no later than 6 months of the effective date of a revised TMDL where the revisions warrant a change to the provisions of this Order, the Regional Water Board shall modify this Order consistent with the assumptions and requirements of the revised WLA(s), including the program of implementation.

H.7. Modification to the Order shall be considered 18 months prior to the compliance date for final WQBELs where the compliance mechanism is based upon numeric effluent limitations. The intent of the reconsideration is to include provisions or modifications to WQBELs in Attachment E of this Order prior to the final compliance deadlines, if practicable, that would allow an action-based, BMP compliance demonstration approach with regard to final WQBELs.

53. ATTACHMENT E (ENTIRE ATTACHMENT; BEGINS PAGE E-1) – COMPLIANCE MECHANISM IS NECESSARY PRIOR TO APPROVAL OF THE WATER QUALITY IMPROVEMENT PLANS.

The Tentative Order currently provides for BMP-based compliance with interim WQBELs via the implementation of the WQIPs.[104] However, as the BMP-based compliance mechanism is contingent upon implementation of an approved WQIP, the Copermittees are not provided with a BMP-based compliance mechanism during the development of the WQIPs. Without any modifications to the Tentative Order, the Copermittees would be subject to numeric effluent limitations for during WQIP development, then provided BMP-based compliance for interim WQBELs during WQIP implementation. Prior to the approval of the WQIPs, Copermittees should be provided a similar BMP-based compliance mechanism while resources are devoted to plan development and the continuation with the implementation of the existing programs.

Recognizing that the shift to a watershed approach is an important and necessary shift in the management of stormwater, in the recently adopted Los Angeles MS4 Permit,[105] such compliance was provided during the plan development phase.

Action: Provide BMP-based compliance as a compliance option during the development of the WQIPs through incorporation of the following provisions:

- *Interim WQBELs Compliance (Attachment E.5.e(1) and Attachment E.6.e(1)):*

  Upon the effective date of this Order, a Copermittee's full compliance with all of the following requirements shall constitute a Copermittee's compliance with provisions pertaining to interim WQBELs with compliance deadlines occurring prior to approval of a WQIP.

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[104] Attachment E.5.e.(1)(f)); Attachment E.6.e.(1)(f)

[105] R4-2012-0175.

(1) Meets all interim and final deadlines for development of a WQIP,

(3 Targets implementation of watershed control measures in its existing storm water management program, including watershed control measures to eliminate non-storm water discharges of pollutants through the MS4 to receiving waters, to address known contributions of pollutants from MS4 discharges that cause or contribute to the impairment(s) addressed by the TMDL(s), and

(4) Receives final approval of its WQIP from the Regional Board.

- *If the Regional Board makes modifications to provide for a BMP-based compliance path for final WQBELs, the same revisions are requested to be added to Attachment E.5.e(2) and Attachment E.6.e(2).*

54. ATTACHMENT E (ENTIRE ATTACHMENT; BEGINS PAGE E-1) – CLARIFYING LANGUAGE IS NEEDED IN THE FACT SHEET REGARDING THE ITERATIVE APPROACH AND TMDLS.

The Fact Sheet includes language on pg. F-41 to describe an exception to the iterative approach and adaptive management process for receiving waters with adopted and approved TMDLs. The language notes that for TMDLs incorporated into the Order there is a specific date for compliance to be achieved. After this date, the iterative approach and adaptive management process required under Provision A.4 no longer provides the flexibility to achieve compliance. This language implies that prior to the compliance date for each TMDL, Provision A.4 does provide flexibility to achieve compliance. This point of linkage between Provision A and the TMDL Provisions in Attachment E is significant and it was raised in the County of Orange's comment letter on the Tentative Order for the Regional Permit.

For clarity, the Fact Sheet should also include language that explicitly states that during the implementation of the TMDL, prior to the final compliance date, Provision A.4 provides flexibility to achieve compliance with the applicable Receiving Water Limitations. In addition, the Regional Permit also needs to provide clarity in the permit provisions in Provision A.4.

Further, the Fact Sheet includes the following language on pg. F-41:

> Thus, after interim or final compliance dates for a contributing violation of WQBELs, if the discharges from the Copermittees' MS4s are causing or contributing to a violation of WQBELS, exceedances of WQBELs must be strictly enforced by the San Diego Water Board.

It is unclear what "strictly enforced" means in this context as neither interim or final WQBELs are established strictly as numeric effluent limitations in the Regional Permit. This language is counter to the compliance options provided for both interim and final WQBELs in Attachment E.

55. ATTACHMENT E (ENTIRE ATTACHMENT; BEGINS PAGE E-1) – CLARIFYING LANGUAGE IS NEEDED IN THE FACT SHEET REGARDING INCORPORATION OF NEW TMDLS INTO WQIPS.

The Fact Sheet includes language on pg. F-111 that states the WQIPs can incorporate new TMDLs prior to the Order being re-opened to incorporate the requirements of the new TMDLs. This approach is included as a requirement in the Regional Permit at F.2.c.(2). The

Fact Sheet needs to clarify that while the WQIPs can incorporate fully approved, effective TMDLs, the Regional Permit must be re-opened to incorporate the TMDLs into the Permit. As TMDLs are not self-implementing, the Permit must be reopened to include new TMDL provisions and requirements (e.g., addition WQBELs).

Action: Specific modifications are included in Attachment A (see Fact Sheet, pg. F-111; Regional Permit, Provision F.2.c.(2)).

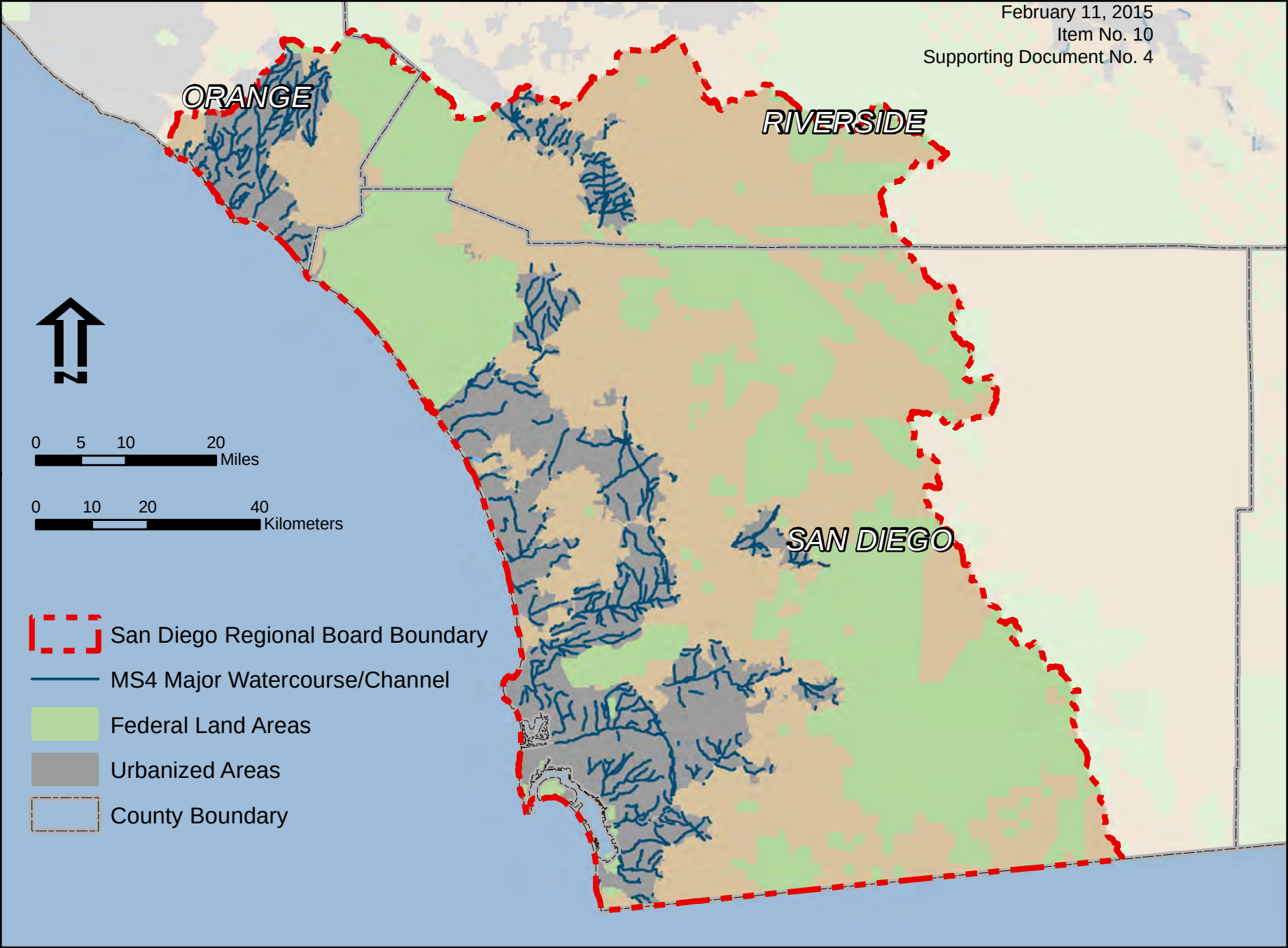
ATTACHMENT A

**ORANGE COUNTY LEGAL &TECHNICAL COMMENTS ON
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
TENTATIVE ORDER No. R9-2013-0001
NPDES NO. CAS0109266**

Appendix A-1

Regional Map

February 11, 2015
Item No. 10
Supporting Document No. 4



ATTACHMENT A

**ORANGE COUNTY LEGAL &TECHNICAL COMMENTS ON
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
TENTATIVE ORDER No. R9-2013-0001
NPDES NO. CAS0109266**

Appendix A-2

SCCWRP Report

February 11, 2015
Item No. 10
Supporting Document No. 4

HYDROMODIFICATION ASSESSMENT AND MANAGEMENT IN CALIFORNIA

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Southern California Coastal Water Research Project
Technical Report 667 - April 2012

Hydromodification Assessment and Management in California

Commissioned and Sponsored by California State Water Resources Control Board Stormwater Program

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April 2012

Technical Report 667

Acknowledgements

We would like to thank the California State Water Resources Control Boards for their financial support to develop this document and for their invaluable input in terms of the priority technical and management needs associated with hydromodification. In particular, we thank Greg Gearheart and Eric Berntsen of the State Water Board's Storm Water Program, and Dominic Roques of the Central Coast Regional Water Board, for their input, review and overall guidance throughout the process. Their contributions were essential to helping to focus the document on areas of highest importance for the future of hydromodification management.

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EXECUTIVE SUMMARY

Most jurisdictions in California are now required to address the effects of *hydromodification* through either a municipal stormwater permit or the statewide construction general permit. Hydromodification is generally defined as changes in channel form associated with alterations in flow and sediment due to past or proposed future land-use alteration. Hydromodification management has emerged as a prominent issue because degradation of the physical structure of a channel is often indicative of and associated with broader impacts to many beneficial uses, including water supply, water quality, habitat, and public safety. Conversely, reducing hydromodification and its effects has the potential to protect and restore those same beneficial uses. Although hydromodification has the potential to affect all water body types, this document focuses on assessing and managing effects to streams because they are the most prevalent, widely studied, and arguably most responsive type of receiving water.

Hydromodification by definition results from alteration of watershed processes; therefore, correcting the root causes of hydromodification ought to be most effective if based on integrated watershed-scale solutions. To date, such a watershed approach has not been adopted in California; most hydromodification management plans simply consist of site-based runoff control with narrow, local objectives and little coordination between projects within a watershed. Furthermore, each municipality is required to develop its own approach to meeting hydromodification management requirements rather than drawing from standard or recommended approaches that facilitate regional or watershed-scale integration. Long-term reversal of hydromodification effects, however, will require movement away from reliance on such site-based approaches to more integrated watershed-based strategies.

This document has two goals, and hence two audiences. The first goal is to describe the elements of effective hydromodification assessment, management and monitoring. The audience for this goal is primarily the State and Regional Water Boards, since meeting this goal will require integration of watershed and site-scale activities that are likely beyond the responsibility or control of any individual municipality. Success will require fundamental changes in the regulatory and management approach to hydromodification that will likely advance only iteratively and potentially require one or more NPDES permit cycles to fully implement. The second goal of this document is to provide near-term technical assistance for implementing current and pending hydromodification management requirements. This goal can be achieved by municipalities within the construct of existing programs and therefore the primary audience for this aspect of the document is local jurisdictions. Achieving this goal will facilitate greater consistency and effectiveness between hydromodification management strategies, giving them a stronger basis in current scientific understanding.

Watershed analysis should be the foundation of all hydromodification management plans (Figure ES-1). This analysis should begin with a documentation of watershed characteristics and processes, and past, current, and expected future land uses. The analysis should lead to identification of existing opportunities and constraints that can be used to help prioritize areas of greater concern, areas of restoration potential, infrastructure constraints, and pathways for potential cumulative effects. The combination of watershed and site-based analyses should be used to establish clear objectives to guide management actions. These objectives should articulate desired and reasonable physical and biological

conditions for various reaches or portions of the watershed and should prioritize areas for protection, restoration, or management. Strategies to achieve these objectives should be customized based on consideration of current and expected future channel and watershed conditions. A one-size-fits-all approach should be avoided. Even where site-based control measures, such as flow-control basins, are judged appropriate, their location and design standards should be determined in the context of the watershed analysis.

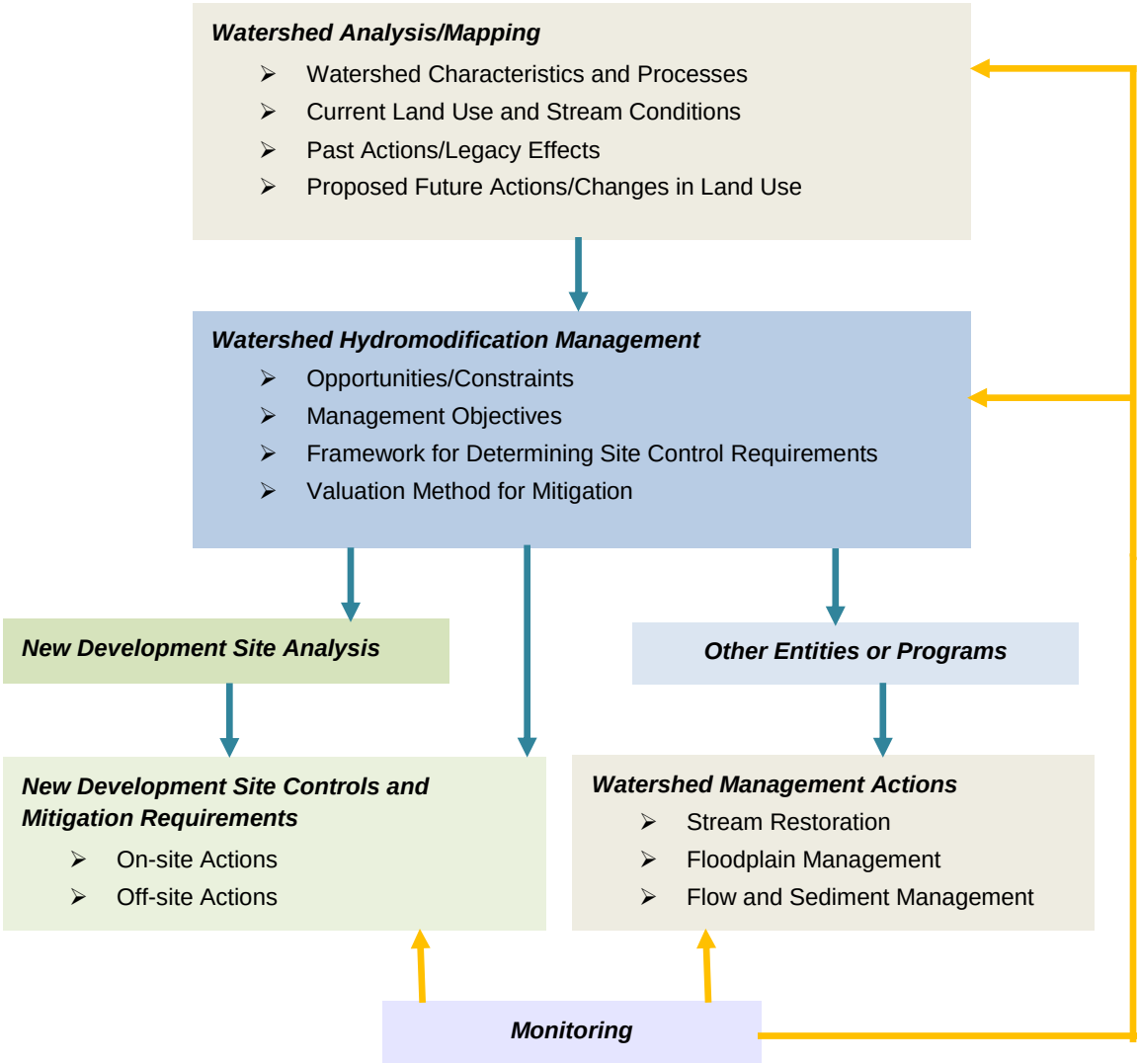


Figure ES-1. Framework for Integrated Hydromodification Management.

An effective management program will likely include combinations of on-site measures (e.g., low-impact development techniques, flow-control basins), in-stream measures (e.g., stream habitat restoration), floodplain and riparian zone actions, and off-site measures. Off-site measures may include compensatory mitigation measures at upstream locations that are designed to help restore and manage flow and sediment yield in the watershed.

Project-specific analysis and design requirements should vary depending on location, discharge point, and size. The range of efforts may include:

- Application of scalable, standardized designs for flow control based on site-specific soil type and drainage design. The assumptions used to develop these scalable designs should be conservative, to account for loss of sediment and uncertainties in the analysis and our understanding of stream impacts.
- Use of an erosion potential metric, based on long-term flow duration analysis and in-stream hydraulic calculations. Guidelines should specify stream reaches where in-stream controls would and would not be allowed to augment on-site flow control.
- Implementation of more detailed hydraulic modeling for projects of significant size or that discharge to reaches of special concern to understand the interaction of sediment supply and flow changes.
- Analysis of the water-balance for projects discharging into streams with sensitive habitat. This may include establishment of requirements for matching metrics such as number of days with flow based on the needs of species present.

Achieving these goals will require that hydromodification management strategies operate across programs beyond those typically regulated by NPDES/MS4 requirements. Successful strategies will need to be developed, coordinated, and implemented through land-use planning, habitat management and restoration, and regulatory programs. Regulatory coordination should include programs administered by the Water Boards, such as non-point source runoff control, Section 401 Water Quality Certifications and Waste Discharge Requirement programs, and traditional stormwater management programs. It should also include other agency programs, such as the Department of Fish and Game Streambed Alteration Program and the Corps of Engineers Section 404 Wetland Regulatory Program. Thus, all levels of the regulatory framework—federal, state, and local—will need to participate in developing and implementing such a program. The integrated watershed-based approach will likely take one or more permit cycles (i.e., at least ten years) to fully implement.

Short- and long-term recommendations for management are summarized in Table ES-1 below.

Table ES-1. Recommendations for implementing watershed-based hydromodification management.

Time Frame	Programmatic: State and Regional Water Boards	Local: City and County Jurisdictions
Short-term (<10 years)	• Establish consistent standards for HMPs • Promote use of watershed approaches in HMPs to move away from reliance on project-based management actions • Develop a valuation method to determine appropriate off-site mitigation • Transition to a broader set of monitoring endpoints including flow, geomorphology, and biology	• Implement watershed analysis of opportunities and constraints related to hydromodification • Implement a broader set of tools to improve on-site management actions • Develop institutional capacity to oversee and review modeling and assessment tools • Develop capacity for information/data management and dissemination
Long-term (1+ decades)	• Develop watershed-based regulatory programs and policies for hydromodification management • Integrate hydromodification management needs into other regulatory programs (e.g. TMDL, 401/WDR)	• Develop institution capacity to implement watershed-based hydromodification programs • Incorporate hydromodification and other water quality management into the land use planning process

To successfully accomplish these various recommendations for implementation, both agencies and private-sector practitioners will need to make use of a range of analytical tools. Such tools generally fall into three categories: descriptive tools, mechanistic models, and empirical/statistical models. Models may be used deterministically and/or in a probabilistic manner. These different types of tools can be selected or combined, depending on the specific objective, such as characterizing stream condition, predicting response, establishing criteria / requirements, or evaluating the effectiveness of management actions. Selection of tools should also consider the type of output, intensity of resource requirements (i.e., data, time, cost), and the extent to which uncertainty is explicitly addressed. It is important to note that deterministic modeling without accompanying probabilistic analysis may mask the uncertainties inherent in predicting hydromodification effects. Short-term and long-term recommendations for the application and improvement of tools to support the management framework are shown in Table ES-2.

Although there is sufficient scientific and engineering understanding of hydromodification causes and effects to begin implementing more effective management approaches now, improvements should be informed and adapted based on subsequent monitoring data. To be useful, monitoring programs should be designed to answer questions and test hypotheses that are implicit in the choice of management actions, such that practices that prove effective can be emphasized in the future (and those that prove ineffective can be abandoned). The focus of monitoring efforts, however, needs to be tailored to the time frame of the questions being addressed and the implementing agency (Table ES-3), reflecting the dual goals and audiences of this document.

Table ES-2. Recommendations for the application and improvement of tools in support of the proposed management framework.

Time Frame	Programmatic: State and Regional Water Boards	Local: City and County Jurisdictions
Short-term (<10 years)	• Develop quality control and standardization for continuous simulation modeling • Perform additional testing and demonstration of probabilistic modeling for geomorphic response • Pursue development of biologically- and physically-based compliance endpoints	• Work cooperatively with adjacent jurisdictions to implement hydromodification risk mapping at the watershed scale • Implement continuous simulation modeling for project impact analysis
Long-term (1+ decades)	• Improve tools for sediment analysis and develop tools for sediment mitigation design • Develop tools for biological response prediction • Improve tools for geomorphic response prediction	• Expand use of probabilistic and statistical modeling for geomorphic response • Apply biological tools for predicting and evaluating waterbody condition

Table ES–3. Recommendations for hydromodification monitoring.

Time Frame	Programmatic: State and Regional Water Boards	Local: City and County Jurisdictions
Short-term (<10 years)	• Define the watershed context for local monitoring (at coarse scale) • Evaluate whether permit requirements are making positive improvements	• Evaluate whether specific projects/ regulations are meeting objectives • Identify the highest priority action(s) to take
Long-term (1+ decades)	• Define watershed context and setting benchmarks for local-scale monitoring (i.e., greater precision, if/as needed) • Demonstrate how permit requirements can improve receiving-water "health," state-wide (and change those requirements, as needed)	• Evaluate and demonstrate whether actions (on-site, instream, and watershed scale) are improving receiving-water conditions • Assess program cost-effectiveness • Identify any critical areas for resource protection

Identifying and, ultimately, achieving the desired conditions in receiving waters requires multiple lines of evidence to characterize condition in an integrative fashion. At their most comprehensive, the chosen metrics should include measures of flow, geomorphic condition, chemistry, and biotic integrity. Biological criteria are key to integrative assessment: in general, biological criteria are more closely related to the designated uses of waterbodies than are physical or chemical measurements. This understanding is reflected in the State's proposed bio-objectives policy, which includes explicit links to hydromodification management.

In summary, transitioning from the current site-based to a more effective watershed-based approach to hydromodification management that addresses both legacy and future impacts will require cooperation between the State and Regional Water Boards and local jurisdictions. Both technical and regulatory/program approaches will need to be updated or revised altogether over the next several permit cycles to realize this long-term goal. Substantial resources will be necessary to realize these goals; therefore, opportunities for joint funding and leveraging of resource should be vigorously pursued from the onset. This cooperative approach should replace the current fragmented efforts among regions and jurisdictions.

1. Overview and Intended Uses of the Document

1.1 Overall Objectives and Intended Audience

Regulation and management of hydromodification is in its infancy in California. As with any new endeavor, initial attempts to meet this need is unproven, inconsistent, and relatively narrow in focus. To improve on existing efforts, the State Water Resources Control Board (SWRCB) has engaged a team of experts to provide technical support to both regulators and permittees for development of Hydromodification Management Plans (HMPs) and their associated permit requirements. This resulting document has two goals and hence two audiences.

The first goal of this document is to provide broad perspectives on what would constitute effective hydromodification assessment, management and monitoring, based on our current best scientific understanding of the topic. The audience for this goal is primarily the State and Regional Water Boards, since meeting this goal will require integration of watershed and site-scale activities that are likely beyond the control or responsibility of any individual municipality. Success will require fundamental changes in the regulatory and management approach to hydromodification that will likely be possible only iteratively and potentially requiring one or more NPDES permit cycles to fully implement. The State and Regional Water Boards will need to provide leadership in implementing these changes, but they will also need to work cooperatively with permittees so that planning, management and monitoring programs can be adapted to operate in a more integrated manner over the broader spatial scales and longer time frames that are necessary to achieve genuine success. Furthermore, hydromodification management plans will need to address preexisting conditions from previous (i.e., legacy) land uses. Clearly, addressing such past effects will require approaches beyond regulation of new development.

This document provides broad perspectives on what would constitute effective hydromodification assessment, management and monitoring, based on our current best scientific understanding of the topic. The document also provides near-term technical assistance for implementing current and pending hydromodification management requirements.

The second goal of this document is to provide near-term technical assistance for implementing current and pending hydromodification management requirements. This goal can be achieved by municipalities within the construct of existing programs, and therefore the primary audience for this aspect of the document is MS4 permittees. Achieving this goal will facilitate greater consistency and effectiveness between HMPs, giving them a stronger basis in current scientific understanding, and will also serve as initial steps toward realizing the broader goal stated above.

1.2 Rationale and Justification

The process of urbanization has the potential to affect stream courses by altering watershed hydrology and geomorphic processes. Development and redevelopment can increase impervious surfaces on formerly undeveloped landscapes and reduce the capacity of remaining pervious surfaces to capture and infiltrate rainfall. The most immediate result is that as a watershed develops, a larger percentage of

rainfall becomes surface runoff during any given storm. In addition, runoff reaches the stream channel much more efficiently, so that the peak discharge rates for floods are higher for an equivalent rainfall than they were prior to development. This process has been termed hydromodification. In some instances, direct channel alteration such as construction of dams and channel armoring has also been termed "hydromodification." Such direct alterations are not the focus of this document. Rather, this document focuses on the geomorphic and biological changes associated with changes in land use in the contributing watershed, which in turn alter patterns and rates of runoff and sediment yield. These changes can result in adverse impacts to channel form, stream habitat, surface water quality, and water supply that can alter habitat and threaten infrastructure, homes, and businesses.

The State and Regional Water Boards have recognized the need to manage and control the effects of hydromodification in order to protect beneficial uses in streams and other receiving water bodies. This recognition has led to the inclusion of requirements for development of "hydromodification management plans" (HMPs) in many Phase 1 and some Phase 2 Municipal Stormwater (MS4) permits. Most HMPs require the permitted municipalities to develop programs and policies to assess the potential effects of hydromodification associated with new development and redevelopment, to require the inclusion of management measures to control the impacts of hydromodification, and to develop monitoring programs to assess the effectiveness of HMP implementation at controlling and/or mitigating the impacts of hydromodification.

Development of HMPs is challenging for several reasons. First, there are few accepted approaches for assessing the impacts of hydromodification. Traditional modeling tools are generally untested and may be difficult to apply or inappropriate for use in some California watersheds and streams. Responses of streams to hydromodification are difficult to assess, given inherent climatic variability and the highly stochastic nature of rainfall and the resulting response of streams to runoff events. There are few local examples or case studies from which to draw experiences or conclusions.

As a result of these challenges, individual HMPs to date have utilized a variety of approaches with little coordination or consistency between them. Little information is available on the relative efficacy of any of these approaches. Furthermore, where approaches and tools developed for HMPs in one region of the State (or even from a different region of the country altogether) have been used in subsequent HMPs elsewhere, there has been little or no consideration of the effect of regional climatological or physiographical differences on the transferability of analytical techniques and tools.

1.3 Need for an Expanded Approach

Current site-based hydromodification management approaches are limited in their ability to address the underlying processes that are responsible for most deleterious impacts of hydromodification. Hydromodification effects, by definition, are watershed-dependent processes that are influenced by water and sediment discharge, movement, and storage patterns that may be occurring up- or downstream of a specific project site. Ideally, then, the first step of any hydromodification management plan (HMP) should be a watershed analysis; management of processes at the site or project scale should be done only in the context of such a watershed analysis. Understanding larger-scale processes

facilitates prioritization of activities in areas of greatest need and allows for management measures to be located where they have the largest potential benefit, even if that is not on or adjacent to the project site where the current impact is occurring. It also allows for expansion of site based management beyond simple flow control and/or channel stabilization toward strategies that consider flow, sediment, and biological conditions as an integrated set of desired endpoints.

Because watershed boundaries are often not the same as geopolitical boundaries of cities or counties, incorporation of watershed analysis will require leadership from the State and Regional Water Boards. Changes to the current regulatory structure may be necessary to accommodate inter-jurisdictional cooperation and regional information sharing. Similarly, program implementation by both large and small municipalities must include mechanisms that allow site-specific decisions to be informed by watershed-scale analysis.

This document is intended to help address some of these challenges and needs by providing technical recommendations, both to state and regional program developers and to local implementing agencies, for assessment, modeling, development of management strategies, and monitoring. This document can support current HMP development and, at the same time, serve as a first step toward achieving the longer term goals of more integrated, watershed-based hydromodification management.

Current site-based approaches are limited in their ability to address the underlying processes that are responsible for hydromodification impacts.

Effective management of hydromodification will require coordinated approaches across programs at the watershed scale that address all aspects of runoff, sediment generation and storage, instream habitat, and floodplain management.

Adopting this broader approach means that managing the effects of hydromodification cannot be the purview of the stormwater (MS4) program alone. Effective management of hydromodification will require coordinated approaches across programs at the watershed scale that address all aspects of runoff, sediment generation and storage, instream habitat, and floodplain management. Various SWRCB programs have the opportunity and ability to contribute to the goals of comprehensive hydromodification management, including the non-point source control program, water quality certifications, waste discharge requirements, basin planning, SWAMP, and the emerging State Wetland Policy and Freshwater Bio-objectives program. Each of these programs can take advantage of the tools and approaches outlined in this paper to contribute to coordinated management of hydromodification in order to protect beneficial uses and meet basin plan objectives. Furthermore, successful control and mitigation of hydromodification effects will support other programs by improving water quality, enhancing groundwater recharge, and protecting habitat. Therefore, hydromodification management can be a unifying element of many programs and support integrated regional watershed planning.

It is important to note that hydromodification has the potential to affect all water body types; therefore, HMPs should address potential effects to all streams and receiving waters. Because streams are most directly affected by hydromodification, they have been the focus of current regulatory requirements and, therefore, most HMPs. Consequently, this document emphasizes tools and approaches applicable

to fluvial systems, which are broadly defined to include wadeable streams, large rivers, headwater streams, intermittent and ephemeral drainages, and alluvial fans (although new specific tools may be necessary for assessment and management of alluvial fans). We recognize, however, that hydromodification can also affect nearshore and coastal environments, including bays, harbors, and estuaries, by altering estuary channel structure, water quality, sand delivery, siltation, and salinity. These effects have been less extensively studied or documented and have received substantially less attention in current hydromodification requirements. Future efforts should more directly address hydromodification effects to all receiving waters, but the information is not presently available to provide equally comprehensive guidance here.

1.4 Scope and Organization

This document is not intended to be prescriptive or to serve as a "cookbook" for development of hydromodification management strategies. Rather, it is a resource to evaluate the utility of existing tools and approaches, and it proposes a framework for integrating multiple approaches for more comprehensive assessment and management. This framework should be used to aid in the development of HMPs that are appropriate for specific regions and settings and take advantage of the best available science. It can also be used to improve consistency in assessment and monitoring approaches so that information collected across regions and programs can be compiled and leveraged to provide more comprehensive assessments of the effectiveness of management actions. Ultimately, such consistency should improve the effectiveness of all programs.

The authors, a team of technical experts, developed the content for this document in consultation with agency staff and regulated entities. The document begins with a brief general discussion of the effects of hydromodification and stream response mechanisms, providing the best available science to support subsequent recommendations. The main body of the document focuses on presenting a proposed new management paradigm where site-based management is nested within an overall watershed assessment that accounts for past, current, and proposed future land use. The body of the document also includes a discussion of existing tools and how they can be used more effectively and appropriately to evaluate potential impacts and guide decisions on selection and design of management practices. The third major section of the document focuses on monitoring that includes evaluation of hydrologic, geomorphic, and biologic conditions with an overriding goal of adaptive management. The document concludes with several technical appendices that offer specific guidance on the appropriate application of tools and models within the existing HMP approaches, and a bibliography of resources.

2. HYDROMODIFICATION SCIENCE

2.1 Introduction

Land-use changes can alter a wide variety of watershed processes, including site water balance, surface and near-surface runoff, groundwater recharge, and sediment delivery and transport. Although alteration to these watershed processes (referred to collectively as hydromodification) can affect many elements of a landscape, the focus of this document is on impacts to stream systems. Furthermore, while this paper will often refer to urbanization, it is recognized that other types of land-use changes (grazing, agricultural, forestry, etc.) can have similar impacts. This section reviews relevant hydrologic processes and summarizes the impact of urbanization on hydrologic, biologic, and geomorphic systems, and it describes our current understanding of the physical mechanisms underlying these impacts. This provides a foundation for establishing assessment tools and predictive models, as well as for developing management and monitoring programs.

Although not addressed by this report, urbanization also has a range of effects on water quality (*Heaney and Huber* 1984, *Brabec et al.* 2002) by increasing pollutant loads (*Owe et al.* 1982), increasing nutrient loads (*Wanielista and Yousef* 1993, *Hubertz and Cahoon* 1999), and diluting dissolved minerals through increased runoff and decreased infiltration and soil contact (*Loucaides et al.* 2007). As a result of both its physical and chemical effects, urbanization also affects the integrity of biota (*Heaney and Huber* 1984) including fishes (*Klein* 1979, *Weaver and Garman* 1994, *Wang et al.* 2000) and invertebrates (*Sonneman et al.* 2001, *Wang and Kanehl* 2003). These impacts are acknowledged and evaluated in the discussion of monitoring Section 4, but the details of their interactions and effects are not otherwise addressed here.

Land-use changes can alter a wide variety of watershed processes, including site water balance, surface and near-surface runoff, groundwater recharge, and sediment delivery and transport. Alteration to these watershed processes are referred to collectively as hydromodification.

2.2 Hydrology Overview

To understand the effects of urbanization, the basic processes of the hydrologic system must be highlighted. A watershed's drainage system consists of all the features of the landscape that water flows over or through (*Booth* 1991). These features include vegetation, soil, underlying bedrock, and stream channels. Urban elements such as roofs, gutters, storm sewers, culverts, pipes, impervious surfaces such as parking lots and roads, and cleared and compacted surfaces fundamentally change the rate and character of hydrologic processes. Generally, the hydrologic changes associated with development and urbanization increases the speed and efficiency with which water enters and moves through the drainage system. In undeveloped watersheds, only a portion of the precipitation that falls ever enters the stream channel. Instead, precipitation may be: 1) evaporated off the ground surface or intercepted by vegetation and evaporated; 2) transpired from the soil; or 3) infiltrated deeply into regional aquifers. For the portion of precipitation that ultimately enters the stream, the rate and processes of delivery vary between watersheds, with important implications for how urbanization will affect runoff.

Flow can be classified as stormflow (or "quickflow") if it enters the stream channel within a day or two of rainfall (*Dunne and Leopold* 1978). Quickflow occurs through 1) infiltration excess (also called "Horton") overland flow, wherever rainfall intensity exceeds the infiltration capacity of the soil and water flows over the ground surface; 2) saturation excess overland flow, where overland flow occurs following filling of all pore space in surface soils; 3) shallow subsurface flow, where water flows relatively quickly through permeable shallow soils (but still more slowly than either Horton or saturation overland flow); and 4) precipitation directly into stream channels. Conversely, water that infiltrates more deeply is classified as delayed flow, because it travels slowly as deep groundwater and emerges into a stream slowly over time.

As a storm progresses, runoff patterns and rates can change, even within the same catchment. For example, surficial soils may become saturated during the course of a storm (or a storm season) as the water table rises, and this can induce a shift in runoff from shallow (or even deep) subsurface flow to the quickflow process of saturation excess overland flow (*Booth* 1991). Even under scenarios in which rainfall intensity exceeds infiltration capacity, Horton overland flow will not be connected to stream channels until surface depressions are filled.

2.3 Impacts of Urbanization

The archetypal model of development involves clearing vegetation; grading, removing, and compacting soils; building roads and stormwater sewers; constructing buildings; and re-landscaping. The specific ways in which these activities alter runoff processes are discussed below. Development may also directly alter stream, such as through channel straightening, levee construction, and flood control reservoirs; however, discussion of the impacts of these alterations is beyond the scope of this document.

2.3.1 Decreased Interception

When rainfall occurs in a watershed, some of the precipitation will be intercepted by vegetation and leaf litter and prevented from entering the stream channel network (Figure 2-1). The percentage of precipitation that can be intercepted varies according to cover type and the character of rainfall (rainfall intensity, storm duration, storm frequency, evaporation conditions) (*Dunne and Leopold* 1978). The effectiveness of interception decreases as a storm progresses because once the surface area of a tree is completely wetted, water will drip off leaves and run down the vegetation as stem flow. Typically, 10-35% of precipitation is intercepted by trees and 5-20% by crops, though these amounts vary widely (*Dunne and Leopold* 1978, *Xiao and McPherson* 2002, *Reid and Lewis* 2009, *Miralles et al.* 2010). In urban environments where vegetative cover is greatly reduced, landscape-scale interception may be lower by an order of magnitude (*Xiao and McPherson* 2002). Precipitation that is not intercepted enters the drainage system. Thus, the mere reduction in interception in urban areas may produce the hydrologic equivalent of a storm that is 10-30% larger.

Figure 2-1. Vegetation reduces runoff by intercepting a portion of the total rainfall and preventing water from entering the drainage system. (Illustration by Jennifer Natali).

The influence of urbanization on climate is complex and varied. For example, urbanization has been shown to increase temperature (*Kalnay and Cai* 2003), increase or decrease wind speeds (*Oke* 1978, *Balling and Brazel* 1987, *Grimmond* 2007), increase pan-evaporation rates (*Balling and Brazel* 1987), and increase shading of the ground surface (*Kalnay and Cai* 2003). In most studies of urban hydrology, the dynamics of evapotranspiration (ET) are typically, explicitly or implicitly, ignored (*Grimmond and Oke* 1999). This exclusion exists because of the widespread assumption that urban ET is negligible compared to rural areas with higher proportions of vegetation-covered soils (*Chandler* 1976, *Oke* 1979). In cases such as urban deforestation in the temperate Eastern United States, it is appropriate to assume a net loss of ET due to urbanization (*Bosch and Hewlett* 1982, *Sun et al.* 2005, *Roy et al.* 2009). However, spatial variability and the site-specific dynamics of climate, vegetation, and land-use should be considered carefully in arid and semi-arid regions where vegetation is limited prior to development. In drier climates (including much of southern California), primary productivity (and ET) may be substantially increased through the irrigation of urban landscaping (*Buyantuyev and Wu* 2008).

2.3.2 Decreased Infiltration

Infiltration in urban areas is decreased due to several factors: impermeable surfaces such as roads, parking lots, and roofs prevent infiltration by blocking water from reaching soils; heavy-equipment construction operations cause soil compaction and degrade soil structures; construction projects may remove surface soils and expose subsurface soils with poorer infiltration capacity; vegetation-clearing and bare-earth construction increase erosion and loss of topsoil (*Pitt et al.* 2008). The effect of impervious surfaces is intuitive, visible, and dramatic (*Booth and Jackson* 1997), but not all impervious areas affect runoff processes equally. For example, if an impervious surface is built over clayey soils with poor infiltration, the overall runoff rates will be less affected than if built over sandy soils with high natural infiltration rates. While the loss of pervious area has received substantial attention within scientific and policy communities, until recent years considerably less attention has been paid to the effects of compaction and the reductions in infiltration capacity of soils (*Pitt et al.* 2008). Commonly, an area of green is assumed to be permeable, but playing fields and even ornamental lawns may have very

low infiltration capacities (*Pitt et al.* 2008). A study of urban runoff in Washington found that impervious areas generated only 20% more runoff than what appeared to be green, pervious areas of lawns (*Wigmosta et al.* 1994). Factors such as excavation and lawn-establishment methods appear to be more significant for infiltration than any other factor including grain size of the original sediments (*Hamilton and Waddington* 1999). Tillage may increase infiltration slightly, while compost or peat soil amendments can increase infiltration by 29 to 50 percent (*Kolsti et al.* 1995).

2.3.3 Increased Connectivity and Efficiency of the Drainage System

Rainfall in urban areas moves quickly as overland flow into storm sewers and the stream channel network (Figure 2-2). The delivery of precipitation into urban stream channels is extremely efficient, transforming essentially all precipitation into stormflow and creating nearly instantaneous runoff. Under natural conditions, in contrast, most runoff to streams is via groundwater paths that typically flow at least one or two orders of magnitude slower than surface water. Thus converting subsurface flow into surface stormflow has dramatic consequences. Furthermore, artificial surfaces such as roofs, pavement, and storm sewers are 1) straight, which shortens the travel distance required for delivery into the channel network; and 2) smooth, which decreases friction and allows flow to travel more quickly than in natural channels (*Hollis* 1975). Storm sewer systems increase the density of "channels," which further shortens runoff travel distances (Figure 2-3). In particular, upland regions that may not have had any surface channels prior to urbanization are frequently fitted with storm sewers, which dramatically increase delivery efficiency into the channel network (*Roy et al.* 2009). In sum, urbanization transforms watershed processes and flow paths that were once slow, circuitous, and disconnected into engineered and non-engineered systems that are highly efficient, direct, and connected.

In contrast to the slow measured runoff to natural streams by surface and subsurface pathways, the delivery of precipitation into urban stream channels is extremely efficient, transforming essentially all precipitation into stormflow and creating nearly instantaneous runoff.

2.3.4 Decreased Infiltration into Stream Beds

Concreting of bed and banks, channel narrowing, and channel straightening limit infiltration from a stream into the ground. Concrete channel margins create infiltration barriers, while channel narrowing and straightening limit the surface area accessible for infiltration and also create a less complex channel. Channel complexity such as pools, riffles, steps, and debris dams create hydraulics that slow flow velocities and also divert water into the subsurface (*Lautz et al.* 2005). In arid and semi-arid watersheds where streams may flow only occasionally, infiltration through bed, banks, and floodplain areas may significantly lower peak flows and may sustain aquifers vital to regional water supplies and natural habitats (*Kresan* 1988, *Dahan et al.* 2008). Increasing recognition is being paid in the scientific literature to the infiltration services provided by natural channels and floodplains (*Macheleidt et al.* 2006, *Schubert* 2006).

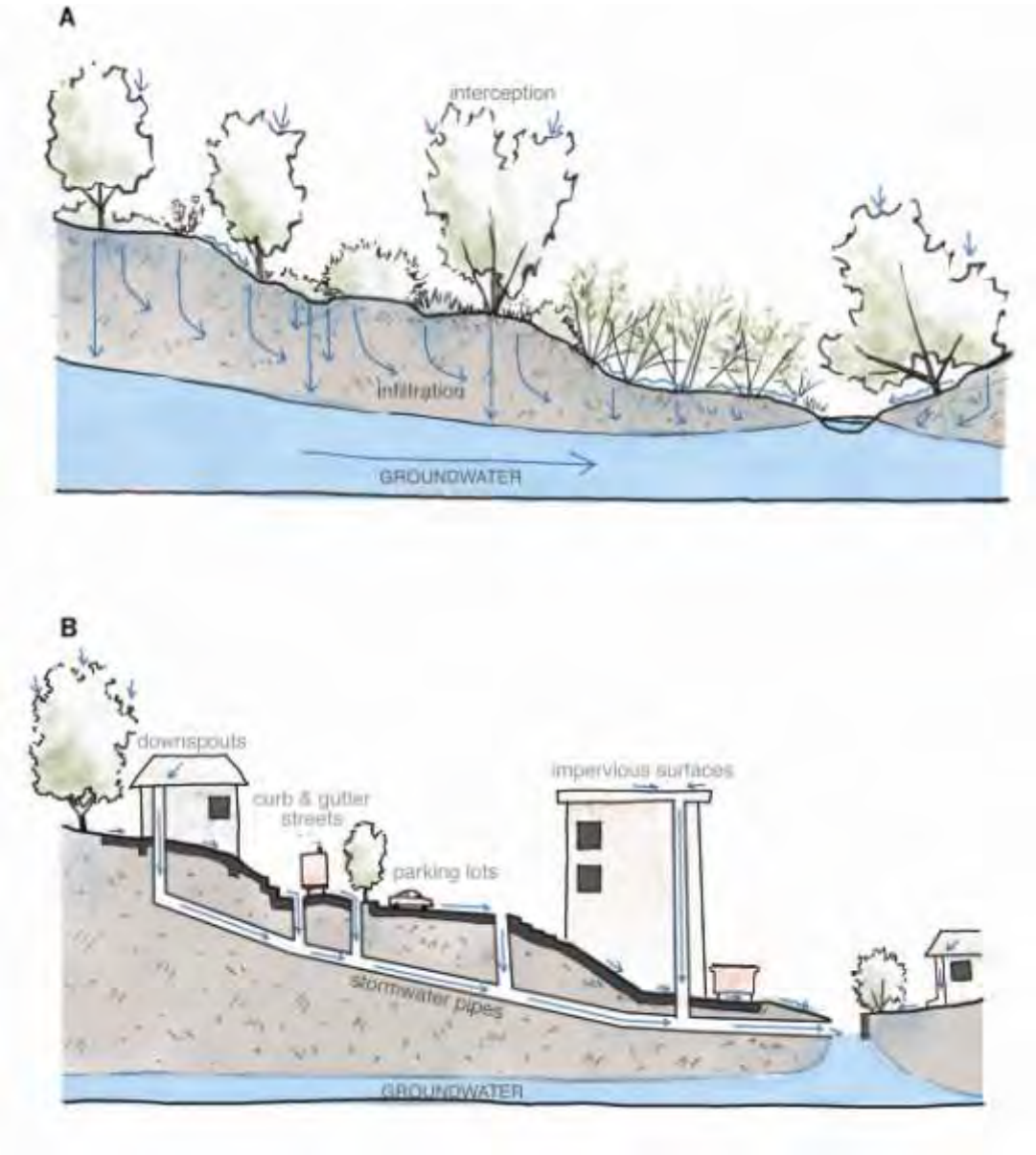


Figure 2-2. Stormwater flowpaths are shortened and quickened through paving, building, soil compaction, and sewer infrastructure. The rapid concentration of streamflow increases storm peaks. Rapid runoff and reduced infiltration prevent groundwater recharge. (Illustration by Jennifer Natali).

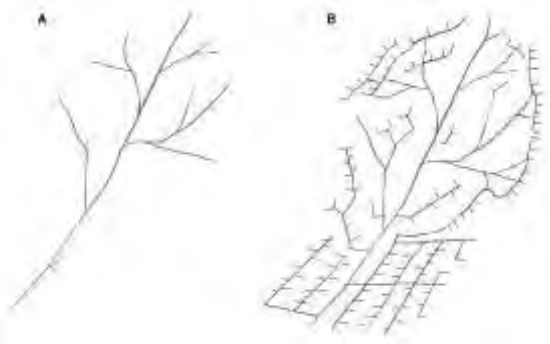


Figure 2-3. Increased surface runoff causes an extension of the channel network. This occurs through increased channel erosion or through constructed networks (to manage increased surface flow). The expanded channel network delivers runoff to downstream reaches much more efficiently. (Illustration by Jennifer Natali).

2.4 Changes in Instream Flow

The instream flow changes resulting from urbanization depend upon site-specific watershed and development characteristics, but typically they include modification of the timing, frequency, magnitude, and duration of both stormflows and baseflow. Urbanization has been shown to increase the magnitude of stormflows, increase the frequency of flood events, decrease the lag time to peak flow, and quicken the flow recession (Figure 2-4; *Hollis* 1975, *Konrad and Booth* 2005, *Walsh et al.* 2005). Because the effects of urbanization manifest differently for different components of the hydrograph, the hydrologic alterations of moderate storms, large storms, and baseflow are discussed individually below.

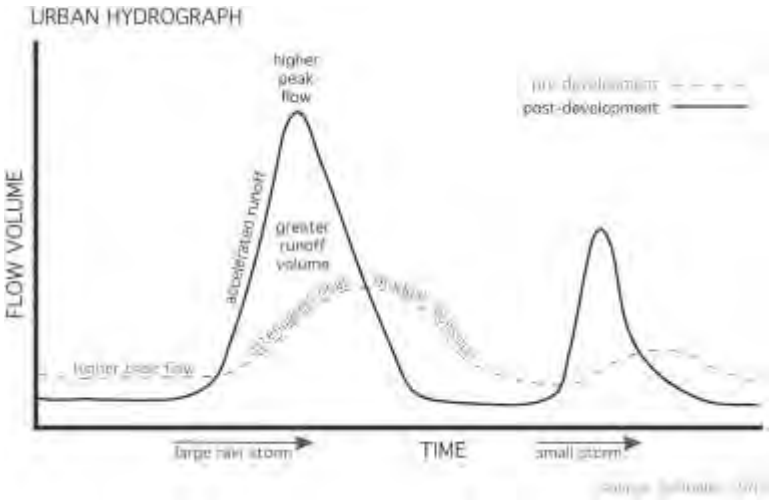


Figure 2-4. Increased runoff efficiency causes higher magnitude peak flows, shorter duration runoff events, decreased baseflow, and dramatic increases in small storms that may have generated little or no runoff under pre-development conditions. (Illustration by Jennifer Natali).

2.4.1 Moderate Stormflow

Urbanization of a watershed can drastically increase the frequency and magnitude of small and moderate flow events (Hawley and Bledsoe 2011). The magnitude of flow amplification increases generally in proportion to the amount of impervious area (*Leopold* 1968, *Hollis* 1975). For example, flows with a return period of one year or longer were shown to be unaffected by paving 5% of the watershed, yet the magnitude of a one-year flow could be more than ten times higher when 20% of a watershed is paved (*Hollis* 1975). In undeveloped watersheds, small storms may not generate any overland flow or streamflow increase at all, because interception, infiltration, soil absorption, and evapotranspiration contain all the precipitation.

Urbanization of a watershed can drastically increase the frequency, duration, and magnitude of small and moderate flow events by factors of 10 or more.

The change to a flashier regime with larger magnitude streamflow generated from small and moderate storms has two primary consequences. First, the stream power and sediment-transport capacity of the stream increase significantly, potentially creating channel erosion and/or stressing instream biota. Second, the season of stormflow is likely to be extended. In undeveloped watersheds, early or late-season storms typically do not generate significant runoff because soils are dry, can effectively absorb most precipitation, and therefore do not generate overland flow or streamflow. Antecedent moisture conditions are less important in urban watersheds where overland flow is generated regardless, and streamflow is generated by even a small storm in a dry watershed. Through magnifying small and moderate storms, urbanization may increase the duration of sediment-transporting and habitat-disturbing flows by factors of 10 or more (*Booth* 1991, *Booth and Jackson* 1997).

2.4.2 Large, Infrequent Storms

In large storms with return intervals of 10 or more years, the influence of urbanization is less pronounced though still present. Whereas a 1-year stormflow may be increased by ten times by paving 20% of the watershed, historical data from humid-region watersheds suggest that the peak magnitude of a 100-year flood would not even be doubled (*Hollis* 1975). The diminishing influence of urbanization on floods of higher recurrence intervals is understood by recognizing that the hydrologic processes of large storms resemble the processes of urban runoff. Essentially, a 100-yr flood is an event that is long in duration, severe in intensity, and likely occurs when soils are already wet. Even in an undeveloped watershed, a storm of this magnitude can typically generate (saturation) overland flow and transport water efficiently into the channel network in a manner more generally comparable to an urban setting.

2.4.3 Baseflow

Urbanization does not affect instream baseflows consistently. Many studies have documented baseflow reductions and/or lowered groundwater levels that have been attributed to decreased infiltration (*Simmons and Reynolds* 1982, *Ferguson and Suckling* 1990) and groundwater extraction (*Postel* 2000). In extreme cases, baseflow in urban watersheds can disappear completely during drought years, dry

seasons, or even between storm events during the wet season. The effect of reducing infiltration may be counteracted in urban and suburban landscapes, however, through irrigation of lawns, parks, golf courses, and other water inputs such as septic systems, leaky pipes, and sewage treatment outflow which typically import water from outside the watershed and contribute to both streamflow and groundwater recharge (*Konrad and Booth* 2005, *Walsh et al.* 2005, *Roy et al.* 2009). Indeed, imported water volumes in very dense cities may be an order of magnitude greater than precipitation. Lerner (2002) judged that leakage in water importation and delivery infrastructure typically ranges from 20-50%, and in general this leakage will increase groundwater recharge in urban areas. Similarly, other studies have found municipal irrigation capable of raising groundwater levels and causing surface flooding (*Rushton and Al-Othman* 1994) and changing ephemeral streams into perennial streams (*Rubin and Hecht* 2006, *Roy et al.* 2009). In summary, the magnitude and direction baseflow and groundwater recharge alteration depends on climate, land use, water use, and the infrastructure system of the watershed. There are no simple "rules."

2.5 Changes in Sediment Yield

The role of watershed sediment yield in the behavior of watersheds was first characterized systematically by Wolman (1967) in a three-part conceptual framework of how rivers respond to urban development, in which 1) pre-development quasi-equilibrium conditions are followed by 2) a period of active construction involving grading, vegetation removal, and bare earth exposed to erosion; and 3) the establishment of an urban landscape consisting of pavement, houses, gutters and sewers etc. The construction period is marked by an increase in sediment (typically 2-10 times pre-development rates) produced from bare surfaces and the disturbances associated with construction (*Chin* 2006). The sediment produced during construction is often deposited within stream channels, initiating aggradation and/or channel widening. Following the construction period, sediment production decreases (Figure 2-5) and runoff increases, resulting in increased transport capacity and the potential for severe channel erosion that can result in channel enlargement of commonly 2-3 (and as much as 15) times the original channel cross-section (*Chin* 2006). Changes in post-construction sediment production rates are not well studied, though case studies have found sediment yields in post-construction watersheds to be somewhat higher than rural, undeveloped basins.

The combination of increased runoff and decreased sediment production can result in channel enlargement of commonly 2-3 (and as much as 15) times the original channel cross-section.

Post-construction sediment loads are typically derived from channel enlargement as a result of increased peak flows and the legacy of construction-phase disturbance (*Trimble* 1997, *Nelson and Booth* 2002). The rate of decline in post-construction sediment yields is therefore predominantly controlled by the degree of channel instability caused by the construction phase and the effect of increased peak flows. If the channel margins are armored, densely vegetated, or otherwise erosion resistant, sediment yields may decline quickly following urbanization. If channel instability ensues, elevated sediment yields may persist for decades or more.

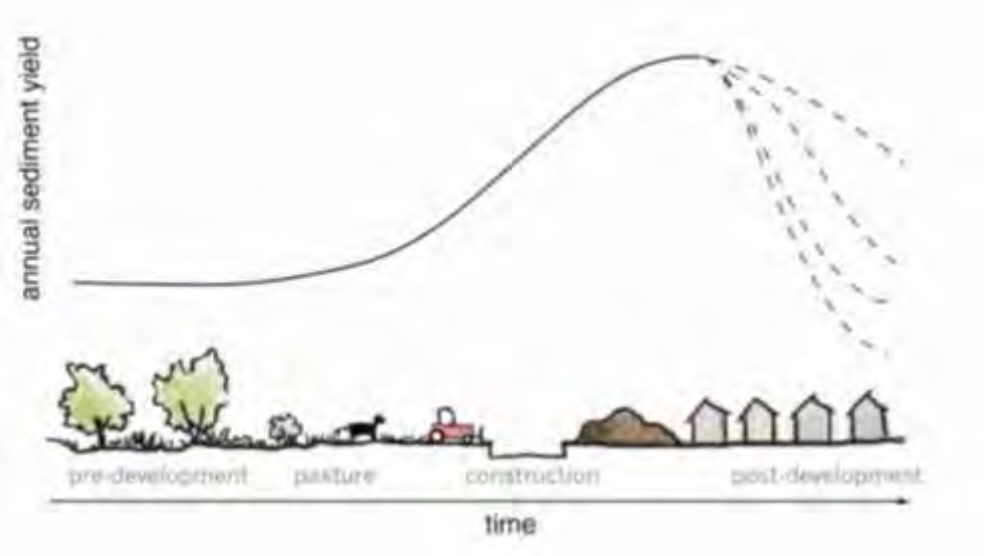


Figure 2-5. Increased sediment yields occur during the land-clearing and construction phases of development. Post-construction sediment yields decrease, though the rate of decrease varies considerably depending on the degree of channel instability caused by the construction phase and by increased runoff. (Illustration by Jennifer Natali).

2.6 Impacts on Channel Form and Stability

Channel form and stability reflect both hydrologic and geomorphic processes. Changes to runoff characteristics and sediment supply can affect all aspects of stream morphology, including planform, cross-sectional geometry, longitudinal profile, bed topography (e.g., pools, riffles), and bed sediment size and mobility. While many factors influence the type and degree of impacts (discussed below), a suite of commonly observed morphological changes due to hydromodification include channel enlargement (incision and widening), decreased bank stability, increased local sediment yield from eroding reaches, overall simplification of stream habitat features such as pools and riffles, changes in bed substrate conditions, loss of connectivity between channel and floodplain (*Segura and Booth* 2010), and changes in sediment delivery to coastal waters (*Jacobson et al.* 2001). Impacts may also propagate upstream as headcuts resulting from reductions in base level due to excess erosion. Likewise, tributaries entering downstream of a developed area may also experience the upstream propagation of headcuts due to base level reductions of the mainstem.

In addition to Jacobson *et al.* (2001), two well-researched literature reviews of morphological impacts (as well impacts to riparian habitat and biota) can be found in: "Impacts of Impervious Cover on Aquatic Systems" by The Center for Watershed Protection (2003) and "Physical Effects of Wet Weather Flows on Aquatic Habitats: Present Knowledge and Research Needs" published by Water Environment Research Foundation (*Roesner and Bledsoe* 2003). Note that these two studies differ significantly in how they

synthesize and interpret the reviewed literature, and the CWP publication acknowledges that it does not necessarily apply to streams in the arid west.

2.6.1 Physical Principles Underlying Channel Impacts

A convenient conceptual framework for the physical impacts of hydromodification on stream morphology is "Lane's Balance" (*Lane* 1955; Figure 2-6). This framework encapsulates a fundamental (albeit qualitative) relationship between the hydrologic and geomorphic processes that balance water flow and sediment in a channel. It expresses the condition of sediment transport capacity, as controlled by water discharge and slope, in broad balance with the supplied load and size of bed sediment for a channel in equilibrium. An increase in streamflow or a decrease in sediment supply (for example) will typically initiate a corresponding decrease in slope and/or increase in grain size in order to reestablish equilibrium. That decrease in slope is expressed by channel incision or degradation. In contrast, an increase in sediment supply or decrease in streamflow will typically result in aggradation and a corresponding increase in slope.

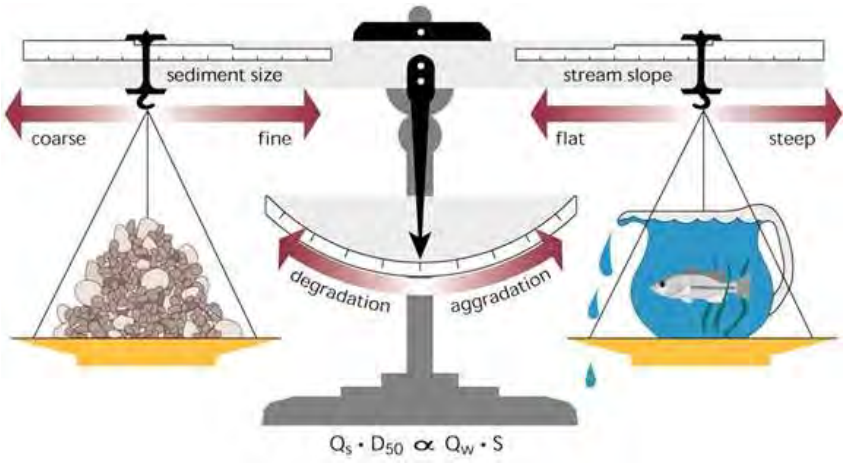


Figure 2-6. Lane's Balance, showing the interrelationship between sediment discharge (Q_s), median bed sediment size (D_{50}), water discharge (Q_w), and channel slope (S).

Slope and grain size are not the only modes of adjustment, as stream channels have many more degrees of freedom in responding to changes in streamflow and sediment supply. For example, Schumm (1969) extended Lane's Balance to include width, depth, sinuosity, and meander wavelength. More quantitatively (and more complexly), adjustments to channel form resulting from hydromodification are controlled by interactions among flow-generated shear stresses (described by hydraulic equations for open channel flow, as a function of channel geometry, roughness, and longitudinal slope), inflowing sediment load, and the shear strength of the bed and bank sediments (a function of their size distribution and cohesiveness).

2.6.2 Natural Variability in Stream Systems

Understanding natural variability in streams is critical to predicting and assessing anthropogenic impacts. A stream may be considered "stable" or "at equilibrium" when its overall planform, cross-section and profile are maintained with no net degradation or aggradation within a range of variance, over extended timeframes (*Mackin* 1948, *Schumm* 1977, *Leopold and Bull* 1979, *Biedenharn et al.* 1997). Such systems can often withstand short-term disturbances without significant change. Even without discrete disturbances, natural streams may be in a state of dynamic equilibrium (*Schumm* 1977), where the channel exhibits stability over the long term even while actively migrating laterally such that erosion of outer banks is accompanied by sediment deposition and bar building on inner banks. Streams may also be fluctuating between aggradation/ degradation/ stability, all within a limited range of conditions. A large-scale event, like a flood or landslide, can cause dramatic changes in channel form, but the channel will often re-established its pre-event planform, geometry and slope over time.

In contrast, a persistent alteration like hydromodification can cause the rate of change to increase. As a result, the channel may begin an evolutionary (or catastrophic) change in morphology, leading to enlargement and instability. A geomorphic threshold is the condition at which there is an abrupt and significant channel adjustment or failure because the channel has evolved to a critical situation. It is the condition at which the proverbial straw breaks the camel's back. Channels that are near a geomorphic threshold can exhibit significant adjustments in response to a relatively small degree of hydromodification. For example, a channel with banks that are near the height and angle for geotechnical failure may widen abruptly due to slight incision.

2.6.3 The Role of Sediment Transport and Flow Frequency in Channel Morphology

Extensive research has been devoted to establishing specific relationships between flow frequency and characteristics of channel morphology. The concept of "effective discharge" was introduced by Wolman and Miller (1960), using a magnitude-frequency analysis to assess the effectiveness of flow events to transport sediment. They concluded that, for the rivers in their analysis, relatively frequent events (occurring on average about 1 times/year) are most effective over the long term in transporting sediment. This concept has formed the basis for a large body of literature (and occasional controversy) over the subsequent five decades relating to the relationships between these flow frequencies and principal channel dimensions (e.g., bankfull stage, width-to-depth ratio), and the application of these relationships to stream design and restoration, as well as prediction and control of hydromodification impacts. Much of the controversy has related to the use of a single event ("dominant discharge" or "bankfull flow") as the basis for such applications, with the implicit assumption that control for that single discharge will result in commensurate channel changes regardless of the distribution of flow frequencies and flow durations over a wider range of discharges.

More recently, the concept of a *range* of moderately frequent, "geomorphically significant" flows that transport the majority of the sediment over the long term (King County 1990, *Bledsoe* 2002, *Roesner and Bledsoe* 2003) was proposed to replace the focus on a single event. The geomorphically significant flow range is considered to be the most influential in determining channel form, as this collective group

of flows typically does the most "work" on the channel boundary over engineering time scales. Controlling changes to the frequency of flows within this range is therefore critical to reducing impacts to stream morphology, and is the scientific basis for the "flow-duration" control criteria discussed in the following sections. A flow-duration criterion aims to match the pre-development volumes, durations, and frequencies of this critical range of sediment transporting flows over a period of many decades. Even this concept, however, relies on the implicit assumption that infrequent large events, no matter how dramatic their effects, typically occur "too infrequently" to reset channel morphology and habitat over the timescales of concern in meeting regulatory requirements. These events are typically managed through traditional flood control practices as opposed to hydromodification management.

A flow-duration management approach aims to match the pre-development volumes, durations, and frequencies of this critical range of sediment transporting flows over a period of many decades.

2.6.4 Applicability to California Streams

The traditional concepts of dynamic equilibrium in streams and geomorphically significant flows, discussed above, derive largely from studies on perennial streams in humid areas. An important question is: to what extent do these concepts apply to managing hydromodification impacts to streams within arid and semi-arid areas (such as large portions of California, and particularly the southern and eastern regions)? In such climate regions, precipitation is highly variable, with low annual totals and episodic, large events. Many streams are ephemeral or intermittent and located in a setting of extremely high sediment production associated with erosive geology resulting from high rates of tectonic uplift, sparse vegetative cover and frequent fires (*Graf* 1988, *Stillwater Sciences* 2007). These streams are often characterized by multi-thread sand-bed channels that are inherently unstable and readily respond to changes in flow conditions. In the ephemeral streams described by Bull (1997), for example, the natural behavior is one of alternating periods and locations of aggradation and degradation, varying both temporally and spatially. In such "episodic" streams, the vast majority of sediment may be moved by extreme, highly infrequent events. The importance of understanding the role of episodic events has been emphasized for semi-arid and arid fluvial systems (e.g., *Wolman and Gerson* 1978, *Brunsden and Thornes* 1979, *Yu and Wolman* 1987). The latter authors reviewed concepts of frequency and magnitude in geomorphology research and noted that episodic behavior hinges on frequency of episodic events relative to the time required to return to an "equilibrium" channel form. Episodic behavior is more prevalent where the average long-term disturbance is low but the year-to-year variability is high, a characteristic of arid and semi-arid climates.

Although the morphology of arid and semi-arid streams may be more strongly influenced by extreme events under natural conditions, hydromodification has nevertheless been shown to cause rapid and significant physical changes in such California streams (*Trimble* 1997, *Coleman et al.* 2005, *Hawley and Bledsoe* 2011). Such dramatic responses to the effects of urbanization on relatively frequent flows, often over periods of a decade or less, have profound implications for aquatic life and physical habitat. Despite the flashy streamflow regimes, high sediment supplies, and steep gradients of many streams in the region, the responses of California streams are controlled by the same physical processes as those in

other regions that have been studied more extensively. As such, the key controls of stream response can be identified and managed to mitigate the chronic effects of hydromodification between infrequent extreme events. However, it is always advisable to ensure that the application of tools and approaches for prediction and assessment should be based on reference data and empirical models (where applicable) drawn from stream types that are similar in both hydrologic and geomorphic characteristics.

2.6.5 Factors Determining Extent of Impacts

The extent and nature of impacts to stream morphology and habitat from a given change in runoff and sediment supply vary widely, depending on the channel geometry, longitudinal slope, channel material type(s) and size(s), and the type and density of channel vegetation (*Center for Watershed Protection* 2003, *Roesner and Bledsoe* 2003). For example, increased flows within a deep, narrow channel may result in significantly higher shear stresses at the bed; this same increase in a wide, shallow channel may become predominantly overbank flow, with less effect on bed shear stress. Where all other factors are equal, fewer impacts would be expected where flows have access to broad overbank areas (i.e., floodplains) during relatively common floods (*Segura and Booth* 2010), channel materials are more resistant, and stabilizing riparian vegetation is present. Conversely, where erosion and bank instability result in the loss of vegetation reinforcement, a positive feedback response may cause erosion to be accelerated. Furthermore, the relative erosive resistance of bed and bank materials will influence the extent of lateral versus vertical channel adjustments (*Simon and Rinaldi* 2006, *Simon et al.* 2007). For example, if bank resistance is lower than bed resistance, then the channel will tend to widen rather than deepen.

The extent and nature of impacts to stream morphology and habitat from a given change in runoff and sediment supply vary widely, depending on the channel geometry, longitudinal slope, channel material type(s) and size(s), and the type and density of channel vegetation, and the spatial and temporal patterns of urban development

The extent of impacts will also depend on the stream's physiographic context and spatial and temporal patterns of urban development within the watershed (Konrad and Booth 2005). Large-scale studies of hydrologic responses to urbanization (Chin 2006, Poff et al. 2006) also highlighted the regional variation in these responses and reinforced the need to understand local watershed and channel characteristics when managing hydromodification impacts. The presence of road crossings and other infrastructure can provide local grade control and create sediment bottlenecks which often translate to exacerbated erosion in the immediately downstream areas.

An additional consideration relates to the pre-development balance between sediment and streamflow, which is dependent on precipitation patterns, the location of a stream reach within the watershed, the associated sediment behavior of that reach (i.e., production, transport or deposition zone), and local rates of sediment production.

While many of these factors may be quantified for a given time and location, stream systems are enormously complex both spatially and temporally. The existence of physical thresholds and feedback systems can cause an incremental change to result in a disproportionately large response (*Schumm* 1977, 1991). Furthermore, there may be significant temporal lags between the point in time at which

land use is altered and when channel impacts are observed (*Trimble* 1995, 1997). In recognition of these effects and the associated uncertainty, predictive models and management tools may present results in terms of probabilities or within the context of a risk-based approach, as discussed further in this document. Such effects also have substantial implications for the design of assessment and monitoring programs.

There may be significant temporal lags between the point in time at which land use is altered and when channel impacts are observed.

2.6.6 Impacts on Other Types of Receiving Waters

Although outside the scope of this document, hydromodification impacts to other water body types are recognizable and should be the subject of additional research and future consideration.

Wetlands, Estuaries, and Coastal Ecosystems. Urbanization can alter water quality, quantity and sediment delivery to wetlands and sensitive coastal ecosystems. Urbanization has led to loss or degradation of wetlands and estuaries as a result of 1) draining and conversion to agriculture (*Dahl*, 1997); 2) upstream alterations to flow and sediment regimes that can change the magnitude, frequency, timing, duration, and rate of change of estuarine salinity, turbidity, freshwater flooding, freshwater baseflow, and groundwater recharge dynamics (*Azous and Horner* 2001); and 3) contaminated runoff from urban areas (*Paul and Meyer* 2001, *J Brown et al.* 2010). Urbanization may also lead to coastal erosion in circumstances where reservoir sediment trapping or post-development decreases in sediment yield reduce the sediment supply to the coast (*Pasternack et al.* 2001, *Syvitski et al.* 2005).

Alluvial Fans. Alluvial fans are dynamic landforms that are under increased development pressure in recent decades, particularly in the expanding cities of the American West. Upstream urbanization, and the resultant flashier flow regime, shortens the time available for infiltration and groundwater recharge in alluvial fans. Furthermore, development on fans themselves results in channel straightening and/or construction of concrete flood conveyance channels that also reduce or eliminate infiltration. The reduction in infiltration amplifies the flood risk further downstream. Additionally, alluvial fans may be more vulnerable than other landscapes to channel instability resulting from hydromodification, because they lack intrinsic geologic controls on channel gradient, and commonly have little vegetation or bank cohesion to provide stability in the purely alluvial deposits (*Chin* 2006).

2.6.7 Influence of Scale

The ability to detect impacts from land-use changes depends upon the spatial and temporal scale at which they are measured. Issues of hydrograph timing and the relative size of the storm system with respect to the watershed area may confound relationships at larger spatial scales. Furthermore, a number of fluvial geomorphic features that are commonly used as metrics of geomorphic condition are scale-dependent. For example, width-depth ratio, tendency toward braiding, and channel depth relative to stable bank height all commonly increase downstream. Other factors, such as the influence of vegetation, depend on protrusion relative to width and rooting depth relative to bank height. The

temporal scale over which channel changes occur will be influenced by precipitation variability, in addition to the many physical factors already discussed.

These scale considerations, as well as previous discussion of factors influencing stream response, are important when determining the choice of both management tools and monitoring approaches. It is generally much easier to predict the direction of response than the magnitude. Accurate, detailed predictions of response are difficult to make, and they are generally only possible when applied to specific locations, using extensive data input, to answer very specific questions; even then they are subject to uncertainty. Policies or assessment methods aimed to address a range of streams and geographic conditions are better suited to probabilistic approaches that explicitly acknowledge uncertainty, as described further in subsequent sections.

2.7 Impacts on Fluvial Riparian Vegetation

Stream channel form and stability is closely linked with the ecology of instream and floodplain habitats (Figure 2-7). Spatial and temporal distributions of plant communities are tied to moisture availability and seasonality. The ability of vegetation to stabilize soils, trap sediments, and reduce flow velocities (*Sandercock et al.* 2007) can create positive feedback that promotes further vegetation establishment and enhancement of these stabilizing features. This can result in a strong influence on channel geometric features, specifically channel narrowing (*Anderson et al.* 2004). The change in frequency of overbank flows resulting from channel incision will also affect riparian processes, including nutrient transfer and seed dispersal. For example, it is believed that *Tamarix* dominance over native species along Western US rivers would be less extensive if not for anthropogenic alteration of streamflow regimes (most recently supported by Merritt and Poff (2010)).

Impacts to stream biota may occur through the alteration of habitat structure and habitat dynamics caused by hydrologic and geomorphic changes, as well as directly from hydrologic alteration.

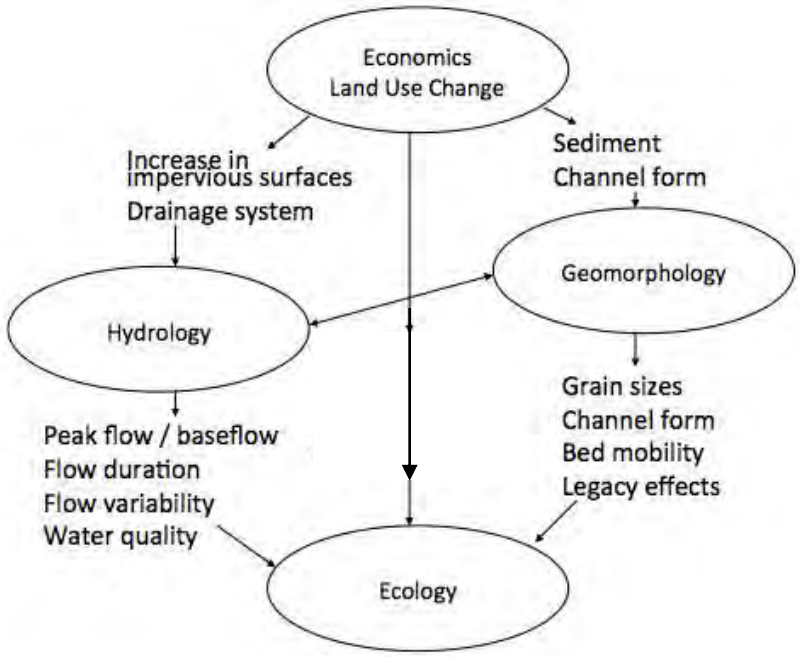


Figure 2-7. Land use changes, hydrology, geomorphology and ecology are closely and complexly interrelated. (Adapted from Palmer *et al.* 2004).

Vegetation changes not only are a result of morphological impacts but also can result directly from changes in streamflow. These findings continue to be supported by recent studies; for example, increases or decreases in baseflow or changes to the seasonal availability of water can determine the extent and type of riparian vegetation capable of thriving in that environment (*White and Greer* 2006). Vegetation changes can have cascading effects on indigenous fauna that require native plants for food or nesting (*Riley et al.* 2005). Channel incision can also result in phreatic draining of adjacent wetland and floodplain habitats and result in loss of key riparian species (*Scott et al.* 2000).

2.8 Impacts on In-Stream Biota

As shown in Figure 2-7, impacts to stream biota may occur through the alteration of habitat structure and habitat dynamics caused by hydrologic and geomorphic changes, as well as directly from hydrologic alteration. (The term biota is used here to refer to a range of non-plant species including algae, macroinvertebrates, amphibians, fishes, etc.) Because of these relationships, the condition of in-stream biota is considered to reflect the effects of all other impacts and has been recommended as an integrative measure of stream health (discussed further in Section 5).

Studies continue to build on Poff *et al.* (1997), who highlighted the importance of the "natural flow regime" and its variability as critical to ecosystem function and native biodiversity. Streamflow pattern or "regime" interacts with the geomorphic context to control the physical and biological response of streams to hydromodification. The basic characteristics of streamflow regimes are typically described in five ways: magnitude, frequency, duration, timing, and rate of change. There is a large body of science

linking one or more of these five elements of flow regimes to geomorphic processes, physical habitat, and ecological structure and function. A few examples of linkages with physical habitat are provided in Table 2-1; these linkages describe the mechanisms by which flow changes can impact stream ecology through morphological alterations.

Table 2-1. Examples of Relationships between Flow Regime Attributes and Physical Habitat Characteristics (adapted from Roesner and Bledsoe 2002).

Flow Attribute	Example Relationships with Physical Habitat
Magnitude	• Determines extent to which erosion/removal thresholds for substrate, banks, vegetation, and structural habitat features are exceeded • Determines whether floodplain inundation/exchange occurs • Habitat refugia may become ineffective during extreme events
Frequency	• Flashiness can affect potential for recovery of quasi-equilibrium channel forms between events, bank stability, and streambank/riparian vegetation assemblages • Frequency of substrate disturbance can act as a major determinant of fish reproductive success and benthic macroinvertebrate abundance and composition
Duration	• Determines the impact of a threshold exceeding event, e.g., scour depths • Urbanization frequently increases the duration of geomorphically effective flows which also affect bank vegetation establishment and maintenance • Extended durations of high suspended sediment concentrations can act as chronic and acute stressors on fish communities
Timing	• The temporal sequence of flow events affects channel form and stability as geomorphic systems may be “primed” for abrupt changes. • Stream biota may use flow timing as a life-cycle cue • Predictability of flow can affect utilization of habitat refugia
Rate of Change	• Affects bank drainage regimes (bank stability) and sedimentation processes, e.g., re-suspended fine sediment concentrations during storm hydrographs, embeddedness, armoring • Rapid drawdown can result in stranding of instream biota • Rise and fall rates control riparian water table dynamics and seedling recruitment

The mechanisms of such impacts are also well detailed by Center for Watershed Protection (2003); for example, increased flows are related to a reduction in habitat diversity and simplification of habitat features such as pools; this in turn reduces the availability of deep-water cover and feeding areas.

Many studies support the conclusion that stream biota are also directly impacted by altered flow regimes, independent of channel instability and erosion. Konrad and Booth (2005) identified four hydrologic changes resulting from urban development that are potentially significant to stream ecosystems: increased frequency of high flows, redistribution of water from baseflow to stormflows,

increased daily variation in streamflow, and reduction in low flow. They caution that ecological benefits of improving physical habitat and water quality may be tempered by persistent effects of altered streamflow and sediment discharge, and that hydrologic effects of urban development must be addressed for restoration of urban streams. Walsh *et al.* (2007) concluded that low-impact watershed drainage design was more important than riparian revegetation with respect to indicators of macroinvertebrate health. Bioengineered bank stabilization can also have positive effects on habitat and macroinvertebrates, but it cannot completely mitigate impacts of urbanization with respect to stream biotic integrity (*Sudduth and Meyer* 2006). Walters and Post (2011) and Brooks *et al.* (2011) found impacts to benthic macroinvertebrates due to upstream water abstractions, including reductions in total biomass of insects and reductions in abundance respectively.

2.9 Conclusions

Alterations in streamflow and sediment transport as a result of land use change can have severe impacts on streams. Common responses include changes in water balance, surface and near-surface runoff timing and magnitude, groundwater recharge, sediment delivery and transport, channel enlargement, widespread incision, and habitat degradation. The extent and consequences of these impacts depend on stream type, watershed context, and local controls on channel adjustment; as such, stream responses to hydromodification are complex and difficult to predict with any precision. Due to the direct impacts of streamflow modification on vegetation and biota, channel morphology cannot be the sole measure of hydromodification impacts. Thus, mitigation efforts that are narrowly focused on channel stability may be insufficient for sustaining key ecological attributes. Likewise, reach-scale stabilization of streams will not necessarily result in the return of comparable habitat quality and complexity (Henshaw and Booth 2000, Roesner and Bledsoe 2003). Hydromodification management should be considered in the context of an overall watershed-scale strategy that targets maintenance and restoration of critical processes in critical locations in the watershed. Furthermore, it is imperative that monitoring and adaptive management be focused on achieving desired objectives for aquatic life and overall stream “health” in addition to simply measures of geomorphic response.

3. FRAMEWORK FOR HYDROMODIFICATION MANAGEMENT

3.1 Introduction and Overview

The current approach to managing hydromodification impacts on a project-by-project basis is not sufficient to protect beneficial uses of streams. This section outlines a comprehensive, alternative framework that begins with watershed analysis and uses the results to guide the site-based management decisions that are the current focus of most hydromodification management strategies. It also recommends the implementation of a compensatory mitigation program in support of hydromodification management objectives identified in the watershed analysis. Figure 3-1 summarizes this approach and illustrates how current site-based management relates to the larger framework.

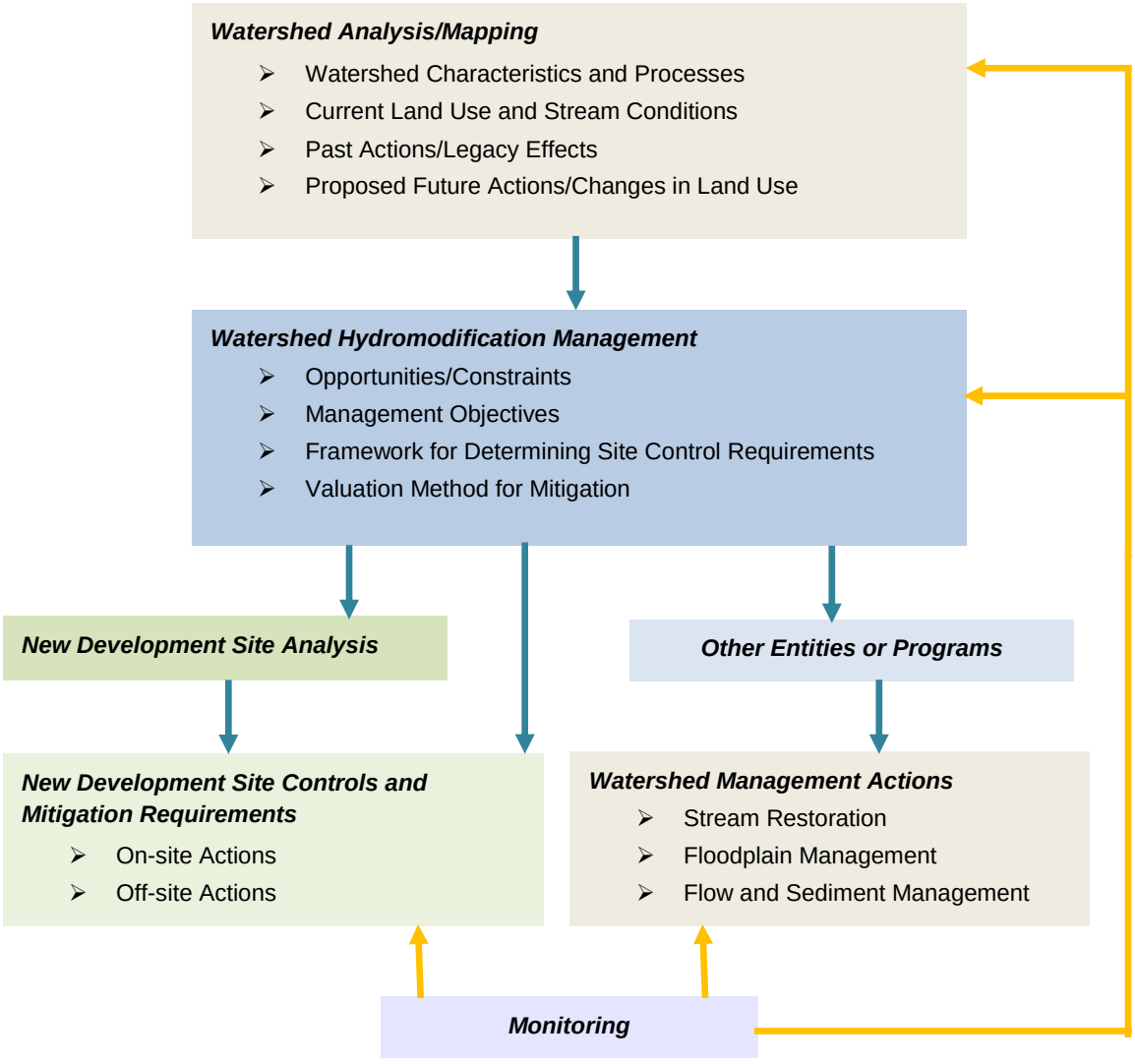


Figure 3-1. Framework for Integrated Hydromodification Management.

This section discusses the details of the integrated framework proposed in Figure 3-1. Key features of this comprehensive approach to hydromodification management are:

- Hydromodification management needs to occur primarily at the watershed scale. The foundation of any hydromodification management approach should be an analysis of existing and proposed future land use and stream conditions that identifies the relative risks, opportunities, and constraints of various portions of the watershed. Site-based control measures should be determined in the context of this analysis.
- Clear objectives should be established to guide management actions. These objectives should articulate desired and reasonable physical and biological conditions for various reaches or portions of the watershed. Management strategies should be customized based on consideration of current and expected future channel and watershed conditions. A one-size-fits-all approach should be avoided.
- An effective management program will likely include combinations of on-site measures (e.g., low-impact development techniques), in-stream measures (e.g., stream habitat restoration), and off-site measures. Off-site measures may include compensatory mitigation measures at upstream locations that are designed to help restore and manage flow and sediment yield in the watershed.
- Management measures should be informed and adapted based on monitoring data. Similarly, monitoring programs should be designed to answer questions and test hypotheses that are implicit in the choice of management measures, such that measures that prove effective can be emphasized in the future (and those that prove ineffective can be abandoned).
- Hydromodification potentially affects all downstream receiving waters; therefore, there generally should be no areas exempted from hydromodification management plans. However, the variety of types and conditions of receiving waters should result in a range of requirements. This also means that objectives, and the management strategies employed to reach them, will need to acknowledge pre-existing impacts associated with historical land uses.

A watershed-based approach to hydromodification management will allow integration of objectives with related programs such as water quality management, groundwater management, and habitat management and restoration through mechanisms such as Integrated Regional Water Resources Management Plans.

Implementation of this approach will likely require changes in the current administration of hydromodification management plans statewide, both in the development and promulgation of regulations by the State and Regional Water Boards and in the administration and execution of those regulations by local jurisdictions (Table 3-1). In the short term, municipalities will need to broaden the approaches to on-site management measures and expand monitoring and adaptive management programs based on the tools described in this document. In the long term, regulatory agencies will need to develop watershed-based programs that allow for implementation of management measures in the locations and manner that will have the greatest impact on controlling hydromodification effects. A

watershed-based approach will also allow the integration of hydromodification management objectives with related programs such as water quality management, groundwater management, and habitat management and restoration through mechanisms such as Integrated Regional Water Resources Management Plans.

Table 3-1. Recommendations for implementation of watershed-based hydromodification management, organized by the scale of implementation and the time frame in which useful results should be anticipated.

Time Frame	Programmatic: State and Regional Water Boards	Local: City and County Jurisdictions
Short-term (<10 years)	• Define the watershed context for local monitoring (at coarse scale) • Evaluate whether permit requirements are making positive improvements	• Evaluate whether specific projects/ regulations are meeting objectives • Identify the highest priority action(s) to take
Long-term (1+ decades)	• Define watershed context and setting benchmarks for local-scale monitoring (i.e., greater precision, if/as needed) • Demonstrate how permit requirements can improve receiving-water "health," state-wide (and change those requirements, as needed)	• Evaluate and demonstrate whether actions (on-site, instream, and watershed scale) are improving receiving-water conditions • Assess program cost-effectiveness • Identify any critical areas for resource protection

3.2 Background on Existing Strategies and Why They are Insufficient

Current hydromodification approaches and strategies, such as flow and sediment-control basins, have been long-recognized as insufficient to fully address hydromodification impacts (e.g., Booth and Jackson 1997, Maxted and Horner 1999). Present understanding of the causes and effects of urbanization suggest that such approaches must be expanded to include integrated flow and sediment management at the watershed scale, along with stream corridor/floodplain restoration (NRC 2009).

Flow management has its origins in flood-control basins intended to reduce peak discharge through stormwater detention (Dunne and Leopold 1978). A key shortcoming of these approaches for hydromodification management is that they do not address (and may exacerbate) cumulative erosive forces on the receiving channel because they trap sediment and release sediment-starved water to downstream areas. Simple detention can increase the frequency and duration with which channels are exposed to erosive effects (McCuen and Moglen 1988, Bledsoe *et al.* 2007), resulting in an increase in the downstream impacts of hydromodification.

Since the late 1980's in parts of the US, hydromodification management plans began to explore "flow-duration" control standards as a way to address this shortcoming. These standards require that the post-project discharge rates *and durations* may not deviate above the pre-project discharge rates and

durations by more than a specific (and typically quite small) percent, across a broad range of discharges at and above the presumed threshold of instream erosion and sediment transport, as averaged over a multi-year period of measured (or simulated) record. This approach is a dramatic improvement over earlier methods, although it does not adequately address the issues of sediment deficit associated with urbanization (Chin 2006). In addition, current flow-duration standards do not fully account for the effects of flow alteration on in-stream habitat and biological functions (e.g., they do not address the seasonality of peak flows, rates of hydrograph rise and recession, low-flow magnitude and duration) and therefore may not be protective of all beneficial uses of downstream waterbodies.

Current strategies are also insufficient with respect to how municipal stormwater permits apply hydromodification standards. Currently, development triggers are established to determine if a project is subject to the standards. These triggers are generally specified by either project land use type in conjunction with size, or by project size alone (e.g., 20 units or more of single family residential housing, or 10,000 square feet or more of new impervious area). The exemption of many small projects from hydromodification controls can result in cumulative impacts to downstream waterbodies (see Booth and Jackson, 1997, for an example from western Washington of the cumulative effects of a small-project exemption); a move to include LID requirements that apply to all projects, regardless of size, is a positive development to begin to address this issue. There is usually also an exemption for projects discharging to hardened channels or waterbodies; however these exemptions may not be supportive of future stream restoration possibilities, and do not address the impacts of hydromodification on lentic and coastal waterbodies (as yet not fully understood). A further limitation of the current permit structure is that there is no consideration of project characteristics such as position within the watershed, sensitivity of the receiving stream reach, or level of coarse sediment production on the proposed project site. Finally, current programs rely solely on regulating new development and re-development to prevent hydromodification impacts without addressing pre-existing conditions which may limit the effectiveness of future management actions.

Shortcoming of current hydromodification standards that may limit their effectiveness include the exemption of many small projects, which can result in cumulative impacts to downstream waterbodies, and the reliance solely on regulating new development and re-development without addressing pre-existing conditions which may limit the effectiveness of future management actions.

When flow-control measures of whatever regulatory standard have failed to protect streams from erosion, hydromodification "management" typically consists of bank or channel armoring, drop structures, and other hard engineering approaches. Although these methods may reduce local hydromodification impacts, it is typically at the expense of other in-stream or riparian functions or beneficial uses. For example, channel armoring can reduce habitat and water conservation functions and services by direct habitat removal, increased bed scour, and decreased connectivity between the channel and its floodplain. In addition to loss of biological and physical stream function, many armoring solutions degrade or fail over time because they address only the localized channel instability rather than the overarching processes that led to the instability (Kondolf and Piegay 2004). For example, drop structures constructed to stabilize a specific channel reach will tend to shift downstream the

consequences of an insufficient sediment load—the reach immediately upstream of the drop structure is "protected," but that immediately downstream is degraded even more severely. In extreme cases, the structure itself can be undermined by downstream erosion and headcutting that is exacerbated by the sudden shift in velocity and associated eddy effects (i.e., hydraulic jump) that often occurs downstream of grade stabilization (Chin 2006). Bank armoring can also fail due to being undermined by erosion at the toe of slope, which can lead to scour (Figure 3-2). In both cases, structural failures often lead to a sequence of incremental increases in the size and extent of the structural solution in an attempt to continually repair increasing channel degradation. In extreme cases, catastrophic failure of bank or grade stabilization can lead to sudden and dramatic changes in channel form, which can be associated with devastating loss of habitat, infrastructure, and property.

Figure 3-2. Undermining of grade control and erosion of banks downstream of structures intended to stabilize a particular stream reach. Left photo is looking upstream at drop structure; right photo is looking downstream from the drop structure.

3.3 Development of Comprehensive Hydromodification Management Approaches

The goal of hydromodification management should be to protect and restore overall receiving water conditions, by maintaining or reestablishing the watershed processes that support those conditions, in the face of urbanization. Achieving these goals will require that hydromodification management strategies operate across programs beyond those typically regulated by NPDES/MS4 requirements. Successful strategies will need to be developed, coordinated, and implemented through land-use planning, non-point source runoff control, and Section 401 Water Quality Certifications and Waste Discharge Requirement programs in addition to traditional stormwater management programs. Thus, all levels of the regulatory framework—federal, state, and local—will need to participate in developing such a program, with program development occurring mainly through regulatory and resource protection agencies and program implementation occurring mainly through local jurisdictions.

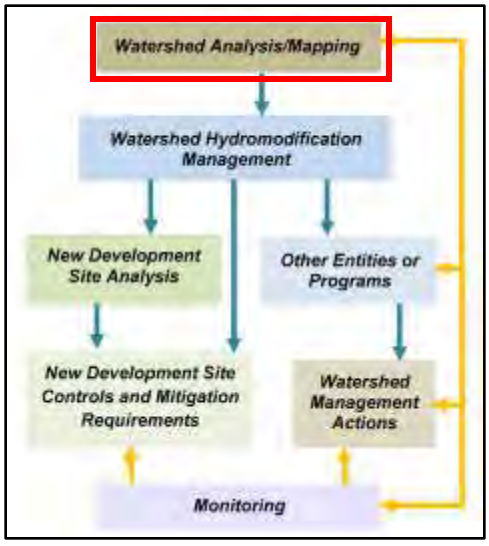
As shown in Figure 3-1, watershed-scale hydromodification management should include all of the following key elements:

- Watershed-wide assessment of the condition of key watershed processes, to understand the natural functioning of the watershed and what has been (or is at risk of being) altered by urbanization.
- Watershed-wide assessment of hydromodification risk, to categorize areas based on the likelihood of hydromodification impacts and to identify opportunities for restoration or protection of key reaches or sub-basins.

The goal of hydromodification management should be to protect and restore overall receiving water conditions, by maintaining or reestablishing the watershed processes that support those conditions, in the face of urbanization.

- Appropriate management objectives for various stream reaches and/or portions of the watershed.
- Process for selecting management actions and mitigation measures for project sites and stream reaches.
- Monitoring program that is consistent with the goals of the HMP so that information generated can be used to improve the HMP over time.

3.4 Watershed Mapping and Analysis – Identification of Opportunities and Constraints



Watershed analysis should be the foundation of all hydromodification management plans. Analysis should identify the nature and distribution of key watershed processes, existing opportunities and constraints in order to help prioritize areas of greater vs. lesser concern, areas.

"Watershed analysis" has several steps, of which the first is mapping. Mapping may occur at the watershed or regional (i.e., multiple watersheds) scale. Mapping should include data layers to facilitate the following analyses. Most of these data layers are freely available as online. Further information on analysis tools is provided in the next section. These maps should be designed for iterative updates over time as new information becomes available:

- Dominant watershed processes – analysis of topography (10-m digital elevation model), hydrology, climate patterns, soil type (NRCS soil classifications) and surficial geology can be used to identify the location and type of dominant watershed processes, such as sediment source areas and areas where infiltration is important or where overland flow likely dominates. This can provide a template for the eventual design of management measures that correspond most

closely to the pre-development conditions, which support processes that promote long-term channel health. The Central Coast Hydromodification Control Program (the "Joint Effort"; see Booth *et al.* 2011) provides an example of this type of analysis.

- Existing stream conditions – At a minimum the National Hydrography Database (NHD) can provide maps of streams and lakes in the watershed. Additional information on stream condition should be included to the extent that it is available. This could include major bed material composition, channel planform, grade control locations and condition, and approximate channel evolution stage. These maps can also be used to conduct general stream power evaluations.

- Current (Past) and anticipated future land use - Current land use and land cover plus proposed changes due to general or specific plans. Historical information on past land use practices or stream conditions should be included if it is readily available. Classified land cover (NLCD 2006) is available from the Multi-Resolution Land Characteristics Consortium (MRLC).

- Potential coarse and fine sediment yield areas – methods such as the Geomorphic Land Use (GLU) approach (Booth *et al.* 2010) can be used that to estimate potential sediment yield areas based on geology, slope and land cover.

- Existing flood control infrastructure and channel structures – maps should include major channels, constrictions, grade control, etc. that affect water and sediment movement through the watershed. Any available information on water quality, flood control or hydromodification management basins should also be included.

- Habitat – both upland and in-stream and riparian habitat should be mapped to help determine areas of focus for both resource protection and restoration. This may be based on readily available maps such as the National Wetlands Inventory and National Land Cover Database, aerial photo interpretation, or detailed local mapping.

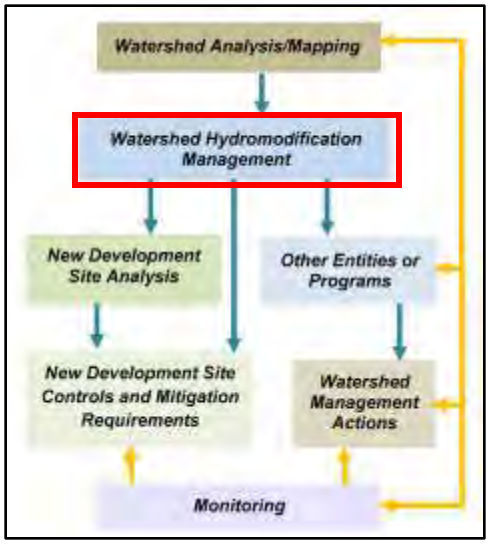
- Areas of Particular Management Concern – these may include sensitive biological resources, critical infrastructure, 303(d) listed waterbodies, priority restoration areas or other locations or portions of the watershed that have particular management needs.

- Economic and social opportunities and constraints – comprehensive watershed management includes consideration of opportunities for improving community amenities associated with streams, economic redevelopment zones, etc. Details on this are beyond the scope of this paper, but emphasize the need to include planning agencies in the development of hydromodification management plans.

Substantial resources will be necessary to implement a watershed analysis approach; therefore, opportunities for joint funding and leveraging of resources should be vigorously pursued.

Watershed analysis will be challenging especially for smaller municipalities with limited resources or where their jurisdiction only encompasses a portion of the watershed. Substantial resources will be necessary to implement this approach; therefore, opportunities for joint funding and leveraging of resource should be vigorously pursued. A cooperative approach should replace the current fragmented efforts among regions and jurisdictions. Furthermore, the State and Regional Water Boards should support completion of these maps and common technical tools as the foundation for future hydromodification management actions.

3.5 Defining Management Objectives



Results of the watershed analysis should be used to determine the most appropriate management actions for specific portions of the watershed. Management strategies should be tailored to meet the objectives, desired future conditions, and constraints of the specific channel reach being addressed.

Decisions should be based on considerations of areas suitable for specific ecosystem services, opportunities, and constraints as described above. Management objectives may be aimed at reducing effects of proposed future land use or mitigating for the effects of past land use, and they may apply to stream reaches or upland areas. Potential management objectives for specific stream reaches may include: protect, restore, or manage as a new channel form.

The specific manifestation of each of these strategies will differ by location, based on constraints of the stream, watershed plan objectives, etc. Decisions about appropriate objectives will need to consider current and future opportunities and constraints in upland, floodplain, and in-stream portions of the watershed. General definitions are provided below as a starting point for case-specific refinement.

Management strategies should be tailored to meet the objectives, desired future conditions, and constraints of the specific channel reach being addressed. Objectives for specific stream reaches may include:

- **Protect**
- **Restore**
- **Manage as a new channel form**

3.5.1 Protect

This approach consists of protecting the functions and services of relatively unimpacted streams in their current form through conservation and anti-degradation programs. This strategy should not be used if streams are degraded, or nearing thresholds of planform adjustment or changes in vegetation community. This strategy may apply following natural disturbances such as floods depending on the condition of the stream reach and the ability for natural rehabilitation to occur (due to how intact

watershed processes are). The goal of this strategy is not to create an artificial preserve (such as a created stream running through an urban park) but rather a naturally function river system. Fully channelized systems are not considered in this framework. Examples of specific actions include:

- Preserving intact channel systems through easements, restrictions, covenants, etc. This should be considered in the watershed context to ensure adequate connectivity with upstream and downstream reaches of similar condition, and to ensure that the watershed processes responsible for creating and maintaining instream conditions will persist.
- Providing appropriate space for channel processes to occur (e.g., floodplain connectivity).
- Establishing transitional riparian and upland buffer zones that are protected from encroachment by infrastructure or development.

3.5.2 Restore

There are many definitions of "restoration". For the purposes of this document, restoration is considered re-establishing the natural processes and characteristics of a stream. The process involves converting an unstable, altered, or degraded stream corridor, including adjacent riparian zone (buffers), uplands, and flood-prone areas, to a natural condition. In most cases, restoration plans should be based on a consideration of watershed processes and their ability to support a desired stream type. The watershed analysis discussed above should be used to determine how and where watershed process should be protected or restored in order to best support stream and stream-corridor restoration. This process should be based on a reference condition/reach for the valley type and includes restoring the appropriate geomorphic dimension (cross-section), pattern (sinuosity), and profile (channel slopes), as well as reestablishing the biological and chemical integrity, including physical processes such as transport of the water and sediment produced by the stream's watershed in order to achieve dynamic equilibrium. Design of restoration structural elements must be based on existing and anticipated upstream land uses, and reflect the modified hydrology resulting from these uses. Restoration should apply to streams that are already on a degradation trajectory where there is a reasonable expectation that a more stable equilibrium condition that reflects previously existing conditions can be recreated and maintained via some intervention. Creating a stream system that differs from "natural conditions" is not considered restoration. All elements of the "protection" strategy should also be included once the restoration actions are complete. Examples of specific actions include:

- Floodplain and in-stream measures that restore natural channel form consistent with current and/or anticipated hydrology and sediment yield. Examples include recontouring, biotechnical slope stabilization, soft-grade control features (e.g., woody debris).
- Revegetation of stream banks and beds, including removal of invasive species.
- Preserving intact channel systems through easements, restrictions, covenants, etc. This should be considered in the watershed context to ensure adequate connectivity with upstream and downstream reaches of similar pristine condition.

- Providing appropriate space for channel processes to occur (e.g. channel migration at allowable levels, floodplain connectivity, and development of self-sustaining riparian vegetation).
- Establishing transitional riparian and upland buffer zones that are protected from encroachment by infrastructure or development.

3.5.3 Manage as New Channel Form

Once a stream channel devolves far enough down the channel evolution sequence, it is extremely difficult to recover and restore without substantial investment of resources. If critical thresholds in key structural elements, such as planform or bank height, are surpassed, streams should be allowed to continue progressing toward a new stable equilibrium condition that is consistent with the current setting and watershed forcing functions, if such progress does not pose a danger to property and infrastructure. Substantial alteration of flow or sediment discharge, slope or floodplain width may make it improbable that a stream can be restored to its previous condition. In such circumstances, it may be preferable to determine appropriate channel form given expected future conditions and "recreate" a new channel to match the appropriate equilibrium state under future conditions. For example, a multi-thread braided system may not be the appropriate planform based on new runoff and sediment pattern; instead, a single-thread channel or step-pool structure may be a more appropriate target. Examples of specific actions include:

- In-channel recontouring or reconstruction of channel form.
- Floodplain recontouring or reconstruction that improves connectivity with the channel.
- In extreme circumstances based on channel condition, position in the watershed, etc. this may involve hardening portions of the channel and focusing "mitigation" measures at off-site measures at a different part of the watershed. Off-site mitigation can be informed by "hydromodification risk mapping".
- Re-establishing longitudinal connectivity for sediment transport and ecological linkages.
- Preserving intact channel systems through easements, restrictions, covenants, etc. This should be considered in the watershed context to ensure adequate connectivity with upstream and downstream reaches of similar pristine condition.
- Providing appropriate space for channel processes to occur (e.g. floodplain connectivity).
- Establishing transitional riparian and upland buffer zones that are protected from encroachment by infrastructure or development.

Several authors have previously noted that in urban systems, natural channel state often can no longer be sustained under changed hydrological conditions. Thus, different management goals are probably appropriate for watersheds at varying stages of development (Booth, 2005) and at varying degrees of adjustment (Chin and Gregory 2005). In this context, identifying which channels are suitable for

protection, restoration, or alternative channel form can be used to guide restoration and management efforts (Booth *et al.* 2004).

Upland objectives should be established to support management objectives for stream reaches. These objectives will have direct implications and will influence site-specific control requirements (discussed below). Potential management objectives for upland areas may include:

- *Conserve open space for infiltration*: Infiltration reduces the magnitude and duration of runoff to the stream channel and allows flow to re-enter the stream through diffuse overland flow, shallow subsurface flow, or groundwater recharge. This in turn reduces the work (energy) on the channel bed and banks and helps promote stability.
- *Conserve open space for stream buffers*: Buffers allow many of the same infiltration processes discussed above to occur. In addition, they provide space for channel migration and overbank flow, both of which function to reduce energy and allow the channel to better withstand potentially erosive forces associated with high flow events.
- *Conserve open space for coarse sediment production*: Course sediment functions to naturally armor the stream bed and reduce the erosive forces associated with high flows. Absence of coarse sediment often results in erosion of in-channel substrate during high flows. In addition, coarse sediment contributes to formation of in-channel habitats necessary to support native flora and fauna.
- *Encourage development on poorly-infiltrating soils*: The difference between pre and post development runoff patterns is less when development occurs on soils that have low infiltration rates and functioned somewhat like paved surfaces. Focusing development on these areas reduces changes in hydrology associated with transition to developed land uses.
- *Encourage urban infill*: Urban infill reduces the effect on watershed processes by concentrating development on previously impacted areas. This reduces disruption of hydrology and sediment process compared to developing on open space or other natural areas.

3.6 Selecting Appropriate Management Objectives

The combination of expected force acting on the stream channel (in terms of higher flow and less sediment) and estimated resistance (in the form of channel and floodplain condition) can be used to inform selection of an appropriate management objective for a specific stream reach, as shown in Figure 3-3. This figure represents a conceptual approach to selecting appropriate management objectives, in which modifications to runoff and sediment are compared against stream reach conditions. By weighing these factors within the context of watershed opportunities, constraints and resources, management objectives and specific actions can be determined. More complete decision support systems or guidance will need to be developed for individual

Selection of appropriate management objectives should consider changes to runoff and sediment, and existing stream reach conditions, within the context of watershed opportunities, constraints and resources.

hydromodification management plans that account for other considerations such as upstream and downstream conditions, cost, infrastructure constraints, availability of floodplain area for restoration, presence of downstream sensitive resources, etc. All decisions should be made in the context of the watershed position of a project site relative to existing opportunities and constraints as discussed above.

A number of tools are available to be used in conjunction with watershed mapping to inform this prioritization process. For example, GLU mapping (Booth *et al.* 2010) and hydromodification risk mapping can be used to assign high, medium or low ratings to watershed resistance (i.e., susceptibility to change). Similarly, field based tools such as the hydromodification screening tool (Bledsoe *et al.* 2010) or European tools such as Fluvial Audit or River Habitat Survey can be used to assign a rating of high, medium or low at the reach scale. In addition to geomorphic assessments, habitat assessments such as the California Rapid Assessment Method (CRAM; Collins *et al.* 2008) or biological evaluations via an index of biotic integrity (IBI; e.g., Ode *et al.* 2005) should be used as measures of biological condition to provide a more complete stream assessment. The next section provides an overview of hydromodification assessment and prediction tools, as well as further details on specific tools to support the selection of management objectives.

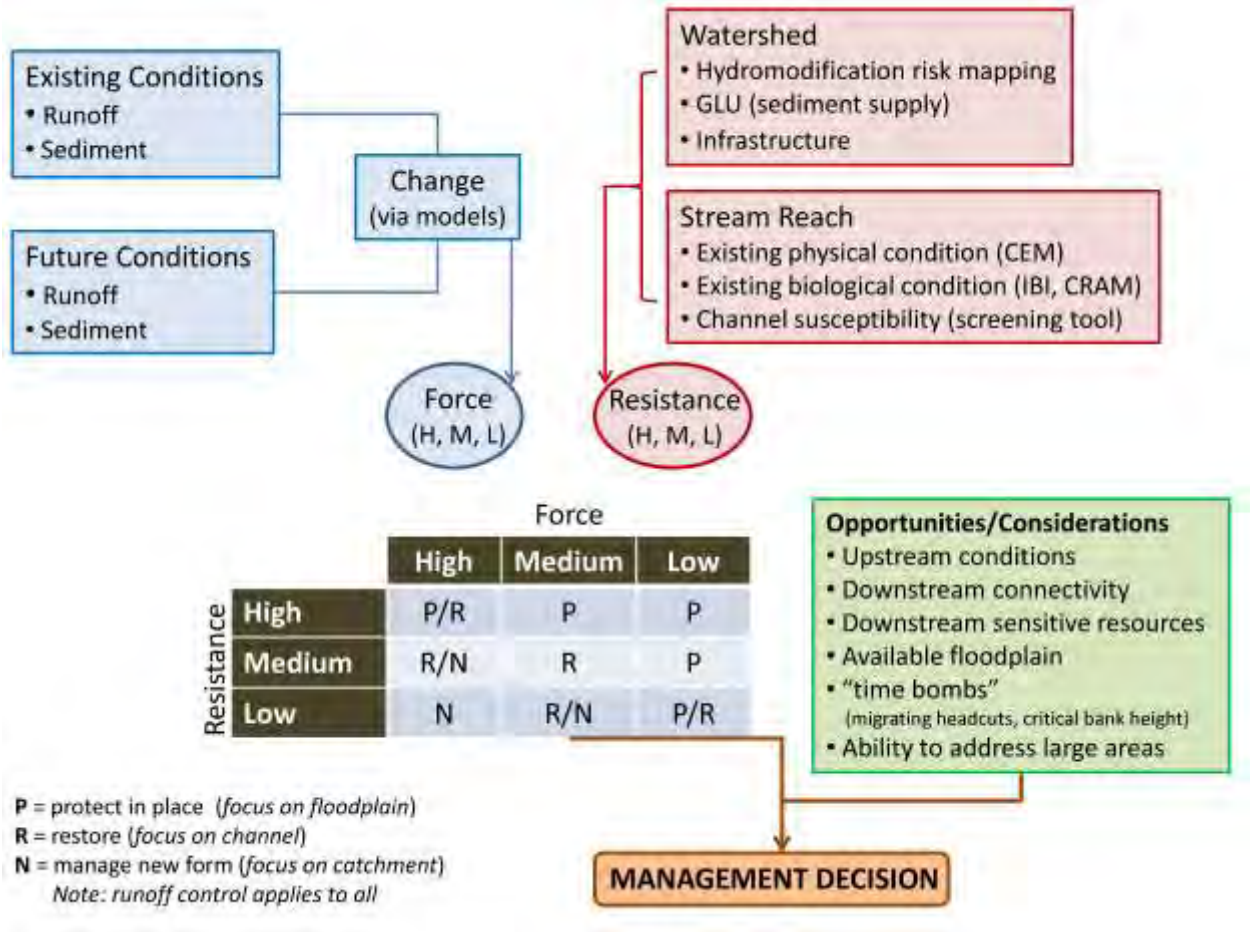
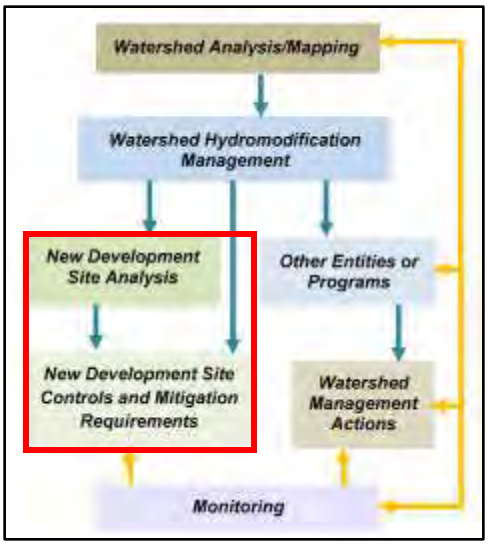


Figure 3-3: Example of a hydromodification management decision-making process.

3.7 Framework for Determining Site-Specific Control Requirements



Once the watershed analysis is complete and opportunities, constraints and management objectives have been identified for both upland areas and stream reaches, a framework should be developed for site-specific project analyses and control requirements. The level of detail required for the analysis of proposed projects should be based on a combination of factors including project size, location within the watershed, and point of discharge to receiving waterbody.

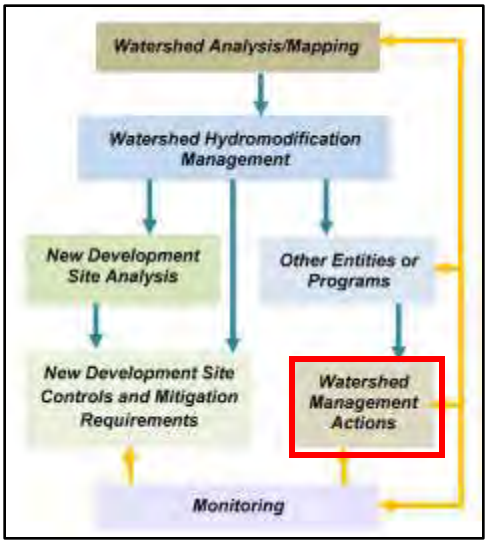
The HMP should specify how these factors will be evaluated within the context of the identified management objectives to determine analysis requirements. The HMP should also ideally contain scalable BMP designs (based on conservative assumptions and consistent with prevailing watershed conditions) that can be applied by small projects where appropriate to avoid overly burdensome requirements for site-specific analysis. The framework should include the following components:

- A set of standard on-site management measures/BMPs that should apply to all projects; no projects should be exempted from these measures as they will have broader water quality benefits beyond helping to control the effects of hydromodification. These management actions consist of reducing the effects of urbanization on catchment runoff and sediment yield. On-site management measures should attempt to reduce excess runoff, maintain coarse sediment yield (if possible) and provide for appropriate discharge to receiving streams to support in-stream biological resources. In some cases, common features or facilities may be able to accommodate these objectives. In other cases, separate features or facilities will be necessary to deal with distinct objectives. On-site measures should ***generally be applied in all cases*** as allowed by site-specific geotechnical constraints, with specific management practices informed by the watershed processes most important at particular locations in the watershed, as well as by the nature of downstream receiving waters:
    - Low impact development (LID) practices.
    - Disconnecting impervious cover through infiltration, interception, and diversion.
    - Coarse sediment bypass through avoidance of sediment yield areas or measures that allow coarse sediment to be discharged to the receiving stream.
    - Flow-duration control basins to reduce runoff below a threshold value.

- Specification of the level of analysis detail and design requirements for the project, depending on project location, discharge point, and project size. Levels of analysis and design requirements may include:
    - Application of scalable, standardized designs for flow control based on site-specific soil type and drainage design. The assumptions used to develop these scalable designs should be conservative, to account for loss of sediment and uncertainties in the analysis and our understanding of stream impacts.
    - Use of an erosion potential metric, based on long-term flow duration analysis and in-stream hydraulic calculations. Guidelines should specify stream reaches where in-stream controls would and would not be allowed to augment on-site flow control.
    - Implementation of more detailed hydraulic modeling for projects of significant size or that discharge to reaches of special concern to understand the interaction of sediment supply and flow changes.
    - Analysis of the water-balance for projects discharging into streams with sensitive habitat. This may include establishment of requirements for matching metrics such as number of days with flow based on the needs of species present.
- Guidelines for prioritization of on-site or regional flow and sediment control facilities. Watershed analysis will help identify opportunities for regional flow or sediment control facilities, which may help to mitigate for existing hydromodification impacts.

Appendix A provides detailed guidance on the appropriate application of tools to meet site control requirements.

3.8 Off-site Compensatory Mitigation Measures



In some cases, on-site control of water and sediment will not be sufficient to offset the effects of hydromodification on receiving waters. In these cases, off-site compensatory mitigation measures will be necessary (similar to the concepts used in the Section 401/404 permitting programs). Off-site measures could be implemented by project proponents or through the use of regional mitigation banks or in-lieu fee programs.

Off-site mitigation may be necessary for several reasons:

- Off-site measures may be more effective at addressing effects or at achieving desired management goals. This may be particularly true for sites near the bottom of a watershed where upstream measures may be preferred

- Off-site measures may be necessary to supply compensation for residual project impacts where on-site measures are limited by site constraints or solutions are beyond the scope of what can be accomplished on an individual site.
- Off-site measures may be necessary where accomplishing specified management objectives is not practical using on-site measures alone. Off-site measures may be desired to remedy legacy effects of prior land use or to achieve desired beneficial uses.

Performance monitoring and adaptive management must be a part of compensatory mitigation given its inherent uncertainty.

The location and type of mitigation should be determined in the context of the watershed analysis and should account for the size and nature of the impact, location in the watershed, pre-existing conditions in the watershed, and uncertainty associated with the success of the proposed mitigation actions. In some cases these measures may be near the project site (e.g., restoring a stream reach downstream of the project site), but in other cases the off-site mitigation may be in the form of in-lieu fee or "mitigation bank" type contributions to a project located in a different portion of the watershed (e.g. upstream grade control, protection of sediment source areas). Such off-site mitigation relatively far from the site will only be possible if conducted in the context of an overall watershed plan, as discussed above. Off-site measures may include:

In cases where on-site control of water and sediment will not be sufficient to offset the effects of hydromodification on receiving waters, off-site compensatory mitigation measures will be necessary. Implementation of this approach will require that the State Water Board develop a valuation method to help determine appropriate off-site mitigation requirements in light of the anticipated impacts of hydromodification on receiving streams.

- Stream corridor restoration
- Purchase, restoration and protection of floodplain/floodway habitat
- Purchase and/or protection of critical sediment source or transport areas
- Regional basins or other retention facilities
- Upstream or downstream natural/bio-engineered grade control
- Retrofit or repair of currently undersized structures (e.g. culverts, bridge crossings)
- Removal or hydrologically disconnecting impervious surfaces

A valuation method will be necessary for assigning appropriate mitigation requirements in light of the anticipated impacts of hydromodification on receiving streams. The valuation method should be developed by the State Water Board.

To support the management approaches discussed above, HMPs should provide general guidance for application of models and other tools based on the questions being asked and the desired outcomes of

the HMP. Models can also be used to help communicate levels of uncertainty in particular management actions and to guide restoration / in-channel management actions. Modeling and other tools are discussed in detail in Section 4 and Appendices A and B.

Finally, management endpoints should articulate the desired physical and biological conditions for various reaches or portions of the watershed. To the extent possible, these desired conditions should be expressed in numeric, quantifiable terms to avoid ambiguity. Additionally, since regulatory strategies will invariably rely on quantifiable measures to determine whether stormwater management actions achieve these desired conditions, identifying appropriate numeric objectives will support determinations of regulatory compliance. As desired physical and biological watershed conditions are expressed in quantifiable terms to the extent possible, a similar need would apply to site control requirements. Control measures should be linked to, a) a desired condition (or goal), b) the parameter(s) that best define that condition, and c) quantifiable measures that serve to evaluate performance of the control measure. Direct measures (e.g., volume of runoff to be retained) as well as indirect or surrogate measures (IBI scores) are appropriate if they are quantifiable.

Management endpoints should articulate the desired physical and biological conditions for various reaches or portions of the watershed. To the extent possible, these desired conditions should be expressed in numeric, quantifiable terms to avoid ambiguity.

4. Overview of Assessment and Prediction Tools

4.1 Introduction

The previous section discussed a number of potential actions for managing hydromodification impacts. These ranged from high-level watershed-scale characterization to the site-specific design of a proposed development. This section provides an overview of the current and emerging assessment and prediction tools available to inform these management actions. An organizing framework helps explain the appropriate application of these tools, as well as their strengths and weaknesses. Specific tools that support the selection of management objectives are also discussed. Examples of "suites" of tools that are commonly used together to predict stream responses and formulate management prescriptions for channels of varying susceptibility are presented in Appendix B. Appendix A provides detailed guidance on the appropriate application of tools to meet site control requirements.

Municipalities are the primary audience for this section, as they select and incorporate these tools into their HMPs. However, the State and Regional Water Boards should be aware of the overall capabilities, appropriate uses, and gaps in our current toolbox. The development of new and improved tools should ideally be coordinated at the State level for optimum cost effectiveness and widest applicability. The table below identifies the key actions necessary at both the programmatic and local level to address the considerations discussed above, within the context of the goals of the framework described in Section 3.

Table 4-1. Recommendations for the application and improvement of tools in support of the proposed management framework.

Time Frame	Programmatic: State and Regional Water Boards	Local: City and County Jurisdictions
Short-term (<10 years)	• Develop quality control and standardization for continuous simulation modeling • Perform additional testing and demonstration of probabilistic modeling for geomorphic response • Pursue development of biologically- and physically-based compliance endpoints	• Work cooperatively with adjacent jurisdictions to implement hydromodification risk mapping at the watershed scale • Implement continuous simulation modeling for project impact analysis
Long-term (1+ decades)	• Improve tools for sediment analysis and develop tools for sediment mitigation design • Develop tools for biological response prediction • Improve tools for geomorphic response prediction	• Expand use of probabilistic and statistical modeling for geomorphic response • Apply biological tools for predicting and evaluating waterbody condition

4.2 Background

In the context of hydromodification, tools and models are typically used to help answer one or more of the following questions involving an assessment of natural and human influences at various spatial and temporal scales:

- How does the stream work in its watershed context?
- Where is the stream going? For example, have past human actions induced channel changes? What are the effects on sediment transport and channel form? What is the magnitude of current and potential channel incision following land use conversion?
- How will the stream likely respond to alterations in runoff and sediment supply?
- How can we manage hydromodification and simultaneously improve the state of the stream?

Previous sections have underscored the variability and complexity of relationships among land use, the hydrologic cycle, and the physical and ecological conditions of stream systems. It follows that the process of assessing stream condition and predicting future conditions is highly challenging and subject to uncertainty. Therefore it is important to understand the inherent strengths and limitations of the available tools, especially with respect to prediction uncertainty and how it is expressed for various tools. Considerable judgment is needed to choose the appropriate model for the question at hand. In addition to prediction uncertainty, considerations in choosing the right model for a particular application include appropriate spatial and temporal detail, cost of calibration and testing, meaningful outputs, and simplicity in application and understanding (NRC 2001; Reckhow 1999a,b).

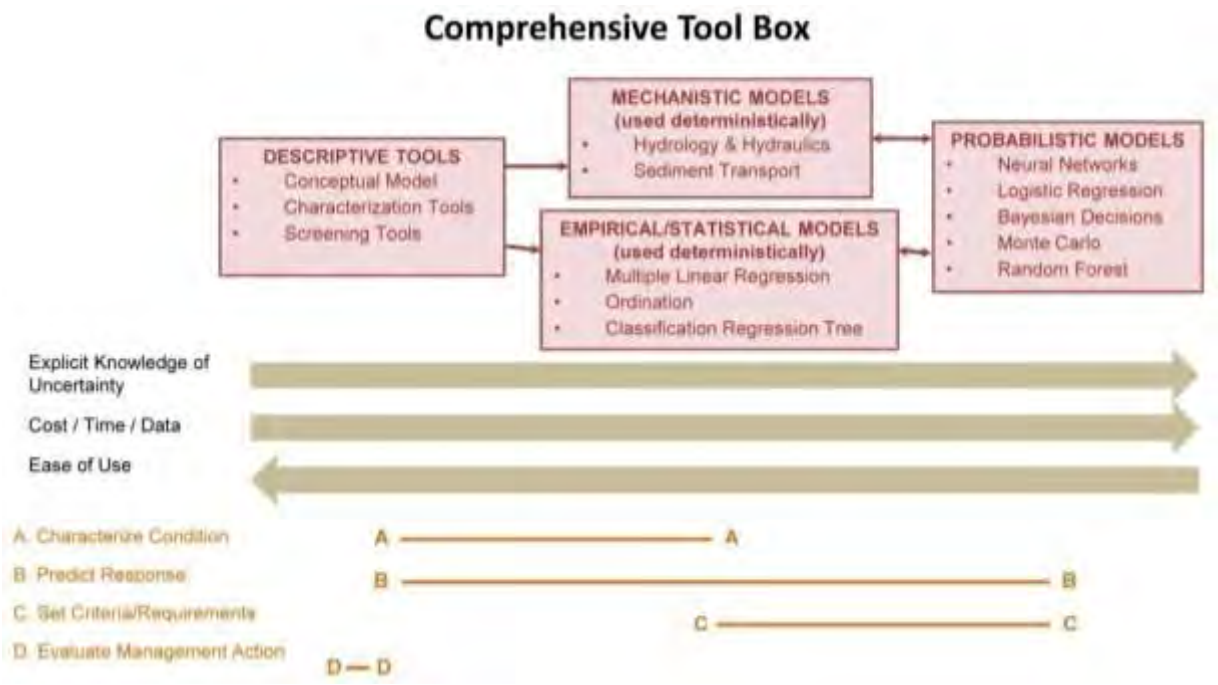


Figure 4-1. Organizing Framework for understanding hydromodification assessment and management tools.

4.3 Organizing Framework

Figure 4-1 presents an organizing framework by which to understand the available tools that may be applied in support of hydromodification management and policy development. Tools fall into three major categories: descriptive tools, mechanistic and empirical/statistical models that are used deterministically, and probabilistic models/predictive assessments with explicitly quantified uncertainty. The organizing framework relates these categories to the types of question the tools are designed to answer, specifically: characterization of stream condition, prediction of response, establishment of criteria/requirements, or evaluation of management actions. The framework also characterizes the tools according to the following features: intensity of resource requirements (i.e., data, time, cost), and the extent to which uncertainty is explicitly addressed. Subsequent sections of this section discuss each of the three major categories in turn, highlighting examples of specific tools within each category.

Given the uncertainty associated with predicting hydromodification impacts, probabilistic models should be incorporated into analysis and design, particularly where resource values or potential consequences of impacts are high.

Tools required to support the management framework presented in Section 3 include watershed characterization and analysis tools and project analysis and design tools. The level of resolution that is required will depend on the point in the planning process. At early stages, descriptive tools will be sufficient, but more precise tools will be required toward the design phase. Currently, most projects rely solely on deterministic models. However, given the uncertainty associated with predicting hydromodification impacts, probabilistic models should be incorporated into analysis and design, particularly where resource values or potential consequences of impacts are high.

4.3.1 Descriptive Tools

Descriptive tools include conceptual models, screening tools, and characterization tools. These tools are used to answer the question: *What is the existing condition of a stream or watershed?* Although descriptive tools are not explicitly predictive, they can be used to assess levels of susceptibility to future stressors by correlation with relationships seen elsewhere. The application of some type of descriptive tool, such as a characterization tool, is almost always necessary before applying a deterministic model. In particular, descriptive tools can aid in understanding the key processes and boundary conditions that may need to be represented in more detailed models.

Conceptual Models. A conceptual model, in the context of river systems, is a written description or a simplified visual representation of the system being examined, such as the relationship between physical or ecological entities, or processes, and the stressors to which they may be exposed. Conceptual models have been used to describe processes in a wide range of physical and ecological fields of study, including stream-channel geomorphology (Bledsoe *et al.* 2008). For example, Channel Evolution Models (CEMs) are conceptual models which describe a series of morphological configurations of a channel, either as a longitudinal progression from the upper to the lower watershed, or as a series at a fixed location over time subsequent to a disturbance. The incised channel CEM developed by

Schumm *et al.* (1984) is one of the most widely known conceptual models within fluvial geomorphology. This CEM documents a sequence of five stages of adjustment and ultimate return to quasi-equilibrium that has been observed and validated in many regions and stream types (ASCE 1998, Simon and Rinaldi 2000). The Schumm *et al.* (1984) CEM has been modified for streams characteristic of southern California, including transitions from single-thread to multi-thread and braided evolutionary endpoints (Hawley et al., in press).

Conceptual models also include planform classifications of braided, meandering and straight, and other general geomorphic classifications, which categorize streams by metrics such as slope, sinuosity, width-to-depth ratio, and bed material size. The qualitative response model described by Lane's diagram (1955), and discussed earlier in this report, is also a conceptual model.

Characterization Tools. Examples of characterization tools include baseline geomorphic assessments, river habitat surveys, and fluvial audits. A fluvial audit uses contemporary field survey, historical map and documentary information and scientific literature resources to gain a comprehensive understanding of the river system and its watershed. Fluvial audits, along with watershed baseline surveys are a standardized basis for monitoring change in fluvial systems. These types of comprehensive assessments are comprised of numerous, more detailed field methodologies, such as morphologic surveys, discharge measurements, and estimates of boundary material critical shear strength through measurements of resistance (for cohesive sediments) or size. Baseline assessments may also draw on empirical relationships such as sediment supply estimation models.

Screening Tools. Screening tools can be used to predict the relative severity of morphologic and physical-habitat changes that may occur due to hydromodification, as a critical first step toward tailoring appropriate management strategies and mitigation measures to different geomorphic settings. However, assessing site-specific stream susceptibility to hydromodification is challenging for several reasons, including the existence of geomorphic thresholds and non-linear responses, spatial and temporal variability in channel boundary materials, time lags, historical legacies, and the large number of interrelated variables that can simultaneously respond to hydromodification (Schumm 1991, Trimble 1995, Richards and Lane 1997).

Screening tools can be used to predict the relative severity of morphologic and physical-habitat changes due to hydromodification, as a critical first step toward tailoring appropriate management strategies and mitigation measures to different geomorphic settings.

Despite the foregoing difficulties, the need for practical tools in stream management have prompted many efforts to develop qualitative or semi-quantitative methods for understanding the potential response trajectories of channels based on their current state. For example, predictors of channel planform can be used to identify pattern thresholds and the potential for planform shifts (e.g., van den Berg 1995, Bledsoe and Watson 2001, Kleinhans and van den Berg 2010).

In addition, regional CEMs (discussed above) can partially address the needs of the hydromodification management community by providing a valuable framework for interpreting past and present response trajectories, identifying the relative severity of potential response sequences, applying appropriate

models in estimating future channel changes, and developing strategies for mitigating the impacts of processes likely to dominate channel response in the future (Simon 1995).

More recent screening-level tools for assessing channel instability and response potential, especially in the context of managing bridge crossings and other infrastructure, have borrowed elements of the CEM approach and combined various descriptors of channel boundary conditions and resisting vs. erosive forces. For example, Simon and Downs (1995) and Johnson *et al.* (1999) developed rapid assessment techniques for alluvial channels based on diverse combinations of metrics describing bed material, CEM stage, existing bank erosion, vegetative resistance, and other controls on channel response. Although based on a strong conceptual foundation of the underlying mechanisms controlling channel form, these specific examples are either overly qualitative with respect to the key processes, or developed with goals and intended applications (e.g., evaluating potential impacts to existing infrastructure such as bridges or culverts) that differ from what is needed by current hydromodification management programs.

SCCWRP has recently proposed a general framework for developing screening-level tools that help assess channel susceptibility to hydromodification, and a new region-specific tool for rapid, field-based assessments in urbanizing watersheds of southern California (Booth *et al.* 2010, Bledsoe *et al.* 2010). The criteria used to assign susceptibility ratings are designed to be repeatable, transparent, and transferable to a wide variety of geomorphic contexts and stream types. The assessment tool is structured as a decision tree with a transparent, process-based flow of logic that yields four categorical susceptibility ratings through a combination of relatively simple but quantitative input parameters derived from both field and GIS data. The screening rating informs the level of data collection, modeling, and ultimate mitigation efforts that can be expected for a particular stream-segment type and geomorphic setting. The screening tool incorporates various measures of stream bed and bank erodibility, probabilistic thresholds of channel instability and bank failure based on regional field data, integration of rapid field assessments with desktop analyses, and separate ratings for channel susceptibility in vertical and lateral dimensions.

An example of a specific analysis component that predicts changes in post-development sediment delivery, and that can be applied within this screening tool framework, is a GIS-based catchment analyses of “Geomorphic Landscape Units” (GLUs). A GLU analysis integrates readily available data on geology, hillslope, and land cover to generate categories of relative sediment production under a watershed’s current configuration of land use. Those areas subject to future development are identified, and corresponding sediment-production levels are determined by substituting developed land cover for the original categories and reassessing the relative sediment production. The resultant maps can be used to aid in planning decisions by indicating areas where changes in land use will likely have the largest (or smallest) effect on sediment yield to receiving channels.

Effective screening tools for assessing the susceptibility of streams to hydromodification necessarily rely on both field and office-based elements to examine local characteristics within their broader watershed context. Proactive mapping of flow energy measures (e.g., specific stream power) throughout drainage networks has the potential to complement field-based assessments in identifying hotspots for channel

instability and sediment discontinuities as streamflows change with land use. Such analyses may partially guide subsequent field reconnaissance; however, this approach also has limitations in that some geomorphic settings are inherently difficult to map using widely available digital elevation data. In particular, maps of stream power in narrow entrenched valleys and low gradient valleys (ca. <1%) with sinuous channels should be carefully field-truthed and used with a level of caution commensurate with the accuracy of the input data.

Moreover, spatial variability in channel boundary materials and form cannot be accurately mapped at present using remotely sensed data. Thus, boundary materials and channel width are typically assumed in watershed-scale mapping efforts, thereby introducing potential inaccuracies. Coupling desktop analysis with a field-based assessment when using such an approach can help resolve variation in site-specific features such as the erodibility of bed and bank materials, channel width, entrenchment, grade control features, and proximity to geomorphic thresholds.

4.3.2 Mechanistic and Empirical/Statistical Models with Deterministic Outputs

Mechanistic/deterministic models are simplified mathematical representations of a system based on physical laws and relationships (*link to next*). Empirical/statistical models use observed input and output data to develop relationships among independent and dependent variables. Statistical analyses determine the extent to which variation in output can be explained by input variables. Both types of models are typically used to generate a single output or answer for a given set of inputs. These tools can be used to help answer such questions as: *What are the expected responses in the stream and watershed given some future conditions? What criteria should be set to prevent future hydromodification impacts?* However, hydromodification modeling embodies substantial uncertainties in terms of both the forcing processes and the stream response. Deterministic representations of processes and responses can therefore mask uncertainties and be misleadingly precise, unless prediction uncertainty is explicitly characterized as described later in this section.

Although valuable, deterministic representations (such as those derived from continuous simulation modeling) of processes and responses can mask uncertainties and be misleadingly precise unless prediction uncertainty is explicitly characterized.

Hydrologic Models are used to simulate watershed hydrologic processes, including runoff and infiltration, using precipitation and other climate variables as inputs. Some models, such as the commonly-used HEC-HMS, can be run for either single-event simulations or in a continuous-simulation mode which tracks soil moisture over months or years. Other hydrologic models that are commonly used for event-based and continuous simulation modeling include HSPF and SWMM. It is widely accepted that continuous simulation modeling, rather than event-based modeling, is required to assess long term changes in geomorphically-significant flow events (Booth and Jackson 1997; Roesner *et al.* 2001).

Several HSPF-based continuous simulation models have been developed specifically for use in hydromodification planning. These include the Western Washington Hydrology Model (WWHM) and

the Bay Area Hydrology Model (BAHM). Hydromodification Management Plans (HMPs) in Contra Costa County, San Diego County and Sacramento County have developed sizing calculators for BMPs based on modeling done using HSPF models. To illustrate the point about uncertainly in mechanistic models, HSPF contains approximately 80 parameters, only about 8 of which are commonly adjusted as part of the calibration process.

Hydraulic Models are used to simulate water-surface profiles, shear stresses, stream power values and other hydraulic characteristics generated by stream flow, using a geometric representation of channel segments. The industry standard hydraulic model is the HEC River Analysis System (HEC-RAS).

Coupled Hydrologic and Hydraulic Models represent a valuable tool in hydromodification management. Because the streamflow regime interacts with its geomorphic context to control physical habitat dynamics and biotic organization, it is often necessary to translate discharge characteristics into hydraulic variables that provide a more accurate physical description of the controls on channel erosion potential, habitat disturbance, and biological response. For example, a sustained discharge of 100 cfs could potentially result in significant incision in a small sand bed channel but have no appreciable effect on the form of a larger channel with a cobble bed. By converting a discharge value into a hydraulic variable (common choices are shear stress, or stream power per unit area of channel relative to bed sediment size), a "common currency" for managing erosion and associated effects can be established and applied across many streams in a region. Such a common currency can improve predictive accuracy across a range of stream types. As opposed to focusing on the shear stress or stream power characteristics of a single discharge, it is usually necessary to integrate the effects of hydromodification on such hydraulic variables over long simulated periods of time (on the order of decades) to fully assess the potential for stream channel changes. By using channel morphology to estimate hydraulic variables across a range of discharges, models like HEC-RAS provides a means of translating hydrologic outputs from continuous simulations in HEC-HMS, SWMM, or HSPF into distributions of shear stress and stream power across the full spectrum of flows.

Sediment Transport Models such as HEC-6T, the sediment transport module in HEC-RAS, CONCEPTS, MIKE 11 and FLUVIAL12, use sediment transport and supply relationships to simulate potential changes in channel morphology (mobile boundary) resulting from imbalances in sediment continuity. This means that hydraulic characteristics are calculated as channel form and cross-section evolve through erosion and deposition over time. Such models have high mechanistic detail but are often difficult to apply effectively. Although it is not a mobile boundary model, the SIAM (Sediment Impact Analysis Method) module in HEC-RAS represents an intermediate complexity model designed to predict sediment imbalances at the stream network scale and to describe likely zones of aggradation and degradation.

Statistical Models use descriptive tools and empirical data to develop relationships that quantify the risk of specific stream behaviors. For example, Hawley (2009) developed a statistical model to explain variance in channel enlargement based on measures of erosive energy and channel features such grade control and median bed sediment size. Such models often include independent variables based on input from the mechanistic models described above; however, a key difference is that statistical models do not explicitly represent actual physical processes in their mathematical structure. Instead, these models

simply express the observed correlations between dependent and independent variables. Like mechanistic models, the output from these models is commonly treated as precise results in management decisions, despite the fact that predictions from most statistical models could be readily (and more accurately) expressed in terms of confidence intervals with a range of uncertainty.

Probabilistic/Risk-based Models integrate many of the tools discussed above, using modeled changes in hydrology as input to hydraulic models, which in turn provide input to various types of statistical models to predict response. However, the predictions are not represented as deterministic outputs, instead, the range of (un)certainty in the likelihood of the predicted response is explicitly quantified. Although not commonly used for hydromodification management at this time, there are well established models based on these principals currently in use in other scientific disciplines. An example of a probabilistic approach that has been used for hydromodification management is a logistic regression analysis that was used to produce a threshold "erosion potential metric" that can be used to quantify the risk of a degraded channel state. More details on this approach are provided in Appendix B.

Risk-based modeling in urbanizing streams provides a more scientifically defensible alternative to standardization of stormwater controls across stream types, and can inform management decisions about acceptable levels of risk.

Risk-based modeling in urbanizing streams provides a more scientifically defensible alternative to standardization of stormwater controls across stream types. A probabilistic representation of possible outcomes also improves understanding of the uncertainty that is inherent in model predictions, and can inform management decisions about acceptable levels of risk.

Predictive Tools for Habitat Quality and Stream Biota. The tools discussed above focus on physical stream impacts; however, as discussed in the preceding chapter, it is recognized that maintenance of stream "stability" does not necessarily conserve habitat quality and biological potential. In general, the knowledge base for biota/habitat associations is not generally adequate to allow for prediction of how whole communities will change in response to environmental alterations associated with urbanization. Making such predictions deterministically requires a thorough knowledge of species-specific environmental responses, as well as an adequate (accurate) characterization of habitat structure and habitat dynamics (both of which are modified by urbanization). However, recent studies have demonstrated that the effects of hydrologic alterations induced by urbanization on selected stream biota can be quantitatively described without a full mechanistic understanding, using stressor-response type relationships and empirical correlations from field-measured conditions (Konrad and Booth 2005, Konrad *et al.* 2008, DeGasperi *et al.* 2009).

In moving beyond a narrow focus on linkages between flow alteration and channel instability, scientific understanding of hydrologic controls on stream ecosystems has recently led to new approaches for assessing the ecological implications of hydromodification. The essential steps in developing quantitative "flow-ecology relationships" have been recently described in the Ecological Limits of Hydrologic Alteration (ELOHA) process (Poff *et al.* 2010), a synthesis of a number of existing hydrologic techniques and environmental flow methods. ELOHA provides a regional framework for elucidating the

key hydrologic influences on biota of interest, and translating that understanding into relationships between hydromodification and biological endpoints that can be used in management decision making. This requires a foundation of hydrologic data provided by modeling and/or monitoring, and sufficient biological data across regional gradients of hydromodification. Although hydrologic–ecological response relationships may be confounded to some extent by factors such as chemical and thermal stressors, there are numerous case studies from the US and abroad in which stakeholders and decision-makers reached consensus in defining regional flow standards for conservation of stream biota and ecological restoration (Poff *et al.* 2010; http://conserveonline.org/workspaces/eloha).

4.3.3 Strengths, Limitations and Uncertainties

The Organizing Framework shown in Figure 4-1 shows the applicability of the three major categories of tools in support of various management actions. This section addresses a range of issues relating to strengths, limitations and uncertainty of the tools discussed above. Detailed analysis of individual models is beyond the scope of this document, but EPA/600/R-05/149 (2005) contains an extensive comparison of functions and features across a wide range of hydrologic and hydraulic models.

Explicit consideration, quantification, and gradual reduction of model uncertainty will be necessary to advance hydromodification management.

The uncertainty inherent to hydromodification modeling underscores the need for carefully designed monitoring and adaptive management programs.

General Considerations. The well-known statistician George Box famously said that "all models are wrong, some are useful." The usefulness of a model for a particular application depends on many factors including prediction accuracy, spatial and temporal detail, cost of calibration and testing, meaningful outputs, and simplicity in application and understanding. There is no cookbook for selecting models with an optimal balance of these characteristics. Models of stream response to land-use change will always be imperfect representations of reality with associated uncertainty in their predictions. In addition to the prediction errors of standard hydrologic models, common limitations and sources of uncertainties include insufficient spatial and/or temporal resolution, and poorly known parameters and boundary conditions. Ultimately, the focus of scientific study in support of decision making should be on the decisions (or objectives) associated with the resource and not on the model or basic science. Each model has limitations in terms of its utility in addressing decisions and objectives of primary concern to stakeholders. Prediction error, not perception of mechanistic correctness, should be the most important criterion reflecting the usefulness of a model (NRC 2001; Reckhow 1999a,b). The predictive models discussed above may be thought of as predictive scientific assessments; that is, a flexible, changeable mix of small mechanistic models, statistical analyses, and expert scientific judgment.

Region-Specific Considerations. Because all models are vulnerable to improper specification and omission of significant processes, caution must be exercised in transferring existing models to new

regional conditions. For example, mobile boundary hydraulic models are mechanistically detailed but not generally well-suited to many southern California streams given the prevalence of near-supercritical flow, braiding and split flow (Dust 2009). In addition, bed armoring and channel widening resulting from both fluvial erosion and mass wasting processes are key influences on channel response in semi-arid environments. These processes are not well-represented and constrained in current mobile boundary models. Accordingly, the appropriateness of existing models for addressing a particular hydromodification management question should be empirically tested and supported with regionally appropriate data from diverse stream settings.

Managing Uncertainty. To date, hydromodification management has generally relied on oversimplified models or deterministic outputs from numerical models that consume considerable resources but yield highly uncertain predictions that can be difficult to apply in management decisions. Numerical models are nevertheless an important part of the hydromodification toolbox, especially in characterizing rainfall-response over decades of land-use change. It is challenging to rigorously quantify the prediction accuracy of these mechanistic numerical models; however, their utility of can be enhanced by addressing prediction uncertainties in number of ways (Cui *et al.* 2011). Candidate models can be subjected to sensitivity analysis to understand their relative efficacy for assessment and prediction of hydromodification effects. Moreover, it should also be demonstrated that selected models can reasonably reproduce background conditions before they are applied in predicting the future. Modeling results that are used in relative comparisons of outcomes are generally much more reliable than predictions of absolute magnitudes of response.

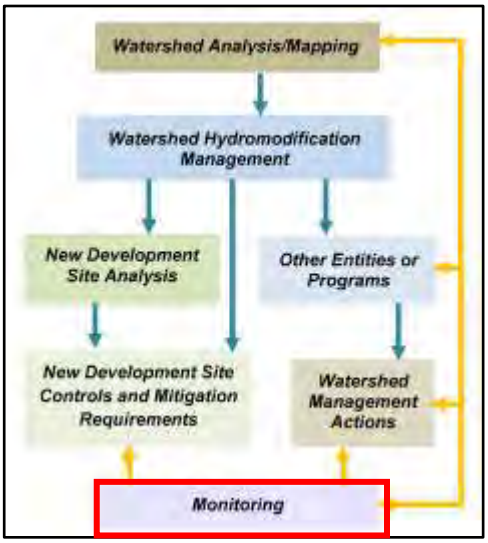
Hydromodification modeling embodies substantial uncertainties in terms of both the forcing processes and stream response. Deterministic representations of processes and responses can mask uncertainties and can be misleading unless prediction uncertainty is explicitly quantified. Errors may be transferred and compounded through coupled hydrologic, geomorphic, and biologic models. Accordingly, explicit consideration, quantification, and gradual reduction of model uncertainty will be necessary to advance hydromodification management. This points to two basic needs. First, there is a need to develop more robust probabilistic modeling approaches that can be systematically updated and refined as knowledge increases over time. Such approaches must be amenable to categorical inputs and outputs, as well as combining data from a mix of sources including mechanistic hydrology models, statistical models based on field surveys of stream characteristics, and expert judgment. Second, the uncertainty inherent to hydromodification modeling underscores the need for carefully designed monitoring and adaptive management programs, as discussed in Section 5.

A risked-based framework can provide a more rational and transparent basis for prediction and decision-making by explicitly recognizing uncertainty in both the reasoning about stream response and the quality of information used to drive the models. Prediction uncertainty can be quantified for any of the types of models described above; however, some types are more amenable to uncertainty analysis than others. For example, performing a Monte Carlo analysis of a coupled hydrologic-hydraulic model is a very demanding task. A simple sensitivity analysis of high, medium, and low values of plausible model parameters is much more tractable and still provides an improved understanding of the potential range of system responses. Such information can be subsequently integrated with other model outputs and

expert judgment into a probabilistic framework. For example, Bayesian probability network approaches can accommodate a mix of inputs from mechanistic and statistical models, and expert judgment to quantify the probability of categorical states of stream response. Such networks also provide an explicit quantification of uncertainty, and lend themselves to continual updating and refinement as information and knowledge increase over time. As such, they have many attractive features for hydromodification management, and are increasingly used in environmental modeling in support of water quality (Reckhow 1999a,b) and stream restoration decision-making (Stewart-Koster *et al.* 2010).

Sediment Supply. As described above, a reduction in sediment supply to a stream may result in instability and impacts, even if pre- and post-land use change flows are perfectly matched. Thus, there is a need to develop management approaches to protect stream channels when sediment supply is reduced, and to refine and simplify tools to support these approaches. This continues to prove challenging because, the effects of urban development on sediment supply in different geologic settings are not well understood and poorly represented in current models. As a starting point, models used to analyze development proposals that reduce sediment supply could be applied with more protective assumptions with respect to parameters and boundary conditions (inflowing sediment loads). Effects of altered sediment supply on stream response could be addressed in a probabilistic framework by adjusting conditional probabilities of stream states to reflect the influence of reductions in important sediment sources due to land use change.

5. MONITORING



"Monitoring" can cover a tremendous range of activities in the context of stormwater management in general, and of hydromodification in particular. For example, the NPDES Phase 2 general permit for California (SWRCB, 2003 (*www.swrcb.ca.gov/**water**_issues/.../storm**water**/.../final_ms4_**permit**.p...)*, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000004, p. 11) notes that the objectives of a monitoring program may include:

- Assessing compliance with the General Permit.
- Measuring and improving the effectiveness of stormwater management plans.
- Assessing the chemical, physical, and biological impacts on receiving waters resulting from urban runoff.
- Characterizing storm water discharges.
- Identifying sources of pollutants.
- Assessing the overall health and evaluating long-term trends in receiving water quality.

These objectives span multiple goals, ranging from verifying of compliance, evaluating effectiveness, characterizing existing conditions, and tracking changes over time. Each would likely require different monitoring methods, duration of measurement, and uses of the resulting data (Table 5-1). This variability emphasizes what we consider the key starting point of any monitoring program: to answer the questions, "What is the purpose of monitoring? How will the data be used?" Even secondary considerations can exert great influence over every aspect of the design of a monitoring program: "How quickly do you need to have an answer?" And, perhaps most influential of all, "What are the resources available to provide that answer?"

Table 5-1. The recommended purpose(s) of monitoring associated with hydromodification control plans, organized by the scale of implementation and the time frame in which useful results should be anticipated.

Time Frame	Programmatic: State and Regional Water Boards	Local: City and County Jurisdictions
Short-term (<10 years)	• Define the watershed context for local monitoring (at coarse scale) • Evaluate whether permit requirements are making positive improvements	• Evaluate whether specific projects/ regulations are meeting objectives • Identify the highest priority action(s) to take
Long-term (1+ decades)	• Define watershed context and setting benchmarks for local-scale monitoring (i.e., greater precision, if/as needed) • Demonstrate how permit requirements can improve receiving-water "health," state-wide (and change those requirements, as needed)	• Evaluate and demonstrate whether actions (on-site, instream, and watershed scale) are improving receiving-water conditions • Assess program cost-effectiveness • Identify any critical areas for resource protection

5.1 The Purpose of Monitoring

In the context of hydromodification assessment and management, we propose three interrelated purposes for monitoring that will guide the discussion and recommendations in this section:

- **Characterizing the conditions** of receiving waters downstream of urban development (including any trends in those conditions over time).
- **Evaluating the effectiveness** of hydromodification controls at protecting or improving the conditions of downstream receiving waters (and modify them, as needed).
- **Setting priorities** on the wide variety of hydromodification control practices, as promulgated by the State and Regional Boards and as implemented by local jurisdictions.

These needs give rise to several interrelated types of monitoring, all common to many watershed and stormwater monitoring programs. They are typically executed at different spatial and temporal scales, and if well-designed and executed they can collectively help guide management actions. We define them here, using terms and definitions that are common to the monitoring literature:

- **Performance monitoring,** by which is normally meant the evaluation of a particular stormwater facility relative to its intended (or designed) performance, but independent of whether that intended design is actually beneficial for downstream receiving waters.
- **Effectiveness monitoring,** by which we mean the assessment of how well specific management actions or suites of actions reduce or eliminate the direct impacts of stormwater on receiving waters. This type of monitoring can answer a question common to stormwater management: does a particular facility actually achieve its intended goal (e.g., flow releases from a stormwater facility protect the stream channel downstream from erosion)? More broadly, monitoring can evaluate the "effectiveness" of a suite of measures or an overall program designed to produce

beneficial outcomes (or avoid negative ones) in downstream receiving waters. In this context, the precise boundaries division between effectiveness monitoring and other types are blurry and unnecessarily artificial.

- **Trends monitoring,** by which we mean an integrative assessment of whether our "endpoint" indicators (physical, chemical, or biological) are showing any consistent, statistically significant change over time. Such monitoring rarely "proves" the direct impacts of a specific stressor on a receiving water, but it is critical to setting and evaluating progress towards integrative assessment endpoints at a regional scale. If well-designed, trend monitoring commonly provides useful information at smaller spatial scales as well, particularly in evaluating response to recent management actions or recovery from a prior disturbance.
- **Characterization monitoring**, by which is commonly meant the identification and (or) the quantification of various parameters in stormwater or a receiving-water body. Characterizing the condition of an outflow discharge or a water body at a particular time and place is always an outcome of the other kinds of monitoring; when it is called out as a goal in-and-of itself, however, it is can be useful to prioritize actions—but only if there is a preexisting standard for what constitutes a "good" or "acceptable" condition (also termed "status monitoring"), and a program to implement (or at least to set the priority for implementing) actions to improve the condition of waterbodies found to be "not good" or "unacceptable."

Without a context for evaluation, characterization monitoring is prone to generate large quantities of rarely used data. We strongly encourage that the purpose of any "characterization" monitoring be clearly articulated in hypothesis testing, priority setting, or systematic trend evaluation. As noted by NRC (2009, p. 508) with respect to this type of monitoring, "…monitoring under all three (NPDES municipal, industrial, and construction) stormwater permits is according to minimum requirements not founded in any particular objective or question. It therefore produces data that cannot be applied to any question that may be of importance to guide management programs, and it is entirely unrelated to the effects being produced in the receiving waters." We seek to proactively avoid this problem.

Monitoring should occur at two scales:

- **Regional or state-wide scale- this will require a time frame of one to several decades**
- **Local scale – this is required to evaluate the performance and effectiveness of specific management measures.**

In this sub-section, we focus our discussion on two interrelated scales at which these various types of monitoring should be applied as outlined in Table 5-1 at the beginning of this section. The first, which here and elsewhere in this document is termed "programmatic," has a regional or state-wide spatial scale; many of its key actions will require a time frame of one to several decades. Monitoring data from this scale should inform the broadly construed "health" of receiving waters to assess whether the range of hydromodification strategies being implemented is maintaining desired conditions across the (state-wide) range of physiography, climate, land-use change, and regulatory approaches of the regional boards. They should be used to identify particularly promising (or particularly ineffective) combinations of control strategies and landscape conditions. Finally, they should provide regionally tailored benchmarks for what constitutes "healthy

watersheds" and "healthy receiving waters" so regulators and permittees alike know what still needs to be done, where it should be done, and how urgently it needs to happen.

The second scale of monitoring data we term "local." It comprises the generation of monitoring data to evaluate the performance and effectiveness of specific management measures (be they structural or nonstructural) at reducing the negative consequences of hydromodification on downstream receiving waters. Useful information at this scale will normally be generated in the time frame of an NPDES permit cycle (i.e., ~5 years) and should provide direct guidance on whether the evaluated management strategies are working, need refinement, or should be abandoned altogether. They should also provide guidance on the degree to which management efforts should be prioritized where regulatory flexibility exists, given the conditions (and, perhaps, the potential responsiveness) of downstream receiving waters. Over longer time frames, monitoring at this scale can also provide public demonstration of the value of regulatory and programmatic efforts, and it can also help identify the most cost-effective mix of publically funded projects and regulatory protection to achieve (or maintain) receiving-water health.

5.2 Programmatic Monitoring at the Regional Scale

5.2.1 Defining Watershed Context

Although not "monitoring" in the strictest sense of this word, establishing a watershed context for the measurement and evaluation of receiving waters is a hallmark of virtually all recommended monitoring strategies (e.g., Beechie *et al.* 2010, Brierley *et al*. 2010). Monitoring programs should be consistent with the watershed perspective that forms the basis for the management framework discussed in Section 3. In California (as in most other states), this can only be executed at a supra-jurisdictional scale, because most watersheds cross one or more city and/or county boundaries. This presents the long-term challenge that many jurisdictions do not have authority over parts of the landscape that can affect the quality of rivers and streams that pass through their boundaries; more immediately, however, it makes an inclusive watershed assessment almost impossible to execute at a local level.

5.2.2 Determining the Effectiveness of Permit Requirements

A second, more challenging contextual need at the regional scale is the definition of thresholds or endpoints against which to compare the results of monitoring or modeling. Both of these "assessment tools" can guide the application of hydromodification control strategies, evaluate their real or likely success, and predict the consequences of hydromodification on downstream receiving waters. However, they provide little insight into the question, "how good is good enough?" Answering this question requires a definition of "assessment endpoints" (borrowing the term from NRC 1994), which in turn requires objective, quantifiable criteria for evaluating progress or outright success.

Most existing HMPs require the permitted municipalities to develop programs and policies to assess the potential effects of hydromodification associated with new development and redevelopment, to include management measures to control the effects of hydromodification, and to implement a monitoring program that assesses the effectiveness of HMP implementation at controlling and/or mitigating the

effects of hydromodification. Yet the appropriate objectives of such management measures, or a basis to evaluate success or failure of the HMP through monitoring data, are rarely provided in consort. Setting these endpoints is beyond the capacity of any but the largest municipalities—and even for those, neither the field of watershed science nor the arena of public policy is so clear that an unequivocally "correct" answer is likely to emerge without much additional work. Any such finding would also lack state-wide applicability; California is far too physically and ecologically diverse for an assessment endpoint developed in one part of the state to transfer everywhere without careful consideration.

For these reasons, we consider this aspect of monitoring at the regional scale to be a long-term, state-wide effort. This reflects the challenge of conducting meaningful characterization (or "status") monitoring: it requires a benchmark against which the measured condition can be compared, and to which an absolute rating ("good," bad," etc.) can be assigned.

In contrast, "trends" monitoring requires no such benchmark, only equivalent measurements undertaken at multiple times coupled with an understanding of what direction of change is desirable. For this reason, evaluating whether permit requirements are making positive improvements is a reasonable (and probably critical) short-term effort, one that can be conducted locally (see below). It should also be integrated and compiled at a regional level, however, the better to inform the continued development of hydromodification requirements.

5.3 Monitoring at the Local Scale

The needs of a monitoring program for local jurisdictions should complement those being satisfied at a regional scale. Showing net improvement is critical to maintaining support for regulatory actions and capital expenditures, but any monitoring program must reflect the typical constraints of showing rapid results while acknowledging constraints on staff resources and expertise (Scholz and Booth 2001). No less urgent is the need to identify what to do "next"—not necessarily establishing a multi-year capital improvement plan, but at least identifying key problems with one or two associated actions that would likely result in significant improvements in receiving-water conditions. Watershed characterization, as discussed above and applied to a specific jurisdiction, can provide useful guidance for such identification; even without it, local knowledge is commonly sufficient in-and-of itself. Targeted monitoring can normally confirm (or refute) such inferences in short order, which is why we place this monitoring application in the "short-term" category.

However, a monitoring program can also provide longer term guidance to local jurisdictions. When supported by the regional context of receiving-water conditions, local monitoring data can demonstrate trends over time that can lend support to (or indicate necessary changes to) hydromodification control plans. In combination with economic data, they can show long-term cost-effectiveness. Finally, site-specific monitoring data, when analyzed in the context of an appropriate scale of watershed characterization, can guide the stratification of less developed and undeveloped watershed areas into those where more assertive protection (or restoration) will be most worthwhile. None of these outcomes depend solely on collecting monitoring data, which is why none of them are presumed to be credible "short-term" applications of monitoring data. However, they have found expression in other

parts of the country having long-term monitoring efforts, and they should provide similar benefits to California as well.

5.4 Developing a Monitoring Plan

"Monitoring" the effects of a management action, whether it is a new regulation, a change in operational procedures, or a constructed project, is commonly included by design or required by regulation. The collection of monitoring data may be seen as a worthwhile activity in its own right, but this discussion uses a more restrictive, implementation-based definition: any "monitoring" needs to demonstrate a direct connection to management actions, such that the results of monitoring are translated into on-the-ground management actions (or changes in management actions). This focus on the *use* of monitoring data requires clear linkages between a management action, the uncertainties associated with that action, the ways in which the effects of that action are expressed (and can be measured) in the world, and the management changes that should be implemented if monitoring results provide unanticipated (or equivocal) resolution to those uncertainties. This is the basis for establishing an "adaptive management" approach to hydromodification monitoring, discussed in more detail in Appendix C. Here, we discuss the design of a monitoring program and outline the variety of measurements that can be made, under the assumption that the intended use(s) of the monitoring data have already been established.

"Stormwater management would benefit most substantially from a well-balanced monitoring program that encompasses chemical, biological, and physical parameters from outfalls to receiving waters" (NRC 2009, p. 257). In pursuit of a comprehensive monitoring program we might also add regular documentation of weather and climate conditions and land-cover changes. As a practical matter, however, monitoring at a site scale is almost never coordinated with other equivalent efforts at other locations, nor placed in a broader spatial context being developed as part of a regional effort. For monitoring data to have greatest value, however, such coordination and context-setting is needed.

Stormwater management would benefit most substantially from a well-balanced monitoring program that encompasses chemical, biological, and physical parameters… (NRC, 2009)

5.4.1 Design of a Monitoring Plan

As noted at the beginning of this section, the overarching question that must be asked and answered at the beginning of any monitoring design effort is "What is its purpose?" The considerations enumerated below cannot be addressed without an explicit answer to this question, because the outcome of those considerations will depend on how the data are to be used. For certain common application of monitoring data we suggest guidance that will be widely appropriate, but there are no recommendations in this section (or any other monitoring guidance document) that apply universally.

Multiple authors have condensed their guidance for designing a monitoring plan into a short list of steps that should precede the first instance of field data collection (e.g., Shaver *et al.* 2007). Although all

differ in details and intended audience, they share significant commonalities that can be distilled as follows:

- Articulate the purpose of the monitoring (the "management question").
- Identify key constraints, in particular the geographic range and scale over which the monitoring can occur, financial/staff resources available, and the time frame in which results must be generated.
- Evaluate existing information, model outputs, and/or regulatory requirements to identify promising metrics and specific sites appropriate to the management question.
- Identify the specifics of the monitoring plan: what parameter(s), where, for how often and for how long. This may include multiple iterations, wherein the guidance of Step 3 must align with the constraints of Step 2.

Most such guidance is written with site-specific, "local" monitoring in mind—the existing literature provides less direction for monitoring that is herein recommended to occur at a regional scale over the next one or more decades. However, the basic principles are the same at all scales: a coherent, explicit purpose needs to be articulated, resource constraints need to be acknowledged, and a credible strategy needs to be developed with its specifics fleshed out. Below we discuss some of the primary considerations in this last step, because they are common across a wide range of monitoring purposes, programmatic constraints, and indicator types.

5.4.2 Constraints (Step 2 of the Monitoring Plan)

Scale. Ideally, a monitoring program should encompass multiple, nested scales of monitoring that are determined by the question(s) being addressed. For hydromodification applications, the broadest scale of monitoring is that of the integrated effect of stormwater impacts and stormwater management on receiving waters. *Trends monitoring* (and characterization monitoring, if regionally appropriate ranges of quality have been determined) addresses these questions, and it also allows stormwater and resource managers to measure the broad benefits obtained from management investments. Site-specific conditions normally cannot be traced back to specific generators of pollution (NRC 2009), and so monitoring at the broadest scales (i.e., many tens of square miles and larger) should not attempt to do so. Instead, identifying overall conditions and trends requires a broad spatial scale over long time frames (i.e., multiple years), the essence of trends monitoring. This level of effort is recommended as a regional responsibility, because the area(s) of interest will normally far exceed the geographic limits of any single jurisdiction.

Ideally, a monitoring program should be designed to detect trends, assess effectiveness and allow for source identification.

If trends monitoring (or long-standing prior knowledge) indicates that there are impacts on beneficial uses, a second (and more site-specific) scale is invoked, that of *effectiveness monitoring:* which of our many stormwater-management actions are achieving the greatest reduction in downstream impacts

(and which are not)? On the whole, such stormwater control measures, both structural and nonstructural, vary by land use—the measures suitable for a residential neighborhood will likely be impractical or ineffective (or both) in an industrial setting. We therefore anticipate that most effectiveness monitoring will be stratified by land use and conducted by individual jurisdictions (see, for example, such an approach in the Nationwide Stormwater Quality Database, which contains water-quality data from more than 8600 events and 100 municipalities throughout the country).

The finest scale of monitoring is that of *source identification*, a form of characterization monitoring: what specific locations and which parts of the landscape generate stormwater of sufficiently deleterious quantity and (or) quality to cause impacts to beneficial uses, be they direct or indirect effects? This question is widely posed in stormwater management programs, and a number of existing monitoring programs seek to provide answers. The science of stormwater already suggests where the greatest attention is probably warranted (NRC 2009), namely a particular focus on areas of well-connected (or "effective") impervious area, high vehicular traffic, and exposure to toxic chemicals. We therefore suggest these categories should define areas of highest priority for this type of targeted investigation, allowing even a resource-constrained jurisdiction to conduct a useful, well-focused monitoring effort with good efficiencies.

Siting. Site selection is most commonly guided by the location of the management action being evaluated while dictated by more mundane considerations of property ownership and access logistics. In general, sites need to meet a few following basic criteria.

- Appropriate scale: the upstream area should be dominated by, or at least significantly affected by, the management action of interest.
- Responsiveness: at the chosen location, the parameters being measured should be amenable to change in response to the management action (e.g., monitoring for geomorphic change in a concrete channel is ill-advised).
- Representativeness: the results at the chosen location should be credibly extrapolated to "similar" sites, and those sites in aggregate should constitute a widespread (or otherwise important) subset of the landscape as a whole.
- Access: the site should be easily reached by the appropriate personnel and equipment, and with a cost of doing so consistent with the frequency of measurements being made. Any equipment left unattended needs to be secure (or well-hidden).

There are institutional considerations in site selection as well. Multiple programs implement monitoring or impose monitoring requirements, and coordination can provide mutual benefits and efficiencies to all. In particular, monitoring driven by management actions at a particular location (i.e., a local scale) will always benefit from information from one or more regional-scale reference sites that can characterize natural or background variability. Local studies will rarely have resources to execute such an effort themselves, again emphasizing the importance of a nested (and coordinated) hierarchy of monitoring programs.

Time and Variability. Evaluating the effectiveness of management actions requires a preliminary judgment of the time frame over which effects can be recognized. For water-quality parameters, storm-specific grab samples or continuous flow-weighted sampling has been most common; for changes in geomorphic form or in the population attributes of benthic macroinvertebrates, one-time annual sampling that presumes to integrate the effects of the past year are typical. Flow metrics are normally extracted from "continuous" (i.e., 5-, 15-, or 60-minute) measurements of discharge. However, every measurement has some degree of variability, a consequence of "natural" variability, measurement errors, and induced change (i.e., the effects of the management action we are trying to perceive). Separating these components is a matter of statistical analysis (see next section) based on repeated measurements, either in time or in space (or both).

We note that many practices common to past monitoring efforts, particularly the use of individual grab samples to characterize stormwater quality, have yielded results with little to no subsequent value: "…to use stormwater data for decision making in a scientifically defensible fashion, grab sampling should be abandoned as a credible stormwater sampling approach for virtually all applications" (NRC 2009, p. 330).

The duration of a monitoring program is commonly determined by the desire for "timely" answers, although normally the ability to generate statistically significant results is a function of the system being evaluated and the indicators being measured. This often creates a conflict between the intended "mission" of the monitoring program and its ability to produce defensible results, a conflict that can only be avoided by a design that identifies meaningful variables to measure, conducts sufficiently frequent measurements to dampen random variability, and must persists for long enough to allow a management "signal" to emerge from the data. This is the essence of the iteration noted above in Step 4 of monitoring-plan design above.

The monitoring program design must persist long enough to a allow management "signal" to emerge from the data. Consequently, long-term records (i.e., one to several decades) will be needed to detect all but the most dramatic of trends in biological indicators.

In one of relatively few quantitative studies of variability in biological indicators, Mazor *et al.* (2009) found that year-to-year variability for the same site sampled in the same season showed a variability (i.e., ±1σ) was typically about 10 points for a benthic IBI. With average scores for their 5 sites ranging from 28–51 (on a 100-point scale), this reflects a coefficient of variation of about 25%. Individual metrics were even more variable. This emphasizes that long-term records (i.e., one to several decades) will be needed to detect all but the most dramatic of trends in biological indicators.

The duration of monitoring also needs to capture the events that are most important to the anticipated responses of the measured system. For evaluating the effects of hydromodification, frequent storms (i.e., those that are normally expected to occur one to several times per year) are commonly judged important and their effects would normally be captured by a monitoring effort of even just one or a few years' duration. Particularly in more semi-arid regions of the state, however, significant channel-altering events may occur only after many decades of relative quiescence and stability, and noticeable (or documentable) response of streams to hydromodification may only occur under certain circumstances or following specific combination of events. Therefore, the lack of channel response on an annual basis

may not necessarily indicate that management actions are effective. Thus a long-term, ongoing monitoring effort is necessary to capture the responses to infrequent, stochastic events, but determining the likely duration of such a program requires some knowledge (or assumptions) of the critical drivers of those responses. It therefore requires a well-posed set of management questions underlying the monitoring effort as well.

For management questions concerning the effectiveness of hydromodification controls, monitoring will almost always benefit from long-term flow monitoring at multiple sites, especially those in the mid to upper watershed (and key tributaries, depending on the scale of the effort). Local rainfall measurements are nearly as essential, since flow data without rainfall data resolved at a similar spatial and temporal scale are useless at best, misleading at worst. Baseline (pre-project) monitoring normally is also invaluable. However, each of these elements will normally require some combination of a multi-scale, long-term, coordinated monitoring program with an investment of at least several years' duration in anticipation of (and follow-up after) a specific management action at a specific location. Despite the value for evaluating the effects of hydromodification (and hydromodification control efforts), such monitoring almost never occurs to this degree. To the extent this remains a practical constraint on implementation, the range of management questions needs to be commensurately narrowed as well.

Statistical Considerations. The statistical design of a monitoring program is beyond the scope of this section, because the range of possible requirements and approaches is tremendously broad. Several general principals are worth articulating, however, because they apply almost universally (and are commonly ignored):

- Although trends can be "suggested" by monitoring data, only statistically rigorous results can be offered as "proof." Thus, ignoring this dimension of monitoring program design severely limits future applicability of the results.
- Most natural parameters display high variability when measured outside a laboratory, and thus the magnitude of change caused by a management action also needs to be great before it can be recognized. There is a trade-off between the relative magnitude of change and the number of samples required to recognize it (i.e., large relative changes require fewer samples), but many monitoring efforts pay little attention to this basic fact. Where sampling can only occur during specified storm conditions or once during the same season each year, the duration of a monitoring campaign sufficient to detect even large changes in naturally variable parameters is likely to be a decade or longer. For many management applications, this is tantamount to generating no useful information at all (but is significantly more costly).
- The level of effort needed can be estimated *a priori* to help guide final monitoring design, but only if the degree of variability and the magnitude of change to be perceived are known or estimated ahead of time. One such example is given below, where the diagonal lines are labeled with the number of independent samples needed to achieve a typical level of statistical power for various combinations of permissible error from the "true" value (x axis), and the intrinsic variability in values across the population being measured (y axis) in Figure 5-1 below.

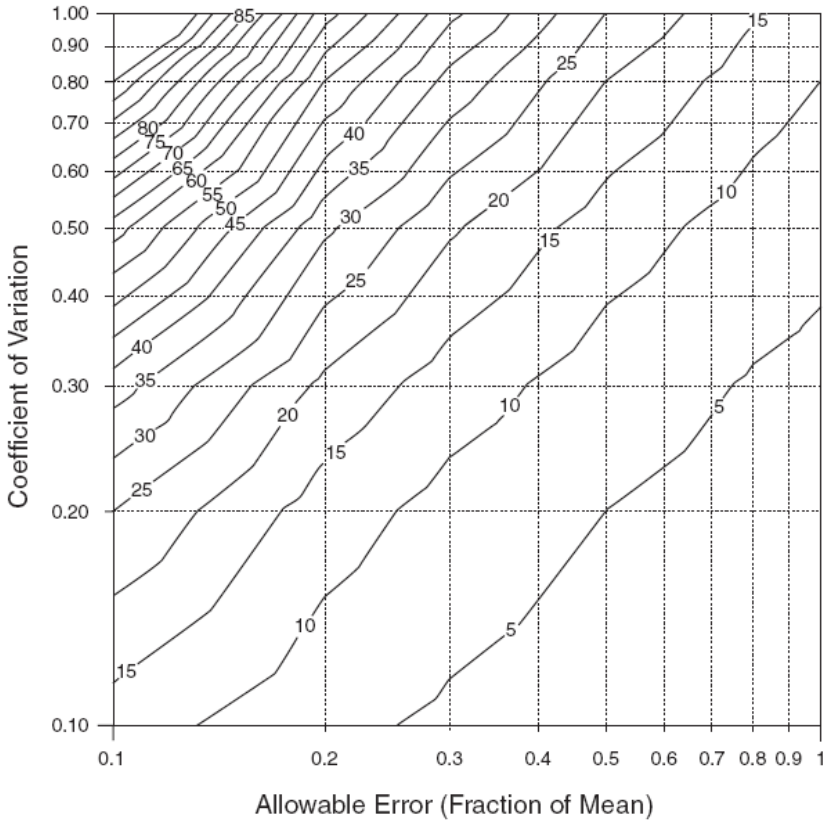


Figure 5-1. Sample requirements for confidence of 95% (α = 0.05) and power of 80% (β = 0.20). Figure from Pitt and Parmer 1995.

5.4.3 What to Monitor (Step 3 of the Monitoring Plan)

The choice of "what to monitor" follows from the choice of assessment endpoints, which in turn depends on the choice of management goals: for example, if "stable stream channels" is the intended outcome of an HMP, then measurement of the physical form of a channel over time would be appropriate. If diagnosing the cause of observed changes is also desired, then some evaluation of potential causal agents (e.g., hydrology, sediment input, or direct disturbance) would also be needed. Because management goals are now commonly (and appropriately) cast more broadly, however, they can embrace less clearly defined endpoints such as "watershed health" or "biological integrity." Many such endpoints fail the test of quantifiable objectivity.

However, these goals invoke a broad scope of concern, embracing not only physical stream conditions but also a range of chemical, hydrologic, and biological attributes. They encompass a broader catalog of receiving waters that may need to be evaluated. Finally, they emphasize the importance of looking more broadly to identify the cause of observed changes—both spatially, to conditions throughout a watershed that may have influence downstream; and temporally, to recognize ongoing adjustments to past disturbance (i.e., legacy effects) and to future environmental changes (e.g., climate change) that commonly lie well beyond the ability of local watershed managers to address. The imprecision of these

goals should not obscure the importance of broadening the scope of stormwater and hydromodification assessments to include not only the traditionally emphasized characterization of selected water-quality constituents and channel stability, but also more integrative measures.

These considerations suggest two broad categories of assessments, which largely but not entirely align with the two scales of implementation (i.e., "programmatic" and "local") defined in Table 4–1:

- Integrative: defining an overall level of "health" of the watershed, as expressed in the condition(s) of its receiving waters. Current scientific consensus suggests that biological indicators are best suited to this scale of evaluation (Karr and Chu 1999), insofar as they integrate the consequences of multiple stressors on aquatic systems and because many management goals (and regulatory requirements) are cast in biological terms. To be meaningful, however, any such indicators need to be suitably chosen and stratified for their particular geo-hydro-climatological region (e.g., "ecoregions"; Omernick and Bailey 1997).
- Targeted: demonstrating the achievement of an established regulatory standard or a designated threshold (typically, a measured or modeled pre-development condition) by a particular parameter, commonly one or more chemical constituents or a specific hydrologic metric of flow. This can be evaluated at the outfall of a single stormwater facility, at the discharge point for a site, or in the receiving water itself. Many of these thresholds are important in their own right—to protect human health, to preserve riparian property from erosion, to avoid flooding of previously non-inundated lands. However, they should be recognized as providing only one-dimensional views of a much broader system. Thus, targeted monitoring can supplement but should not replace more integrative measures.

Integrative assessment endpoints require multiple lines of evidence to characterize receiving-water conditions. At their most comprehensive, they should include measures of flow, geomorphic condition, chemistry, and biotic integrity (Griffith *et al.* 2005, Johnson and Hering 2009). However, biological criteria are generally key to integrative assessment: "In general, biological criteria are more closely related to the designated uses of waterbodies than are physical or chemical measurements" (NRC 2001, p. 8). In most applications, such assessments are compared to one or more reference sites where conditions have been independently judged as "excellent," or where human disturbance is minimal and so best-quality conditions are assumed.

Integrative assessment endpoints require multiple lines of evidence to characterize receiving-water conditions. At their most comprehensive, they should include measures of flow, geomorphic condition, chemistry, and biotic integrity.

The task of identifying and quantifying reference conditions in California streams is presently being carried out by the Reference Condition Management Program (RCMP) of the State Water Board's Surface Water Ambient Monitoring Program (SWAMP; see 2009 Recommendations). About 600 sites have been recognized by this program as "reference" based on having minimal human disturbance, and they have been geographically stratified into the 12 Level III ecoregions mapped for the state of California (by USEPA 2000). The metrics chosen to characterize their biologic conditions should provide an appropriate list for the evaluation of impaired (or potentially impaired) streams.

An equivalent set of reference sites and conditions for other receiving-water types does not presently exist. California also presently lacks a systematic basis for defining relative categories of "poor," "fair," "good," or "excellent" based on numeric values of biological indicators, such as exists in parts of the Pacific Northwest. Several regions, however, now have multimetric biological indicators with defined reference conditions (see below).

Elsewhere, however, there is as yet no context for setting assessment endpoints for biological indicators in California receiving waters. Such an effort is in progress, at least for streams, and its eventual completion to support the management application of more local monitoring results is a key recommendation of this report. Biological assessment endpoints will need to be established region by region on an as-needed basis; in the interim, locally collected data can be very useful for trend monitoring of receiving water but not for defining existing levels of "health."

5.4.3.1 An Example from Washington State

The Puget Sound region of western Washington State provides an instructive example for identifying indicators and establishing desired assessment endpoints. Multiple agencies over the last two decades have sought to measure the overall ecological health of the region and to define targets for recovery. Following the most recent three-year process, the lead agency for the current effort released its set of 20 "dashboard indicators" designed both to express scientific understanding of conditions needed for ecological health and to communicate that understanding in a public-accessible manner (http://www.psp.wa.gov/pm_dashboard.php; accessed September 5, 2011). They cover physical, chemical, and biological indicators: all expressed in terms of relative improvement or quantified conditions to be reached by the year 2020.

This level of target-setting is possible only after extensive study and public discussion; it falls far beyond the scope of the present document. It is instructive for the state of California, however, in several regards as it looks to the future:

- The physiographic scope of the indicators and their target values is well-constrained to a particular geographic region with broadly similar geologic, hydrologic, and climatological attributes. Multiple parallel efforts would almost certainly be needed for a more diverse region (such as the entire state).
- Each indicator has a strong scientific basis for inclusion and at least some scientific basis for specific targets. Their communication value with the public was also an explicit criterion for inclusion.
- The most numerous indicators are biological, and they address multiple levels of the trophic chain from top predators to plants (a planktonic metric, however, was rejected as requiring too much additional scientific study and offering little communication value to the general public).
- Although emphasizing biology, the indicators are broadly distributed amongst biological, chemical, and physical metrics; most are broadly integrative in nature (e.g., reference to "bug populations" (the Puget Sound B-IBI) and a "freshwater quality index").

- The set of physical indicators is most parsimonious for instream conditions, and excluding marine nearshore and estuary conditions is restricted to a single hydrologic metric (chosen for its presumed influence on fish). This stands in stark contrast to most existing hydromodification monitoring plans, which emphasize measures of channel geomorphology and a wider range of hydrologic metrics. Such indicators may provide useful performance measures, but they should not be mistaken for more integrative measures of ecosystem or watershed "health."
- Although each indicator has a specified, numeric goal to be reached by 2020, there are no articulated changes to the current management plan if any of those goals are not reached (or if interim measures suggest that they will not be reached). This is a recognized shortcoming of the present plan but there is no mechanism yet in place to address it. As such, it does not currently meet the test for "adaptive management" (see Appendix C).

In California, such a list of integrative assessment indicators (let alone quantified endpoints for those indicators) cannot presently be defined, except in a few specific localities where data collection and analysis have been ongoing for many years. Thus, we recognize the value of such targets but must guide the present development of monitoring in recognition of their near-complete absence. Rectifying this shortcoming is the central recommendation for long-term program development; in the interim, short-term monitoring at both the regional and local levels need to acknowledge the absence of an integrative context in which to interpret their results.

In California, a list of integrative assessment indicators (let alone quantified endpoints for those indicators) cannot presently be defined, except in a few specific localities. Rectifying this shortcoming is the central recommendation for long-term program development.

Regulatory standards are established on the assumption that "clean water" will result in "healthy streams," but the elements of a watershed are far too complexly interrelated to permit such a simplistic perspective. Although the inverse ("polluted water results in unhealthy streams") is almost always true, the challenge for inferring causality from typical monitoring data is that *many* such stressors can all yield the same, degraded outcome. For this reason, targeted monitoring can provide useful diagnostic information and demonstrate regulatory compliance, but it cannot provide sufficient information to address integrative assessment endpoints.

5.4.3.2 Indicators from Existing Programs

We now turn to some of the most common indicators used in monitoring programs today, recognizing that their suitability in any given application depends on the questions being asked, the characteristics of the natural system being measured, and the practical constraints imposed on the monitoring program.

Hydrologic Indicators. Historically, the effects of urbanization on flow were characterized exclusively in terms of peak flow increases (e.g., Leopold 1968, Hollis 1975). Study since those early works has emphasized the degree to which other attributes of a stream hydrograph are changed by watershed imperviousness, and the importance of assessing the *duration* of moderate flows that are capable of transporting channel sediments and the frequency with which those geomorphically active flows occur

(Section 2). Thus, monitoring relevant to a particular hydromodification management application will likely include a variety of flow metrics (e.g., Konrad and Booth 2005, Degasperi *et al*. 2009).

In moving beyond a narrow focus on linkages between watershed urbanization, flow alteration, and in-stream effects, scientific understanding of hydrologic controls on stream ecosystems has recently led to new approaches for assessing the ecological implications of hydromodification. For example, the ecological limits of hydrologic alteration (ELOHA) framework is a synthesis of a number of existing hydrologic techniques and environmental flow methods that allows water-resource managers and stakeholders to develop socially acceptable goals and standards for streamflow management (Poff *et al.* 2010). The central focus of the ELOHA framework is the development empirically testable relationships between hydrologic alteration and ecological responses for different types of streams. This requires a foundation of hydrologic data provided by gaging and/or monitoring, and sufficient biological data across regional gradients of hydromodification. Although hydrologic–ecological response relationships may be confounded to some extent by factors such as chemical and thermal stressors, there are numerous case studies from the US and abroad in which stakeholders and decision-makers have reached consensus in defining regional flow standards for conservation and ecological restoration of streams and rivers (Poff *et al.* 2010).

Hydrologic monitoring provides essential information needed for establishing flow–geomorphology–ecology relationships, validating conceptual models, and assessing effectiveness of management actions in developing watersheds. Implementing regional flow standards should proceed in an adaptive management context, where collection of monitoring data or targeted field sampling data allows for testing of flow alteration–geomorphic–ecological response relationships. This allows for a fine-tuning of flow management targets based on improved understanding of the actual mechanisms; however, such monitoring can be expensive and it may take many years to adequately characterize the full spectrum of streamflows. Thus, hydrologic monitoring programs should be carefully planned and executed so that they are cost-effective and address the key uncertainties In this paper we primarily focus on indicators that do not require additional, extensive data collection.

Hydrologic indicators provide essential information needed for establishing flow–geomorphology–ecology relationships, validating conceptual models, and assessing effectiveness of management actions in developing watersheds.

Geomorphic indicators have been long-recognized as simple, easy-to-measure, and relatively responsive indicators of changes to the flow regime or sediment supply of a river or stream.

Biological indicators provide an integrative view of river condition, or river health.

Hydrologic monitoring is feasible in the context of a short-term program only if the purpose is to evaluate the engineering performance of a particular facility. For most applications, however, at least two (and commonly many more) years are necessary to measure a range of variable conditions sufficient to capture significant geomorphic and/or biological effects. Measurement of precipitation, generally a less cost-intensive effort than flow monitoring, must occur in consort for the data to be useful. In an effort to minimize the cost of continuous long-term flow modeling, a hydrologic model may be calibrated on one or two years of actual data and then used *in lieu* of further data to predict flow conditions. Whether the level of imprecision so introduced is appropriate will depend on the

management questions being asked, but in general such an approach is normally judged more appropriate for comparative results (e.g., did a specified flow magnitude increase in frequency or duration?) than for absolute results (what is the magnitude of the 2-year discharge?).

Geomorphic Indicators. Geomorphic indicators have been long-recognized as simple, easy-to-measure, and relatively responsive indicators of changes to the flow regime or sediment supply of a river or stream (e.g., Leopold 1968). They require little specialized equipment, many commonly can be measured "in the dry" (or close to it), they typically change little from week-to-week (and so are often measured only once per year), and the morphologic features of interest provide the physical template on which a wide range of biological conditions are expressed.

Scholtz and Booth (2000) recognized five geomorphological "channel features" commonly measured as part of monitoring programs:

- Channel geometry (cross sections, longitudinal profile).
- Channel erosion and bank stability.
- Large woody debris.
- Channel-bed sediment.
- In-stream physical habitat (pools, riffles, etc.).

To this list, others have also added:

- Floodplain connectivity.
- Channel planform (meandering, braiding, rates of channel shifting).

Each metric has well-defined methods for field (or, in some cases, airphoto) measurements that need not be repeated here. However, despite broad agreement on *how* to measure each parameter, there is substantially less agreement on the meaning of particular measurements, or indeed under what circumstances (if any) such measurements should be made at all. Most contentious are the various protocols for assessing instream physical habitat (#5 above)—seemingly the most "relevant" for a host of biological applications and for evaluating restoration success. However, a variety of studies have documented a high level of uncertainty imposed by observer bias:

> "Habitat-unit classification was not designed to quantify or monitor aquatic habitat. At the level necessary for use as a stream habitat monitoring tool, the method is not precise, suffers from poor repeatability, cannot be precisely described or accurately transferred among investigators, can be insensitive to important human land-use activities, is affected by stream characteristics that vary naturally and frequently, and is not based on direct, quantitative measurements of the physical characteristics of interest. Relying on habitat-unit classification as a basis for time-trend monitoring is time-consuming, expensive, and ill-advised." (Poole *et al*. 1997, p. 894)

Other geomorphic metrics, in contrast, can provide a robust, albeit coarse, characterization of the channel boundaries. Some changes, particularly if consistently expressed by multiple adjacent cross-

sections, can provide clear documentation of systematic channel changes over time that can be credibly associated with upstream changes (e.g., increased discharge from urbanization leading to channel enlargement). Other changes, however, may have a more indirect or uncertain association with upstream conditions (e.g., grain-size changes) because of the potential for rapid, ill-described changes over time without a corresponding human "cause." This emphasizes the importance of having a well-crafted purpose for the monitoring program into which the utility of any chosen parameter can be clearly described.

Biological Indicators. Biological indicators have been long-applied in society's evaluation of stream conditions, but historically that application has been rather informal. Observation of major fish kills, for example, is the application of a "biological indicator," but it provides little diagnostic or discriminatory information except in those streams where conditions are so poor that even casual awareness is inescapable. As a more refined assessment tool, however, their application to freshwater streams is only a few decades old. As such, the science is still under construction and some basic principles are still debated.

The rationale behind using biological indicators, however, is relatively undisputed. Karr (1999) has provided a useful summary of that rationale, of which the key elements are:

- Biological monitoring and biological endpoints provide the most integrative view of river condition, or river health.
- Biological monitoring is essential to identify *biological* responses (emphasis added) to human actions.
- Communicating results of biological monitoring to citizens and political leaders is critical if biological monitoring is to influence environmental policies.

Some of the earliest references to biological monitoring are associated with the development of RIVPACS, the River Invertebrate Prediction and Classification System, developed by the Centre for Ecology and Hydrology in the United Kingdom and now applied in a number of countries worldwide to predict instream biological conditions from a suite of watershed and channel variables. Since that beginning, other approaches have been advanced and practiced (e.g., the US Environmental Protection Agency's *Rapid Bioassessment Protocols*) that provide alternative, but likely near-equivalent results (e.g., Herbst and Silldorf 2004).

In this section we compare several biological indicators recently applied in various regions of California. This not intended as a comprehensive comparison of all available approaches potentially applicable to California; rather, it simply provides a few examples that illustrate the differences, and the similarities, of the various approaches. As the comparisons demonstrate, there is no "right" approach—but all share commonalities that are likely to be valuable elements of any biological monitoring program. We focus exclusively on benthic macroinvertebrates (BMI), because these have seen the longest and most widespread application (both in California and worldwide) given their species diversity and their relative geographic immobility. However, a variety of other biological metrics (particularly fish and periphyton) have relevance to biological monitoring and strong advocates in the scientific community. Their

omission here is not a judgment on their value, merely a reflection of the broader applicability and richer scientific development of BMI-based indicators.

Multimetric indices are presently completed for four areas of the state (Eastern Sierra, North Coast, Central Valley, and Southern Coast). They are not standardized or calibrated state-wide (nor should they necessarily be), and they do not provide statewide coverage. In addition, the City of Santa Barbara (Ecology Consultants 2010) has sponsored development of its own BMI index (geographically embedded within the Southern Coast region), with both commonalities and differences between it and the others.

Eastern Sierra Nevada. Herbst and Silldorf (2009) developed an IBI based on streams from the upper Owens River north to the Truckee River. Their purpose was both to provide a region-specific IBI for future use and to evaluate the results of such an approach with others that also make use of BMIs to assess stream conditions. They evaluated the performance of 12-, 10-, and 8-metric indices, recommending the 10-metric index as providing the best overall performance included in the 12-metric index were these 10 and also predator richness and EPT% abundance:

- % tolerant percent richness (% of taxa with TV= 7,8,9,10).
- Richness (total number of taxa).
- Chironomidae Percent Richness (% of taxa that are midges).
- Ephemeroptera (E) Richness (number of mayfly taxa).
- Plecoptera (P) Richness (number of stonefly taxa).
- Trichoptera (T) Richness (number of caddisfly taxa).
- Dominance 3 (proportion of 3 most common taxa)
- Biotic Index (modified Hilsenhoff, composite tolerance).
- Acari richness (number of water mite taxa).
- Percent shredders (% of total number that are shredders).

A statistical analysis suggests that as many as 10 distinct classes can be discriminated using this IBI, although their recommended application uses only five categories of quality.

North Coast. Rehn *et al.* (2005) developed an IBI based on coastal-draining streams from Marin County north to the Oregon border. They evaluated 77 individual metrics, testing them for responsiveness to human disturbance and redundancy, and ultimately settled on eight:

- EPT richness.
- Coleoptera richness.
- Diptera Richness.
- Percent intolerant individuals.

- Percent non-gastropod scraper individuals.
- Percent predator individuals.
- Percent shredder taxa.
- Percent non-insect taxa.

Their statistical analysis indicated that five categories of quality could be discriminated; response was driven most strongly by watershed land cover (natural vs. unnatural) and percent of substrate that was sand-sized or finer. They also suggested a set of thresholds for rejecting potential "reference" sites (Rehn *et al.* 2005; Table 5-2), which was also used in the Southern Coast study (Ode *et al.* 2005; see below):

Table 5-2. Thresholds for rejecting potential "reference" sites.

Stressor	Threshold
Percentage of unnatural land use at the local scale	> 5%
Percentage of urban land use at the local scale	> 3%
Percentage of total agriculture at the local scale	> 5%
Road density at the local scale	> 1.5 km/km^2
Population density (2000 census) at the local scale	> 25 ind./ km^2
Percentage of unnatural land use at the watershed scale	> 5%
Percentage of urban land use at the watershed scale	> 3%
Percentage of total agriculture at the watershed scale	> 5 %
Road density at the watershed scale	> 2.0 km/km^2
Population density (2000 census) at the watershed scale	> 50 ind./ km^2

Central Valley. Rehn *et al.* (2008) also developed an IBI for Central Valley streams, evaluating 80 candidate metrics to yield a final list of five:

- Collector richness.
- Predator richness.
- Percent EPT taxa.
- Percent clinger taxa.
- Shannon diversity (a composite measure of taxonomic richness and evenness of abundance).

They found that reach-scale physical habitat variables were more critical in their data set than water chemistry or land use. They also presented their findings with greater caution than with other regions of the state, noting the difficulty of identifying truly "unimpaired" reference conditions and the geographic concentration of much of their source data.

Southern Coast. Ode *et al.* (2005) developed a BMI index of biological integrity based on 61 potential metrics from reference sites drawn from relatively undisturbed coastal-draining watersheds from Monterey Bay south to the Mexican border. They included seven final metrics:

- Percent tolerant taxa.
- Percent collector-gatherer + collector-filterer individuals.
- Predator richness.
- Percent intolerant individuals.
- EPT richness.
- Percent noninsect taxa.
- Coleoptera richness.

They note that the last two on the list are not common in other multimetric B-IBIs but were statistically appropriate for their data set. They judge that this "SoCal B-IBI" can discriminate 5 categories of condition, using 5 categories evenly divided along a 100-point scale. Particularly strong correlations amongst all seven metrics were displayed in comparison to road density and percent "watershed unnatural."

A portion of the Southern Coast region has also been the subject of independent IBI development over the past decade (Ecology Consultants 2010, 2011). The region of study spans the Santa Barbara coastal streams from the Ventura County line west about 45 miles to Gaviota Creek. Their work led to the development of an IBI using the following 7 metrics:

- # of insect families
- # of EPT families
- % EPT minus Baetidae
- % PT
- Tolerance value average
- % sensitive BMIs
- % predators + shredders

In the course of this work, tolerance values were adjusted for certain taxa based on local observations of presence/absence relative to the level of watershed disturbance. With these changes, they found strong statistical basis for discriminating five categories of biological quality. They also found that considering both watershed-level land use patterns and localized physical habitat conditions were necessary to achieve the best prediction of biological integrity.

Summary. A compilation of the various metrics (Table 5-3) demonstrates only broad commonalities between the various regional IBI's presently available for specific parts of California, suggesting that additional work needs to be done before comprehensive recommendations for biological monitoring can be made. At present, perhaps half(?) of the state's area is covered by existing multimetric indices as noted above, and for these areas they provide the best (indeed, the only) guidance for meaningful collection and interpretation of biological data. Elsewhere, however, only a few general points can be made:

- Biological monitoring in un-assessed regions of the state cannot be used to identify absolute conditions of biological health (i.e., "status" monitoring). However, they will likely be useful for "trends" monitoring, where only the change relative to a prior state is being sought.
- Despite the variability in metric choices amongst the various regions (Table 5-2), some broad commonalities are apparent. In particular, several types of metrics are likely to provide useful indicators of change in a known direction (i.e., an increase or decrease in the metric can be confidently assigned to a change in quality in a known direction):
    - One or more measures of tolerance or intolerance
    - One or more measures of predator prevalence
    - One or more measures of EPT taxa or taxa richness

This list does not purport to describe a true multimetric B-IBI, nor to provide a basis to evaluate instream biological health on an absolute scale (i.e., from "poor" to "excellent"). In the absence of any region-specific guidance, however, changes in one or more of these metrics are each likely to provide some initial, useful indication of temporal trends in biological health until such time as the types of studies referenced above can be conducted.

Table 5-3. Compilation of metrics used in the five regional B-IBI's described in the text.

METRIC	Eastern Sierra	North coast	Central Valley	Southern coast	Santa Barbara
Percent intolerant individuals		X		X	X
% tolerant (% of taxa with TV= 7,8,9,10)	X			X	
Tolerance value average					X
# of insect families					X
Percent non-insect taxa		X		X	
Percent shredders (% of total number that are shredders)	X	X			
Percent predator individuals		X			
% predators + shredders					X
Predator richness			X	X	
Collector richness			X		
Percent non-gastropod scraper individuals		X			
Percent clinger taxa			X		
Percent collector-gatherer + collector-filterer individuals				X	
EPT richness		X		X	X
Percent EPT taxa			X		
% EPT minus Baetidae					X
% PT					X
Ephemeroptera (E) Richness (number of mayfly taxa)	X				
Plecoptera (P) Richness (number of stonefly taxa)	X				
Trichoptera (T) Richness (number of caddisfly taxa)	X				
Coleoptera richness		X		X	
Diptera Richness		X			
Chironomidae Percent Richness (% of taxa that are midges)	X				
Richness (total number of taxa)	X				
Dominance 3 (proportion of 3 most common taxa)	X				
Biotic Index (modified Hilsenhoff, composite tolerance)	X				
Acari richness (number of water mite taxa)	X				
Shannon diversity index			X		

5.5 Recommendations

Based on this review of monitoring theory, current applications, and current needs, the following steps are recommended to advance a state-wide program of monitoring to support the management of hydromodification control plans.

5.5.1 Programmatic Monitoring

Over the next several years, the following actions should be implemented at the state and/or regional level:

- Executing broad-scale, GIS-based watershed characterization;
- Identifying a set of representative indicator watersheds, and a basic suite of regular measurements that are suitable for establishing trends in physical, chemical, and biological indicators;
- Identifying (and multi-metric monitoring within) a relatively small set of watersheds that have implemented recent hydromodification control plans to initiate the long-term evaluation of downstream trends.

Over the course of the next several NPDES permit cycles (i.e., one or more decades), the following actions should also be undertaken as a regional responsibility:

- Setting regionally appropriate endpoints for biological health of receiving waters;
- Identifying particularly promising (or particularly ineffective) combinations of control strategies across a range of different landscape conditions;
- Providing supplemental data collection at reference sites to support trends monitoring by local jurisdictions;
- Compiling local results to guide development and refinement of regionally appropriate hydromodification control strategies.

5.5.2 Local Monitoring

Over the next several years, the following actions should be implemented by local jurisdictions at a local scale:

- Implementing a program of source identification at one or more high-risk locations (e.g., high vehicular traffic, high imperviousness, toxic chemical storage/transport);
- Demonstrating the hydrologic performance of one or more representative hydromodification control facilities;
- Monitoring trends at one or more representative receiving waters, ideally at a regionally identified site (see the second bullet under “Programmatic monitoring,” above);

- Conducting a synoptic evaluation of waterbodies, stratified by watershed type (see the first bullet under “Programmatic monitoring,” above), to identify highest priority systems for protection or rehabilitation, if not already known.

Over the course of the next several NPDES permit cycles, the following long-term actions should also be undertaken as a local responsibility:

- Monitoring representative conditions to evaluate whether management actions are improving overall receiving-water health;
- Evaluating cost-effectiveness of implemented hydromodification control measures;
- Identifying critical areas for resource protection by virtue of existing high-quality conditions.

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APPENDIX A: GUIDANCE FOR APPROPRIATE APPLICATION OF HYDROLOGIC AND HYDRAULIC ANALYSES

Information contained in this document is intended solely for guidance purposes only. It is not intended to be an instruction manual and use of any of the guidance provided herein is at the risk of the user. No other person or entity shall be entitled to rely on the services, opinions, recommendations, plans or specifications provided in the document.

1. INTRODUCTION AND PURPOSE

The purpose of this Appendix is to provide technical guidance on hydrologic and hydraulic analyses, including the use of Continuous Simulation (Hydrologic) Modeling (CSM), in support of hydromodification assessment and mitigation. CSM is the industry standard developed since the early 2000s for use in the assessment and mitigation of hydromodification. The fundamental difference between CSM and peak flow hydrologic modeling, is that CSM considers the full range of flow events over a long period of record, typically 30 years or more, to develop flow duration curves, whereas peak flow hydrologic modeling generally considers synthetically (usually calibrated to measured data) produced event-based hydrographs (2-, 10-, 50-, 100- and 200-year return frequency events). CSM allows flow duration curves and other derived hydraulic metrics to be compared between existing and proposed conditions in order to assess hydromodification impact potential and to develop mitigation strategies. The guidance provided in this appendix is the product of the experience gained in the application of hydromodification management strategies to multiple urban development projects. This appendix is not intended to be an instruction manual but to provide guidance to engineers, planners and regulatory staff on specific modeling elements involved with HMPs.

MODELING METOHDOLOGY REVIEW

Modeling Approaches

A common approach to mitigating hydromodification impacts from development projects is to construct best management practices (BMPs) which capture, infiltrate and retain runoff, where possible. In such cases, the water is detained and released over a period of time at rates which more closely mimic pre-project hydrology. Methods commonly used to size hydromodification BMPs include hydrograph matching (matching pre and post-project flow regimes), volume control and flow duration control. Hydrograph matching is most traditionally used to design flood detention facilities for a specific storm recurrence interval, such as the 100-year storm, whereby the outflow hydrograph for a project area matches the pre-project hydrograph for a design storm. Volume control matches pre- and post-project runoff volume for a project site; however, the frequency and duration of the flows are not controlled. This can result in higher erosive forces during storms. Flow duration control matches both the duration and magnitude of a range of storm events for pre- and post-project runoff. The complete hydrologic record is taken into account, and runoff magnitudes and volumes are matched as closely as possible.

It is generally accepted that flow duration control matching is the most appropriate method to be used in the design of hydromodification BMPs. The flow duration control approach has been used in at least half a dozen HMPs in California, all of which used a CSM to match flow durations. However, differences exist in how the continuous simulation modeling is used between programs.

OVERVIEW OF APPENDIX

This appendix covers the following specific topics, addressed in the order in which they would arise as part of a hydromodification analysis for a major development project:

Section 2 addresses calculation of a flow control range, including identification of an acceptable low flow value, based upon critical flow for incipient motion of the channel material. .

Section 3 addresses the development of evaluation criteria to assess the effectiveness of a proposed mitigation design, including a discussion of flow duration matching and the erosion potential metric.

Section 4 addresses CSM, including precipitation data requirements, hydrologic time steps, model calibration and validation, and other modeling considerations and tips.

2. METHOD FOR SELECTION OF A FLOW CONTROL RANGE

INTRODUCTION TO FLOW CONTROL

Most hydromodification plans (HMPs) in California have adopted a flow control approach, which establishes a range of flow magnitudes discharging from the proposed site that must be controlled. The magnitude of the flow range is commonly expressed in terms of a percentage of the return period flow to which it is equivalent; for example: from 10% of the Q2 to 100% of the Q10. Flow magnitudes within the prescribed range must not occur more frequently under the proposed condition than they do in the existing (or pre-project) condition. Another way of expressing this is that the long term (decadal) cumulative duration of these flows must not be longer in the post-project condition compared to the pre-project condition. Generally, a small exceedance tolerance is allowed. For example, the following is a typical criterion that has been used in HMPs:

> For flow rates ranging from 10% of the pre-project 2-year recurrence interval event (XQ2) to the pre-project 10-year runoff event (Q10), the post-project discharge rates and durations shall not deviate above the pre-project rates and durations by more than 10% over and more than 10% of the length of the flow duration curve. The specific lower flow threshold should be influenced by results from the channel susceptibility assessment.

The rationale behind setting an upper limit is the understanding that when less frequent, high intensity/volume precipitation events occur, the watershed reaches a saturation level and responds in a similar manner for undeveloped and developed conditions. Furthermore, while these less frequent, high magnitude events do induce significant geomorphic change, they occur so infrequently that over a long time period, they comprise only a small portion of the work done on a channel. For example GeoSyntec (2007) used a hydro-geomorphic model to assess cumulative sediment transport on Laguna Creek (near Sacramento) and determined that 95% of the total erosion and sediment transport in the creek is accomplished by flow rates less than Q_{10}.

The purpose of determining a low flow range is one of practical design consideration when meeting a requirement for flow duration matching. The requirement to match flow durations between a pre- and post-project condition requires that runoff be detained and infiltrated within a BMP (e.g. open basin or underground vault). If flow matching is required to be achieved for all flows down to zero, the BMP

volume will be significantly larger (and therefore more costly) than if there were some low flow below which runoff could be discharged at durations longer than in the pre-project condition. A key assumption underlying the concept of a low-flow discharge is that the increase in discharge durations below this rate will not increase channel erosion because the flows are too small to initiate movement of channel materials to any significant extent. Another critical assumption in the flow duration matching approach is that a single discharge value is valid across the range of grain sizes and geometries in the streams to which that low flow value applies.

For a specific set of hydraulic conditions (e.g., cross sectional shape, channel slope, bed and bank roughness), the flow rate can be calculated where the critical shear strength value is reached. Thus with an estimate of the critical shear strength of the materials composing a channel's bed or banks, and the hydraulic conditions occurring at the same location, the critical flow rate can be determined at which transport (or erosion) begins. This critical flow rate (Q_c) can then be compared to the magnitude of a flood peak which occurs every two years (Q_2) to establish the estimate of percent Q_2 to be used as the lower flow threshold.

Thus in order to calculate the lower flow threshold as expressed by a percentage of Q_2, three values must be determined for each analysis location (described in further detail below):

- The critical shear strength (τ_c) of bed and bank materials;
- The critical flow rate (Q_c) at which this critical shear strength is reached and exceeded;
- The magnitude of a flood peak which occurs every two years (Q_2).

In contrast, when using an erosion potential (Ep) metric (rather than flow duration matching) for BMP sizing, the Ep analysis incorporates channel geometry to estimate shear stresses generated at various flow rates, and then compares these to estimated critical shear stresses (i.e., shear stress required to initiate transport) for the grain size distribution within the stream. However, for either flow duration matching or for erosion potential analysis, the first step is to determine the critical shear stress for incipient motion of channel materials.

DETERMINATION OF CRITICAL SHEAR STRESS

The composition and condition of the bed and banks of a stream channel are the best indicators of how a channel will react (i.e., its susceptibility) to hydrologic changes resulting from development projects (i.e., hydromodification). Channels composed of materials more resistant to erosion are less susceptible to excessive erosion due to hydromodification than channels composed of less resistant materials. Channel material type can vary widely between, as well as within, watersheds. Figure 2-1 **Error! Reference source not found.**a. and b. illustrate stream incision through (a) relatively loosely consolidated, non-cohesive sand and gravels, and (b) relatively cohesive silty-clays. The resistance of bed and bank materials is quantified by their critical shear strengths, (τ_c) that is, the value where entrainment or transport begins.

Typical stream erosion in a southern California stream (granular, non-cohesive
(Photo courtesy of Eric Stein, SCCWRP)

Typical stream erosion in a northern California stream (generally cohesive silty clays)
(Photo cbec, inc.)

Notes:	cbec	*Guidance on the Use of Continuous Simulation Hydrologic Modeling* **Examples of Stream Erosion in Southern and Northern California**		
		Project: 11-1001	Created By: CBB	**Figure 2-1**

Figure 2-1. a. Example of a loosely consolidated, non-cohesive sand and gravel stream bed. b. Example of a relatively cohesive silty-clay stream bed.

Several methods are available for the estimation of critical shear stress, including laboratory studies (e.g., flume studies) and field measurements, with different methods utilized for cohesive materials and non-cohesive materials.

Estimating Critical Shear Stress for Non-Cohesive Materials

The most common method for determining the critical shear stress of a non-cohesive material is through the application of the Shields relationship. This relationship is applicable to the calculation of critical shear stress for a uniform size mixture of sediment with a known particle size and specific gravity. Since it was originally proposed by Shields in 1936, the relationship has been tested and further investigated by several other researchers, resulting in a variety of modifications, primarily through variation of the Shields parameter. The original value of the Shields parameter proposed by Shields was 0.06, however, values from 0.03-0.06 have been suggested, with 0.045 acknowledged as a good approximation. Recent research has demonstrated that a value of 0.03 may be more appropriate for estimating incipient motion in streams with gravel beds (Neill 1968, Parker et al. 2008, Wilcock et al. 2009), where D50 estimates are based upon data collected via pebble count. The decision of what value of Shields parameter is used can have a large influence on the resulting τ_c estimate. For example, if a value of 0.06 is used, it results in twice as large of an estimate of τ_c than if a value of 0.03 is used.

While the Shields relationship was developed for a mixture of uniform sized sediment, it can be applied to a mixture of sediment with varying sizes as long as the distribution is uni-modal and does not have a high standard deviation of grain sizes (Wilcock 1993). In contrast, for sediment mixtures which are bimodal (e.g., if there is a large amount of sand in addition to gravel), a different approach (e.g., Wilcock and Crowe 2003) is recommended. For a more in depth discussion of sediment transport and incipient motion, the reader is referred to Wilcock et al. (2009).

In order to apply the Shields relationship to determine τ_c, the median grain size (d50) present on the channel surface must be determined. River channels are often armored; meaning that coarser material is present on the surface than is present underneath the armor layer. However to access and transport the finer material beneath, the surface layer must first be mobilized. The median grain size is determined by analysis of a particle size distribution.

A particle size distribution can take the form of: 1) a cumulative *frequency* distribution which is determined by way of a pebble count or photographic analysis, or 2) a cumulative *weight* distribution. For a cumulative frequency distribution a subset of particles present on the surface are measured, and the frequency of particles within different size class bins is used. **Error! Reference source not found.** shows a sample particle size distribution graph developed from a pebble count. For a cumulative weight distribution, a bulk sample of the surface material is collected, and then sorted using a set of sieves with different screen sizes. The amount of material retained by each sieve is weighed and then used to plot the cumulative weight distribution. Both approaches have advantages and disadvantages.

A pebble count is a relatively straightforward field technique that is easily applied in streams which are wadable. **Error! Reference source not found.** shows photographs of pebble counts being conducted in the field. They can be performed relatively quickly, which means more samples can be collected to better characterize the conditions present in a reach. However, there are a variety of ways a pebble count can be conducted, and there is tremendous opportunity to introduce bias to the measurement. Furthermore, while studies often cite Wolman (1954) as the method employed in data collection, strict adherence to this protocol is not always achieved. Rather than the method suggested by Wolman (1954), a refined, more regimented approach has been suggested by Bundte and Abt (2001a), and is recommended. In addition, it should be noted that pebble counts generally do a poor job of characterizing sand and smaller sized material. In addition to pebble counts, software can be used to process a digital image of an area of the bed. The software samples a subset of particles present in the image, and using assumptions regarding the amount of given particle that is visible, is able to provide a cumulative frequency distribution.

Collecting a bulk sample for sieve analysis is another method frequently employed to determine values for typical characteristic indices of a particle size distribution. In this method a sample is collected from the channel surface, and then the sample is segregated into various size classes with sieves. One advantage of this approach is that it utilizes all the data available from the sampled area (as opposed to a pebble count which uses a subset of the entire population, e.g., ~100 particles as opposed to thousands), however the sampled area is typically smaller than the area sampled within one pebble count. One disadvantage is the size of sample that is necessary. Because the resulting particle size distribution is based upon weight, the largest particles present can have a very large influence on the resulting particle size distribution. Research has suggested that the weight of the entire sample must exceed 100x the weight of the largest particle present to escape this possible bias. This means large (volume and weight) samples are often required. Some sieving can occur on site through the use of shaker sieves, but typically some portion of the sample is also taken back to the lab for further analysis. Thus, bulk samples typically require more effort and equipment to establish a particle size distribution, however they provide a much more accurate estimate, especially when a large fraction of the sample is sand sized (2mm) and smaller.

For a more in depth discussion of sampling methods to determine particle size distributions in wadable streams, the reader is referred to Bunte and Abt (2001).

Estimating Critical Shear Stress for Cohesive Materials

The methods described above are not appropriate for cohesive materials, which due to chemical cohesion between particles exhibit larger τ_c values than would be estimated by consideration of particle size/weight in isolation (i.e., cohesive properties not considered). One method that allows for the determination of τ_c *in situ* is the application of a jet test (ASTM 2007). The jet-testing apparatus and analytical methods were developed by researchers at the USDA Agricultural Research Station (Hanson and Cook 1999; Hanson et al. 2002; Hanson and Cook 2004; ASTM 2007). The method uses a submerged impinging jet of water directed perpendicularly at the material surface, in order to erode the material. As erosion occurs, a scour hole is created. The depth of this hole is measured periodically as time

progresses through the test. As the scour hole increases in depth, the strength of the jet is reduced because it is travelling longer distance through water from the jet orifice to the soil surface. Eventually, the energy of the jet is dissipated enough that it no longer has energy in excess of the material's shear strength and erosion stops. **Error! Reference source not found.** shows a photograph of a jet testing rig deployed in a stream bank.

In addition to jet testing, *in situ* testing of shear strength can be obtained through the application of a field vane shear test (ASTM 2008). This method provides τ_c values based upon the assumption that the bed or bank will fail via large blocks (composed of thousands of particles), as opposed to erosion occurring particle by particle. As such, the values measured by a shear vane are often several orders of magnitude larger than those obtained via testing with the jet-device.

Estimating Critical Shear Stress Through the Use of Literature Values

An alternative to the measurement/calculation of τ_c, is the use of values found in the literature. Indeed, several HMPs have several HMPs have been developed through assumption of material resistance properties found in the literature based upon literature based upon a textural description of the material. An often-cited reference is Fischenich (2001), which provides a (2001), which provides a summary (compiled from the relevant literature) for critical shear strength values for various values for various materials. An extract from this reference is provided in

Figure 2-5.

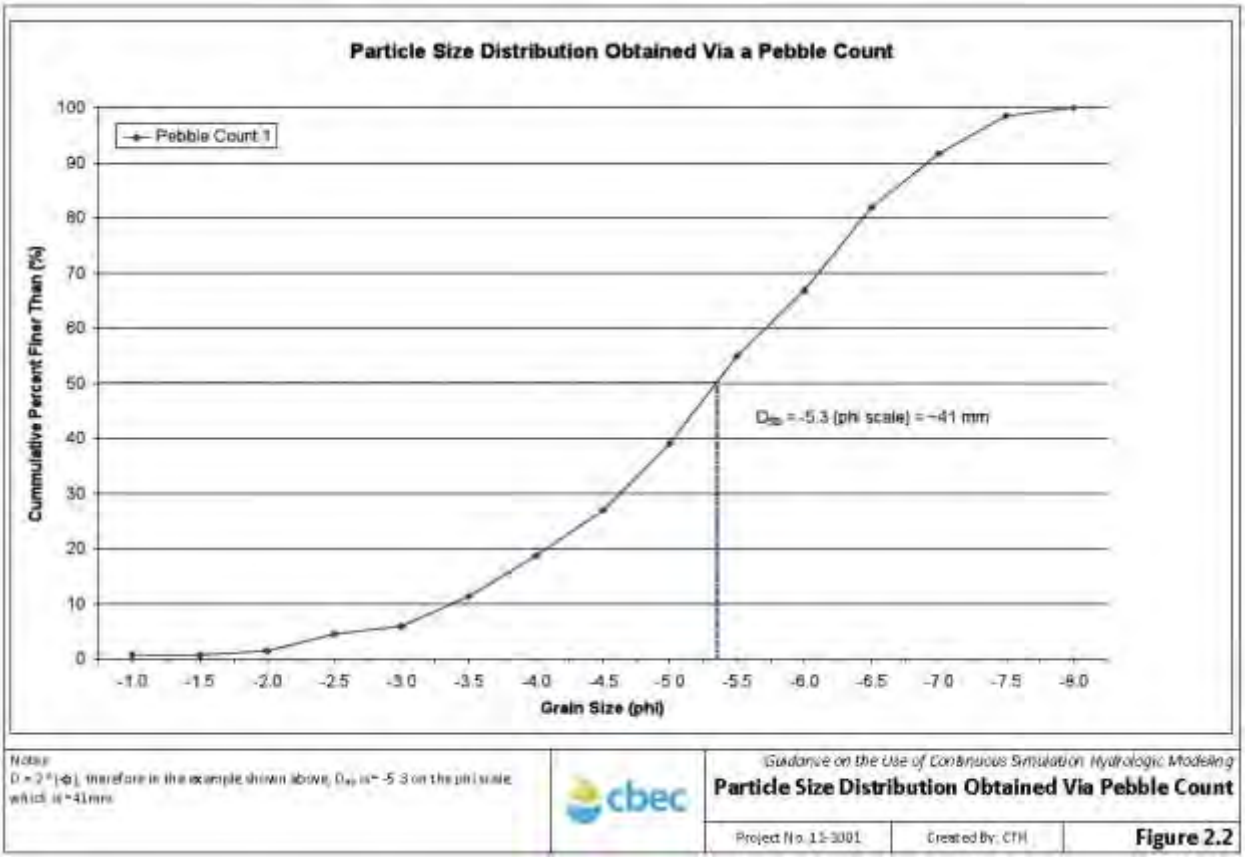

Figure 2-2. Particle Size Distribution Graph Developed from a Pebble Count

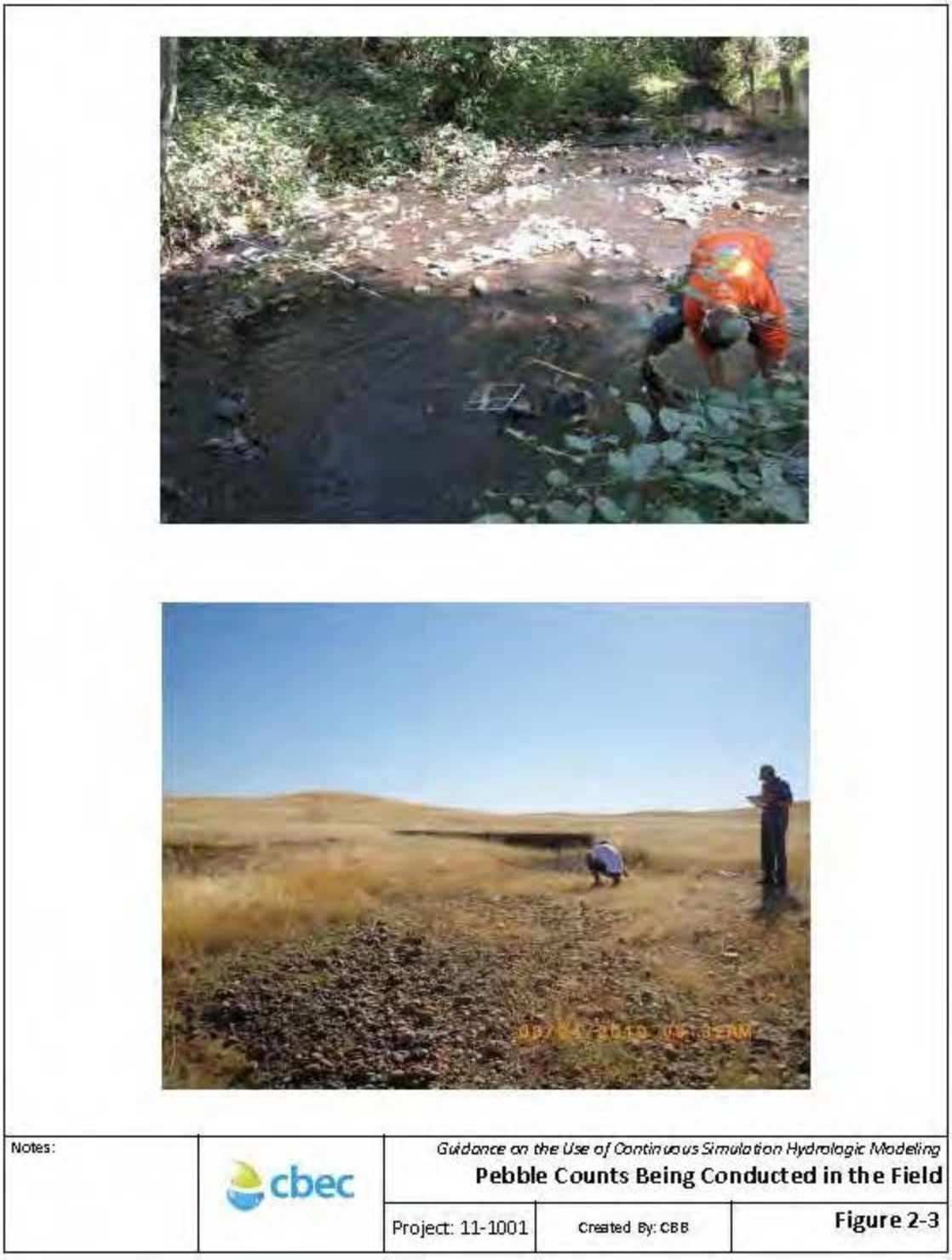

Figure 2-3. Pebble Counts Being Conducted in the Field

Typical installation of jet testing equipment in stream bank

Hole created in cohesive bank material by jet impinging on surface

Notes:	cbec	*Guidance on the Use of Continuous Simulation Hydrologic Modeling* **Jet Testing Equipment Deployed in a Stream Bank**		
		Project: 11-1001	Created By: CBB	**Figure 2-4**

Figure 2-4. Jest Testing Equipment Deployed in a Stream

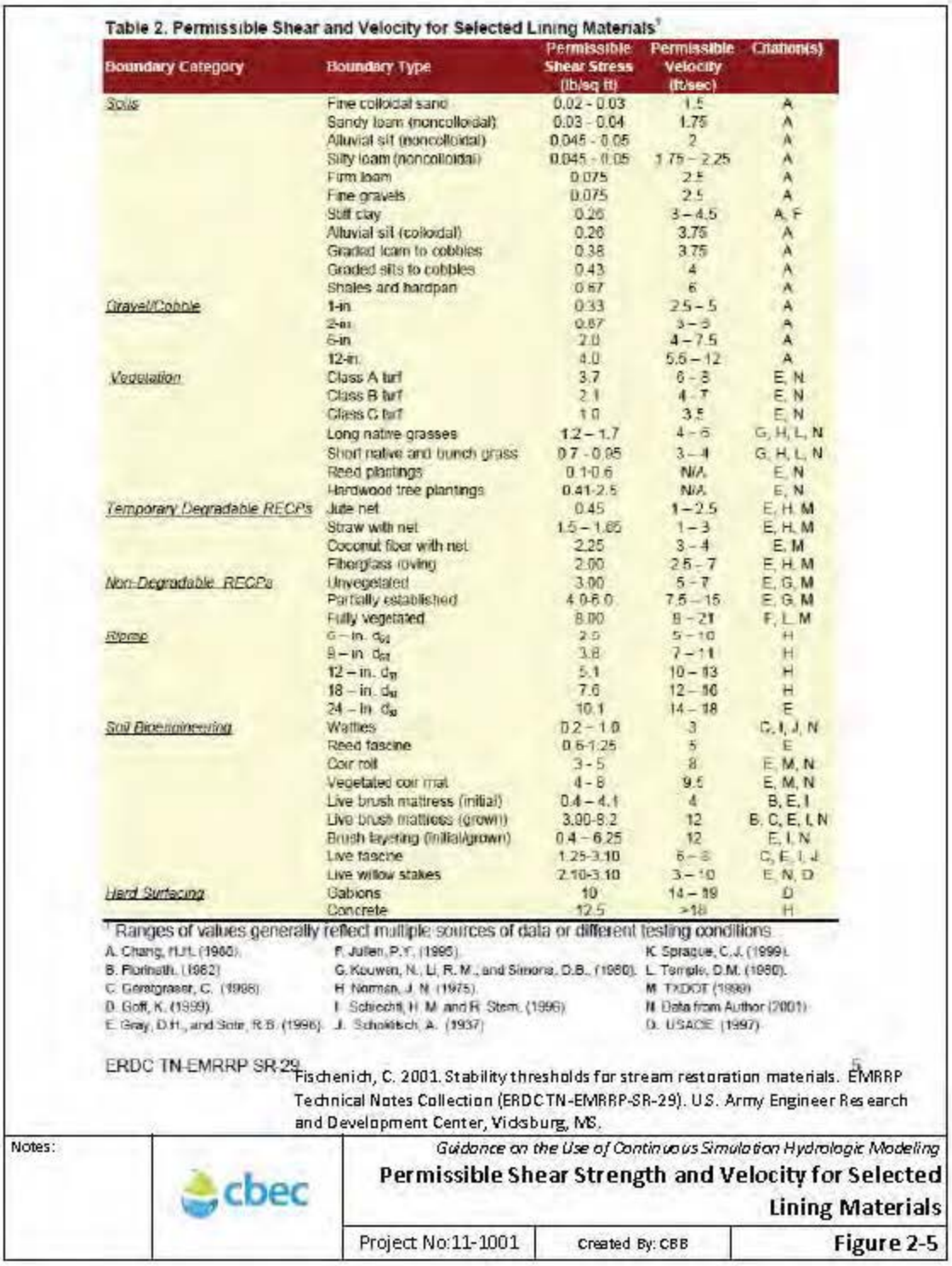

Table 2. Permissible Shear and Velocity for Selected Lining Materials[1]

Boundary Category	Boundary Type	Permissible Shear Stress (lb/sq ft)	Permissible Velocity (ft/sec)	Citation(s)
Soils	Fine colloidal sand	0.02 - 0.03	1.5	A
	Sandy loam (noncolloidal)	0.03 - 0.04	1.75	A
	Alluvial silt (noncolloidal)	0.045 - 0.05	2	A
	Silty loam (noncolloidal)	0.045 - 0.05	1.75 – 2.25	A
	Firm loam	0.075	2.5	A
	Fine gravels	0.075	2.5	A
	Stiff clay	0.26	3 – 4.5	A, F
	Alluvial silt (colloidal)	0.26	3.75	A
	Graded loam to cobbles	0.38	3.75	A
	Graded silts to cobbles	0.43	4	A
	Shales and hardpan	0.67	6	A
Gravel/Cobble	1-in.	0.33	2.5 – 5	A
	2-in.	0.67	3 – 5	A
	6-in.	2.0	4 – 7.5	A
	12-in.	4.0	5.5 – 12	A
Vegetation	Class A turf	3.7	6 - 8	E, N
	Class B turf	2.1	4 - 7	E, N
	Class C turf	1.0	3.5	E, N
	Long native grasses	1.2 – 1.7	4 – 6	G, H, L, N
	Short native and bunch grass	0.7 - 0.95	3 – 4	G, H, L, N
	Reed plantings	0.1-0.6	N/A	E, N
	Hardwood tree plantings	0.41-2.5	N/A	E, N
Temporary Degradable RECPs	Jute net	0.45	1 – 2.5	E, H, M
	Straw with net	1.5 – 1.65	1 – 3	E, H, M
	Coconut fiber with net	2.25	3 – 4	E, M
	Fiberglass roving	2.00	2.5 - 7	E, H, M
Non-Degradable RECPs	Unvegetated	3.00	5 - 7	E, G, M
	Partially established	4.0-6.0	7.5 – 15	E, G, M
	Fully vegetated	8.00	8 – 21	F, L, M
Riprap	6 – in. d_{50}	2.5	5 – 10	H
	9 – in. d_{50}	3.8	7 – 11	H
	12 – in. d_{50}	5.1	10 – 13	H
	18 – in. d_{50}	7.6	12 – 16	H
	24 – in. d_{50}	10.1	14 – 18	E
Soil Bioengineering	Wattles	0.2 – 1.0	3	C, I, J, N
	Reed fascine	0.6-1.25	5	E
	Coir roll	3 - 5	8	E, M, N
	Vegetated coir mat	4 - 8	9.5	E, M, N
	Live brush mattress (initial)	0.4 – 4.1	4	B, E, I
	Live brush mattress (grown)	3.00-8.2	12	B, C, E, I, N
	Brush layering (initial/grown)	0.4 – 6.25	12	E, I, N
	Live fascine	1.25-3.10	6 – 8	C, E, I, J
	Live willow stakes	2.10-3.10	3 – 10	E, N, O
Hard Surfacing	Gabions	10	14 – 19	D
	Concrete	12.5	>18	H

[1] Ranges of values generally reflect multiple sources of data or different testing conditions

A. Chang, H.H. (1988).
B. Florisith, I. (1962)
C. Gerstgraser, C. (1998)
D. Goff, K. (1999).
E. Gray, D.H., and Sotir, R.B. (1996).
F. Julien, P.Y. (1995).
G. Kouwen, N., Li, R.M., and Simons, D.B., (1980).
H. Norman, J. N. (1975).
I. Schiechtl, H. M. and R. Stern. (1996)
J. Schoklitsch, A. (1937)
K. Sprague, C.J. (1999).
L. Temple, D.M. (1980).
M. TXDOT (1999)
N. Data from Author (2001)
O. USACE (1997)

ERDC TN-EMRRP SR-29

5 Fischenich, C. 2001. Stability thresholds for stream restoration materials. EMRRP Technical Notes Collection (ERDC TN-EMRRP-SR-29). U.S. Army Engineer Research and Development Center, Vicksburg, MS.

Notes:

cbec

Guidance on the Use of Continuous Simulation Hydrologic Modeling

Permissible Shear Strength and Velocity for Selected Lining Materials

Project No:11-1001 | Created By: CBB | **Figure 2-5**

Figure 2-5. Permissible Shear and Velocity for Selected Lining Materials

DETERMINATION OF CRITICAL FLOW (Q_c)

For a specific set of hydraulic conditions at a location (i.e., cross sectional shape, channel slope, bed and bank roughness), the flow rate at which critical shear values are reached can be calculated. These calculations can be made with a programed spreadsheet analysis, or with a hydraulic model (e.g., HEC-RAS, Brunner 2010). Because of their ease of use and the ease at which multiple flow rates can be assessed (in order to determine when τ_c is reached), hydraulic models are typically employed for this part of the analysis. Average boundary shear stress is calculated with the following equation:

$$\tau = \rho g R s$$

where p represents the density of water, g represents the gravitational constant, R represents the hydraulic radius (defined as the wetted area dived by the wetted perimeter), and s represents the slope. For wide channels the value of the hydraulic radius is approximately equal to the average depth of the cross section. The hydraulic model calculates the value for R for a given discharge based on the channel dimensions.

Typically one-dimensional approximations are used for this analysis, which means that the value of Q_c determined is that where the cross sectional average of τ_c is reached, not the highest value which is occurring at the deepest point of the cross section. This is typically considered reasonable because the grain size is determined for the bed of the cross section, not just the shallow or deep area.

Analyses can be conducted at a station, or in other words just looking at one cross section in isolation using normal depth calculations, or within a larger hydraulic model constructed for the entire reach (i.e., multiple distributed cross sections upstream and downstream of the location of interest). The advantage of looking at the cross section of interest within the context of the entire reach is that conditions downstream (e.g. a constriction which causes a backwater condition) may affect the flow depth (or hydraulic radius), yielding different results than would be obtained if the cross-section was analyzed in isolation.

It is important that the determination of τ_c (via pebble count or other means) and the hydraulic calculations to determine Q_c, occur at the same location. Typically the analysis is undertaken at a riffle because these are the high points of a long profile and are what are controlling incision in the system. Bed material characterization in a pool is much more difficult (because of the depth of water), in addition the resulting calculated shear values are typically much higher, because of the added depth.

If HEC-RAS is used (which is typical), the way the bank markers are set can have a dramatic influence on the calculated shear results. The bank markers are used to delineate differences in roughness across the channel and flood plain (typically higher values are used on the lateral margins to include the influence of vegetation roughness in the resulting depth calculations). The shear values calculated by HEC-RAS are segregated by these bank markers, and thus may include values for each of the floodplains as well as the channel. If bank markers are set too wide, and the shear stress calculation may include a portion of the floodplain too, and subsequently the conditions in the actual channel will be greatly underestimated. Remember that the model is essentially using the average depth for the entire cross section (as limited by the bank markers), so including floodplain with shallow depths greatly influences the average depth and thus the resulting calculated shear value.

DETERMINATION OF Q_2

The determination of a value of Q_2 is the third and final piece of the equation used to determine what percent of Q_2 the lower threshold should be. As with the other two pieces, several options are available, and again the decision on what method is used can have a profound influence upon the final results. Q_2 can be determined through the results of a calibrated and validated hydrologic model (e.g., HEC-HMS, HSPF, SWMM, etc.) which uses precipitation, sub basin area, soil conditions, etc. to calculate a runoff hydrograh. This type of model can be used in one of two ways, to simulate a single precipitation event or to simulate a long term (e.g., 50 year) precipitation record. The first approach produces a single runoff hydrograph resulting from a "design" storm, from which the peak magnitude can be determined. As such the results are largely controlled by the precipitation hyetograph, so a good understanding of how that was developed is important. This method has been used considerably less than the approach detailed below. The advantage of this method is that, if any existing model has already been developed (e.g., SacCalc; DFCE 2001), it will be cheaper and easier for an agency to review. However, it can yield different values for Q_2, due to differing assumptions employed in the modeling.

The second method uses a long-term precipitation record for simulation which results in a flow record containing a large number of runoff events of varying magnitudes (i.e., which are subsequently analyzed to determine the magnitude of the 2 year recurrence interval event). This method is more typical for HMP assessments, but again methodical decisions can have a large influence on the results. The rigor of the model calibration and validation has a strong influence. If the model is not representing through simulation what is actually occurring, then the simulation results are questionable.

Assuming the model has been calibrated and satisfactorily validated or verified, the manner in which the simulated runoff record is analyzed is important. The first basic distinction is whether an annual maximum series (AMS) or a partial duration series (PDS) is used. In an AMS analysis, just the single largest flood peak of any given year is used in the analysis, and the second and third largest events of the year are ignored. This is the method typically utilized when analyzing the flood frequency of large, less frequently occurring flood events. In the second approach, PDS, multiple flood events are considered in any given year. This is important when the second or third largest flood events in one year are greater than the annual maximum of another year. Because more large events are included, the resulting estimate of the given return period event (e.g., Q_2) is larger. For example, Langbein (1960) showed that a 1.45 year event determined with PDS is the same magnitude as a 2 year event with an AMS, and a 2 year event determined with PDS is a 2.54 year event with an AMS. Thus the value of Q_2 determined by PDS is larger than the value of Q_2 determined by AMS. While significant differences are apparent for smaller magnitude, more frequently occurring events (e.g., Q_2), for return periods greater than 10 years, there is almost no difference between the results obtained from the AMS and PDS.

When compiling a PDS for a recurrence interval analysis, the manner in which events are identified as independent can also have an effect upon the results. One typical method is to include all flood peaks above a certain base magnitude. This base value is often selected as equal to the lowest annual maximum flood of record, however can also be chosen such that the PDS only contains as many peaks as

there are years of record. Some analysts have established a base value (e.g., 0.002 cfs/acre), and then added a duration below this base value as well (i.e., flow must be below 0.002 cfs/acre for at least 24 hours for events to be considered independent). One additional method is to identify individual events by extracting the highest peak (not just the maximum value) within a moving time window (e.g., 3 days), and therefore determine independence through time, rather than the discharge rate receding to a non-storm condition. With all of these options available, and no prescribed standard, the use of a PDS can have different Q_2 results even if an identical flow time series is used.

SUMMARY

The determination of the lower flow threshold, defined as a percentage of Q_2, is heavily influenced by three primary inputs: τ_c, Q_c, and Q_2. The determination of each of these values is sensitive to a variety of factors determined by the particular methodology. To demonstrate the sensitivity of the lower flow threshold to methodological decisions, a few examples are provided below.

- If 0.06 is used rather than 0.03 for Shields parameter in Shields relationship, τ_c increases, subsequently Q_c increases and ultimately the lower limit increases
- If bank markers are set too wide (including the floodplain and not just the channel) in the hydraulic analysis, a larger value for Q_c is calculated (because of a reduction of the hydraulic radius due to the inclusion of extensive shallow floodplain areas), resulting in an increase of the lower limit.
- If an annual maximum series is used in place of a partial duration series, the calculated Q_2 will be less than that obtained by a PDS analysis, and the ratio of Q_c to Q_2 will be higher if the AMS is used.

3. DEVELOPMENT OF EVALUATION CRITERIA

FLOW DURATION CONTROL AND PEAK FLOW CURVE MATCHING

Flow Duration Control (FDC) and Peak Flow Curve (PFC) matching criteria in their current form for many counties in CA are similar in form to the curve matching criteria from WA (WADOE, 2001). The curve matching criteria typically include a goodness of fit or variance due to the difficulty in achieving a precise match across the range of flows. The criteria are typically applied at the subwatershed scale based on continuous simulation flow results for pre- and post-project conditions to size individual BMP or LID features. In this instance, flow matching at the subwatershed scale assumes that there are no routing or timing effects in the treated runoff when it rejoins the receiving waterbody; however, this may not be true in all cases. For example, if treated runoff is delayed and rejoins the upstream runoff such that there is an increase in flow rates and durations or an increase in the peak flows in the receiving waterbody, then there is the potential to impair the receiving waterbody. To address this potential concern, the FDC and PFC criteria could be applied to the routed flows in the receiving waterbody as a

check.

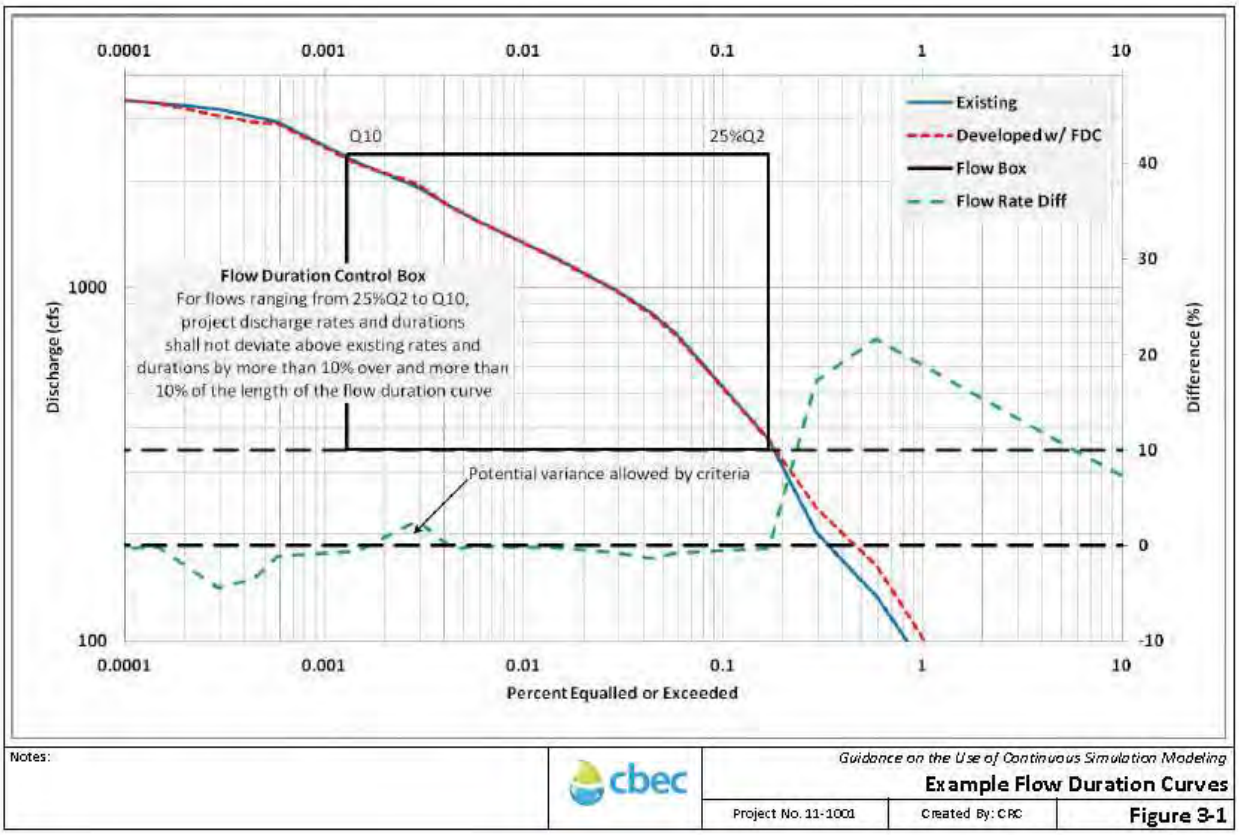

Figure 3-1 shows an example of FDC matching on the routed flows within a receiving waterbody with an example of the variance allowed by the criteria. However, it is cautioned that the FDC variance (e.g., "…by more than 10 percent over and more than 10 percent of the length…") may need to be reduced to something less than 10 percent (perhaps based on a ratio of watershed areas) to account for cumulative effects if there remain the potential for continued development in the watershed.

EROSION POTENTIAL

Erosion Potential (EP) is an index to indicate the impact of increased flows on stream stability and is based on bed mobility and an integration of work (as a function of velocity and excess shear stress in the channel only) over time, expressed as a ratio of post-project work divided by pre-project work in the receiving waterbody. Total work is based on integrating effective stream power as:

$$W = \sum_{i=1}^{n} (\tau_i - \tau_c)^e \cdot V_i \cdot \Delta t_i$$

where W is the total work done (ft-lbf/ft^2), τ is the average channel shear stress, τ_c is the critical shear stress to initiate erosion, e is an exponent varying from 1 to 2.5 to account for the exponential rise in stream power with flow, V is the velocity (ft/sec), and Δt is the numerical time step (sec). The EP index is then calculated as the ratio of W_{dev} / W_{ex} where W_{ex} and W_{dev} is the total work for existing and developed conditions, respectively. EP can be calculated at any location in the waterbody based on

continuous simulation time series of flow, velocity, and excess shear stress in the channel as derived from hydraulic model outputs.

EP criteria are not widely integrated into HMPs. Notably Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) included EP criteria in their HMP, but in so much as it was used to inform their overall management objective (i.e., post-project runoff shall not exceed estimated pre-project rates and/or durations) and the development of their FDC / PFC criteria. In the SCVURPPP (2005) final HMP, an EP ratio <= 1.0 was recommended as the instream target value to be maintained for stream segments downstream of the point of discharge for HMP management. From a risk management perspective, the chance of a stream becoming unstable at an EP of 1.0 is 9%, meaning that 1 in 11 streams could become unstable even with controls (SCVURPPP, 2005). As such, instream EP must be evaluated considering the effects of the cumulative changes that have or may take place in the watershed.

Even though EP criteria are not widely promoted in county HMPs, that does not preclude analyses based on EP from being used, especially when instream measures permit more robust geomorphic analyses (e.g., SCVURPPP final HMP; SSQP draft HMP). While EP analyses are more time and data intensive, there is the potential outcome to discharge runoff at higher rates and durations than FDC / PFC criteria would allow, thus resulting in possibly smaller onsite measures. The time and data intensiveness of EP analyses stem from the need to evaluate the hydraulic and geomorphic conditions of the receiving waterbody to be protected at multiple locations based on continuous simulation hydraulic model outputs and geomorphic data. Potential hydraulic model considerations when performing EP calculations are addressed below.

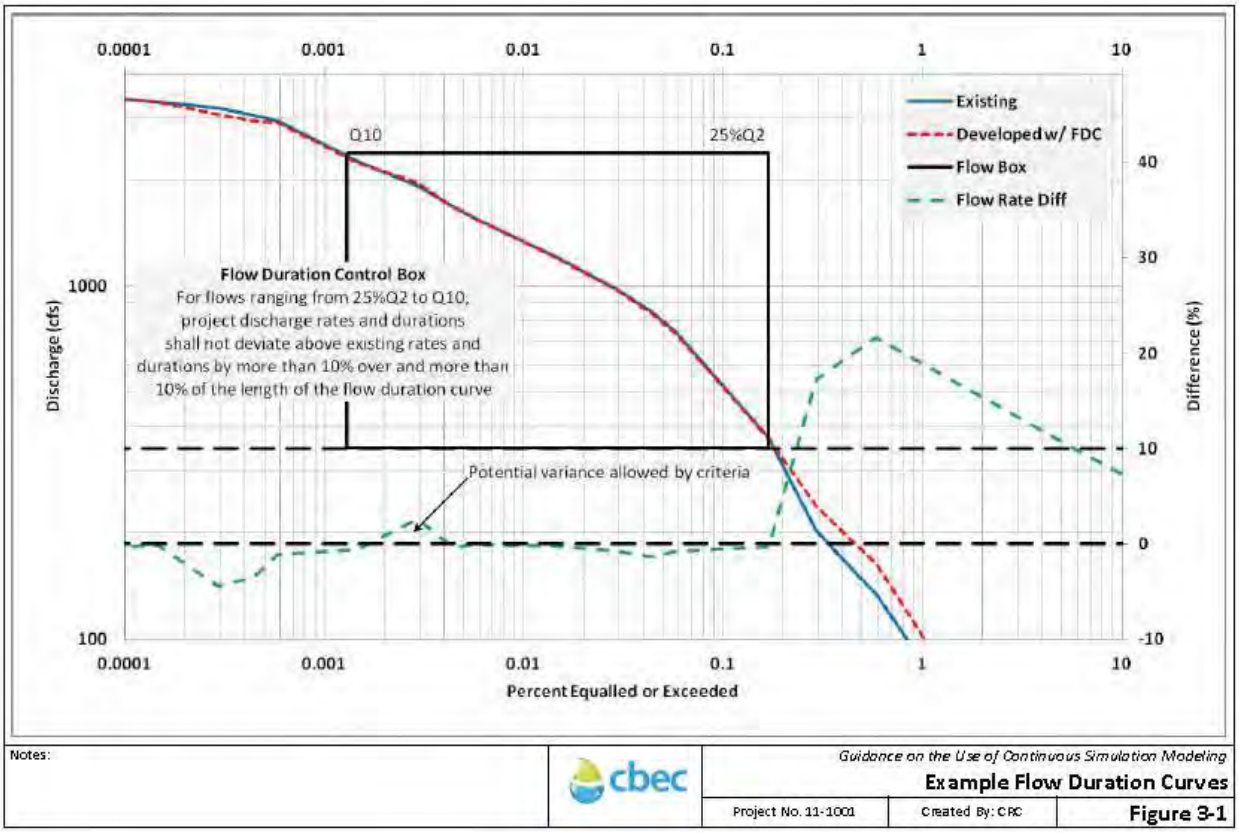

Figure 3-1. Example Flow Duration Curves

4. DATA REQUIREMENTS FOR CSM AND HYDRAULIC ANALYSIS

Hydrologic models capable of performing long-term continuous simulation to support HMPs include, but are not limited to, HSPF, HEC-HMS soil moisture accounting (SMA) method, and other hydrology models, such as the Bay Area Hydrology Model (BAHM). The first two are public domain software models and the third is a proprietary software model customized for specific counties that uses HSPF as its computational engine. A fourth modeling tool based on continuous simulation results, and also using HSPF as its computational engine, are the suite of BMP sizing calculators specifically designed for HMP management for select counties. These have been developed for Contra Costa and San Diego County and Sacramento County (in draft form). All four suites of models use site conditions (i.e., topography, soils, vegetation, and land use) and long-term precipitation data to calculate the various components of the hydrologic cycle (i.e., infiltration, surface runoff, soil moisture, evapotranspiration, percolation, interflow, and groundwater). Specific details about each model and model comparisons (e.g., TetraTech, 2011) are not discussed here, but can be reviewed in available literature.

Following model selection, hydrologic models are created for existing and project conditions based on various considerations, some of which are discussed in subsequent sections. For project conditions, county specific HMP measures need to be specified to manage project runoff to meet the evaluation criteria identified above. The BMP sizing calculators and BAHM-type hydrology models do have optimization routines to size BMP and LID measures. Automatic sizing allows for efficient and quick sizing of such features based on county specific, model specific (e.g., the sizing calculator for San Diego and Contra Costa County is based on pre-defined sizing factors such that site specific continuous simulations do not need to be performed, and is limited to drainage management units of less than 100 acres), and user-defined (e.g., the BAHM-type hydrology models require site specific continuous simulation with a wide selection of measure configurations) assumptions and limitations. As standalone models, HSPF and HEC-HMS offer flexibility as it relates to model configuration, model inputs, and user-defined parameters. However, these models do not have optimization routines to size various BMP and LID measures, thus requiring manual iteration to achieve a satisfactory solution.

PRECIPITATION DATA

Long-term precipitation data in the range of 30 to 50 years is typically needed to generate a sufficiently long flow record from which FDC and PFC analyses and/or subsequent hydraulic analyses can be performed. The precipitation data observation interval should ideally be no coarser than hourly, and if available, can be sub-hourly (e.g., 15 minutes) to coincide with a finer continuous simulation time step.

The precipitation data should ideally be located near the project site, and if needed, scaled to the project site based on a ratio of mean annual precipitation as derived from county specific mapping or regional sources (e.g., PRISM [http://www.prism.oregonstate.edu/]) and reviewed to ensure that it captures key IDF characteristics from county specific mapping or regional sources (e.g., NOAA Atlas 14 [http://www.nws.noaa.gov/oh/hdsc/index.html]). A variety of precipitation data sources exist, and include, but are not limited to:

- ALERT system for individual counties (e.g., Sacramento [http://www.sacflood.org/])
- Western Region Climate Center (WRCC [http://www.wrcc.dri.edu/])
- NOAA National Climatic Data Center (NCDC [http://www.ncdc.noaa.gov/])
- California Irrigation Management Information System (CIMIS [http://wwwcimis.water.ca.gov/])

HYDROLOGIC SIMULATION TIME STEP

The continuous simulation time step and output reporting interval for the four models identified above has traditionally has traditionally been hourly. However, an hourly time step is often significantly larger than the time of concentration for concentration for developed subwatersheds relative to existing subwatersheds, especially those commonly configured commonly configured developed subwatersheds that are limited to less than 100 acres. The sizing calculator and BAHM-type calculator and BAHM-type models are hardwired at hourly, but the public domain software still affords the user to go to a the user to go to a finer time step. As such, a sub-hourly time step and output reporting interval is preferred in order to preferred in order to adequately resolve and sample flow from developed subwatershed elements where time of where time of concentrations are typically less than one hour. As shown by

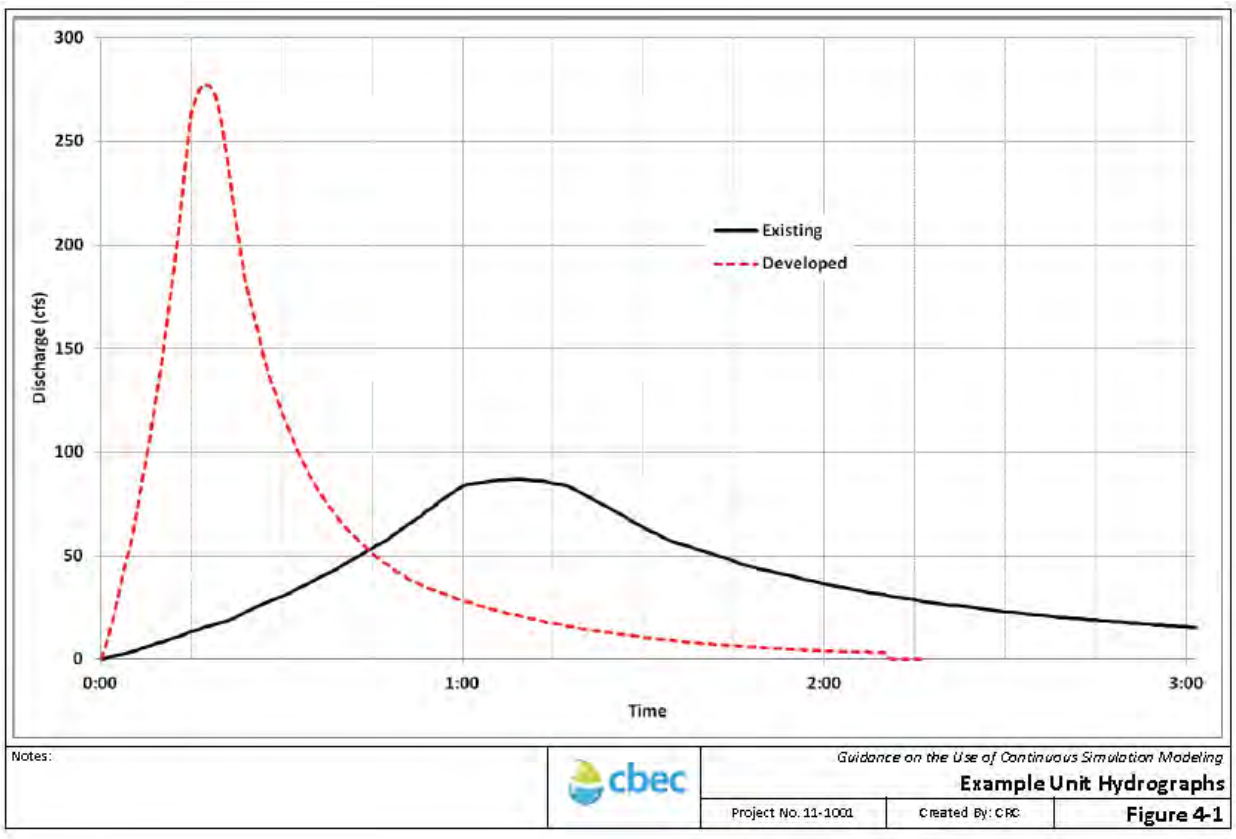

Figure 4-1 for a typical developed subwatershed, the unit hydrograph for developed conditions is flashier, peaks quicker (well within one hour), and the recession limb becomes small quickly. While a sub-hourly time step and output reporting interval may not be desirable due to the volume of model output that will be generated, it is possible to bias the results in favor of the developed condition due to under sampling of the flashier and larger developed flows under an hourly time step.

HYDROLOGIC MODEL CALIBRATION AND VALIDATION

In developing continuous simulation models, the model parameters describing soil characteristics, land use descriptions, and evapotranspiration should be derived from published data (e.g., soil survey, local studies, county standards, etc.). These parameters should be calibrated and validated, where applicable, by comparing modeled flows to measured or observed flows with the receiving waterbody for specific overlapping periods when there is adequate precipitation, evapotranspiration, and flow data. In the absence of site-specific data for calibration and validation, calibrated model parameters from neighboring watersheds within the region could be used so long as proper justification is provided that said parameters are appropriate. However, it is not recommended that local studies rely upon calibrated parameters from other regions where soil characteristics and land use descriptions are markedly different. Rather, when calibration cannot be performed, general review and comparison of continuous simulation model outputs (e.g., hydrograph shape, AMS, etc.) to standardized event-based approaches could be performed to demonstrate that continuous simulation results are generally consistent with local standards and methodologies.

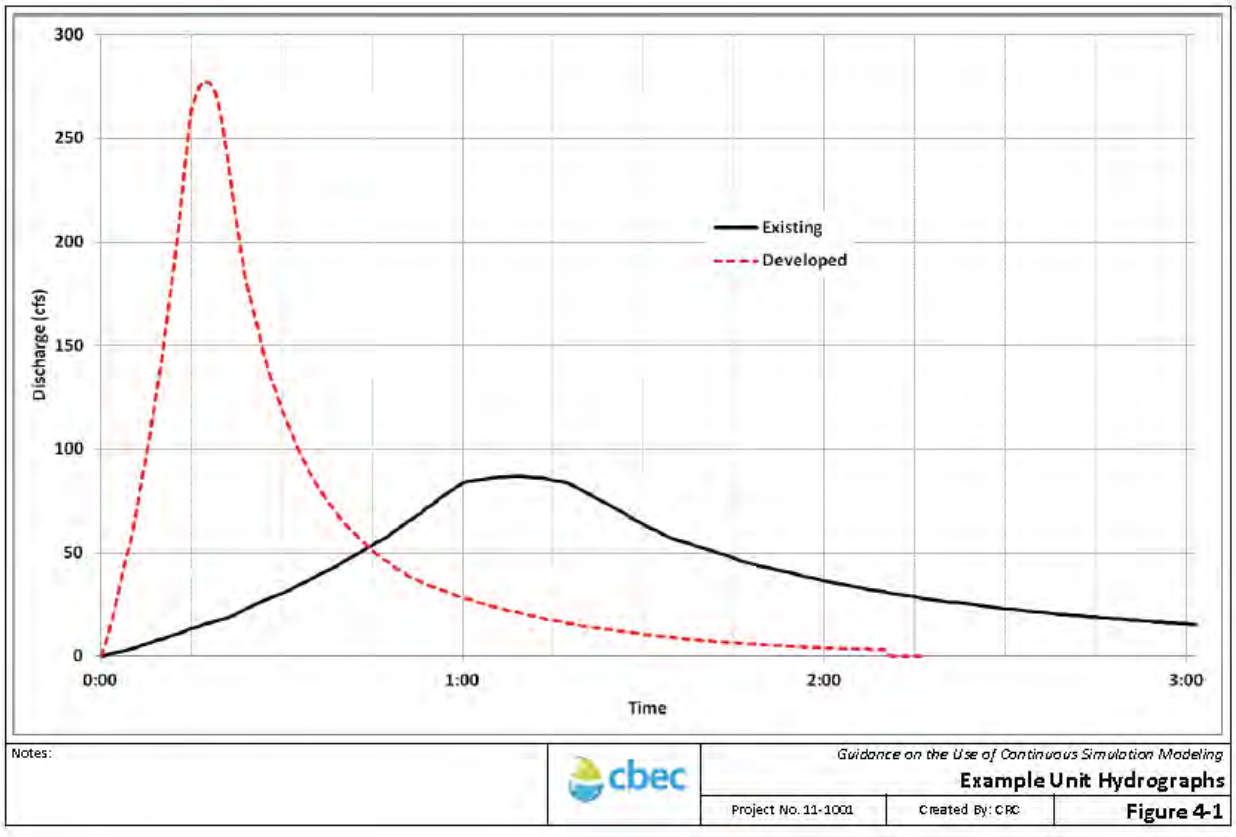

Figure 4-1. Unit Hydrograph Method

For example, continuous simulation modeling in Sacramento County for some developments has relied up conversion of SacCalc (HEC-1 pre- and post-processor) event-based models to the SMA method within HEC-HMS. This conversion often involves retaining the surface infiltration rate determined by SacCalc based on accepted land use descriptions, but parameterizing the subsurface based on soil survey information and local studies, using local potential evapotranspiration data, and reviewing model hydrographs for reasonableness.

HYDRAULIC MODEL CONSIDERATIONS

Sometimes hydraulic models are needed since the basic flow routing within the hydrologic models is not adequate to characterize the potential changes to the hydraulic and geomorphic character of the receiving waterbody, especially when instream measures are suggested or EP is used as the evaluation criteria. Potential considerations and issues encountered when developing and using hydraulic models for continuous simulation include:

1. Low flow instabilities can introduce anomalies into model output (which is commonly encountered in HEC-RAS), so careful hydraulic model selection is important for accuracy and efficiency
2. The sensitivity of the hydraulic model outputs (i.e., velocity and shear stress) to accurate hydraulic description of the receiving waterbody (i.e., cross section geometry (i.e., is it based on LiDAR influenced by vegetation or ground survey), proper definition of channel transitions, proper definition of channel bank markers, appropriate Manning's n-values, etc.)
3. Selection of appropriate compliance points that are representative of the reach and capture flow changes (e.g., downstream of points of discharge and not in backwater areas).

All of these issues have the potential to introduce error and subjectivity into long-term hydraulic analyses and care should be taken to systematically address each source of error.

GENERAL TIPS

A series of general tips are provided as follows. These can be used to increase efficiency and accuracy when performing CSM.

- To shorten the simulation time, the precipitation record can be truncated to only the rainy season (e.g., October through May) by removing the dry summer months from the simulation, especially in ephemeral systems where applicable.
- Hourly precipitation data does not prohibit the continuous simulation model from being run at a sub-hourly time step.
- Subwatershed delineation between existing conditions and developed conditions can often result in relatively large existing subwatersheds compared to relatively small developed subwatersheds. It is commonly known that smaller subwatersheds have flashier flows, so making existing and developed conditions subwatershed sizing consistent is recommended to provide a more meaningful comparison.

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APPENDIX B: APPLICATION OF SUITES OF MODELING AND ASSESSMENT TOOLS

Introduction. This appendix provides a discussion of four example "suites of tools" that can be used to perform predictive scientific assessments and address specific questions related to hydromodification assessment and management. The suites are changeable mixes of mechanistic models, statistical analyses, and expert scientific judgment that incorporate a number of the tools discussed in Chapter 4, combined in various ways. For example, some suites apply a series of cascading models, in which the output from one is used as input to the next; other suites apply a number of models in parallel to develop an assessment based on the weight of evidence. The suites of tools discussed below are used to perform a baseline stability assessment, a channel forming discharge analysis, an erosion potential analysis, and a sediment transport analysis. Most of these standard tools (with the exception of the erosion potential suite) have been widely employed in a variety of stream management activities for decades, and are considered essential components of the broader fluvial geomorphology toolbox. This is far from a comprehensive list of tools, as there are many other important tools (focused on both geomorphic and biologic endpoints) relevant to hydromodification management (Kondolf et al. 2003; Poff et al. 2010); however, the purpose of this appendix is to briefly illustrate how several standard tools can be integrated to answer key questions about stream responses and to provide a stronger technical basis for hydromodification management.

Application of these tools provides basic geomorphic data and knowledge that are typically needed to manage a stream for some desired future state in a watershed with changing land uses. This critical information comes at a cost—the tools require substantially more time and effort to apply than has been the norm in hydromodification management because they involve examining streams within their watershed context with a deeper level of geomorphic analysis. Stormwater management programs typically have made the "practical" assumptions that stream reaches can be managed in isolation from the larger systems of which they are a part, and that effective management prescriptions can be formulated with little or no substantive geomorphic analysis. ***These assumptions are in direct conflict with current understanding in fluvial geomorphology and stream ecology, which indicates that protection of stream integrity is often predicated upon careful assessments of geologic and historical context, performing detailed hydraulic and sedimentation analyses where appropriate, and developing basic understanding of streamflow-ecology linkages***. If hydromodification management policies are to have a reasonable chance of actually achieving their aims, then it will most likely be necessary to reject these simplifying assumptions and instead rely on approaches rooted in current scientific understanding of stream systems.

The suites of tools described below go beyond screening level assessments that are designed, in part, to identify which streams lend themselves to relatively straightforward management prescriptions versus which streams do not. For streams that do not lend themselves to generic management prescriptions, the level of analysis performed with these tools should increase with the level of risk and geomorphic / biologic susceptibility of the streams. This does not mean that every stream will require in-depth analysis by local permitting agencies. It is not possible to carry out sufficient geomorphic analyses with the tools illustrated below on a permit-by-permit basis, and local governments may lack the resources and/or technical capacity to effectively apply these tools. Instead, ***the vital information provided by these tools***

will need to be obtained through proactive regional studies that involve baseline assessments followed by progressively more in-depth analyses as necessary to provide local governments with a sound basis for effective project-by-project decision-making within a broader watershed management framework.

1. **Baseline Stability Assessment**. This suite of tools is designed to answer the following key questions:
   - What is the trajectory of the stream's form over time?
   - How has the channel form responded to changes in water and sediment supply over the years?
   - Is the channel close to a geomorphic threshold that could result in rapid, significant change in response to only minor flow alteration?
   - How can past channel responses provide insight into potential responses to future watershed change, and so aid in prediction of future hydromodification-induced changes?
   - What level of subsequent geomorphic analysis is appropriate given the complexity of the situation and the susceptibility of the streams of interest?

   The goals of a baseline stability assessment are to:
   - Document the historical trends of the system;
   - Establish the present stability status of the system and identify the dominant processes and features within the system;
   - Provide the foundation for projecting future trends with and without proposed project features;
   - Provide critical data for calibration and proper interpretation of models; and
   - Provide a rational basis for identification and design of effective alternatives to meet project goals.

   The key tools that comprise this suite include:
   - GIS mapping of topography, soils, geology, land use/land cover across the contributing watershed (e.g., Thorne 2002)
   - Analysis of hydro-climatic data, e.g. streamflow gauge records, changes in stage-discharge relationships over time (e.g., Thorne 2002)
   - Analysis of aerial photos and historical data (e.g., Thorne 2002)
   - Field reconnaissance (e.g., Thorne 1998)
   - Qualitative response (e.g., Lane 1955b, Schumm 1969, Henderson 1966 relations)
   - Classification systems - (e.g., Thorne 1997; Schumm et al. 1982; and channel evolution model developed for S CA by Hawley et al. in press)
   - Relationships between sediment transport and hydraulic variables
   - Regional hydraulic geometry (e.g., Hawley 2008; Haines in prep)
   - Regional planform and stability predictors (e.g., Hawley et al. in press, Bledsoe et al. in press, Dust and Wohl 2010)

- Bank stability analysis (e.g., BSTEM http://www.ars.usda.gov/Research/docs.htm?docid=5044, Hawley (2009), Bledsoe et al. in press, Osman and Thorne 1988; Thorne et al. 1998)
- Sediment budgets (Booth et al. 2010; Reid and Dunne 1996)
- Fluvial audit (Thorne 2002 – a comprehensive framework for performing baseline assessments)

A baseline assessment is completed by integrating information from all the available data sources and analytical tools. Analysis with each of the individual tools may yield a verdict of aggradation, degradation, or dynamic equilibrium with respect to the channel bed, and stable or unstable with respect to the banks. The individual assessments can produce contradictory results. In this case, one should assign a level of confidence to the various components based on the reliability and availability of the data, and the analyst's own experience level. As is often the case in the management of fluvial systems, there is no "cookbook" answer, and we must always incorporate sound judgment.

A process-based channel evolution model (CEM) is a particularly useful element of the baseline assessment process. A CEM aids in identifying the dominant processes and trends of channel change and provides a framework for subsequent, more detailed modeling (ASCE 2008). In some locations, CEMs have already been developed and calibrated with regional data. For example, the CSU / SCCWRP Screening Tool (Bledsoe et al. 2010) grew out of a regional CEM (Hawley et al. in press) and integrates several baseline assessment tools including regionally-calibrated braiding, incision, and bank stability thresholds, and sediment supply analysis with "Geomorphic Landscape Units" (Booth et al. 2010). In locations where a CEM has not been sufficiently defined, the baseline assessment suite of tools can provide the data and understanding needed to develop a regionally calibrated CEM.

The following are example outputs from a baseline stability assessment, including channel stability and bank stability diagrams associated with key geomorphic thresholds of management concern in the channel evolution sequence (i.e. braiding, incision, and bank failure):

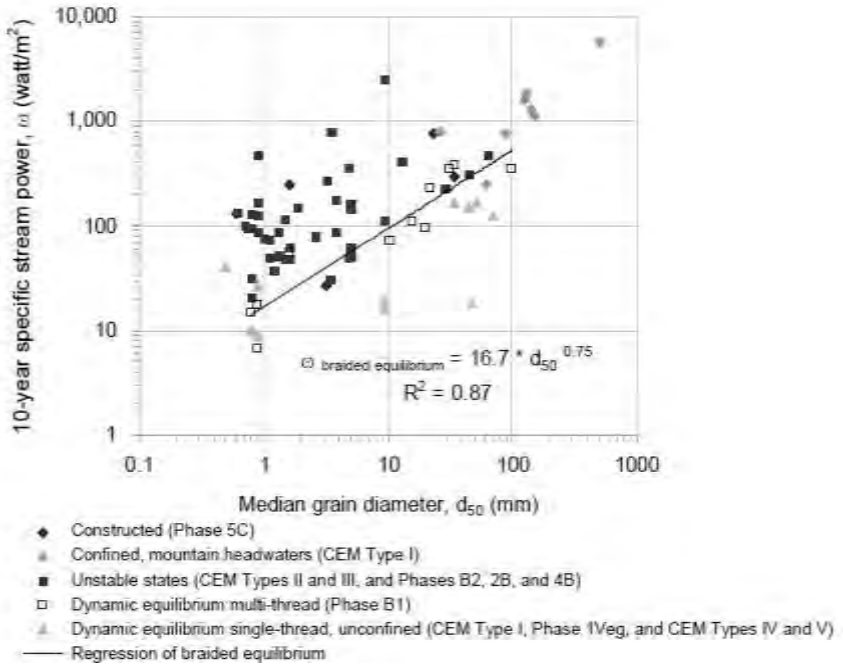

Figure B-1. Stability thresholds for channel types of southern CA, as identified through the development of a regional CEM (Hawley et al., in press).

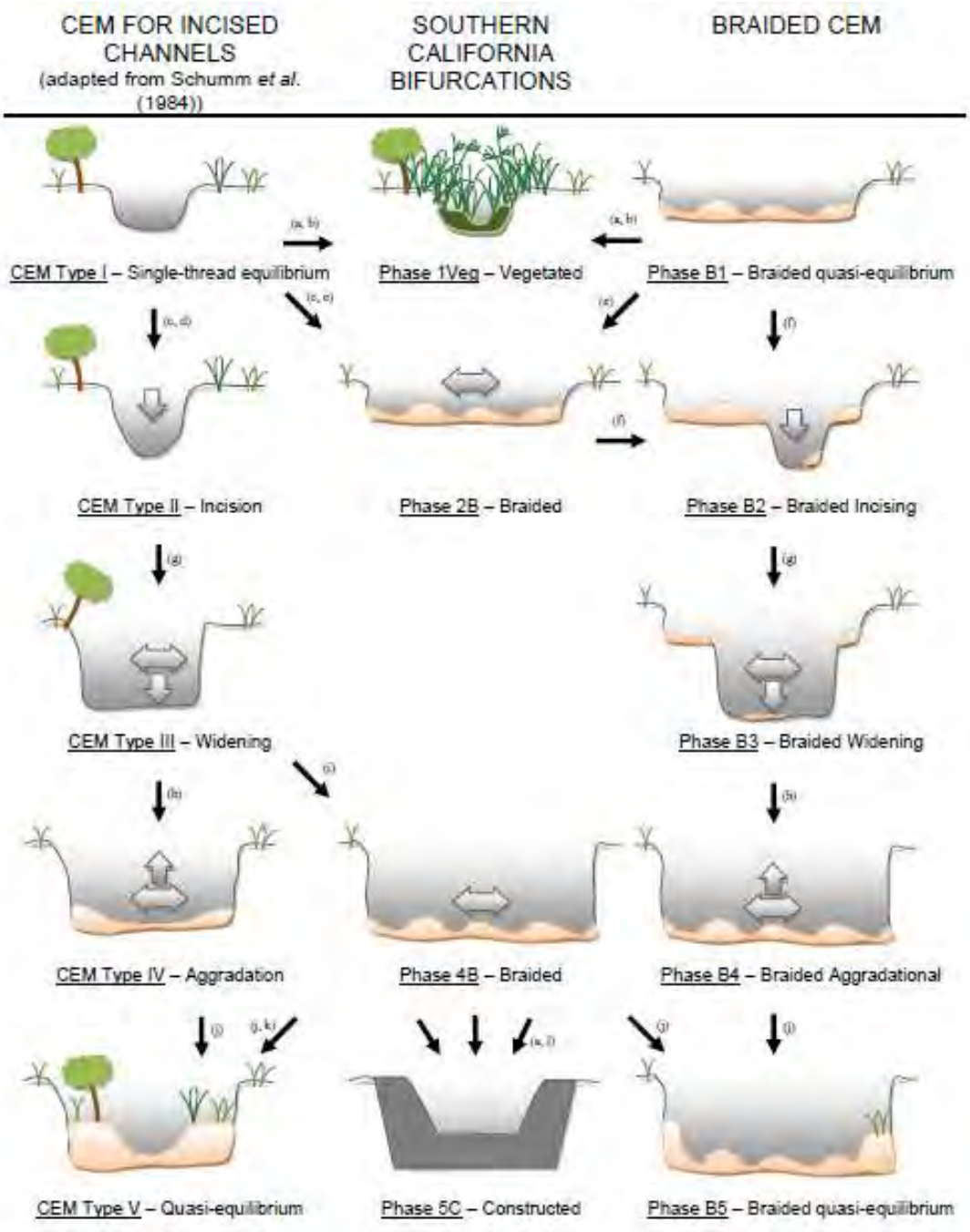

Figure B-2. Channel evolution model of response to hydromodification in southern California (Hawley et al. in press). Red and blue ovals highlight geomorphic thresholds that may be quantified using the baseline assessment suite of tools. By developing a general physical understanding of channel evolution sequences commonly observed in urbanizing watersheds of southern CA, two braiding thresholds and a bank stability threshold of management concern were identified. Channels may shift from single thread to braided planforms if widening is the dominant mode of initial adjustment. Alternatively, single thread channels may become braided after an initial period of incision that triggers geotechnical instability and failure of the banks. Quantitative predictors of these thresholds of braiding, incision, and bank failure can be developed in the baseline assessment process to evaluate the proximity of streams to these critical stages of channel evolution and instability.

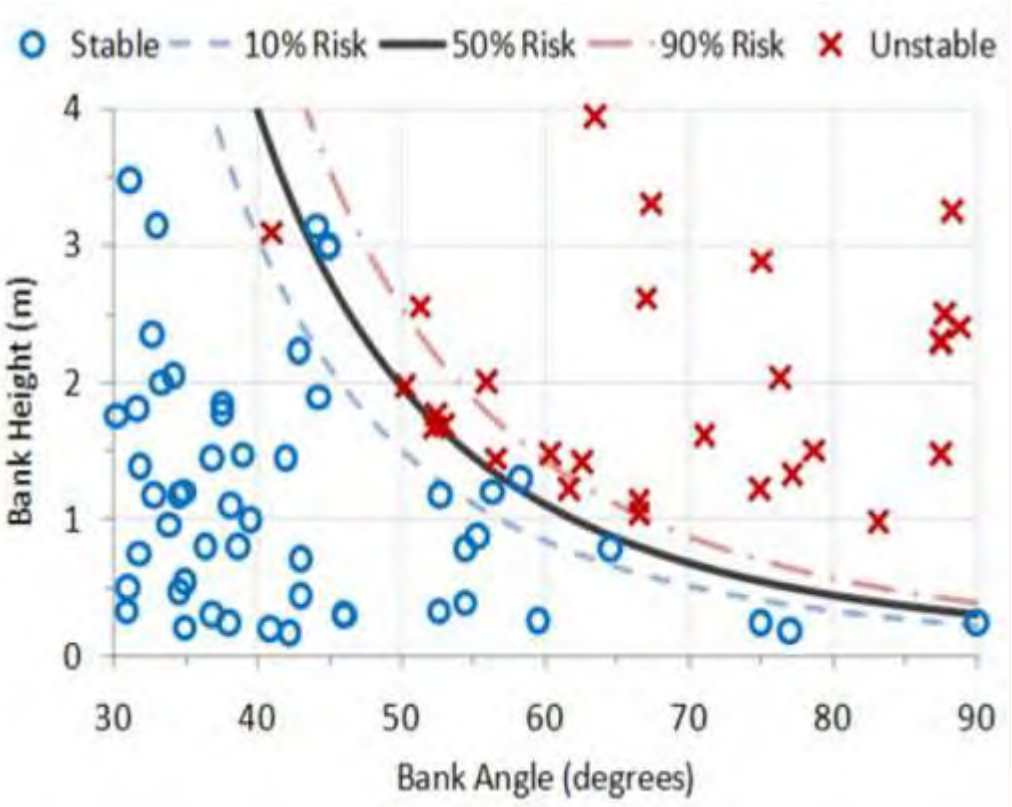

Figure B-3. Bank stability threshold for mass wasting identified through analysis of field data from southern California streams with stable and unstable banks (Bledsoe et al., in press).

2. **Channel-forming discharge suite of tools.** This suite of tools is designed to answer the following key questions:
   - What ranges of discharges are most influential in controlling channel form and processes over decadal time scales?
   - What channel-forming discharge should be used in sediment transport analyses to identify sediment transport capacity, equilibrium slope and geometry, etc.?

   The tools that comprise this suite include the following:
   - Effective discharge computations (e.g., Soar and Thorne 2001; Biedenharn et al. 2000; GeoTools – Bledsoe et al. 2007). An effective discharge analysis directly quantifies the range of discharges that transport the largest portion of the annual sediment yield over a period of many years.
   - Field identification of high water elevations, depositional surfaces, and "bankfull" features
   - Flood frequency analysis
   - Un-gauged site analysis (e.g. USGS StreamStats) http://water.usgs.gov/osw/streamstats/california.html; Hawley and Bledsoe (2011), regional flow duration curve extrapolation – Biedenharn et al. 2000)

This suite incorporates a number of parallel analyses that can be used to establish likely upper and lower bounds to the range of influential discharges, and that can be assessed through a weight-of-evidence evaluation. The following is an example output from the channel forming discharge suite of tools:

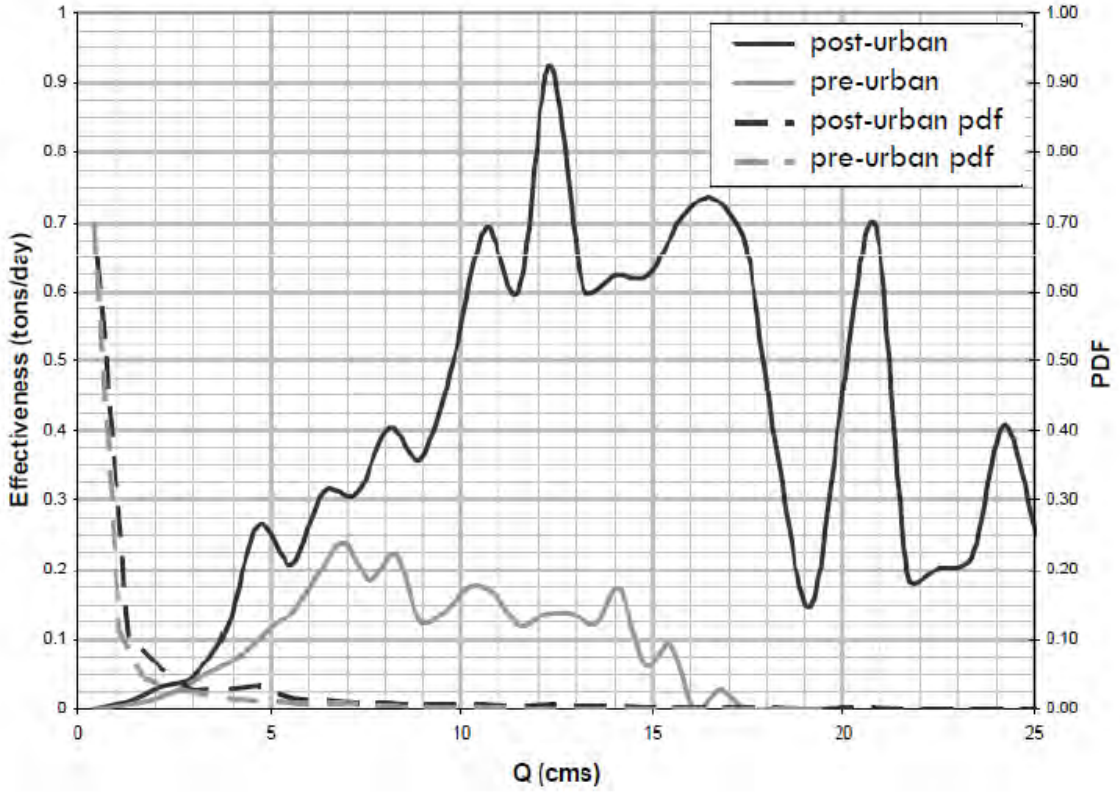

Figure B-4. Flow effectiveness curves for continuous series of pre-urban and post-urban discharges (Biedenharn et al. 2000; Bledsoe et al. 2007). Cumulative sediment yield is approximated by the area under the respective curves. If the stream bed is the most erodible channel boundary, the ratio of areas under these curves would be the erosion potential metric described below in the next suite of tools.

3. **Erosion potential suite of tools.** This suite of tools is designed to answer the following key questions:
   - How do proposed land-use changes or channel alteration affect the capacity of a channel to transport the *most erodible material in its boundary* over a period of many years (erosion potential – Ep)?
   - Do proposed mitigation approaches match the pre- vs. post- development erosion potential over the full spectrum of erosive flows?
   - Do past changes in erosion potential correspond to different states of channel stability and degradation in this region?
   - Does a proposed change in streamflow make it more likely that a channel will enter an alternative / degraded state?

The underlying premise of the erosion potential approach advances the concept of flow duration control (discussed in Chapters 2 and 3) by addressing in-stream processes related to sediment transport. An erosion potential calculation combines flow parameters with stream geometry to assess long term (decadal) changes in the sediment transport capacity. The cumulative distribution of shear stress, specific stream power and sediment transport capacity across the entire range of relevant flows can be calculated and expressed using an erosion potential metric, Ep (e.g., Bledsoe, 2002). This erosion potential metric is a simple ratio of post- vs. pre-development sediment transport capacity over a period of many years. The calculated capacity to transport sediment can be based on the channel bed material or the bank material, depending on which one is more erodible.

This Ep suite of tools has been applied in two primary ways:

a) At a project-level analysis, it has been applied to answer the first two questions above. A municipal stormwater permit may require a project design to achieve an erosion potential (Ep) value of 1.0. This means that a project must be designed so that the long-term erosion potential of the site's stormwater discharge is equal to the erosion potential of the pre-development condition. Section 3.1 below explains the process by which this analysis is conducted.
b) At a regional level, this suite of tools can be applied to answer the third and fourth questions above and to provide further guidance to project-level assessments. For example, practical engineering considerations generally require that a tolerance be permitted around a target design value. It is unlikely that a project design can match an Ep target of 1.0 across all conditions and through all stream reaches, due to variations in a multitude of contributing factors. The selection of an acceptable tolerance or variance from 1.0 is a management decision that should be informed by regional data presented in a risk-based format. Section 3.2 below explains how such a study has been conducted, using the Santa Clara Valley example from northern California.

3.1. *Project-Level Analysis.* As applied to the analysis of project impacts and mitigation design, the steps and associated tools that comprise this suite include the following (Figure B-5):

- Perform continuous simulation of hydrology (e.g. SWMM, HEC-HMS, HSPF) for the project site, for both pre-project condition and post-project condition with the proposed mitigation design.
- Convert discharges and field surveys to hydraulic parameters (shear stress and specific stream power) – e.g., for uniform flow analysis use Manning's equation, GeoTools; for varied flow analysis use HEC-RAS
- Convert hydraulic parameters into sediment transport capacity – e.g., at-a-station hydraulic geometry, HEC-RAS, GeoTools, sediment transport relationships (bedload and total load)
- Integrate Ep over time – e.g., GeoTools

- Compare Ep values for pre-development and post development to determine if the proposed mitigation design is adequate. Adjust stormwater controls as necessary to meet target Ep.

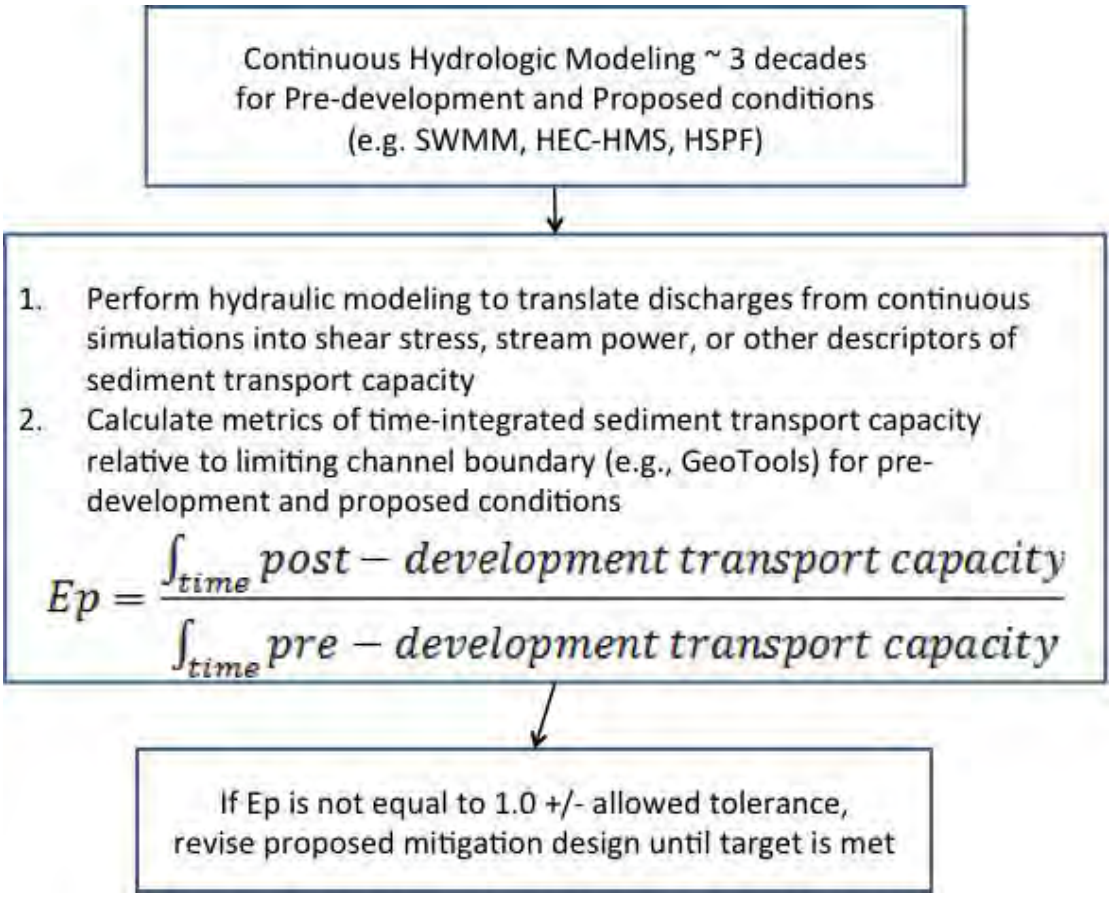

Figure B-5: Steps involved in a project-level Erosion Potential analysis

3.2. *Risk-Based Regional Analysis*. Risk-based modeling estimates the probability of stream geomorphic states. Decision-makers can then choose acceptable risk levels based on an explicit estimate of prediction error. The foundation of risk-based modeling in the context of hydromodification management is the integration of hydrologic and geomorphic data derived from the output of continuous hydrologic simulation models to generate metrics describing expected departures in the most important stream processes. These physical metrics are provided as inputs to probabilistic models that estimate the risk of streams shifting to some undesirable state. Because the decision endpoint is often categorical (e.g., stable, good habitat) the statistical tools of choice

are often logistic regression, classification and regression trees (CART), and/or Bayesian probability networks.

The steps below are used to develop a risk-based framework (Fig. B-6) for assessing how hydromodification may impact streams within a region, and for understanding the relationships between deviation from an Ep of 1.0 and the likelihood of channel instability. Illustrating figures are taken from a risk-based approach was used in the development of the Santa Clara Valley Urban Runoff Program Hydromodification Management Plan (www.SCVURPPP.org). This study demonstrated that a time-integrated index of erosion potential based on continuous hydrologic simulation and an assessment of stream power relative to the erodibility of channel boundary materials could be used to distinguish between channels of a particular regional type that are stable vs. degraded by hydromodification in urban watersheds.

- Perform project-level analysis as described in section 3.1 above for existing developments throughout the study watersheds.
- Perform stream surveys throughout the study watersheds to characterize condition (i.e., stable, unstable)
- Create statistical relationships between Ep and different channel states – e.g., logistic regression in R, SAS, Statistica, Minitab, etc. Note that standard regression techniques are applied when the dependent variable and the explanatory variables are quantitative and continuous. To analyze a binary qualitative variable (e.g., 0 or 1, stable or unstable, healthy or degraded) as a function of a number of explanatory variables, alternative techniques must be used. The regression problem may be revised so that, rather than predicting a binary variable, the regression model predicts a continuous probability of the binary variable that stays within 0–1 bounds. One of the most common regression models that accomplishes this is the logit or logistic regression model (Menard, 1995; Christensen, 1997).

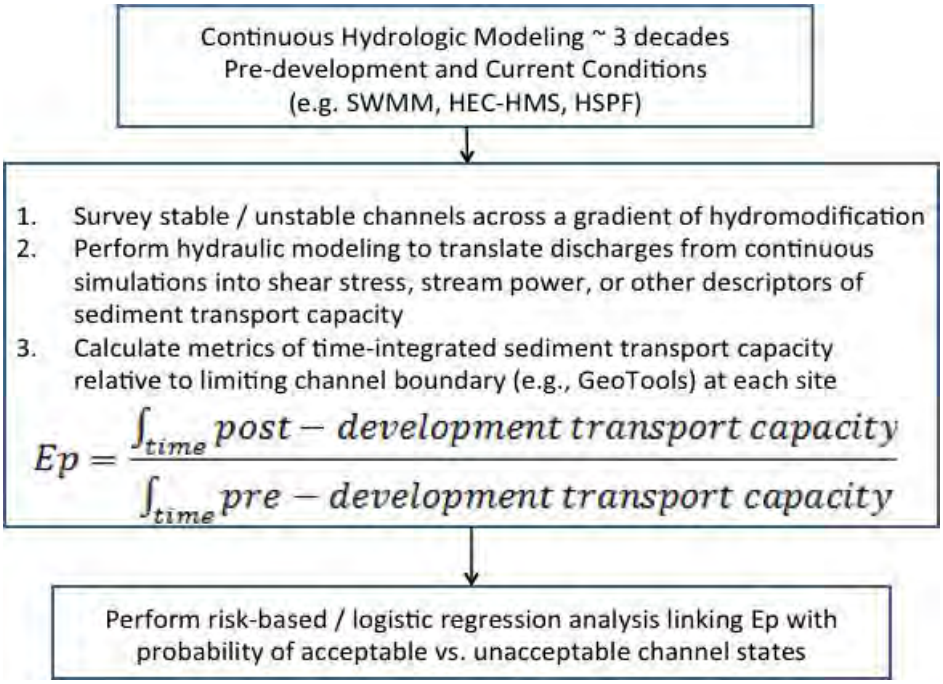

Figure B-6: Steps involved in a Risk-Based Erosion Potential analysis

The variables included in risk-based models of stream response are not limited to erosion potential. Additional multi-scale controls could be included. For example, simple categories of physical habitat condition and ecological integrity could be predicted by augmenting erosion potential metrics with descriptors of the condition of channel banks and riparian zones, geologic influences, floodplain connectedness, hydrologic metrics describing flashiness, proximity to known thresholds of planform change, and BMP types. Furthermore, although most of the emphasis to date has been on predicting geomorphic endpoints, the risk-based approach can be extended to the prediction of biological states in urban streams if the necessary data are available.

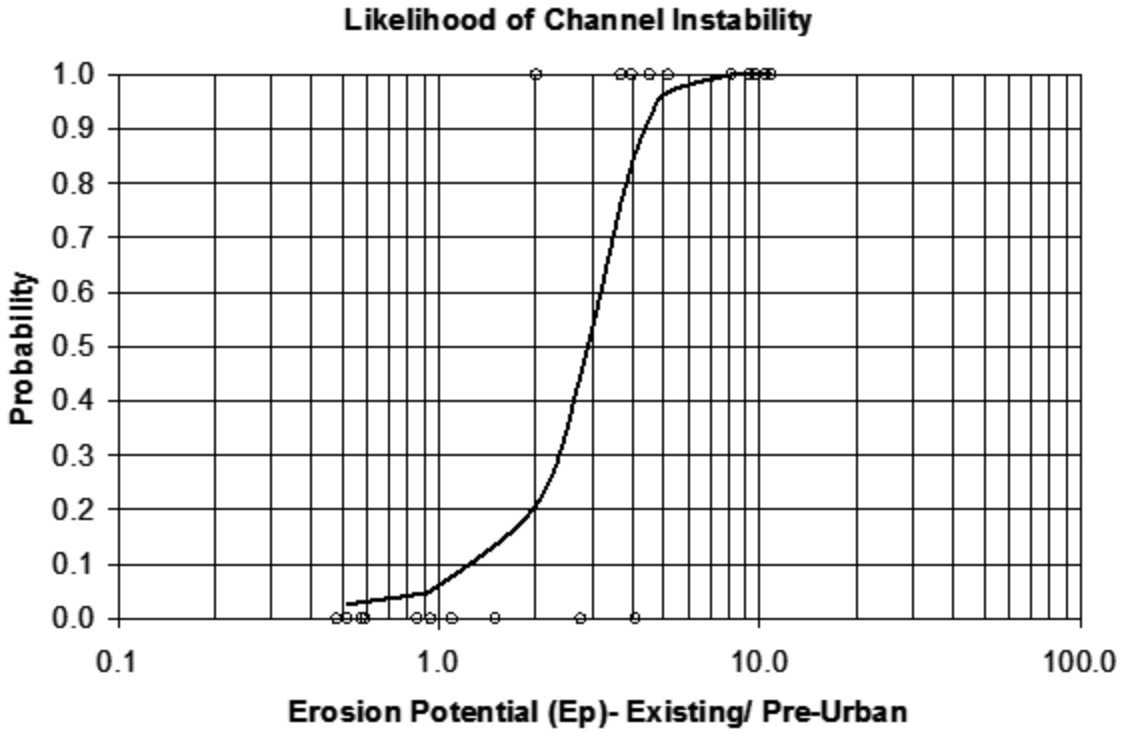

Figure B-7: Example of a logistic regression analysis of stable vs. unstable channels (Bledsoe and Watson, 2001; Bledsoe et al., 2007). The vertical axis represents the probability of stream instability which increases rapidly for channels with sediment transport capacity increased by urban hydromodification (Ep > 1).

3.3. *Strengths and Limitations.* The Erosion Potential approach combines a sound physical basis with probabilistic outputs and requires a substantial modeling effort. Such an effort is necessary to adequately characterize the effects of hydromodification on the stability of streams that are not armored with very coarse material such as large cobbles and boulders. Although policies based on this approach should reduce impacts to channel morphology, they may still fail to protect stream functions and biota. Key simplifying assumptions and prediction uncertainty in the inputs (hydrologic modeling, assumptions of static channel geometry in developing long term series of shear stresses or stream powers, assumptions of stationarity in sediment supply, etc.) have not been rigorously addressed. Its effectiveness also depends on careful stratification of streams in a region such that fundamentally different stream types are not lumped together (e.g. labile sand channels vs. armored threshold channels with grade control) in developing general relationships for instability risk. Endpoints to date have been rather coarse, e.g. stable vs. unstable; as such, they do not provide sufficient resolution for envisioning future stream states. However, the Erosion Potential approach provides

promise as an important tool for hydromodification management; it is recommended that it be refined to address sediment supply changes and to provide more finely resolved endpoints for improved predictive capabilities.

4. **Sediment transport analysis suite of tools.** This suite of tools is designed to answer the following questions:
   - Do I need to incorporate sediment transport analysis in predicting channel response to hydromodification, i.e. what is the sensitivity of channel slope and geometry to inflowing sediment load?
   - At what discharges are different fractions of bed material mobilized in a particular stream segment?
   - What is inflowing sediment load to a stream segment, i.e. what is the water discharge Q(t) and sediment supply rate Qs(t) and grain size D(t) delivered to the upstream end of the channel segment of interest?
   - How will the available flow move the supplied sediment through the segment of interest?
   - What is the new equilibrium slope given some change in streamflow, and how much incision would be necessary to achieve this new slope?
   - What is the sediment transport capacity of the segment of interest *relative to* the inflowing sediment load from *upstream* supply reaches?
   - What is the sediment transport capacity of the segment of interest *relative to* the capacity of *downstream* reaches?
   - At the network scale, where are zones of low vs. high energy, aggradation vs. degradation potential, and coarse sediment constriction located?

   The primary tools that comprise this suite include the following:
   - Tools for estimating watershed sediment supply (Reid and Dunne 1996), including the RUSLE (Renard et al. 1997; http://www.ars.usda.gov/Research/docs.htm?docid=5971) and WEPP (Laflin et al. 1991; http://www.ars.usda.gov/Research/docs.htm?docid=10621) models.
   - Effective discharge analysis (see above)
   - Incipient motion analysis (tractive force, e.g. ASCE 2008; Brown and Caldwell 2011; Buffington and Montgomery 1998; Lane 1955a)
   - Sediment continuity analysis at single dominant discharge with an appropriate sediment transport relation – e.g., HEC-RAS, Bedload Assessment for Gravel-bed Streams (BAGS -Pitlick et al. 2009; GeoTools)
   - Equilibrium slope / geometry analysis e.g., HEC-RAS – Copeland et al. 2001, iSURF-NCED 2011)
   - Sensitivity to inflowing sediment load analysis e.g., Copeland's method in HEC-RAS, iSURF-NCED 2011)
   - Sediment continuity analysis over the entire flow frequency distribution e.g., Capacity-Supply Ratio of Soar and Thorne (2001), BAGS, GeoTools

- Network scale sediment balance – Sediment Impact Analysis Methods (SIAM) module in HEC-RAS

Movable bed / mobile boundary models also provide a mechanistic tool for estimating the trend and magnitude of changes in channel geometry due to hydromodification. However, a recent study evaluated the potential applicability of various movable bed and/or boundary models to streams in southern CA (Dust 2009), including HEC-RAS, CONCEPTS (Langendoen, 2000), and FLUVIAL 12 (Chang, 2006). The results of tests performed on urban streams in southern CA indicate that these models are difficult to apply and have high prediction uncertainty due to flows near critical, split flow conditions, and lack of fidelity to complex widening, bank failure, and armoring processes.

The following figures depict example outputs from an application of the sediment-transport suite of tools:

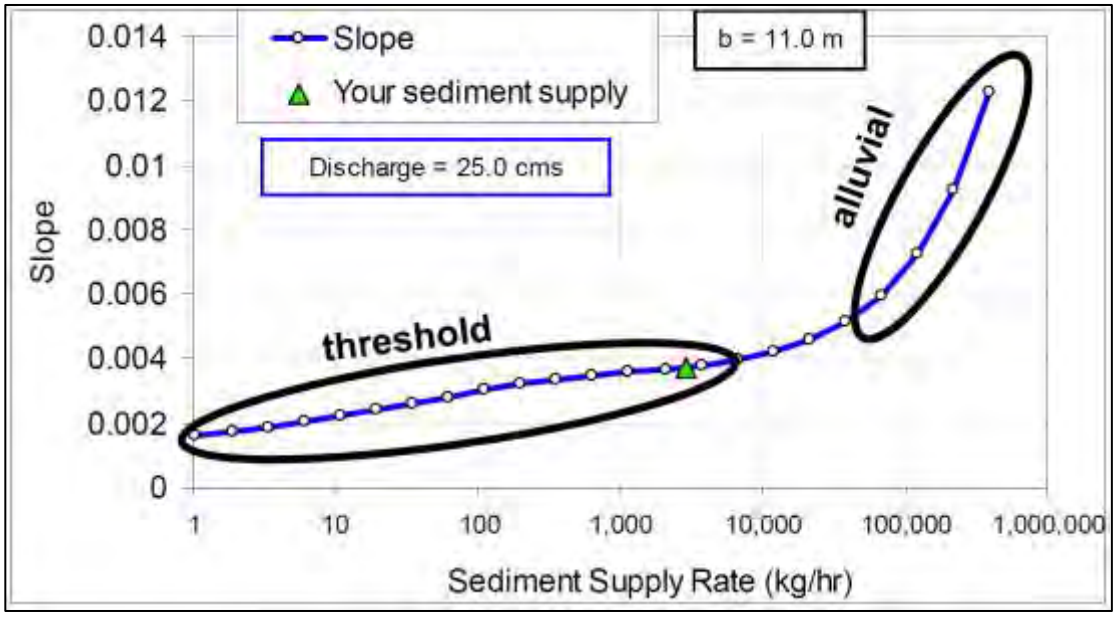

Figure B-8. Sensitivity analysis of equilibrium channel slope to inflowing sediment load (from iSURF, NCED 2011). Slopes of alluvial channels with high sediment supply are much more sensitive than threshold channels with relatively low sediment supply. Channels with beds composed of sand and fine gravels are generally much more geomorphically sensitive to hydromodification than threshold channels in which coarse bed sediments are primarily transported at relatively high flows.

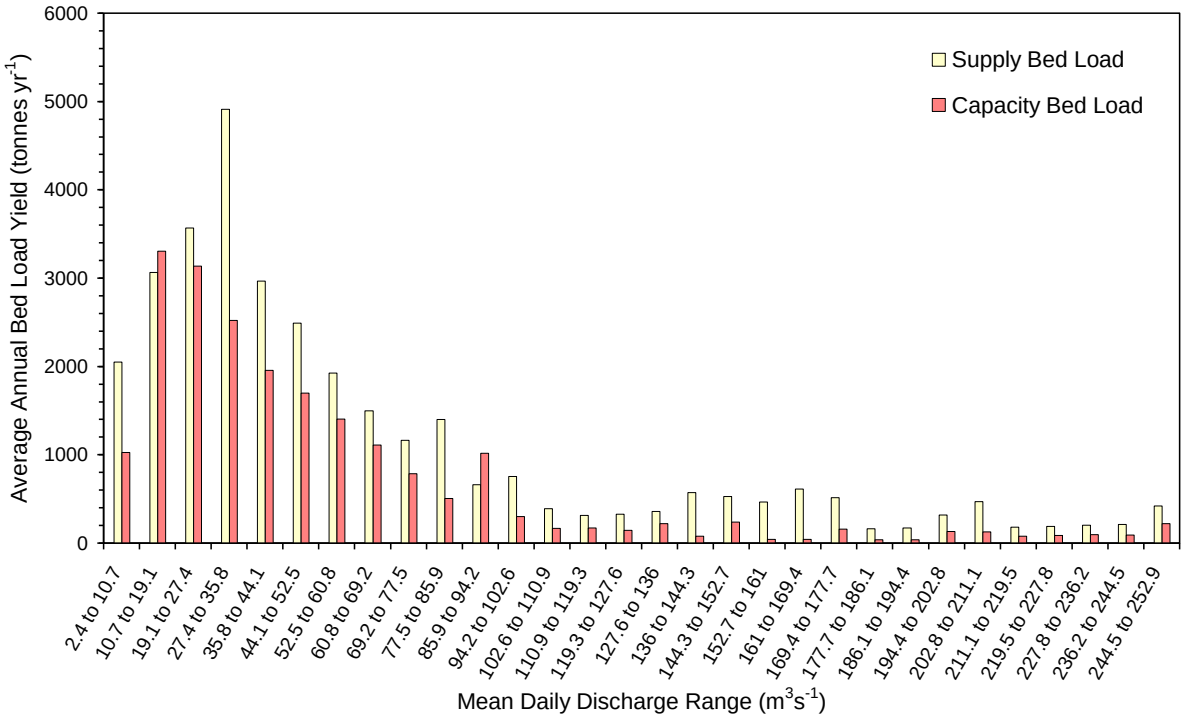

Figure B-9. Analysis of sediment transport capacity vs. inflowing sediment load over the full spectrum of stream discharges (capacity-supply ratio; Soar and Thorne 2001). In this case, the time-integrated capacity to transport bedload is 64% of the supplied bedload and significant aggradation is expected.

5. **Relationship to Management Framework**. These suites of tools could be applied to establish project-specific requirements for hydromodification assessment and mitigation, as recommended in the Management Framework presented in Chapter 3. In the example shown in the diagram below, results of the Baseline Assessment are used as a screening tool to assign high, moderate or low risk levels for stream reaches, in conjunction with the proposed land-use changes. Thus, the Baseline Assessment suite of tools is crucial in determining whether a detailed survey-level assessment and additional suites of tools are necessary for an adequate analysis. The need to apply additional suites of tools in formulating a management approach is commensurate with the level of risk and susceptibility of the stream. More complex and rigorous analysis with multiple suites of tools is necessary in predictive assessments for relatively susceptible stream types such as alluvial channels with sand beds.

   Although a stream may have relatively low susceptibility for overall geomorphic change, it may nevertheless have ecological attributes that are highly susceptible to hydromodification. Thus, suites of tools focused on both geomorphic and biological endpoints must be used to fully assess stream susceptibility to hydromodification. More work will be required to develop tools for prediction of biological response to flow alterations throughout California, as noted in Chapter 3 (see Poff et al., 2010 and http://conserveonline.org/workspaces/eloha).

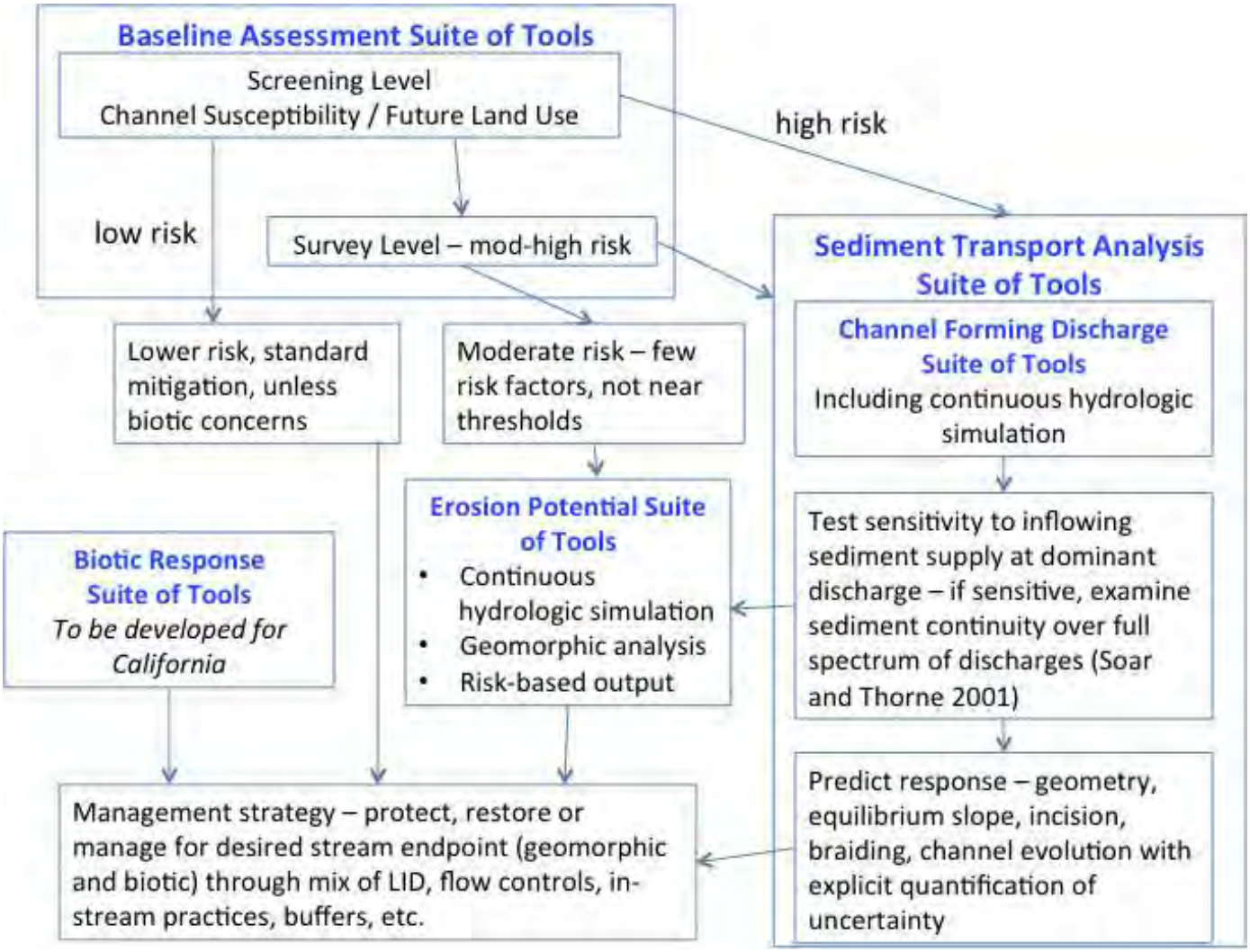

Figure B-10. Conceptual diagram showing relationships among the four suites of existing tools and biotic response tools to be developed in the future. Additional analyses will be required for engineering design.

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APPENDIX C: ADAPTIVE MANAGEMENT

WHAT IS ADAPTIVE MANAGEMENT

Adaptive management is a formalized approach for overcoming the inescapable difficulty in predicting ecological outcomes resulting from natural-resource management actions. It accomplishes this by treating all "management actions" (whether intentional or not) as experimental components within the larger structure of a monitoring program (Holling 1978, Walters 1986, Lee 1999, Ralph and Poole 2003). In other words, specific management actions that may affect ecological processes and functions are systematically evaluated, via "monitoring," to provide the data to affirm or refute the expected outcomes. To the extent that the monitoring results indicate a need to revise the scientific understanding or the management actions built on that understanding, establishing the mechanism to change management actions is a precursor, not an afterthought, of the monitoring program.

Adaptive Management was first articulated over 30 years ago (Holling, 1978) and more recently embraced through various conservation efforts worldwide. Fundamental to this approach is the integration of management and monitoring, recognizing that any management action in the context of a complex ecological system is ultimately experimental, requiring feedback to make progress.

The process of adaptive implementation is iterative and continuous; new knowledge is actively incorporated into revised experiments, a practice best described as "learning while doing" (Lee 1999). The key difference between this approach and other commonly implemented environmental management strategies is the application of scientific principles, such as hypotheses-testing,[is used] to explicitly define the relationships between policy decisions, management actions, and their measured ecological outcomes. Furthermore, this approach provides a means to understand and document these cause-and-effect relationships; it can also point to alternative actions that may produce more desirable outcomes. Uncertainty is embraced and serves as a focal point for defining ever-more specific evaluations.

Scientifically credible and relevant information can only be generated when the management "experiments" are designed with clear hypotheses about the effects of proposed actions or prescriptions. These hypotheses must be testable at multiple scales using available technology and methods (Conquest and Ralph 1998; Currens *et al*. 2000). Hypotheses that cannot be tested, are trivial (e.g., "water flows downhill"), are not credible ("water flows uphill"), or only account for site-specific conditions are not useful in considerations of the singular or cumulative effects of management actions.

In order to retain clear linkages between key questions, hypotheses, and monitoring protocols, the experimental approach must be designed before determining which goals and endpoints are appropriate (Ralph and Poole 2003) since appropriate goals should be *outcomes* of the

effort, not a precondition; and the approach must explicitly tie stated hypotheses to the key ecological questions.

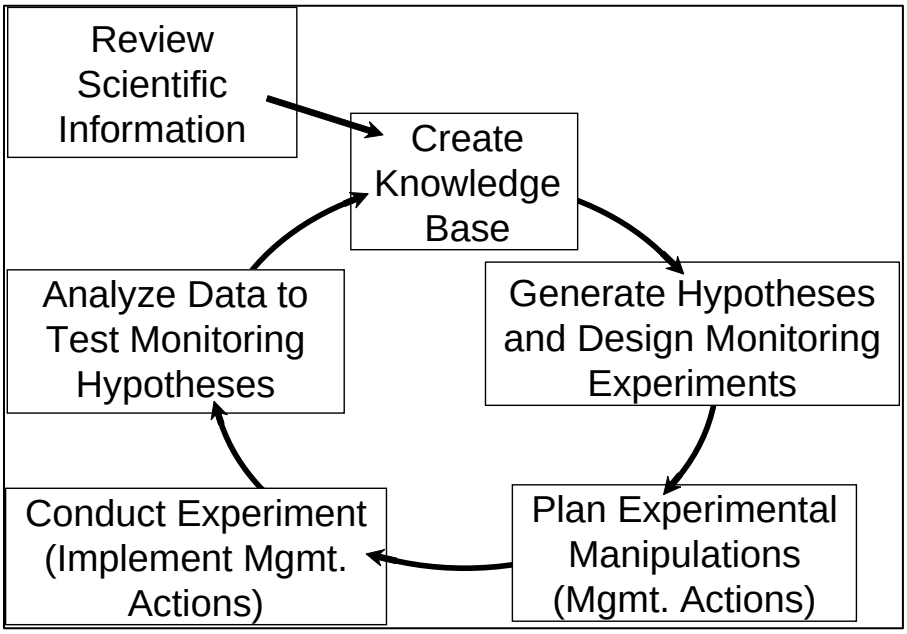

Figure A-1. Framework for an adaptive management program. The key feature of this cycle is the foundation of scientific principles and hypothesis generation; design of the management actions and the monitoring to evaluate their effects are integrated and designed to test assumptions, improve understanding, and reduce uncertainty (modified from Ralph and Poole 2003, Figure 3).

Wagner (2006) asserts that [stormwater] regulatory programs in the past often failed because they were designed in ways that ignored technological and scientific limitations. "Science-based" does not simply mean the monitoring of status and trends followed by responding to imposed benchmarks and goals, but rather that scientific principles must be the foundation of regulatory program design, and that these programs must rely on scientific methods to demonstrate results. Wagner suggests that regulations can still be designed despite incomplete or developing knowledge, but that gaps and limitations must be acknowledged and used to inform ongoing investigations. His argument clearly echoes those of scientists who insist that monitoring experiments and testable hypotheses must frame management decisions and land-use objectives.

WHAT IS *NOT* ADAPTIVE MANAGEMENT, AND WHY IS IT SO PROBLEMATIC?

Unlike the experimental approach embodied by adaptive management, an alternative process traditionally dominates in natural resource management: (1) a problem is identified, but a cause is simultaneously presumed (e.g., "increased sediment inputs into a stream are negatively impacting salmonid survival"); (2) a solution or set of solutions is proposed (e.g., timber harvest is restricted and riparian buffer width is increased), but the prescription is not translated into a testable hypothesis associated with the problem or question; and (3) if the problem is not solved within an arbitrarily reasonable period of time (e.g., a few years) then a different solution is proposed (e.g., "augmented upland and riparian restoration must be implemented"). Although simplified, this outline displays its divergence from adaptive management and from the basic principles of the scientific process—the resulting process is perpetually reactive.

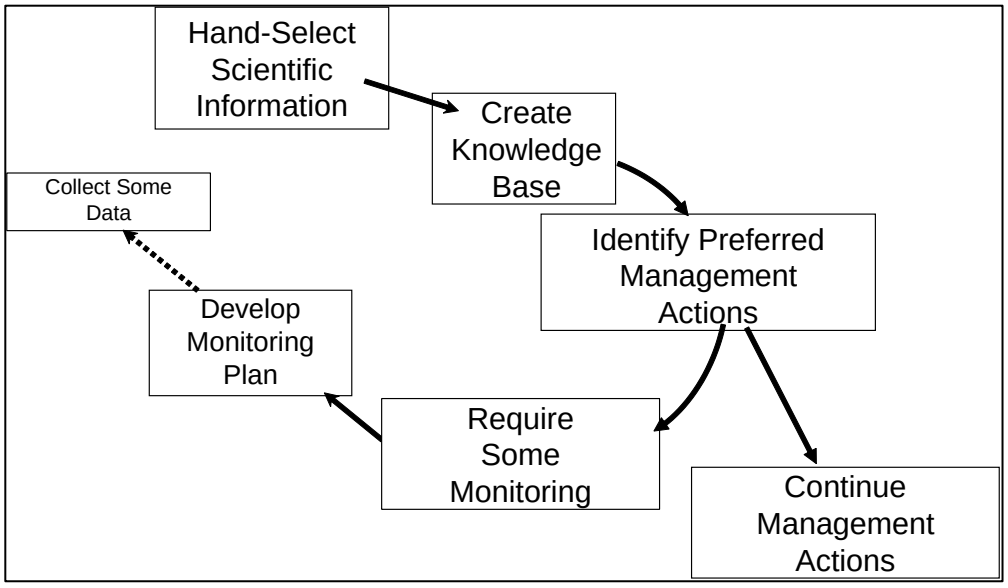

Figure A-2. Common framework for monitoring outside of an adaptive management structure. Management actions are chosen with a presumptive effect on ecological systems, and monitoring is conducted without any feedback to future actions. Even where monitoring is intended to "inform" future management actions, the absence of an explicit experimental design normally limits the utility of any monitoring data to provide meaningful insights.

In its best form, this paradigm has been termed passive adaptive management:

> Restoration planners' current management approach has been described as a "passive" adaptive management approach: science is used to

> develop best-guess predictive models, make policies according to these models, and revise them as data become available. The National Academies advise that every effort be made to take a more "active" adaptive management approach by developing alternative hypotheses for the expected consequences of a particular project and then design the project so the hypotheses can be experimentally tested" (from the summary to *Adaptive Monitoring and Assessment for the Comprehensive Everglades Restoration Plan*, 2003, National Academies Press, 122 pp.).

Ralph and Poole (2003) have aptly named this approach "socio-political adaptive management" (i.e., SPAM).

BARRIERS TO IMPLEMENTING "ACTIVE" ADAPTIVE MANAGEMENT

Although the virtues of active adaptive management are readily articulated, the framework is surprisingly rare in practice. Some of these barriers are practical or logistical, and they include such issues as:

- Longevity and long-term institutionalization of monitoring;
- Effective data management systems that allow managers to readily access data;
- Ability to differentiate effects from natural variability and events, such as flood and fire;
- Cost and technical limitations of necessary data collection.

The most severe impediments, however, are not scientific but social: "We suggest that watershed-scale adaptive management must be recognized as a radical departure from established ways of managing natural resources if it is to achieve its promise... Adaptive management encourages scrutiny of prevailing social and organizational norms and this is unlikely to occur without a change in the culture of natural resource management and research" (Allan et al. 2008).

While science can provide defensible and replicable insights regarding the ecological outcomes of management prescriptions, it cannot offer absolute certainty. Policy can be and should be informed by science but is ultimately based on a variety of considerations that are not always amenable to the spatial, temporal, and technological limitations of the scientific process (Van Cleave et al. 2004). This is an uncomfortable truth for agency managers and elected officials to acknowledge, and it commonly results in funding decisions and public pronouncements using the "language" of science but not its substance.

Although efforts to build large, collaborative programs are commonly characterized by increasing stakeholder involvement and outreach, greater participation does not necessarily

mean that true adaptive management is occurring, or that scientific principals are being applied to either the choice of management actions or their evaluation. These efforts, however, do reflect a movement to extend natural resource management decision-making processes beyond just technical experts in order to reflect evolving social values (Pahl-Wostl *et al*. 2007). If they are successful, this approach can open a path to achieving the best of both realms, namely scientific rigor with a broad base of community support.

ATTRIBUTES OF USEFUL HYPOTHESES FOR AN ADAPTIVE MANAGEMENT PROGRAM

A key element of any adaptive management approach is the set of hypotheses that guide both the management actions and their associated monitoring. Because these management actions are recognized as "experimental" (because in a complex system most outcome(s) cannot be predicted with absolute certainty), their selection must be guided by assumptions about what *might happen,* or what is *expected* to happen. This defines the first attribute of a useful hypothesis: it is **credible**, typically because it is based on prior knowledge or scientific understanding of the system. Indeed, some hypotheses may already be so well evaluated and understood (e.g., "Stormwater runoff from freeways carries measurably elevated concentrations of toxic pollutants") that there is little point in framing them in this structure at all—as new monitoring programs to address such hypotheses are highly unlikely to result in new information or knowledge and might be perceived as an unwise expenditure of scarce monitoring resources.

The second attribute of a useful hypothesis stems from the scientific reality that any experiment, whether conducted in the laboratory or across the landscape, provides value only insofar as its outcomes are measured and the effects are distinguishable from the influence of other, unrelated factors. Thus, the hypothesis that guides the experiment should not only be credible but also **testable**. Otherwise, why bother making measurements at all?

Lastly, these actions and measurements and analyses do not occur in a vacuum. Thus, the final guiding principle for any hypothesis in an adaptive management approach is that it be **actionable**, or that different outcomes, as revealed by monitoring, can (and will) result in different management responses. If no difference occurs, then clearly there is no reason to have made the effort in the first place.

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ATTACHMENT A

**ORANGE COUNTY LEGAL &TECHNICAL COMMENTS ON
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
TENTATIVE ORDER No. R9-2013-0001
NPDES NO. CAS0109266**

Appendix A-3

2009 Presentation to Santa Ana Regional Board

Storage and Reuse Systems for Stormwater Mangement

Preliminary Cost and Performance Estimates for Residential Land Use in Irvine, CA

Eric Strecker, P.E.

Geosyntec consultants

Summary of Study

- Compared hypothetical scenarios for rainwater harvesting and reuse systems (cisterns)
  - single lot scenario
  - 100 ac neighborhood scenario
- Compared resulting costs and for both scenarios
- Performed modeling (long term simulation) analysis for neighborhood scenario
- Evaluated water quality loading differences between rainwater harvesting and reuse systems and typical bioretention installation for single family residential
- Performed preliminary review of applicable codes

Rainwater harvesting and Reuse Systems

Impervious Area

- Roof tops
- Driveways
- Streets

Stormwater Conveyance and Pretreatment

- Pipes
- Filters

Storage

- Cistern
- Storage Basin
- Underground Vault

Treatment

- UV treatment
- Filtration

Pumping and Piping

- Pipes back to house (purple)

Indoor Use and Irrigation

- Toilet flushing
- Yard and Garden irrigation

Geosyntec consultants

Single Lot Scenario

- Two reuse demands were examined: 1) indoor use only (toilet flushing), and 2) indoor and outdoor use (toilets and irrigation)

- Lot Characteristics:
  - 0.1 acres
  - 69% impervious area
    - Roof area - 2400 ft^2
    - Other (patio) - 600 ft^2
  - 3.5 people/house
  - Toilet use/capita = 18.5

- Method assumptions:
  - Rational Method
    - Impervious Runoff Coeff. (0.9)
    - Precipitation Depth – 0.8 in (85^{th} percentile for large parts of Orange County)
    - Toilet use / house = 65 gal/day
    - Irrigation /house = 77 gal/day (Avg. from Irvine Water District data)

Geosyntec consultants

Single Lot Scenario Results

Water Collected From:	Roof	Roof + Other Impervious area
Demand Scenario	**Average Drawdown Time (days)**	
Toilets only	17	21
Both Toilets & Outdoor uses	7.6	9.5

Note: Outdoor demand assumes that irrigation demand is immediate; more sophisticated modeling would allow more accurate characterize of irrigation demand, but for purposes of this analyses, it was assumed to be immediate. This likely significantly overstates the demand for irrigation.

Geosyntec consultants

Neighborhood Scenario

- Two reuse demands were examined: 1) indoor use only (toilet flushing), and 2) indoor and outdoor use (toilets and irrigation)

- Neighborhood Properties:
  - 100 acres – 60 % impervious
  - 0.1 acre lots at 4.5 du/ac = 450 houses
  - 3.5 people/house
  - Toilet use/capita = 18.5
  - Basin used to store runoff

- Method assumptions:
  - Rational Method
    - Impervious Runoff Coeff. (0.9)
    - Precipitation Depth – 0.8 in (85^{th} percentile for large parts of Orange County)
    - Toilet use / house = 65 gal/day
    - Irrigation /house = 77 gal/day (Avg. from Irvine Water District data)

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Neighborhood Scenario Results

Demand Scenario	Average Drawdown Time (days)
Toilets only	45
Both Toilets & Outdoor uses	10

Note: Outdoor demand assumes that irrigation demand is immediate; more sophisticated modeling would allow more accurate characterize of irrigation demand, but for purposes of this analyses, it was assumed to be immediate. This likely significantly overstates the demand for irrigation.

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General Cost List

Item	Description	Cost	Reference/Source
TANKS			
Galvanized steel	200 gal	$225	Fairfax County, 2005
Polyethylene	165 gal	$160	Fairfax County, 2005
Fiberglass	350 gal	$660	Fairfax County, 2005
Plastic	800 gal	$400	Plastic-mart.com
Plastic	1100 gal	$550	Plastic-mart.com
Plastic	1350	$600	Plastic-mart.com
Plastic cone	1500 gal w/metal stand	$1500	Plastic-mart.com
Plastic	2500 gal	$900	Plastic-mart.com
Plastic	5000 gal	$3000	Plastic-mart.com
Plastic	10000 gal	$6000	Plastic-mart.com
[1] Dry Det. Basin(1997)	$C = 12.4V^{0.760}$: for 1 ac-ft	$41,600	stormwatercenter.net
[2] Below Ground Vault	$C = 38.1 (V / 0.02832)^{0.6816}$	$55,300	fhwa.dot.gov
Concrete	1,000,000 gal above g. (O&P)	$548,000	RSMeans
Steel	1,000,000 gal above g. (O&P)	$467,000	RSMeans
TREATMENT			
UV (house-scale)	Whole system - 12 gpm	$700-$900	rainwatercollection.com
UV bulb	Life: 10,000 hrs or 14 months	$80-$110	rainwatercollection.com
UV (neighborhood-scale)	Whole system - 200 gpm	$10,000	Bigbrandwater.com
Downspout filter	Placed in Gutter	$20 - $500	many online
1st Flush Diverter	Vertical pipe w/ ball float	$50-$100	raintankdepot.com
PUMP	1 hp (all in one package)	$575 - varies	rainwatercollection.com
PIPING (Purple)			
to Tank (lot)	PVC: 2"-6" (O&P)	$2-$12 / LF	RSMeans
to House (lot)	PVC: 2"-6" (O&P)	$2-$12 / LF	RSMeans
to Tank (neighbor.)	Concrete: 6" – 18" (O&P)	$15-$30 /LF	RSMeans
to House (neighbor.)	HDPE- 4" – 10" (O&P)	$11-$27 / LF	RSMeans
to Irrigation	PVC: 2"-6" (O&P)	$2-$12 / LF	RSMeans
Backflow prev. valve	Each	$100-$200	web
STENCILS	Non-potable water	----	
INSTALLATION	Percentage of material cost	40 % – 50%	

[1] This dry detention cost equation - Brown and Schueler, 1997: C is the construction, design and permitting cost and V is the volume (cu-ft) need to control the 10-year design storm. In this case, the 0.8" storm runoff volume was used in place of the 10-yr design storm volume.

[2] This below ground storage vault equation - Weigand et al., 1986:C is the construction cost estimate (1995 dollars), and V is the runoff volume (cubic meters)

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Single Lot Costs

Item	Description	Cost
TANKS		
Plastic	1100 gal and 1350 gal	$550
TREATMENT		
UV	Whole system - 12 gpm	$800
UV bulb	Life: 10,000 hrs or 14 months	$80-$110
Downspout filter	Placed in Gutter	$250
1st FLUSH DIVERTER	Vertical pipe w/ ball float	$100
PUMP	1 hp (all in one package)	$575
PIPING (Purple)		
to Tank (lot)	PVC: 2”-6” (O&P) 20ft	$8 / LF
to House (lot)	PVC: 2”-6” (O&P) 50ft	$8/ LF
to Irrigation	PVC: 2”-6” (O&P) 50ft	$8 / LF
Backflow prev. valve	each	$200
STENCILS	Non-potable water	----
INSTALLATION	40% of material cost	$1400
TOTAL		**$4,900**

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Neighborhood Costs

Item	Description	Cost	Units Assumed
TANKS			
Dry Det. Basin(1997)	$C = 12.4V^{0.760}$	$119,000	174,000ft^3
Below Ground Vault	$C = 38.1 (V / 0.02832)^{0.6816}$	$142,000	174,000ft^3
TREATMENT			
UV - neighborhood	Whole system - 200 gpm	$10000	
Catch basin filters	1 every 2 acres	$2000	50 catch basins
PUMP		$50,000	
PIPING (Purple)			
to Tank (neighbor.)	Concrete: 6” – 18” (O&P)	$15-$30 /LF	$23 - 14000 ft
to House (neighbor.)	HDPE- 4” – 10” (O&P)	$11-$27 / LF	$19 - 14000 ft
to Irrigation	PVC: 2”-6” (O&P)	$2-$12 / LF	$8 - 60 ft /house
Backflow prev. valve	each	$100-$200	$200 per house
STENCILS	Non-potable water	----	
INSTALLATION	40% of material cost	$470,000	
TOTAL		**$1,650,000**	

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SWMM Modeling Analysis

- Long term (40 yr) analysis of the neighborhood scenario was performed using SWMM. Two scenarios analyzed:
  - 0.8 inch design storm
  - 1.6 inch design storm
- Modeling assumptions:
  1. Toilet flushing – same as scenarios and applied as constant rate
  2. Irrigation – monthly values (from the IRWD) applied as constant rates by month (i.e. demand occurs continuously during and after storm event)
  3. Overflow from tanks considered to be untreated bypass
  4. Same total area and impervious areas in both studies

SWMM Modeling Results

	Units	Scenario			
		A	**B**	**C**	**D**
		Toilet Flushing Only, 0.8" design storm	Toilet Flushing + Irrigation, 0.8" design storm	Toilet Flushing Only, 1.6" design storm	Toilet Flushing + Irrigation, 1.6" design storm
Average Annual Drawdown Time	**days**	**47**	**8.5**	**94**	**17**
Average Stormwater % Capture and Reuse	**%**	**32%**	**55%**	**41%**	**68%**
Avg Annual Volume of Stormwater Reused	MG | CCF	5.2 | 6,950	8.8 | 11,800	6.5 | 8,700	10.9 | 14,620
Avg % of Total Residential Demand Satisfied	**%**	**6.2%**	**11%**	**7.8%**	**13%**

Note: Outdoor demand assumes that irrigation demand is immediate; more sophisticated modeling would allow more accurate characterize of irrigation demand, but for purposes of this analyses, it was assumed to be immediate. This likely significantly overstates the demand for irrigation.

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Pollutant Loading Example

Assumptions

- Median Runoff EMC for TSS for HSFD: **70 mg/L**
- Median Effluent Concentration for TSS for Media Filters from International BMP Database: **15 mg/L**
- % Captured by cistern per SWMM (Scenario B – 0.8" design storm with toilet and irrigation re-use): **55%**
- % Captured by Bioretention with Underdrains per DAMP requirement: **80%** (requires approx 0.4" design storm)
- Bypass from both BMPs assumed to be untreated

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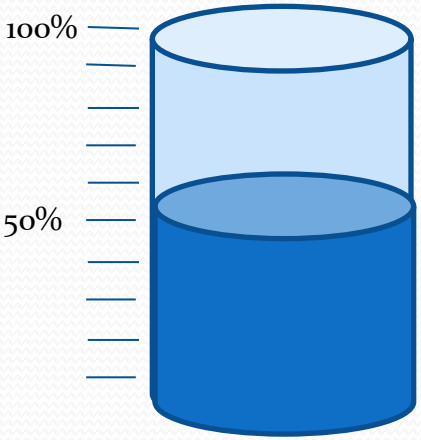
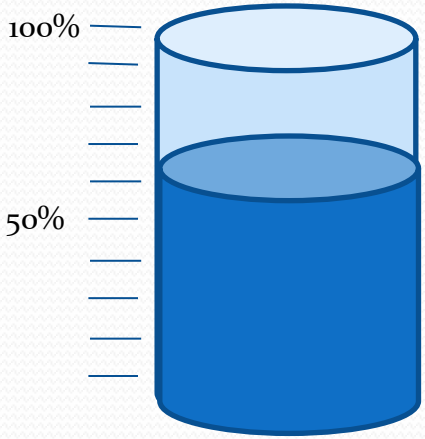
Pollutant Loading Example

Results – Average Annual TSS Load Removed

Cisterns and Re-Use: **55%**



Bioretention with Underdrains: **63%**



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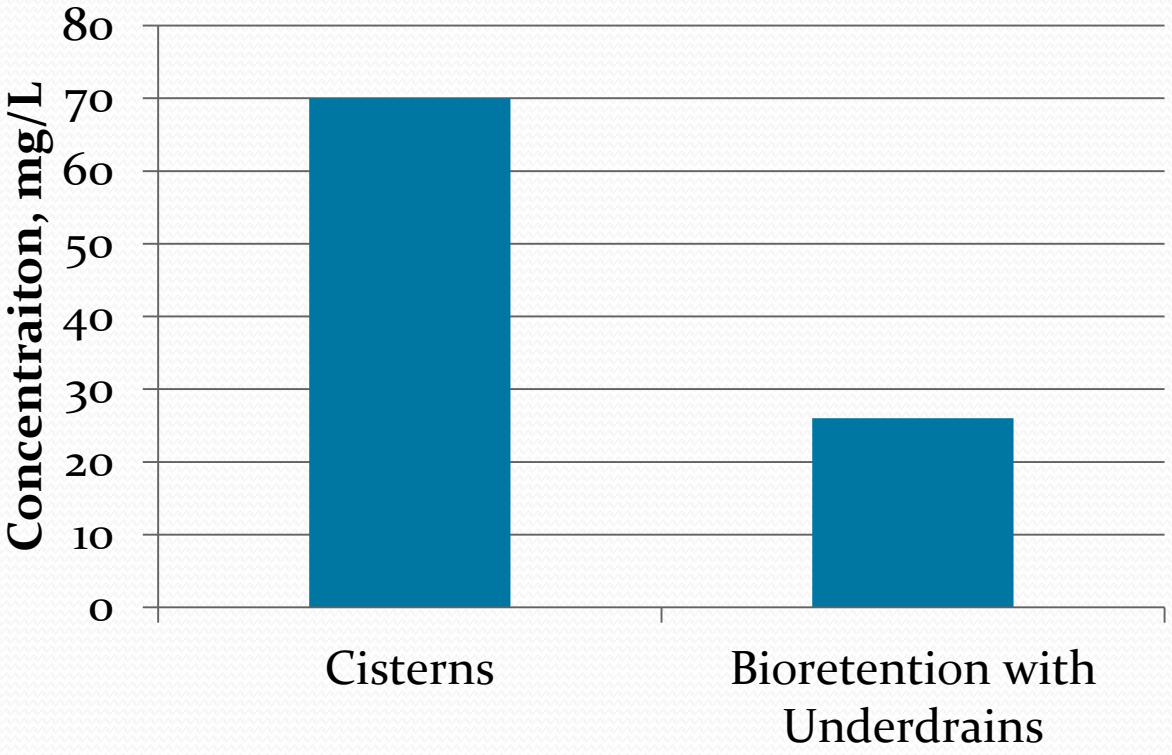
Pollutant Loading Example

Results – Average Annual TSS Concentration with BMPs



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Rainwater Harvesting - Code and Regulations

Applicable Codes

- Title 24—Building Standards Code (plumbing code)
  - Mechanical design and installation procedures
- Title 22—Social Security (recycled water quality standards)
  - Current technologies can meet this requirement (filtration, UV, and others)
- Title 17—Public Health (public water system cross-connection and backflow prevention)

Preliminary Conclusions

Since state codes do not currently recognize rainwater harvesting and reuse, discretion in approval will likely reside at the county and/or City levels through local codes and ordinances.

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ATTACHMENT A

**ORANGE COUNTY LEGAL &TECHNICAL COMMENTS ON
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
TENTATIVE ORDER No. R9-2013-0001
NPDES NO. CAS0109266**

Appendix A-4

The Water Report Issue #65:
Stormwater Retention on Site, An Analysis Of Feasibility and Desirability, Strecker and Poresky (2009)

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STORMWATER RETENTION ON SITE

AN ANALYSIS OF FEASIBILITY AND DESIRABILITY

by Eric W. Strecker, PE, and Aaron Poresky, EIT, Geosyntec Consultants (Portland, OR)

INTRODUCTION

Both nationally and in various localities, there is increasing regulatory pressure to maximize or require the retention of stormwater on site with compliance often linked to matching post-development runoff with predevelopment hydrology.

For example, in California the recently adopted Ventura Municipal Separate Storm Sewer System (MS4) NPDES permit requires retention on site — via infiltration, evapotranspiration and/or harvest and "re-use" — of precipitation from storms ranging up in size to the permit-defined "design storm" (Standard Urban Stormwater Mitigation Plan (SUSMP) depth of 3/4 of a inch — "design storms" are events defined in regulation and reflected in stormwater system design). There is an exception allowed where it is not feasible to retain the entire volume: the project may then retain "only" 70 percent of the SUSMP storm on site and mitigate the remaining volume off site. Another example is the North Orange County permit, which requires that infiltration, evapotranspiration, and/or harvest and re-use be employed to manage the water quality design storm, unless infeasible.

Nationally, the recent Energy Independence and Security Act (EISA) Section 438 requires that any Federal project with over 5,000 square feet of impervious area "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow." Guidance for compliance with this provision allows either retention of the 90th percentile, 24-hour storm event or a model-based evaluation of discharge rates and volumes, matching predevelopment with post-development runoff hydrology. In effect , both of these conditions mandate substantial on site retention.

These permits/regulations have "narrowed" the traditional definition of Low Impact Development (LID) down to only a few elements — i.e., infiltration, evapotranspiration and/or harvest and use. This narrowing precludes management options present in the broader LID definition, such as detention and bio-filtration in vegetation-based facilities that provide incidental infiltration and evapotranspiration, but have a surface discharge point (e.g. bioretention with underdrains).

Nationally, the US Environmental Protection Agency (EPA) has also limited the definition of LID in some of their various guidance documents. For example, *Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices*, December 2007 (EPA 841-F-07-006) includes the definition: "LID comprises a set of approaches and practices that are designed to reduce runoff of water and pollutants from the site at which they are generated. By means of **infiltration, evapotranspiration, and reuse of rainwater**, LID techniques manage water and water pollutants at the source and thereby prevent or reduce the impact of development on rivers, streams, lakes, coastal waters, and ground water." (Emphasis added) It should be noted that other EPA documents include

Stormwater On Site

LID Definitions

Harvested Water

Natural Balance

The Water Report
(ISSN 1946-116X)
is published monthly by
Envirotech Publications, Inc.
260 North Polk Street,
Eugene, OR 97402

Editors: David Light
David Moon

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definitions with the broader definition of filtration and surface release (see **Table 1**). It also should be noted that even in the guidance that includes the narrowed definition, in most cases the examples and guidance details include filtration and surface release of runoff.

Table 1. Summary of Filtration and Surface Release Inclusion in LID Definitions and associated guidance

Document/Reference	Filtration and Surface Release	
	In Definition	In Guidance/Examples
Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices, December 2007 (EPA 841-F-07-006)	No	Yes
Low Impact Development (LID) Literature Review, October 2000 (EPA-841-B-00-005	Yes	Yes
Low-Impact Development: An Integrated Environmental Design Approach (Prepared by the Prince George's County Maryland Department of Environmental Resources Programs and Planning Division, with assistance from EPA), June 1999	Yes	Yes
Polluted Runoff (Nonpoint Source Pollution) Low Impact Development (LID), Last updated on Thursday, January 15th, 2009 Additional information from linked factsheet: *Design Principles for Stormwater Management on Compacted, Contaminated Soils in Dense Urban Areas*, April 2008 (EPA-560-F-07-231)	Not Clear	Yes
Low Impact Development (LID) and Other Green Design Strategies, Last updated on October 09, 2008	No	Not Clear

To date, the retention of stormwater on site has been primarily been accomplished via infiltration and, to a much more limited extent, evapotranspiration. Only in a few cases has harvest and use (the authors believe that stormwater that is captured and used is not "re-used") been employed on a site scale (typically as a part of a Leadership in Energy and Environmental Design (LEED) rating process). Uses for harvested water typically include non-potable uses such as irrigation and toilet flushing and in some cases process water for industrial uses.

The feasibility and desirability of retaining stormwater on site up to some design storm level has not been vetted technically on a national or regional scale. For example, in the EPA *Reducing Stormwater Costs* Guidance referenced above there is virtually no assessment via monitoring or modeling information of the potential results of the case studies presented. It is primarily a compendium of antidotal information. There has been almost no consideration of the natural water balance (i.e., predevelopment conditions) in technical guidance or whether infiltrating more volume than occurs under natural conditions (as would tend to result from matching runoff hydrology without matching evapotranspiration) could, in many cases, cause problems. This paper attempts to present some of the considerations for retaining on site to determine whether it is feasible and/or desirable. It focuses on Southern California examples, but the factors discussed are applicable to much of the West and beyond.

It should be noted that "retaining stormwater on site" in its contemporary usage typically only refers to not having surface discharges result from specific "design storm" events. This usage ignores the fact that infiltrated or evapotranspirated stormwater is not actually "retained" on site — it either enters a deeper aquifer, flows as shallow interflow which may emerge elsewhere or, in the case of evapotranspiration, escapes to rain another day.

The authors believe that, while one should try to maximize the retention of stormwater on site, such retention should not be mandated, as site specific circumstances often indictate wiser alternatives.

PERFORMANCE OF STORMWATER BEST MANAGEMENT PRACTICES (BMPs)

General Considerations

In order to assess the performance of stormwater treatment Best Management Practices (BMPs), it is important to understand the range of factors which may impact BMP performance. BMP performance is effected by: runoff patterns; pollutant types and forms; the storage volume and/or treatment rate; the ability to recover storage capacity (for BMPs that rely on storage); the treatment processes for released flows (to surface waters or groundwaters); and operations and maintenance issues that affect the ability of the BMP to continue operations (Strecker, et. al., 2006). For storage-based BMPs, methods for recovering storage capacity include: surface discharge; evapotranspiration; deeper infiltration; and putting the stored water to use. For systems which include cisterns (harvest and use), one of the most critical factors is the ability to quickly recover storage capacity before the next storm event arrives. Typically, if storage capacity cannot be recovered within two-to-four days, then the amount of runoff bypassing storage becomes significant due to the cistern being partially to nearly full.

Stormwater On Site

Storage Capacity Recovery

Weather and Resulting Runoff Patterns

In Southern California and the West Coast in general, precipitation patterns in most urban areas are affected by the presence or absence of a high pressure ridge that in essence blocks-out low pressure storm systems. Typically, once the high pressure ridge is absent a series of storms arrives, delivering "back-to-back" storms until a high pressure ridge re-establishes. Storms arrive about every two to three days during this period. If the storage capacity is not quickly recovered, these back-to-back storms can result in storage-based BMPs that are full or partially full when the next storm arrives, which then causes significant bypass or overflow to occur. In Southern California, most precipitation arrives from December to March. **Figure 1** shows the monthly normal rainfall in Irvine California (and monthly **e**vapo**t**ranspiration (ET)). Monthly normals tend to mask the patterns that occur within specific months in the period of record. **Figure 2** shows a typical precipitation pattern for the same gage, which includes the effect of 'back-to-back" storm events on a weekly timescale in an actual year. These weather patterns indicate that the recovery of storage on a sub-weekly time scale is critical to ensure that sequential storms do not result in excessive bypass or overflow of BMPs. Study of typical storm patterns indicates that storage capacity should be regenerated within two-to-three days to maximize the stormwater management performance when harvesting stormwater.

Precipitation v. "ET"

Figure 1. Monthly Precipitation vs. Monthly Evapotranspiration for Irvine, California.

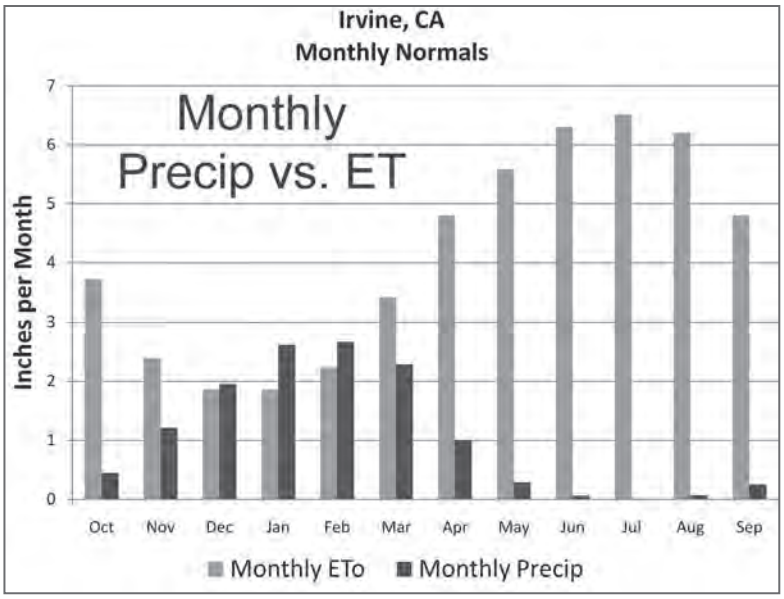
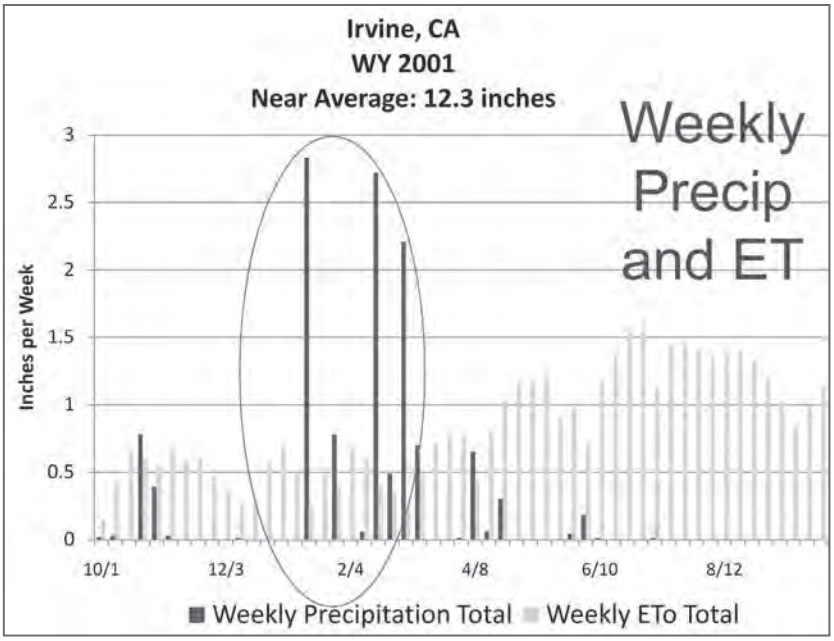


Figure 2. Typical Precipitation Pattern Showing Back-to-Back Storms at Irvine California for a Near Average Water Year.

Precipitation Pattern



Stormwater On Site

Infiltration Issues

Soil Factors

Infiltration Rates & Design

Infiltration is the primary method that is employed to retain stormwater on site. This is because, when it can be accomplished, infiltration is the method most likely to be successful. However, the authors believe that three key questions/issues need to be addressed when considering infiltration strategies if unintended, problematic consequences are to be avoided.

Key infiltration considerations include:

- Can you do it?
- Should you do it and, if so, to what extent?
- If you do employ infiltration, what factors need to be addressed to insure a desirable outcome?

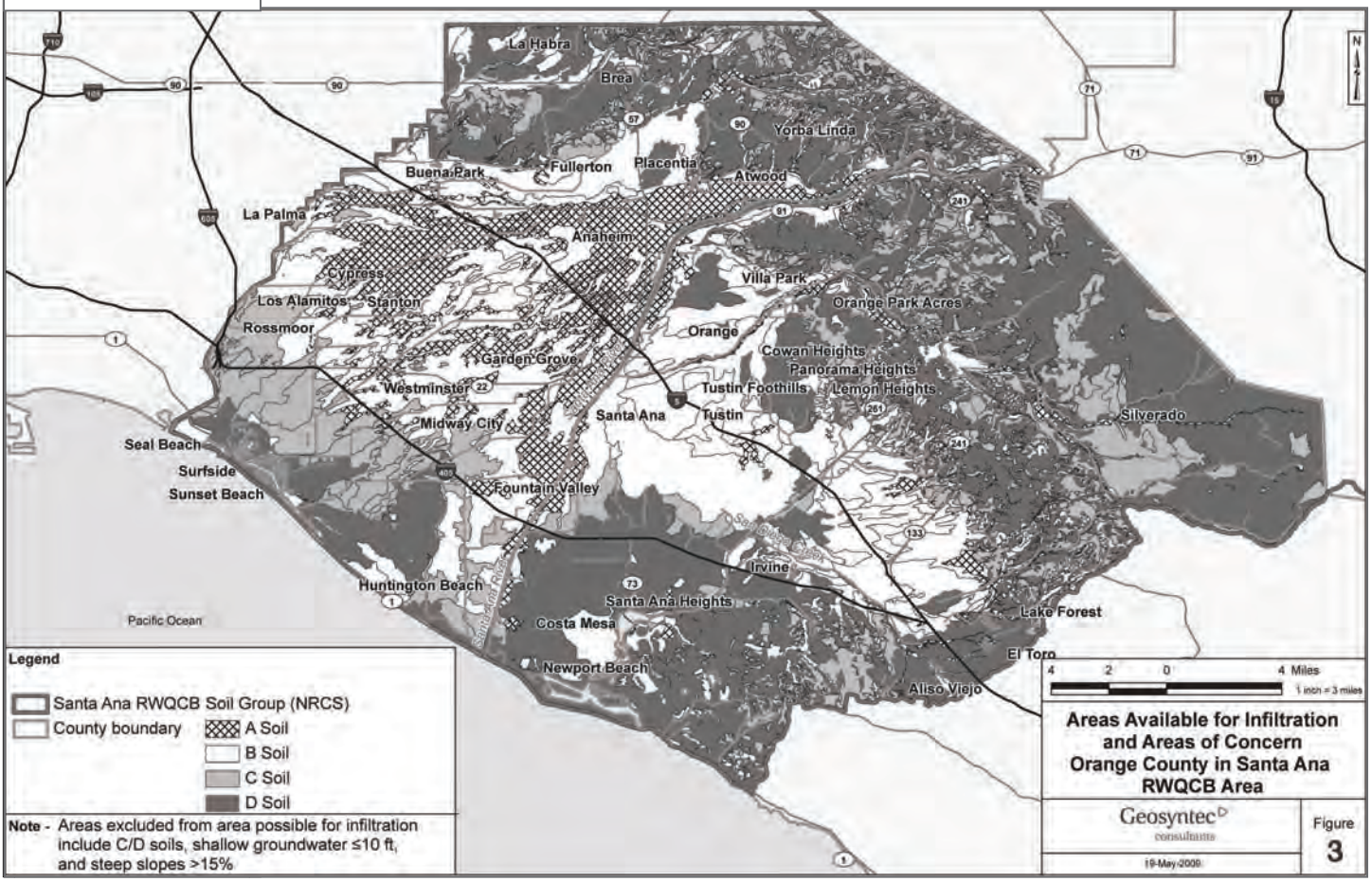
Infiltration: Can You Do It?

Underlying soils greatly affect the ability to infiltrate. In much of Southern California (and the West) urban areas are situated atop soils that are difficult for infiltration. Some practitioners have suggested soil amendments as a strategy for increasing infiltration. However, amending soils typically only addresses surface soils, so if underlying soils are still difficult for infiltration, soil amendments may only be increasing the storage available (vs. significantly increasing underlying infiltration rates). **Figure 3** presents a map that shows underling soils for the North Orange County, California permit area. It is expected that, in general, infiltration will only be successful in areas with A and B soil types. Of course, in mapping broader soils groups, there may be pockets where infiltration is more feasible. However, the converse is also true. In this Orange County example, a little over 58% of the permit area has C and D soil types that would be unlikely to promote infiltration at an acceptable rate. Infiltration facilities that ignore low underlying infiltration rates in their design would tend to be full for much of the wet season, resulting in substantial bypass/overflow, thereby greatly reducing retention on site. Infiltration facilities designed with lower infiltration rates in mind would have shallower allowable ponding depths and thus require a greater amount of site area, possibly promoting sprawl. To ascertain feasibility, maps like this should be developed prior to requiring infiltration or on site stormwater retention.

Infiltration: Should You Do It?

The next question is "should you (or how much should you) infiltrate?" In many areas there are unnatural (e.g., solvent) or natural (e.g., selenium) plumes or soil contamination that infiltration could negatively impact by either moving or spreading the contaminants. Infiltration in industrial areas is often not desirable due to general concerns about groundwater contamination resulting from potentially elevated

Figure 3.
Soil types for North Orange County MS4 NPDES Permit Area



Stormwater On Site

Water Balance Consequences

Groundwater Quality

Maintenance Issues

pollutant concentrations in industrial stormwater runoff. Geotechnical issues associated with steep slopes or expansive soils may also be an issue for infiltration. Depth to groundwater typically limits infiltration to areas with 10 or more feet of separation from the bottom of infiltration facilities to groundwater. Finally, in some locations upgradient of an ephemeral stream, increased infiltration may cause undesirable habitat type changes downstream of the site due to increased periods of base flows that result in vegetation changes (e.g. conversion of dry wash to a thickly vegetated system). There has been a lack of consideration of the overall water balance consequences that a "retention on site" requirement may have in terms of habitat.

As an example, **Figure 4** presents a map of the North Orange County permit area that shows the areas remaining with good potential for infiltration after consideration of some of the issues covered above. The area remaining within the permit area for consideration of infiltration is less than 23 percent of the permit area, even without considering habitat issues or regulated facilities (small contamination areas shown as dots). There are large urbanized areas where infiltration would not be either feasible or desirable.

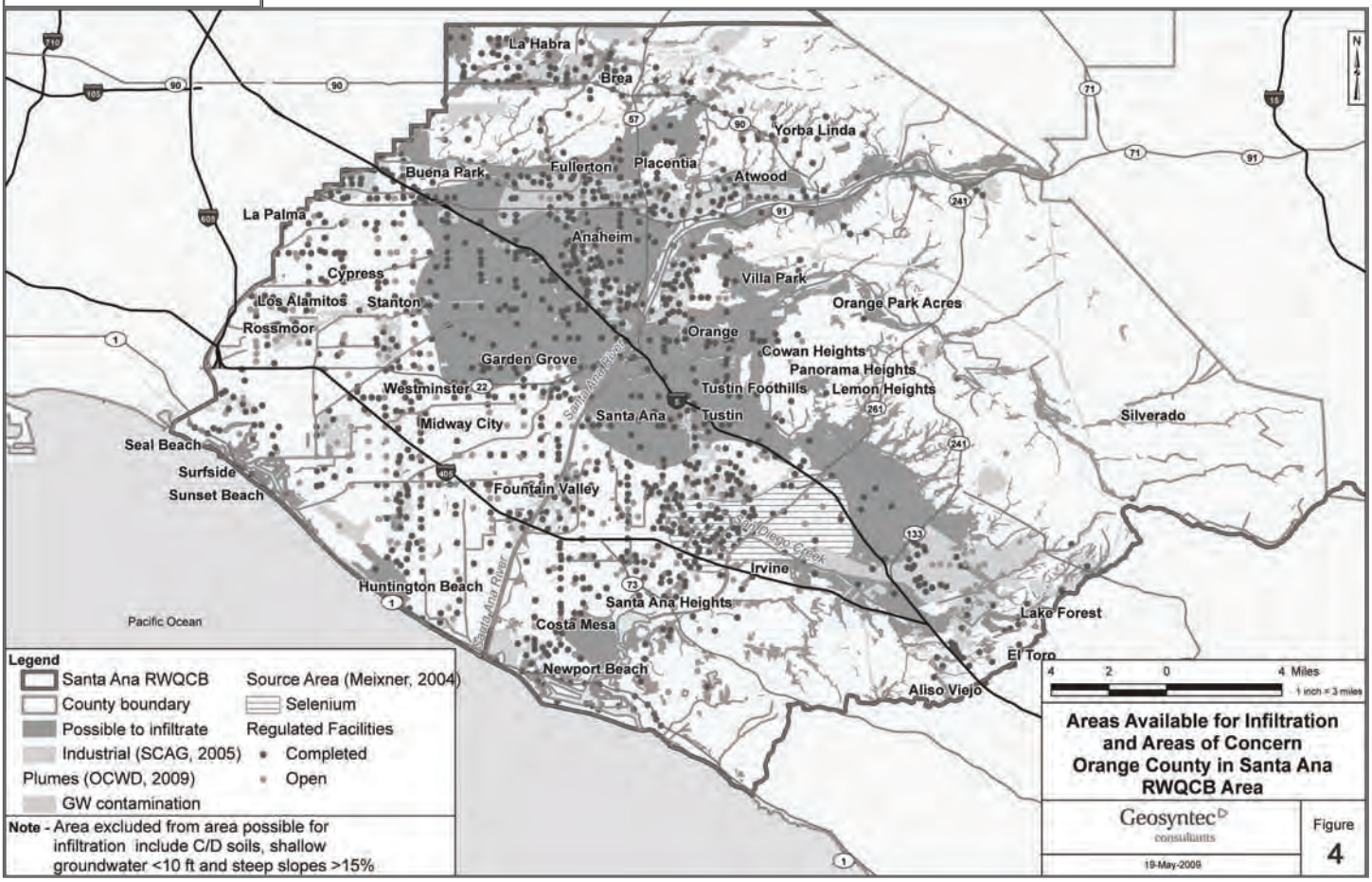
Infiltration: Do It Carefully

Finally, infiltration should be done carefully to ensure that groundwater quality is protected and widespread stormwater management facility failure does not occur. Proper treatment of infiltrating water should occur before this water reaches groundwater either via treatment with BMPs or ensuring that soils are adequate to provide treatment while passing infiltrating water. Infiltration facilities have often failed due to poor maintenance and operation of the facilities. One needs to think through how to design infiltration facilities to minimize maintenance issues, including whether widely-distributed infiltration facilities can be maintained as adequately as one centralized facility. Water districts that utilize groundwater should obviously be involved in decisions about where and how to infiltrate stormwater so that groundwater supplies are protected.

Infiltration: Summary

Infiltration must be done carefully to ensure that it can be successful on a long-term basis as well as be protective of water supplies. The best opportunities for successful infiltration are in areas where groundwater is actively managed for water supply. Such areas are unlikely to face as many water balance hindrances or other issues. For example, areas along the Santa Ana River are actively managed for recharge and withdrawals by the Orange County Water District. These localities provide the best opportunity for successful infiltration.

Figure 4. Areas available for infiltration for the North Orange County Permit Area



Stormwater On Site

Development Factors

Precipitation v. ET

In Soil Storage Recovery

Water Balance

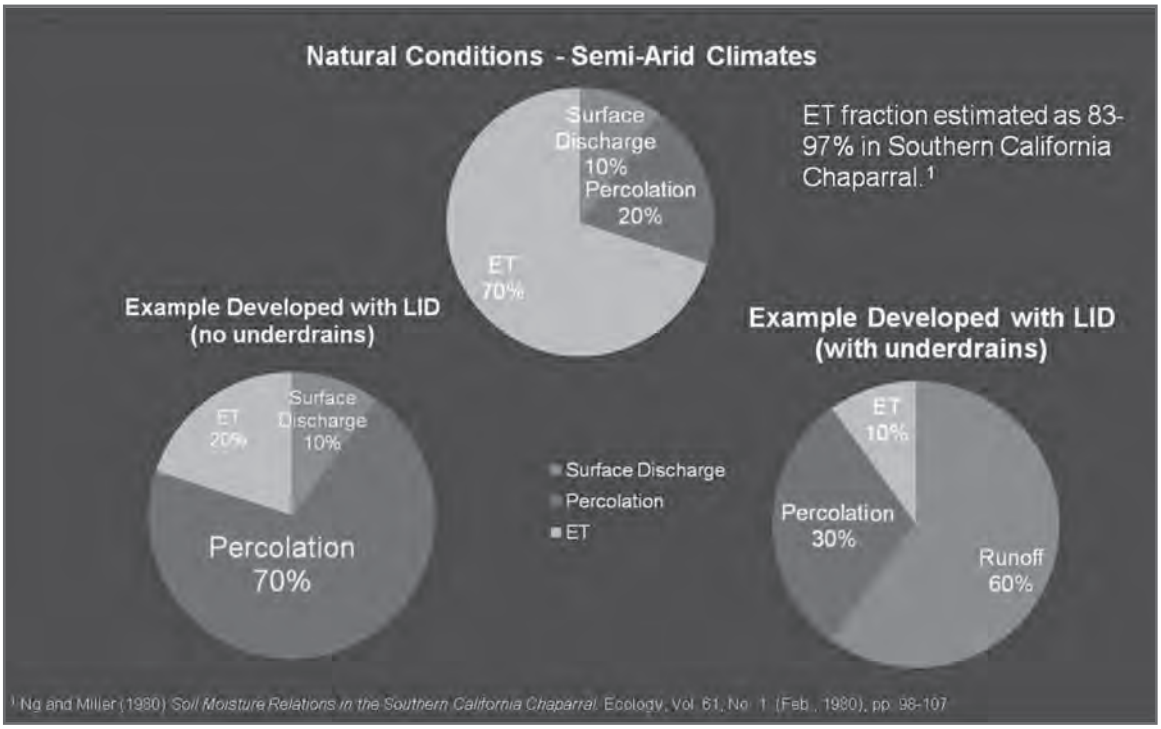
EVAPOTRANSPIRATION (ET)

After an area undergoes development there will be less available area for **e**vapo**t**ranspiration (ET)to occur. This holds true even when vegetated roofs, pervious pavements, and other "green" development practices are employed and is especially true for high density projects. Some analysts have compared monthly or seasonal ET to precipitation levels to assess the potential for ET losses as a significant retain-runoff on site measure. This is particularly inappropriate on the West Coast in light of the region's tendency for back-to-back storm events.

Refer again to **Figures 1 and 2** appearing above. **Figure 1** shows monthly normal comparisons of precipitation versus ET, while **Figure 2** shows precipitation and ET as weekly totals for an example year. While the former suggests that ET matches or exceeds precipitation on a monthly normal bases, it does not account for back-to-back storms or the fact that months with higher than normal rainfall would be the same months that correspond to lower than normal ET. **Figure 2** clearly demonstrates that ET cannot keep up with precipitation on a weekly basis in critical periods of the typical back-to-back storms of an average year. During these critical periods, the storage provided in soils would not have recovered in time for subsequent rainfall. While ET of stormwater should be maximized, it almost certainly will not be able to match pre-development levels and is likely a minor component of retaining stormwater on site (without storage and use for irrigation).

ET is a very important consideration when assessing the ability to mimic predevelopment runoff volume. **Figure 5** presents typical arid southwest water balances for: undisturbed areas; areas developed with infiltration facilities (Example Developed with LID – no underdrains); and for areas developed using LID with underdrains. Predevelopment ET can range upwards of 80 to 97 percent of the precipitation on an average annual basis. It is very unlikely that predevelopment ET will be matched by post-development ET due to reduction in vegetated open soils areas. So, the choice for development, particularly high density development, is to either have more runoff than predevelopment or more infiltration, or a combination of the two. This fact and its ramifications have not been considered during the development of on site retention requirements that are focused on surface hydrology versus overall hydrology (including sub-surface).

Figure 5. Typical Water Balance from Precipitation in Arid Southwest Climate



Stormwater On Site

Harvest Demand

CAPTURE & USE ("RE-USE")

In most all cases where infiltration is not feasible or possible, the only option remaining to meet the retain on site requirements is to capture (harvest) and use the stormwater. In North Orange County, for example, this would be the option in about 77 percent of the permit area or more.

The key factor for success of capture and use of stormwater as a means to retaining water on site is the rate at which storage can be made available for subsequent events. This means having a demand for the captured water that is high enough, especially during the rainy season. The two most obvious uses for captured stormwater are for irrigation and toilet flushing. There are significant code issues with capture and use for internal non-potable demand in many jurisdictions. In addition, there are water rights issues associated with capture of stormwater in some areas (e.g., Colorado and Utah). These limitations are not the focus of this article. Other potential uses include process water for commercial or industrial purposes. A scenario for a residential development was conducted to illustrate the potential for capture and use of stormwater. This scenario is discussed next.

Capture and Use: Residential Scenario

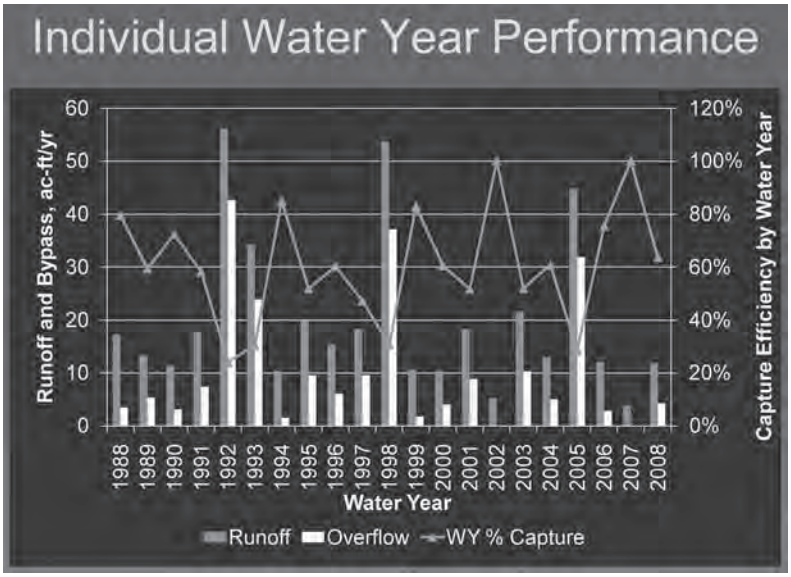
Model Assumptions

Your authors modeled and evaluated a100-acre residential catchment with 60 percent overall impervious area using a continuous simulation model (SWMM) as an example of a capture-and-use scenario. It was assumed that infiltration losses would be minimal (due to shallow groundwater depth, poor soils for infiltration and/or other issues). A tank (above ground storage) of 1.3 million gallons (equivalent to the runoff from the catchment resulting from a 0.8 inch storm event — the water quality design storm) was evaluated with toilet flushing and irrigation uses combined. Toilet flushing assumed 65 gallons per day per dwelling unit at 4.5 units per acre. For simplicity, irrigation demands were assumed to equal the monthly average ET levels for the 30 acres of landscaped areas. It was also assumed that irrigation was always on, even during rainfall (note that irrigation demands during and after rainfall are significantly over-estimated in this analysis). A 21-year hourly long-term simulation model was run to ascertain the potential effectiveness of such a system for retaining runoff on-site. We also evaluated potential pollutant removal results as compared to biofiltration with an underdrain (surface water release).

Capture & Use Levels

Overall the system resulted in an estimated capture and use of stormwater of about 48% of the total runoff volume (52% bypassing with no treatment — though one could treat the bypass as well). The capture and use levels varied annually from less than 30 percent to 100 percent for the 21 water years evaluated (**Figure 6**).

Figure 6. Predicted Annual Runoff and Overflow for Example Cistern System



Biofiltration Comparison

Using data from International BMP Database (see: www.bmpdatabase.org), a comparison of total loadings performance to a biofiltration system with underdrains was made. This comparison showed that the biofiltration system reduced **t**otal **s**uspended **s**olids (TSS) loads by about 63% compared to 48% for the cistern scenario for the 21-year simulation. So, in this case the assumption that retain on site is the most effective at reducing pollutant loadings is not valid, unless one also required treatment of the bypassed flows (in essence an additional BMP treatment requirement). Finally, the average annual potable water saved was on the order of about 10 percent of the average annual demand.

Stormwater On Site

Another scenario was run doubling the size of the cistern tank to 2.6 million gallons (equivalent to a 1.6 inch design storm). Under this scenario, the capture and use level went up to about 57 percent (so doubling the tank size resulted in another nine percent of the runoff being captured and used). Again, this emphasizes the point that being able to drain the cistern relatively rapidly is the key to success for capture and use.

Capture and Use: Limiting Factors

Evaluation Factors

As illustrated in these examples, one should evaluate carefully potential scenarios to help ensure that choices made regarding retention on site requirements actually result in the desired results. Evaluation should consider land use and density assumptions as well as assessment of local precipitation and runoff patterns, irrigation needs, and ability to use water for toilet flushing or other non-potable uses.

Rapid Storage Recovery

For capture and use to work, the storage must be quickly recovered. Irrigation typically is not an effective use for recovering storage quickly as irrigation needs during wet periods are minimal and in some cases (i.e., colder climates) there is no irrigation demand for long periods. In addition, much of the arid southwest is encouraging "xeri-scaping" (drought tolerant plants), which is likely much more effective at reducing potable demand than capture and use for irrigation. Xeriscape plant pallets typically do not like to be saturated for long periods, as would occur via over-irrigation if irrigation use was maximized. Further, use of a water-loving plant palate to maximize the use of captured runoff during normal and wet years could exert an additional demand for potable water during dry years.

Toilet Use Ratio

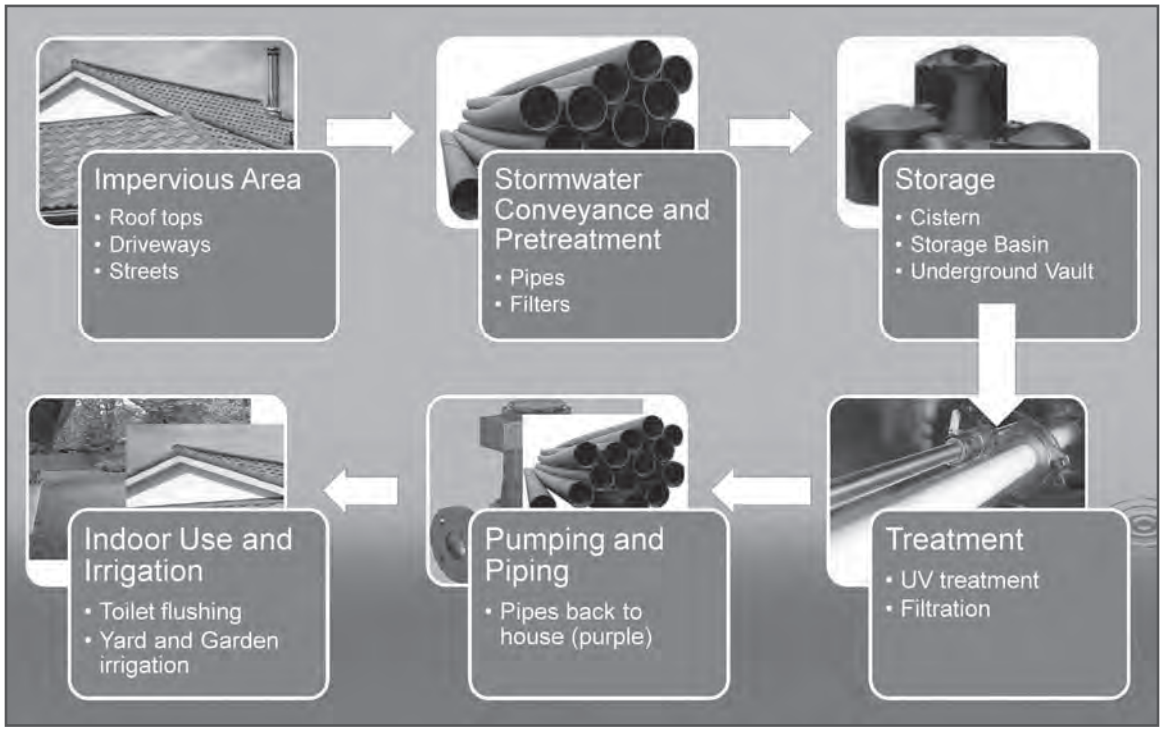
For toilet flushing to be effective, there needs to be a high enough ratio of Toilet Users To Impervious Area (TUTIA). Perhaps in high-rise condominiums, office buildings, institutional buildings, etc. this ratio would be high enough to drain the tank sufficiently fast and in these cases capture and use should be considered.

However, there would be a "competition" for reclaimed water in much of the arid west. Reclaimed water systems tend to be limited in their ability to distribute water in the wetter and colder periods of the year due to low irrigation demands. In addition, in some locations use of reclaimed water for toilet flushing is required in high density projects. One has to question if the capture and use of stormwater that may result in reclaimed water being discharged is an effective strategy. Under this scenario, the captured stormwater would not be reducing potable water demand.

Infrastructure Needs

Finally, there is significant infrastructure (**Figure 7**) that would be required to employ cistern and use on a site basis, including piping, storage, treatment, pumping, and separate piping (purple pipes). Questions about sustainability for these systems need to be explored and assessed.

Figure 7. Typical Components of a Stormwater Harvest and Use system.



Stormwater On Site

Key Considerations

Unique Factors

CONCLUSIONS

In Summary:

- Infiltration is often not broadly feasible, effective and/or desirable. While it should be maximized where appropriate, studies are needed to identify suitable areas and also identify areas where infiltration may be feasible but not appropriate.
- Precipitation/runoff patterns in California and much of the West limit the ability of evapotranspiration-based BMPs to achieve retention on site requirements. Evapotranspiration of stormwater should be maximized, but will not be a significant component of retaining stormwater on site in densely developed areas.
- Precipitation/runoff patterns coupled with landscaping and reclaimed water considerations limit the applications where capture and use of runoff can be effective. Generally, only scenarios with high indoor demand and no competing requirements to use reclaimed water can be expected to provide a complete and reliable stormwater solution. Capture and use should be maximized in these cases, but in other cases it should be carefully considered against other options such as biofiltration and discharge to determine which option is most effective in meeting stormwater management goals.
- The overall water balance should be considered when making choices on proper levels of infiltration versus surface runoff.
- There needs to be more technical vetting of "retain on site" and stormwater harvest and use before these approaches are made mandatory.

Each watershed and site has unique soils, topography, groundwater, water quality, land uses, receiving water sensitivities, wastewater strategies, etc. which should be considered when evaluating retention on site as a requirement or strategy. The authors believe that management approaches that are "one size fit all" are not appropriate and in many cases would likely lead to undesirable results.

Proper Stormwater Management Includes:

- Source controls
- Infiltration where feasible and appropriate
- Maximizing ET losses
- Harvest and use where it makes sense
- Capture and treat with effective (i.e. vegetated) BMPs where it makes sense

We believe that significant progress could be made by improving BMP selection and design guidance for all BMPs to better target unit processes (i.e. physical, biological, chemical treatment processes) to the pollutants and parameters of concern for each watershed.

For Additional Information:

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Eric Strecker, P.E. is a Principal and Water Resources Practice Leader with Geosyntec Consultants in Portland, Oregon. He has over 25 years of stormwater management experience, including national level applied research efforts for EPA, FHWA, WERF, and NCHRP as well as state and local stormwater management, design and research projects throughout the United States. He is a Principal Investigator for the International BMP Database.

Aaron Poresky, E.I.T. has more than four years of experience in water resources and urban stormwater management. At Geosyntec, he has been involved in a variety of projects including structural BMP design and evaluation, water quality planning and impact analysis, hydromodification planning and impact analysis, stormwater policy support, and modeling methodology development. Key project areas have included stormwater retrofit planning and design for a variety of municipal and private clients, modeling methodology development and implementation, new development stormwater planning, and regulatory analysis. Mr. Poresky has been an invited speaker on the topics of modeling, BMP design, and stormwater policy.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ORDER NO. R9-2013-0001
NPDES NO. CAS0109266
(AS AMENDED BY ORDER R9-2015-0001)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s) DRAINING THE WATERSHEDS WITHIN THE SAN DIEGO REGION

The San Diego County Copermittees in Table 1a are subject to waste discharge requirements set forth in this Order.

Table 1a. San Diego County Copermittees

City of Carlsbad	City of Oceanside
City of Chula Vista	City of Poway
City of Coronado	City of San Diego
City of Del Mar	City of San Marcos
City of El Cajon	City of Santee
City of Encinitas	City of Solana Beach
City of Escondido	City of Vista
City of Imperial Beach	County of San Diego
City of La Mesa	San Diego County Regional Airport Authority
City of Lemon Grove	San Diego Unified Port District
City of National City	

~~After the San Diego Water Board receives and considers~~ The Orange County Copermittees~~' Report of Waste Discharge and makes any necessary changes to this Order, the Orange County Copermittees~~ in Table 1b are ~~will become~~ subject to waste discharge requirements set forth in this Order. ~~after expiration of Order No. R9-2009-0002, NPDES No. CAS0108740 on or after December 16, 2014.~~

Table 1b. Orange County Copermittees

City of Aliso Viejo	City of Rancho Santa Margarita
City of Dana Point	City of San Clemente
City of Laguna Beach	City of San Juan Capistrano
City of Laguna Hills	City of Laguna Woods
City of Laguna Niguel	County of Orange
City of Lake Forest[1]	Orange County Flood Control District

[1] The MS4 discharges within the jurisdiction of the City of Lake Forest located in the San Diego Region will be regulated by the Santa Ana Water Board Order No. R8-2014-0002 (NPDES No. CAS618030) and any reissuance thereto subject to the terms of the agreement between San Diego Water Board and Santa Ana Water Board.

City of Mission Viejo	

After the San Diego Water Board receives and considers the Riverside County Copermittees' Report of Waste Discharge and makes any necessary changes to this Order, the Riverside County Copermittees in Table 1c will become subject to waste discharge requirements set forth in this Order after expiration of Order No.R9-2010-0016, NPDES No. CAS0108766 on or after November 10, 2015.

Table 1c. Riverside County Copermittees

City of Murrieta	County of Riverside
City of Temecula	Riverside County Flood Control and Water Conservation District
City of Wildomar	

The ~~Orange County Copermittees and~~ Riverside County Copermittees may become subject to the requirements of this Order at a date earlier than the expiration date of their current Order~~s~~ subject to the conditions described in Provision F.6 of this Order if the Riverside County Copermittees ~~in the respective county~~ receive ~~a~~ notification of coverage from the San Diego Water Board.

The term Copermittee in this Order refers to any San Diego County, Orange County, or Riverside County Copermittee covered under this Order, unless specified otherwise.

This Order provides permit coverage for the Copermittee discharges described in Table 2.

Table 2. Discharge Locations and Receiving Waters

Discharge Points	Locations throughout San Diego Region
Discharge Description	Municipal Separate Storm Sewer System (MS4) Discharges
Receiving Waters	Inland Surface Waters, Enclosed Bays and Estuaries, and Coastal Ocean Waters of the San Diego Region

Table 3. Administrative Information

This Order was adopted by the San Diego Water Board on:	**May 8, 2013**
~~This~~ Order R9-2013-0001 ~~will become~~ became effective on:	**June 27, 2013**
This Order as amended by R9-2015-0001 became effective on:	**April 1, 2015**
This Order will expire on:	**June 27, 2018**
The Copermittees must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than 180 days in advance of the Order expiration date.	

I, David W. Gibson, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region, on May 8, 2013, as amended by adoption of Order No. R9-2015-0001 on February 11, 2015.

David W. Gibson
Executive Officer

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I. FINDINGS

The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), finds that:

JURISDICTION

1. **MS4 Ownership or Operation.** Each of the Copermittees owns or operates an MS4, through which it discharges storm water and non-storm water into waters of the U.S. within the San Diego Region. These MS4s fall into one or more of the following categories: (1) a medium or large MS4 that services a population of greater than 100,000 or 250,000 respectively; or (2) a small MS4 that is "interrelated" to a medium or large MS4; or (3) an MS4 which contributes to a violation of a water quality standard; or (4) an MS4 which is a significant contributor of pollutants to waters of the U.S.

2. **Legal and Regulatory Authority.** This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations (Code of Federal Regulations [CFR] Title 40, Part 122 [40 CFR 122]) adopted by the United States Environmental Protection Agency (USEPA), and chapter 5.5, division 7 of the California Water Code (CWC) (commencing with section 13370). This Order serves as an NPDES permit for discharges from MS4s to surface waters. This Order also serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260).

   ~~The San Diego Water Board has the legal authority to issue a regional MS4 permit pursuant to its authority under CWA section 402(p)(3)(B) and 40 CFR 122.26(a)(1)(v). The USEPA also made it clear that the permitting authority, in this case the San Diego Water Board, has the flexibility to establish system- or region-wide permits (55 Federal Register [FR] 47990, 48039-48042). The regional nature of this Order will ensure consistency of regulation within watersheds and is expected to result in overall cost savings for the Copermittees and San Diego Water Board.~~

   The federal regulations make it clear that the Copermittees need only comply with permit conditions relating to discharges from the MS4s for which they are operators (40 CFR 122.26(a)(3)(vi)). This Order does not require the Copermittees to manage storm water outside of their jurisdictional boundaries, but rather to work collectively to improve storm water management within watersheds.

3. **CWA NPDES Permit Conditions.** Pursuant to CWA section 402(p)(3)(B), NPDES permits for storm water discharges from MS4s must include requirements to effectively prohibit non-storm water discharges into MS4s, and require controls to reduce the discharge of pollutants in storm water to the maximum extent practicable (MEP), and to require other provisions as the San Diego Water Board determines are appropriate to control such pollutants. This Order prescribes conditions to assure compliance with the CWA requirements for owners and operators of MS4s to

effectively prohibit non-storm water discharges into the MS4s, and require controls to reduce the discharge of pollutants in storm water from the MS4s to the MEP.

4. **CWA and CWC Monitoring Requirements.** CWA section 308(a) and 40 CFR 122.41(h),(j)-(l) and 122.48 require that NPDES permits must specify monitoring and reporting requirements. Federal regulations applicable to large and medium MS4s also specify additional monitoring and reporting requirements in 40 CFR 122.26(d)(1)(iv)(D), 122.26(d)(1)(v)(B), 122.26(d)(2)(i)(F), 122.26(d)(2)(iii)(D), 122.26(d)(2)(iv)(B)(2) and 122.42(c). CWC section 13383 authorizes the San Diego Water Board to establish monitoring, inspection, entry, reporting and recordkeeping requirements. This Order establishes monitoring and reporting requirements to implement federal and State requirements. This Order also includes requirements for the Orange County Copermittees to implement a unified approach to beach water quality monitoring and assessment as set forth in Monitoring and Reporting Program No. XX, issued pursuant to CWC sections 13225, 13267, and 13383.

5. **Total Maximum Daily Loads.** CWA section 303(d)(1)(A) requires that "[e]ach state shall identify those waters within its boundaries for which the effluent limitations are not stringent enough to implement any water quality standard applicable to such waters." The CWA also requires states to establish a priority ranking of impaired water bodies known as Water Quality Limited Segments and to establish Total Maximum Daily Loads (TMDLs) for such waters. This priority list of impaired water bodies is called the Clean Water Act Section 303(d) List of Water Quality Limited Segments, commonly referred to as the 303(d) List. The CWA requires the 303(d) List to be updated every two years.

   TMDLs are numerical calculations of the maximum amount of a pollutant that a water body can assimilate and still meet water quality standards. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point sources (waste load allocations or WLAs) and non-point sources (load allocations or LAs), background contribution, plus a margin of safety. Discharges from MS4s are point source discharges. The federal regulations (40 CFR 122.44(d)(1)(vii)(B)) require that NPDES permits incorporate water quality based effluent limitations (WQBELs) developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, consistent with the assumptions and requirements of any available WLA for the discharge. Requirements of this Order implement the TMDLs established ~~adopted~~ by the San Diego Water Board or ~~and~~ ~~approved by~~ USEPA as of the time this Order was ~~is~~ ~~issued~~ amended in 2015. This Order establishes WQBELs consistent with the assumptions and requirements of all available TMDL WLAs assigned to discharges from the Copermittees' MS4s.

6. **Non-Storm Water Discharges.** Pursuant to CWA section 402(p)(3)(B)(ii), this Order requires each Copermittee to effectively prohibit discharges of non-storm water into its MS4. Nevertheless, non-storm water discharges into and from the MS4s continue to be reported to the San Diego Water Board by the Copermittees and other persons. Monitoring conducted by the Copermittees, as well as the 303(d)

List, have identified dry weather, non-storm water discharges from the MS4s as a source of pollutants causing or contributing to receiving water quality impairments in the San Diego Region. The federal regulations (40 CFR 122.26(d)(2)(iv)(B)(1)) require the Copermittees to have a program to prevent illicit discharges to the MS4. The federal regulations, however, allow for specific categories of non-storm water discharges ~~or flows~~ to be addressed as illicit discharges only where such discharges are identified as sources of pollutants to waters of the U.S.

7. ~~**In-Stream Treatment Systems.** Pursuant to federal regulations (40 CFR 131.10(a)), in no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the U.S. Authorizing the construction of a runoff treatment facility within a water of the U.S., or using the water body itself as a treatment system or for conveyance to a treatment system, would be tantamount to accepting waste assimilation as an appropriate use for that water body. Runoff treatment must occur prior to the discharge of runoff into receiving waters. Treatment control best management practices (BMPs) must not be constructed in waters of the U.S. Construction, operation, and maintenance of a pollution control facility in a water body can negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body.~~

DISCHARGE CHARACTERISTICS AND RUNOFF MANAGEMENT

8. **Point Source Discharges of Pollutants.** Discharges from the MS4s may contain waste, as defined in the CWC, and pollutants that adversely affect the quality of the waters of the state. A discharge from an MS4 is a "discharge of pollutants from a point source" into waters of the U.S. as defined in the CWA. Storm water and non-storm water discharges from the MS4s may contain pollutants that cause or threaten to cause a violation of surface water quality standards, as outlined in the Water Quality Control Plan for the San Diego Basin (Basin Plan). Storm water and non-storm water discharges from the MS4s are subject to the conditions and requirements established in the Basin Plan for point source discharges.

9. **Potential Beneficial Use Impairment.** The discharge of pollutants and/or increased flows from MS4s may cause or threaten to cause the concentration of pollutants to exceed applicable receiving water quality objectives and impair or threaten to impair designated beneficial uses resulting in a condition of pollution, contamination, or nuisance.

10. **Pollutants Generated by Land Development.** Land development has created and continues to create new sources of non-storm water discharges and pollutants in storm water discharges as human population density increases. This brings higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, and trash. Pollutants from these sources are dumped or washed off the surface by non-storm water or storm water flows into and from the MS4s. When development converts natural vegetated pervious ground cover to impervious surfaces such as paved highways, streets, rooftops, and parking

lots, the natural absorption and infiltration abilities of the land are lost. Therefore, runoff leaving a developed area without BMPs ~~that can maintain pre-development runoff conditions~~ will contain greater pollutant loads and have significantly greater runoff volume, velocity, and peak flow rate than pre-development runoff conditions from the same area.

11. **Runoff Discharges to Receiving Waters.** The MS4s discharge runoff into lakes, drinking water reservoirs, rivers, streams, creeks, bays, estuaries, coastal lagoons, the Pacific Ocean, and tributaries thereto within the eleven hydrologic units comprising the San Diego Region. Historic and current development makes use of natural drainage patterns and features as conveyances for runoff. ~~Rivers, streams and creeks in developed areas used in this manner are part of the Copermittees' MS4s regardless of whether they are natural, anthropogenic, or partially modified features. In these cases, the rivers, streams and creeks in the developed areas of the Copermittees' jurisdictions are both an MS4 and receiving water.~~ Numerous receiving water bodies and water body segments have been designated as impaired by the San Diego Water Board pursuant to CWA section 303(d).

12. **Pollutants in Runoff.** The most common pollutants in runoff discharged from the MS4s include total suspended solids, sediment, pathogens (e.g., bacteria, viruses, protozoa), heavy metals (e.g., cadmium, copper, lead, and zinc), petroleum products and polynuclear aromatic hydrocarbons, synthetic organics (e.g., pesticides, herbicides, and PCBs), nutrients (e.g., nitrogen and phosphorus), oxygen-demanding substances (e.g., decaying vegetation, animal waste), detergents, and trash. As operators of the MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. ~~By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or otherwise control.~~ These discharges may cause or contribute to a condition of pollution or a violation of water quality standards.

13. **Human Health and Aquatic Life Impairment.** Pollutants in runoff discharged from the MS4s can threaten and adversely affect human health and aquatic organisms. Adverse responses of organisms to chemicals or physical agents in runoff range from physiological responses such as impaired reproduction or growth anomalies to mortality. Increased volume, velocity, rate, and duration of storm water runoff greatly accelerate the erosion of downstream natural channels. This alters stream channels and habitats and can adversely affect aquatic and terrestrial organisms.

14. **Water Quality Effects.** The Copermittees' water quality monitoring data submitted to date documents persistent exceedances of Basin Plan water quality objectives for runoff-related pollutants at various watershed monitoring stations. Persistent toxicity has also been observed at several watershed monitoring stations. In addition, bioassessment data indicate that the majority of the monitored receiving waters have Poor to Very Poor Index of Biological Integrity (IBI) ratings. These findings indicate that runoff discharges are causing or contributing to water quality impairments, and

are a leading cause of such impairments in the San Diego Region. Non-storm water discharges from the MS4s have been shown to contribute significant levels of pollutants and flow in arid, developed Southern California watersheds, and contribute significantly to exceedances of applicable receiving water quality objectives.

15. **Non-Storm Water and Storm Water Discharges.** The discharge of pollutants from the MS4 is subject to the MEP standard notwithstanding whether the pollutants are transported by stormwater or non-stormwater. ~~Non-storm water discharges from the MS4s are not considered storm water discharges and therefore are not subject to the MEP standard of CWA section 402(p)(3)(B)(iii), which is explicitly for "Municipal … *Stormwater Discharges* (emphasis added)" from the MS4s.~~ Pursuant to CWA 402(p)(3)(B)(ii), non-storm water discharges into the MS4s, namely identified illicit discharges and pollutants from unlawful dumping, must be effectively prohibited.

16. **Best Management Practices.** Waste and pollutants which are deposited and accumulate in MS4 drainage structures ~~will~~ may be discharged from these structures to waters of the U.S. unless they are removed. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. For this reason, pollutants in storm water discharges from the MS4s can be and must be effectively reduced in runoff by the application of a combination of pollution prevention, source control, and treatment control BMPs. Pollution prevention is the reduction or elimination of pollutant generation at its source and is the best "first line of defense." Source control BMPs (both structural and non-structural) minimize the contact between pollutants and runoff, therefore keeping pollutants onsite and out of receiving waters. Treatment control BMPs remove pollutants that have been mobilized by storm water or non-storm water flows.

17. **BMP Implementation.** Runoff needs to be addressed during the three major phases of development (planning, construction, and use) in order to reduce the discharge of storm water pollutants to the MEP, effectively prohibit non-storm water discharges, and protect receiving waters. Development which is not guided by water quality planning policies and principles can result in increased pollutant load discharges, flow rates, and flow durations which can negatively affect receiving water beneficial uses. Construction sites without adequate BMP implementation result in sediment runoff rates which greatly exceed natural erosion rates of undisturbed lands, causing siltation and impairment of receiving waters. Existing development can generate substantial pollutant loads which are discharged in runoff to receiving waters. Retrofitting areas of existing development with storm water pollutant control and hydromodification management BMPs may, in many cases be ~~is~~ necessary to address storm water discharges from existing development that may cause or contribute to a condition of pollution or a violation of water quality standards.

18. **Water Quality Improvements.** Since 1990, the Copermittees have been

developing and implementing programs and BMPs intended to effectively prohibit non-storm water discharges to the MS4s and control pollutants in storm water discharges from the MS4s to receiving waters. As a result, several water body / pollutant combinations have been de-listed from the CWA Section 303(d) List, beach closures have been significantly reduced, and public awareness of water quality issues has increased. The Copermittees have been able to achieve improvements in water quality in some respects, but significant improvements to the quality of receiving waters and discharges from the MS4s are still necessary to meet the requirements and objectives of the CWA.

19. **Long Term Planning and Implementation.** Federal regulations require municipal storm water permits to expire 5 years from adoption, after which the permit must be renewed and reissued. The San Diego Water Board recognizes that the degradation of water quality and impacts to beneficial uses of the waters in the San Diego Region occurred over several decades. The San Diego Water Board further recognizes that a decade or more may be necessary to realize demonstrable improvement to the quality of waters in the San Diego Region. This Order includes a long term planning and implementation approach that will require more than a single permit term to complete.

WATER QUALITY STANDARDS

20. **Basin Plan.** The San Diego Water Board adopted the Water Quality Control Plan for the San Diego Basin (Basin Plan) on September 8, 1994, that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for receiving waters addressed through the plan. The Basin Plan was subsequently approved by the State Water Resources Control Board (State Water Board) on December 13, 1994. Subsequent revisions to the Basin Plan have also been adopted by the San Diego Water Board and approved by the State Water Board. Requirements of this Order implement the Basin Plan.

    The Basin Plan identifies the following existing and potential beneficial uses for inland surface waters in the San Diego Region: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PROC), Industrial Service Supply (IND), Ground Water Recharge (GWR), Contact Water Recreation (REC1), Non-contact Water Recreation (REC2), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRSH), Hydropower Generation (POW), and Preservation of Biological Habitats of Special Significance (BIOL). The following additional existing and potential beneficial uses are identified for coastal waters of the San Diego Region: Navigation (NAV), Commercial and Sport Fishing (COMM), Estuarine Habitat (EST), Marine Habitat (MAR), Aquaculture (AQUA), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), and Shellfish Harvesting (SHELL).

21. **Ocean Plan.** The State Water Board adopted the Water Quality Control Plan for Ocean Waters of California, California Ocean Plan (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, and 2005. The State Water Board adopted the latest amendment on April 21, 2005 and it became effective on February 14, 2006. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. Requirements of this Order implement the Ocean Plan.

    The Ocean Plan identifies the following beneficial uses of ocean waters of the state to be protected: Industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance; rare and endangered species; marine habitat; fish spawning and shellfish harvesting.

22. **Sediment Quality Control Plan**. On September 16, 2008, the State Water Board adopted the Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality (Sediment Quality Control Plan). The Sediment Quality Control Plan became effective on August 25, 2009. The Sediment Quality Control Plan establishes: 1) narrative sediment quality objectives for benthic community protection from exposure to contaminants in sediment and to protect human health, and 2) a program of implementation using a multiple lines of evidence approach to interpret the narrative sediment quality objectives. Requirements of this Order implement the Sediment Quality Control Plan.

23. **National Toxics Rule and California Toxics Rule.** USEPA adopted the National Toxics Rule (NTR) on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the California Toxics Rule (CTR). The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

24. **Antidegradation Policy.** This Order is in conformance with the federal Antidegradation Policy described in 40 CFR 131.12, and State Water Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality Waters in California*. Federal regulations at 40 CFR 131.12 require that the State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. State Water Board Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. State Water Board Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies.

25. **Anti-Backsliding Requirements.** Section 402(o)(2) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as effluent limitations in the previous permits.

CONSIDERATIONS UNDER FEDERAL AND STATE LAW

26. **Coastal Zone Act Reauthorization Amendments.** Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires coastal states with approved coastal zone management programs to address non-point source pollution impacting or threatening coastal water quality. CZARA addresses five sources of non-point source pollution: agriculture, silviculture, urban, marinas, and hydromodification. This Order addresses the management measures required for the urban category, with the exception of septic systems. The runoff management programs developed pursuant to this Order fulfills the need for coastal cities to develop a runoff non-point source plan identified in the Non-Point Source Program Strategy and Implementation Plan. The San Diego Water Board addresses septic systems through the administration of other programs.

27. **Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 USC sections 1531 to 1544). This Order requires compliance with receiving water limits, and other requirements to protect the beneficial uses of waters of the State. The Copermittees are responsible for meeting all requirements of the applicable Endangered Species Act.

28. **Report of Waste Discharge Process.** The waste discharge requirements set forth in this Order are based upon the Report of Waste Discharge submitted by the San Diego County Copermittees prior to the expiration of Order No. R9-2007-0001 (NPDES No. CAS0109266) and the Report of Waste Discharge submitted by the Orange County Copermittees prior to the expiration of Order No. R9-2009-0002 (CAS0108740). The ~~Orange County and~~ Riverside County Copermittees are not immediately covered by the waste discharge requirements in this Order. The San Diego Water Board understands that each municipality is unique ~~although the Counties share watersheds and/or geographical boundaries~~. The Order will continue to use the Report of Waste Discharge process prior to initially making ~~Orange County or~~ Riverside County Copermittees subject to the requirements of this Order.

The federal regulations (40 CFR 122.21(d)(2)) and CWC section 13376 impose a duty on the Copermittees to reapply for continued coverage through submittal of a Report of Waste Discharge no later than 180 days prior to expiration of a currently

effective permit. This requirement is set forth in the ~~Orange County Copermittees' and~~ Riverside County Copermittees' currently effective permit~~s~~ at Provision~~s K.2.b and~~ K.2.c~~, respectively~~. The ~~Orange County Permit, Order No. R9-2009-0002 (NPDES No. CAS0108740) expires on December 16, 2014 and the~~ Riverside County MS4 Permit, Order No. R9-2010-0016 (NPDES No. CAS0108766) expires on November 10, 2015.

Unless the ~~Orange County or~~ Riverside County Copermittees apply for and receive early coverage under this Order, ~~the Orange County Copermittees' and~~ the Riverside County Copermittees' ~~respective~~ permit~~s~~ will be superseded by this Order upon expiration of their ~~respective~~ permit~~s~~, subject to any necessary revisions to the requirements of this Order made after the San Diego Water Board considers their ~~respective~~ Report~~s~~ of Waste Discharge through the public process provided in 40 CFR Part 124.

29. Regional Water Board Designation. The Cities of Laguna Hills, Laguna Woods, and Lake Forest are located partially within the jurisdictions of the California Regional Water Quality Control Board, Santa Ana Region (Santa Ana Water Board) and the San Diego Water Board and their dischargers are subject to regulation by both Regional Water Boards. Pursuant to CWC section13228, the Cities of Laguna Hills, Laguna Woods, and Lake Forest submitted written requests that one Regional Water Board be designated to regulate Phase I MS4 discharges for each of the Cities. The Santa Ana Water Board and the San Diego Water Board have entered into an agreement whereby the San Diego Water Board is designated to regulate Phase I MS4 discharges within the jurisdiction of the Cities of Laguna Woods and Laguna Hills and the Santa Ana Water Board is designated to regulate Phase I MS4 discharges within the jurisdiction of the City of Lake Forest pursuant to MS4 permits administered by each Regional Water Board. The agreement provides that the City of Lake Forest will be required to retain, and continue implementation of, its over-irrigation discharge prohibition in Title 15, Chapter 14.030, List (b) of the City Municipal Code for regulating storm water quality throughout its jurisdiction. The City of Lake Forest will also be required to actively participate during development and implementation of the Aliso Creek Watershed Management Area Water Quality Improvement Plan required pursuant to this Order. Each Regional Water Board retains the authority to enforce provisions of the Phase I MS4 permits issued to each city but compliance will be determined based upon the Phase I MS4 permit in which a particular city is regulated as a Copermittee (Water Code section 13228 (b)). Under the terms of the agreement, any TMDL and associated MS4 permit requirements issued by the San Diego Water Board or the Santa Ana Water Board which include the Cities of Laguna Woods, Laguna Hills or Lake Forest as a responsible party, will be incorporated into the appropriate Phase I MS4 permit by reference. Enforcement of the applicable TMDL will remain with the Regional Water Board which has jurisdiction over the targeted impaired water body. Applicable TMDLs subject to the terms of the agreement include, but are not limited to, the Santa Ana Water Board's San Diego Creek/Newport Bay TMDL and the San Diego Water Board's Indicator Bacteria Project I Beaches and Creeks TMDL. The San

Diego Water Board will periodically review the effectiveness of the agreement during each MS4 permit reissuance. Based on this periodic review the San Diego Water Board may terminate the agreement with Santa Ana Water Board or otherwise modify the agreement subject to the approval of the Santa Ana Water Board.

~~29.~~30. **Integrated Report and Clean Water Act Section 303(d) List.** The San Diego Water Board and State Water Board submit an Integrated Report to USEPA to comply with the reporting requirements of CWA sections 303(d), 305(b) and 314, which lists the attainment status of water quality standards for water bodies in the San Diego Region. USEPA issued its *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act* on July 29, 2005, which advocates the use of a five category approach for classifying the attainment status of water quality standards for water bodies in the Integrated Report. Water bodies included in Category 5 in the Integrated Report indicate at least one beneficial use is not being supported or is threatened, and a TMDL is required. Water bodies included in Category 5 in the Integrated Report are placed on the 303(d) List.

Water bodies with available data and/or information that indicate at least one beneficial use is not being supported or is threatened, but a TMDL is not required, are included in Category 4 in the Integrated Report. Impaired surface water bodies may be included in Category 4 if a TMDL has been adopted and approved (Category 4a); if other pollution control requirements required by a local, state or federal authority are stringent enough to implement applicable water quality standards within a reasonable period of time (Category 4b); or, if the failure to meet an applicable water quality standard is not caused by a pollutant, but caused by other types of pollution (Category 4c).

Implementation of the requirements of this Order may allow the San Diego Water Board to include surface waters impaired by discharges from the Copermittees' MS4s in Category 4 in the Integrated Report for consideration during the next 303(d) List submittal by the State to USEPA.

~~30.~~31. **Economic Considerations.** The California Supreme Court has ruled that although CWC section 13263 requires the State and Regional Water Boards (collectively Water Boards) to consider factors set forth in CWC section 13241 when issuing an NPDES permit, the Water Board may not consider the factors to justify imposing pollutant restrictions that are less stringent than the applicable federal regulations require. (*City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613, 618, 626-627.) However, when pollutant restrictions in an NPDES permit are more stringent than federal law requires, CWC section 13263 requires that the Water Boards consider the factors described in CWC section 13241 as they apply to those specific restrictions.

As noted in the following finding, the San Diego Water Board finds that the requirements in this Order are ~~not~~ more stringent than the minimum federal requirements. Therefore, a CWC section 13241 analysis is ~~not~~ required for permit requirements that implement the effective prohibition on the discharge of non-storm

water into the MS4 or for controls to reduce the discharge of pollutants in storm water to the MEP, or other provisions that the San Diego Water Board has determined appropriate to control such pollutants, as those requirements are mandated by federal law. ~~Notwithstanding the above, the San Diego Water Board has developed an economic analysis of the requirements in this Order.~~ The economic analysis is provided in the Fact Sheet.

~~31.~~32. **Unfunded Mandates.** ~~This Order does not constitute an unfunded local government mandate subject to subvention under Article XIIIB, Section (6) of the California Constitution for several reasons, including, but not limited to, the following~~:

~~**a.** This Order implements federally mandated requirements under CWA section 402 (33 USC section 1342(p)(3)(B)).~~

~~**b.** The local agency Copermittees' obligations under this Order are similar to, and in many respects less stringent than, the obligations of non-governmental and new dischargers who are issued NPDES permits for storm water and non-storm water discharges.~~

~~**c.** The local agency Copermittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order.~~

~~**d.** The Copermittees have requested permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in CWA section 301(a) (33 USC section 1311(a)) and in lieu of numeric restrictions on their MS4 discharges (i.e. effluent limitations).~~

~~**e.** The local agencies' responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under State law predates the enactment of Article XIIIB, Section (6) of the California Constitution.~~

~~**f.** The provisions of this Order to implement TMDLs are federal mandates. The CWA requires TMDLs to be developed for water bodies that do not meet federal water quality standards (33 USC section 1313(d)). Once the USEPA or a state develops a TMDL, federal law requires that permits must contain water quality based effluent limitations consistent with the assumptions and requirements of any applicable wasteload allocation (40 CFR 122.44(d)(1)(vii)(B)).~~

~~See the Fact Sheet for further discussion of unfunded mandates~~.

~~32.~~33. **California Environmental Quality Act.** The issuance of waste discharge requirements and an NPDES permit for the discharge of runoff from MS4s to waters of the U.S. is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, Chapter 3, section 21000 et seq.) in accordance with CWC section 13389.

STATE WATER BOARD DECISIONS

~~33.~~34. **Compliance with Prohibitions and Limitations.** The receiving water limitation language specified in this Order is consistent with language recommended by the USEPA and established in State Water Board Order WQ 99-05, *Own Motion Review of the Petition of Environmental Health Coalition to Review Waste Discharge Requirements Order No. 96-03, NPDES Permit No. CAS0108740*, adopted by the State Water Board on June 17, 1999. The receiving water limitation language in this Order requires storm water discharges from MS4s to not cause or contribute to a violation of water quality standards, which is to be achieved through an iterative approach requiring the implementation of improved and better-tailored BMPs over time. Implementation of the iterative approach to comply with receiving water limitations based on applicable water quality standards is necessary to ensure that storm water discharges from the MS4 will not ultimately cause or contribute to violations of water quality standards and will not create conditions of pollution, contamination, or nuisance.

~~34.~~35. **Special Conditions for Areas of Special Biological Significance.** On March 20, 2012, the State Water Board approved Resolution No. 2012-0012 approving a~~n~~ general exception to the Ocean Plan prohibition against discharges to Areas of Special Biological Significance (ASBS) for certain nonpoint source discharges and NPDES permitted municipal storm water discharges (General Exception). On June 19, 2012, the State Water Board adopted Order No. 2012-0031, amending the General Exception to require pollutant reductions to be achieved within six years in accordance with ASBS Compliance Plans and ASBS Pollution Prevention Plans. The General Exception ~~State Water Board Resolution No. 2012-0012~~ requires monitoring and testing of marine aquatic life and water quality in several ASBS to protect California's coastline during storms when rain water overflows into coastal waters. Specific terms, prohibitions, and special conditions were adopted to provide special protections for marine aquatic life and natural water quality in ASBS. The City of San Diego's municipal storm water discharges to the San Diego Marine Life Refuge in La Jolla, and the City of Laguna Beach's municipal storm water discharges to the Heisler Park ASBS are subject to the terms and conditions of the General Exception as amended ~~State Water Board Resolution No. 2012-0012~~. The Special Protections contained in Attachment B to the General Exception as amended~~Resolution No. 2012-0012,~~ are applicable to these discharges, and are hereby incorporated into Attachment A of this Order~~. as if fully set forth herein.~~

ADMINISTRATIVE FINDINGS

~~35.~~36. **Executive Officer Delegation of Authority.** The San Diego Water Board by prior resolution has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf pursuant to CWC section 13223. Therefore, the Executive Officer is authorized to act on the San Diego Water Board's behalf on any matter within this Order unless such delegation is unlawful under CWC section 13223 or this Order explicitly states otherwise.

~~36.~~37. **Standard Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment B to this Order.

~~37.~~38. **Fact Sheet.** The Fact Sheet for this Order contains background information, regulatory and legal citations, references and additional explanatory information and data in support of the requirements of this Order. The Fact Sheet is hereby incorporated into this Order and constitutes part of the Findings of this Order.

~~38.~~39. **Public Notice.** In accordance with State and federal laws and regulations, the San Diego Water Board notified the Copermittees, and interested agencies and persons of its intent to prescribe waste discharge requirements for the control of discharges into and from the MS4s to waters of the U.S. and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet.

~~39.~~40. **Public Hearings.** The San Diego Water Board held a public hearing on April 10 and 11, 2013, that was continued to May 8, 2013 and heard and considered all comments pertaining to the terms and conditions of this Order. The San Diego Water Board also held a public hearing on February 11, 2015, and heard and considered all comments pertaining to the amendment of this Order through Order No. R9-2015-0001. Details of these public hearing are provided in the Fact Sheet.

~~40.~~41. **Effective Date.** This Order serves as an NPDES permit pursuant to CWA section 402 or amendments thereto, and as to the San Diego County Copermittees listed in Table 2.a., became ~~becomes~~ effective fifty (50) days after the date of its adoption, and as to the Orange County Copermittees listed in Table 2.b., becomes effective on April 1, 2015 after the date Order R9-2015-0001 is adopted, provided that the Regional Administrator, USEPA, Region IX, does not object to this Order.

~~41.~~42. **Review by the State Water Board.** Any person aggrieved by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with CWC section 13320 and California Code of Regulations, title 23, sections 2050, ~~et seq~~ and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order ~~San Diego Water Board action~~, except that if the thirtieth day following the ~~action~~date of this Order falls on a Saturday, Sunday or State holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

THEREFORE, IT IS HEREBY ORDERED that the Copermittees, in order to meet the provisions contained in division 7 of the CWC (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations adopted thereunder, must each comply with the requirements of this Order. This action in no way prevents the San Diego Water Board from taking enforcement action for past violations of the previous Order. If any part of this Order is subject to a temporary stay of enforcement, unless otherwise specified, the Copermittees must comply with the analogous portions of the previous Order, which will remain in effect for all purposes during the pendency of the stay.

II. PROVISIONS

A. PROHIBITIONS AND LIMITATIONS

~~The purpose of this provision is to describe the conditions under which storm water and non-storm water discharges into and from MS4s are prohibited or limited.~~ The goal of the prohibitions and limitations is to protect the water quality and designated beneficial uses of waters of the state from adverse impacts caused or contributed to by MS4 discharges. This goal will be accomplished through the implementation of water quality improvement strategies and runoff management programs that effectively prohibit non-storm water discharges into the Copermittees' MS4s, and reduce pollutants in storm water and non-stormwater discharges from the Copermittees' MS4s to the MEP. The process for determining compliance with the Discharge Prohibitions (A.1), Receiving Water Limitations (A.2), and Effluent Limitations (A.3, including effluent limitations derived from the TMDL requirements – Attachment E) is defined in Provision A.4.

1. Discharge Prohibitions

a. Except as provided for in Provisions A.1.e or A.4, d~~D~~ischarges from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance in receiving waters of the state are prohibited.

b. Non-storm water discharges into MS4s are to be effectively prohibited, through the implementation of Provision E.2, unless such discharges are ~~authorized by a separate NPDES permit~~a category of non-storm water discharges that must be addressed pursuant to Provisions E.2.a.(1) – (5) of this Order.

c. Discharges from MS4s are subject to all waste discharge prohibitions in the Basin Plan, included in Attachment A to this Order.

d. Storm water discharges from the City of San Diego's MS4 to the San Diego Marine Life Refuge in La Jolla, and the City of Laguna Beach's MS4 to the Heisler Park ASBS are authorized under this Order subject to the Special Protections contained in Attachment B to State Water Board Resolution No. 2012-0012 applicable to these discharges, included in Attachment A to this Order. All other discharges from the Copermittees' MS4s to ASBS are

prohibited.

e. For discharges associated with water body pollutant combinations addressed in a TMDL in Attachment E of this Order, the affected Copermittees shall achieve compliance as outlined in Attachment E.

2. Receiving Water Limitations

a. Discharges from MS4s must not cause or contribute to the violation of water quality standards in any receiving waters, including but not limited to all applicable provisions contained in the list below to the extent that they remain in effect and are operative, unless such discharges are being addressed by the Compermittee(s) through processes set forth in this Order (Provision A.4 and Attachment E). Where a TMDL has been developed and its terms have been incorporated into this Order (in a manner that is consistent with the waste load allocations set forth in the TMDL), a Permittee shall also be considered in compliance with such TMDL-related requirements provided in this Order, if it is timely and in good faith implementing the MEP-compliant control measures otherwise established by this Order.~~:~~

(1) The San Diego Water Board's Basin Plan, including beneficial uses, water quality objectives, and implementation plans;

(2) State Water Board plans for water quality control including the following:

(a) Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries (Thermal Plan), and

(b) The Ocean Plan, including beneficial uses, water quality objectives, and implementation plans;

(3) State Water Board policies for water and sediment quality control including the following:

(a) Water Quality Control Policy for the Enclosed Bays and Estuaries of California,

(b) Sediment Quality Control Plan which includes the following narrative objectives for bays and estuaries:

(i) Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities, and

(ii) Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health,

(c) The Statement of Policy with Respect to Maintaining High Quality of

Waters in California;[2]

(4) Priority pollutant criteria promulgated by the USEPA through the following:

(a) National Toxics Rule (NTR)[3] (promulgated on December 22, 1992 and amended on May 4, 1995), and

(b) California Toxics Rule (CTR).[4,5]

b. Discharges from MS4s composed of storm water runoff must not alter natural ocean water quality in an ASBS.

c. For receiving water limitations associated with water body pollutant combination addressed in a TMDL in Attachment E of this Order, the affected Copermittees shall achieve compliance as outlined in Attachment E.

[2] State Water Board Resolution No. 68-16
[3] 40 CFR 131.36
[4] 65 Federal Register 31682-31719 (May 18, 2000), adding Section 131.38 to 40 CFR
[5] If a water quality objective and a CTR criterion are in effect for the same priority pollutant, the more stringent of the two applies, unless a previous regulatory action (i.e. TMDL) has specified otherwise.

3. Effluent Limitations

a. Technology Based Effluent Limitations

Pollutants in storm water discharges from MS4s must be reduced to the MEP.[6]

b. Water Quality Based Effluent Limitations

Each Copermittee must comply with applicable WQBELs established for the TMDLs in Attachment E to this Order, pursuant to the applicable TMDL compliance schedules.

4. Compliance with Discharge Prohibitions, ~~and~~ Receiving Water Limitations, and Effluent Limitations

Each Copermittee must achieve compliance with Provisions A.1, A.2, and A.3 ~~A.1.a, A.1.c and A.2.a~~ of this Order through timely implementation of control measures and other actions as specified in Provisions B and E of this Order, including any modifications. The Water Quality Improvement Plans required under Provision B must be designed and adapted to ultimately achieve compliance with Provisions A.1, A.2, and A.3 ~~A.1.a, A.1.c and A.2.a~~.

a. Except as provided in Parts 4.c, 4.d, 4.e, or 4.f below, discharges from the MS4 for which a Copermittee is responsible shall not cause or contribute to an exceedance of any applicable water quality standard.

b. Except as provided in Parts 4.c, 4.d, 4.e, or 4.f below, discharges from the MS4 of storm water, or non-storm water, for which a Copermittee is responsible, shall not cause a condition of nuisance.

~~a.~~**c.** In instances where discharges from the MS4 for which the Copermittee is responsible (1) causes or contributes to an exceedance of any applicable water quality standard or causes a condition of nuisance in the receiving water; (2) the receiving water is not subject to an approved TMDL that is in effect for the constituent(s) involved; and (3) the constituent(s) associated with the discharge is otherwise not specifically addressed by a provision of this Order (such as specific scheduled actions in a Water Quality Improvement Plan), the Copermittee shall comply with the following iterative procedure:~~If exceedance(s) of water quality standards persist in receiving waters notwithstanding implementation of this Order, the Copermittees must comply with the following procedures~~:

(1) ~~For exceedance(s) of a water quality standard in the process of being~~

[6] This does not apply to MS4 discharges which receive subsequent treatment to reduce pollutants in storm water discharges to the MEP prior to entering receiving waters (e.g., low flow diversions to the sanitary sewer). Runoff treatment must occur prior to the discharge of runoff into receiving waters per Finding 7.

~~addressed by the Water Quality Improvement Plan, the Copermittee(s) must implement the Water Quality Improvement Plan as accepted by the San Diego Water Board, and update the Water Quality Improvement Plan, as necessary, pursuant to Provision F.2.c~~;

(2) ~~Upon a determination by either the Copermittees or the San Diego Water Board that discharges from the MS4 are causing or contributing to a new exceedance of an applicable water quality standard not addressed by the Water Quality Improvement Plan, the Copermittees must submit the following updates to the Water Quality Improvement Plan pursuant to Provision F.2.c or as part of the Water Quality Improvement Plan Annual Report required under Provision F.3.b, unless the San Diego Water Board directs an earlier submittal~~: Submit a report to the Regional Water Board that:

(a) Summarizes and evaluates water quality data associated with the pollutant of concern in the context of applicable water quality objectives including the magnitude and frequency of the exceedances.

(b) Includes a work plan to identify the sources of the constituents of concern (including those not associated with the MS4 such that non-MS4 sources can be pursued).

(c) Describes the strategy and schedule for implementing best management practices (BMPs) and other controls (including those that are currently being implemented) that will address the Permittee's sources of constituents that are causing or contributing to the exceedances of an applicable water quality standard or causing a condition of nuisance, and are reflective of the severity of the exceedances. The strategy shall demonstrate that the selection of BMPs will address the Permittee's sources of constituents and include a mechanism for tracking BMP implementation. The strategy shall provide for future refinement pending the results of the source identification work plan noted in 4.c.(a)(ii) above.

(d) Outlines, if necessary, additional monitoring to evaluate improvement in water quality and, if appropriate, special studies that will be undertaken to support future management decisions.

(e) Includes a methodology (ies) that will assess the effectiveness of the BMPs to address the exceedances.

(f) This report may be submitted in conjunction with the Annual Report unless the Regional Water Board directs an earlier submittal.

~~(a)~~(g) ~~The water quality improvement strategies being implemented that are effective and will continue to be implemented~~,

~~(b)~~(h) ~~Water quality improvement strategies (i.e. BMPs, retrofitting~~

~~projects, stream and/or habitat rehabilitation projects, adjustments to jurisdictional runoff management programs, etc.) that will be implemented to reduce or eliminate any pollutants or conditions that are causing or contributing to the exceedance of water quality standards~~,

~~(c) Updates to the schedule for implementation of the existing and additional water quality improvement strategies, and~~

~~(d)~~(i) ~~Updates to the monitoring and assessment program to track progress toward achieving compliance with Provisions A.1.a, A.1.c and A.2.a of this Order~~;

(3) ~~The San Diego Water Board may require the incorporation of additional modifications to the Water Quality Improvement Plan required under Provision B. The applicable Copermittees must submit any modifications to the update to the Water Quality Improvement Plan within 90 days of notification that additional modifications are required by the San Diego Water Board, or as otherwise directed~~ Submit any modifications to the report required by the Regional Water Board within 60 days of notification. The Report is deemed approved within 60 days of its submission if no reponse is received from the Regional Water Board;

(4) Implement the actions specified in the report in accordance with the acceptance or approval, including the implementation schedule and any modifications to this Order.

(5) As long as the Permittee has complied with the procedure set forth above and is implementing the actions, the Permittee does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Regional Water Board to develop additional BMPs.

~~(3)~~(6) The information developed pursuant to A.4.c must be evaluated and incorporated into the Water Quality Improvement Plans and/or the Jurisdictional Runoff Management Plans, as needed.

~~(4) Within 90 days of the San Diego Water Board determination that the modifications to the Water Quality Improvement Plan required under Provision A.4.a.(3) meet the requirements of this Order, the applicable Copermittees must revise the jurisdictional runoff management program documents to incorporate the modified water quality improvement strategies that have been and will be implemented, the implementation schedule, and any additional monitoring required; and~~

~~(5)~~(7) ~~Each Copermittee must implement the updated Water Quality Improvement Plan~~.

d. For Receiving Water Limitations associated with waterbody-pollutant combinations addressed in an adopted TMDL that is in effect and that has been incorporated in this Order, a Permittee that is in compliance with Attachment E (Total Maximum Daily Load Provisions) is in compliance with Parts 4.a and 4.b above. For Receiving Water Limitations associated with waterbody-pollutant combinations on the CWA 303(d) list, which are not otherwise addressed by Attachment E or other applicable pollutant-specific provision of this Order, a Permittee that is in compliance with Part 4.c is in compliance with Parts 4.a and 4.b..

e. ~~The procedure set forth above to achieve compliance with Provisions A.1.a, A.1.c and A.2.a of this Order do not have to be repeated for continuing or recurring exceedances of the same water quality standard(s) following implementation of scheduled actions unless directed to do otherwise by the San Diego Water Board~~.

~~**b.**~~**f.** Alternatively, a Permittee that is in compliance with Provision B (Development and Implementation of Water Quality Improvement Plans) is in compliance with Parts 4.a and 4.b above

~~**c.**~~**g.** If a Permittee is found to have discharges from the MS4 for which it is responsible that causes an exceedance of an applicable water quality standard in the receiving water or causes a condition of nuisance in the receiving water, the Permittee shall be in compliance with Parts 4.a and 4.b above, if the Permittee is in compliance with Parts 4.c, 4.d, or 4.e, or requirements otherwise covered by a provision of this Order specifically addressing the constituent in question, as applicable..~~Nothing in Provisions A.4.a and A.4.b prevents the San Diego Water Board from enforcing any provision of this Order while the applicable Copermittees prepare and implement the above update to the Water Quality Improvement Plan and jurisdictional runoff management programs~~.

B. WATER QUALITY IMPROVEMENT PLANS[7]

The purpose of this provision is to develop Water Quality Improvement Plans (WQIPs) that guide the Copermittees' jurisdictional runoff management programs towards achieving the outcome of improved water quality in MS4 discharges and receiving waters. The goal of the Water Quality Improvement Plans is to further the Clean Water Act's objective to protect, preserve, enhance, and ~~restore~~ protect the water quality and designated beneficial uses of waters of the state. Therefore, implementation of the WQIPs also provides the basis for complying with Provisions A.1, A.2, and A.3, as described in Provision A.4. This goal will be accomplished through an adaptive planning and management process that identifies the highest priority water quality conditions within a watershed and implements strategies through the jurisdictional runoff management programs to achieve improvements in the quality of discharges from the MS4s and receiving waters. As such, the requirements outlined in Provision E. may be modified for consistency with the WQIP priorities for the applicable Watershed management Area, is appropriate justification is provided.

1. Watershed Management Areas

The Copermittees must develop a Water Quality Improvement Plan for each of the Watershed Management Areas in Table B-1. A total of ten Water Quality Improvement Plans must be developed for the San Diego Region.

Table B-1. Watershed Management Areas

Hydrologic Unit(s)	Watershed Management Area	Major Surface Water Bodies	Responsible Copermittees
San Juan (901.00)	South Orange County	- Aliso Creek - San Juan Creek - San Mateo Creek - Pacific Ocean - Heisler Park ASBS	- City of Aliso Viejo[1] - City of Dana Point[1] - City of Laguna Beach[1] - City of Laguna Hills[1] - City of Laguna Niguel[1] - City of Laguna Woods[1] - City of Lake Forest[1,2] - City of Mission Viejo[1] - City of Rancho Santa Margarita[1] - City of San Clemente[1] - City of San Juan Capistrano[1] - County of Orange[1] - Orange County Flood Control District[1]
Santa Margarita (902.00)	Santa Margarita River	- Murrieta Creek - Temecula Creek - Santa Margarita River - Santa Margarita Lagoon - Pacific Ocean	- City of Murrieta[2,3] - City of Temecula[2,3] - City of Wildomar[2,3] - County of Riverside[2,3] - County of San Diego[3,4] - Riverside County Flood Control and Water Conservation District[2,3]

[7] Once developed and approved, the Water Quality Improvement Plan and corresponding Jurisdictional Runoff Management Plan will functionally replace the Load Reduction Plans.

Table B-1. Watershed Management Areas

Hydrologic Unit(s)	Watershed Management Area	Major Surface Water Bodies	Responsible Copermittees
San Luis Rey (903.00)	San Luis Rey River	- San Luis Rey River - San Luis Rey Estuary - Pacific Ocean	- City of Oceanside - City of Vista - County of San Diego
Carlsbad (904.00)	Carlsbad	- Loma Alta Slough - Buena Vista Lagoon - Agua Hedionda Lagoon - Batiquitos Lagoon - San Elijo Lagoon - Pacific Ocean	- City of Carlsbad - City of Encinitas - City of Escondido - City of Oceanside - City of San Marcos - City of Solana Beach - City of Vista - County of San Diego
San Dieguito (905.00)	San Dieguito River	- San Dieguito River - San Dieguito Lagoon - Pacific Ocean	- City of Del Mar - City of Escondido - City of Poway - City of San Diego - City of Solana Beach - County of San Diego
Penasquitos (906.00)	Penasquitos	- Los Penasquitos Lagoon - Pacific Ocean	- City of Del Mar - City of Poway - City of San Diego - County of San Diego
	Mission Bay	- Mission Bay - Pacific Ocean - San Diego Marine Life Refuge ASBS	- City of San Diego
San Diego (907.00)	San Diego River	- San Diego River - Pacific Ocean	- City of El Cajon - City of La Mesa - City of San Diego - City of Santee - County of San Diego
Pueblo San Diego (908.00) Sweetwater (909.00) Otay (910.00)	San Diego Bay	- Sweetwater River - Otay River - San Diego Bay - Pacific Ocean	- City of Chula Vista - City of Coronado - City of Imperial Beach - City of La Mesa - City of Lemon Grove - City of National City - City of San Diego - County of San Diego - San Diego County Regional Airport Authority - San Diego Unified Port District
Tijuana (911.00)	Tijuana River	- Tijuana River - Tijuana Estuary - Pacific Ocean	- City of Imperial Beach - City of San Diego - County of San Diego

Notes:

1. The MS4 discharges within the jurisdiction of the City of Laguna Hills and the City of Laguna Woods located in the Santa Ana Region will be regulated by San Diego Water Board Order No. R9-2013-0001. The City of Laguna Hills and Laguna Woods must also comply with the requirements of the San Diego Creek/Newport Bay TMDL in section XVIII of Santa Ana Water Board Order No. R8-2014-0002 and any reissuance thereto.
2. ~~The Orange County Copermittees will be covered under this Order after expiration of Order No. R9-2009-0002, or earlier if the Orange County Copermittees meet the conditions in Provision F.6.~~The MS4 discharges within the jurisdiction of the City of Lake Forest located in the San Diego Region will be regulated by the Santa Ana Water Board Order No. R8-2014-0002 (NPDES No. CAS618030) and any reissuance thereto. The City of Lake Forest must also comply with the requirements of the Bacteria TMDL in Attachment E of this Order, participate in preparation and implementation of the Water Quality Improvement Plan for the Aliso Creek Watershed Management Area as described in Provision B of this Order and continue implementation of its over-irrigation discharge prohibition in Title 15, Chapter 15, section 14.030, List (b).

~~2.~~3. The Riverside County Copermittees will be covered under this Order after expiration of Order No. R9-2010-0016, or earlier if the Riverside County Copermittees meet the conditions in Provision F.6.

~~3~~4.. The County of San Diego is not required to implement the requirements of Provision B for its jurisdiction within the Santa Margarita River Watershed Management Area until the Riverside County Copermittees have been notified of coverage under this

Order. The County of San Diego is required to implement the requirements of Provisions D, F.3.b, and Attachment E until the Riverside County Copermittees have been notified of coverage under this Order.

2. Priority Water Quality Conditions

The Copermittees must identify the water quality priorities within each Watershed Management Area that will be addressed by the Water Quality Improvement Plan. Where appropriate, Watershed Management Areas may be separated into subwatersheds to focus water quality prioritization and jurisdictional runoff management program implementation efforts by receiving water.

a. Assessment of Receiving Water Conditions

The Copermittees must consider the following, at a minimum, to identify water quality priorities based on impacts of MS4 discharges on receiving water beneficial uses:

(1) Receiving waters listed as impaired on the CWA Section 303(d) List of Water Quality Limited Segments (303(d) List);

(2) TMDLs adopted and under development by the San Diego Water Board;

(3) Receiving waters recognized as sensitive or highly valued by the Copermittees, including estuaries designated under the National Estuary Program under CWA section 320, wetlands defined by the State or U.S. Fish and Wildlife Service's National Wetlands Inventory as wetlands, waters having the Preservation of Biological Habitats of Special Significance (BIOL) beneficial use designation, and receiving waters identified as ASBS subject to the provisions of Attachment B to State Water Board Resolution No. 2012-0012 (see Attachment A);

(4) The receiving water limitations of Provision A.2;

(5) Known historical versus current physical, chemical, and biological water quality conditions;

(6) Available, relevant, and appropriately collected and analyzed physical, chemical, and biological receiving water monitoring data, including, but not limited to, data describing:

(a) Chemical constituents,

(b) Water quality parameters (i.e. pH, temperature, conductivity, etc.),

(c) Toxicity Identification Evaluations for both receiving water column and sediment,

(d) Trash impacts,

(e) Bioassessments, and

(f) Physical habitat;

(7) Available evidence of erosional impacts in receiving waters due to accelerated flows (i.e. hydromodification);

(8) Available evidence of adverse impacts to the chemical, physical, and biological integrity of receiving waters; and

(9) The potential improvements in the overall condition of the Watershed Management Area that can be achieved.

b. ASSESSMENT OF IMPACTS FROM MS4 DISCHARGES

The Copermittees must consider the following, at a minimum, to identify the potential impacts to receiving waters that may be caused or contributed to by discharges from the Copermittees' MS4s:

(1) The discharge prohibitions of Provision A.1 and effluent limitations of Provision A.3; and

(2) Available, relevant, and appropriately collected and analyzed storm water and non-storm water monitoring data from the Copermittees' MS4 outfalls;

(3) Locations of each Copermittee's MS4 outfalls that discharge to receiving waters;

(4) Locations of MS4 outfalls that are known to persistently discharge non-storm water to receiving waters likely causing or contributing to impacts on receiving water beneficial uses;

(5) Locations of MS4 outfalls that are known to discharge pollutants in storm water causing or contributing to impacts on receiving water beneficial uses; and

(6) The potential improvements in the quality of discharges from the MS4 that can be achieved.

c. IDENTIFICATION OF PRIORITY WATER QUALITY CONDITIONS

(1) The Copermittees must use the information gathered for Provisions B.2.a and B.2.b to develop a list of priority water quality conditions as pollutants, stressors and/or receiving water conditions that are the highest threat to receiving water quality or that most adversely affect the quality of receiving

waters. The list must include the following information for each priority water quality condition:

(a) The beneficial use(s) associated with the priority water quality condition;

(b) The geographic extent of the priority water quality condition within the Watershed Management Area, if known;

(c) The temporal extent of the priority water quality condition (e.g., dry weather and/or wet weather);

(d) The Copermittees with MS4s discharges that may cause or contribute to the priority water quality condition; and

(e) An assessment of the adequacy of and data gaps in the monitoring data to characterize the conditions causing or contributing to the priority water quality condition, including a consideration of spatial and temporal variation.

(2) The Copermittees must identify the highest priority water quality conditions to be addressed by the Water Quality Improvement Plan, and provide a rationale for selecting a subset of the water quality conditions identified pursuant to Provision B.2.c.(1) as the highest priorities.

d. IDENTIFICATION OF MS4 SOURCES OF POLLUTANTS AND/OR STRESSORS

The Copermittees must identify and prioritize known and suspected sources of storm water and non-storm water pollutants and/or other stressors associated with MS4 discharges that cause or contribute to the highest priority water quality conditions identified under Provision B.2.c. The identification of known and suspected sources of pollutants and/or stressors that cause or contribute to the highest priority water quality conditions as identified for Provision B.2.c must consider the following:

(1) Pollutant generating facilities, areas, and/or activities within the Watershed Management Area, including:

(a) Each Copermittee's inventory of construction sites, commercial facilities or areas, industrial facilities, municipal facilities, and residential areas,

(b) Publicly owned parks and/or recreational areas,

(c) Open space areas,

(d) All currently operating or closed municipal landfills or other treatment, storage or disposal facilities for municipal waste, and

(e) Areas not within the Copermittees' jurisdictions (e.g., Phase II MS4s, tribal lands, state lands, federal lands) that are known or suspected to be discharging to the Copermittees' MS4s;

(2) Locations of the Copermittees' MS4s, including the following:

(a) All MS4 outfalls that discharge to receiving waters, and

(b) Locations of major structural controls for storm water and non-storm water (e.g., retention basins, detention basins, major infiltration devices, etc.);

(3) Other known and suspected sources of non-storm water or pollutants in storm water discharges to receiving waters within the Watershed Management Area, including the following:

(a) Other MS4 outfalls (e.g., Phase II Municipal and Caltrans),

(b) Other NPDES permitted discharges,

(c) Any other discharges that may be considered point sources (e.g., private outfalls), and

(d) Any other discharges that may be considered non-point sources (e.g., agriculture, wildlife or other natural sources);

(4) Review of available data, including but not limited to:

(a) Findings from the Copermittees' illicit discharge detection and elimination programs,

(b) Findings from the Copermittees' MS4 outfall discharge monitoring,

(c) Findings from the Copermittees' receiving water monitoring,

(d) Findings from the Copermittees' MS4 outfall discharge and receiving water assessments, and

(e) Other available, relevant, and appropriately collected data, information, or studies related to pollutant sources and/or stressors that contribute to the highest priority water quality conditions as identified for Provision B.2.c.

(5) The adequacy of the available data to identify and prioritize sources and/or stressors associated with MS4 discharges that cause or contribute to the highest priority water quality conditions identified under Provision B.2.c.

e. IDENTIFICATION OF POTENTIAL WATER QUALITY IMPROVEMENT STRATEGIES

The Copermittees must evaluate the findings identified under Provisions B.2.a-d, and identify potential strategies that can result in improvements to water quality

in MS4 discharges and/or receiving waters within the Watershed Management Area. Potential water quality improvement strategies that may be implemented within the Watershed Management Area must include the following:

(1) Structural BMPs, non-structural BMPs, incentives, or programs that can potentially be implemented to address the highest priority water quality conditions identified under Provision B.2.c, or MS4 sources of pollutants or stressors identified under Provision B.2.d,

(2) Retrofitting projects in areas of existing development within the Watershed Management Area that can potentially be implemented to reduce MS4 sources of pollutants or stressors identified under Provision B.2.d causing or contributing to the highest priority water quality conditions identified under Provision B.2.c, and

(3) Stream, channel, and/or habitat rehabilitation projects within the Watershed Management Area that can potentially be implemented to protect and/or improve conditions in receiving waters from MS4 pollutants and/or stressors identified under Provision B.2.d causing or contributing to the highest priority water quality conditions identified under Provision B.2.c.

3. Water Quality Improvement Goals, Strategies and Schedules

The Copermittees must identify and develop specific water quality improvement goals and strategies to address the highest priority water quality conditions identified within a Watershed Management Area. The water quality improvement goals and strategies must address the highest priority water quality conditions by effectively prohibiting non-storm water discharges to the MS4, reducing pollutants in storm water discharges from the MS4 to the MEP, and protecting the water quality standards of receiving waters.

a. WATER QUALITY IMPROVEMENT GOALS AND SCHEDULES

(1) Numeric Goals

The Copermittees must develop and incorporate numeric goals[8] into the Water Quality Improvement Plan. Numeric goals must be used to support Water Quality Improvement Plan implementation and measure reasonable progress towards addressing the highest priority water quality conditions identified under Provision B.2.c. Action levels and numeric goals,

[8] Interim and final numeric goals may take a variety of forms such as TMDL established WQBELs, action levels, pollutant concentration, load reductions, number of impaired water bodies delisted from the List of Water Quality Impaired Segments, Index of Biotic Integrity (IBI) scores, or other appropriate metrics. Interim and final numeric goals are not necessarily limited to one criterion or indicator, but may include multiple criteria and/or indicators. Except for TMDL established WQBELs, interim and final numeric goals and corresponding schedules may be revised through the adaptive management process under Provision B.5.

themselves, are not enforceable compliance standards, effluent limits, or receiving water limitations. The Copermittees must establish and incorporate the following numeric goals in the Water Quality Improvement Plan:

(a) Final numeric goals must be based on measureable criteria or indicators capable of demonstrating one or more of the following:

(i) Discharges from the Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters, AND/OR

(ii) The conditions of receiving waters and associated habitat are protected from MS4 discharges, AND/OR

(iii) Beneficial uses of receiving waters are protected from MS4 discharges and will be supported.

(b) Interim numeric goals must be based on measureable criteria or indicators capable of demonstrating reasonable incremental progress toward achieving the final numeric goals in the receiving waters and/or MS4 discharges as follows:

(i) One or more interim numeric goals may be established to demonstrate progress toward achieving each final numeric goal,

(ii) For each final numeric goal, at least one interim numeric goal must be expressed as a reasonable increment toward achievement of the final numeric goal,

(iii) For each final numeric goal, reasonable interim numeric goals must be established to be accomplished during each 5 year period between the acceptance of the Water Quality Improvement Plan and the achievement of the final numeric goals.

(2) Schedules for Achieving Numeric Goals

The Copermittees must develop and incorporate schedules for achieving the numeric goals into the Water Quality Improvement Plan. The schedules must demonstrate reasonable progress toward achieving the final numeric goals required for Provision B.3.a.(1). The Copermittees must incorporate the schedules for achieving the numeric goals into the Water Quality Improvement Plan based on the following considerations:

(a) Final dates for achieving all final numeric goals must be established considering the following:

(i) Final compliance dates for any applicable TMDLs in Attachment E to this Order;

(ii) Compliance schedules for any ASBS subject to the provisions of Attachment B to State Water Board Resolution No. 2012-0012 (see

Attachment A);

(iii) Achievement of the final numeric goals for the highest water quality priorities must be as soon as possible;

(iv) Final dates for achieving the final numeric goals must reflect a realistic assessment of the shortest practicable time required based on the temporal and spatial extent and factors associated with the highest priority water quality conditions identified under Provision B.2.c, and taking into account the time reasonably required to implement the water quality improvement strategies required pursuant to Provision B.3.b.

(b) Interim dates for achieving all interim numeric goals must be established considering the following:

(i) Interim compliance dates for any applicable TMDLs in Attachment E to this Order;

(ii) Compliance schedules for any ASBS subject to the provisions of Attachment B to State Water Board Resolution No. 2012-0012 (see Attachment A);

(iii) Interim dates for achieving the interim numeric goals must reflect a realistic assessment of the shortest practicable time reasonably required, taking into account the time needed to implement new or significantly expanded programs and securing financing, if necessary; and

(iv) ~~(iv)~~ For each final numeric goal, at least one interim numeric goal must be established that the Copermittees will work toward achieving within the term of this Order.

(b) The schedules for achieving the interim and final goals will be evaluated with each annual report and/or as a part of the ROWD development to determine if they should be modified

b. WATER QUALITY IMPROVEMENT STRATEGIES AND SCHEDULES

Based on the likely effectiveness and efficiency of the potential water quality improvement strategies identified under Provision B.2.e to effectively prohibit non-storm water discharges to the MS4, reduce pollutants in storm water discharges from the MS4 to the MEP, protect the beneficial uses of receiving waters from MS4 discharges, and/or achieve the interim and final numeric goals identified under Provision B.3.a, the Copermittees must identify the strategies that will be implemented in each Watershed Management Area as follows:

(1) Jurisdictional Strategies

(a) Each Copermittee in the Watershed Management Area must identify the strategies that will be implemented within its jurisdiction as part of its jurisdictional runoff management program requirements under Provisions E.2 through E.7, including descriptions of the following:

(i) For each of the inventories developed for its jurisdiction, as required under Provisions D.2.a.(1), E.3.e.(2), E.4.b, and E.5.a, each Copermittee must identify the known and suspected areas or sources causing or contributing to the highest priority water quality conditions in the Watershed Management Area that the Copermittee will focus on in its efforts to effectively prohibit non-storm water discharges to its MS4, reduce pollutants in storm water discharges from its MS4 to the MEP, and achieve the interim and final numeric goals identified under Provision B.3.a;

(ii) BMPs that each Copermittee will implement, or require to be implemented, as applicable, for those areas or sources within its jurisdiction;

(iii) Education programs that each Copermittee will implement, as applicable, for those areas or sources within its jurisdiction;

(iv) Frequencies that each Copermittee will conduct inspections on those areas or sources within its jurisdiction;

(v) Incentive and enforcement programs that each Copermittee will implement, as applicable, for those areas or sources within its jurisdiction; and

(vi) Any other BMPs, incentives, or programs that each Copermittee will implement for those areas or sources within its jurisdiction.

(b) Identify the optional jurisdictional strategies that each Copermittee will implement within its jurisdiction, as necessary, to effectively prohibit non-storm water discharges to its MS4, reduce pollutants in storm water discharges from its MS4 to the MEP, protect the beneficial uses of receiving waters from MS4 discharges, and/or achieve the interim and final numeric goals identified under Provision B.3.a. Descriptions of the optional jurisdictional strategies must include:

(i) BMPs, incentives, or programs that may be implemented by the Copermittee within its jurisdiction in addition to the requirements of Provisions B.3.b.(1)(a);

(ii) Incentives or programs that may be implemented by the Copermittee to encourage or implement projects to retrofit areas of existing development within its jurisdiction;

(iii) Incentives or programs that may be implemented by the Copermittee to encourage or implement projects that will rehabilitate the conditions of channels or habitats within its jurisdiction;

(iv) The funds and/or resources that must be secured by the Copermittee to implement the optional strategies described for Provisions B.3.b.(1)(b)(i)-(iii) within its jurisdiction; and

(v) The circumstances necessary to trigger implementation of the optional jurisdictional strategies, in addition to the requirements of Provision B.3.b.(1)(a), to achieve the interim and final numeric goals within the schedules established under Provision B.3.a.

(c) Identify the strategies that will be implemented by the Copermittee in coordination with or with the cooperation of other agencies (e.g. Caltrans, water districts, school districts) and/or entities (e.g. non-governmental organizations) within its jurisdiction.

(2) Watershed Management Area Strategies

The Copermittees must identify the optional regional or multi-jurisdictional strategies that will be implemented in the Watershed Management Area, as necessary, to effectively prohibit non-storm water discharges to the MS4, reduce pollutants in storm water discharges from the MS4 to the MEP, protect the beneficial uses of receiving waters from MS4 discharges, and/or achieve the interim and final numeric goals identified under Provision B.3.a. Descriptions of the optional regional or multi-jurisdictional strategies must include:

(a) Regional or multi-jurisdictional BMPs, incentives, or programs that may be implemented by the Copermittees in the Watershed Management Area;

(b) Incentives or programs that may be implemented by the Copermittees in the Watershed Management Area to encourage or implement regional or multi-jurisdictional projects to retrofit areas of existing development;

(c) Incentives or programs that may be implemented by the Copermittees to encourage or implement regional or multi-jurisdictional projects that will rehabilitate the conditions of channels, streams, or habitats within the Watershed Management Area;

(d) The funds and/or resources that must be secured by the Copermittees to implement the optional strategies described for Provisions B.3.b.(2)(a)-(c) within the Watershed Management Area; and

(e) The circumstances necessary to trigger implementation of the optional regional or multi-jurisdictional strategies to achieve the interim and final

numeric goals within the schedules established under Provision B.3.a.

(3) Schedules for Implementing Strategies

The Copermittees must develop reasonable schedules for implementing the water quality improvement strategies identified under Provisions B.3.b.(1) and B.3.b.(2) to achieve the interim and final numeric goals identified and schedules established under Provision B.3.a. The Copermittees must incorporate the schedules to implement the water quality improvement strategies into the Water Quality Improvement Plan as follows:

(a) Each Copermittee must develop schedules for the jurisdictional strategies identified pursuant to Provisions B.3.b.(1)(a)-(b). Each schedule must specify:

(i) If each jurisdictional strategy identified pursuant to Provision B.3.b.(1)(a) will or will not be initiated upon acceptance of the Water Quality Improvement Plan;

(ii) For each jurisdictional strategy identified pursuant to Provision B.3.b.(1)(a) that will not be initiated upon acceptance~~approval~~ of the Water Quality Improvement Plan, the shortest practicable time in which each jurisdictional strategy will be initiated after acceptance of the Water Quality Improvement Plan;

(iii) For each optional jurisdictional strategy identified pursuant to Provision B.3.b.(1)(b), a realistic assessment of the shortest practicable time required to:

[a] Secure the resources needed to fund the optional jurisdictional strategy, and
[b] Procure the resources, materials, labor, and applicable permits necessary to initiate implementation of the optional jurisdictional strategy;

(iv) If each jurisdictional strategy identified pursuant to Provisions B.3.b.(1)(a)-(b) is expected to be continuously implemented (e.g. inspections) or completed within a schedule (e.g. construction of structural BMP); and

(v) If a jurisdictional strategy identified pursuant to Provisions B.3.b.(1)(a)-(b) is expected to be completed within a schedule, the anticipated time to complete based on a realistic assessment of the shortest practicable time required.

(b) The Copermittees in the Watershed Management Area must develop schedules for the regional or multi-jurisdictional strategies identified

pursuant to Provision B.3.b.(2). Each schedule must specify:

(i) A realistic assessment of the shortest practicable time to:

[a] Secure the resources needed to fund the optional regional or multi-jurisdictional strategy, and

[b] Procure the resources, materials, labor, and permits necessary to initiate the implementation of the optional regional or multi-jurisdictional strategy;

(ii) If each regional or multi-jurisdictional strategy identified pursuant to Provision B.3.b.(2) is expected to be continuously implemented (e.g. inspections) or completed within a schedule (e.g. construction of structural BMP); and

(iii) If a regional or multi-jurisdictional strategy and/or activity identified pursuant to Provisions B.3.b.(2) is expected to be completed within a schedule, the anticipated time to complete based on a realistic assessment of the shortest practicable time required.

(4) Optional Watershed Management Area Analysis

(a) For each Watershed Management Area, the Copermittees have the option to perform a Watershed Management Area Analysis for the purpose of developing watershed-specific requirements for structural BMP implementation, as described in Provision E.3.c.(3). The Watershed Management Area Analysis must include GIS layers (maps) as output. The analysis must include the following information, to the extent it is available, in order to characterize the Watershed Management Areas:

(i) A description of dominant hydrologic processes, such as areas where infiltration or overland flow likely dominates;

(ii) A description of existing streams in the watershed, including bed material and composition, and if they are perennial or ephemeral;

(iii) Current and anticipated future land uses;

(iv) Potential coarse sediment yield areas; and

(v) Locations of existing flood control structures and channel structures, such as stream armoring, constrictions, grade control structures, and hydromodification or flood management basins.

(b) The Copermittees must use the results of the Watershed Management Area Analysis performed pursuant to Provision B.3.b.(4)(a) to identify and compile a list of candidate projects that could potentially be used as alternative compliance options for Priority Development Projects, to be implemented in lieu of onsite structural BMP performance requirements

described in Provisions E.3.c.(1) and E.3.c.(2). Specifically, the Copermittees must identify opportunities to be included in the list of candidate projects in each Watershed Management Area, such as:

(i) Stream or riparian area rehabilitation;

(ii) Retrofitting existing infrastructure to incorporate storm water retention or treatment;

(iii) Regional BMPs;

(iv) Groundwater recharge projects;

(v) Water supply augmentation projects; and

(vi) Land purchases to preserve floodplain functions.

(c) The Copermittees must use the results of the Watershed Management Area Analysis performed pursuant to Provision B.3.b.(4)(a) to identify areas within the Watershed Management Area where it is appropriate to allow Priority Development Projects to be exempt from the hydromodification management BMP performance requirements described in Provision E.3.c.(2), including supporting rationale.

4. Water Quality Improvement Monitoring and Assessment Program

a. The Copermittees in each Watershed Management Area must develop and incorporate an integrated monitoring and assessment program into the Water Quality Improvement Plan that assesses: 1) the progress toward achieving the numeric goals and schedules, 2) the progress toward addressing the highest priority water quality conditions for each Watershed Management Area, and 3) each Copermittee's overall efforts to implement the Water Quality Improvement Plan.

b. The monitoring and assessment program must incorporate the monitoring and assessment requirements of Provision D, which may allow the Copermittees to modify the program to be consistent with and focus on the highest priority water quality conditions for each Watershed Management Area.

c. For Watershed Management Areas with applicable TMDLs, the monitoring and assessment program must incorporate the specific monitoring and assessment requirements of Attachment E.

d. For Watershed Management Areas with any ASBS, the water quality monitoring and assessment program must incorporate the monitoring requirements of Attachment B to State Water Board Resolution No. 2012-0012 (see Attachment A).

5. Iterative Approach and Adaptive Management Process

The Copermittees in each Watershed Management Area must implement the iterative approach pursuant to Provision A.4 to adapt the Water Quality Improvement Plan, monitoring and assessment program, and jurisdictional runoff management programs to become more effective toward achieving compliance with Provisions A.1, A.2, and A.3 ~~A.1.a, A.1.c and A.2.a~~, and must include the following:

a. Re-Evaluation of Priority Water Quality Conditions

The priority water quality conditions and potential water quality improvement strategies included in the Water Quality Improvement Plan pursuant to Provisions B.2.c and B.2.e may be re-evaluated by the Copermittees as needed during the term of this Order as part of the Water Quality Improvement Plan Annual Report. Re-evaluation and recommendations for modifications to the priority water quality conditions and potential water quality improvement strategies must be provided in the Report of Waste Discharge, and must consider the following:

(1) Achieving the outcome of improved water quality in MS4 discharges and receiving waters through implementation of the water quality improvement strategies identified in the Water Quality Improvement Plan;

(2) New information developed when the requirements of Provisions B.2.a-c have been re-evaluated;

(3) Spatial and temporal accuracy of monitoring data collected to inform prioritization of water quality conditions and implementation strategies to address the highest priority water quality conditions;

(4) Availability of new information and data from sources other than the jurisdictional runoff management programs within the Watershed Management Area that informs the effectiveness of the actions implemented by the Copermittees;

(5) San Diego Water Board recommendations; and

(6) Recommendations for modifications solicited through a public participation process.

b. Adaptation of Goals, Strategies and Schedules

The water quality improvement goals, strategies and schedules, included in the Water Quality Improvement Plan pursuant to Provisions B.3, must be re-evaluated and adapted as new information becomes available to result in more effective and efficient measures to address the highest priority water quality

conditions identified pursuant to Provision B.2.c. Re-evaluation of and modifications to the water quality improvement goals, strategies and schedules must be provided in the Water Quality Improvement Plan Annual Report, and must consider the following:

(1) Modifications to the priority water quality conditions based on Provision B.5.a;

(2) Progress toward achieving interim and final numeric goals in receiving waters and MS4 discharges for the highest priority water quality conditions in the Watershed Management Area,

(3) Progress toward achieving outcomes according to established schedules;

(4) New policies or regulations that may affect identified numeric goals;

(5) Measurable or demonstrable reductions of non-storm water discharges to and from each Copermittee's MS4;

(6) Measurable or demonstrable reductions of pollutants in storm water discharges from each Copermittee's MS4 to the MEP;

(7) New information developed when the requirements of Provisions B.2.b and B.2.d have been re-evaluated;

(8) Efficiency in implementing the Water Quality Improvement Plan;

(9) San Diego Water Board recommendations; and

(10) Recommendations for modifications solicited through a public participation process.

c. ADAPTATION OF MONITORING AND ASSESSMENT PROGRAM

The water quality improvement monitoring and assessment program, included in the Water Quality Improvement Plan pursuant to Provision B.4, must be re-evaluated and adapted when new information becomes available. Re-evaluation and recommendations for modifications to the monitoring and assessment program, pursuant to the requirements of Provision D, may be provided in the Water Quality Improvement Plan Annual Report, but must be provided in the Report of Waste Discharge.

6. Water Quality Improvement Plan Submittal, Updates, and Implementation

a. The Copermittees must submit and commence implementation of the Water

Quality Improvement Plans in accordance with the requirements of Provision F.1.

b. The Copermittees must submit proposed updates to the Water Quality Improvement Plan for acceptance by the San Diego Water Board Executive Officer in accordance with the requirements of Provision F.2.c.

C. ACTION LEVELS

The purpose of this provision is for the Copermittees to incorporate numeric non-stormwater action levels (NALs) and stormwater action levels (SALs) in the Water Quality Improvement Plans and numeric non-stormwater action levels (NALs) in the Illicit Discharge Detection and Elimination (IDDE) Program.

- For the purposes of the WQIPs, t~~T~~he goal of the action levels is to guide Water Quality Improvement Plan implementation efforts and measure progress towards the protection of the high priority water quality conditions and designated beneficial uses of waters of the state from adverse impacts caused or contributed to by MS4 discharges. This goal will be accomplished through monitoring and assessing the quality of the MS4 discharges during the implementation of the Water Quality Improvement Plans.

- For the purposes of the IDDE Program, the goal of the action levels is to assist in the effective prohibition of non-stormwater discharges into the MS4.

Action levels will be developed and incorporated into the WQIP (Provision B) and the IDDE Program (Provision E). Depending upon the goals/objectives for the use of the action levels and the priority receiving water conditions, the constituents and values at which they are set may differ between watersheds. Copermittees may:

- Use existing action levels;
- Develop Watershed Management Area specific numeric action levels for non-stormwater and stormwater MS4 discharges using an approach approved by the Regional Board; or
- Use the default non-stormwater and stormwater action levels prescribed in C.1 and C.2 below.

The Copermittees will submit the action levels as a part of the WQIP and JURMP submittals. The action levels currently established will serve as the interim action levels until revised action levels are completed and approved. Exceedances of the action levels are not subject to enforcement or non-compliance actions under this Order.

1. Default Non-Storm Water Action Levels[9]

The following non-stormwater action levels (NALs) must be incorporated in the WQIPs and IDDE program if the Copermittees have not developed their own NALs for the identified high priority constituents using an approach listed above.~~The~~

[9] NALs incorporated into the Water Quality Improvement Plans are not considered by the San Diego Water Board to be enforceable effluent limitations, unless the NAL is based on a WQBEL expressed as an interim or final effluent limitation for a TMDL in Attachment E and the interim or final compliance date has passed.

~~Copermittees must develop and incorporate numeric non-storm water action levels (NALs) into the Water Quality Improvement Plan to: 1) support the development and prioritization of water quality improvement strategies for effectively prohibiting non-storm water discharges to the MS4s, 2) assess the effectiveness of the water quality improvement strategies toward addressing MS4 non-storm water discharges, required pursuant to Provision D.4.b.(1), and 3) support the detection and elimination of non-storm water and illicit discharges to the MS4, required pursuant to Provision E.2.~~[10]

a. The following NALs must be incorporated:

(1) Non-Storm Water Discharges from MS4s to Ocean Surf Zone

Table C-1. Non-Storm Water Action Levels for Discharges from MS4s to Ocean Surf Zone

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Total Coliform	MPN/100 ml	1,000	-	10,000/1,000[1]	OP
Fecal Coliform	MPN/100 ml	200[2]	-	400	OP
Enterococci	MPN/100 ml	35	-	104[3]	OP

Abbreviations/Acronyms
AMAL – average monthly action level
MDAL – maximum daily action level
OP – Ocean Plan water quality objective
MPN/100 ml – most probable number per 100 milliliters

Notes:
1. Total coliform density NAL is 1,000 MPN/100 ml when the fecal/total coliform ratio exceeds 0.1.
2. Fecal coliform density NAL is 200 MPN per 100 ml during any 30 day period.
3. This value has been set to the Basin Plan water quality objective for saltwater "designated beach areas."

(2) Non-Storm Water Discharges from MS4s to Bays, Harbors, and Lagoons/Estuaries

Table C-2. Non-Storm Water Action Levels for Discharges from MS4s to Bays, Harbors, and Lagoons/Estuaries

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Turbidity	NTU	75	-	225	OP
pH	Units	Within limit of 6.0 to 9.0 at all times			OP
Fecal Coliform	MPN/100 ml	200[1]	-	400[2]	BP
Enterococci	MPN/100 ml	35	-	104[3]	BP
Priority Pollutants	µg/L	See Table C-3			

Abbreviations/Acronyms:
AMAL – average monthly action level
MDAL – maximum daily action level
OP – Ocean Plan water quality objective
BP – Basin Plan water quality objective
NTU – Nephelometric Turbidity Units
MPN/100 ml – most probable number per 100 milliliters
µg/L – micrograms per liter

Notes:
1. Based on a minimum of not less than five samples for any 30-day period.
2. The NAL is reached if more than 10 percent of total samples exceed 400 MPN per 100 ml during any 30 day period.
3. This value has been set to the Basin Plan water quality objective for saltwater "designated beach areas" and is not applicable to water bodies that are not designated with the water contact recreation (REC-1) beneficial use.

[10] The Copermittees may utilize NALs or other benchmarks currently established by the Copermittees as interim NALs until the Water Quality Improvement Plans are accepted by the San Diego Water Board Executive Officer.

PROVISION C: ACTION LEVELS
C.1. Non-Storm Water Action Levels

Table C-3. Non-Storm Water Action Levels for Priority Pollutants

Parameter	Units	Freshwater (CTR)		Saltwater (CTR)	
		MDAL	AMAL	MDAL	AMAL
Cadmium	µg/L	**	**	16	8
Copper	µg/L	*	*	5.8	2.9
Chromium III	µg/L	**	**	-	-
Chromium VI	µg/L	16	8.1	83	41
Lead	µg/L	*	*	14	2.9
Nickel	µg/L	**	**	14	6.8
Silver	µg/L	*	*	2.2	1.1
Zinc	µg/L	*	*	95	47

Abbreviations/Acronyms:
CTR – California Toxic Rule
AMAL – average monthly action level
µg/L – micrograms per liter
MDAL – maximum daily action level

Notes:
* Action levels developed on a case-by-case basis (see below)
** Action levels developed on a case-by-case basis (see below), but calculated criteria are not to exceed Maximum Contaminant Levels (MCLs) under the California Code of Regulations, Title 22, Division 4, Chapter 15, Article 4, Section 64431

The Cadmium, Copper, Chromium (III), Lead, Nickel, Silver and Zinc NALs for MS4 discharges to freshwater receiving waters will be developed on a case-by-case basis based on site-specific water quality data (receiving water hardness). For these priority pollutants, refer to 40 CFR 131.38(b)(2).

(3) Non-Storm Water Discharges from MS4s to Inland Surface Waters

Table C-4. Non-Storm Water Action Levels for Discharges from MS4s to Inland Surface Waters

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Dissolved Oxygen	mg/L	Not less than 5.0 in WARM waters and not less than 6.0 in COLD waters			BP
Turbidity	NTU	-	20	See MDAL	BP
pH	Units	Within limit of 6.5 to 8.5 at all times			BP
Fecal Coliform	MPN/100 ml	200[1]	-	400[2]	BP
Enterococci	MPN/100 ml	33	-	61[3]	BP
Total Nitrogen	mg/L	-	1.0	See MDAL	BP
Total Phosphorus	mg/L	-	0.1	See MDAL	BP
MBAS	mg/L	-	0.5	See MDAL	BP
Iron	mg/L	-	0.3	See MDAL	BP
Manganese	mg/L	-	0.05	See MDAL	BP
Priority Pollutants	µg/L	See Table C-3			

Abbreviations/Acronyms:
AMAL – average monthly action level
BP – Basin Plan water quality objective
COLD – cold freshwater habitat beneficial use
NTU – Nephelometric Turbidity Units
mg/L – milligrams per liter
MDAL – maximum daily action level
WARM – warm freshwater habitat beneficial use
MBAS – Methylene Blue Active Substances
MPN/100 ml – most probable number per 100 milliliters
µg/L – micrograms per liter

Notes:
1. Based on a minimum of not less than five samples for any 30-day period.
2. The NAL is reached if more than 10 percent of total samples exceed 400 MPN per 100 ml during any 30 day period.
3. This value has been set to the Basin Plan water quality objective for freshwater "designated beach areas" and is not applicable to water bodies that are not designated with the water contact recreation (REC-1) beneficial use.

b. If not identified in Provision C.1.a, NALs must be identified, developed and incorporated in the Water Quality Improvement Plan for any pollutants or waste constituents that cause or contribute, or are threatening to cause or contribute to a condition of pollution or nuisance in receiving waters associated with the highest priority water quality conditions related to non-storm water discharges from the MS4s. NALs must be based on:

(1) Applicable water quality standards which may be dependent upon site-specific or receiving water-specific conditions or assumptions to be identified by the Copermittees; or

(2) Applicable numeric WQBELs required to meet the WLAs established for the TMDLs in Attachment E to this Order.

c. ~~For the NALs incorporated into the Water Quality Improvement Plan, the Copermittees may develop and incorporate secondary NALs specific to the Watershed Management Area at levels greater than the NALs required by Provisions C.1.a and C.1.b which can be utilized to further refine the prioritization and assessment of water quality improvement strategies for effectively prohibiting non-storm water discharges to the MS4s, as well as the detection and elimination of non-storm water and illicit discharges to and from the MS4. The~~

~~secondary NALs may be developed using an approach acceptable to the San Diego Water Board.~~

d. Dry weather monitoring data from MS4 outfalls collected in accordance with Provision D.2.b may be utilized to develop or revise NALs based on watershed-specific data, subject to San Diego Water Board Executive Officer approval.

2. Default Storm Water Action Levels[11]

The Copermittees must develop and incorporate numeric storm water action levels (SALs) in the Water Quality Improvement Plans to: 1) support the development and prioritization of water quality improvement strategies for reducing pollutants in storm water discharges from the MS4s, and 2) assess the effectiveness of the water quality improvement strategies toward reducing pollutants in storm water discharges, required pursuant to Provision D.4.b.(2).[12]

The following stormwater action levels (SALs) must be incorporated in the WQIPs if the Copermittees have not developed their own SALs for the identified high priority constituents using an approach approved by the Regional Board.

a. The following SALs for discharges of storm water from the MS4 must be incorporated:

Table C-5. Storm Water Action Levels for Discharges from MS4s to Receiving Waters

Parameter	Units	Action Level
Turbidity	NTU	126
Nitrate & Nitrite (Total)	mg/L	2.6
Phosphorus (Total P)	mg/L	1.46
Cadmium (Total Cd)*	µg/L	3.0
Copper (Total Cu)*	µg/L	127
Lead (Total Pb)*	µg/L	250
Zinc (Total Zn)*	µg/L	976

Abbreviations/Acronyms:
NTU – Nephelometric Turbidity Units
mg/L – milligrams per liter
µg/L – micrograms per liter

Notes:
* The sampling must include a measure of receiving water hardness at each MS4 outfall. If a total metal concentration exceeds the corresponding metals SAL in Table C-5, that concentration must be compared to the California Toxics Rule criteria and the USEPA 1-hour maximum concentration for the detected level of receiving water hardness associated with that sample. If it is determined that the sample's total metal concentration for that specific metal

[11] SALs incorporated into the Water Quality Improvement Plans are not considered by the San Diego Water Board to be enforceable effluent limitations, unless the SAL is based on a WQBEL expressed as an interim or final effluent limitation for a TMDL in Attachment E and the interim or final compliance date has passed.

[12] The Copermittees may utilize SALs or other benchmarks currently established by the Copermittees as interim SALs until the Water Quality Improvement Plans are accepted by the San Diego Water Board Executive Officer.

exceeds that SAL, but does not exceed the applicable USEPA 1-hour maximum concentration criterion for the measured level of hardness, then the sample result will not be considered above the SAL for that measurement.

b. If not identified in Provision C.2.a, SALs must be identified, developed and incorporated in the Water Quality Improvement Plan for pollutants or waste constituents that cause or contribute, or are threatening to cause or contribute to a condition of pollution or nuisance in receiving waters associated with the highest priority water quality conditions related to storm water discharges from the MS4s. SALs must be based on:

(1) Federal and State water quality guidance and/or water quality standards; and

(2) Site-specific or receiving water-specific conditions; or

(3) Applicable numeric WQBELs required to meet the WLAs established for the TMDLs in Attachment E to this Order.

c. ~~For the SALs incorporated into the Water Quality Improvement Plan, the Copermittees may develop and incorporate secondary SALs specific to the Watershed Management Area at levels greater than the SALs required by Provisions C.2.a and C.2.b which can be utilized to further refine the prioritization and assessment of water quality improvement strategies for reducing pollutants in storm water discharges from the MS4s. The secondary SALs may be developed based on the approaches recommended by the State Water Board's Storm Water Panel[13] or using an approach acceptable to the San Diego Water Board~~.

d. Wet weather monitoring data from MS4 outfalls collected in accordance with Provision D.2.c may be used to develop or revise SALs based upon watershed-specific data, subject to San Diego Water Board Executive Officer approval.

[13] ~~Storm Water Panel Recommendations to the California State Water Resources Control Board: The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 2006)~~

D. MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS

The purpose of this provision is for the Copermittees to monitor and assess the impact on the conditions of receiving waters caused by discharges from the Copermittees' MS4s under wet weather and dry weather conditions. The goal of the monitoring and assessment program is to inform the Copermittees about the nexus between the health of receiving waters and the water quality condition of the discharges from their MS4s. This goal will be accomplished through monitoring and assessing the conditions of the receiving waters, discharges from the MS4s, pollutant sources and/or stressors, and effectiveness of the water quality improvement strategies implemented as part of the Water Quality Improvement Plans.

1. Receiving Water Monitoring Requirements

The Copermittees must develop and conduct a program to monitor the condition of the receiving waters in each Watershed Management Area during dry weather and wet weather. Following San Diego Water Board acceptance of the Water Quality Improvement Plans for each Watershed Management Area, the Copermittees must conduct long-term receiving water monitoring during implementation of the Water Quality Improvement Plan to assess the long term trends and determine if conditions in receiving waters are improving. Any available monitoring data not collected specifically for this Order that meet the quality assurance criteria of the Copermittees and the monitoring requirements of this Order may be utilized by the Copermittees. The Copermittees must conduct the following receiving water monitoring procedures:

a. TRANSITIONAL RECEIVING WATER MONITORING

Until the monitoring requirements and schedules of Provisions D.1.b-e are incorporated into a Water Quality Improvement Plan that is accepted by the San Diego Water Board pursuant to Provision F.1.b, the Copermittees must conduct the following receiving water monitoring in the Watershed Management Area:

(1) Continue the receiving water monitoring programs required in Order Nos. R9-2007-0001 (Monitoring and Reporting Program No. R9-2007-0001 Sections II.A.1-A.5), R9-2009-0002, and R9-2010-0016;

(2) Continue the monitoring in the Hydromodification Management Plans approved by the San Diego Water Board;

(3) Participate in the following regional receiving water monitoring programs, as applicable to the Watershed Management Area:

(a) Storm Water Monitoring Coalition Regional Monitoring,

(b) Southern California Bight Regional Monitoring, and

(c) Sediment Quality Monitoring;

(4) Implement the monitoring programs developed as part of any implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) for the TMDLs in Attachment E to this Order; and

(5) For Watershed Management Areas with ASBS, implement the monitoring requirements of Attachment B to State Water Board Resolution No. 2012-0012, included in Attachment A to this Order.

b. LONG-TERM RECEIVING WATER MONITORING STATIONS

The Copermittees must select at least one long-term receiving water monitoring station from among the existing mass loading stations, temporary watershed assessment stations, bioassessment stations, and stream assessment stations previously established by the Copermittees to be representative of the receiving water quality in the Watershed Management Area. Additional long-term receiving water monitoring stations must be selected where necessary to support the implementation and adaptation of the Water Quality Improvement Plan.

c. DRY WEATHER RECEIVING WATER MONITORING

During the term of the Order, the Copermittees must perform monitoring during at least three dry weather monitoring events at each of the long-term receiving water monitoring stations. At least one monitoring event must be conducted during the dry season (May 1 – September 30) and at least one monitoring event must be conducted during a dry weather period during the wet season (October 1 – April 30), after the first wet weather event of the season, with an antecedent dry period of at least 72 hours following a storm event producing measureable rainfall of greater than 0.1 inch.

(1) Dry Weather Receiving Water Field Observations

For each dry weather monitoring event, the Copermittees must record field observations consistent with Table D-1 at each long-term receiving water monitoring station.

Table D-1 Field Observations for Receiving Water Monitoring Stations

Table D-1. Field Observations for Receiving Water Monitoring Stations

Field Observations
• Station identification and location • Presence of flow, or pooled or ponded water • If flow is present: - Flow estimation (i.e. width of water surface, approximate depth of water, approximate flow velocity, flow rate) - Flow characteristics (i.e. presence of floatables, surface scum, sheens, odor, color) • If pooled or ponded water is present: - Characteristics of pooled or ponded water (i.e. presence of floatables, surface scum, sheens, odor, color) • Station description (i.e. deposits or stains, vegetation condition, structural condition, and observable biology) • Presence and assessment of trash in and around station

(2) Dry Weather Receiving Water Field Monitoring

For each dry weather monitoring event, if conditions allow the collection of the data, the Copermittees must monitor and record the parameters in Table D-2 at each long-term receiving water monitoring station.

Table D-2 Field Monitoring Parameters for Receiving Water Monitoring Stations

Table D-2. Field Monitoring Parameters for Receiving Water Monitoring Stations

Parameters
• pH • Temperature • Specific conductivity • Dissolved oxygen • Turbidity

(3) Dry Weather Receiving Water Analytical Monitoring

For each dry weather monitoring event, the Copermittees must collect and analyze samples from each long-term receiving water monitoring station as follows:

(a) Analytes that are field measured are not required to be analyzed by a laboratory;

(b) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;

(c) Grab samples may be collected for pH, temperature, specific conductivity, dissolved oxygen, turbidity, hardness, and indicator bacteria;

(d) For all other constituents, composite samples must be collected for a duration adequate to be representative of changes in pollutant concentrations and runoff flows using one of the following techniques:

(i) Time-weighted composites composed of 24 discrete hourly samples, which may be collected through the use of automated equipment, or

(ii) Flow-weighted composites collected over a typical 24-hour period, which may be collected through the use of automated equipment;

(e) Only one analysis of the composite of aliquots is required;

(f) Analysis for the following constituents is required:

(i) Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,

(ii) Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List,

(iii) Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in Attachment E to this Order,

(iv) Applicable NAL constituents, and

(v) Constituents listed in Table D-3.

Table D-3 Analytical Monitoring Constituents for Receiving Water Monitoring Stations

Table D-3. Analytical Monitoring Constituents for Receiving Water Monitoring Stations

Conventionals, Nutrients	Metals (Total and Dissolved)	Pesticides	Indicator Bacteria
• Total Dissolved Solids • Total Suspended Solids • Turbidity • Total Hardness • Total Organic Carbon • Dissolved Organic Carbon • Sulfate • Methylene Blue Active Substances (MBAS) • Total Phosphorus • Orthophosphate • Nitrite[1] • Nitrate[1] • Total Kjeldhal Nitrogen • Ammonia	• Arsenic • Cadmium • Chromium • Copper • Iron • Lead • Mercury • Nickel • Selenium • Thallium • Zinc	• Organophosphate Pesticides • Pyrethroid Pesticides	• Total Coliform • Fecal Coliform[2] • *Enterococcus*

Notes:
1. Nitrite and nitrate may be combined and reported as nitrite+nitrate.
2. *E. Coli* may be substituted for ~~Fecal~~ Total Coliform at inland receiving water monitoring stations.

(4) Dry Weather Receiving Water Toxicity Monitoring

For each dry weather monitoring event, the Copermittees must collect grab or composite samples from each long-term receiving water monitoring station to be analyzed for aquatic toxicity in accordance with Table D-4. When the State Water Board's Policy for Toxicity Assessment and Control (Toxicity Policy) is approved and in effect, the San Diego Water Board Executive Officer may direct the Copermittees to replace current toxicity program elements with standardized procedures in the Toxicity Policy.

Table D-4 Dry Weather Toxicity Testing for Receiving Water Monitoring Stations

Table D-4. Dry Weather Chronic[1] Toxicity Testing for Receiving Water Monitoring Stations

Organism	Units	Test	USEPA Protocol
Freshwater			
Pimephales promelas (Fathead Minnow)	Pass / Fail	Larval Survival and Growth	EPA-821-R-02-013
Ceriodaphnia dubia (*Daphnid*)	Pass / Fail	Survival and Production	EPA-821-R-02-013
Selenastrum capricornutum (Green Algae)	Pass / Fail	Growth	EPA-821-R-02-013
Marine and Estuarine			
Strongylocentrotus purpuratus (Purple Sea Urchin)	Pass / Fail	Embryo-Larval Development	EPA-600-R-95-136

Notes:
1. Chronic toxicity testing is not required at receiving water monitoring stations located at mass loading stations if the channel flows are diverted year-round during dry weather conditions to the sanitary sewer for treatment.

(a) Freshwater Test Species and Methods: If samples are collected in receiving waters with salinity less than 1 ppt, the Copermittees must follow the methods for chronic toxicity tests as established in 40 CFR 136.3 using a single-concentration test design for routine monitoring, or a five-concentration test design for additional toxicity testing if the limitation is exceeded. The Copermittees must estimate the critical life stage chronic toxicity on undiluted samples in accordance with species and short term test methods in Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA-821-R-02-013; Table IA, 40 CFR 136). Additional test species may be used by the Copermittees if approved by the San Diego Water Board Executive Officer. The Copermittees must conduct:

(i) A static renewal toxicity test with the fathead minnow, *Pimephales promelas* (Larval Survival and Growth Test Method 1000.0);

(ii) A static renewal toxicity test with the daphnid, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.0); and

(iii) A static renewal toxicity test with the green alga, *Selenastrum capricornutum* (also named *Raphidocelis subcapitata*) (Growth Test Method 1003.0).

(b) Marine and Estuarine Test Species and Methods: If samples are collected in receiving waters with salinity greater or equal to 1 ppt, the Copermittees must follow the methods for chronic toxicity tests as established in 40 CFR 136.3 using a single-concentration test design for routine monitoring, or a five-concentration test design for additional toxicity testing if the limitation is exceeded. The Copermittees must conduct the following critical life state chronic toxicity tests on undiluted samples in accordance with species and short term test methods in Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms (EPA-600-R-95-136; 1995). Artificial sea salts must be used to increase sample salinity. The Copermittees must conduct a static non-renewal toxicity test with the purple sea urchin, *Strongylocentrotus purpuratus* (Embryo-larval Development Test Method). Additional species may be used by the Copermittees if approved by the San Diego Water Board Executive Officer.

(c) Holding Times: All toxicity tests must be conducted as soon as possible following sample collection. The 36-hour sample holding time for test initiation shall be targeted. However, no more than 72 hours shall elapse before the conclusion of sample collection and test initiation.

(d) Test Species Sensitivity Screening: To determine the most sensitive test species for freshwater, the Copermittees must screen 2 wet weather and 2 dry weather toxicity tests with a vertebrate, an invertebrate, and a plant species. After this screening period, subsequent monitoring must be conducted using the most sensitive test species. Alternatively, if a sensitive test species has already been determined, or if there is prior knowledge of potential toxicant(s) and a test species is sensitive to such toxicant(s), then monitoring must be conducted using only that test species. Sensitive test species determinations must also consider the most sensitive test species used for proximal receiving water monitoring. Rescreening must occur once each permit term.

(e) Chronic toxicity test biological endpoint data must be analyzed using the Test of Significant Toxicity t-test approach specified in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (USEPA, Office of Wastewater Management, Washington, D.C., EPA-833-R-10-003, 2010). For this monitoring program, the critical chronic instream waste concentration (IWC) is set at 100 percent receiving water (i.e. no dilution) for receiving water samples. A 100 percent receiving water and a control must be tested.

(f) Toxicity Identification Evaluation (TIE) / Toxicity Reduction Evaluation (TRE): If chronic toxicity is detected in receiving waters, the Copermittees must discuss the need for conducting a TIE/TRE in the assessments required under Provision D.4.a.(2), and develop a plan for implementing the TIE/TRE to be incorporated in the Water Quality Improvement Plan.

(5) Dry Weather Receiving Water Bioassessment Monitoring

Bioassessment monitoring for each long-term receiving water monitoring station is required at least once during the term of this Order. The Copermittees must conduct bioassessment monitoring during at least one dry weather monitoring event at each long-term receiving water monitoring station as follows:

(a) The following bioassessment samples and measurements must be collected:

(i) Macroinvertebrate samples must be collected in accordance with the "Reachwide Benthos (Multihabitat) Procedure" in the most current Surface Water Ambient Monitoring Program (SWAMP) Bioassessment Standard Operating Procedures (SOP), and amendments, as applicable;[14]

(ii) The "Full" suite of physical habitat characterization measurements must be collected in accordance with the most current SWAMP Bioassessment SOP, and as summarized in the SWAMP Stream Habitat Characterization Form – Full Version;[15] and

(iii) Freshwater algae samples must be collected in accordance with the SWAMP Standard Operating Procedures for Collecting Algae Samples.[16] Analysis of samples must include algal taxonomic composition (diatoms and soft algae) and algal biomass.

(b) The bioassessment samples, measurements, and appropriate water chemistry data must be used to calculate the following:

(i) An Index of Biological Integrity (IBI) for macroinvertebrates for each monitoring station where bioassessment monitoring was conducted, based on the most current calculation method;[17] and

[14] Ode, P.R.. 2007. Standard operating procedures for collecting macroinvertebrate samples and associated physical and chemical data for ambient bioassessments in California. California State Water Resources Control Board Surface Water Ambient Monitoring Program (SWAMP) Bioassessment SOP 001. http://www.swrcb.ca.gov/water_issues/programs/swamp/tools.shtml#monitoring

[15] Available at: http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/reports/fieldforms_fullversion052908.pdf

[16] Fetscher et al. 2009. Standard Operating Procedures for Collecting Stream Algae Samples and Associated Physical Habitat and Chemical Data for Ambient Bioassessments in California.

[17] The most current calculation method at the time the Order was adopted is outlined in "A Quantitative Tool for Assessing the Integrity of Southern California Coastal Streams" (Ode, et al. 2005. Environmental Management. Vol. 35, No. 1, pp. 1-13). If an updated or new calculation method is developed, either both (i.e. current and updated/new) methods must be used, or historical IBIs must be recalculated with the updated or new calculation method.

(ii) An IBI for algae for each monitoring station where bioassessment monitoring was conducted, when a calculation method is developed.[18]

(c) In lieu of the requirements of Provision D.1.c.(5)(a), the Copermittees may conduct the bioassessment monitoring in accordance with the "Triad" assessment approach[19] to calculate the IBIs required for Provision D.1.c.(5)(b). The Copermittees must conduct sampling, analysis, and reporting of specified in-stream biological and habitat data according to the protocols specified in the SCCWRP Technical Report No. 539, or subsequent protocols, if developed.

(6) Dry Weather Receiving Water Hydromodification Monitoring

In addition to the hydromodification monitoring conducted as part of the Copermittees' Hydromodification Management Plans, hydromodification monitoring for each long-term receiving water monitoring station is required at least once during the term of this Order. The Copermittees must collect the following hydromodification monitoring observations and measurements within an appropriate domain of analysis during at least one dry weather monitoring event for each long-term receiving water monitoring station:

(a) Channel conditions, including:

(i) Channel dimensions,

(ii) Hydrologic and geomorphic conditions, and

(iii) Presence and condition of vegetation and habitat;

(b) Location of discharge points;

(c) Habitat integrity;

(d) Photo documentation of existing erosion and habitat impacts, with location (i.e. latitude and longitude coordinates) where photos were taken;

(e) Measurement or estimate of dimensions of any existing channel bed or bank eroded areas, including length, width, and depth of any incisions; and

[18] When a calculation method is developed, IBIs must be calculated for all available and appropriate historical data.
[19] Stormwater Monitoring Coalition Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. Technical Report #419. August 2004.

(f) Known or suspected cause(s) of existing downstream erosion or habitat impact, including flow, soil, slope, and vegetation conditions, as well as upstream land uses and contributing new and existing development.

d. WET WEATHER RECEIVING WATER MONITORING

During the term of the Order, the Copermittees must perform monitoring during at least three wet weather monitoring events at each long-term receiving water monitoring station. At least one wet weather monitoring event must be conducted during the first wet weather event of the wet season (October 1 – April 30), and at least one wet weather monitoring event during a wet weather event that occurs after February 1.

(1) Wet Weather Receiving Water Field Observations

For each wet weather monitoring event, the following narrative descriptions and observations must be recorded at each long-term receiving water monitoring station:

(a) A narrative description of the station that includes the location, date and duration of the storm event(s) sampled, rainfall estimates of the storm event, and the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event;

(b) The flow rates and volumes measured or estimated (data from nearby USGS gauging stations may be utilized, or flow rates may be measured or estimated in accordance with the USEPA Storm Water Sampling Guidance Document (EPA-833-B-92-001), section 3.2.1, or other method proposed by the Copermittees that is acceptable to the San Diego Water Board);

(c) Station condition (i.e. deposits or stains, vegetation condition, structural condition, observable biology); and

(d) Presence and assessment of trash in and around station.

(2) Wet Weather Receiving Water Field Monitoring

For each wet weather monitoring event, the Copermittees must monitor and record the parameters in Table D-2 at each long-term receiving water monitoring station.

(3) Wet Weather Receiving Water Analytical Monitoring

For each wet weather monitoring event, the Copermittees must collect and analyze samples from each long-term receiving water monitoring station as follows:

(a) Analytes that are field measured are not required to be analyzed by a laboratory;

(b) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;

(c) Grab samples may be collected for pH, temperature, specific conductivity, dissolved oxygen, turbidity, hardness, and indicator bacteria;

(d) For all other constituents, composite samples must be collected for a duration adequate to be representative of changes in pollutant concentrations and runoff flows using one of the following techniques:

(i) Time-weighted composites composed of 24 discrete hourly samples, which may be collected through the use of automated equipment, or

(ii) Flow-weighted composites collected over the length of the storm event or a typical 24-hour period, which may be collected through the use of automated equipment;

(e) Only one analysis of the composite of aliquots is required;

(f) Analysis for the following constituents is required:

(i) Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,

(ii) Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List,

(iii) Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in Attachment E to this Order,

(iv) Applicable SAL constituents, and

(v) Constituents listed in Table D-3.

(4) Wet Weather Receiving Water Toxicity Monitoring

For each wet weather monitoring event, the Copermittees must collect grab or composite samples from each long-term receiving water monitoring station to be analyzed for chronic aquatic toxicity in accordance with Provisions D.1.c.(4)(a)-(f).

e. OTHER RECEIVING WATER MONITORING REQUIREMENTS

(1) Regional Monitoring

The Copermittees must participate in the following regional receiving waters monitoring programs, as applicable to the Watershed Management Area:

(a) Storm Water Monitoring Coalition Regional Monitoring; and

(b) Southern California Bight Regional Monitoring~~.~~ and

(c) Unified Beach Water Quality Monitoring and Assessment Program
The Orange County Copermittees shall participate in and, together with South Orange County Wastewater Authority and Orange County Health Care Agency, shall share responsibility for implementation of a unified regional beach water quality monitoring and assessment program in south Orange County, as set forth in Monitoring and Reporting Program No. XXX, issued pursuant to CWC sections 13225, 13267, and 13383 and subject to future revision.

(2) Sediment Quality Monitoring

The Copermittees must perform sediment monitoring to assess compliance with sediment quality receiving water limits applicable to MS4 discharges to enclosed bays and estuaries. The monitoring may be performed either by individual or multiple Copermittees to assess compliance with receiving water limits, or through participation in a water body monitoring coalition. A Sediment Monitoring Plan which satisfies the requirements of the State Water Board's Water Quality Control Plan for Enclosed Bays and Estuaries of California – Part 1 Sediment Quality (Sediment Control Plan) must be submitted as part of the monitoring and assessment program in the Water Quality Improvement Plan.

(a) The Sediment Monitoring Plan design must include the following:

(i) The elements required under Section VII.D (Receiving Water Limits Monitoring Frequency) and Section VII.E (Sediment Monitoring) of the Sediment Control Plan;

(ii) A Quality Assurance Project Plan (QAPP) describing the project objectives and organization, functional activities, and quality assurance/quality control protocols for the water and sediment monitoring; and

(iii) A schedule for completion of all sample collection and analysis activities and submission of Sediment Monitoring Reports.

(b) The Copermittees must implement the Sediment Monitoring Plan in accordance with the schedule contained in the Sediment Monitoring Plan, unless otherwise directed in writing by the San Diego Water Board Executive Officer.

(c) The Copermittees must incorporate a Sediment Monitoring Report as part of the Water Quality Improvement Plan Annual Report in accordance with the schedule contained in the Sediment Monitoring Plan, unless otherwise directed in writing by the San Diego Water Board Executive Officer. The Sediment Monitoring Report must contain the following information:

(i) Analysis: An evaluation, interpretation and tabulation of the water and sediment monitoring data, including interpretations and conclusions as to whether applicable Receiving Water Limitations in this Order have been attained at each sample station;

(ii) Sample Location Map: The locations, type, and number of samples must be identified and shown on a site map; and

(iii) California Environmental Data Exchange Network: A statement certifying that the monitoring data and results have been uploaded into the California Environmental Data Exchange Network (CEDEN).

(d) Based on the Sediment Monitoring Report conclusions the San Diego Water Board may require a human health risk assessment to determine if the human health objective contained in Receiving Water Limitations in Provision A.2.a.(3)(b)(ii) has been attained at each sample station. In conducting a risk assessment, the Copermittees must consider any applicable and relevant information, including California Environmental Protection Agency's (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA) policies for fish consumption and risk assessment, Cal/EPA's Department of Toxic Substances Control (DTSC) Risk Assessment, and USEPA Human Health Risk Assessment policies.

(3) ASBS Monitoring

For Watershed Management Areas with ASBS, the Copermittees must implement the monitoring requirements of Attachment B to State Water Board Resolution No. 2012-0012, included in Attachment A to this Order.

f. ALTERNATIVE WATERSHED MONITORING REQUIREMENTS

The San Diego Water Board may direct the Copermittees to participate in an effort to develop alternative watershed monitoring with other regulated entities, other interested parties, and the San Diego Water Board to refine, coordinate, and implement regional monitoring and assessment programs to determine the status and trends of water quality conditions in 1) coastal waters, 2) enclosed bays, harbors, estuaries, and lagoons, and 3) streams.

~~In lieu of the Receiving Water Monitoring Program requirements specified in 1.a to 1.d, the Copermittees may participate in the development and implementation of monitoring for the collaborative receiving waters monitoring program. It is expected that a regional monitoring will allow for a more effective and efficient receiving waters monitoring program. The regional monitoring plan must be submitted to the Executive Officer for review and approval. Documentation of participation and monitoring shall be included in the annual report.~~

2. MS4 Outfall Discharge Monitoring Requirements

The Copermittees must develop and conduct a program to monitor the discharges from the MS4 outfalls in each Watershed Management Area during dry weather and wet weather. Following San Diego Water Board acceptance of the Water Quality Improvement Plans for each Watershed Management Area, the Copermittees must conduct MS4 outfall discharge monitoring during implementation of the Water Quality Improvement Plan to assess the effectiveness of their jurisdictional runoff management programs toward effectively prohibiting non-storm water discharges into the MS4 and reducing pollutants in storm water discharges from their MS4s to the MEP. Any available monitoring data not collected specifically for this Order that meet the quality assurance criteria of the Copermittees and the monitoring requirements of this Order may be utilized by the Copermittees. The Copermittees must conduct the following MS4 outfall monitoring procedures:

a. TRANSITIONAL MS4 OUTFALL DISCHARGE MONITORING

Until the monitoring requirements and schedules of Provisions D.2.b-c are incorporated into a Water Quality Improvement Plan that is accepted by the San Diego Water Board pursuant to Provision F.1.b, the Copermittees must conduct the following MS4 outfall discharge monitoring in the Watershed Management Area:

(1) MS4 Outfall Discharge Monitoring Station Inventory

Each Copermittee must identify all major MS4 outfalls that discharge directly to receiving waters within its jurisdiction and geo-locate those outfalls on a map of the MS4 pursuant to Provision E.2.b.(1). This information must be compiled into a MS4 outfall discharge monitoring station inventory, and must include the following information:

(a) Latitude and longitude of MS4 outfall point of discharge;

(b) Watershed Management Area;

(c) Hydrologic subarea;

(d) Outlet size;

(e) Accessibility (i.e. safety and without disturbance of critical habitat);

(f) Approximate drainage area; and

(g) Classification of whether the MS4 outfall is known to have persistent dry weather flows, transient dry weather flows, no dry weather flows, or unknown dry weather flows.

(2) Transitional Dry Weather MS4 Outfall Discharge Field Screening Monitoring

Until the monitoring requirements and schedules of Provision D.2.b are incorporated into a Water Quality Improvement Plan that is accepted by the San Diego Water Board pursuant to Provision F.1.b, each Copermittee must perform dry weather MS4 outfall field screening monitoring to identify non-storm water and illicit discharges within its jurisdiction in accordance with Provision E.2.c, to determine which discharges are transient flows and which are persistent flows, and prioritize the dry weather MS4 discharges that will be investigated and eliminated in accordance with Provision E.2.d.

(a) Transitional Dry Weather MS4 Outfall Discharge Field Screening Monitoring Frequency

Each Copermittee must field screen the MS4 outfalls in its inventory developed pursuant to Provision D.2.a.(1) as follows:

(i) For Copermittees with less than 125 major MS4 outfalls that discharge to receiving waters within a Watershed Management Area, at least 80 percent of the outfalls must be visually inspected two times per year during dry weather conditions. For any Copermittee with portions of its jurisdiction in more than one Watershed Management Area and more than 500 major outfalls, see Provision D.2.a.(2)(a)(iv).

(ii) For Copermittees with 125 major MS4 outfalls or more, but less than or equal to 500 that discharge to receiving waters within a Watershed Management Area, all the outfalls must be visually inspected at least annually during dry weather conditions. For any Copermittee with portions of its jurisdiction in more than one Watershed Management Area and more than 500 major outfalls, see Provision D.2.a.(2)(a)(iv).

(iii) For Copermittees with more than 500 major MS4 outfalls that discharge to receiving waters within a Watershed Management Area, at least 500 outfalls must be visually inspected at least annually during dry weather conditions. For any Copermittee with portions of its jurisdiction in more than one Watershed Management Area and more than 500 major outfalls, see Provision D.2.a.(2)(a)(iv).

Copermittees with more than 500 major MS4 outfalls within a Watershed Management Area must identify and prioritize at least 500 outfalls to be inspected considering the following:

[a] Assessment of connectivity of the discharge to a flowing receiving water;
[b] Reported exceedances of NALs in water quality monitoring data;
[c] Surrounding land uses;
[d] Presence of constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List; and
[e] Flow rate.

(iv) For any Copermittee with portions of its jurisdiction in more than one Watershed Management Area and more than 500 major MS4 outfalls within its jurisdiction, at least 500 major MS4 outfalls within its inventory must be visually inspected at least annually during dry weather conditions. Copermittees with more than 500 major MS4 outfalls in more than one Watershed Management Area must identify and prioritize at least 500 outfalls to be inspected considering the following:

[a] Assessment of connectivity of the discharge to a flowing receiving water;
[b] Reported exceedances of NALs in water quality monitoring data;
[c] Surrounding land uses;
[d] Presence of constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List; and
[e] Flow rate.

(v) Inspections of major MS4 outfalls conducted in response to public reports and staff or contractor reports and notifications may count toward the required visual inspections of MS4 outfall discharge monitoring stations.

(b) Transitional Dry Weather MS4 Outfall Discharge Field Screening Visual Observations

(i) An antecedent dry period of at least 72 hours following any storm event producing measurable rainfall greater than 0.1 inch is required prior to conducting field screening visual observations during a field screening monitoring event.

(ii) During the field screening monitoring event, each Copermittee must record visual observations consistent with Table D-5 at each MS4 outfall discharge monitoring station inspected.

Table D-5 Field Screening Visual Observations for MS4 Outfall Discharge Monitoring Stations

Table D-5. Field Screening Visual Observations for MS4 Outfall Discharge Monitoring Stations

Field Observations
• Station identification and location • Presence of flow, or pooled or ponded water • If flow is present: - Flow estimation (i.e. width of water surface, approximate depth of water, approximate flow velocity, flow rate) - Flow characteristics (i.e. presence of floatables, surface scum, sheens, odor, color) - Flow source(s) suspected or identified from non-storm water source investigation - Flow source(s) eliminated during non-storm water source identification • If pooled or ponded water is present: - Characteristics of pooled or ponded water (i.e. presence of floatables, surface scum, sheens, odor, color) - Known or suspected source(s) of pooled or ponded water • Station description (i.e. deposits or stains, vegetation condition, structural condition, observable biology) • Presence and assessment of trash in and around station • Evidence or signs of illicit connections or illegal dumping

(iii) Each Copermittee must implement the requirements of Provisions E.2.d.(2)(c)-(e) based on the field observations required pursuant to Provision D.2.a.(2)(b)(ii).

(iv) Each Copermittee must evaluate field observations together with existing information available from prior reports, inspections and monitoring results to determine whether any observed flowing, pooled, or ponded waters are likely to be transient or persistent flow.[20]

(c) Transitional Dry Weather MS4 Outfall Discharge Field Screening Monitoring Records

Based upon the results of the transitional dry weather MS4 outfall discharge field screening monitoring conducted pursuant to Provisions D.2.a.(2)(a)-(b), each Copermittee must update its MS4 outfall discharge monitoring station inventory, compiled pursuant to Provision D.2.a.(1), with any new information on the classification of whether the MS4 outfall produces persistent flow, transient flow, or no dry weather flow.

(3) Transitional Wet Weather MS4 Outfall Discharge Monitoring

Until the monitoring requirements and schedules of Provision D.2.c are incorporated into a Water Quality Improvement Plan that is accepted by the

[20] Persistent flow is defined as the presence of flowing, pooled, or ponded water more than 72 hours after a measureable rainfall event of 0.1 inch or greater during three consecutive monitoring and/or inspection events. All other flowing, pooled, or ponded water is considered transient.

San Diego Water Board pursuant to Provision F.1.b, the Copermittees must conduct the following wet weather MS4 outfall discharge monitoring within the Watershed Management Area:

(a) Transitional Wet Weather MS4 Outfall Discharge Monitoring Stations

The Copermittees must select wet weather MS4 outfall discharge monitoring stations from the inventories developed pursuant to Provision D.2.a.(1) for each Watershed Management Area as follows:

(i) At least five wet weather MS4 outfall discharge monitoring stations that are representative of storm water discharges from areas consisting primarily of residential, commercial, industrial, and typical mixed-use land uses present within the Watershed Management Area;

(ii) At least one wet weather MS4 outfall discharge monitoring station for each Copermittee within the Watershed Management Area; and

(iii) The County of San Diego may select at least two (2) wet weather MS4 outfall discharge monitoring stations for the portion of the Santa Margarita River Watershed Management Area within its jurisdiction to be monitored during the transitional period until the Riverside County Copermittees are notified of coverage under this Order. After the Riverside County Copermittees are notified of coverage under this Order, the Copermittees in the Watershed Management Area must select wet weather MS4 outfall discharge monitoring stations consistent with the requirements above.

(b) Transitional Wet Weather MS4 Outfall Discharge Monitoring Frequency

Each wet weather MS4 outfall discharge monitoring station selected pursuant to Provision D.2.a.(3)(a) must be monitored once during the wet season (October 1 – April 30). The wet weather monitoring events must be selected to be representative of the range of hydrological conditions experienced in the region. At least 10 percent of samples must be conducted during the first wet weather event of the wet season, to include at least one such sample in each Watershed Management Area.

~~Transitional wet weather MS4 outfall discharge monitoring may begin in year 2 of the transitional period once the MS4 outfall discharge monitoring stations have been inventoried and evaluated pursuant to Provision D.2.a.(1).~~

(c) Transitional Wet Weather MS4 Outfall Discharge Field Observations

For each wet weather monitoring event, the following narrative

descriptions and observations must be recorded at each wet weather MS4 outfall discharge monitoring station:

(i) A narrative description of the station that includes the location, date and duration of the storm event(s) sampled, rainfall estimates of the storm event, and the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and

(ii) The flow rates and volumes measured or estimated from the MS4 outfall (data from nearby USGS gauging stations may be utilized, or flow rates may be measured or estimated in accordance with the USEPA Storm Water Sampling Guidance Document (EPA-833-B-92-001), section 3.2.1, or other method proposed by the Copermittees that is acceptable to the San Diego Water Board);

(d) Transitional Wet Weather MS4 Outfall Discharge Field Monitoring

For each wet weather monitoring event, the Copermittees must monitor and record the parameters in Table D-2 at each wet weather MS4 outfall discharge monitoring station.

(e) Transitional Wet Weather MS4 Outfall Discharge Analytical Monitoring

For each wet weather monitoring event, the Copermittees must collect and analyze samples from each wet weather MS4 outfall discharge monitoring station as follows:

(i) Analytes that are field measured are not required to be analyzed by a laboratory;

(ii) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;

(iii) Grab samples may be collected for pH, temperature, specific conductivity, dissolved oxygen, turbidity, and indicator bacteria;

(iv) For all other constituents, composite samples must be collected for a duration adequate to be representative of changes in pollutant concentrations and runoff flows using one of the following techniques:

[a] Time-weighted composites collected over the length of the storm event or the first 24 hour period whichever is shorter, composed of discrete samples, which may be collected through the use of automated equipment, or

[b] Flow-weighted composites collected over the length of the storm event or a typical 24 hour period, whichever is shorter, which may be collected through the use of automated equipment, or

[c] If automated compositing is not feasible, a composite sample may be collected using a minimum of 4 grab samples, collected during the first 24 hours of the storm water discharge, or for the entire storm water discharge if the storm event is less than 24 hours;

(v) Only one analysis of the composite of aliquots is required;

(vi) The samples must be analyzed for the following constituents:

[a] Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List with the exception of toxicity[21],

[b] Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in Attachment E to this Order, and

[c] Constituents listed in Table D-6.

Table D-6 Analytical Monitoring Constituents for Wet Weather MS4 Outfall Discharge Monitoring Stations

Table D-6. Analytical Monitoring Constituents for Wet Weather MS4 Outfall Discharge Monitoring Stations

Conventionals, Nutrients	Metals (Total and Dissolved)	Indicator Bacteria
• Total Dissolved Solids • Total Suspended Solids • Turbidity • Total Hardness • Total Organic Carbon • Dissolved Organic Carbon • Sulfate • Methylene Blue Active Substances (MBAS) • Total Phosphorus • Orthophosphate • Nitrite[1] • Nitrate[1] • Total Kjeldhal Nitrogen • Ammonia	• Arsenic • Cadmium • Chromium • Copper • Iron • Lead • Nickel • Selenium • Thallium • Zinc	• Total Coliform • Fecal Coliform[2] • *Enterococcus*

Notes:
1. Nitrite and nitrate may be combined and reported as nitrite+nitrate.
2. *E. Coli* may be substituted for Total Fecal Coliform for discharges to inland surface waters.

e] The Copermittee may be relieved of analytical monitoring requirements [a] to [c] if supporting information can be provided or

[21] Copermittees may provide an alternate approach to evaluate and identify the cause of toxicity currently affecting receiving waters and to iteratively adapt the monitoring program to address these chemical stressors in their MS4 outfall discharges in the monitoring plan which is subject to Regional Board approval.

has historical data that can demonstrate or provide justification that the analysis of the constituent is not necessary.

(f) Other Transitional Wet Weather MS4 Outfall Discharge Monitoring

The San Diego County Copermittees must continue the wet weather MS4 outfall monitoring program developed under Order No. R9-2007-0001, as approved by the San Diego Water Board, through its planned completion.

b. DRY WEATHER MS4 OUTFALL DISCHARGE MONITORING

Each Copermittee must perform dry weather MS4 outfall monitoring to identify non-storm water and illicit discharges within its jurisdiction pursuant to Provision E.2.c, and to prioritize the dry weather MS4 discharges that will be investigated and eliminated pursuant to Provision E.2.d. Each Copermittee must conduct the following dry weather MS4 outfall discharge monitoring within its jurisdiction:

(1) Dry Weather MS4 Outfall Discharge Field Screening Monitoring

Each Copermittee must continue to perform the dry weather MS4 outfall discharge field screening monitoring in accordance with the requirements of Provision D.2.a.(2). The Copermittee may adjust the field screening monitoring frequencies and locations for the MS4 outfalls in its inventory, as needed, to identify and eliminate sources of persistent flow non-storm water discharges in accordance with the highest priority water quality conditions identified in the Water Quality Improvement Plan, provided the number of visual inspections performed is equivalent to the number of visual inspections required under Provision D.2.a.(2)(a).

(2) Non-Storm Water Persistent Flow MS4 Outfall Discharge Monitoring

Each Copermittee must perform non-storm water persistent flow MS4 outfall discharge monitoring to determine which persistent non-storm water discharges contain concentrations of pollutants below NALs, and which persistent non-storm water discharges impact receiving water quality during dry weather. Each Copermittee must conduct the following non-storm water persistent flow MS4 outfall discharge monitoring within its jurisdiction:

(a) Prioritization of Non-Storm Water Persistent Flow MS4 Outfalls

Based upon the dry weather MS4 outfall discharge field screening monitoring records developed pursuant to Provision D.2.a.(2)(c), each Copermittee must identify and prioritize the MS4 outfalls with persistent flows based on the highest priority water quality conditions identified in the Water Quality Improvement Plan and any additional criteria developed by

the Copermittee, which may include historical data and data from sources other than what the Copermittee collects.

(b) Non-Storm Water Persistent Flow MS4 Outfall Discharge Monitoring Frequency

(i) Based on the prioritization of major MS4 outfalls developed under Provision D.2.b.(2)(a), each Copermittee must identify, at a minimum, the 5 highest priority major MS4 outfalls with non-storm water persistent flows that the Copermittee will monitor within its jurisdiction in each Watershed Management Area. For Responsible Copermittees identified by a TMDL in Attachment E to this Order, if the 5 chosen outfall locations are not sufficient to determine compliance with the TMDL(s), then each Responsible Copermittee must identify additional MS4 outfall monitoring locations within its jurisdiction sufficient to address compliance with the TMDL(s). If a Copermittee has less than 5 major outfalls within a Watershed Management Area, then the Copermittee must monitor all of its major MS4 outfalls with persistent flows within each Watershed Management Area. The location of the highest priority non-storm water persistent flow MS4 outfall monitoring stations must be identified on the map required pursuant to Provision E.2.b.(1). The map must specify which MS4 outfalls are being monitored for compliance with a TMDL.

(ii) Each of the highest priority non-storm water persistent flow MS4 outfall monitoring stations identified pursuant to Provision D.2.b.(2)(b)(i) must be monitored under dry weather conditions at least semi-annually until one of the following occurs:

[a] The non-storm water discharges have been effectively eliminated (i.e. no flowing, pooled, or ponded water) for three consecutive dry weather monitoring events; or

[b] The source(s) of the persistent flows has been identified as a category of non-storm water discharges that does not require an NPDES permit and does not have to be addressed as an illicit discharge because it was not identified as a source of pollutants (i.e. constituents in non-storm water discharge do not exceed NALs), and the persistent flow can be re-prioritized to a lower priority; or

[c] The constituents in the persistent flow non-storm water discharge do not exceed NALs, and the persistent flow can be re-prioritized to a lower priority; or

[d] The source(s) of the persistent flows has been identified as a non-storm water discharge authorized by a separate NPDES permit.

(iii) Where the criteria under Provision D.2.b.(2)(b)(ii) are not met, but the threat to water quality has been reduced by the Copermittee, the

highest priority persistent flow MS4 outfall monitoring stations may be reprioritized accordingly for continued dry weather MS4 outfall discharge field screening monitoring required pursuant to Provision D.2.b.(1).

(iv) Each Copermittee must document removal or re-prioritization of the highest priority persistent flow MS4 outfall monitoring stations identified under Provision D.2.b.(2)(a) in the Water Quality Improvement Plan Annual Report. Persistent flow MS4 outfall monitoring stations that have been removed must be replaced with the next highest prioritized major MS4 outfall in the Watershed Management Area within its jurisdiction, unless there are no remaining qualifying major MS4 outfalls within the Copermittee's jurisdiction in the Watershed Management Area.

(c) Non-Storm Water Persistent Flow MS4 Outfall Discharge Field Observations

During each semi-annual monitoring event, each Copermittee must record field observations consistent with Table D-5 at each of the highest priority persistent flow MS4 outfall monitoring stations within its jurisdiction.

(d) Non-Storm Water Persistent Flow MS4 Outfall Discharge Field Monitoring

During each semi-annual monitoring event, if conditions allow the collection of the data, each Copermittee must monitor and record the parameters in Table D-2 at each of the highest priority persistent flow MS4 outfall monitoring stations within its jurisdiction.

(e) Non-Storm Water Persistent Flow MS4 Outfall Discharge Analytical Monitoring

During each semi-annual monitoring event in which measurable flow is present, each Copermittee must collect and analyze samples from each of the highest priority persistent flow MS4 outfall monitoring stations within its jurisdiction as follows:

(i) Analytes that are field measured are not required to be analyzed by a laboratory;

(ii) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;

(iii) Collect grab or composite samples to be analyzed at a qualified laboratory for the following constituents:

[a] Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,

[b] Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List with the exception of toxicity[22],

[c] Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in Attachment E to this Order,

[d] Applicable NAL constituents, and

[e] Constituents listed in Table D-7. The Copermittees may adjust the list of constituents for the Watershed Management Area if historical data or supporting information can be provided that demonstrates or justifies the analysis of a constituent is not necessary.

[f] The Copermittee may be relieved of analytical monitoring requirements if supporting information can be provided or has historical data that can demonstrate or provide justification that the analysis of the constituent is not necessary.

[22] Copermittees may provide an alternate approach to evaluate and identify the cause of toxicity currently affecting receiving waters and to iteratively adapt the monitoring program to address these chemical stressors in their MS4 outfall discharges in the monitoring plan which is subject to Regional Board approval.

Table D-7 Analytical Monitoring Constituents for Persistent Flow MS4 Outfall Discharge Monitoring Stations

Table D-7. Analytical Monitoring Constituents for Persistent Flow MS4 Outfall Discharge Monitoring Stations

Conventionals, Nutrients	Metals (Total and Dissolved)	Indicator Bacteria
• Total Dissolved Solids • Total Suspended Solids • Total Hardness • Total Phosphorus • Orthophosphate • Nitrite[1] • Nitrate[1] • Total Kjeldhal Nitrogen • Ammonia	• Cadmium • Copper • Lead • Zinc	• Total Coliform • Fecal Coliform[2] • *Enterococcus*

Notes:
1. Nitrite and nitrate may be combined and reported as nitrite+nitrate.
2. *E. Coli* may be substituted for Total ~~Fecal~~ Coliform for discharges to inland surface waters.

(iv) If the Copermittee identifies and eliminates the source of the persistent flow non-storm water discharge, analysis of the sample is not required.

c. Wet Weather MS4 Outfall Discharge Monitoring

The Copermittees must perform wet weather MS4 outfall monitoring to identify pollutants in storm water discharges from the MS4s, to guide pollutant source identification efforts, and to determine compliance with the WQBELs associated with the applicable TMDLs in Attachment E to this Order. The Copermittees must conduct the following wet weather MS4 outfall discharge monitoring within the Watershed Management Area:

(1) Wet Weather MS4 Outfall Discharge Monitoring Stations

The Copermittees may adjust the wet weather MS4 outfall discharge monitoring locations in the Watershed Management Area, as needed, to identify pollutants in storm water discharges from MS4s, to guide pollutant source identification efforts, and to determine compliance with the WQBELs associated with the applicable TMDLs in Attachment E to this Order in accordance with the highest priority water quality conditions identified in the Water Quality Improvement Plan, provided the number of stations is at least equivalent to the number of stations required under Provision D.2.a.(3)(a). Additional outfall monitoring locations, above the minimum per jurisdiction, may be required to demonstrate compliance with the WQBELs associated with the applicable TMDLs in Attachment E.

(2) Wet Weather MS4 Outfall Discharge Monitoring Frequency

The Copermittees must monitor the wet weather MS4 outfall discharge monitoring stations in the Watershed Management Area at least once (1) per year. The Copermittees may need to increase the frequency of monitoring in order to identify pollutants in storm water discharges from the MS4s causing or contributing to the highest priority water quality conditions, to guide pollutant source identification efforts, or to determine compliance with the WQBELs associated with the applicable TMDLs in Attachment E to this Order.

(3) Wet Weather MS4 Outfall Discharge Field Observations

For each wet weather monitoring event, the following narrative descriptions and observations must be recorded at each wet weather MS4 outfall discharge monitoring station:

(a) A narrative description of the station that includes the location, date and duration of the storm event(s) sampled, rainfall estimates of the storm event, and the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and

(b) The flow rates and volumes measured or estimated (data from nearby USGS gauging stations may be utilized, or flow rates may be measured or estimated in accordance with the USEPA Storm Water Sampling Guidance Document (EPA-833-B-92-001), section 3.2.1, or other method proposed by the Copermittees that is acceptable to the San Diego Water Board);

(4) Wet Weather MS4 Outfall Discharge Field Monitoring

For each wet weather monitoring event, the Copermittees must monitor and record the parameters in Table D-2 at each wet weather MS4 outfall discharge monitoring station.

(5) Wet Weather MS4 Outfall Discharge Analytical Monitoring

For each wet weather monitoring event, the Copermittees must collect and analyze samples from each wet weather MS4 outfall discharge monitoring station as follows:

(a) Analytes that are field measured are not required to be analyzed by a laboratory;

(b) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate

the need for alternate methods;

(c) Grab samples may be collected for pH, temperature, specific conductivity, dissolved oxygen, turbidity, hardness, and indicator bacteria;

(d) For all other constituents, composite samples must be collected for a duration adequate to be representative of changes in pollutant concentrations and runoff flows using one of the following techniques:

(i) Time-weighted composites collected over the length of the storm event or the first 24 hour period, whichever is shorter , composed of discrete samples, which may be collected through the use of automated equipment, or

(ii) Flow-weighted composites collected over the length of the storm event or a typical 24 hour period, whichever is shorter, which may be collected through the use of automated equipment, or

(iii) If automated compositing is not feasible, a composite sample may be collected using a minimum of 4 grab samples, collected during the first 24 hours of the storm water discharge, or for the entire storm water discharge if the storm event is less than 24 hours.

(e) Only one analysis of the composite of aliquots is required;

(f) Analysis for the following constituents is required:

(i) Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,

(ii) Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List with the exception of toxicity[23],

(iii) Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in Attachment E to this Order,

(iv) Applicable SAL constituents, and

(v) The Copermittees may adjust the analytical monitoring required for the Watershed Management Area, if the Copermittees have historical data or supporting information that can demonstrate or provide justification that the analysis of a constituent is not necessary.

[23] Copermittees may provide an alternate approach to evaluate and identify the cause of toxicity currently affecting receiving waters and to iteratively adapt the monitoring program to address these chemical stressors in their MS4 outfall discharges in the monitoring plan which is subject to Regional Board approval.

3. Special Studies

a. Within the term of this Order, the Copermittees must initiate the following special studies:

(1) At least two special studies in each Watershed Management Area to address pollutant and/or stressor data gaps and/or develop information necessary to more effectively address the pollutants and/or stressors that cause or contribute to highest priority water quality conditions identified in the Water Quality Improvement Plan.

(2) At least one special study for the San Diego Region to address pollutant and/or stressor data gaps and/or develop information necessary to more effectively address the pollutants and/or stressors that are impacting receiving waters on a regional basis in the San Diego Region.

(3) One of the two special studies in each Watershed Management Area required pursuant to Provision D.3.a.(1) may be replaced by a special study implemented pursuant to Provision D.3.a.(2).

b. The special studies must, at a minimum, be in conformance with the following criteria:

(1) The special studies must be related to the highest priority water quality conditions identified by the Copermittees in the Watershed Management Area and/or for the entire San Diego Region;

(2) The special studies developed pursuant to Provision D.3.a.(1) must:

(a) Be implemented within the applicable Watershed Management Area, and

(b) Require some form of participation by all the Copermittees within the Watershed Management Area;

(3) The special studies developed pursuant to Provision D.3.a.(2) must:

(a) Be implemented within the San Diego Region, and

(b) Require some form of participation by all Copermittees covered under the requirements of this Order.

(4) The Copermittees are encouraged to partner with environmental groups or third parties knowledgeable of watershed conditions to complete the required special studies.

c. Special studies developed to identify sources of pollutants and/or stressors should be pollutant and/or stressor specific and based on historical monitoring

data and monitoring performed pursuant to Provisions D.1 and D.2. Development of source identification special studies should include the following:

(1) A compilation of known information on the specific pollutant and/or stressor, including data on potential sources and movement of the pollutant and/or stressor within the watershed. Data generated by the Copermittees and others, as well as information available from a literature research on the pollutant and/or stressor should be compiled and analyzed as appropriate.

(2) An identification of data gaps, based on the compiled information generated on the specific pollutant and/or stressor identified in Provision D.3.c.(1). Source identification special studies should be developed to fill identified data gaps.

(3) A monitoring plan that will collect and provide data the Copermittees can utilize to do the following:

(a) Quantify the relative loading or impact of a pollutant and/or stressor from a particular source or pollutant generating activity;

(b) Improve understanding of the fate of a pollutant and/or stressor in the environment;

(c) Develop an inventory of known and suspected sources of a pollutant and/or stressor in the Watershed Management Area; and/or

(d) Prioritize known and suspected sources of a pollutant and/or stressor based on relative magnitude in discharges, geographical distribution (i.e., regional or localized), frequency of occurrence in discharges, human health risk, and controllability.

d. Special studies initiated prior to the effective date of this Order that meet the requirements of Provision D.3.b and are implemented during the term of this Order as part of the Water Quality Improvement Plan may be utilized to fulfill the special study requirements of Provision D.3.a. Special studies completed before the effective date of this Order cannot be utilized to fulfill the special study requirements of Provision D.3.a.

e. The Copermittees must submit the monitoring plans for the special studies in the Water Quality Improvement Plans required pursuant to Provision F.1.

f. The Copermittees are encouraged to share the results of the special studies regionally among the Copermittees to provide information useful in improving and adapting the management of non-storm water and storm water runoff through the implementation of the Water Quality Improvement Plans.

4. Assessment Requirements

Each Copermittee must evaluate the data collected pursuant to Provisions D.1, D.2 and D.3, and information collected during the implementation of the jurisdictional runoff management programs required pursuant to Provision E, to assess the progress of the water quality improvement strategies in the Water Quality Improvement Plan toward achieving compliance with Provisions A.1.a, A.1.c and A.2.a. Assessments must be performed as described in the following provisions:

a. Receiving Waters Assessments

(1) The Copermittees must assess and report the conditions of the receiving waters in the Watershed Management Area as follows:

(a) Based on data collected pursuant to Provision D.1.a, the assessments under Provision D.4.a.(2) must be included in the Transitional Monitoring and Assessment Program Annual Reports required pursuant to Provision F.3.b.(2).

(b) Based on the data collected pursuant to Provisions D.1.a-e, the assessments required under Provision D.4.a.(2) must be included in the Report of Waste Discharge required pursuant to Provision F.5.b.

(2) The Copermittees must assess the status and trends of receiving water quality conditions in 1) coastal waters, 2) enclosed bays, harbors, estuaries, and lagoons, and 3) streams under dry weather and wet weather conditions. For each of the three types of receiving waters in each Watershed Management Area the Copermittees must:

(a) Determine whether or not the conditions of the receiving waters are meeting the numeric goals established pursuant to Provision B.3.a;

(b) Identify the most critical beneficial uses that must be protected to ensure overall health of the receiving water;

(c) Determine whether or not those critical beneficial uses are being protected;

(d) Identify short-term and/or long-term improvements or degradation of those critical beneficial uses;

(e) Determine whether or not the strategies established in the Water Quality Improvement Plan contribute towards progress in achieving the interim and final numeric goals of the Water Quality Improvement Plan; and

(f) Identify data gaps in the monitoring data necessary to assess Provisions D.4.a.(2)(a)-(e).

b. MS4 OUTFALL DISCHARGES ASSESSMENTS

(1) Non-Storm Water Discharges Reduction Assessments

(a) Each Copermittee must assess and report the progress of its illicit discharge detection and elimination program, required to be implemented pursuant to Provision E.2, toward effectively prohibiting non-storm water and illicit discharges into the MS4 within its jurisdiction as follows:

(i) Based on data collected pursuant to Provisions D.2.a.(2), the assessments under Provision D.4.b.(1)(b) must be included in the Transitional Monitoring and Assessment Program Annual Reports required pursuant to Provision F.3.b.(2).

(ii) Based on the data collected pursuant to Provisions D.2.b, the assessments required under Provision D.4.b.(1)(c) must be included in the Water Quality Improvement Plan Annual Reports required pursuant to Provision F.3.b.(3).

(iii) Based on the data collected pursuant to Provisions D.2.b, the assessment required under Provision D.4.b.(1)(c) must be included in the Report of Waste Discharge required pursuant to F.5.b.

(b) Based on the transitional dry weather MS4 outfall discharge field screening monitoring required pursuant to Provision D.2.a.(2), each Copermittee must assess and report the following:

(i) Identify the known and suspected controllable sources (e.g. facilities, areas, land uses, pollutant generating activities) of transient and persistent flows within the Copermittee's jurisdiction in the Watershed Management Area;

(ii) Identify sources of transient and persistent flows within the Copermittee's jurisdiction in the Watershed Management Area that have been reduced or eliminated; and

(iii) Identify modifications to the field screening monitoring locations and frequencies for the MS4 outfalls in its inventory necessary to identify and eliminate sources of persistent flow non-storm water discharges pursuant to Provision D.2.b.

(c) Based on the dry weather MS4 outfall discharge field screening monitoring required pursuant to Provision D.2.b.(1), each Copermittee must assess and report the following:

(i) The assessments required pursuant to Provision D.4.b.(1)(b);

(ii) Based on the data collected and applicable NALs in the Water Quality Improvement Plan, rank the MS4 outfalls in the Copermittee's jurisdiction according to potential threat to receiving water quality, and produce a prioritized list of major MS4 outfalls for follow-up action to update the Water Quality Improvement Plan, with the goal of eliminating persistent flow non-storm water discharges and/or pollutant loads in order of the ranked priority list through targeted programmatic actions and source investigations;

(iii) For the highest priority major MS4 outfalls with persistent flows that are in exceedance of NALs, identify the known and suspected sources within the Copermittee's jurisdiction in the Watershed Management Area that may cause or contribute to the NAL exceedances;

(iv) Each Copermittee must analyze the data collected pursuant to Provision D.2.b, and utilize a model or other method, to calculate or estimate the non-storm water volumes and pollutant loads collectively discharged from all the major MS4s outfalls in its jurisdiction identified as having persistent dry weather flows during the monitoring year. These calculations or estimates must be updated annually.

[a] Each Copermittee must calculate or estimate the annual non-storm water volumes and pollutant loads collectively discharged from the Copermittee's major MS4 outfalls to receiving waters within the Copermittee's jurisdiction, with an estimate of the percent contribution from each known source for each MS4 outfall;

[b] Each Copermittee must annually identify and quantify (i.e. volume and pollutant loads) sources of non-storm water not subject to the Copermittee's legal authority that are discharged from the Copermittee's major MS4 outfalls to downstream receiving waters.

(v) Each Copermittee must review the data collected pursuant to Provision D.2.b and findings from the assessments required pursuant to Provision D.4.b.(1)(c)(i)-(iv) at least once during the term of this Order to:

[a] Identify reductions and progress in achieving reductions in non-storm water and illicit discharges to the Copermittee's MS4 in the Watershed Management Area;

[b] Assess the effectiveness of water quality improvement strategies being implemented by the Copermittees within the Watershed Management Area toward reducing or eliminating non-storm water and pollutant loads discharging from the MS4 to receiving waters within its jurisdiction, with an estimate, if possible, of the non-storm water volume and/or pollutant load reductions

attributable to specific water quality strategies implemented by the Copermittee; and

[c] Identify modifications necessary to increase the effectiveness of the water quality improvement strategies implemented by the Copermittee in the Watershed Management Area toward reducing or eliminating non-storm water and pollutant loads discharging from the MS4 to receiving waters within its jurisdiction.

(vi) Identify data gaps in the monitoring data necessary to assess Provisions D.4.b.(1)(c)(i)-(v).

(2) Storm Water Pollutant Discharges Reduction Assessments

(a) The Copermittees must assess and report the progress of the water quality improvement strategies, required to be implemented pursuant to Provisions B and E, toward reducing pollutants in storm water discharges from the MS4s within the Watershed Management Area as follows:

(i) Based on data collected pursuant to Provisions D.2.a.(3), the assessments under Provision D.4.b.(2)(b) must be included in the Transitional Monitoring and Assessment Program Annual Reports required pursuant to Provision F.3.b.(2).

(ii) Based on the data collected pursuant to Provisions D.2.c, the assessments required under Provision D.4.b.(2)(c) must be included in the Water Quality Improvement Plan Annual Reports required pursuant to Provision F.3.b.(3).

(iii) Based on the data collected pursuant to Provisions D.2.c, the assessment required under Provisions D.4.b.(2)(c)-(d) must be included in the Report of Waste Discharge required pursuant to F.5.b.

(b) Based on the transitional wet weather MS4 outfall discharge monitoring required pursuant to Provision D.2.a.(3) the Copermittees must assess and report the following:

(i) The Copermittees must analyze the monitoring data collected pursuant to Provision D.2.a.(3), and utilize a watershed model or other method, to calculate or estimate the following for each monitoring year:

[a] The average storm water runoff coefficient for each land use type within the Watershed Management Area;

[b] The volume of storm water and pollutant loads discharged from ~~each of~~ the Copermittee's monitored MS4 outfalls in its jurisdiction to receiving waters within the Watershed Management Area for each storm event with measurable rainfall greater than 0.1 inch;

[c] The total flow volume and pollutant loadings discharged from the Copermittee's jurisdiction within the Watershed Management Area over the course of the wet season, extrapolated from the data produced from the monitored MS4 outfalls; and

[d] The percent contribution of storm water volumes and pollutant loads discharged from each land use type within each hydrologic subarea with a major MS4 outfall to receiving waters or within each major MS4 outfall to receiving waters in the Copermittee's jurisdiction within the Watershed Management Area for each storm event with measurable rainfall greater than 0.1 inch.

(ii) Identify modifications to the wet weather MS4 outfall discharge monitoring locations and/or frequencies necessary to identify pollutants in storm water discharges from the MS4s in the Watershed Management Area pursuant to Provision D.2.c.(1).

(c) Based on the wet weather MS4 outfall discharge monitoring required pursuant to Provision D.2.c the Copermittees must assess and report the following:

(i) The assessments required pursuant to Provision D.4.b.(2)(b);

(ii) Based on the data collected and applicable SALs in the Water Quality Improvement Plan, analyze and compare the monitoring data to the analyses and assumptions used to develop the Water Quality Improvement Plans, including strategies developed pursuant to Provision B.3, and evaluate whether those analyses and assumptions should be updated as a component of the adaptive management efforts pursuant to Provision B.5 for follow-up action to update the Water Quality Improvement Plan;

(iii) The Copermittees must review the data collected pursuant to Provision D.2.c and findings from the assessments required pursuant to Provisions D.4.b.(2)(c)(i)-(ii) at least once during the term of this Order to:

[a] Identify reductions or progress in achieving reductions in pollutant concentrations and/or pollutant loads from different land uses and/or drainage areas discharging from the Copermittees' MS4s in the Watershed Management Area;

[b] Assess the effectiveness of water quality improvement strategies being implemented by the Copermittees within the Watershed Management Area toward reducing pollutants in storm water discharges from the MS4s to receiving waters within the Watershed Management Area to the MEP, with an estimate, if possible, of the pollutant load reductions attributable to specific water quality strategies implemented by the Copermittees; and

[c] Identify modifications necessary to increase the effectiveness of the water quality improvement strategies implemented by the Copermittees in the Watershed Management Area toward reducing pollutants in storm water discharges from the MS4s to receiving waters in the Watershed Management Area to the MEP.

(iv) Identify data gaps in the monitoring data necessary to assess Provisions D.4.b.(2)(c)(i)-(iii).

(d) The Copermittees must evaluate all the data collected pursuant to Provision D.2.c, and incorporate new outfall monitoring data into time series plots for each long-term monitoring constituent for the Watershed Management Area, and perform statistical trends analysis on the cumulative long-term wet weather MS4 outfall discharge water quality data set.

c. Special Studies Assessments

The Copermittees must annually evaluate the results and findings from the special studies developed and implemented pursuant to Provision D.3, and assess their relevance to the Copermittees' efforts to characterize receiving water conditions, understand sources of pollutants and/or stressors, and control and reduce the discharges of pollutants from the MS4 outfalls to receiving waters in the Watershed Management Area. The Copermittees must report the results of the special studies assessments applicable to the Watershed Management Area, and identify any necessary modifications or updates to the Water Quality Improvement Plan based on the results in the Water Quality Improvement Plan Annual Reports required pursuant to Provision F.3.b.(3).

d. Integrated Assessment of Water Quality Improvement Plan

As part of the iterative approach and adaptive management process required for the Water Quality Improvement Plan pursuant to Provision B.5, the Copermittees in each Watershed Management Area must integrate the data collected pursuant to Provisions D.1-D.3, the findings from the assessments required pursuant to Provisions D.4.a-c, and information collected during the implementation of the jurisdictional runoff management programs required pursuant to Provision E to assess the effectiveness of, and identify necessary modifications to, the Water Quality Improvement Plan as follows:

(1) The Copermittees must re-evaluate the priority water quality conditions and numeric goals for the Watershed Management Area, as needed, during the term of this Order pursuant to Provision B.5.a. The re-evaluation and recommendations for modifications to the priority water quality conditions, and/or numeric goals and corresponding schedules may be provided in the Water Quality Improvement Plan Annual Reports required pursuant to

Provision F.3.b.(3), but must at least be provided in the Report of Waste Discharge pursuant to Provision F.5.b. The priority water quality conditions and numeric goals for the Watershed Management Area must be re-evaluated as follows:

(a) Re-evaluate the receiving water conditions in the Watershed Management Area in accordance with Provision B.2.a;

(b) Re-evaluate the impacts on receiving waters in the Watershed Management Area from MS4 discharges in accordance with Provision B.2.b;

(c) Re-evaluate the identification of MS4 sources of pollutants and/or stressors in accordance with Provision B.2.d;

(d) Identify beneficial uses of the receiving waters that are protected in accordance with Provision D.4.a;

(e) Evaluate the progress toward achieving the interim and final numeric goals for protecting impacted beneficial uses in the receiving waters.

(2) The Copermittees must re-evaluate the water quality improvement strategies for the Watershed Management Area during the term of this Order pursuant to Provision B.5.b. The re-evaluation and recommendations for modifications to the water quality improvement strategies and schedules may be provided in the Water Quality Improvement Plan Annual Reports required pursuant to Provision F.3.b.(3), but must at least be provided in the Report of Waste Discharge pursuant to Provision F.5.b. The water quality improvement strategies for the Watershed Management Area must be re-evaluated as follows:

(a) Identify the non-storm water and storm water pollutant loads from the Copermittees' MS4 outfalls in the Watershed Management Area, calculated or estimated pursuant to Provisions D.4.b;

(b) Identify the non-storm water and storm water pollutant load reductions, or other improvements to receiving water or water quality conditions, that are necessary to attain the interim and final numeric goals identified in the Water Quality Improvement Plan for protecting beneficial uses in the receiving waters;

(c) Identify the non-storm water and storm water pollutant load reductions, or other improvements to the quality of MS4 discharges, that are necessary for the Copermittees to demonstrate that non-storm water and storm water discharges from their MS4s are not causing or contributing to exceedances of receiving water limitations;

(d) Evaluate the progress of the water quality improvement strategies toward

achieving the interim and final numeric goals identified in the Water Quality Improvement Plan for protecting beneficial uses in the receiving waters.

(3) The Copermittees must re-evaluate and adapt the water quality monitoring and assessment program for the Watershed Management Area when new information becomes available to improve the monitoring and assessment program pursuant to Provision B.5.c. The re-evaluation and recommendations for modifications to the monitoring and assessment program may be provided in the Water Quality Improvement Plan Annual Reports required pursuant to Provision F.3.b.(3), but must at least be provided in the Report of Waste Discharge pursuant to Provision F.5.b. Modifications to the water quality monitoring and assessment program must be consistent with the requirements of Provision D.1-D.3. The re-evaluation of the water quality monitoring and assessment program for the Watershed Management Area must consider the data gaps identified by the assessments required pursuant to Provisions D.4.a-b, and results of the special studies implemented pursuant to Provision D.4.c.

5. Monitoring Provisions

Each Copermittee must comply with all the monitoring, reporting, and recordkeeping provisions of the Standard Permit Provisions and General Provisions contained in Attachment B to this Order.

E. JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS

The purpose of this provision is for each Copermittee to implement a program to control non-stormwater discharges ~~the contribution of pollutants~~ into and ~~the~~ discharges from the MS4 within its jurisdiction and to focus and prioritize those implementation actions based on the highest water quality priorities identified within the associated Water Quality Improvement Plan. ~~-~~The goal of the jurisdictional runoff management programs is to implement strategies and actions that effectively prohibit non-storm water discharges into the MS4 and reduce the discharge of pollutants in non-stormwater and storm water from the MS4 to the MEP. This goal will be accomplished through implementing the jurisdictional runoff management programs in accordance with the water quality priorities and strategies identified in the Water Quality Improvement Plans. Each Copermittee shall prioritize the implementation actions based on the highest water quality priorities identified within the applicable Water Quality Improvement Plan.

Each Copermittee must update its jurisdictional runoff management program document, in accordance with Provision F.2.a, to incorporate ~~all~~ the requirements of Provision E consistent with the highest water quality priorities as identified in the corresponding Water Quality Improvement Plan. The requirements outlined below may be modified and prioritized as appropriate for consistency with the Water Quality Improvement Plan. Until the Copermittee has updated its jurisdictional runoff management program document with the requirements of Provision E, the Copermittee must continue implementing its current jurisdictional runoff management program.

1. Legal Authority Establishment and Enforcement

a. Each Copermittee must establish, maintain, and enforce adequate legal authority within its jurisdiction to control pollutant discharges into and from its MS4 through statute, ordinance, permit, contract, order, or similar means. This legal authority must, at a minimum, authorize the Copermittee to:

(1) Effectively p~~P~~rohibit ~~and eliminate all~~ illicit discharges and illicit connections into its MS4;

(2) Control the contribution of pollutants in discharges of runoff associated with industrial and construction activity into its MS4 and control the quality of runoff from industrial and construction sites[24]~~, including industrial and construction sites which have coverage under the statewide General Permit for Discharges of Storm Water Associated with Industrial Activities (Industrial General Permit) or General Permit for Discharges of Storm Water Associated with Construction Activities (Construction General Permit), as well as to those sites which do not~~;

[24] The Compermittees are only responsible for administering and enforcing the codes and ordinances applicable to their jurisdictions (i.e., a municipality is not responsible for administering and/or enforcing a permit issued by the State of California).

(3) Control the discharge of spills, dumping, or disposal of materials other than storm water into its MS4;

(4) Control through interagency agreements among Copermittees the contribution of pollutants from one portion of the MS4 to another portion of the MS4;

(5) Control, by coordinating and cooperating with other owners of the MS4 such as Caltrans, the U.S. federal government, or sovereign Native American Tribes through interagency agreements, where possible, the contribution of pollutants from their portion of the MS4 to the portion of the MS4 within the Copermittee's jurisdiction;

(6) Require compliance with conditions in its statutes, ordinances, permits, contracts, orders, or similar means to hold dischargers to its MS4 accountable for their contributions of pollutants and flows;

(7) Require the use of BMPs to prevent or reduce the discharge of pollutants in storm water from its MS4 to the MEP;

~~(8) Require documentation on the effectiveness of BMPs implemented to prevent or reduce the discharge of pollutants in storm water from its MS4 to the MEP;~~

~~(9)~~(8) Utilize enforcement mechanisms to require compliance with its statutes, ordinances, permits, contracts, orders, or similar means; and

~~(10)~~(9) Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with its statutes, ordinances, permits, contracts, orders, or similar means and with the requirements of this Order, including the effective prohibition of illicit discharges and connections to its MS4. The Copermittees ordinance must include adequate legal authority, to the extent permitted by California and Federal Law and subject to the limitations on municipal action under the constitutions of California and the United States. T~~;~~ the Copermittee must also have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from industrial facilities, including construction sites, discharging into its MS4.

b. With the first Water Quality Improvement Plan Annual Report required pursuant to Provision F.3.b.(3), each Copermittee must submit a statement certified by its Principal Executive Officer, Ranking Elected Official, or Duly Authorized Representative that the Copermittee has taken the necessary steps to obtain and maintain full legal authority within its jurisdiction to implement and enforce each of the requirements contained in this Order.

2. Illicit Discharge Detection and Elimination

Each Copermittee must implement a program to actively detect and eliminate illicit discharges and improper disposal into the MS4, or otherwise require the discharger to apply for and obtain a separate NPDES permit. The illicit discharge detection and elimination program must be implemented in accordance with the strategies in the Water Quality Improvement Plan described pursuant to Provision B.3.b.(1). ~~and include, at a minimum, the following requirements:~~ The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).

a. Non-Storm Water Discharges

Each Copermittee must address ~~all~~ non-storm water discharges as illicit discharges, where the likelihood exists that they are a source of pollutants to the waters of the state, unless the~~a non-storm water~~ discharge is either identified as a discharge authorized by a separate NPDES permit, or identified as a category of non-storm water discharges ~~or flows~~ that must be addressed pursuant to the following requirements:

~~(1) Discharges of non-storm water to the MS4 from the following categories must be addressed as illicit discharges unless the discharge has coverage under NPDES Permit No. CAG919001 (Order No. R9-2007-0034, or subsequent order) for discharges to San Diego Bay, or NPDES Permit No. CAG919002 (Order No. R9-2008-0002, or subsequent order) for discharges to surface waters other than San Diego Bay:~~

~~(1) Uncontaminated pumped ground water;~~

~~(2) Discharges from foundation drains;~~[25]

~~(3) Water from crawl space pumps; and~~

~~(4) Water from footing drains.~~[25]~~19~~

~~(2)~~(1) Discharges of non-storm water from water line flushing and water main breaks to the MS4 must be addressed as illicit discharges unless the discharge has coverage under NPDES Permit No. CAG 679001 (Order No. R9-2010-0003 or subsequent order). This category includes water line flushing and water main break discharges from water purveyors issued a water supply permit by the California Department of Public Health or federal military installations. Discharges from recycled or reclaimed water lines to the

[25] ~~Provision E.2.a.(1) only applies to this category of non-storm water if the system is designed to be located at or below the groundwater table to actively or passively extract groundwater during any part of the year.~~

MS4 must be addressed as illicit discharges, unless the discharges have coverage under a separate NPDES permit.

~~(3)~~(2) Discharges of non-storm water into the MS4 from the following categories must be addressed by the Copermittee as illicit discharges only if the Copermittee or the San Diego Water Board identifies the discharge as a source of pollutants to receiving waters:

(a) Diverted stream flows;

(b) Rising ground waters;

(c) Uncontaminated ground water infiltration to MS4s;

(d) Uncontaminated pumped ground water;

~~(c)~~(e) Discharges from foundation drains;[26]

(f) Springs;

(g) Water from crawl space pumps;

~~(d)~~(h) Water from footing drains;[19]

~~(e)~~(i) Flows from riparian habitats and wetlands;

~~(f)~~(j) Discharges from potable water sources;

~~(g)~~(k) Discharges from foundation drains;[27] and

~~(h)~~(l) Discharges from footing drains.[20]

~~(4)~~(3) Discharges of non-storm water into the MS4 from the following categories must be controlled by the requirements given below through statute, ordinance, permit, contract, order, or similar means, where there is evidence that those discharges are a source of pollutants to waters of the state. Discharges of non-storm water into the MS4 from the following categories not controlled by the requirements given below through statute, ordinance, permit, contract, order, or similar means must be addressed by the Copermittee as illicit discharges.

[26] Provision E.2.a.(1) only applies to this category on non-storm water if the system is designed to be located at or below the highest historical groundwater table to actively or passively extract groundwater during any part of the year.

[27] Provision E.2.a.(3) only applies to this category of non-storm water discharge if the system is designed to be located above the groundwater table at all times of the year, and the system is only expected to discharge non-storm water under unusual circumstances.

(a) Air conditioning condensation

The discharge of air conditioning condensation should be directed to landscaped areas or other pervious surfaces, or to the sanitary sewer, where feasible.

(b) Individual residential vehicle washing

(i) The discharge of wash water should be directed to landscaped areas or other pervious surfaces where feasible; and

(ii) The minimization of water, washing detergent and other vehicle wash products used for residential vehicle washing, and the implementation of other practices or behaviors that will prevent the discharge of pollutants associated with individual residential vehicle washing from entering the MS4 must be encouraged.

(c) Dechlorinated swimming pool discharges

(i) Residual chlorine, algaecide, filter backwash, or other pollutants from swimming pools must be eliminated prior to discharging to the MS4; and

(ii) The discharge of saline swimming pool water must be directed to the sanitary sewer, landscaped areas, or other pervious surfaces that can accommodate the volume of water, unless the saline swimming pool water can be discharged via a pipe or concrete channel directly to a naturally saline water body (e.g. Pacific Ocean).

~~(5)~~(4) Firefighting discharges to the MS4 must continue be addressed by the Copermittees ~~as illicit discharges only if the Copermittee or the San Diego Water Board identifies the discharge as a significant source of pollutants to receiving waters. Firefighting discharges to the MS4 not identified as a significant source of pollutants to receiving waters, must be addressed, at a minimum,~~ as follows:

(a) Non-emergency firefighting discharges

(i) Building fire suppression system maintenance discharges (e.g. sprinkler line flushing) to the MS4 must be addressed as illicit discharges unless BMPs are implemented to prevent pollutants associated with such discharges to the MS4.

(ii) Non-emergency firefighting discharges (i.e., discharges from controlled or practice blazes, firefighting training, and maintenance activities not associated with building fire suppression systems) must be addressed by a program, to be developed and implemented by the Copermittee, in conjunction with the local Fire Authority/District, to reduce or eliminate pollutants in such discharges from entering the

MS4.

(b) Emergency firefighting discharges (i.e., flows necessary for the protection of life or property) do not require BMPs and need not be prohibited.

~~Each Copermittee should develop and encourage implementation of BMPs to reduce or eliminate pollutants in emergency firefighting discharges to the MS4s and receiving waters within its jurisdiction. During emergency situations, priority of efforts should be directed toward life, property, and the environment (in descending order). BMPs should not interfere with immediate emergency response operations or impact public health and safety.~~

~~(6)~~(5) If the Copermittee or San Diego Water Board identifies any category of non-storm water discharges listed under Provisions E.2.a.(1)-(4) as a source of pollutants to receiving waters, the category must be prohibited through ordinance, order, or similar means and addressed as an illicit discharge. Alternatively, the Copermittee may propose controls to be implemented for the category of non-storm water discharges as part of the Water Quality Improvement Plan instead of prohibiting the category of non-storm water discharges, and implement the controls if accepted by the San Diego Water Board as part of the Water Quality Improvement Plan.

(7) ~~Each Copermittee must, where feasible and priorities and resources allow, reduce or eliminate non-storm water discharges listed under Provisions E.2.a.(1)-(4) into its MS4, unless a non-storm water discharge is identified as a discharge authorized by a separate NPDES permit.~~

b. PREVENT AND DETECT ILLICIT DISCHARGES AND CONNECTIONS

Each Copermittee must include the following measures within its program to prevent and detect illicit discharges to the MS4:

(1) Each Copermittee must maintain an updated map of its entire MS4 and the corresponding drainage areas. The accuracy of the MS4 map must be confirmed during the field screening required pursuant to Provision E.2.c. The MS4 map must be included as part of the jurisdictional runoff management program document. Any geographic information system (GIS) layers or files used by the Copermittee to maintain the MS4 map must be made available to the San Diego Water Board upon request. The MS4 map must identify the following:

(a) All segments of the MS4 owned, operated, and maintained by the Copermittee;

(b) All known locations of inlets that discharge and/or collect runoff into the Copermittee's MS4;

(c) All known locations of connections with other MS4s not owned or operated by the Copermittee (e.g. Caltrans MS4s);

(d) All known locations of MS4 outfalls and private outfalls that discharge runoff collected from areas within the Copermittee's jurisdiction;

(e) All segments of receiving waters within the Copermittee's jurisdiction that receive and convey runoff discharged from the Copermittee's MS4 outfalls;

(f) Locations of the MS4 outfalls, identified pursuant to Provision D.2.a.(1), within its jurisdiction; and

(g) Locations of the non-storm water persistent flow MS4 outfall discharge monitoring stations, identified pursuant to Provision D.2.b.(2), within its jurisdiction.

(2) Each Copermittee must use Copermittee personnel and contractors to assist in identifying and reporting illicit discharges and connections during their daily employment activities.

(3) Each Copermittee must promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality impacts associated with discharges into or from the MS4, including the following methods for public reporting:

(a) Operate a public hotline, which can be Copermittee-specific or shared by the Copermittees, and must be capable of receiving reports in both English and Spanish 24 hours per day and seven days per week; and

(b) Designate an e-mail address for receiving electronic reports from the public, which can be Copermittee-specific or shared by the Copermittees, and must be prominently displayed on the Copermittee's webpage and the Regional Clearinghouse required pursuant to Provision F.4.

(4) Each Copermittee must implement practices and procedures (including a notification mechanism) to prevent, respond to, contain, and clean up any spills that may discharge into the MS4 within its jurisdiction from any source. The Copermittee must coordinate, to the extent possible, with spill response teams to prevent entry of spills into the MS4, and prevent contamination of surface water, ground water, and soil. The Copermittee must coordinate spill prevention, containment, and response activities throughout all appropriate Copermittee departments, programs, and agencies.

(5) Each Copermittee must implement practices and procedures to prevent and limit infiltration of seepage from sanitary sewers (including private laterals and failing septic systems) to the MS4.

(6) Each Copermittee must coordinate, when necessary, with upstream Copermittees and/or entities to prevent illicit discharges from upstream sources into the MS4 within its jurisdiction.

c. FIELD SCREENING

Each Copermittee must conduct field screening (i.e. visual observations, field testing, and/or analytical testing) of MS4 outfalls and other portions of its MS4 within its jurisdiction to detect ~~non-storm water and~~ illicit discharges and connections to the MS4 in accordance with the dry weather MS4 outfall discharge monitoring requirements in Provisions D.2.a.(2) and D.2.b.(1).

d. INVESTIGATE AND ELIMINATE ILLICIT DISCHARGES AND CONNECTIONS

Each Copermittee must include the following measures within its program to investigate and eliminate illicit discharges to the MS4:

(1) Each Copermittee must prioritize and determine when follow-up investigations will be performed in response to visual observations and/or water quality monitoring data collected during an investigation of a detected ~~non-storm water or~~ illicit discharge into or from the MS4. The criteria for prioritizing investigations must consider the following:

(a) Pollutants identified as causing or contributing to the highest water quality priorities identified in the Water Quality Improvement Plan;

(b) Pollutants identified as causing or contributing, or threatening to cause or contribute to impairments in water bodies on the 303(d) List and/or in environmentally sensitive areas (ESAs), located within its jurisdiction;

(c) Pollutants identified from sources or land uses known to exist within the area, drainage basin, or watershed that discharges to the portion of the MS4 within its jurisdiction included in the investigation;

(d) Pollutants identified as causing or contributing to an exceedance of a NAL ~~in the Water Quality Improvement Plan~~described in Provision C.1; and

(e) Pollutants identified as an immediate and significant threat to human health or the environment.

(2) Each Copermittee must implement procedures to investigate and inspect portions of its MS4 that, based on reports or notifications, field screening, or other appropriate information, indicate a reasonable potential of receiving, containing, or discharging pollutants due to illicit discharges or~~,~~ illicit connections~~, or other sources of non-storm water~~. The procedures must

include the following:

(a) Each Copermittee must develop criteria to:

(i) Assess the validity of each report or notification received; and

(ii) Prioritize the response to each report or notification received.

(b) Each Copermittee must prioritize and respond to each valid report or notification (e.g., public reports, staff or contractor reports and notifications, etc.) of an incident in a timely manner.

(c) In accordance with the requirements of Provision E.2.d.(1), each Copermittee must investigate and seek to identify the source(s) of ~~discharges of non-storm water where flows are~~illicit discharges or illicit connections observed ~~in and from the MS4~~ during the field screening required pursuant to Provision D.2.b.(1) as follows:

(i) Obvious illicit discharges must be immediately investigated to identify the source(s) ~~of non-storm water discharges~~;

(ii) The investigation must include field investigations to identify sources or potential sources for the discharge, unless the source or potential source has already been identified during previous investigations; and

(iii) The investigation may include follow-up field investigations and/or reviewing Copermittee inventories and other land use data to identify potential sources of the discharge.

(d) Each Copermittee must maintain records and a database of the following information:

(i) Location of incident, including hydrologic subarea, portion of MS4 receiving the ~~non-storm water or~~ illicit discharge or connection, and point of discharge or potential discharge from MS4 to receiving water;

(ii) Source of information initiating the investigation (e.g., public reports, staff or contractor reports and notifications, field screening, etc.);

(iii) Date the information used to initiate the investigation was received;

(iv) Date the investigation was initiated;

(v) Dates of follow-up investigations;

(vi) Identified or suspected source of the illicit discharge or connection, if determined;

(vii) Known or suspected related incidents, if any;

(viii) Result of the investigation; and

(ix) If a source cannot be identified and the investigation is not continued, document the response pursuant to the requirements of Provision E.2.d.(4).

(e) Each Copermittee must maintain records and, in accordance with the priorities of the Water Quality Improvement Plan, seek to identify the source(s) of ~~non-storm water discharges from the MS4 where there is evidence of non-storm water having been discharged into or from the MS4 (e.g., pooled water~~the illicit discharge or connections~~),~~ in accordance with MS4 outfall discharge monitoring requirements in Provisions D.2.a.(2) and D.2.b.(1).

(3) Each Copermittee must initiate the implementation of procedures, in a timely manner, to eliminate all detected and identified illicit discharges and connections within its jurisdiction. The procedures must include the following responses:

(a) Each Copermittee must enforce its legal authority, as required under Provision E.1, to eliminate illicit discharges and connections to the MS4.

(b) If the Copermittee identifies the source as a controllable source ~~of non-storm water or illicit discharge or connection~~, the Copermittee must implement its Enforcement Response Plan pursuant to Provision E.6 and enforce its legal authority to prohibit and eliminate illicit discharges and connections to its MS4.

(c) If the Copermittee identifies the source of the discharge as a category of non-storm water discharges in Provision E.2.a, and the discharge is in exceedance of the NALs ~~in the Water Quality Improvement Plan~~, then the Copermittee must determine if: (1) this is an isolated incident or set of circumstances that will be addressed through its Enforcement Response Plan pursuant to Provision E.6, or (2) the category of discharge must be addressed through the prohibition of that category of discharge as an illicit discharge pursuant to Provision E.2.a.(6).

(d) If the Copermittee suspects the source illicit discharge or connection ~~of the non-storm water discharge~~ as natural in origin (i.e. non-anthropogenically influenced) and in conveyance into the MS4, then the Copermittee must document and provide the data and evidence necessary to demonstrate to the San Diego Water Board that it is natural in origin and does not require further investigation.

(e) If the Copermittee is unable to identify and document the source of a recurring ~~non-storm water discharge to or from the MS4~~illicit discharge or connection, then the Copermittee must ~~address the discharge as an illicit discharge and~~ update its jurisdictional runoff management program to address the common and suspected sources of the ~~non-storm water~~

discharge within its jurisdiction in accordance with the Copermittee's priorities.

(4) Each Copermittee must submit a summary of the ~~non-storm water discharges and~~ illicit discharges and connections investigated and eliminated within its jurisdiction with each Water Quality Improvement Plan Annual Report required under Provision F.3.b.(3) of this Order.

3. Development Planning

Each Copermittee must use their land use and planning authorities to implement a development planning program in accordance with the strategies in the Water Quality Improvement Plan described pursuant to Provision B.3.b.(1). The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality Improvement Plan(s). ~~and includes, at a minimum, the following requirements~~:

a. BMP Requirements for All Development Projects

Each Copermittee must prescribe the following BMP requirements during the planning process (i.e. prior to project approval and issuance of local permits) for all development projects (regardless of project type or size), where local permits are issued, including unpaved roads and flood management projects:

(3) General Requirements

(a) Onsite BMPs must be located so as to remove pollutants from runoff prior to its discharge to any receiving waters, and as close to the source as possible;

(b) Structural BMPs must not be constructed within waters of the U.S.

(c) Onsite BMPs must be designed and implemented with measures to avoid the creation of nuisance or pollution associated with vectors (e.g. mosquitos, rodents, or flies).

(4) Source Control BMP Requirements

The following source control BMPs must be implemented at all development projects where applicable and feasible:

(a) Prevention of illicit discharges into the MS4;

(b) Storm drain system stenciling or signage;

(c) Protect outdoor material storage areas from rainfall, run-on, runoff, and

wind dispersal;

(d) Protect materials stored in outdoor work areas from rainfall, run-on, runoff, and wind dispersal;

(e) Protect trash storage areas from rainfall, run-on, runoff, and wind dispersal; and

(f) Any additional BMPs determined to be necessary by the Copermittee to minimize pollutant generation at each project.

(5) Low Impact Development (LID) BMP Requirements

The following LID BMPs must be implemented at all development projects where applicable and feasible:

(a) Maintenance or restoration of natural storage reservoirs and drainage corridors (including topographic depressions, areas of permeable soils, natural swales, and ephemeral and intermittent streams);[28]

(b) Buffer zones for natural water bodies (where buffer zones are technically infeasible, require project applicant to include other buffers such as trees, access restrictions, etc.);

(c) Conservation of natural areas within the project footprint including existing trees, other vegetation, and soils;

(d) Construction of streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided public safety is not compromised;

(e) Minimization of the impervious footprint of the project;

(f) Minimization of soil compaction to landscaped areas;

(g) Disconnection of impervious surfaces through distributed pervious areas;

[28] Development projects proposing to dredge or fill materials in waters of the U.S. must obtain a CWA Section 401 Water Quality Certification. Projects proposing to dredge or fill waters of the state must obtain waste discharge requirements.

(h) Landscaped or other pervious areas designed and constructed to effectively receive and infiltrate, retain and/or treat runoff from impervious areas, prior to discharging to the MS4;

(i) Small collection strategies located at, or as close as possible to, the source (i.e. the point where storm water initially meets the ground) to minimize the transport of runoff and pollutants to the MS4 and receiving waters;

(j) Use of permeable materials for projects with low traffic areas and appropriate soil conditions;

(k) Landscaping with native or drought tolerant species; and

(l) Harvesting and using precipitation.

b. PRIORITY DEVELOPMENT PROJECTS

Priority Development Projects are land development projects that fall under the planning and building authority of the Copermittee for which the Copermittee must impose specific requirements, in addition to those described in Provision E.3.a, including the implementation of structural BMPs to meet the performance requirements described in Provision E.3.c.

(1) Definition of Priority Development Project

Priority Development Projects include the following:

(a) New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.

(b) Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.

(c) New and redevelopment projects that create 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses:

(i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812).

(ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater.

(iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce.

(iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.

(d) New or redevelopment projects that create or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands).

(e) New development projects that support one or more of the following uses:

(i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539.

(ii) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.

(f) New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction.

(2) Special Considerations for Redevelopment Projects

The structural BMP performance requirements of Provision E.3.c are applicable to redevelopment Priority Development Projects, as defined in E.3.b.(1), as follows:

(a) Where redevelopment results in the creation or replacement of impervious surface in an amount of less than fifty percent of the surface area of the previously existing development, then the structural BMP performance requirements of Provision E.3.c apply only to the creation or replacement of impervious surface, and not the entire development; or

(b) Where redevelopment results in the creation or replacement of impervious surface in an amount of more than fifty percent of the surface area of the previously existing development, and was not subject to previous Priority Project Development requirements, then the structural BMP performance requirements of Provision E.3.c apply to the entire development.

(3) Priority Development Project Exemptions

Each Copermittee has the discretion to exempt the following projects from being defined as Priority Development Projects:

(a) New or retrofit paved sidewalks, bicycle lanes, or trails that meet the following criteria:

(i) Designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas; OR

(ii) Designed and constructed to be hydraulically disconnected from paved streets or roads; OR

(iii) Designed and constructed with permeable pavements or surfaces in accordance with USEPA Green Streets guidance.[29]

(b) Retrofitting or redevelopment of existing paved alleys, streets or roads that are designed and constructed in accordance with the USEPA Green Streets guidance.[30]

(c) Flood control and stream restoration projects.

(d) Emergency public safety projects in any of the Priority Development Categories may be excluded if the delay caused due to the requirement for a SSMP compromises public safety, public health and/or environmental protection.

c. Priority Development Project Structural BMP Performance Requirements

In addition to the BMP requirements listed for all development projects under Provision E.3.a, Priority Development Projects must also implement structural BMPs that conform to performance requirements described below. If watershed-specific performance requirements are developed as part of a Water Quality Improvement Plan; these requirements would take precedence over the performance requirements below. The watershed-specific requirement must provide at least equal protection as the performance requirements below.

[29] See "Managing Wet Weather with Green Infrastructure – Municipal Handbook: Green Streets" (USEPA, 2008).
[30] Ibid.

(1) Storm Water Pollutant Control BMP Requirements

Each Copermittee must require each Priority Development Project to implement onsite structural BMPs to control pollutants in storm water that may be discharged from a project as follows:

(a) Each Priority Development Project must be required to implement LID BMPs that are designed to retain (i.e. intercept, store, infiltrate, evaporate, and evapotranspire) onsite, or offsite if the offsite BMP receives discharges from the PDP prior to discharge to the receiving water, the pollutants contained in the volume of storm water runoff produced from a 24-hour 85th percentile storm event (design capture volume);[31]

(i) If a Copermittee determines that implementing BMPs to retain the full design capture volume onsite, or offsite if the offsite BMP receives discharges from the PDP prior to discharge to the receiving water, for a Priority Development Project is not technically feasible, then the Copermittee may allow the Priority Development Project to utilize biofiltration BMPs. Biofiltration BMPs must be designed to have an appropriate hydraulic loading rate to maximize storm water retention and pollutant removal, as well as to prevent erosion, scour, and channeling within the BMP,[32] and must be sized to:

[a] Treat 1.5 times the design capture volume not reliably retained onsite, OR

[b] Treat the design capture volume not reliably retained onsite with a flow-thru design that has a total volume, including pore spaces and pre-filter detention volume, sized to hold at least 0.75 times the portion of the design capture volume not reliably retained onsite.

(ii) If a Copermittee determines that biofiltration is not technically feasible, then the Copermittee may allow the Priority Development Project to utilize flow-thru treatment control BMPs to treat runoff leaving the site, AND mitigate for the design capture volume not reliably retained onsite pursuant to Provision E.3.c.(1)(b). Flow thru treatment control BMPs must be sized and designed to:

[31] This volume is not a single volume to be applied to all areas covered by this Order. The size of the 85th percentile storm event is different for various parts of the San Diego Region. The Copermittees are encouraged to calculate the 85th percentile storm event for each of its jurisdictions using local rain data pertinent to its particular jurisdiction. In addition, isopluvial maps may be used to extrapolate rainfall data to areas where insufficient data exists in order to determine the volume of the local 85th percentile storm event in such areas. Where the Copermittees will use isopluvial maps to determine the 85th percentile storm event in areas lacking rain data, the Copermittees must describe their method for using isopluvial maps in its BMP Design Manuals.

[32] As part of the Copermittee's update to its BMP Design Manual, pursuant to Provision E.3.d, the Copermittee must provide guidance for hydraulic loading rates and other biofiltration design criteria necessary to maximize storm water retention and pollutant removal.

[a] Remove pollutants from storm water to the MEP;

[b] Filter or treat either: 1) the maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour, for each hour of a storm event, or 2) the maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity (for each hour of a storm event), as determined from the local historical rainfall record, multiplied by a factor of two;

[c] Be ranked with high or medium pollutant removal efficiency for the Priority Development Project's most significant pollutants of concern. Flow-thru treatment control BMPs with a low removal efficiency ranking must only be approved by a Copermittee when a feasibility analysis has been conducted which exhibits that implementation of flow-thru treatment control BMPs with high or medium removal efficiency rankings are infeasible for a Priority Development Project or portion of a Priority Development Project.

(b) A Priority Development Project may be allowed to utilize alternative compliance under Provision E.3.c.(3) in lieu of complying with the storm water pollutant control BMP performance requirements of Provision E.3.c.(1)(a). The Priority Development Project must mitigate for the portion of the pollutant load in the design capture volume not retained onsite if Provision E.3.c.(3) is utilized. ~~If a Priority Development Project is allowed to utilize alternative compliance, flow-thru treatment control BMPs must be implemented to treat the portion of the design capture volume that is not reliably retained onsite. Flow-thru treatment control BMPs must be sized and designed in accordance with Provisions E.3.c.(1)(a)(ii)[a]-[c].~~

(2) On-site Hydromodification Management Structural BMP Requirements

Each Copermittee must require each Priority Development Project to implement onsite BMPs to manage hydromodification to ensure that ~~may be caused by~~ storm water runoff discharged from a project ~~as follows~~does not cause adverse hydromodification impacts in the downstream receiving waters.~~:~~

The Copermittees in each Watershed Management Area may establish, as part of the WQIP, watershed specific requirements that will apply to priority development projects based on the susceptibility of the receiving waters to hydromodification impacts and historic receiving water changes from development. If watershed specific requirements are developed they will supersede requirements in the HMP. The watershed specific requirements must include the following:

(a) Post-project runoff conditions (flow rates and durations) must not exceed the performance standard to be determined as a part of the development of the WQIPs for each watershed Management Area ~~pre-development~~

~~runoff conditions~~ by more than 10 percent (for the range of flows that result in increased potential for erosion, or degraded instream habitat downstream of Priority Development Projects).

(i) In evaluating the range of flows that results in increased potential for erosion of natural (non-hardened) channels, the lower boundary must correspond with the critical channel flow that produces the critical shear stress that initiates channel bed movement or that erodes the toe of channel banks.

(ii) The Copermittees may use monitoring results collected pursuant to Provision D.1.a.(2) to re-define the range of flows resulting in increased potential for erosion, or degraded instream habitat conditions, as warranted by the data.

(b) Each Priority Development Project must avoid critical sediment yield areas known to the Copermittee or identified by the optional Watershed Management Area Analysis pursuant to Provision B.3.b.(4), or implement measures that allow critical coarse sediment to be discharged to receiving waters, such that there is no net impact to the receiving water.

(c) A Priority Development Project may be allowed to utilize alternative compliance under Provision E.3.c.(3) in lieu of complying with the performance requirements of Provision E.3.c.(2)(a). The Priority Development Project must mitigate for the post-project runoff conditions not fully managed onsite if Provision E.3.c.(3) is utilized.

(d) Exemptions

Each Copermittee has the discretion to exempt a Priority Development Project from the hydromodification management BMP performance requirements of Provisions E.3.c.(2) where the project discharges storm water runoff to:

(i) Existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean;

(ii) Conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean; or

(iii) An area identified by the Copermittees as appropriate for an exemption by the optional Watershed Management Area Analysis incorporated into the Water Quality Improvement Plan pursuant to Provision B.3.b.(4).

(e) Interim Timeframe Exemptions

Until the Copermittees have updated their BMP Design Manual and received Regional Board approval in accordance with Provision F.2.b with the requirements of Provision E, the Copermittees have the discretion to exempt a Priority Development Project from the hydromodification management BMP performance requirements of Provision E.3.c.(2) where the project discharges storm water runoff directly to:

(i) An engineered channel conveyance system with a capacity to convey peak flows generated by the 10-year storm event all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean; and

(ii) Large river reaches with a drainage area larger than 100 square miles and a 100-year flow capacity in excess of 20,000 cubic feet per second, provided that properly sized energy dissipation is included at all Priority Development Project discharge points.

(3) Alternative Compliance Program to Onsite Structural BMP Implementation

At the discretion of each Copermittee, Priority Development Projects may be allowed to participate in an alternative compliance program in lieu of implementing the onsite structural BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2)(a), provided that the Water Quality Improvement Plan includes the optional Watershed Management Area Analysis described in Provision B.3.b.(4). The alternative compliance

program is available to a Priority Development Project only if the Priority Development Project applicant enters into a voluntary agreement with the Copermittee authorizing this arrangement. In addition to the voluntary agreement, relief from implementing structural BMPs onsite may be authorized by the Copermittee under the following conditions:

(a) Watershed Management Area Analysis Candidate Projects

The Priority Development Project applicant agrees to fund, contribute funds to, or implement a candidate project identified by the Copermittees in the Watershed Management Area Analysis included in the Water Quality Improvement Plan, pursuant to Provisions B.3.b.(4) subject to the following conditions:

(i) The Copermittee must determine that implementation of the candidate project will have a greater overall water quality benefit for the Watershed Management Area than fully complying with the performance requirements of Provisions E.3.c.(1) and E.3.c.(2)(a) onsite;

(ii) If the Priority Development Project applicant chooses to fully or partially fund a candidate project, then the in-lieu fee structure described in Provision E.3.c.(3)(c) must be followed;

(iii) If the Priority Development Project applicant chooses to fully or partially fund a candidate project, then the Copermittee must ensure that the funds to be obtained from the Priority Development Project applicant are sufficient to mitigate for impacts caused by not fully implementing structural BMPs onsite, pursuant to the performance requirements described in Provisions E.3.c.(1) and E.3.c.(2)(a);

(iv) If the Priority Development Project applicant chooses to implement a candidate project, then the Copermittee must ensure that pollutant control and/or hydromodification management within the candidate project are sufficient to mitigate for impacts caused by not implementing structural BMPs fully onsite, pursuant to the performance requirements described in Provisions E.3.c.(1) and E.3.c.(2)(a);

(v) The voluntary agreement to fund, partially fund, or implement a candidate project must include reliable sources of funding for operation and maintenance of the candidate project;

(vi) Design of the candidate project must be conducted under an appropriately qualified engineer, geologist, architect, landscape architect, or other professional, licenses where applicable, and competent and proficient in the fields pertinent to the candidate project design;

(vii) The candidate project must be constructed as soon as possible, but no later than 4 years after the certificate of occupancy is granted for

the first Priority Development Project that contributed funds toward the construction of the candidate project, unless a longer period of time is authorized by the San Diego Water Board Executive Officer; and

(viii) If the candidate project is constructed after the Priority Development Project is constructed, the Copermittee must require temporal mitigation for pollutant loads and altered flows that are discharged from the Priority Development Project.

(b) Project Applicant Proposed Alternative Compliance Projects

The Copermittee may allow a Priority Development Project applicant to propose and fund, contribute funds to, or implement an alternative compliance project not identified by the Watershed Management Area Analysis included in the Water Quality Improvement Plan pursuant to Provisions B.3.b.(4). This option is allowed provided the Copermittee determines that implementation of the alternative compliance project will have a greater overall water quality benefit for the Watershed Management Area than fully complying with the performance requirements of Provisions E.3.c.(1) and E.3.c.(2)(a) onsite, and is subject to the requirements described in Provisions E.3.c.(3)(a)(ii)-(viii).

(c) Alternative Compliance In-Lieu Fee Structure

If a Copermittee chooses to allow a Priority Development Project applicant to fund, or partially fund a candidate project or an alternative compliance project, then the Copermittee must develop and implement an in-lieu fee structure. This may be developed individually or with other Copermittees and/or entities, as a means for designing, developing, constructing, operating and maintaining offsite alternative compliance projects. The in-lieu fee must be transferred to the Copermittee (for public projects) or an escrow account (for private projects) prior to the construction of the Priority Development Project.

(d) Alternative Compliance Water Quality Credit System Option

The Copermittee may develop and implement an alternative compliance water quality credit system option, individually or with other Copermittees and/or entities. ~~, provided that such a credit system clearly exhibits that it will not allow discharges from Priority Development Projects to cause or contribute to a net impact over and above the impact caused by projects meeting the onsite structural BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2)(a)~~. Any credit system that a Copermittee chooses to implement must be submitted to the San Diego Water Board Executive Officer for review and acceptance as part of the Water Quality Improvement Plan.

(4) Long-Term Structural BMP Maintenance

Each Copermittee must require the project applicant to submit proof of the mechanism under which ongoing long-term maintenance of all structural BMPs will be conducted.

(5) Infiltration and Groundwater Protection

(a) Structural BMPs designed to primarily function as large, centralized infiltration devices (such as large infiltration trenches and infiltration basins) must not cause or contribute to an exceedance of an applicable groundwater quality objective. At a minimum, such infiltration BMPs must be in conformance with the design criteria listed below, unless the development project applicant demonstrates to the Copermittee that one or more of the specific design criteria listed below are not necessary to protect groundwater quality. The design criteria listed below do not apply to small infiltration systems dispersed throughout a development project.

(i) Runoff must undergo pretreatment such as sedimentation or filtration prior to infiltration;

(ii) Pollution prevention and source control BMPs must be implemented at a level appropriate to protect groundwater quality at sites where infiltration BMPs are to be used;

(iii) Infiltration BMPs must be adequately maintained to remove pollutants in storm water to the MEP;

(iv) The vertical distance from the base of any infiltration BMP to the seasonal high groundwater mark must be at least 10 feet. Where groundwater basins do not support beneficial uses, this vertical distance criteria may be reduced, provided groundwater quality is maintained;

(v) The soil through which infiltration is to occur must have physical and chemical characteristics (e.g., appropriate cation exchange capacity, organic content, clay content, and infiltration rate) which are adequate for proper infiltration durations and treatment of runoff for the protection of groundwater beneficial uses;

(vi) Infiltration BMPs must not be used for areas of industrial or light industrial activity, and other high threat to water quality land uses and activities as designated by each Copermittee, unless source control BMPs to prevent exposure of high threat activities are implemented, or runoff from such activities is first treated or filtered to remove pollutants prior to infiltration; and

(vii) Infiltration BMPs must be located a minimum of 100 feet horizontally from any water supply wells.

(b) The Copermittee may develop, individually or with other Copermittees, alternative mandatory design criteria to that listed above for infiltration BMPs which are designed to primarily function as centralized infiltration devices. Before implementing the alternative design criteria in the development planning process the Copermitee(s) must:

(i) Notify the San Diego Water Board of the intent to implement the alternative design criteria submitted; and

(ii) Comply with any conditions set by the San Diego Water Board.

d. BMP DESIGN MANUAL UPDATE

Each Copermittee must update its BMP Design Manual[33] pursuant to Provision F.2.b. Until the Copermittee has updated its BMP Design Manual with the requirements of Provisions E.3.a-c, the Copermittee must continue implementing its current BMP Design Manual. Unless directed otherwise by the San Diego Water Board, the Copermittee must implement the BMP Design Manual within 180 days of completing the update. The update of the BMP Design Manual must include the following:

(1) Updated procedures to determine the nature and extent of storm water requirements applicable to a potential development or redevelopment projects. These procedures must inform project applicants of the storm water management requirements applicable to their project including, but not limited to, general requirements for all development projects, structural BMP design procedures and requirements, hydromodification management requirements, requirements specific to phased projects, and procedures specific to private developments and public improvement projects;

(2) Updated procedures to identify pollutants and conditions of concern for selecting the most appropriate structural BMPs that consider, at a minimum, the following:

(a) Receiving water quality (including pollutants for which receiving waters are listed as impaired under the CWA section 303(d) List);

(b) Pollutants, stressors, and/or receiving water conditions that cause or contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan;

(c) Land use type of the project and pollutants associated with that land use type; and

[33] The BMP Design Manual was formerly known as the Standard Storm Water Mitigation Plan under Order Nos. R9-2007-0001, R9-2009-0002, and R9-2010-0016.

(d) Pollutants expected to be present onsite.

(3) Updated procedures for designing structural BMPs, including any updated performance requirements to be consistent with the requirements of Provision E.3.c for all structural BMPs listed in the BMP Design Manual;

(4) Long-term maintenance criteria for each structural BMP listed in the BMP Design Manual; and

(5) Alternative compliance criteria, in accordance with the requirements under Provision E.3.c.(3), if the Copermittee elects to allow Priority Development Projects within its jurisdiction to utilize alternative compliance.

e. PRIORITY DEVELOPMENT PROJECT BMP IMPLEMENTATION AND OVERSIGHT

Each Copermittee must implement a program that requires and confirms structural BMPs on all Priority Development Projects are designed, constructed, and maintained to remove pollutants in storm water to the MEP.

(1) Structural BMP Approval and Verification Process

(a) Each Copermittee must require and confirm that for all Priority Development Project applications that have not received prior lawful approval by the Copermittee by the time the BMP Design Manual is implemented~~updated~~ pursuant to Provision E.3.d, the requirements of Provision E.3 are implemented. For project applications that have received prior lawful approval before the BMP Design Manual is implemented~~updated~~ pursuant to Provision E.3.d, the Copermittee may allow previous land development requirements to apply.

(b) Each Copermittee must identify the roles and responsibilities of its various municipal departments in implementing the structural BMP requirements, including each stage of a project from application review and approval through BMP maintenance and inspections.

(c) Each Copermittee must require and confirm that appropriate easements and ownerships are properly recorded in public records and the information is conveyed to all appropriate parties when there is a change in project or site ownership.

(d) Each Copermittee must require and confirm that prior to occupancy and/or intended use of any portion of the Priority Development Project, each structural BMP is inspected to verify that it has been constructed and is operating in compliance with all of its specifications, plans, permits, ordinances, and the requirements of this Order.

(2) Priority Development Project Inventory and Prioritization

(a) Each Copermittee must develop, maintain, and update at least annually, a watershed-based database to track and inventory all Priority Development Projects and associated structural BMPs within its jurisdiction. Inventories must be accurate and complete beginning from December 2002 for the San Diego County Copermittees, February 2003 for the Orange County Copermittees, and July 2005 for the Riverside County Copermittees. The use of an automated database system, such as GIS, is highly recommended. The database must include, at a minimum, the following information:

(i) Priority Development Project location (address and hydrologic subarea);

(ii) Descriptions of structural BMP type(s);

(iii) Date(s) of construction;

(iv) Party responsible for structural BMP maintenance;

(v) Dates and findings of structural BMP maintenance verifications; and

(vi) Corrective actions and/or resolutions, when applicable.

(b) Each Copermittee must prioritize the Priority Development Projects with structural BMPs within its jurisdiction. The designation of Priority Development Projects as high priority must consider the following:

(i) The highest water quality priorities identified in the Water Quality Improvement Plan;

(ii) Receiving water quality;

(iii) Number and sizes of structural BMPs;

(iv) Recommended maintenance frequency of structural BMPs;

(v) Likelihood of operation and maintenance issues of structural BMPs;

(vi) Land use and expected pollutants generated; and

(vii) Compliance record.

(3) Structural BMP Maintenance Verifications and Inspections

Each Copermittee is required to verify that structural BMPs on each Priority Development Project are adequately maintained, and continue to operate effectively to remove pollutants in storm water to the MEP through inspections, self-certifications, surveys, or other equally effective approaches.

(a) All (100 percent) of the structural BMPs at Priority Development Projects that are designated as high priority must be inspected directly by the

Copermittee annually prior to each rainy season;

(b) For verifications performed through a means other than direct Copermittee inspection, adequate documentation must be required by the Copermittee to provide assurance that the required maintenance of structural BMPs at each Priority Development Project has been completed; and

(c) Appropriate follow-up measures (including re-inspections, enforcement, etc.) must be conducted to ensure that structural BMPs at each Priority Development Project continue to reduce pollutants in storm water to the MEP as originally designed.

f. DEVELOPMENT PROJECT ENFORCEMENT

Each Copermittee must enforce its legal authority established pursuant to Provision E.1 for all development projects, as necessary, to achieve compliance with the requirements of this Order, in accordance with its Enforcement Response Plan pursuant to Provision E.6.

4. Construction Management

Each Copermittee must implement a construction management program in accordance with the strategies in the Water Quality Improvement Plan described pursuant to Provision B.3.b.(1). ~~and includes, at a minimum, the following requirements:~~ The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).

a. PROJECT APPROVAL PROCESS

Prior to issuance of any local permit(s) that allows the commencement of construction projects that involve ground disturbance or soil disturbing activities that can potentially generate pollutants in storm water runoff, each Copermittee must:

(1) Require a pollution control plan, construction BMP plan, and/or an erosion and sediment control plan, to be submitted by the project applicant to the Copermittee;

(2) Confirm the pollution control plan, construction BMP plan, and/or erosion and sediment control plan, complies with the local grading ordinance, other applicable local ordinances, and the requirements of this Order;

(3) Confirm the pollution control, construction BMP, and/or erosion and sediment control plan, includes seasonally appropriate and effective BMPs and management measures described in Provision E.4.c, as applicable to the

project; and

(4) Verify that the project applicant has obtained coverage under the statewide Construction General Permit (Order ~~2012-0006~~2009-0009-DWQ or subsequent Order), if applicable.

b. CONSTRUCTION SITE INVENTORY AND TRACKING

(1) Each Copermittee must maintain and update, at least quarterly, a watershed-based inventory of all construction projects issued a local permit that allows ground disturbance or soil disturbing activities that can potentially generate pollutants in storm water runoff. The use of an automated database system, such as GIS, is highly recommended. The inventory must include:

(a) Relevant contact information for each site (e.g., name, address, phone, and email for the owner and contractor);

(b) The basic site information including location (address and hydrologic subarea), Waste Discharge Identification (WDID) number (if applicable), size of the site, and approximate area of disturbance;

(c) Whether or not the site is considered a high threat to water quality, as defined in Provision E.4.b.(2) below;

(d) The project start and completion dates;

(e) The required inspection frequency, as defined in the Copermittee's jurisdictional runoff management program document;

(f) The date the Copermittee accepted or approved the pollution control plan, construction BMP plan, and/or erosion and sediment control plan; and

(g) Whether or not there are ongoing enforcement actions administered to the site.

(2) Each Copermittee must identify all construction sites within its jurisdiction that represent a high threat to downstream surface water quality. The designation of construction sites as high threat to water quality must consider the following:

(a) Sites located within a hydrologic subarea where sediment is known or suspected to contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan;

(b) Sites located within the same hydrologic subarea and tributary to a water body segment listed as impaired for sediment on the CWA section 303(d) List;

(c) Sites located within, directly adjacent to, or discharging directly to a receiving water within an ESA; and

(d) Other sites determined by the Copermittees or the San Diego Water Board as a high threat to water quality.

c. CONSTRUCTION SITE BMP IMPLEMENTATION

Each Copermittee must implement, or require the implementation of effective BMPs to reduce discharges of pollutants in storm water from construction sites to the MEP, and effectively prohibit non-storm water discharges from construction sites into the MS4. These BMPs must be site specific, seasonally appropriate, and construction phase appropriate. BMPs must be implemented at each construction site year round. Dry season BMP implementation must plan for and address unseasonal rain events that may occur during the dry season (May 1 through September 30). Copermittees must implement, or require the implementation of, BMPs in the following categories:

(1) Project Planning;

(2) Good Site Management "Housekeeping", including waste management;

(3) Non-storm Water Management;

(4) Erosion Control;

(5) Sediment Control;

(6) Run-on and Run-off Control; and

(7) Active/Passive Sediment Treatment Systems, where applicable.

d. CONSTRUCTION SITE INSPECTIONS

Each Copermittee must conduct construction site inspections to require and confirm compliance with its local permits and applicable local ordinances, and the requirements of this Order. Priority for site inspections must consider threat to water quality pursuant to Provision E.4.b as well as the nature of the construction activity, topography, and the characteristics of soils and receiving water quality.

(1) Inspection Frequency

(a) Each Copermittee must conduct inspections at all inventoried sites, including high threat to water quality sites, at an appropriate frequency for each phase of construction to confirm the site reduces the discharge of pollutants in storm water from construction sites to the MEP, and

effectively prohibits non-storm water discharges from entering the MS4.

(b) Each Copermittee must establish appropriate inspection frequencies for high threat to water quality sites, and all other sites, for each phase of construction. Inspection frequencies appropriate for addressing the highest water quality priorities identified in the Water Quality Improvement Plan, and for complying with the requirements of this Order must be identified in each Copermittee's jurisdictional runoff management program document.

(c) Based upon inspection findings, each Copermittee must implement all follow-up actions (i.e., re-inspection, enforcement) necessary to require and confirm site compliance with its local permits and applicable local ordinances, and the requirements of this Order.

(2) Inspection Content

Inspections of construction sites by the Copermittee must include, at a minimum:

(a) Verification of coverage under the Construction General Permit (Notice of Intent (NOI) and/or WDID number) during initial inspections, when applicable;

(b) Assessment of compliance with its local permits and applicable local ordinances related to pollution prevention, including the implementation and maintenance of applicable BMPs;

(c) Assessment of BMP adequacy and effectiveness;

(d) Visual observations of actual non-storm water discharges;

(e) Visual observations of actual or potential discharge of sediment and/or construction related materials from the site;

(f) Visual observations of actual or potential illicit connections; and

(g) If any violations are found and BMP corrections are needed, inspectors must take and document appropriate actions in accordance with the Enforcement Response Plan pursuant to Provision E.6.

(3) Inspection Tracking and Records

Each Copermittee must track all inspections and re-inspections at all inventoried construction sites. The Copermittee must retain all inspection records in an electronic database or tabular format, which must be made

available to the San Diego Water Board upon request. Inspection records must include, at a minimum:

(a) Site name, location (address and hydrologic subarea), and WDID number (if applicable);

(b) Inspection date;

(c) ~~Approximate amount of rainfall since last~~ Weather conditions during the inspection;

(d) Description of problems observed with BMPs and indication of need for BMP addition/repair/replacement and any scheduled re-inspection, and date of re-inspection;

(e) Descriptions of any other specific inspection comments which must, at a minimum, include rationales for longer compliance time;

(f) Description of enforcement actions issued in accordance with the Enforcement Response Plan pursuant to Provision E.6; and

(g) Resolution of problems noted and date problems fixed.

e. CONSTRUCTION SITE ENFORCEMENT

Each Copermittee must enforce its legal authority established pursuant to Provision E.1 for all its inventoried construction sites, as necessary, to achieve compliance with the requirements of this Order, in accordance with its Enforcement Response Plan pursuant to Provision E.6.

5. Existing Development Management

Each Copermittee must implement an existing development management program in accordance with the strategies in the Water Quality Improvement Plan described pursuant to Provision B.3.b.(1). ~~and includes, at a minimum, the following requirements:~~ The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).

a. EXISTING DEVELOPMENT INVENTORY AND TRACKING

Each Copermittee must maintain, and update at least annually, a watershed-based inventory of the existing development within its jurisdiction that may discharge a high priority pollutant load to and from the MS4. The use of an automated database system, such as GIS, is highly recommended. The

inventory must, at a minimum, evaluate and include the following if identified as a source of a high priority pollutant ~~include~~:

(1) Name, location (hydrological subarea and address, if applicable) of the following types of existing development with its jurisdiction:

(a) Commercial facilities or areas;

(b) Industrial facilities;

(c) Municipal facilities, including:

(i) MS4 and related structures;[34]
(ii) Roads, streets, and highways;
(iii) Parking facilities;
(iv) Municipal airfields;
(v) Parks and recreation facilities;
(vi) Flood management facilities, flood control devices and structures;
(vii) Operating or closed municipal landfills;
(viii) Publicly owned treatment works (including water and wastewater treatment plants) and sanitary sewer collection systems;
(ix) Corporate yards, including maintenance and storage yards for materials, waste, equipment, and vehicles;
(x) Hazardous waste collection facilities;
(xi) Other treatment, storage or disposal facilities for municipal waste; and
(xii) Other municipal facilities that the Copermittee determines may contribute a significant high priority pollutant load to the MS4.

(d) Residential areas, which may be designated by one or more of the following:

(i) Residential management area;
(ii) Drainage basin or area;
(iii) Land use (e.g., single family, multi-family, rural);
(iv) Neighborhood;
(v) Common Interest Area;
(vi) Home Owner Association;
(vii) Mobile home park; and/or
(viii) Other designations accepted by the San Diego Water Board

[34] The inventory may refer to the MS4 map required to be maintained pursuant to Provision E.2.b.(1).

Executive Officer.

(2) A description of the facility or area, including the following information:

(a) Classification as commercial, industrial, municipal, or residential;

(b) Status of facility or area as active or inactive;

(c) Identification if a business is a mobile business;

(d) SIC Code or NAICS Code, if applicable;

(e) Industrial General Permit NOI and/or WDID number, if applicable;

(f) Identification if a residential area is or includes a Common Interest Area / Home Owner Association, or mobile home park;

(g) Identification of the high priority pollutants generated and potentially generated by the facility or area;

(h) Whether the facility or area is adjacent to an ESA;

(i) Whether the facility or area is tributary to and within the same hydrologic subarea as a water body segment listed as impaired on the CWA section 303(d) List and generates pollutants for which the water body segment is impaired; and

(3) An annually updated map showing the location of inventoried existing development, watershed boundaries, and water bodies.

b. EXISTING DEVELOPMENT BMP IMPLEMENTATION AND MAINTENANCE

Each Copermittee must designate a ~~minimum~~ set of BMPs required for all inventoried existing development, including special event venues. The designated ~~minimum~~ BMPs must be specific to the identified high priority facility or area types and high priority pollutant generating activities, as appropriate.

(1) Commercial, Industrial, and Municipal Facilities and Areas

(a) Pollution Prevention

Each Copermittee must require the use of pollution prevention methods by the commercial, industrial, and municipal facilities and areas in its inventoried existing development to address the priorities and strategies in the Water Quality Improvement Plan.

(b) BMP Implementation

Each Copermittee must require the implementation of designated BMPs at

commercial facilities and areas, industrial facilities, and implement designated BMPs at municipal facilities in its inventoried existing development.

(c) BMP Operation and Maintenance

(i) Each Copermittee must properly operate and maintain, or require the proper operation and maintenance of designated BMPs at commercial facilities and areas, industrial facilities, and municipal facilities in its inventoried existing development.

(ii) Each Copermittee must implement a schedule of operation and maintenance activities for its MS4 and related structures (including but not limited to catch basins, storm drain inlets, detention basins, etc.), and verify proper operation of all its municipal structural treatment controls designed to reduce pollutants (including floatables) in storm water discharges to or from its MS4s and related drainage structures. Operation and maintenance activities may include, but is not limited to, the following:

[a] Inspections of the MS4 and related structures;
[b] Cleaning of the MS4 and related structures; and
[c] Proper disposal of materials removed from cleaning of the MS4 and related structures.

(iii) Each Copermittee must implement a schedule of operation and maintenance for public streets, unpaved roads, paved roads, and paved highways within its jurisdiction to minimize pollutants that can be discharged in storm water.

(iv) Each Copermittee must implement controls to prevent infiltration of sewage into the MS4 from leaking sanitary sewers. Copermittees that operate both a municipal sanitary sewer system and a MS4 must implement controls and measures to prevent and eliminate seeping sewage from infiltrating the MS4. Copermittees that do not operate both a municipal sanitary sewer system and a MS4 must coordinate with sewering agencies to keep themselves informed of relevant and appropriate maintenance activities and sanitary sewage projects in their jurisdiction that may cause or contribute to seepage of sewage into the MS4.

(d) Pesticides, Herbicides, and Fertilizers BMPs

Each Copermittee must require the implementation of BMPs to reduce pollutants in storm water discharges to the MEP and effectively prohibit non-storm water discharges associated with the application, storage, and disposal of pesticides, herbicides and fertilizers from commercial facilities and areas and industrial facilities, and implement BMPs at municipal facilities in its inventoried existing development. Such BMPs must include,

as appropriate, educational activities, permits, certifications and other measures for applicators and distributors.

(2) Residential Areas

(a) Pollution Prevention

Each Copermittee must promote and encourage the use of pollution prevention methods, where appropriate, by the residential areas in its inventoried existing development.

(b) BMP Implementation

Each Copermittee must promote and encourage the implementation of designated BMPs at residential areas in its inventoried existing development.

(c) BMP Operation and Maintenance

Each Copermittee must properly operate and maintain, or require the proper operation and maintenance of designated BMPs at residential areas in its inventoried existing development.

(d) Pesticides, Herbicides, and Fertilizers BMPs

Each Copermittee must promote and encourage the implementation of BMPs to reduce pollutants in storm water discharges to the MEP and effectively prohibit non-storm water discharges associated with the application, storage, and disposal of pesticides, herbicides and fertilizers from residential areas in its inventoried existing development.

c. EXISTING DEVELOPMENT INSPECTIONS

Each Copermittee must conduct inspections of inventoried existing development to ensure compliance with applicable local ordinances and permits, and the requirements of this Order.

(1) Inspection Frequency

(a) Each Copermittee must establish appropriate inspection frequencies for inventoried existing development in accordance with the following requirements:

(i) At a minimum, inventoried existing development must be inspected once every five years utilizing one or more of the following methods:

[a] Drive-by inspections by Copermittee municipal and contract staff;

[b] Onsite inspections by Copermittee municipal and contract staff; and/or

[c] Visual inspections of publicly accessible inventoried facilities or areas by volunteer monitoring or patrol programs that have been trained by the Copermittee;

(ii) The frequency of inspections must be appropriate to confirm that BMPs are being implemented to reduce the discharge of pollutants in storm water from the MS4 to the MEP and effectively prohibit non-storm water discharges into the MS4;

(iii) The frequency of inspections must be based on the potential for a facility or area to discharge non-storm water and pollutants in storm water, and should reflect the priorities set forth in the Water Quality Improvement Plan;

(iv) Each Copermittee must annually perform onsite inspections of an equivalent of at least 20 percent of the commercial facilities and areas, industrial facilities, and municipal facilities in its inventoried existing development;[35] and

(v) Inventoried existing development must be inspected by the Copermittee, as needed, in response to valid public complaints.

(b) Based upon inspection findings, each Copermittee must implement all follow-up actions (i.e. education and outreach, re-inspection, enforcement) necessary to require and confirm compliance with its applicable local ordinances and permits and the requirements of this Order, in accordance with its Enforcement Response Plan pursuant to Provision E.6.

(2) Inspection Content

(a) Inspections of existing development must include, at a minimum:

(i) Visual inspections for the presence of actual non-storm water discharges;

(ii) Visual inspections for the presence of actual or potential discharge of pollutants;

(iii) Visual inspections for the presence of actual or potential illicit connections; and

(iv) Verification that the description of the facility or area in the inventory, required pursuant to Provision E.5.a.(2), has not changed.

[35] If any commercial, industrial, or municipal facilities or areas require multiple onsite inspections during any given year, those additional inspection may count toward the total annual inspection requirement. This requirement excludes linear municipal facilities (i.e., MS4 linear channels, sanitary sewer collection systems, streets, roads and highways).

(b) Onsite inspections of existing development by the Copermittee must include, at a minimum:

(i) Assessment of compliance with its applicable local ordinances and permits related to non-storm water and storm water discharges and runoff;

(ii) Assessment of the implementation of the designated BMPs;

(iii) Verification of coverage under the Industrial General Permit, when applicable; and

(iv) If any problems or violations are found, inspectors must take and document appropriate actions in accordance with the Enforcement Response Plan pursuant to Provision E.6.

(3) Inspection Tracking and Records

Each Copermittee must track all inspections and re-inspections at all inventoried existing development. The Copermittee must retain all inspection records in an electronic database or tabular format, which must be made available to the San Diego Water Board upon request. Inspection records must include, at a minimum:

(a) Name and location of the facility or area (address and hydrologic subarea) consistent with the inventory name and location, pursuant to Provision E.5.a.(1);

(b) Inspection and re-inspection date(s);

(c) Inspection method(s) (i.e. drive-by, onsite);

(d) Observations and findings from the inspection(s);

(e) For onsite inspections of existing development by Copermittee municipal or contract staff, the records must also include, as applicable:

(i) Description of any problems or violations found during the inspection(s);

(ii) Description of enforcement actions issued in accordance with the Enforcement Response Plan pursuant to Provision E.6; and

(iii) The date problems or violations were resolved.

d. EXISTING DEVELOPMENT ENFORCEMENT

Each Copermittee must enforce its legal authority established pursuant to Provision E.1 for all its inventoried existing development, as necessary, to

achieve compliance with the requirements of this Order, in accordance with its Enforcement Response Plan pursuant to Provision E.6.

e. RETROFITTING AND REHABILITATING AREAS OF EXISTING DEVELOPMENT

(1) Retrofitting Areas of Existing Development

Each Copermittee must describe in its jurisdictional runoff management program document, a program to retrofit areas of existing development within its jurisdiction to address identified sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area. The program must be implemented as follows:

(a) Each Copermittee must identify areas of existing development as candidates for retrofitting, focusing on areas where retrofitting will address pollutants and/or stressors that contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan;

(b) Candidates for retrofitting projects may be utilized to reduce pollutants that may be discharged in storm water from areas of existing development, and/or address storm water runoff flows and durations from areas of existing development that cause or contribute to hydromodification in receiving waters;

(c) Each Copermittee must develop a strategy to facilitate the implementation of retrofitting projects in areas of existing development identified as candidates;

(d) Each Copermittee should identify areas of existing development where Priority Development Projects may be allowed or should be encouraged to implement or contribute toward the implementation of alternative compliance retrofitting projects; and

(e) Where retrofitting projects within specific areas of existing development are determined to be infeasible to address the highest priority water quality conditions in the Water Quality Improvement Plan, the Copermittee should collaborate and cooperate with other Copermittees and/or entities in the Watershed Management Area to identify, develop, and implement regional retrofitting projects (i.e. projects that can receive and/or treat storm water from one or more areas of existing development and will result in a net benefit to water quality and the environment) adjacent to and/or downstream of the areas of existing development.

(2) Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development

Each Copermittee must describe in its jurisdictional runoff management

program document, a program to rehabilitate streams, channels, and/or habitats in areas of existing development within its jurisdiction or just downstream of its jurisdiction to address the highest priority water quality conditions in the Watershed Management Area. The program must be implemented as follows:

(a) ~~Each Copermittee must identify streams, channels, and/or habitats in areas of existing development as candidates for rehabilitation, focusing on areas where stream, channel, and/or habitat rehabilitation projects will address the highest priority water quality conditions identified in the Water Quality Improvement Plan~~;

(b) Candidates for stream, channel, and/or habitat rehabilitation projects may be utilized to address storm water runoff flows and durations from areas of existing development that cause or contribute to hydromodification in receiving waters, rehabilitate channelized or hydromodified streams, ~~restore~~ protect wetland and riparian habitat, ~~restore~~ protect watershed functions, and/or ~~restore~~ protect beneficial uses of receiving waters;

(c) Each Copermittee must develop a strategy to facilitate the implementation of stream, channel, and/or habitat rehabilitation projects in areas of existing development identified as candidates;

(d) Each Copermittee should identify areas of existing development where Priority Development Projects may be allowed or should be encouraged to implement or contribute toward the implementation of alternative compliance stream, channel, and/or habitat rehabilitation projects; and

(e) Where stream, channel, and/or habitat rehabilitation projects within specific areas of existing development are determined to be infeasible to address the highest priority water quality conditions in the Water Quality Improvement Plan, the Copermittee should collaborate and cooperate with other Copermittees and/or entities in the Watershed Management Area to identify, develop, and implement regional stream, channel, and/or habitat rehabilitation projects (i.e. projects that can receive storm water from one or more areas of existing development and will result in a net benefit to water quality and the environment).

6. Enforcement Response Plans

Each Copermittee must develop and implement an Enforcement Response Plan as part of its jurisdictional runoff management program document. The Enforcement Response Plan must describe the applicable approaches and options to enforce its legal authority established pursuant to Provision E.1, as necessary, to achieve compliance with the requirements of this Order. Copermittees may continue to utilize and implement established, equivalent guidelines and procedures for

enforcement. The Enforcement Response Plan must be in accordance with the strategies in the Water Quality Improvement Plan described pursuant to Provision B.3.b.(1) and include the following:

a. ENFORCEMENT RESPONSE PLAN COMPONENTS

The Enforcement Response Plan must include and/or address the following individual components:

(1) Illicit Discharge Detection and Elimination Enforcement Component;

(2) Development Planning Enforcement Component;

(3) Construction Management Enforcement Component; and

(4) Existing Development Enforcement Component.

b. ENFORCEMENT RESPONSE APPROACHES AND OPTIONS

Each component of the Enforcement Response Plan must describe the enforcement response approaches that the Copermittee will implement to compel compliance with its statutes, ordinances, permits, contracts, orders, or similar means, and the requirements of this Order. The description must include the protocols for implementing progressively stricter enforcement responses. The enforcement response approaches must include appropriate sanctions to compel compliance, including, at a minimum, the following tools or their equivalent:

(1) Verbal and written notices of violation;

(2) Cleanup requirements;

(3) Fines;

(4) Bonding requirements;

(5) Administrative and criminal penalties;

(6) Liens;

(7) Stop work orders; and

(8) Permit and occupancy denials.

c. CORRECTION OF VIOLATIONS

(1) Violations must be corrected in a timely manner with the goal of correcting the violations within 30 calendar days after the violations are discovered, or prior

to the next predicted rain event, whichever is sooner.

(2) If more than 30 calendar days are required to achieve compliance, then a rationale must be recorded in the applicable electronic database or tabular system used to track violations.

d. ~~ESCALATED~~ PROGRESSIVE ENFORCEMENT

(1) The Enforcement Response Plan must include a definition of "~~escalated~~ progressive enforcement." ~~Escalated~~ Progressive enforcement must include a series of enforcement actions that match the severity of the violations and include distinct, progressive steps. ~~any enforcement scenario where a violation or other non-compliance is determined to cause or contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan.~~ Progressive ~~Escalated~~ enforcement may be defined differently for development planning, construction sites, commercial facilities or areas, industrial facilities, municipal facilities, and/or residential areas.

(2) Where the Copermittee determines ~~escalated~~ progressive enforcement is not required, a rationale must be recorded in the applicable electronic database or tabular system used to track violations.

(3) ~~Escalated~~ Progressive enforcement actions must continue to increase in severity, as necessary, to compel compliance as soon as possible.

e. REPORTING OF NON-COMPLIANT SITES

(1) Each Copermittee must notify the San Diego Water Board in writing within five (5) calendar days of issuing escalated enforcement (as defined in the Copermittee's Enforcement Response Plan) to a construction site that poses a significant threat to water quality as a result of violations or other non-compliance with its permits and applicable local ordinances, and the requirements of this Order. Written notification may be provided electronically by email to the appropriate San Diego Water Board staff.

(2) Each Copermittee must notify the San Diego Water Board of any persons required to obtain coverage under the statewide Industrial General Permit and Construction General Permit and failing to do so, within five (5) calendar days from the time the Copermittee become aware of the circumstances. Written notification may be provided electronically by email to R9_Nonfilers@waterboards.ca.gov ~~Nonfilers_R9@waterboards.ca.gov~~.

7. Public Education and Participation

Each Copermittee must implement, individually or with other Copermittees, a public education and participation program in accordance with the strategies identified in the Water Quality Improvement Plan to promote and encourage the development of

programs, management practices, and behaviors that reduce the discharge of pollutants in storm water to the MEP, prevent controllable non-storm water discharges from entering the MS4, and protect water quality standards in receiving waters. The public education and participation program must be implemented in accordance with the strategies in the Water Quality Improvement Plan described pursuant to Provision B.3.b.(1). The requirements of the jurisdictional runoff management programs as outlined below may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s). ~~and include, at a minimum, the following requirements:~~

a. PUBLIC EDUCATION

The public education program component implemented within the Copermittee's jurisdiction ~~must~~ may include~~, at a minimum,~~ the following:

(1) Educational activities, public information activities, and other appropriate outreach activities intended to reduce pollutants associated with the ~~application of pesticides, herbicides and fertilizer and other pollutants of concern in storm water discharges to and from its MS4 to the MEP, as determined and prioritized by the Copermittee(s) by jurisdiction and/or watershed to address the~~ highest priority water quality conditions identified in the Water Quality Improvement Plan;

(2) Educational activities, public information activities, and other appropriate outreach activities to facilitate the proper management and disposal of used oil and toxic materials; and

(3) Appropriate education and training measures for specific target audiences, such as construction site operators, residents, underserved target audiences and school-aged children, as determined and prioritized by the Copermittee(s) by jurisdiction and/or watershed, based on high risk behaviors and pollutants of concern.

b. PUBLIC PARTICIPATION

The public participation program component implemented within the Copermittee's jurisdiction must include, at a minimum, the following:

(1) A process for members of the public to participate in updating the highest priority water quality conditions, numeric goals, and water quality improvement strategies in the Water Quality Improvement Plan;

(2) Opportunities for members of the public to participate in providing the Copermittee recommendations for improving the effectiveness of the water quality improvement strategies implemented within its jurisdiction; and

(3) Opportunities for members of the public to participate in programs and/or activities that can result in the prevention or elimination of non-storm water discharges to the MS4, reduction of pollutants in storm water discharges from the MS4, and/or protection of the quality of receiving waters.

8. Fiscal Analysis

a. Each Copermittee must secure the resources necessary to meet all the requirements of this Order.

b. Each Copermittee must conduct an annual fiscal analysis of its jurisdictional runoff management program in its entirety. The fiscal analysis must include the following:

(1) Identification of the various categories of expenditures necessary to implement the requirements of this Order, including a description of the specific capital, operation and maintenance, and other expenditure items to be accounted for in each category of expenditures;

(2) The staff resources needed and allocated to meet the requirements of this Order, including any development, implementation, and enforcement activities required;

(3) The estimated expenditures for Provisions E.8.b.(1) and E.8.b.(2) for the current fiscal year; and

(4) The source(s) of funds that are proposed to meet the necessary expenditures described in Provisions E.8.b.(1) and E.8.b.(2), including legal restrictions on the use of such funds, for the current fiscal year and next fiscal year.

c. Each Copermittee must submit a summary of the annual fiscal analysis with each Water Quality Improvement Plan Annual Report required pursuant to Provision F.3.b.(3).

d. Each Copermittee must provide the documentation used to develop the summary of the annual fiscal analysis upon request by the San Diego Water Board.

F. REPORTING

The purpose of this provision is to determine and document compliance with the requirements set forth in this Order. The goal of reporting is to communicate to the San Diego Water Board and the people of the State of California the implementation status of each jurisdictional runoff management program and compliance with the requirements of this Order. This goal is to be accomplished through the submittal of specific deliverables to the San Diego Water Board by the Copermittees.

1. Water Quality Improvement Plans

The Copermittees for each Watershed Management Area must develop and submit the Water Quality Improvement Plan in accordance with the following requirements:

a. WATER QUALITY IMPROVEMENT PLAN DEVELOPMENT

Each Water Quality Improvement Plan must be developed in accordance with the following process:

(1) Public Participation Process

The Copermittees must implement a public participation process to solicit data, information, and recommendations to be utilized in the development of the Water Quality Improvement Plan. The public participation process must include the following:

(a) The Copermittees must develop a publicly available and noticed schedule of the opportunities for the public to participate and provide comments during the development of the Water Quality Improvement Plan. The schedule may be adjusted as necessary by the Copermittees, provided the public is provided timely notification of the changes to the schedule.

(b) The Copermittees must form a Water Quality Improvement Consultation Panel to provide recommendations during the development of the Water Quality Improvement Plan. The Water Quality Improvement Consultation Panel must consist of at least the following members:

(i) A representative of the San Diego Water Board;

(ii) A representative of the environmental community familiar with the water quality conditions of concern of the receiving waters in the Watershed Management Area, preferably from an environmental interest group associated with a water body within the Watershed Management Area; and

(iii) A representative of the development community familiar with the opportunities and constraints for implementing structural BMPs, retrofitting projects, and stream, channel or habitat rehabilitation

projects in the Watershed Management Area, preferably with relevant engineering, hydrology, and/or geomorphology experience in the Watershed Management Area.

(c) The Copermittees must coordinate the schedules for the public participation process among the Watershed Management Areas to provide the public time and opportunity to participate during the development of the Water Quality Improvement Plans.

(2) Priority Water Quality Conditions

(a) The Copermittees must solicit data, information and recommendations from the public to be utilized in the development and identification of the priority water quality conditions and potential water quality improvement strategies for the Watershed Management Area.

(b) The Copermittees must review the priority water quality conditions the Copermittees plan on including in the Water Quality Improvement Plan with the Water Quality Improvement Consultation Panel to receive recommendations or concurrence.

(c) The Copermittees must consider revisions to the priority water quality conditions based on recommendations from the Water Quality Improvement Consultation Panel.

(d) The Copermittees must include all the potential water quality improvement strategies identified by the public and the Water Quality Improvement Consultation Panel with the submittal of the priority water quality conditions to the San Diego Water Board.

(e) The Copermittees must submit the Water Quality Improvement Plan requirements of Provision B.2 to the San Diego Water Board as early as 6 months and no later than 12 months after the commencement of coverage under this Order. Upon receipt, the San Diego Water Board will issue a public notice and release the proposed priority water quality conditions and potential water quality improvement strategies for public review and comment for a minimum of 30 days.

(f) Within 30 days of receiving the public comments, t~~T~~he Copermittees must consider revisions to the priority water quality conditions and potential water quality improvement strategies developed pursuant to Provision B.2 ~~based on public comments received by the close of the comment period~~.

(3) Water Quality Improvement Goals, Strategies and Schedules

(a) The Copermittees must solicit recommendations from the public on potential numeric goals for the highest priority water quality conditions

identified for the Watershed Management Area, and recommendations on the strategies that should be implemented to achieve the potential numeric goals.

(b) The Copermittees must consult with the Water Quality Improvement Consultation Panel and consider revisions to the following items based on the Panel's recommendations:

(i) The numeric goals and schedules the Copermittees propose to include in the Water Quality Improvement Plan;

(ii) The water quality improvement strategies and schedules the Copermittees propose to implement in the Watershed Management Area and include in the Water Quality Improvement Plan; and

(iii) If the Copermittees choose to implement Provision B.3.b.(4), the results of the Watershed Management Area Analysis the Copermittees proposed to incorporate into the Water Quality Improvement Plan.

(c) The Copermittees must submit the Water Quality Improvement Plan requirements of Provision B.3 to the San Diego Water Board as early as 9 months and no later than 18 months after the commencement of coverage under this Order. Upon receipt, the San Diego Water Board will issue a public notice and release the proposed water quality improvement goals, strategies and schedules for public review and comment for a minimum of 30 days.

(d) Within 30 days of receiving the public comments, t~~T~~he Copermittees must consider revisions to the water quality improvement goals, strategies and schedules developed pursuant to Provision B.3 ~~based on public comments received by the close of the comment period~~.

b. WATER QUALITY IMPROVEMENT PLAN SUBMITTAL AND IMPLEMENTATION

(1) Within 24 months after the commencement of coverage under this Order, the Copermittees for each Watershed Management Area must submit a complete Water Quality Improvement Plan in accordance with the requirements of Provision B of this Order to the San Diego Water Board. The San Diego Water Board will issue a public notice and release the Water Quality Improvement Plan for public review and comment for a minimum of 30 days.

(2) The Copermittees must consider revisions to the Water Quality Improvement Plan based on written comments received by the close of the public comment period.

(3) The Copermittees must promptly submit any revisions to the Water Quality Improvement Plan to the San Diego Water Board no later than 60 days after the close of the public comment period.

(4) If issues concerning the Water Quality Improvement Plan are resolved informally through discussions among the Copermittees, the San Diego Water Board and interested parties, the San Diego Water Board Executive Officer may provide written notification of acceptance to the Copermittees that the Water Quality Improvement Plan meets the requirements of Provision B. However, if the Executive Officer determines that significant issues with the Water Quality Improvement Plan remain, the matter will be scheduled for San Diego Water Board consideration at a public meeting.

(5) The Copermittees must commence with implementation of the Water Quality Improvement Plan, in accordance with the water quality improvement strategies and schedules therein, upon written notification of acceptance with the Water Quality Improvement Plan by the San Diego Water Board Executive Officer.

(6) During implementation of the Water Quality Improvement Plan the Copermittees must correct any deficiencies in the Plan identified by the San Diego Water Board in the updates submitted with the Water Quality Improvement Plan Annual Report following a request by the Board to do so.

(7) The Water Quality Improvement Plan must be made available on the Regional Clearinghouse required pursuant to Provision F.4 within 30 days of receiving notification of acceptance with the Water Quality Improvement Plan by the San Diego Water Board Executive Officer.

2. Updates

a. Jurisdictional Runoff Management Program Document Updates

Each Copermittee must update its jurisdictional runoff management program document in accordance with the following requirements:

(1) Each Copermittee is encouraged to seek public and key stakeholder participation and comments, as early and often as possible during the process of developing updates to its jurisdictional runoff management program document;

(2) Each Copermittee must update its jurisdictional runoff management program document to incorporate the requirements of Provision E concurrent with the submittal of the Water Quality Improvement Plan. Each Copermittee must correct any deficiencies in the jurisdictional runoff management program document based on comments received from the San Diego Water Board in

the updates submitted with the Water Quality Improvement Plan Annual Report;

(3) Each Copermittee must submit updates to its jurisdictional runoff management program, with the supporting rationale for the modifications, either in the Water Quality Improvement Plan Annual Report required pursuant to Provision F.3.b.(3), or as part of the Report of Waste Discharge required pursuant to Provision F.5.b;

(4) The Copermittee must revise proposed modifications to its jurisdictional runoff management program as directed by the San Diego Water Board Executive Officer; and

(5) Updated jurisdictional runoff management program documents must be made available on the Regional Clearinghouse required pursuant to Provision F.4 within 30 days of ~~submitting the Water Quality Improvement Plan Annual Report~~completing the updates.

b. BMP DESIGN MANUAL UPDATES

Each Copermittee must update its BMP Design Manual in accordance with the following requirements:

(1) Each Copermittee must update its BMP Design Manual to incorporate the requirements of Provisions E.3.a-d concurrent with the submittal of the Water Quality Improvement Plan. Each Copermittee must correct any deficiencies in the BMP Design Manual based on comments received from the San Diego Water Board in the updates submitted with the Water Quality Improvement Plan Annual Report;

(2) Subsequent updates to the BMP Design Manual must be consistent with the requirements of Provisions E.3.a-d and must be submitted as part of the Water Quality Improvement Plan Annual Reports required pursuant to Provision F.3.b.(3), or as part of the Report of Waste Discharge required pursuant to Provision F.5.b; and

(3) Updated BMP Design Manuals must be made available on the Regional Clearinghouse required pursuant to Provision F.4 within 30 days of completing the update.

c. WATER QUALITY IMPROVEMENT PLAN UPDATES

(1) The Water Quality Improvement Plans must be updated in accordance with the following process:

(a) The Copermittees must develop and implement a public participation process to obtain data, information and recommendations for updating the Water Quality Improvement Plan. The public participation process must provide for a publicly available and noticed schedule of opportunities for the public to participate and provide comments during the development of updates to the Water Quality Improvement Plan;

(b) The Copermittees must consult with the Water Quality Improvement Consultation Panel on proposed updates of the Water Quality Improvement Plan, and consider the Water Quality Improvement Consultation Panel's recommendations in finalizing the proposed updates;

(c) The Copermittees for each Watershed Management Area must submit 1) proposed updates to the Water Quality Improvement Plan and supporting rationale, and 2) recommendations received from the public and the Water Quality Improvement Consultation Panel and the rationale for the requested updates, either in the Water Quality Improvement Plan Annual Reports required pursuant to Provision F.3.b.(3), or as part of the Report of Waste Discharge required pursuant to Provision F.5.b. The updates submitted will be deemed accepted for inclusion in the Water Quality Improvement Plan ninety (90) days after submission unless otherwise directed in writing by the San Diego Water Board Executive Officer;

(d) The Copermittees must revise the requested updates as directed by the San Diego Water Board Executive Officer; and

(e) Updated Water Quality Improvement Plans must be made available on the Regional Clearinghouse required pursuant to Provision F.4 within 30 days of acceptance of the requested updates by the San Diego Water Board.

(2) No later than six months following ~~Office of Administrative Law and USEPA approval of~~ the effective date of any TMDL Basin Plan amendment with wasteload allocations (WLAs) assigned to the Copermittees during the term of this Order, the Copermittees must initiate an update to the applicable Water Quality Improvement Plans in accordance with Provision F.1 or Provision F.2.c.(1) to ensure the WQIP includes actions to address the pollutant-waterbody combination. As TMDLs are not self-implementing, the Order must be re-opened to incorporate the TMDL WLAs. ~~incorporate the requirements of the TMDL WLAs~~.

3. Progress Reporting

a. PROGRESS REPORT PRESENTATIONS

The Copermittees for each Watershed Management Area must periodically appear before the San Diego Water Board, as requested by the Board, to provide progress reports on the implementation of the Water Quality Improvement Plan and jurisdictional runoff management programs.

b. ANNUAL REPORTS

(1) Transitional Jurisdictional Runoff Management Program Annual Reports

(a) Each Copermittee must complete and submit a Jurisdictional Runoff Management Program Annual Report Form (contained in Attachment D to this Order or a revised form accepted by the San Diego Water Board) no later than October 31 of each year for each jurisdictional runoff management program reporting period (i.e. July 1 to June 30) during the transitional period, until the first Water Quality Improvement Plan Annual Reports are required to be submitted.

(b) Each Copermittee must submit the information on the Jurisdictional Runoff Management Program Annual Report Form (contained in Attachment D to this Order or a revised form accepted by the San Diego Water Board) specific to the area within its jurisdiction in each Watershed Management Area.

(c) In addition to submitting the Jurisdictional Runoff Management Program Annual Report Form during the transitional reporting period, each Copermittee may continue to utilize and submit the jurisdictional runoff management program annual reporting format of its previous NPDES permit until the first Water Quality Improvement Plan Annual Report is required to be submitted.

(2) Transitional Monitoring and Assessment Program Annual Reports

The Copermittees for each Watershed Management Area must submit a Transitional Monitoring and Assessment Program Annual Report no later than January 31 for each complete transitional monitoring and assessment program reporting period (i.e. October 1 to September 30) during the transitional period, until the first Water Quality Improvement Plan Annual Reports are required to be submitted under this Order. The Transitional Monitoring and Assessment Program Annual Reports must include:

(a) The receiving water and MS4 outfall discharge monitoring data collected

pursuant to Provisions D.1.a and D.2.a, summarized and presented in tabular and graphical form; and

(b) The findings from the assessments required pursuant to Provisions D.4.a.(1)(a), D.4.b.(1)(a)(i), D.4.b.(2)(a)(i).

(3) Water Quality Improvement Plan Annual Reports

The Copermittees for each Watershed Management Area must submit a Water Quality Improvement Plan Annual Report for each reporting period no later than January 31 of the following year. The annual reporting period consists of two different periods: 1) July 1 to June 30 of the following year for the jurisdictional runoff management programs, 2) October 1 to September 30 of the following year for the monitoring and assessment programs. The Water Quality Improvement Plan Annual Reports must be made available on the Regional Clearinghouse required pursuant to Provision F.4. Each Annual Report must include the following:

(a) The receiving water and MS4 outfall discharge monitoring data collected pursuant to Provisions D.1 and D.2, summarized and presented in tabular and graphical form;

(b) The progress of the special studies required pursuant to Provision D.3, and the findings, interpretations and conclusions of a special study, or each phase of a special study, upon its completion;

(c) The findings, interpretations and conclusions from the assessments required pursuant to Provision D.4;

(d) The progress of implementing the Water Quality Improvement Plan, including, but not limited to, the following:

(i) The progress toward achieving the interim and final numeric goals for the highest water quality priorities for the Watershed Management Area;

(ii) The water quality improvement strategies that were implemented and/or no longer implemented by each of the Copermittees during the reporting period and previous reporting periods;

(iii) The water quality improvement strategies planned for implementation during the next reporting period;

(iv) Proposed modifications to the water quality improvement strategies, the public comments received and the supporting rationale for the proposed modifications;

(v) Previous modifications or updates incorporated into the Water Quality Improvement Plan and/or each Copermittee's jurisdictional runoff

management program document and implemented by the Copermittees in the Watershed Management Area; and

(vi) Proposed modifications or updates to the Water Quality Improvement Plan and/or each Copermittee's jurisdictional runoff management program document;

(e) A completed Jurisdictional Runoff Management Program Annual Report Form (contained in Attachment D to this Order or a revised form accepted by the San Diego Water Board) for each Copermittee in the Watershed Management Area, certified by a Principal Executive Officer, Ranking Elected Official, or Duly Authorized Representative; and

(f) Each Copermittee must provide any data or documentation utilized in developing the Water Quality Improvement Plan Annual Report upon request by the San Diego Water Board. Any Copermittee monitoring data utilized in developing the Water Quality Improvement Plan Annual Report must be uploaded to the California Environmental Data Exchange Network (CEDEN).[36] Any Copermittee monitoring and assessment data utilized in developing the Water Quality Improvement Plan Annual Report must be available for access on the Regional Clearinghouse required pursuant to Provision F.4.

c. Regional Monitoring and Assessment Report

(1) The Copermittees must submit a Regional Monitoring and Assessment Report no later than 180 days prior to the expiration date of this Order. The Regional Monitoring and Assessment Report may be submitted as part of the Report of Waste Discharge required pursuant to Provision F.5.b. In preparing the report the Copermittees must consider the receiving water and MS4 outfall discharge monitoring data collected pursuant to Provisions D.1 and D.2, and the findings, interpretations, and conclusions from the assessments required pursuant to Provision D.4. Based on these considerations the report must assess the following:

(a) The beneficial uses of the receiving waters within the San Diego Region that are supported and not adversely affected by the Copermittees' MS4 discharges;

(b) The beneficial uses of the receiving waters within the San Diego Region that are adversely impacted by the Copermittees' MS4 discharges;

(c) The progress toward protecting the beneficial uses in the receiving waters

[36] Data must be uploaded to CEDEN Southern California Regional Data Center (http://www.sccwrp.org/Data/DataSubmission/SouthernCaliforniaRegionalDataCenter.aspx) using the templates provided on the CEDEN website.

within the San Diego Region from the Copermittees' discharges; and

(d) Pollutants or conditions of emerging concern that may impact beneficial uses in the receiving waters within the San Diego Region.

(2) The Regional Monitoring and Assessment Report must include recommendations for improving the implementation and assessment of the Water Quality Improvement Plans and jurisdictional runoff management programs.

(3) Each Copermittee must provide any data or documentation utilized in developing the Regional Monitoring and Assessment Report upon request by the San Diego Water Board. Any Copermittee monitoring and assessment data utilized in developing the Regional Monitoring and Assessment Report must be available for access on the Regional Clearinghouse required pursuant to Provision F.4.

4. Regional Clearinghouse

The Copermittees must develop, update, and maintain an internet-based Regional Clearinghouse that is made available to the public no later than 18 months after the effective date of this Order.[37]

a. The Copermittees, through the Regional Clearinghouse, must make the following documents and data available for access, and organized by Watershed Management Area. The documents and data may be linked to other internet-based data portals and databases where the original documents are stored:

(1) Water Quality Improvement Plan for the Watershed Management Area, and all updated versions with date of update;

(2) Annual Reports for the Watershed Management Area;

(3) Jurisdictional Runoff Management Program document for each Copermittee within the Watershed Management Area, and all updated versions with date of update;

(4) BMP Design Manual for each Copermittee within the Watershed Management Area, and all updated versions with date of update;

(5) Reports from special studies (e.g. source identification, BMP effectiveness assessment) conducted in the Watershed Management Area;

[37] The Copermittees may develop, update and maintain the clearinghouse(s) of other Copermittees or agencies.

(6) Monitoring data collected pursuant to Provision D for each Watershed Management Area must be uploaded to CEDEN,[38] with links to the uploaded data; and

(7) Available GIS data, layers, and/or shapefiles used to develop the maps generated and maintained by the Copermittees for the Water Quality Improvement Plans, Annual Reports, and jurisdictional runoff management program documents.

b. The Copermittees, through the Regional Clearinghouse, must make the following information and documents available for access:

(1) Contact information (point of contact, phone number, email address, and mailing address) for each Copermittee;

(2) Public hotline number for reporting non-storm water and illicit discharges for each Copermittee;

(3) Email address for reporting non-storm water and illicit discharges for each Copermittee;

(4) Link to each Copermittee's website, if available, where the public may find additional information about the Copermittee's storm water management program and for requesting records for the implementation of its program;

(5) Information about opportunities for the public to participate in programs and/or activities that can result in the prevention or elimination of non-storm water discharges to the MS4, reduction of pollutants in storm water discharges from the MS4, and/or protection of the quality of receiving waters; and

(6) Reports from regional monitoring programs in which the Copermittees participate (e.g. Southern California Monitoring Coalition, Southern California Coastal Water Research Project Bight Monitoring);

(7) Regional Monitoring and Assessment Reports; and

(8) Any other information, data, and documents the Copermittees determine as appropriate for making available to the public.

[38] Data must be uploaded to CEDEN Southern California Regional Data Center (http://www.sccwrp.org/Data/DataSubmission/SouthernCaliforniaRegionalDataCenter.aspx) using the templates provided on the CEDEN website.

5. Report of Waste Discharge

a. The ~~Orange County Copermittees and the~~ Riverside County Copermittees are required to submit a complete Report of Waste Discharge pursuant to the requirements of their current Order~~s~~. The San Diego Water Board will review and consider the Report~~s~~ of Waste Discharge to determine whether modification to this Order, pursuant to the requirements of Provision H, will be required prior to the ~~Orange County Copermittees and/or~~ Riverside County Copermittees obtaining coverage under this Order. The current Order s ~~for the Orange County Copermittees and~~ Riverside County Copermittees is ~~are~~ rescinded upon the date of effective coverage under this Order except for enforcement purposes.

b. The Copermittees subject to the requirements of this Order must submit to the San Diego Water Board a complete Report of Waste Discharge as an application for the re-issuance of this Order and NPDES permit. The Report of Waste Discharge must be submitted no later than 180 days in advance of the expiration date of this Order. The Report of Waste Discharge must contain the following minimum information:

(1) Names and addresses of the Copermittees;

(2) Names and titles of the primary contacts of the Copermittees;

(3) Proposed changes to the Copermittees' Water Quality Improvement Plans and the supporting justification;

(4) Proposed changes to the Copermittees' jurisdictional runoff management programs and the supporting justification;

(5) Any other information necessary for the re-issuance of this Order;

(6) Any information to be included as part of the Report of Waste Discharge pursuant to the requirements of this Order; and

(7) Any other information required by federal regulations for NPDES permit reissuance.

6. Application for Early Coverage

a. The ~~Orange County Copermittees, collectively, or~~ Riverside County Copermittees~~, collectively,~~ may apply for early coverage under this Order by submitting a Report of Waste Discharge Form 200, with a written request for early coverage under this Order.

b. The San Diego Water Board will review the application for early coverage. A notification of coverage under this Order will be issued to the Copermittees in the

respective county by the San Diego Water Board upon completion of the early coverage application requirements. The effective coverage date will be specified in the notification of coverage. The Copermittees in the respective county are authorized to have MS4 discharges pursuant to the requirements of this Order starting on the effective coverage date specified in the notification of coverage. The existing Order for the respective county is rescinded upon the effective coverage date specified in the notification of coverage except for enforcement purposes.

7. Reporting Provisions

Each Copermittee must comply with all the reporting and recordkeeping provisions of the Standard Permit Provisions and General Provisions contained in Attachment B to this Order.

G. PRINCIPAL WATERSHED COPERMITTEE RESPONSIBILITIES

1. The Copermittees within each Watershed Management Area must designate a Principal Watershed Copermittee and notify the San Diego Water Board of the name of the Principal Watershed Copermittee. An individual Copermittee should not be designated a Principal Watershed Copermittee for more than two Watershed Management Areas. The notification may be submitted with the Water Quality Improvement Plan required pursuant to Provision F.1 of this Order.

2. The Principal Watershed Copermittee is responsible for, at a minimum, the following:

a. Serving as liaison between the Copermittees in the Watershed Management Area and the San Diego Water Board on general permit issues, and when necessary and appropriate, representing the Copermittees in the Watershed Management Area before the San Diego Water Board;

b. Facilitating the development of the Water Quality Improvement Plan in accordance with the requirements of Provision B of this Order;

c. Coordinating the submittal of the deliverables required by Provisions F.1, F.2, F.3.a, and F.3.b of this Order; and

d. Coordinating and developing, with the other Principal Watershed Copermittees, the requirements of Provisions F.3.c, F.4, and F.5.b of this Order.

3. The Principal Watershed Copermittee is not responsible for ensuring that the other Copermittees within the Watershed Management Area are in compliance with the requirements of this Order. Each Copermittee within the Watershed Management Area is responsible for complying with the requirements of this Order.

H. MODIFICATION OF ORDER

1. Modifications of the Order may be initiated by the San Diego Water Board or by the Copermittees. Requests by Copermittees must be made to the San Diego Water Board.

2. Minor modifications to the Order may be made by the San Diego Water Board where the proposed modification complies with all the prohibitions and limitations, and other requirements of this Order.

3. This Order may also be re-opened and modified, revoked and, reissued or terminated in accordance with the provisions of 40 CFR 122.44, 122.62 to 122.64, and 124.5. Causes for taking such actions include, but are not limited to, failure to comply with any condition of this Order and permit, and endangerment to human health or the environment resulting from the permitted activity.

4. This Order may be re-opened for modification for cause including but not limited to the following:

a. The State Water Board determines that revisions are warranted, and the San Diego Water Board concurs that revisions are necessary to those provisions of the Order addressing compliance with water quality standards in the receiving water and/or those provisions of the Order establishing an iterative process for implementation of management practices to assure compliance with water quality standards in the receiving water;

b. An application for early coverage under this Order is received pursuant to Provision F.6;

c. Any of the TMDLs in Attachment E to this Order are amended in the Basin Plan by San Diego Water Board, and the amendment is approved by the State Water Board, Office of Administrative Law, and the USEPA;

d. The Basin Plan is amended by the San Diego Water Board to incorporate a new TMDL, and the amendment is approved by the State Water Board, Office of Administrative Law, and the USEPA; or

e. Updating or revising the monitoring and reporting requirements is determined to be necessary, at the discretion of the San Diego Water Board. Such modification(s) may include, but is (are) not limited to, revision(s) to: (i) implement recommendations from Southern California Coastal Water Research Project (SCCWRP), (ii) develop, refine, implement, and/or coordinate a regional monitoring program, (iii) develop and implement improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9-2012-0069, Resolution in Support of a Regional Monitoring Framework, and/or (iv) add provisions to require the Copermittees to evaluate and provide information on cost and values of the monitoring and reporting program.

5. The San Diego Water Board, after opportunity for public comment and a public hearing, will re-open and consider modifications to this Order when the Orange County Copermittees or the Riverside County Copermittees submit a complete Report of Waste Discharge pursuant to the requirements of their current Orders.

I. STANDARD PERMIT PROVISIONS AND GENERAL PROVISIONS

Each Copermittee must comply with all the Standard Permit Provisions and General Provisions contained in Attachment B to this Order.

ATTACHMENT A

DISCHARGE PROHIBITIONS AND SPECIAL PROTECTIONS

1. Basin Plan Waste Discharge Prohibitions

California Water Code Section 13243 provides that a Regional Water Board, in a water quality control plan, may specify certain conditions or areas where the discharge of waste or certain types of waste is not permitted. The following waste discharge prohibitions in the Water Quality Control Plan for the San Diego Basin (Basin Plan) are applicable to any person, as defined by Section 13050(c) of the California Water Code, who is a citizen, domiciliary, or political agency or entity of California whose activities in California could affect the quality of waters of the state within the boundaries of the San Diego Region.

1. The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in California Water Code Section 13050, is prohibited.

2. The discharge of waste to land, except as authorized by waste discharge requirements or the terms described in California Water Code Section 13264 is prohibited.

3. The discharge of pollutants or dredged or fill material to waters of the United States except as authorized by a National Pollutant Discharge Elimination System (NPDES) permit or a dredged or fill material permit (subject to the exemption described in California Water Code Section 13376) is prohibited.

4. Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto are prohibited, unless this San Diego Water Board issues a NPDES permit authorizing such a discharge; the proposed discharge has been approved by the State Department of Health Services (DHS) and the operating agency of the impacted reservoir; and the discharger has an approved fail-safe long-term disposal alternative.

5. The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the San Diego Water Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.

6. The discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger is prohibited, unless the discharge is authorized by the San Diego Water Board.

7. The dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited unless authorized by the San Diego Water Board.

8. Any discharge to a storm water conveyance system that is not composed entirely of "*storm water*" is prohibited unless authorized by the San Diego Water Board. [The federal regulations, 40 CFR 122.26(b)(13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from firefighting activities.] [§122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].

9. The unauthorized discharge of treated or untreated sewage to waters of the state or to a storm water conveyance system is prohibited.

10. The discharge of industrial wastes to conventional septic tank/subsurface disposal systems, except as authorized by the terms described in California Water Code Section 13264, is prohibited.

11. The discharge of radioactive wastes amenable to alternative methods of disposal into the waters of the state is prohibited.

12. The discharge of any radiological, chemical, or biological warfare agent into waters of the state is prohibited.

13. The discharge of waste into a natural or excavated site below historic water levels is prohibited unless the discharge is authorized by the San Diego Water Board.

14. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity or discoloration in waters of the state or which unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.

15. The discharge of treated or untreated sewage from vessels to Mission Bay, Oceanside Harbor, Dana Point Harbor, or other small boat harbors is prohibited.

16. The discharge of untreated sewage from vessels to San Diego Bay is prohibited.

17. The discharge of treated sewage from vessels to portions of San Diego Bay that are less than 30 feet deep at mean lower low water (MLLW) is prohibited.

18. The discharge of treated sewage from vessels, which do not have a properly functioning US Coast Guard certified Type I or Type II marine sanitation device, to portions of San Diego Bay that are greater than 30 feet deep at mean lower low water (MLLW) is prohibited.

2. Attachment B to State Water Board Resolution 2012-0012, as amended by State Water Board Resolution No. 2012-0031.

Special Protections for Areas of Special Biological Significance (ASBS), Governing Point Source Discharges of Storm Water and Nonpoint Source Waste Discharges

I. PROVISIONS FOR POINT SOURCE DISCHARGES OF STORM WATER AND NONPOINT SOURCE WASTE DISCHARGES

The following terms, prohibitions, and special conditions (hereafter collectively referred to as special conditions) are established as limitations on point source storm water and nonpoint source discharges. These special conditions provide Special Protections for marine aquatic life and natural water quality in Areas of Special Biological Significance (ASBS), as required for State Water Quality Protection Areas pursuant to California Public Resources Code Sections 36700(f) and 36710(f). These Special Protections are adopted by the State Water Board as part of the California Ocean Plan (Ocean Plan) General Exception.

The special conditions are organized by category of discharge. The State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards (Regional Water Boards) will determine categories and the means of regulation for those categories [e.g., Point Source Storm Water National Pollutant Discharge Elimination System (NPDES) or Nonpoint Source].

A. PERMITTED POINT SOURCE DISCHARGES OF STORM WATER

1. General Provisions for Permitted Point Source Discharges of Storm Water

a. Existing storm water discharges into an ASBS are allowed only under the following conditions:

(1) The discharges are authorized by an NPDES permit issued by the State Water Board or Regional Water Board;

(2) The discharges comply with all of the applicable terms, prohibitions, and special conditions contained in these Special Protections; and

(3) The discharges:

(i) Are essential for flood control or slope stability, including roof, landscape, road, and parking lot drainage;

(ii) Are designed to prevent soil erosion;

(iii) Occur only during wet weather;

(iv) Are composed of only storm water runoff.

b. Discharges composed of storm water runoff shall not alter natural ocean water quality in an ASBS.

c. The discharge of trash is prohibited.

d. Only discharges from existing storm water outfalls are allowed. Any proposed or new storm water runoff discharge shall be routed to existing storm water discharge outfalls and shall not result in any new contribution of waste to an ASBS (i.e., no additional pollutant loading). "Existing storm water outfalls" are those that were constructed or under construction prior to January 1, 2005. "New contribution of waste" is defined as any addition of waste beyond what would have occurred as of January 1, 2005. A change to an existing storm water outfall, in terms of re-location or alteration, in order to comply with these special conditions, is allowed and does not constitute a new discharge.

e. Non-storm water discharges are prohibited except as provided below:

(1) The term "non-storm water discharges" means any waste discharges from a municipal separate storm sewer system (MS4) or other NPDES permitted storm drain system to an ASBS that are not composed entirely of storm water.

(2) (i) The following non-storm water discharges are allowed, provided that the discharges are essential for emergency response purposes, structural stability, slope stability or occur naturally:

(a) Discharges associated with emergency fire fighting operations.

(b) Foundation and footing drains.

(c) Water from crawl space or basement pumps.

(d) Hillside dewatering.

(e) Naturally occurring groundwater seepage via a storm drain.

(f) Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.

(ii) An NPDES permitting authority may authorize non-storm water discharges to an MS4 with a direct discharge to an ASBS only to the extent the NPDES permitting authority finds that the discharge does not alter natural ocean water quality in the ASBS.

(3) Authorized non-storm water discharges shall not cause or contribute to a violation of the water quality objectives in Chapter II of the Ocean Plan nor alter natural ocean water quality in an ASBS.

2. Compliance Plans for Inclusion in Storm Water Management Plans (SWMP) and Storm Water Pollution Prevention Plans (SWPPP).

The discharger shall specifically address the prohibition of non-storm water runoff and the requirement to maintain natural water quality for storm water discharges to an ASBS in an ASBS Compliance Plan to be included in its SWMP or a SWPPP, as appropriate to permit

type. If a statewide permit includes a SWMP, then the discharger shall prepare a stand-alone compliance plan for ASBS discharges. The ASBS Compliance Plan is subject to approval by the Executive Director of the State Water Board (statewide permits) or Executive Officer of the Regional Water Board (for permits issued by Regional Water Boards).

a. The Compliance Plan shall include a map of surface drainage of storm water runoff, showing areas of sheet runoff, prioritize discharges, and describe any structural Best Management Practices (BMPs) already employed and/or BMPs to be employed in the future. Priority discharges are those that pose the greatest water quality threat and which are identified to require installation of structural BMPs. The map shall also show the storm water conveyances in relation to other features such as service areas, sewage conveyances and treatment facilities, landslides, areas prone to erosion, and waste and hazardous material storage areas, if applicable. The SWMP or SWPPP shall also include a procedure for updating the map and plan when changes are made to the storm water conveyance facilities.

b. The ASBS Compliance Plan shall describe the measures by which all non-authorized non-storm water runoff (e.g., dry weather flows) has been eliminated, how these measures will be maintained over time, and how these measures are monitored and documented.

c. For Municipal Separate Storm Sewer System (MS4s), the ASBS Compliance Plan shall require minimum inspection frequencies as follows:

(1) The minimum inspection frequency for construction sites shall be weekly during rainy season;

(2) The minimum inspection frequency for industrial facilities shall be monthly during the rainy season;

(3) The minimum inspection frequency for commercial facilities (e.g., restaurants) shall be twice during the rainy season; and

(4) Storm water outfall drains equal to or greater than 18 inches (457 mm) in diameter or width shall be inspected once prior to the beginning of the rainy season and once during the rainy season and maintained to remove trash and other anthropogenic debris.

d. The ASBS Compliance Plan shall address storm water discharges (wet weather flows) and, in particular, describe how pollutant reductions in storm water runoff, that are necessary to comply with these special conditions, will be achieved through BMPs. Structural BMPs need not be installed if the discharger can document to the satisfaction of the State Water Board Executive Director (statewide permits) or Regional Water Board Executive Officer (Regional Water Board permits) that such installation would pose a threat to health or safety. BMPs to control storm water runoff discharges (at the end-of-pipe) during a design storm shall be designed to achieve on average the following target levels:

(1) Table B Instantaneous Maximum Water Quality Objectives in Chapter II of the Ocean Plan; or

(2) A 90% reduction in pollutant loading during storm events, for the applicant's total discharges.

The baseline for these determinations is the effective date of the Exception, except for those structural BMPs installed between January 1, 2005 and adoption of these Special Protections, and the reductions must be achieved and documented within six (6) years of the effective date.

e. The ASBS Compliance Plan shall address erosion control and the prevention of anthropogenic sedimentation in ASBS. The natural habitat conditions in the ASBS shall not be altered as a result of anthropogenic sedimentation.

f. The ASBS Compliance Plan shall describe the non-structural BMPs currently employed and planned in the future (including those for construction activities), and include an implementation schedule. The ASBS Compliance Plan shall include non-structural BMPs that address public education and outreach. Education and outreach efforts must adequately inform the public that direct discharges of pollutants from private property not entering an MS4 are prohibited. The ASBS Compliance Plan shall also describe the structural BMPs, including any low impact development (LID) measures, currently employed and planned for higher threat discharges and include an implementation schedule. To control storm water runoff discharges (at the end-of-pipe) during a design storm, permittees must first consider, and use where feasible, LID practices to infiltrate, use, or evapotranspirate storm water runoff on-site, if LID practices would be the most effective at reducing pollutants from entering the ASBS.

g. The BMPs and implementation schedule shall be designed to ensure that natural water quality conditions in the receiving water are achieved and maintained by either reducing flows from impervious surfaces or reducing pollutant loading, or some combination thereof.

h. If the results of the receiving water monitoring described in IV.B. of these special conditions indicate that the storm water runoff is causing or contributing to an alteration of natural ocean water quality in the ASBS, the discharger shall submit a report to the State Water Board and Regional Water Board within 30 days of receiving the results.

(1) The report shall identify the constituents in storm water runoff that alter natural ocean water quality and the sources of these constituents.

(2) The report shall describe BMPs that are currently being implemented, BMPs that are identified in the SWMP or SWPPP for future implementation, and any additional BMPs that may be added to the SWMP or SWPPP to address the alteration of natural water quality. The report shall include a new or modified implementation schedule for the BMPs.

(3) Within 30 days of the approval of the report by the State Water Board Executive Director (statewide permits) or Regional Water Board Executive Officer (Regional Water Board permits), the discharger shall revise its ASBS Compliance Plan to incorporate any new or modified BMPs that have been or will be implemented, the implementation schedule, and any additional monitoring required.

(4) As long as the discharger has complied with the procedures described above and is implementing the revised SWMP or SWPPP, the discharger does not have to repeat the same procedure for continuing or recurring exceedances of natural ocean water quality conditions due to the same constituent.

(5) The requirements of this section are in addition to the terms, prohibitions, and conditions contained in these Special Protections.

3. Compliance Schedule

a. On the effective date of the Exception, all non-authorized non-storm water discharges (e.g., dry weather flow) are effectively prohibited.

b. Within eighteen (18) months from the effective date of the Exception, the discharger shall submit a draft written ASBS Compliance Plan to the State Water Board Executive Director (statewide permits) or Regional Water Board Executive Officer (Regional Water Board permits) that describes its strategy to comply with these special conditions, including the requirement to maintain natural water quality in the affected ASBS. The ASBS Compliance Plan shall include a description of appropriate non-structural controls and a time schedule to implement structural controls (implementation schedule) to comply with these special conditions for inclusion in the discharger's SWMP or SWPPP, as appropriate to permit type. The final ASBS Compliance Plan, including a description and final schedule for structural controls based on the results of runoff and receiving water monitoring, must be submitted within thirty (30) months from the effective date of the Exception.

c. Within 18 months of the effective date of the Exception, any non-structural controls that are necessary to comply with these special conditions shall be implemented.

d. Within six (6) years of the effective date of the Exception, any structural controls identified in the ASBS Compliance Plan that are necessary to comply with these special conditions shall be operational.

e. Within six (6) years of the effective date of the Exception, all dischargers must comply with the requirement that their discharges into the affected ASBS maintain natural ocean water quality. If the initial results of post-storm receiving water quality testing indicate levels higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, then the discharger must re-sample the receiving water, pre- and post-storm. If after re-sampling the post-storm levels are still higher than the 85th percentile threshold of reference water quality data, and the pre-storm receiving water levels, for any constituent, then natural ocean water quality is exceeded. See attached Flowchart.

f. The Executive Director of the State Water Board (statewide permits) or Executive Officer of the Regional Water Board (Regional Water Board permits) may only authorize additional time to comply with the special conditions d. and e., above if good cause exists to do so. Good cause means a physical impossibility or lack of funding.

If a discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the discharger first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in d. or e. The notice shall describe

the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of this Exception. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality.

The discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

1. for municipalities, a demonstration of significant hardship to discharger ratepayers, by showing the relationship of storm water fees to annual household income for residents within the discharger's jurisdictional area, and the discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate; or

2. for other governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process, and a demonstration that funding was unavailable or inadequate.

B. NONPOINT SOURCE DISCHARGES

1. General Provisions for Nonpoint Sources

a. Existing nonpoint source waste discharges are allowed into an ASBS only under the following conditions:

(1) The discharges are authorized under waste discharge requirements, a conditional waiver of waste discharge requirements, or a conditional prohibition issued by the State Water Board or a Regional Water Board.

(2) The discharges are in compliance with the applicable terms, prohibitions, and special conditions contained in these Special Protections.

(3) The discharges:

(i) Are essential for flood control or slope stability, including roof, landscape, road, and parking lot drainage;

(ii) Are designed to prevent soil erosion;

(iii) Occur only during wet weather;

(iv) Are composed of only storm water runoff.

b. Discharges composed of storm water runoff shall not alter natural ocean water quality in an ASBS.

c. The discharge of trash is prohibited.

d. Only existing nonpoint source waste discharges are allowed. "Existing nonpoint source waste discharges" are discharges that were ongoing prior to January 1, 2005. "New nonpoint source discharges" are defined as those that commenced on or after January 1, 2005. A change to an existing nonpoint source discharge, in terms of relocation or alteration, in order to comply with these special conditions, is allowed and does not constitute a new discharge.

e. Non-storm water discharges from nonpoint sources (those not subject to an NPDES Permit) are prohibited except as provided below:

(1) The term "non-storm water discharges" means any waste discharges that are not composed entirely of storm water.

(2) The following non-storm water discharges are allowed, provided that the discharges are essential for emergency response purposes, structural stability, slope stability, or occur naturally:

(i) Discharges associated with emergency fire fighting operations.

(ii) Foundation and footing drains.

(iii) Water from crawl space or basement pumps.

(iv) Hillside dewatering.

(v) Naturally occurring groundwater seepage via a storm drain.

(vi) Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.

(3) Authorized non-storm water discharges shall not cause or contribute to a violation of the water quality objectives in Chapter II of the Ocean Plan nor alter natural ocean water quality in an ASBS.

f. At the San Clemente Island ASBS, discharges incidental to military training and research, development, test, and evaluation operations are allowed. Discharges incidental to underwater demolition and other in-water explosions are not allowed in the two military closure areas in the vicinity of Wilson Cove and Castle Rock. Discharges must not result in a violation of the water quality objectives, including the protection of the marine aquatic life beneficial use, anywhere in the ASBS.

g. At the San Nicolas Island and Begg Rock ASBS, discharges incidental to military research, development, testing, and evaluation of, and training with, guided missile and other weapons systems, fleet training exercises, small-scale amphibious warfare training, and special warfare training are allowed. Discharges incidental to underwater demolition and other in-water explosions are not allowed. Discharges must not result in a violation of the water quality objectives, including the protection of the marine aquatic life beneficial use, anywhere in the ASBS.

h. All other nonpoint source discharges not specifically authorized above are prohibited.

2. Planning and Reporting

a. The nonpoint source discharger shall develop an ASBS Pollution Prevention ~~P~~lan, including an implementation schedule, to address storm water runoff and any other nonpoint source discharges from its facilities. The ASBS Pollution Prevention Plan must be equivalent in contents to an ASBS Compliance Plan as described in I (A)(2) in this document. The ASBS Pollution Prevention Plan is subject to approval by the Executive Director of the State Water Board (statewide waivers or waste discharge requirements) or Executive Officer of the Regional Water Board (Regional Water Board waivers or waste discharge requirements).

b. The ASBS Pollution Prevention Plan shall address storm water discharges (wet weather flows) and, in particular, describe how pollutant reductions in storm water runoff that are necessary to comply with these special conditions, will be achieved through Management Measures and associated Management Practices (Management Measures/Practices). Structural BMPs need not be installed if the discharger can document to the satisfaction of the State Water Board Executive Director or Regional Water Board Executive Officer that such installation would pose a threat to health or safety. Management Measures to control storm water runoff during a design storm shall achieve on average the following target levels:

(1) Table B Instantaneous Maximum Water Quality Objectives in Chapter II of the Ocean Plan; or

(2) A 90% reduction in pollutant loading during storm events, for the applicant's total discharges.

The baseline for these determinations is the effective date of the Exception, except for those structural BMPs installed between January 1, 2005 and adoption of these Special Protections, and the reductions must be achieved and documented within six (6) years of the effective date.

c. If the results of the receiving water monitoring described in IV.B. of these special conditions indicate that the storm water runoff or other nonpoint source pollution is causing or contributing to an alteration of natural ocean water quality in the ASBS, the discharger shall submit a report to the State Water Board and the Regional Water Board within 30 days of receiving the results.

(1) The report shall identify the constituents that alter natural water quality and the sources of these constituents.

(2) The report shall describe Management Measures/Practices that are currently being implemented, Management Measures/Practices that are identified in the ASBS Pollution Prevention Plan for future implementation, and any additional Management Measures/Practices that may be added to the Pollution Prevention Plan to address the alteration of natural water quality. The report shall include a new or modified implementation schedule for the Management Measures/Practices.

(3) Within 30 days of the approval of the report by the State Water Board Executive Director (statewide waivers or waste discharge requirements) or Executive Officer of

the Regional Water Board (Regional Water Board waivers or waste discharge requirements), the discharger shall revise its ASBS Pollution Prevention Plan to incorporate any new or modified Management Measures/Practices that have been or will be implemented, the implementation schedule, and any additional monitoring required.

(4) As long as the discharger has complied with the procedures described above and is implementing the revised ASBS Pollution Prevention Plan, the discharger does not have to repeat the same procedure for continuing or recurring exceedances of natural water quality conditions due to the same constituent.

(5) The requirements of this section are in addition to the terms, prohibitions, and conditions contained in these Special Protections.

3. Compliance Schedule

a. On the effective date of the Exception, all non-authorized non-storm water discharges (e.g., dry weather flow) are effectively prohibited.

b. Within eighteen (18) months from the effective date of the Exception, the dischargers shall submit a draft written ASBS Pollution Prevention Plan to the State Water Board Executive Director (statewide waivers or waste discharge requirements) or Executive Officer of the Regional Water Board (Regional Water Board waivers or waste discharge requirements) that describes its strategy to comply with these special conditions, including the requirement to maintain natural ocean water quality in the affected ASBS. The Pollution Prevention Plan shall include a description of appropriate non-structural controls and a time schedule to implement structural controls to comply with these special conditions for inclusion in the discharger's Pollution Prevention Plan. The final ASBS Pollution Prevention Plan, including a description and final schedule for structural controls based on the results of runoff and receiving water monitoring, must be submitted within thirty (30) months from the effective date of the Exception.

c. Within 18 months of the effective date of the Exception, any non-structural controls that are necessary to comply with these Special Protections shall be implemented.

d. Within six (6) years of the effective date of the Exception, any structural controls identified in the ASBS Pollution Prevention Plan that are necessary to comply with these special conditions shall be operational.

e. Within six (6) years of the effective date of the Exception, all dischargers must comply with the requirement that their discharges into the affected ASBS maintain natural ocean water quality. If the initial results of post-storm receiving water quality testing indicate levels higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, then the discharger must re-sample the receiving water pre- and post-storm. If after re-sampling the post-storm levels are still higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, for any constituent, then natural ocean water quality is exceeded. See attached Flowchart.

f. The Executive Director of the State Water Board (statewide waivers or waste discharge requirements) or Executive Officer of the Regional Water Board (Regional Water Board

waivers or waste discharge requirements) may only authorize additional time to comply with the special conditions d. and e., above if good cause exists to do so. Good cause means a physical impossibility or lack of funding.

If a discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the discharger first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in d. or e. The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of this Exception. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality.

The discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

1. a demonstration that the discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate; or

2. for governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process, and a demonstration that funding was unavailable or inadequate.

II. ADDITIONAL REQUIREMENTS FOR PARKS AND RECREATION FACILITIES

In addition to the provisions in Section I (A) or I (B), respectively, a discharger with parks and recreation facilities shall comply with the following:

A. The discharger shall include a section in an ASBS Compliance Plan (for NPDES dischargers) or an ASBS Pollution Prevention Plan (for nonpoint source dischargers) to address storm water runoff from parks and recreation facilities.

1. The plan shall identify all pollutant sources, including sediment sources, which may result in waste entering storm water runoff. Pollutant sources include, but are not limited to, roadside rest areas and vistas, picnic areas, campgrounds, trash receptacles, maintenance facilities, park personnel housing, portable toilets, leach fields, fuel tanks, roads, piers, and boat launch facilities.

2. The plan shall describe BMPs or Management Measures/Practices that will be implemented to control soil erosion (both temporary and permanent erosion controls) and reduce or eliminate pollutants in storm water runoff in order to achieve and maintain natural water quality conditions in the affected ASBS. The plan shall include BMPs or Management Measures/Practices to ensure that trails and culverts are maintained to prevent erosion and minimize waste discharges to ASBS.

3. The plan shall include BMPs or Management Measures/Practices to prevent the discharge of pesticides or other chemicals, including agricultural chemicals, in storm water runoff to the affected ASBS.

4. The plan shall include BMPs or Management Measures/Practices that address public education and outreach. The goal of these BMPs or Management Measures/Practices is to ensure that the public is adequately informed that waste discharges to the affected ASBS are prohibited or limited by special conditions in these Special Protections. The BMPs or Management Measures/Practices shall include signage at camping, picnicking, beach and roadside parking areas, and visitor centers, or other appropriate measures, which notify the public of any applicable requirements of these Special Protections and identify the ASBS boundaries.

5. The plan shall include BMPs or Management Measures/Practices that address the prohibition against the discharge of trash to ASBS. The BMPs or Management Measures/Practices shall include measures to ensure that adequate trash receptacles are available for public use at visitor facilities, including parking areas, and that the receptacles are adequately maintained to prevent trash discharges into the ASBS. Appropriate measures include covering trash receptacles to prevent trash from being wind blown and periodically emptying the receptacles to prevent overflows.

6. The plan shall include BMPs or Management Measures/Practices to address runoff from parking areas and other developed features to ensure that the runoff does not alter natural water quality in the affected ASBS. BMPs or Management Measures/Practices shall include measures to reduce pollutant loading in runoff to the ASBS through installation of natural area buffers (LID), treatment, or other appropriate measures.

B. Maintenance and repair of park and recreation facilities must not result in waste discharges to the ASBS. The practice of road oiling must be minimized or eliminated, and must not result in waste discharges to the ASBS.

III. ADDITIONAL REQUIREMENTS – WATERFRONT AND MARINE OPERATIONS

In addition to the provisions in Section I (A) or I (B), respectively, a discharger with waterfront and marine operations shall comply with the following:

A. For discharges related to waterfront and marine operations, the discharger shall develop a Waterfront and Marine Operations Management Plan (Waterfront Plan). This plan shall contain appropriate Management Measures/Practices to address nonpoint source pollutant discharges to the affected ASBS.

1. The Waterfront Plan shall contain appropriate Management Measures/Practices for any waste discharges associated with the operation and maintenance of vessels, moorings, piers, launch ramps, and cleaning stations in order to ensure that beneficial uses are protected and natural water quality is maintained in the affected ASBS.

2. For discharges from marinas and recreational boating activities, the Waterfront Plan shall include appropriate Management Measures, described in The Plan for California's Nonpoint Source Pollution Control Program, for marinas and recreational boating, or equivalent practices, to ensure that nonpoint source pollutant discharges do not alter natural water quality in the affected ASBS.

3. The Waterfront Plan shall include Management Practices to address public education and outreach to ensure that the public is adequately informed that waste discharges to the affected ASBS are prohibited or limited by special conditions in these Special Protections. The management practices shall include appropriate signage, or similar measures, to inform the public of the ASBS restrictions and to identify the ASBS boundaries.

4. The Waterfront Plan shall include Management Practices to address the prohibition against trash discharges to ASBS. The Management Practices shall include the provision of adequate trash receptacles for marine recreation areas, including parking areas, launch ramps, and docks. The plan shall also include appropriate Management Practices to ensure that the receptacles are adequately maintained and secured in order to prevent trash discharges into the ASBS. Appropriate Management Practices include covering the trash receptacles to prevent trash from being windblown, staking or
securing the trash receptacles so they don't tip over, and periodically emptying the receptacles to prevent overflow.

5. The discharger shall submit its Waterfront Plan to the by the State Water Board Executive Director (statewide waivers or waste discharge requirements) or Executive Officer of the Regional Water Board (Regional Water Board waivers or waste discharge requirements) within six months of the effective date of these special conditions. The Waterfront Plan is subject to approval by the State Water Board Executive Director or the Regional Water Board Executive Officer, as appropriate. The plan must be fully implemented within 18 months of the effective date of the Exception.

B. The discharge of chlorine, soaps, petroleum, other chemical contaminants, trash, fish offal, or human sewage to ASBS is prohibited. Sinks and fish cleaning stations are point source discharges of wastes and are prohibited from discharging into ASBS. Anthropogenic accumulations of discarded fouling organisms on the sea floor must be minimized.

C. Limited-term activities, such as the repair, renovation, or maintenance of waterfront facilities, including, but not limited to, piers, docks, moorings, and breakwaters, are authorized only in accordance with Chapter III.E.2 of the Ocean Plan.

D. If the discharger anticipates that the discharger will fail to fully implement the approved Waterfront Plan within the 18 month deadline, the discharger shall submit a technical report as soon as practicable to the State Water Board Executive Director or the Regional Water Board Executive Officer, as appropriate. The technical report shall contain reasons for failing to meet the deadline and propose a revised schedule to fully implement the plan.

E. The State Water Board or the Regional Water Board may, for good cause, authorize additional time to comply with the Waterfront Plan. Good cause means a physical impossibility or lack of funding.

If a discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the discharger first knew of the event or circumstance that

caused or would cause it to fail to meet the deadline in Section III.A.5. The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of this Exception. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality. The discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

1. a demonstration of significant hardship by showing that the discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate.

2. for governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process, and a demonstration that funding was unavailable or inadequate.

IV. MONITORING REQUIREMENTS

Monitoring is mandatory for all dischargers to assure compliance with the Ocean Plan. Monitoring requirements include both: (A) core discharge monitoring, and (B) ocean receiving water monitoring. The State and Regional Water Boards must approve sampling site locations and any adjustments to the monitoring programs. All ocean receiving water and reference area monitoring must be comparable with the Water Boards' Surface Water Ambient Monitoring Program (SWAMP).

Safety concerns: Sample locations and sampling periods must be determined considering safety issues. Sampling may be postponed upon notification to the State and Regional Water Boards if hazardous conditions prevail.

Analytical Chemistry Methods: All constituents must be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, must be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

A. CORE DISCHARGE MONITORING PROGRAM

1. General sampling requirements for timing and storm size:

Runoff must be collected during a storm event that is greater than 0.1 inch and generates runoff, and at least 72 hours from the previously measurable storm event. Runoff samples shall be collected during the same storm and at approximately the same time when post-storm receiving water is sampled, and analyzed for the same constituents as receiving water and reference site samples (see section IV B) as described below.

2. Runoff flow measurements

a. For municipal/industrial storm water outfalls in existence as of December 31, 2007, 18 inches (457mm) or greater in diameter/width (including multiple outfall pipes in combination having a width of 18 inches, runoff flows must be measured or calculated, using a method acceptable to and approved by the State and Regional Water Boards.

b. This will be reported annually for each precipitation season to the State and Regional Water Boards.

3. Runoff samples – storm events

a. For outfalls equal to or greater than 18 inches (0.46m) in diameter or width:

(1) samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, within the range of the southern sea otter indicator bacteria or some other measure of fecal contamination; and

(2) samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.

(3) If an applicant has no outfall greater than 36 inches, then storm water runoff from the applicant's largest outfall shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B metals for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates).

b. For outfalls equal to or greater than 36 inches (0.91m) in diameter or width:

(1) samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, within the range of the southern sea otter indicator bacteria or some other measure of fecal contamination; and

(2) samples of storm water runoff shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B metals for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates); and

(3) samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.

c. For an applicant not participating in a regional monitoring program [see below in Section IV (B)] in addition to (a.) and (b.) above, a minimum of the two largest outfalls or 20 percent of the larger outfalls, whichever is greater, shall be sampled (flow weighted composite samples) at least three times annually during wet weather (storm event)

and analyzed for all Ocean Plan Table A constituents, Table B constituents for marine aquatic life protection (except for toxicity, only chronic toxicity for three species shall be required), DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, and Ocean Plan indicator bacteria. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one (the largest) such discharge shall be sampled annually in each Region.

4. The Executive Director of the State Water Board (statewide permits) or Executive Officer of the Regional Water Board (Regional Water Board permits) may reduce or suspend core monitoring once the storm runoff is fully characterized. This determination may be made at any point after the discharge is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

B. Ocean Receiving Water and Reference Area Monitoring Program

In addition to performing the Core Discharge Monitoring Program in Section II.A above, all applicants having authorized discharges must perform ocean receiving water monitoring. In order to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS, dischargers may choose either (1) an individual monitoring program, or (2) participation in a regional integrated monitoring program.

1. Individual Monitoring Program: The requirements listed below are for those dischargers who elect to perform an individual monitoring program to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within the affected ASBS. In addition to Core Discharge Monitoring, the following additional monitoring requirements shall be met:

   a. Three times annually, during wet weather (storm events), the receiving water at the point of discharge from the outfalls described in section (IV)(A)(3)(c) above shall be sampled and analyzed for Ocean Plan Table A constituents, Table B constituents for marine aquatic life, DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, salinity, chronic toxicity (three species), and Ocean Plan indicator bacteria.

      The sample location for the ocean receiving water shall be in the surf zone at the point of discharges; this must be at the same location where storm water runoff is sampled. Receiving water shall be sampled prior to (pre-storm) and during (or immediately after) the same storm (post storm). Post storm sampling shall be during the same storm and at approximately the same time as when the runoff is sampled. Reference water quality shall also be sampled three times annually and analyzed for the same constituents pre-storm and post-storm, during the same storm seasons when receiving water is sampled. Reference stations will be determined by the State Water Board's Division of Water Quality and the applicable Regional Water Board(s).

   b. Sediment sampling shall occur at least three times during every five (5) year period. The subtidal sediment (sand or finer, if present) at the discharge shall be sampled and analyzed for Ocean Plan Table B constituents for marine aquatic life, DDT, PCBs, PAHs, pyrethroids, and OP pesticides. For sediment toxicity testing, only an acute toxicity test using the amphipod *Eohaustorius estuarius* must be performed.

c. A quantitative survey of intertidal benthic marine life shall be performed at the discharge and at a reference site. The survey shall be performed at least once every five (5) year period. The survey design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The results of the survey shall be completed and submitted to the State Water Board and Regional Water Board at least six months prior to the end of the permit cycle.

d. Once during each five (5) year period, a bioaccumulation study shall be conducted to determine the concentrations of metals and synthetic organic pollutants at representative discharge sites and at representative reference sites. The study design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The bioaccumulation study may include California mussels (*Mytilus californianus*) and/or sand crabs (*Emerita analoga* or *Blepharipoda occidentalis*). Based on the study results, the Regional Water Board and the State Water Board's Division of Water Quality, may adjust the study design in subsequent permits, or add or modify additional test organisms (such as shore crabs or fish), or modify the study design appropriate for the area and best available sensitive measures of contaminant exposure.

e. Marine Debris: Representative quantitative observations for trash by type and source shall be performed along the coast of the ASBS within the influence of the discharger's outfalls. The design, including locations and frequency, of the marine debris observations is subject to approval by the Regional Water Board and State Water Board's Division of Water Quality.

f. The monitoring requirements of the Individual Monitoring Program in this section are minimum requirements. After a minimum of one (1) year of continuous water quality monitoring of the discharges and ocean receiving waters, the Executive Director of the State Water Board (statewide permits) or Executive Officer of the Regional Water Board (Regional Water Board permits) may require additional monitoring, or adjust, reduce or suspend receiving water and reference station monitoring. This determination may be made at any point after the discharge and receiving water is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

2. Regional Integrated Monitoring Program: Dischargers may elect to participate in a regional integrated monitoring program, in lieu of an individual monitoring program, to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS. This regional approach shall characterize natural water quality, pre- and post-storm, in ocean reference areas near the mouths of identified open space watersheds and the effects of the discharges on natural water quality (physical, chemical, and toxicity) in the ASBS receiving waters, and should include benthic marine aquatic life and bioaccumulation components. The design of the ASBS stratum of a regional integrated monitoring program may deviate from the otherwise prescribed individual monitoring approach (in Section IV.B.1) if approved by the State Water Board's Division of Water Quality and the Regional Water Boards.

a. Ocean reference areas shall be located at the drainages of flowing watersheds with minimal development (in no instance more than 10% development), and shall not be located in CWA Section 303(d) listed waterbodies or have tributaries that are 303(d) listed. Reference areas shall be free of wastewater discharges and anthropogenic non- storm water runoff. A minimum of low threat storm runoff discharges (e.g.

stream highway overpasses and campgrounds) may be allowed on a case-by-case basis. Reference areas shall be located in the same region as the ASBS receiving water monitoring occurs. The reference areas for each Region are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean reference water samples must be collected from each station, each from a separate storm during the same storm season that receiving water is sampled. A minimum of one reference location shall be sampled for each ASBS receiving water site sampled per responsible party. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.

b. ASBS ocean receiving water must be sampled in the surf zone at the location where the runoff makes contact with ocean water (i.e. at "point zero"). Ocean receiving water stations must be representative of worst-case discharge conditions (i.e. co-located at a large drain greater than 36 inches, or if drains greater than 36 inches are not present in the ASBS then the largest drain greater than18 inches.) Ocean receiving water stations are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean receiving water samples must be collected during each storm season from each station, each from a separate storm. A minimum of one receiving water location shall be sampled in each ASBS per responsible party in that ASBS. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.

c. Reference and receiving water sampling shall commence during the first full storm season following the adoption of these special conditions, and post-storm samples shall be collected during the same storm event when storm water runoff is sampled. Sampling shall occur in a minimum of two storm seasons. For those ASBS dischargers that have already participated in the Southern California Bight 2008 ASBS regional monitoring effort, sampling may be limited to only one storm season.

d. Receiving water and reference samples shall be analyzed for the same constituents as storm water runoff samples. At a minimum, constituents to be sampled and analyzed in reference and discharge receiving waters must include oil and grease, total suspended solids, Ocean Plan Table B metals for protection of marine life, Ocean Plan PAHs, pyrethroids, OP pesticides, ammonia, nitrate, phosphates, and critical life stage chronic toxicity for three species. In addition, within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination shall be analyzed.

3. Waterfront and Marine Operations: In addition to the above requirements for ocean receiving water monitoring, additional monitoring must be performed for marinas and boat launch and pier facilities:

a. For all marina or mooring field operators, in mooring fields with 10 or more occupied moorings, the ocean receiving water must be sampled for Ocean Plan indicator bacteria, residual chlorine, copper, zinc, grease and oil, methylene blue active substances (MBAS), and ammonia nitrogen.

(1) For mooring field operators opting for an individual monitoring program (Section IV.B.1 above), this sampling must occur weekly (on the weekend) from May through October.

(2) For mooring field operators opting to participate in a regional integrated monitoring program (Section IV.B.2 above), this sampling must occur monthly from May through October on a high use weekend in each month. The Water Boards may allow a reduction in the frequency of sampling, through the regional monitoring program, after the first year of monitoring.

b. For all mooring field operators, the subtidal sediment (sand or finer, if present) within mooring fields and below piers shall be sampled and analyzed for Ocean Plan Table B metals (for marine aquatic life beneficial use), acute toxicity, PAHs, and tributyltin. For sediment toxicity testing, only an acute toxicity test using the amphipod *Eohaustorius estuarius* must be performed. This sampling shall occur at least three times during a five (5) year period. For mooring field operators opting to participate in a regional integrated monitoring program, the Water Boards may allow a reduction in the frequency of sampling after the first sampling effort's results are assessed.

Glossary

At the point of discharge(s) – Means in the surf zone immediately where runoff from an outfall meets the ocean water (a.k.a., at point zero).

Areas of Special Biological Significance (ASBS) – Those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable. All Areas of Special Biological Significance are also classified as a subset of State Water Quality Protection Areas.

Design storm – For purposes of these Special Protections, a design storm is defined as the volume of runoff produced from one inch of precipitation per day or, if this definition is inconsistent with the discharger's applicable storm water permit, then the design storm shall be the definition included in the discharger's applicable storm water permit.

Development – Relevant to reference monitoring sites, means urban, industrial, agricultural, grazing, mining, and timber harvesting land uses.

Higher threat discharges - Permitted storm drains discharging equal to or greater than 18 inches, industrial storm drains, agricultural runoff discharged through an MS4, discharges associated with waterfront and marina operations (e.g., piers, launch ramps, mooring fields, and associated vessel support activities, except for passive discharges defined below), and direct discharges associated with commercial or industrial activities to ASBS.

Low Impact Development (LID) – A sustainable practice that benefits water supply and contributes to water quality protection. Unlike traditional storm water management, which entails collecting and conveying storm water runoff through storm drains, pipes, or other conveyances to a centralized storm water facility, LID focuses on using site design and storm water management to maintain the site's pre-development runoff rates and volumes. The goal of LID is to mimic a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to the source of rainfall.

Marine Operations – Marinas or mooring fields that contain slips or mooring locations for 10 or more vessels.

Management Measure (MM) - Economically achievable measures for the control of the addition of pollutants from various classes of nonpoint sources of pollution, which reflect the greatest degree of pollutant reduction achievable through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives. For example, in the "marinas and recreational boating" land- use category specified in the Plan for California's Nonpoint Source Pollution Control Program (NPS Program Plan) (SWRCB, 1999), "boat cleaning and maintenance" is considered a MM or the source of a specific class or type of NPS pollution.

Management Practice (MP) - The practices (e.g., structural, non-structural, operational, or other alternatives) that can be used either individually or in combination to address a specific MM class or classes of NPS pollution. For example, for the "boat cleaning and maintenance" MM, specific MPs can include, but are not limited to, methods for the selection of environmentally sensitive hull paints or methods for cleaning/removal of hull copper anti- fouling paints.

Municipal Separate Storm Sewer System (MS4) – A municipally-owned storm sewer system regulated under the Phase I or Phase II storm water program implemented in compliance with Clean Water Act section 402(p). Note that an MS4 program's boundaries are not necessarily congruent with the permittee's political boundaries.

Natural Ocean Water Quality - The water quality (based on selected physical, chemical and biological characteristics) that is required to sustain marine ecosystems, and which is without apparent human influence, *i.e.*, an absence of significant amounts of: (a) man-made constituents (*e.g.,* DDT); (b) other chemical (*e.g.,* trace metals), physical (temperature/thermal pollution, sediment burial), and biological (*e.g.*, bacteria) constituents at concentrations that have been elevated due to man's activities above those resulting from the naturally occurring processes that affect the area in question; and (c) non-indigenous biota (*e.g.,* invasive algal bloom species) that have been introduced either deliberately or accidentally by man. Discharges "*shall not alter natural ocean water quality*" as determined by a comparison to the range of constituent concentrations in reference areas agreed upon via the regional monitoring program(s). If monitoring information indicates that *natural ocean water quality* is not maintained, but there is sufficient evidence that a discharge is not contributing to the alteration of natural water quality, then the Regional Water Board may make that determination. In this case, sufficient information must include runoff sample data that has equal or lower concentrations for the range of constituents at the applicable reference area(s).

Nonpoint source – Nonpoint pollution sources generally are sources that do not meet the definition of a point source. Nonpoint source pollution typically results from land runoff, precipitation, atmospheric deposition, agricultural drainage, marine/boating operations or hydrologic modification. Nonpoint sources, for purposes of these Special Protections, include discharges that are not required to be regulated under an NPDES permit.

Non-storm water discharge – Any runoff that is not the result of a precipitation event. This is often referred to as "dry weather flow."

Non-structural control – A Best Management Practice that involves operational, maintenance, regulatory (e.g., ordinances) or educational activities designed to reduce or eliminate pollutants in runoff, and that are not structural controls (i.e. there are no physical structures involved).

Physical impossibility - Means any act of God, war, fire, earthquake, windstorm, flood or natural catastrophe; unexpected and unintended accidents not caused by discharger or its employees' negligence; civil disturbance, vandalism, sabotage or terrorism; restrain by court order or public authority or agency; or action or non-action by, or inability to

obtain the necessary authorizations or approvals from any governmental agency other than the permittee.

Representative sites and monitoring procedures – Are to be proposed by the discharger, with appropriate rationale, and subject to approval by Water Board staff.

Sheet-flow – Runoff that flows across land surfaces at a shallow depth relative to the cross- sectional width of the flow. These types of flow may or may not enter a storm drain system before discharge to receiving waters.

Storm Season – Also referred to as rainy season, means the months of the year from the onset of rainfall during autumn until the cessation of rainfall in the spring.

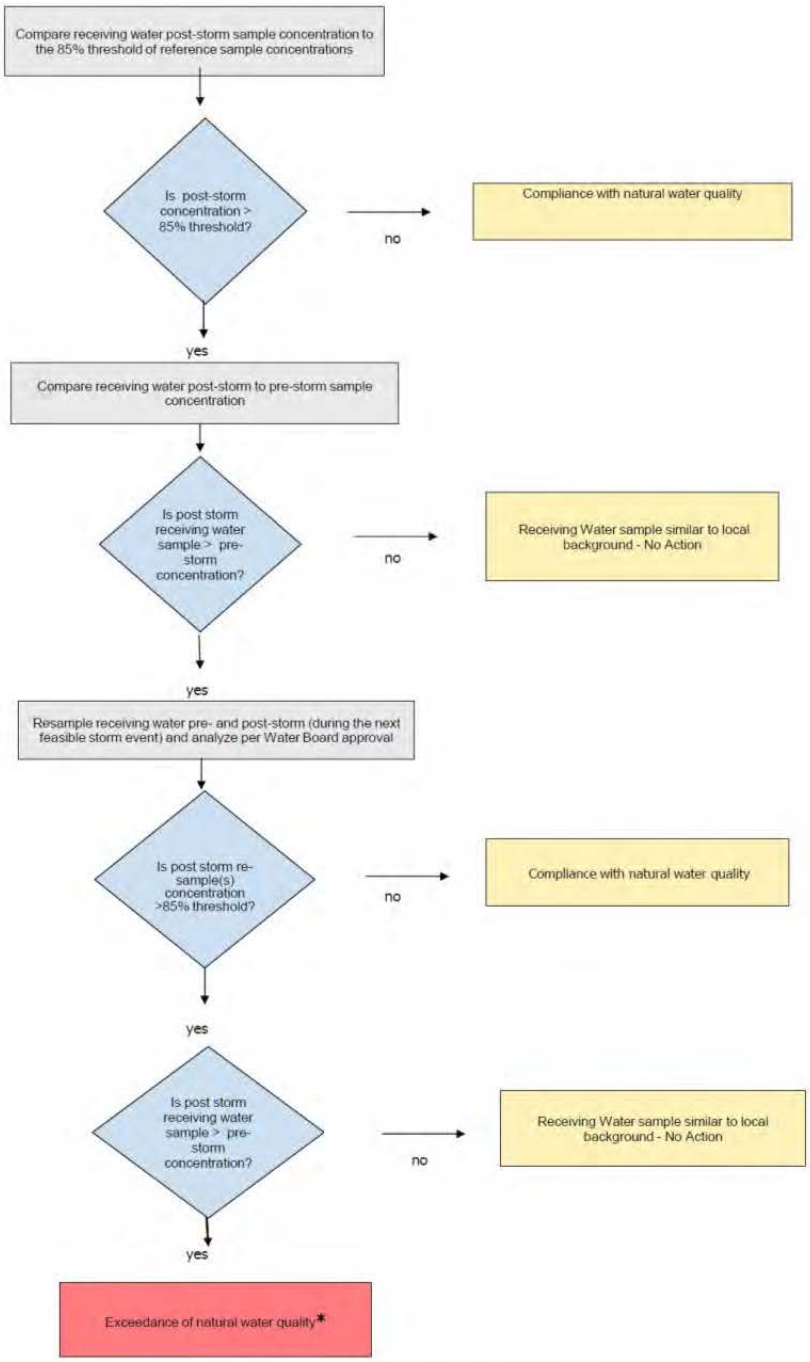
Structural control – A Best Management Practice that involves the installation of engineering solutions to the physical treatment or infiltration of runoff.

Surf Zone - The surf zone is defined as the submerged area between the breaking waves and the shoreline at any one time.

Surface Water Ambient Monitoring Program (SWAMP) comparable – Means that the monitoring program must 1) meet or exceed 2008 SWAMP Quality Assurance Program Management Plan (QAPP) Measurement Quality Objectives, or 2) have a Quality Assurance Project Plan that has been approved by SWAMP; in addition data must be formatted to match the database requirements of the SWAMP Information Management System. Adherence to the measurement quality objectives in the Southern California Bight 2008 ASBS Regional Monitoring Program QAPP and data base management comprises being SWAMP comparable.

Waterfront Operations - Piers, launch ramps, and cleaning stations in the water or on the adjacent shoreline.

Attachment 1
Special Protections Sections I(A)(3)(e) and I(B)(3)(e)
Flowchart to Deteremine Compliance with natural Water Quality



*** When an exceedance of natural water quality occurs, the discharger must comply with section I.A.2.h (for permitted storm water) or section I.B.2.c (for nonpoint sources). Note, when sampling data is available, end-of-pipe effluent concentrations will be considered by the Water Boards in making this determination.**

ATTACHMENT B

STANDARD PERMIT PROVISIONS AND GENERAL PROVISIONS

1. Standard Permit Provisions

Code of Federal Regulations Title 40 Section 122.41 (40 CFR 122.41) includes conditions, or provisions, that apply to all National Pollutant Discharge Elimination System (NPDES) permits. Additional provisions applicable to NPDES permits are in 40 CFR 122.42. All applicable provisions in 40 CFR 122.41 and 40 CFR 122.42 must be incorporated into this Order and NPDES permit. The applicable 40 CFR 122.41 and 40 CFR 122.42 provisions are as follows:

a. DUTY TO COMPLY [40 CFR 122.41(a)]

The Copermittee must comply with all of the provisions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

(1) The Copermittee must comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement. [40 CFR 122.41(a)(1)]

(2) The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402(a)(3) or 402(b)(8) of the CWA, is subject to a civil penalty not to exceed $25,000 per day for each violation. The CWA provides that any person who *negligently* violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA, or any requirement imposed in a pretreatment program approved under Section 402(a)(3) or 402(b)(8) of the CWA, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both. Any person who *knowingly* violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both. Any person who knowingly violates Section 301, 302, 303, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA, and who knows at that time that he thereby places another person in imminent

danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in Section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.
[40 CFR 122.41(a)(2)]

(3) Any person may be assessed an administrative penalty by the San Diego Regional Water Quality Control Board (San Diego Water Board), State Water Resources Control Board (State Water Board), or United States Environmental Protection Agency (USEPA) for violating Section 301, 302, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.
[40 CFR 122.41(a)(3)]

b. DUTY TO REAPPLY [40 CFR 122.41(b)]

If a Copermittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Copermittee must apply for and obtain a new permit.

c. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE [40 CFR 122.41(c)]

It shall not be a defense for a Copermittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

d. DUTY TO MITIGATE [40 CFR 122.41(d)]

The Copermittee must take all reasonable steps to minimize or prevent any discharge or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

e. PROPER OPERATION AND MAINTENANCE [40 CFR 122.41(e)]

The Copermittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Copermittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by a Copermittee only when the operation is necessary to achieve compliance with the conditions of this permit.

f. PERMIT ACTIONS [40 CFR 122.41(f)]

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Copermittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

g. PROPERTY RIGHTS [40 CFR 122.41(g)]

This permit does not convey any property rights of any sort, or any exclusive privilege.

h. DUTY TO PROVIDE INFORMATION [40 CFR 122.41(h)]

The Copermittee must furnish to the San Diego Water Board, State Water Board, or USEPA within a reasonable time, any information which the San Diego Water Board, State Water Board, or USPEA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Copermittee must also furnish to the San Diego Water Board, State Water Board, or USPEA upon request, copies of records required to be kept by this permit.

i. INSPECTION AND ENTRY [40 CFR 122.41(i)]

The Copermittee must allow the San Diego Water Board, State Water Board, USEPA, and/or their authorized representative (including an authorized contractor acting as their representative), upon presentation of credentials and other documents as may be required by law, to:

(1) Enter upon the Copermittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit; [40 CFR 122.41(i)(1)]

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit; [40 CFR 122.41(i)(2)]

(3) Inspect and photograph at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; [40 CFR 122.41(i)(3)] and

(4) Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location. [40 CFR 122.41(i)(4)]

j. MONITORING AND RECORDS [40 CFR 122.41(j)]

(1) Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity. [40 CFR 122.41(j)(1)]

(2) Except for records of monitoring information required by this permit related to the Copermittee's sewage sludge use and disposal activities, which shall be retained for

a period of at least five (5) years (or longer as required by 40 CFR Part 503), the Copermittee must retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the San Diego Water Board at any time. [40 CFR 122.41(j)(2)]

(3) Records for monitoring information must include: [40 CFR 122.41(j)(3)]

(a) The date, exact place, and time of sampling or measurements; [40 CFR 122.41(j)(3)(i)]
(b) The individual(s) who performed the sampling or measurements; [40 CFR 122.41(j)(3)(ii)]
(c) The date(s) analyses were performed; [40 CFR 122.41(j)(3)(iii)]
(d) The individual(s) who performed the analyses; [40 CFR 122.41(j)(3)(iv)]
(e) The analytical techniques or methods used; [40 CFR 122.41(j)(3)(v)] and
(f) The results of such analyses. [40 CFR 122.41(j)(3)(vi)]

(4) Monitoring must be conducted according to test procedures under 40 CFR Part 136 unless another method is required under 40 CFR Subchapters N or O. [40 CFR 122.41(j)(4)]

In the case of pollutants for which there are no approved methods under 40 CFR Part 136 or otherwise required under 40 CFR Subchapters N and O, monitoring must be conducted according to a test procedure specified in the permit for such pollutants. [40 CFR 122.44(i)(1)(iv)]

(5) The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both. [40 CFR 122.41(j)(5)]

k. SIGNATORY REQUIREMENT [40 CFR 122.41(k)]

(1) All applications, reports, or information submitted to the San Diego Water Board, State Water Board, or USEPA must be signed and certified. (See 40 CFR 122.22) [40 CFR 122.41(k)(1)]

(a) *For a municipality, State, Federal, or other public agency.* [All applications must be signed] by either a principal executive officer or ranking elected official. [40 CFR 122.22(a)(3)]

(b) All reports required by permits, and other information requested by the San Diego Water Board, State Water Board, or USEPA must be signed by a person described in paragraph (a) of this section, or by a duly authorized

representative of that person. A person is a duly authorized representative only if: [40 CFR 122.22(b)]

(i) The authorization is made in writing by a person described in paragraph (a) of this section; [40 CFR 122.22(b)(1)]

(ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company, (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) [40 CFR 122.22(b)(2)] and,

(iii) The written authorization is submitted to the San Diego Water Board and State Water Board. [40 CFR 122.22(b)(3)]

(c) *Changes to authorization.* If an authorization under paragraph (b) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to the San Diego Water Board prior to or together with any reports, information, or applications to be signed by an authorized representative. [40 CFR 122.22(c)]

(d) *Certification.* Any person signing a document under paragraph (a) or (b) of this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." [40 CFR 122.22(d)]

(2) The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both. [40 CFR 122.41(k)(2)]

I. REPORTING REQUIREMENTS [40 CFR 122.41(l)]

(1) *Planned changes.* The Copermittee must give notice to the San Diego Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when: [40 CFR 122.41(l)(1)]

(a) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); [40 CFR 122.41(l)(1)(i)] or

(b) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1). [40 CFR 122.41(l)(1)(ii)]

(c) The alteration or addition results in a significant change in the Copermittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. [40 CFR 122.41(l)(1)(iii)]

(2) *Anticipated noncompliance*. The Copermittee must give advance notice to the San Diego Water Board or State Water Board of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. [40 CFR 122.41(l)(2)]

(3) *Transfers*. This permit is not transferable to any person except after notice to the San Diego Water Board. The San Diego Water Board may require modification or revocation and reissuance of the permit to change the name of the Copermittee and incorporate such other requirements as may be necessary under the CWA. [40 CFR 122.41(l)(3)]

(4) *Monitoring reports.* Monitoring results must be reported at the intervals specified elsewhere in this permit. [40 CFR 122.41(l)(4)]

(a) Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the San Diego Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. [40 CFR 122.41(l)(4)(i)]

(b) If the Copermittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or another method required for an industry-specific waste stream under 40 CFR Subchapters N or O, the results of this monitoring must be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the San Diego Water Board or State Water Board. [40 CFR 122.41(l)(4)(ii)]

(c) Calculations for all limitations which require averaging of measurements must utilize an arithmetic mean unless otherwise specified in the permit. [40 CFR 122.41(l)(4)(iii)]

(5) *Compliance schedules*. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date. [40 CFR 122.41(l)(5)]

(6) *Twenty-four hour reporting.*

(a) The Copermittee must report any noncompliance that may endanger health or the environment. Any information must be provided orally within 24 hours from the time the Copermittee becomes aware of the circumstances. A written submission must also be provided within five (5) days of the time the Copermittee becomes aware of the circumstances. The written submission must contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6)(i)]

(b) The following must be included as information which must be reported within 24 hours under this paragraph: [40 CFR 122.41(l)(6)(ii)]

(i) Any unanticipated bypass that exceeds any effluent limitation in the permit (See 40 CFR 122.41(g)). [40 CFR 122.41(l)(6)(ii)(A)]
(ii) Any upset which exceeds any effluent limitation in the permit. [40 CFR 122.41(l)(6)(ii)(B)] and,
(iii) Violation of a maximum daily discharge limitation for any of the pollutants listed by the San Diego Water Board in the permit to be reported within 24 hours. (See 40 CFR 122.44(g)) [40 CFR 122.41(l)(6)(ii)(C)]

(c) The San Diego Water Board may waive the above-required written report on a case-by-case basis if the oral report has been received within 24 hours. [40 CFR 122.41(l)(6)(iii)]

(7) *Other noncompliance.* The Copermittee must report all instances of noncompliance not reported in accordance with the standard provisions required under 40 CFR 122.41(l)(4), (5), and (6), at the time monitoring reports are submitted. The reports must contain the information listed in the standard provisions required under 40 CFR 122.41(l)(6). [40 CFR 122.41(l)(7))]

(8) *Other information.* When the Copermittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the San Diego Water Board, State Water Board, or USEPA, the Copermittee must promptly submit such facts or information. [40 CFR 122.41(l)(8)]

m. BYPASS [40 CFR 122.41(m)]

(1) *Definitions.*

(a) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. [40 CFR 122.41(m)(1)(i)] or

(b) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or

substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
[40 CFR 122.41(m)(1)(ii)]

(2) *Bypass not exceeding limitations*. The Copermittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the standard provisions required under 40 CFR 122.41(m)(3) and (4).
[40 CFR 122.41(m)(2)]

(3) *Notice.*

(a) *Anticipated bypass*. If the Copermittee knows in advance of the need for a bypass, it must submit a notice, if possible at least ten days before the date of the bypass. [40 CFR 122.41(m)(3)(i)] or

(b) *Unanticipated bypass*. The Copermittee must submit notice of an unanticipated bypass in accordance with the standard provisions required under 40 CFR 122.41(l)(6) (24-hour notice).
[40 CFR 122.41(m)(3)(ii)]

(4) *Prohibition of Bypass.*

(a) Bypass is prohibited, and the San Diego Water Board may take enforcement action against a Copermittee for bypass, unless:
[40 CFR 122.41(m)(4)(i)]

(i) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; [40 CFR 122.41(m)(4)(i)(A)]

(ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance;
[40 CFR 122.41(m)(4)(i)(B)] and,

(iii) The Copermittee submitted notice in accordance with the standard provisions required under 40 CFR 122.41(m)(3).
[40 CFR 122.41(m)(4)(i)(C)]

(b) The San Diego Water Board may approve an anticipated bypass, after considering its adverse effects, if the San Diego Water Board determines that it will meet the three conditions listed above.
[40 CFR 122.41(m)(4)(ii)]

n. UPSET [40 CFR 122.41(n)]

(1) *Definition.* "Upset" means an exceptional incident in which there is unintentional and

temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Copermittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. [40 CFR 122.41(n)(1)]

(2) *Effect of an upset*. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the standard provisions required under 40 CFR 122.41(n)(3) are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. [40 CFR 122.41(n)(2)]

(3) *Conditions necessary for a demonstration of upset*. A Copermittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that: [40 CFR 122.41(n)(3)]

(a) An upset occurred and that the Copermittee can identify the cause(s) of the upset; [40 CFR 122.41(n)(3)(i)]
(b) The permitted facility was at the time being properly operated; [40 CFR 122.41(n)(3)(ii)] and
(c) The Copermittee submitted notice of the upset in accordance with the standard provisions required under 40 CFR 122.41(l)(6)(ii)(B) (24-hour notice). [40 CFR 122.41(n)(3)(iii)]
(d) The Copermittee complied with any remedial measures pursuant to the standard provisions required under 40 CFR 122.41(d). [40 CFR 122.41(n)(3)(iii)]

(4) *Burden of proof*. In any enforcement proceeding, the Copermittee seeking to establish the occurrence of an upset has the burden of proof. [40 CFR 122.41(n)(4)]

o. STANDARD PERMIT PROVISIONS FOR MUNICIPAL SEPARATE STORM SEWER SYSTEMS [40 CFR 122.42(c)]

The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer that has been designated by the San Diego Water Board or State Water Board under 40 CFR 122.26(a)(1)(v) must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report must include:

(1) The status of implementing the components of the storm water management program that are established as permit conditions; [40 CFR 122.42(c)(1)]

(2) Proposed changes to the storm water management programs that are established as permit conditions. Such proposed changes must be consistent with 40 CFR 122.26(d)(2)(iii); [40 CFR 122.42(c)(2)] and

(3) Revisions, if necessary, to the assessment of controls and the fiscal analysis

reported in the permit application under 40 CFR 122.26(d)(2)(iv) and (v); [40 CFR 122.42(c)(3)]

(4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; [40 CFR 122.42(c)(4)]

(5) Annual expenditures and budget for year following each annual report; [40 CFR 122.42(c)(5)]

(6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; [40 CFR 122.42(c)(6)]

(7) Identification of water quality improvements or degradation. [40 CFR 122.42(c)(7)]

p. STANDARD PERMIT PROVISIONS FOR STORM WATER DISCHARGES [40 CFR 122.42(d)]

The initial permits for discharges composed entirely of storm water issued pursuant to 40 CFR 122.26(e)(7) must require compliance with the conditions of the permit as expeditiously as practicable, but in no event later than three years after the date of issuance of the permit.

2. General Provisions

In addition to the standard provisions required to be incorporated into the Order and NPDES permit pursuant to 40 CFR 122.41 and 40 CFR 122.42, several other general provisions apply to this Order. The general provisions applicable to this Order and NPDES permit are as follows:

a. DISCHARGE OF WASTE IS A PRIVILEGE

No discharge of waste into the waters of the State, whether or not such discharge is made pursuant to waste discharge requirements, shall create a vested right to continue such discharge. All discharges of waste into waters of the State are privileges, not rights. [CWC Section 13263(g)]

b. DURATION OF ORDER AND NPDES PERMIT

(1) *Effective date*. This Order and NPDES permit becomes effective on April 1st, 2015 ~~the 50th day~~ after its adoption provided the USEPA has no objection. If the USEPA objects to its issuance, this Order shall not become effective until such objection is withdrawn. This Order supersedes Order No. R9-2007-0001 for the San Diego County Copermittees listed in Table 2.a and became effective on June 27, 2014.~~upon the effective date of this Order~~. This Order as amended by Order R9-2015-0001~~, and~~ supersedes Order No~~s~~. R9-2009-0002 and becomes effective ~~fifty (50) days~~ April 1, 2015 after the date Order No. R9-2015-0001 is adopted. This Order supersedes Order No. R9-2010-0016 upon its ~~their~~ expiration or earlier notice of coverage.

(2) *Expiration*. This Order and NPDES permit expires five years after its effective date.

[40 CFR 122.46(a)]

(3) *Continuation of expired order*. After this Order and NPDES permit expires, the terms and conditions of this Order and NPDES permit are automatically continued pending issuance of a new permit if all requirements of the federal NPDES regulations on the continuation of expired permits (40 CFR 122.6) are complied with.

c. AVAILABILITY

A copy of this Order must be kept at a readily accessible location and must be available to on-site personnel at all times.

d. CONFIDENTIALITY OF INFORMATION

Except as provided for in 40 CFR 122.7, no information or documents submitted in accordance with or in application for this Order will be considered confidential, and all such information and documents shall be available for review by the public at the San Diego Water Board office.

Claims of confidentiality for the following information will be denied:
[40 CFR 122.7(b)]

(1) The name and address of any permit applicant or Copermittee;
[40 CFR 122.7(b)(1)] and

(2) Permit applications and attachments, permits, and effluent data.
[40 CFR 122.7(b)(2)]

e. EFFLUENT LIMITATIONS

(1) *Interim effluent limitations*. The Copermittee must comply with any interim effluent limitations as established by addendum, enforcement action, or revised waste discharge requirements which have been, or may be, adopted by the San Diego Water Board.

(2) *Other effluent limitations and standards*. If any applicable toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant and that standard or prohibition is more stringent than any limitation on the pollutant in the permit, the San Diego Water Board shall institute proceedings under these regulations to modify or revoke and reissue the permit to conform to the toxic effluent standard or prohibition. [40 CFR 122.44(b)(1)]

f. DUTY TO MINIMIZE OR CORRECT ADVERSE IMPACTS

The Copermittee must take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncompliance.

g. PERMIT ACTIONS

The filing of a request by the Copermittee for modification, revocation and reissuance, or termination of this Order, or a notification of planned change in or anticipated noncompliance with this Order does not stay any condition of this Order. (See 40 CFR 122.41(f)) In addition, the following provisions apply to this Order:

(1) Upon application by any affected person, or on its own motion, the San Diego Water Board may review and revise the requirements in this Order. All requirements must be reviewed periodically. [CWC Section 13263(e)]

(2) This Order may be terminated or modified for cause, including, but not limited to, all of the following: [CWC Section 13381]

(a) Violation of any condition contained in the requirements of this Order. [CWC Section 13381(a)]

(b) Obtaining the requirements in this Order by misrepresentation, or failure to disclose fully all relevant facts. [CWC Section 13381(b)]

(c) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge. [CWC Section 13381(c)]

(3) When this Order is transferred to a new owner or operator, such requirements as may be necessary under the CWC may be incorporated into this Order.

h. NPDES PERMITTED NON-STORM WATER DISCHARGES

The San Diego Water Board has, in prior years, issued a limited number of individual NPDES permits for non-storm water discharges to MS4s. The San Diego Water Board or State Water Board may in the future, upon prior notice to the Copermittee(s), issue an NPDES permit for any non-storm water discharge (or class of non-storm water discharges) to an MS4.

i. MONITORING

In addition to the standard provisions required under 40 CFR 122.41(j) and (l)(4), the following general monitoring provisions apply to this Order:

(1) Where procedures are not otherwise specified in Order, sampling, analysis and quality assurance/quality control must be conducted in accordance with the Quality Assurance Management Plan (QAMP) for the State of California's Surface Water Ambient Monitoring Program (SWAMP), adopted by the State Water Resources Control Board (State Water Board).

(2) Pursuant to 40 CFR 122.41(j)(2) and CWC Section 13383(a), each Copermittee must retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring

instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five (5) years from the date of the sample, measurement, report or application. This period may be extended by request of the San Diego Water Board at any time.

(3) All chemical, bacteriological, and toxicity analyses must be conducted at a laboratory certified for such analyses by the California Department of Public Health or a laboratory approved by the San Diego Water Board.

(4) For priority toxic pollutants that are identified in the California Toxics Rule (CTR) (65 Fed. Reg. 31682), the Copermittees must instruct their laboratories to establish calibration standards that are equivalent to or lower than the Minimum Levels (MLs) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). If a Copermittee can demonstrate that a particular ML is not attainable, in accordance with procedures set forth in 40 CFR Part 136, the lowest quantifiable concentration of the lowest calibration standard analyzed by a specific analytical procedure (assuming that all the method specified sample weights, volumes, and processing steps have been followed) may be used instead of the ML listed in Appendix 4 of the SIP. The Copermittee must submit documentation from the laboratory to the San Diego Water Board for approval prior to raising the ML for any priority toxic pollutant.

j. ENFORCEMENT

(1) The San Diego Water Board is authorized to enforce the terms of this Order under several provisions of the CWC, including, but not limited to, CWC Sections 13385, 13386, and 13387.

(2) Nothing in this Order shall be construed to protect the Copermittee from its liabilities under federal, state, or local laws.

(3) The CWC provides for civil and criminal penalties comparable to, and in some cases greater than, those provided for under the CWA.

(4) Except as provided in the standard conditions required under 40 CFR 122.41(m) and (n), nothing in this Order shall be construed to relieve the Copermittee from civil or criminal penalties for noncompliance.

(5) Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the Copermittee from any responsibilities, liabilities, or penalties to which the Copermittee is or may be subject to under Section 311 of the CWA.

(6) Nothing in this Order shall be construed to preclude institution of any legal action or relieve the Copermittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authoring preserved by Section 510 of the CWA.

k. SEVERABILITY

The provisions of this Order are severable, and if any provision of this Order, or the

application of any provisions of this Order to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this Order shall not be affected thereby.

l. APPLICATIONS

Any application submitted by a Copermittee for reissuance or modification of this Order must satisfy all applicable requirements specified in federal regulations as well as any additional requirements for submittal of a Report of Waste Discharge specified in the CWC and the California Code of Regulations.

m. IMPLEMENTATION

All plans, reports and subsequent amendments submitted in compliance with this Order must be implemented immediately (or as otherwise specified). All submittals by Copermittees must be adequate to implement the requirements of this Order.

n. REPORT SUBMITTALS

(1) All report submittals must include an executive summary, introduction, conclusion, recommendations, and signed certified statement.

(2) Each Copermittee must submit a signed certified statement covering its responsibilities for each applicable submittal.

(3) The Principal Watershed Copermittee(s) must submit a signed certified statement covering its responsibilities for each applicable submittal and the sections of the submittals for which it is responsible.

(4) Unless otherwise directed, the Copermittees must submit one hard copy and one electronic copy of each report required under this Order to the San Diego Water Board, and one electronic copy to the USEPA.

(5) The Copermittees must submit reports and provide notifications as required by this Order to the following:

EXECUTIVE OFFICER
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
2375 NORTHSIDE DRIVE~~9174 SKY PARK COURT~~, SUITE 100
SAN DIEGO CA 9210823-4340
Telephone: ~~(858) 467-2952~~(619) 516-1990 Fax: ~~(858) 571-6972~~(619) 516-1994

EUGENE BROMLEY
US ENVIRONMENTAL PROTECTION AGENCY
REGION IX
PERMITS ISSUANCE SECTION (W-5-1)
75 HAWTHORNE STREET
SAN FRANCISCO CA 94105

ATTACHMENT C

ACRONYMS AND ABBREVIATIONS

AMAL	Average Monthly Action Level
ASBS	Area(s) of Special Biological Significance
BMP	Best Management Practice
Basin Plan	Water Quality Control Plan for the San Diego Basin
CEQA	California Environmental Quality Act
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWC	California Water Code
CZARA	Coastal Zone Act Reauthorization Amendments of 1990
ESAs	Environmentally Sensitive Areas
GIS	Geographic Information System
IBI	Index of Biological Integrity
LID	Low Impact Development
MDAL	Maximum Daily Action Level
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
NAL	Non-Storm Water Action Level
NAICS	North American Industry Classification System
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
ROWD	Report of Waste Discharge (application for NPDES reissuance)
SAL	Storm Water Action Level
San Diego Water Board	California Regional Water Quality Control Board, San Diego Region
SIC	Standard Industrial Classification Code
State Water Board	State Water Resources Control Board
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
WDID	Waste Discharge Identification Number
WLA	Waste Load Allocation
WQBEL	Water Quality Based Effluent Limitation

DEFINITIONS

Active/Passive Sediment Treatment - Using mechanical, electrical or chemical means to flocculate or coagulate suspended sediment for removal from runoff from construction sites prior to discharge.

Anthropogenic Litter – Trash generated from human activities, not including sediment.

Average Monthly Action Level – The highest allowable average of daily discharges over a calendar month.

Beneficial Uses - The uses of water necessary for the survival or wellbeing of man, plants, and wildlife. These uses of water serve to promote tangible and intangible economic, social, and environmental goals. "Beneficial Uses" of the waters of the State that may be protected include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. Existing beneficial uses are uses that were attained in the surface or ground water on or after November 28, 1975; and potential beneficial uses are uses that would probably develop in future years through the implementation of various control measures. "Beneficial Uses" are equivalent to "Designated Uses" under federal law. [California Water Code Section 13050(f)].

Best Management Practices (BMPs) - Defined in 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Bioassessment - The use of biological community information to evaluate the biological integrity of a water body and its watershed. With respect to aquatic ecosystems, bioassessment is the collection and analysis of samples of the benthic macroinvertebrate community together with physical/habitat quality measurements associated with the sampling site and the watershed to evaluate the biological condition (i.e. biotic integrity) of a water body.

Biofiltration - Practices that use vegetation and amended soils to detain and treat runoff from impervious areas. Treatment is through filtration, infiltration, adsorption, ion exchange, and biological uptake of pollutants.

Biological Integrity - Defined in Karr J.R. and D.R. Dudley. 1981. Ecological perspective on water quality goals. *Environmental Management* 5:55-68 as: "A balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region." Also referred to as ecosystem health.

BMP Design Manual – A plan developed to eliminate, reduce, or mitigate the impacts of runoff from development projects, including Priority Development Projects.

Channel Rehabilitation and Improvement – Remedial measures or activities for the purpose of improving the environmental health of streams, channels, or river systems. Techniques may

vary from in-stream restoration techniques to off-line stormwater management practices installed in the system corridor or upland areas. Rehabilitation techniques may include, but are not limited to the following: riparian zone restoration, constructed wetlands, bank stabilization, channel modifications, and daylighting of drainage systems. Effectiveness may be measured in various manners, including: assessments of habitat, reduced streambank erosion, and/or restoration of water and sediment transport balance.

Chronic Toxicity – A measurement of sublethal effect (e.g. reduced growth, reproduction) to experimental test organisms exposed to an effluent or receiving waters compared to that of the control organisms.

Clean Water Act Section 303(d) Water Body - An impaired water body in which water quality does not meet applicable water quality standards and/or is not expected to meet water quality standards, even after the application of technology based pollution controls required by the CWA. The discharge of runoff to these water bodies by the Copermittees is significant because these discharges can cause or contribute to violations of applicable water quality standards.

Construction Site – Any project, including projects requiring coverage under the Construction General Permit, that involves soil disturbing activities including, but not limited to, clearing, grading, disturbances to ground such as stockpiling, and excavation.

Contamination - As defined in the Porter-Cologne Water Quality Control Act, contamination is "an impairment of the quality of waters of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. 'Contamination' includes any equivalent effect resulting from the disposal of waste whether or not waters of the State are affected."

Copermittee – A permittee to a NPDES permit that is only responsible for permit conditions relating to the discharge for which it is operator [40 CFR 122.26(b)(1)]. For the purposes of this Order, a Copermittee is one of the individual permittees identified in Tables 1a-1c of this Order.

Copermittees – All of the individual Copermittees, collectively.

Critical Channel Flow (Qc) – The channel flow that produces the critical shear stress that initiates bed movement or that erodes the toe of channel banks. When measuring Qc, it should be based on the weakest boundary material – either bed or bank.

Daily Discharge – Defined as either: (1) the total mass of the constituent discharged over the calendar day or any 24 hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g. concentration.)

The Daily Discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day, or other 24 hour period other than a day), or by the arithmetic mean of analytical results from one or more grab samples taken over the course of a day.

Development Projects - Construction, rehabilitation, redevelopment, or reconstruction of any public or private projects.

Dry Season –May 1 to September 30.

Dry Weather – Weather is considered dry if the preceding 72 hours has been without measurable precipitation (>0.1 inch).

Enclosed Bays – Enclosed bays are indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost bay works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays do not include inland surface waters or ocean waters.

Erosion – When land is diminished or worn away due to wind, water, or glacial ice. Often the eroded debris (silt or sediment) becomes a pollutant via storm water runoff. Erosion occurs naturally but can be intensified by land clearing activities such as farming, development, road building, and timber harvesting.

Environmentally Sensitive Areas (ESAs) - Areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; areas designated as preserves or their equivalent under the Natural Communities Conservation Program within the Cities and County of Orange; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees.

Estuaries – Waters, including coastal lagoons, located at the mouth of streams that serve as areas of mixing fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and ocean water. Estuaries do not include inland surface waters or ocean waters.

Existing Development – Any area that has been developed and exists for municipal, commercial, industrial, or residential purposes, uses, or activities. May include areas that are not actively used for its originally developed purpose, but may be re-purposed or redeveloped for another use or activity.

Flow Duration – The long-term period of time that flows occur above a threshold that causes significant sediment transport and may cause excessive erosion damage to creeks and streams (not a single storm event duration). The simplest way to visualize this is to consider a histogram of pre- and post-project flows using long-term records of hourly data. To maintain pre-development flow duration means that the total number of hours (counts) within each range of flows in a flow-duration histogram cannot increase between the pre- and post-development condition. Flow duration within the range of geomorphologically significant flows is important for managing erosion.

Grading - The cutting and/or filling of the land surface to a desired slope or elevation.

Groundwater – Subsurface water that occurs beneath the water table in soils and geologic formations that are fully saturated.

Hazardous Material – Any substance that poses a threat to human health or the environment due to its toxicity, corrosiveness, ignitability, explosive nature or chemical reactivity. These also include materials named by the USEPA in 40 CFR 116 to be reported if a designated quantity of the material is spilled into the waters of the U.S. or emitted into the environment.

Hazardous Waste - Hazardous waste is defined as "any waste which, under Section 600 of Title 22 of this code, is required to be managed according to Chapter 30 of Division 4.5 of Title 22 of this code" [CCR Title 22, Division 4.5, Chapter 11, Article 1].

Household Hazardous Waste – Paints, cleaning products, and other hazardous wastes generated during home improvement or maintenance activities.

Hydromodification – The change in the natural watershed hydrologic processes and runoff characteristics (i.e., interception, infiltration, overland flow, and groundwater flow) caused by urbanization or other land use changes that result in increased stream flows and sediment transport. In addition, alteration of stream and river channels, such as stream channelization, concrete lining, installation of dams and water impoundments, and excessive streambank and shoreline erosion are also considered hydromodification, due to their disruption of natural watershed hydrologic processes.

Illicit Connection – Any man-made conveyance or drainage system through which the discharge of any pollutant ~~a non-storm water discharge~~ to the storm water drainage system occurs or may occur. Any connection to the MS4 that conveys an illicit discharge.

Illicit Discharge - Any discharge to the MS4 that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from firefighting activities [40 CFR 122.26(b)(2)].

Inactive Areas – Areas of construction activity that are not active and those that have been active and are not scheduled to be re-disturbed for at least 14 days.

Infiltration – In the context of low impact development, infiltration is defined as the percolation of water into the ground. Infiltration is often expressed as a rate (inches per hour), which is determined through an infiltration test. In the context of non-storm water, infiltration is water other than wastewater that enters a sewer system (including sewer service connections and foundation drains) from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow [40 CFR 35.2005(20)].

Inland Surface Waters – Includes all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Jurisdictional Runoff Management Program Document – A written description of the specific jurisdictional runoff management measures and programs that each Copermittee will implement to comply with this Order and ensure that storm water pollutant discharges in runoff are reduced to the MEP and do not cause or contribute to a violation of water quality standards.

Low Impact Development (LID) – A storm water management and land development strategy that emphasizes conservation and the use of on-site natural features integrated with

engineered, small-scale hydrologic controls to more closely reflect pre-development hydrologic functions.

Low Impact Development Best Management Practices (LID BMPs) – LID BMPs include schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States through storm water management and land development strategies that emphasize conservation and the use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely reflect pre-development hydrologic functions. LID BMPs include retention practices that do not allow runoff, such as infiltration, rain water harvesting and reuse, and evapotranspiration. LID BMPs also include flow-through practices such as biofiltration that may have some discharge of storm water following pollutant reduction.

Major Outfall – As defined in the Code of Federal Regulations, a major outfall is a MS4 outfall that discharges from a single pipe with an inside diameter of 36 inches or more or its equivalent (i.e. discharge from a single conveyance other than a circular pipe which is associated with a drainage area of more than 50 acres); or, for MS4s that receive storm water from lands zoned for industrial activity (based on comprehensive zoning plans or equivalent), a MS4 outfall that discharges from a single pipe with an inside diameter of 12 inches or more or from its equivalent (i.e. discharge from other than a circular pipe associated with a drainage area of 2 acres or more).

Maximum Daily Action Level (MDAL) –The highest allowable daily discharge of a pollutant, over a calendar day (or 24 hour period). For pollutants with action levels expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with action levels expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Maximum Extent Practicable (MEP) – The technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) for storm water that operators of MS4s must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of source control and treatment control BMPs. MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense). MEP considers economics and is generally, but not necessarily, less stringent than BAT. A definition for MEP is not provided either in the statute or in the regulations. Instead the definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their runoff management programs. Their total collective and individual activities conducted pursuant to the runoff management programs becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for MS4 maintenance). In the absence of a proposal acceptable to the San Diego Water Board, the San Diego Water Board defines MEP.

In a memo dated February 11, 1993, entitled "Definition of Maximum Extent Practicable," Elizabeth Jennings, Senior Staff Counsel, SWRCB addressed the achievement of the MEP standard as follows:

> "*To achieve the MEP standard, municipalities must employ whatever Best Management Practices (BMPs) are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP*

means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:

a. *Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?*
b. *Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?*
c. *Public Acceptance: Does the BMP have public support?*
d. *Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?*
e. *Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc.?*

The final determination regarding whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the Regional or State Water Boards, and not by the municipal discharger. If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit derived, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP based solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented."

Monitoring Year – October 1 to September 30

Municipal Separate Storm Sewer System (MS4) – A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designated or used for collecting or conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.26.

National Pollutant Discharge Elimination System (NPDES) - The national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the CWA.

Non-Storm Water - All discharges to and from a MS4 that do not originate from precipitation

events (i.e., all discharges from a MS4 other than storm water). Non-storm water includes illicit discharges and NPDES permitted discharges.

Nuisance - As defined in the Porter-Cologne Water Quality Control Act, a nuisance is "anything which meets all of the following requirements: 1) Is injurious to health, or is indecent, or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. 2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. 3) Occurs during, or as a result of, the treatment or disposal of wastes."

Ocean Waters – The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Board's California Ocean Plan.

Order – Unless otherwise specified, refers to this Order, Order No. R9-2013-0001 (NPDES No. CAS0109266)

Outfall - Outfall means a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the US and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the US and are used to convey waters of the US.

Persistent Flow - Persistent flow is defined as the presence of flowing, pooled, or ponded water more than 72 hours after a measureable rainfall event of 0.1 inch or greater during three consecutive monitoring and/or inspection events. All other flowing, pooled, or ponded water is considered transient.

Person - A person is defined as an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof [40 CFR 122.2].

Point Source - Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operations, landfill leachate collection systems, vessel, or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Pollutant - Any agent that may cause or contribute to the degradation of water quality such that a condition of pollution or contamination is created or aggravated.

Pollution - As defined in the Porter-Cologne Water Quality Control Act, pollution is "the alteration of the quality of the waters of the State by waste, to a degree which unreasonably affects either of the following: 1) The waters for beneficial uses; or 2) Facilities that serve these beneficial uses." Pollution may include contamination.

Pollution Prevention - Pollution prevention is defined as practices and processes that reduce or eliminate the generation of pollutants, in contrast to source control BMPs, treatment control BMPs, or disposal.

Pre-Development Runoff Conditions – Approximate flow rates and durations that exist or existed onsite before land development occurs. For new development projects, this equates to runoff conditions immediately before project construction. For redevelopment projects, this equates to runoff conditions from the project footprint assuming infiltration characteristics of the underlying soil, and existing grade. Runoff coefficients of concrete or asphalt must not be used. A redevelopment Priority Development Project must use available information pertaining to existing underlying soil type and onsite existing grade to estimate pre-development runoff conditions.

Priority Development Projects - New development and redevelopment projects defined under Provision E.3.b of Order No. R9-2013-0001.

Progressive Enforcement – A series of enforcement actions that increase in severity commensurate with the violation. Such enforcement actions may include verbal and written notices of violation, fines, stop work orders, administrative penalties, criminal penalties, etc.

Rainy Season (aka Wet Season) –October 1 to April 30

Receiving Waters – Waters of the United States.

Receiving Water Limitations - Waste discharge requirements issued by the San Diego Water Board typically include both: (1) "Effluent Limitations" (or "Discharge Limitations") that specify the technology-based or water-quality-based effluent limitations; and (2) "Receiving Water Limitations" that specify the water quality objectives in the Basin Plan as well as any other limitations necessary to attain those objectives. In summary, the "Receiving Water Limitations" provision is the provision used to implement the requirements of CWA section 402(p)(3)(B).

Redevelopment - The creation and/or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include trenching and resurfacing associated with utility work; parking lots; resurfacing existing roadways; cutting and reconfiguring of surface parking lots; new sidewalk construction, pedestrian ramps, or bike lane on existing roads; and routine replacement of damaged pavement, such as pothole repair.

Regional Clearinghouse – A central location for the collection and distribution of information developed and maintained by the Copermittees including, but not limited to, plans, reports, manuals, data, contact information, and/or links to such documents and information.

Rehabilitation - Remedial measures or activities for the purpose of improving or restoring the beneficial uses of streams, channels or river systems. Techniques may vary from in-stream restoration techniques to off-line storm water management practices installed in the system corridor or upland areas, or a combination of in-stream and out of stream techniques. Rehabilitation techniques may include, but are not limited to the following: riparian zone restoration, constructed wetlands, channel modifications that improve habitat and stability, and daylighting of drainage systems.

Reporting Period – The period of information that is reported in the Water Quality Improvement

Plan Annual Report. The reporting period consists of two components: 1) July 1 to June 30, consistent with the fiscal year, for the implementation of the jurisdictional runoff management programs, and 2) October 1 to September 30, consistent with the monitoring year for the monitoring and assessment programs. Together, these two time periods constitute the reporting year for the Water Quality Improvement Plan Annual Report due January 31 following the end of the monitoring year.

Retain – Keep or hold in a particular place, condition, or position without discharge to surface waters.

Retrofitting – Storm water management practice put into place after development has occurred in watersheds where the practices previously did not exist or are ineffective. Retrofitting of developed areas is intended to improve water quality, protect downstream channels, reduce flooding, or meet other specific objectives. Retrofitting developed areas may include, but is not limited to replacing roofs with green roofs, disconnecting downspouts or impervious surfaces to drain to pervious surfaces, replacing impervious surfaces with pervious surfaces, installing rain barrels, installing rain gardens, and trash area enclosures.

Runoff - All flows in a storm water conveyance system that consists of the following components: (1) storm water (wet weather flows) and (2) non-storm water including dry weather flows.

San Diego Water Board – As used in this document the term "San Diego Water Board" is synonymous with the term "Regional Board" as defined in Water Code section 13050(b) and is intended to refer to the California Regional Water Quality Control Board for the San Diego Region as specified in Water Code Section 13200.

Sediment - Soil, sand, and minerals washed from land into water. Sediment resulting from anthropogenic sources (i.e. human induced land disturbance activities) is considered a pollutant. This Order regulates only the discharges of sediment from anthropogenic sources and does not regulate naturally occurring sources of sediment. Sediment can destroy fish-nesting areas, clog animal habitats, and cloud waters so that sunlight does not reach aquatic plants.

Source Control BMP – Land use or site planning practices, or structural or nonstructural measures that aim to prevent runoff pollution by reducing the potential for contamination at the source of pollution. Source control BMPs minimize the contact between pollutants and runoff.

Storm Water – Per 40 CFR 122.26(b)(13), means storm water runoff, snowmelt runoff and surface runoff and drainage. ~~Surface runoff and drainage pertains to runoff and drainage resulting from precipitation events~~.

Structural BMPs - A subset of BMPs which detains, retains, filters, removes, or prevents the release of pollutants to surface waters from development projects in perpetuity, after construction of a project is completed.

Test of Significant Toxicity (TST) - A statistical approach used to analyze toxicity test data. The TST incorporates a restated null hypothesis, Welch's t-test, and biological effect thresholds for chronic and acute toxicity.

Total Maximum Daily Load (TMDL) - The maximum amount of a pollutant that can be

discharged into a water body from all sources (point and non-point) and still maintain water quality standards. Under CWA section 303(d), TMDLs must be developed for all water bodies that do not meet water quality standards after application of technology-based controls.

Toxicity - Adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies. The water quality objectives for toxicity provided in the Basin Plan, state in part…"All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life….The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge."

Toxicity Identification Evaluation (TIE) - A set of procedures for identifying the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.

Toxicity Reduction Evaluation (TRE) - A study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate.

Treatment Control BMP – Any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process.

Unpaved Road – Any long, narrow stretch without pavement used for traveling by motor passenger vehicles between two or more points. Unpaved roads are generally constructed of dirt, gravel, aggregate or macadam and may be improved or unimproved.

Waste - As defined in CWC Section 13050(d), "waste includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal."

Article 2 of CCR Title 23, Chapter 15 (Chapter 15) contains a waste classification system that applies to solid and semi-solid waste, which cannot be discharged directly or indirectly to water of the state and which therefore must be discharged to land for treatment, storage, or disposal in accordance with Chapter 15. There are four classifications of waste (listed in order of highest to lowest threat to water quality): hazardous waste, designated waste, non-hazardous solid waste, and inert waste.

Water Quality Objective - Numerical or narrative limits on constituents or characteristics of water designated to protect designated beneficial uses of the water. [California Water Code Section 13050 (h)]. California's water quality objectives are established by the State and Regional Water Boards in the Water Quality Control Plans. Numeric or narrative limits for pollutants or characteristics of water designed to protect the beneficial uses of the water. In other words, a water quality objective is the maximum concentration of a pollutant that can exist

in a receiving water and still generally ensure that the beneficial uses of the receiving water remain protected (i.e., not impaired). Since water quality objectives are designed specifically to protect the beneficial uses, when the objectives are violated the beneficial uses are, by definition, no longer protected and become impaired. This is a fundamental concept under the Porter Cologne Act. Equally fundamental is Porter Cologne's definition of pollution. A condition of pollution exists when the water quality needed to support designated beneficial uses has become unreasonably affected or impaired; in other words, when the water quality objectives have been violated. These underlying definitions (regarding beneficial use protection) are the reason why all waste discharge requirements implementing the federal NPDES regulations require compliance with water quality objectives. (Water quality objectives are also called water quality criteria in the CWA.)

Water Quality Standards - Water quality standards, as defined in Clean Water Act section 303(c) consist of the beneficial uses (e.g., swimming, fishing, municipal drinking water supply, etc.,) of a water body and criteria (referred to as water quality objectives in the California Water Code) necessary to protect those uses. Under the Water Code, the water boards establish beneficial uses and water quality objectives in water quality control or basin plans. Together with an anti-degradation policy, these beneficial uses and water quality objectives serve as water quality standards under the Clean Water Act. In Clean Water Act parlance, state beneficial uses are called "designated uses" and state water quality objectives are called "criteria." Throughout this Order, the relevant term is used depending on the statutory scheme.

Waters of the State - Any ~~water,~~ surface or groundwater ~~underground~~, including saline waters within the boundaries of the State [CWC section 13050 (e)]. The definition of the Waters of the State is broader than that for the Waters of the United States in that all water in the State is considered to be a Waters of the State ~~regardless of circumstances or condition~~.

Waters of the United States - As defined in the 40 CFR 122.2, the Waters of the U.S. are defined as: "(a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate "wetlands;" (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purposes by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the United States under this definition: (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial seas; and (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA."

Watershed - That geographical area which drains to a specified point on a water course, usually a confluence of streams or rivers (also known as drainage area, catchment, or river basin).

Wet Season (aka Rainy Season) – October 1 to April 30

Wet Weather – Wet weather must be preceded by 72 hours of dry weather and ~~Weather~~ is considered wet up to 72 hours after a storm event of 0.1 inches and greater, unless otherwise defined by another regulatory mechanism (e.g. a TMDL).

JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM
ANNUAL REPORT FORM

ATTACHMENT D

JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM
ANNUAL REPORT FORM

JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM
ANNUAL REPORT FORM

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JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM ANNUAL REPORT FORM

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I. COPERMITTEE INFORMATION			
Copermittee Name:			
Copermittee Primary Contact Name:			
Copermittee Primary Contact Information: Address:			
City:	County:	State:	Zip:
Telephone:	Fax:	Email:	

II. LEGAL AUTHORITY	
Has the Copermittee established adequate legal authority within its jurisdiction to control pollutant discharges into and from its MS4 that complies with Order No. R9-2013-0001?	YES ☐ NO ☐
A Principal Executive Officer, Ranking Elected Official, or Duly Authorized Representative has certified that the Copermittee obtained and maintains adequate legal authority?	YES ☐ NO ☐

III. JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM DOCUMENT UPDATE	
Was an update of the jurisdictional runoff management program document required or recommended by the San Diego Water Board?	YES ☐ NO ☐
If YES to the question above, did the Copermittee update its jurisdictional runoff management program document and make it available on the Regional Clearinghouse?	YES ☐ NO ☐

IV. ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM	
Has the Copermittee implemented a program to actively detect and eliminate illicit discharges and connections to its MS4 that complies with Order No. R9-2013-0001?	YES ☐ NO ☐

Number of non-storm water discharges reported by the public	
Number of non-storm water discharges detected by Copermittee staff or contractors	
Number of non-storm water discharges investigated by the Copermittee	
Number of sources of non-storm water discharges identified	
Number of non-storm water discharges eliminated	
Number of sources of illicit discharges or connections identified	
Number of illicit discharges or connections eliminated	
Number of enforcement actions issued	
Number of escalated enforcement actions issued	

V. DEVELOPMENT PLANNING PROGRAM	
Has the Copermittee implemented a development planning program that complies with Order No. R9-2013-0001?	YES ☐ NO ☐
Was an update to the BMP Design Manual required or recommended by the San Diego Water Board?	YES ☐ NO ☐
If YES to the question above, did the Copermittee update its BMP Design Manual and make it available on the Regional Clearinghouse?	YES ☐ NO ☐

Number of proposed development projects in review	
Number of Priority Development Projects in review	
Number of Priority Development Projects approved	
Number of approved Priority Development Projects exempt from any BMP requirements	
Number of approved Priority Development Projects allowed alternative compliance	
Number of Priority Development Projects granted occupancy	

Number of completed Priority Development Projects in inventory	
Number of high priority Priority Development Project structural BMP inspections	
Number of Priority Development Project structural BMP violations	
Number of enforcement actions issued	
Number of escalated enforcement actions issued	

JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM
ANNUAL REPORT FORM

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VI. CONSTRUCTION MANAGEMENT PROGRAM

Has the Copermittee implemented a construction management program that complies with Order No. R9-2013-0001?	YES ☐ NO ☐
Number of construction sites in inventory	
Number of active construction sites in inventory	
Number of inactive construction sites in inventory	
Number of construction sites closed/completed during reporting period	
Number of construction site inspections	
Number of construction site violations	
Number of enforcement actions issued	
Number of escalated enforcement actions issued	

VII. EXISTING DEVELOPMENT MANAGEMENT PROGRAM

Has the Copermittee implemented an existing development management program that complies with Order No. R9-2013-0001?	YES ☐ NO ☐

	Municipal	Commercial	Industrial	Residential
Number of facilities or areas in inventory				
Number of existing development inspections				
Number of follow-up inspections				
Number of violations				
Number of enforcement actions issued				
Number of escalated enforcement actions issued				

VIII. PUBLIC EDUCATION AND PARTICIPATION

Has the Copermittee implemented a public education program component that complies with Order No. R9-2013-0001?	YES ☐ NO ☐
Has the Copermittee implemented a public participation program component that complies with Order No. R9-2013-0001?	YES ☐ NO ☐

IX. FISCAL ANALYSIS

Has the Copermittee attached to this form a summary of its fiscal analysis that complies with Order No. R9-2013-0001?	YES ☐ NO ☐

X. CERTIFICATION

I [☐ Principal Executive Officer ☐ Ranking Elected Official ☐ Duly Authorized Representative] certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Signature	Date
Print Name	Title
Telephone Number	Email

ATTACHMENT E

SPECIFIC PROVISIONS FOR TOTAL MAXIMUM DAILY LOADS APPLICABLE TO ORDER NO. R9-2013-0001

These provisions implement load allocations (LAs) and wasteload allocations (WLAs) of the Total Maximum Daily Loads (TMDLs) ~~adopted~~ established by the San Diego Water Board or ~~and approved by~~ USEPA under Clean Water Act section 303(c), applicable to discharges regulated under this Order. The provisions and schedules for implementation of the TMDLs described below must be incorporated into the Water Quality Improvement Plans, required pursuant to Provision B of this Order, for the specified Watershed Management Areas.

1. Total Maximum Daily Load for Diazinon in Chollas Creek Watershed
2. Total Maximum Daily Loads for Dissolved Copper in Shelter Island Yacht Basin
3. Total Maximum Daily Loads for Total Nitrogen and Total Phosphorus in Rainbow Creek Watershed
4. Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek
5. Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay
6. Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)
7. Total Maximum Daily Load for Sediment in Los Peñasquitos Lagoon

1. Total Maximum Daily Load for Diazinon in Chollas Creek Watershed

a. APPLICABILITY

(1) TMDL Basin Plan Amendment: Resolution No. R9-2002-0123

(2) TMDL Adoption and Approval Dates:

San Diego Water Board Adoption Date:	August 14, 2002
State Water Board Approval Date:	July 16, 2003
Office of Administrative Law Approval Date:	September 11, 2003
US EPA Approval Date:	November 3, 2003

(3) TMDL Effective Date: September 11, 2003

(4) Watershed Management Area: San Diego Bay

(5) Water Body: Chollas Creek

(6) Responsible Copermittees: City of La Mesa, City of Lemon Grove, City of San Diego, County of San Diego, San Diego Unified Port District

b. FINAL TMDL COMPLIANCE REQUIREMENTS

The final diazinon TMDL compliance requirements for Chollas Creek consist of the following:

(1) Final TMDL Compliance Date

The Responsible Copermittees must be in compliance with the final TMDL compliance requirements as of December 31, 2010.

(2) Final Water Quality Based Effluent Limitations

(a) Final Receiving Water Limitations

Discharges from the MS4s must not cause or contribute to the exceedance of the following receiving water limitations:

Table 1.1
Final Receiving Water Limitations Expressed as Concentrations in Chollas Creek

Constituent	Exposure Duration	Receiving Water Limitation	Averaging Period
Diazinon	Acute	0.08 µg/L	1 hour
	Chronic	0.05 µg/L	4 days

(b) Final Effluent Limitations

Discharges from the MS4s containing concentrations that do not exceed the following effluent limitations will not cause or contribute to exceedances of the receiving water limitations under Specific Provision 1.b.(2)(a):

Table 1.2
Final Effluent Limitations Expressed as Concentrations in MS4 Discharges to Chollas Creek

Constituent	Exposure Duration	Effluent Limitation	Averaging Period
Diazinon	Acute	0.072 µg/L	1 hour
	Chronic	0.045 µg/L	4 days

(c) Best Management Practices

The following BMPs for Chollas Creek must be incorporated into the Water Quality Improvement Plan for the San Diego Bay Watershed Management Area and implemented by the Responsible Copermittees:

(i) The Responsible Copermittees must implement BMPs to achieve the receiving water limitations under Specific Provision 1.b.(2)(a) and/or the effluent limitations under Specific Provision 1.b.(2)(b) for Chollas Creek.

(ii) The Responsible Copermittees must implement the Diazinon Toxicity Control Plan and Diazinon Public Outreach/Education Program as described in the report titled, *Technical Report for Total Maximum Daily Load for Diazinon in Chollas Creek Watershed, San Diego County*, dated August 14, 2002, including subsequent modifications, in order to achieve the receiving water limitations under Specific Provision 1.b.(2)(a) and/or the effluent limitations under Specific Provision 1.b.(2)(b).

(iii) The Responsible Copermittees should coordinate any BMPs implemented to address this TMDL with Caltrans as possible.

(3) Final TMDL Compliance Determination

Compliance with the final WQBELs, on or after the final TMDL compliance date, may be demonstrated via one of the following methods:

(a) There is no direct or indirect discharge from the Responsible Copermittee's MS4s to the receiving water; OR

(b) There are no exceedances of the final receiving water limitations under Specific Provision 1.b.(2)(a) in the receiving water at, or downstream of the Responsible Copermittee's MS4 outfalls; OR

(c) There are no exceedances of the final effluent limitations under Specific Provision 1.b.(2)(b) at the Responsible Copermittee's MS4 outfalls; OR

(d) The Responsible Copermittees develop and implement the Water Quality Improvement Plan as follows:

(i) Incorporate the BMPs required under Specific Provision 1.b.(2)(c) as part of the Water Quality Improvement Plan,

(ii) Include an analysis in the Water Quality Improvement Plan, utilizing a watershed model or other watershed analytical tools, to demonstrate that the implementation of the BMPs required under Provision 1.b.(2)(c) achieves compliance with Specific Provisions 1.b.(3)(a), 1.b.(3)(b) and/or 1.b.(3)(c),

(iii) The results of the analysis must be accepted by the San Diego Water Board as part of the Water Quality Improvement Plan,

(iv) The Responsible Copermittees continue to implement the BMPs required under Specific Provision 1.b.(2)(c), AND

(v) The Responsible Copermittees continue to perform the specific monitoring and assessments specified in Specific Provision 1.d, to demonstrate compliance with Specific Provisions 1.b.(3)(a), 1.b.(3)(b) and/or 1.b.(3)(c).

c. Interim TMDL Compliance Requirements

The Responsible Copermittees must be in compliance with the final diazinon TMDL compliance requirements as of December 31, 2010.

d. Specific Monitoring and Assessment Requirements

(1) The Responsible Copermittees must implement the monitoring and assessment requirements issued under Investigation Order No. R9-2004-0277, *California Department of Transportation and San Diego Municipal Separate Storm Sewer System Copermittees Responsible for the Discharge of Diazinon into the Chollas Creek Watershed*. The monitoring reports required under Investigation Order No. R9-2004-0277 must be submitted as part of the Transitional Monitoring and Assessment Program and Water Quality Improvement Plan Annual Reports required under Provision F.3.b of this Order.

(2) The Responsible Copermittees must monitor the effluent of the MS4 outfalls for diazinon within the Chollas Creek watershed, and calculate or estimate the annual diazinon loads, in accordance with the requirements of Provisions D.2, D.4.b.(1), and D.4.b.(2) of this Order. The monitoring and assessment results must be submitted as part of the Transitional Monitoring and Assessment

Program and Water Quality Improvement Plan Annual Reports required under Provision F.3.b of this Order.

(3) For assessing and determining compliance with the concentration-based effluent limitations under Specific Provision 1.b.(2)(b), dry and wet weather discharge concentrations may be calculated based on a flow-weighted average across all major MS4 outfalls along a water body segment or within a jurisdiction if samples are collected within a similar time period.

2. Total Maximum Daily Loads for Dissolved Copper in Shelter Island Yacht Basin

a. APPLICABILITY

(1) TMDL Basin Plan Amendment: Resolution No. R9-2005-0019

(2) TMDL Adoption and Approval Dates:

San Diego Water Board Adoption Date:	February 9, 2005
State Water Board Approval Date:	September 22, 2005
Office of Administrative Law Approval Date:	December 2, 2005
US EPA Approval Date:	February 8, 2006

(3) TMDL Effective Date: December 2, 2005

(4) Watershed Management Area: San Diego Bay

(5) Water Body: Shelter Island Yacht Basin

(6) Responsible Copermittee: City of San Diego

b. FINAL TMDL COMPLIANCE REQUIREMENTS

The final dissolved copper TMDL compliance requirements for Shelter Island Yacht Basin consist of the following:

(1) Final TMDL Compliance Date

The Responsible Copermittee must be in compliance with the final TMDL compliance requirements as of December 2, 2005.

(2) Final Water Quality Based Effluent Water Limitations

(a) Final Receiving Water Limitations

Discharges from the MS4s must not cause or contribute to the exceedance of the following receiving water limitations:

Table 2.1
Final Receiving Water Limitations Expressed as Concentrations in Shelter Island Yacht Basin

Constituent	Exposure Duration	Receiving Water Limitation	Averaging Period
Dissolved Copper	Acute	4.8 µg/L x WER*	1 hour
	Chronic	3.1 µg/L x WER*	4 days

Notes:
* The Water Effect Ratio (WER) is assumed to be 1.0 unless there is a site-specific and chemical-specific WER provided in the Basin Plan.

(b) Final Effluent Limitations

Discharges from the MS4s containing pollutant loads that do not exceed the following effluent limitations will not cause or contribute to exceedances of the receiving water limitations under Specific Provision 2.b.(3)(a):

Table 2.2
Final Effluent Limitations as Expressed as Annual Loads in MS4 Discharges to Shelter Island Yacht Basin

Constituent	Effluent Limitation
Dissolved Copper	30 kg/yr*

* If the water quality objectives for dissolved copper in Shelter Island Yacht Basin are changed in the future, then the margin of safety (MOS), TMDL and allocations will be recalculated using the *Method for Recalculation of the Total Maximum Daily Load for Dissolved Copper in the Shelter Island Yacht Basin, San Diego Bay* in the Basin Plan (p. 7-14).

(c) Best Management Practices

The Responsible Copermittee must implement BMPs to achieve the receiving water limitations under Specific Provision 2.b.(2)(a) and/or the effluent limitations under Specific Provision 2.b.(2)(b) for Shelter Island Yacht Basin. The BMPs must be incorporated into the Water Quality Improvement Plan for the San Diego Bay Watershed Management Area.

(3) Final TMDL Compliance Determination

Compliance with the final WQBELs, on or after the final TMDL compliance date, may be demonstrated via one of the following methods:

(a) There is no direct or indirect discharge from the Responsible Copermittee's MS4s to the receiving water; OR

(b) There are no exceedances of the final receiving water limitations under Specific Provision 2.b.(2)(a) in the receiving water at, or downstream of the Responsible Copermittee's MS4 outfalls; OR

(c) There are no exceedances of the final effluent limitations under Specific Provision 2.b.(2)(b) at the Responsible Copermittee's MS4 outfalls; OR

(d) The Responsible Copermittee develops and implements the Water Quality Improvement Plan as follows:

(i) Incorporate the BMPs required under Specific Provision 2.b.(2)(c) as part of the Water Quality Improvement Plan,

(ii) Include an analysis in the Water Quality Improvement Plan, utilizing a watershed model or other watershed analytical tools, to demonstrate that the implementation of the BMPs required under Provision 2.b.(2)(c) achieves compliance with Specific Provisions 2.b.(3)(a), 2.b.(3)(b) and/or 2.b.(3)(c),

(iii) The results of the analysis must be accepted by the San Diego Water Board as part of the Water Quality Improvement Plan,

(iv) The Responsible Copermittees continue to implement the BMPs required under Specific Provision 2.b.(2)(c), AND

(v) The Responsible Copermittees continue to perform the specific monitoring and assessments specified in Specific Provision 2.d, to demonstrate compliance with Specific Provisions 2.b.(3)(a), 2.b.(3)(b) and/or 2.b.(3)(c).

c. INTERIM TMDL COMPLIANCE REQUIREMENTS

The Responsible Copermittees must be in compliance with the final dissolved copper TMDL compliance requirements as of December 2, 2005.

d. SPECIFIC MONITORING AND ASSESSMENT REQUIREMENTS

The Responsible Copermittee must monitor the effluent of its MS4 outfalls for dissolved copper, and calculate or estimate the monthly and annual dissolved copper loads, in accordance with the requirements of Provisions D.2, D.4.b.(1), and D.4.(b)(2)of this Order. The monitoring and assessment results must be submitted as part of the Transitional Monitoring and Assessment Program and Water Quality Improvement Plan Annual Reports required under Provision F.3.b of this Order.

3. Total Maximum Daily Loads for Total Nitrogen and Total Phosphorus in Rainbow Creek Watershed

a. APPLICABILITY

(1) TMDL Basin Plan Amendment: Resolution No. R9-2005-0036

(2) TMDL Adoption and Approval Dates:

San Diego Water Board Adoption Date:	February 9, 2005
State Water Board Approval Date:	November 16, 2005
Office of Administrative Law Approval Date:	February 1, 2006
US EPA Approval Date:	March 22, 2006

(3) TMDL Effective Date: February 1, 2006

(4) Watershed Management Area: Santa Margarita River

(5) Water Body: Rainbow Creek

(6) Responsible Copermittee: County of San Diego

b. FINAL TMDL COMPLIANCE REQUIREMENTS

The final total nitrogen and total phosphorus TMDL compliance requirements for Rainbow Creek consist of the following

(1) Final TMDL Compliance Date

The Responsible Copermittee must comply with final TMDL compliance requirements by December 31, 2021.

(2) Final Water Quality Based Effluent Water Limitations

(a) Final Receiving Water Limitations

Discharges from the MS4s must not cause or contribute to the exceedance of the following receiving water limitations by the compliance date under Specific Provision 3.b.(1):

Table 3.1
Final Receiving Water Limitations Expressed as Concentrations in Rainbow Creek

Constituent	Receiving Water Limitation
Nitrate (as N)	10 mg/L
Total Nitrogen	1 mg/L
Total Phosphorus	0.1 mg/L

(b) Final Effluent Limitations

(i) Discharges from the MS4s containing concentrations that do not exceed the following effluent limitations by the compliance date under Specific Provision 3.b.(1) will not cause or contribute to exceedances of the receiving water limitations under Specific Provision 3.b.(2)(a):

Table 3.2
Final Effluent Limitations Expressed as Concentrations in MS4 Discharges to Rainbow Creek

Constituent	Effluent Limitation
Nitrate (as N)	10 mg/L
Total Nitrogen	1 mg/L
Total Phosphorus	0.1 mg/L

(ii) Annual pollutant loads from given land uses discharging to and from the MS4s that do not exceed the following annual loads by the compliance date under Specific Provision 3.b.(1) will not cause or contribute to exceedances of the receiving water limitations under Specific Provision 3.b.(2)(a):

Table 3.3
Final Effluent Limitations Expressed as Annual Loads in MS4 Discharges to Rainbow Creek

Land Use	Total N	Total P
Commercial nurseries	116 kg/yr	3 kg/yr
Park	3 kg/yr	0.1 kg/yr
Residential areas	149 kg/yr	12 kg/yr
Urban areas	27 kg/yr	6 kg/yr

(c) Best Management Practices

(i) The Responsible Copermittee must implement BMPs to achieve the receiving water limitations under Specific Provision 3.b.(2)(a) and/or the effluent limitations under Specific Provision 3.b.(2)(b) for Rainbow Creek.

(ii) The Responsible Copermittee should coordinate any BMPs implemented to address this TMDL with Caltrans and other sources as possible.

(3) Final TMDL Compliance Determination

Compliance with the final WQBELs, on or after the final TMDL compliance date, may be demonstrated via one of the following methods:

(a) There is no direct or indirect discharge from the Responsible Copermittee's MS4s to the receiving water; OR

(b) There are no exceedances of the final receiving water limitations under

Specific Provision 3.b.(2)(a) in the receiving water at, or downstream of the Responsible Copermittee's MS4 outfalls; OR

(c) There are no exceedances of the final effluent limitations under Specific Provision 3.b.(2)(b)(i) at the Responsible Copermittee's MS4 outfalls; OR

(d) The annual pollutant loads from given land uses discharging to and from the MS4s do not exceed the final effluent limitations under Specific Provision 3.b.(2)(b)(ii); OR

(e) The Responsible Copermittee develops and implements the Water Quality Improvement Plan as follows:

(i) Incorporate the BMPs required under Specific Provision 3.b.(2)(c) as part of the Water Quality Improvement Plan,

(ii) Include an analysis in the Water Quality Improvement Plan, utilizing a watershed model or other watershed analytical tools, to demonstrate that the implementation of the BMPs required under Specific Provision 3.b.(2)(c) achieves compliance with Specific Provisions 3.b.(3)(a), 3.b.(3)(b), 3.b.(3)(c) and/or 3.b.(3)(d),

(iii) The results of the analysis must be accepted by the San Diego Water Board as part of the Water Quality Improvement Plan,

(iv) The Responsible Copermittees continue to implement the BMPs required under Specific Provision 3.b.(2)(c), AND

(v) The Responsible Copermittees continue to perform the specific monitoring and assessments specified in Specific Provision 3.d, to demonstrate compliance with Specific Provisions 3.b.(3)(a), 3.b.(3)(b), 3.b.(3)(c) and/or 3.b.(3)(d).

c. Interim TMDL Compliance Requirements

The interim total nitrogen and total phosphorus TMDL compliance requirements for Rainbow Creek consist of the following:

(1) Interim Compliance Dates and WQBELs

The Responsible Copermittee must comply with the interim WQBELs, expressed as annual loads, by December 31 of the interim compliance year given in Table 3.4.

Table 3.4
Interim Water Quality Based Effluent Limitations Expressed as Annual Loads in MS4 Discharges from Specific Land Uses to Rainbow Creek

	Total N Interim Effluent Limitations (kg/yr)			Total P Interim Effluent Limitations (kg/yr)		
	Interim Compliance Date			Interim Compliance Date		
Land Use	**2009**	**2013**	**2017**	**2009**	**2013**	**2017**
Commercial nurseries	390	299	196	20	16	10
Park	5	3	3	0.15	0.10	0.10
Residential areas	507	390	260	99	74	47
Urban areas	40	27	27	9	6	6

(2) Interim TMDL Compliance Determination

Compliance with interim WQBELs, on or after the interim TMDL compliance dates, may be demonstrated via one of the following methods:

(a) There is no direct or indirect discharge from the Responsible Copermittee's MS4s to the receiving water; OR

(b) There are no exceedances of the final receiving water limitations under Specific Provision 3.b.(2)(a) in the receiving water at, or downstream of the Responsible Copermittee's MS4 outfalls; OR

(c) There are no exceedances of the final effluent limitations under Specific Provision 3.b.(2)(b)(i) at the Responsible Copermittee's MS4 outfalls; OR

(d) The annual pollutant loads from given land uses discharging to and from the MS4s do not exceed the final effluent limitations under Specific Provision 3.b.(2)(b)(ii); OR

(e) The annual pollutant loads from given land uses discharging to and from the MS4s do not exceed the interim effluent limitations under Specific Provision 3.c.(1); OR

(f) The Responsible Copermittee has submitted and is fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the interim TMDL compliance requirements will be achieved by the interim compliance dates.

d. SPECIFIC MONITORING AND ASSESSMENT REQUIREMENTS

(1) The Responsible Copermittee must incorporate into the Water Quality Improvement Plan and implement the Sampling and Analysis Plan for Rainbow Creek Nutrient Reduction TMDL Implementation Water Quality Monitoring, dated January 2010.

(2) The results of any monitoring conducted during the reporting period, and assessment of whether the interim and final TMDL compliance requirements have been achieved must be submitted as part of the Transitional Monitoring and Assessment Program and Water Quality Improvement Plan Annual Reports required under Provision F.3.b of this Order.

(3) For assessing and determining compliance with the concentration-based effluent limitations under Specific Provision 3.b.(2)(b)(i), dry and wet weather discharge concentrations may be calculated based on a flow-weighted average across all major MS4 outfalls along a water body segment or within a jurisdiction if samples are collected within a similar time period.

4. Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek

a. APPLICABILITY

(1) TMDL Basin Plan Amendment: Resolution No. R9-2007-0043

(2) TMDL Adoption and Approval Dates:

San Diego Water Board Adoption Date:	June 13, 2007
State Water Board Approval Date:	July 15, 2008
Office of Administrative Law Approval Date:	October 22, 2008
US EPA Approval Date:	December 18, 2008

(3) TMDL Effective Date: October 22, 2008

(4) Watershed Management Area: San Diego Bay

(5) Water Body: Chollas Creek

(6) Responsible Copermittees: City of La Mesa, City of Lemon Grove, City of San Diego, County of San Diego, San Diego Unified Port District

b. FINAL TMDL COMPLIANCE REQUIREMENTS

The final dissolved copper, lead, and zinc TMDL compliance requirements for Chollas Creek consist of the following:

(1) Final TMDL Compliance Date

The Responsible Copermittees must comply with the final TMDL compliance requirements by October 22, 2028.

(2) Final Water Quality Based Effluent Limitations

(a) Final Receiving Water Limitations

Discharges from the MS4s must not cause or contribute to the exceedance of the following receiving water limitations by the compliance date under Specific Provision 4.b.(1):

Table 4.1
Final Receiving Water Limitations Expressed as Concentrations in Chollas Creek

Constituent	Exposure Duration	Receiving Water Limitation (µg/L)	Averaging Period
Dissolved Copper	Acute	$(0.96) \times e^{[0.9422 \times \ln(\text{hardness}) - 1.700]} \times \text{WER}^*$	1 hour
	Chronic	$(0.96) \times e^{[0.8545 \times \ln(\text{hardness}) - 1.702]} \times \text{WER}^*$	4 days
Dissolved Lead	Acute	$[1.46203 - 0.145712 \times \ln(\text{hardness})] \times e^{[1.273 \times \ln(\text{hardness}) - 1.460]} \times \text{WER}^*$	1 hour
	Chronic	$[1.46203 - 0.145712 \times \ln(\text{hardness})] \times e^{[1.273 \times \ln(\text{hardness}) - 4.705]} \times \text{WER}^*$	4 days
Dissolved Zinc	Acute	$(0.978) \times e^{[0.8473 \times \ln(\text{hardness}) + 0.884]} \times \text{WER}^*$	1 hour
	Chronic	$(0.986) \times e^{[0.8473 \times \ln(\text{hardness}) + 0.884]} \times \text{WER}^*$	4 days

Notes:
* The Water Effect Ratio (WER) is assumed to be 1.0 unless there is a site-specific and chemical-specific WER provided in the Basin Plan.

(b) Final Effluent Limitations

Discharges from the MS4s containing pollutant loads that do not exceed the following effluent limitations by the compliance date under Specific Provision 4.b.(1) will not cause or contribute to exceedances of the receiving water limitations under Specific Provision 4.b.(2)(a):

Table 4.2
Final Effluent Limitations as Expressed Concentrations in MS4 Discharges to Chollas Creek

Constituent	Exposure Duration	Effluent Limitation (µg/L)	Averaging Period
Dissolved Copper	Acute	$90\% \times (0.96) \times e^{[0.9422 \times \ln(\text{hardness}) - 1.700]} \times \text{WER}^*$	1 hour
	Chronic	$90\% \times (0.96) \times e^{[0.8545 \times \ln(\text{hardness}) - 1.702]} \times \text{WER}^*$	4 days
Dissolved Lead	Acute	$90\% \times [1.46203 - 0.145712 \times \ln(\text{hardness})] \times e^{[1.273 \times \ln(\text{hardness}) - 1.460]} \times \text{WER}^*$	1 hour
	Chronic	$90\% \times [1.46203 - 0.145712 \times \ln(\text{hardness})] \times e^{[1.273 \times \ln(\text{hardness}) - 4.705]} \times \text{WER}^*$	4 days
Dissolved Zinc	Acute	$90\% \times (0.978) \times e^{[0.8473 \times \ln(\text{hardness}) + 0.884]} \times \text{WER}^*$	1 hour
	Chronic	$90\% \times (0.986) \times e^{[0.8473 \times \ln(\text{hardness}) + 0.884]} \times \text{WER}^*$	4 days

Notes:
* The Water Effect Ratio (WER) is assumed to be 1.0 unless there is a site-specific and chemical-specific WER provided in the Basin Plan.

(c) Best Management Practices

(i) The Responsible Copermittees must implement BMPs to achieve the receiving water limitations under Specific Provision 4.b.(2)(a) and/or the effluent limitations under Specific Provision 4.b.(2)(b) for Chollas Creek.

(ii) The Responsible Copermittees should coordinate any BMPs implemented to address this TMDL with Caltrans and the U.S. Navy as possible.

(3) Final TMDL Compliance Determination

Compliance with the final WQBELs, on or after the final TMDL compliance date, may be demonstrated via one of the following methods:

(a) There is no direct or indirect discharge from the Responsible Copermittee's MS4s to the receiving water; OR

(b) There are no exceedances of the final receiving water limitations under Specific Provision 4.b.(2)(a) in the receiving water at, or downstream of the Responsible Copermittee's MS4 outfalls; OR

(c) There are no exceedances of the final effluent limitations under Specific Provision 4.b.(2)(b) at the Responsible Copermittee's MS4 outfalls; OR

(d) The Responsible Copermittees develop and implement the Water Quality Improvement Plan as follows:

(i) Incorporate the BMPs required under Specific Provision 4.b.(2)(c) as part of the Water Quality Improvement Plan,

(ii) Include an analysis in the Water Quality Improvement Plan, utilizing a watershed model or other watershed analytical tools, to demonstrate that the implementation of the BMPs required under Provision 4.b.(2)(c) achieves compliance with Specific Provisions 4.b.(3)(a), 4.b.(3)(b) and/or 4.b.(3)(c),

(iii) The results of the analysis must be accepted by the San Diego Water Board as part of the Water Quality Improvement Plan,

(iv) The Responsible Copermittees continue to implement the BMPs required under Specific Provision 4.b.(2)(c), AND

(v) The Responsible Copermittees continue to perform the specific monitoring and assessments specified in Specific Provision 4.d, to demonstrate compliance with Specific Provisions 4.b.(3)(a), 4.b.(3)(b) and/or 4.b.(3)(c).

c. INTERIM TMDL COMPLIANCE REQUIREMENTS

The interim dissolved copper, lead, and zinc TMDL compliance requirements for Chollas Creek consist of the following:

(1) Interim Compliance Date and WQBELs

The Responsible Copermittee must comply with the interim WQBELs, expressed as concentrations, by the interim compliance date given in Table 4.3:

Table 4.3
Interim Water Quality Based Effluent Limitations Expressed as Concentrations in MS4 Discharges to Chollas Creek

Interim Compliance Date	Constituent	Exposure Duration	Effluent Limitation (µg/L)	Averaging Period
October 22, 2018	Dissolved Copper	Acute	$1.2 \times 90\% \times (0.96) \times e^{[0.9422 \times \ln(\text{hardness}) - 1.700]} \times \text{WER}^*$	1 hour
		Chronic	$1.2 \times 90\% \times (0.96) \times e^{[0.8545 \times \ln(\text{hardness}) - 1.702]} \times \text{WER}^*$	4 days
	Dissolved Lead	Acute	$1.2 \times 90\% \times [1.46203 - 0.145712 \times \ln(\text{hardness})] \times e^{[1.273 \times \ln(\text{hardness}) - 1.460]} \times \text{WER}^*$	1 hour
		Chronic	$1.2 \times 90\% \times [1.46203 - 0.145712 \times \ln(\text{hardness})] \times e^{[1.273 \times \ln(\text{hardness}) - 4.705]} \times \text{WER}^*$	4 days
	Dissolved Zinc	Acute	$1.2 \times 90\% \times (0.978) \times e^{[0.8473 \times \ln(\text{hardness}) + 0.884]} \times \text{WER}^*$	1 hour
		Chronic	$1.2 \times 90\% \times (0.986) \times e^{[0.8473 \times \ln(\text{hardness}) + 0.884]} \times \text{WER}^*$	4 days

Notes:
* The Water Effect Ratio (WER) is assumed to be 1.0 unless there is a site-specific and chemical-specific WER provided in the Basin Plan.

(2) Interim TMDL Compliance Determination

Compliance with interim WQBELs, on or after the interim TMDL compliance date, may be demonstrated via one of the following methods:

(a) There is no direct or indirect discharge from the Responsible Copermittee's MS4s to the receiving water; OR

(b) There are no exceedances of the applicable receiving water limitations under Specific Provision 4.b.(2)(a) in the receiving water at, or downstream of the Responsible Copermittee's MS4 outfalls; OR

(c) There are no exceedances of the final effluent limitations under Specific Provision 4.b.(2)(b) at the Responsible Copermittee's MS4 outfalls; OR

(d) There are no exceedances of the interim effluent limitations under Specific

Provision 4.c.(1) at the Responsible Copermittee's MS4 outfalls; OR

(e) The Responsible Copermittees have submitted and is fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the interim TMDL compliance requirements will be achieved by the interim compliance date.

d. Specific Monitoring and Assessment Requirements

(1) The Responsible Copermittees must implement the monitoring and assessment requirements issued under Investigation Order No. R9-2004-0277, *California Department of Transportation and San Diego Municipal Separate Storm Sewer System Copermittees Responsible for the Discharge of Diazinon into the Chollas Creek Watershed*, when it is amended to include monitoring requirements for the Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek. The monitoring reports required under Investigation Order No. R9-2004-0277 must be submitted as part of the Transitional Monitoring and Assessment Program and Water Quality Improvement Plan Annual Reports required under Provision F.3.b of this Order.

(2) The Responsible Copermittees must monitor the effluent of the MS4 outfalls discharging to Chollas Creek for dissolved copper, lead, and zinc, and calculate or estimate the monthly and annual dissolved copper, lead, and zinc loads, in accordance with the requirements of Provisions D.2, D.4.b.(1), and D.4.b.(2) of this Order. The monitoring and assessment results must be submitted as part of the Transitional Monitoring and Assessment Program and Water Quality Improvement Plan Annual Reports required under Provision F.3.b of this Order.

(3) For assessing and determining compliance with the concentration-based effluent limitations under Specific Provision 4.b.(2)(b) or 4.c.(1), dry and wet weather discharge concentrations may be calculated based on a flow-weighted average across all major MS4 outfalls along a water body segment or within a jurisdiction if samples are collected within a similar time period.

5. Total Maximum Daily Loads for Indicator Bacteria, Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay

a. APPLICABILITY

(1) TMDL Basin Plan Amendment: Resolution No. R9-2008-0027

(2) TMDL Adoption and Approval Dates:

San Diego Water Board Adoption Date:	June 11, 2008
State Water Board Approval Date:	June 16, 2009
Office of Administrative Law Approval Date:	September 15, 2009
US EPA Approval Date:	October 26, 2009

(3) TMDL Effective Date: September 15, 2009

(4) Watershed Management Areas: See Table 5.0

(5) Water Bodies: See Table 5.0

(6) Responsible Copermittees: See Table 5.0

Table 5.0
Applicability of Total Maximum Daily Loads for Indicator Bacteria
Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay

Watershed Management Area	Water Body	Segment or Area	Responsible Copermittees
South Orange County	Dana Point Harbor	Baby Beach	-City of Dana Point -County of Orange
San Diego Bay	San Diego Bay	Shelter Island Shoreline Park	- San Diego Unified Port District

b. FINAL TMDL COMPLIANCE REQUIREMENTS

The final indicator bacteria TMDL compliance requirements for segments or areas of the water bodies listed in Table 5.0[39] consist of the following:

(3) Final TMDL Compliance Dates

(a) Baby Beach in Dana Point Harbor

The Responsible Copermittees for MS4 discharges to Baby Beach must be in compliance with the final TMDL compliance requirements according

[39] Per Resolution R9-2008-0027, the interim and final WQBELs only apply to waterbodies that remain on the 303(d) list for REC-1 water quality objectives due to impacts from controllable sources of bacteria. If waterbodies are put back on the list or delisted in subsequent iterations, the San Diego Water Board will revise the current NPDES requirements and/or issue additional waste discharge requirements to be consistent with these TMDLs.

to the following compliance dates:

Table 5.1
Compliance Dates to Achieve Final TMDL Compliance Requirements For Baby Beach in Dana Point Harbor

Constituent	Dry Weather WLA Compliance Date	Wet Weather WLA Compliance Date
Total Coliform	September 15, 2014	September 15, 2009
Fecal Coliform		September 15, 2009
Enterococcus		September 15, 2019

(b) Shelter Island Shoreline Park in San Diego Bay

The Responsible Copermittee for MS4 discharges to Shelter Island Shoreline Park must be in compliance with the final TMDL compliance requirements as of December 31, 2012.

(4) Final Receiving Water ~~Quality Based Effluent Water~~ Limitations

~~(a) Final Receiving Water Limitations~~
The Receiving Water Limitations for segments or areas of the water bodies listed in Table 5.0[40] consist of the following:

Discharges from the MS4s must not cause or contribute to the exceedance of the following receiving water limitations by the compliance dates under Specific Provision 5.b.(1):

Table 5.2
Final Receiving Water Limitations Expressed as Bacteria Densities in the Water Body

Constituent	Receiving Water Limitations	
	Single Sample Maximum[1,2]	30-Day Geometric Mean[2]
Total Coliform	10,000 MPN/100mL	1,000 MPN/100mL
Fecal Coliform	400 MPN/100mL	200 MPN/100mL
Enterococcus	104 MPN/100mL	35 MPN/100mL

Notes:
1. During wet weather days, only the single sample maximum receiving water limitations are required to be achieved.
2. During dry weather days, the single sample maximum and 30-day geometric mean receiving water limitations are required to be achieved.

[40] Per Resolution R9-2008-0027, the Receiving Water Limitations only apply to waterbodies that remain on the 303(d) list for REC-1 water quality objectives due to impacts from controllable sources of bacteria. If waterbodies are put back on the list or delisted in subsequent iterations, the San Diego Water Board will revise the current NPDES requirements and/or issue additional waste discharge requirements to be consistent with these TMDLs.

If the above receiving water limitations are not met in the receiving water, the Responsible Copermittees must demonstrate that the discharges from the MS4s are not causing or contributing to the exceedance of receiving water limitations. Such demonstration may be achieved by demonstrating the attainment of the final WQBELs in Provision 5.b.(2).

(3) Final Water Quality Based Effluent Limitations

(ab) Final Effluent Limitations

(i) Discharges from the MS4s must not containing indicator bacteria densities that do not exceed the following mass-based effluent limitations by the compliance dates under Specific Provision 5.b.(1) to demonstrate that the discharge is will not causinge or contributinge to exceedances of the receiving water limitations under Specific Provision 5.b.(2)(a):

Table 5.3a
Final Effluent Limitations as Expressed as Bacteria Densities in MS4 Discharges to the Water Body

	Effluent Limitations	
Constituent	Single Sample Maximum[1,2]	30-Day Geometric Mean[2]
Total Coliform	10,000 MPN/100mL	1,000 MPN/100mL
Fecal Coliform	400 MPN/100mL	200 MPN/100mL
Enterococcus	104 MPN/100mL	35 MPN/100mL

Notes:
1. During wet weather days, only the single sample maximum effluent limitations are required to be achieved.
2. During dry weather days, the single sample maximum and 30-day geometric mean effluent limitations are required to be achieved.

(ii) Discharges from the MS4s containing indicator bacteria loads that do not exceed the following effluent limitations by the compliance dates under Specific Provision 5.b.(1) will not cause or contribute to exceedances of the receiving water limitations under Specific Provision 5.b.(2)(a):

Table 5.4a
Final Effluent Limitations as Mass-Based Limits Expressed as Bacteria Loads in MS4 Discharges to the Baby Beach in Dana Point Harbor

Constituent	Dry Weather Final Effluent Limitation	Wet Weather Final Effluent Limitation
Total Coliform	0.86×10^9 MPN/day	$3{,}254 \times 10^9$ MPN/30days
Fecal Coliform	0.17×10^9 MPN/day	112×10^9 MPN/30days
Enterococcus	0.03×10^9 MPN/day	114×10^9 MPN/30days

Table 5.4b
Final Effluent Limitations Expressed as Bacteria Loads in MS4 Discharges to the Shelter Island Shoreline Park in San Diego Bay

Constituent	Dry Weather Final Effluent Limitation	Wet Weather Final Effluent Limitation
Total Coliform	0 MPN/day	$198x10^9$ MPN/30days
Fecal Coliform	0 MPN/day	$8x10^9$ MPN/30days
Enterococcus	0 MPN/day	$26x10^9$ MPN/30days

(iii) Indicator bacteria percent load reductions from the Responsible Copermittees' MS4s that are greater than or equal to the following effluent limitations by the compliance dates under Specific Provision 5.b.(1) will not cause or contribute to exceedances of the receiving water limitations under Specific Provision 5.b.(2)(a):

Table 5.5a
Final Effluent Limitations Expressed as Percent Load Reductions in MS4 Discharges to Baby Beach in Dana Point Harbor*

Constituent	Dry Weather Final Effluent Limitation	Wet Weather Final Effluent Limitation
Total Coliform	90.4%	0%
Fecal Coliform	82.7%	0%
Enterococcus	96.2%	62.2%

Notes:
* The percent load reductions are relative to data collected between 1996-2002. For pollutant load reductions of 0%, pollutant loads discharged from the Responsible Copermittees' MS4s must not exceed the loads in Table 5.4a, unless an updated model or analysis, accepted by the San Diego Water Board, identifies a different allowable pollutant load that can be discharged from the Responsible Copermittee's MS4s to the water body.

Table 5.5b
*Final Effluent Limitations Expressed as Percent Load Reductions** in MS4 Discharges to Shelter Island Shoreline Park in San Diego Bay*

Constituent	Dry Weather Final Effluent Limitation	Wet Weather Final Effluent Limitation
Total Coliform	0%	0%
Fecal Coliform	0%	0%
Enterococcus	0%	0%

Notes:
* The percent load reductions are relative to data collected between 1999-2004. For pollutant load reductions of 0%, pollutant loads discharged from the Responsible Copermittee's MS4s must not exceed the loads in Table 5.4b, unless an updated model or analysis, accepted by the San Diego Water Board, identifies a different allowable pollutant load that can be discharged from the Responsible Copermittee's MS4s to the water body.

If the final WQBELs are not met in the MS4 discharges, the Responsible Copermittees must demonstrate that the discharges from the MS4s are not causing or contributing to the exceedance of receiving water limitations. Such demonstration may be achieved by (1) demonstrating the attainment of the Receiving Water Limitations in Provision 5.c.(1), or (2) demonstrating that the natural and background sources appear to be the sole source of the continued impairment. The natural sources exclusion approach (NSEA) may be applied. The Municipal Dischargers are responsible for collection of the data to support the application of the NSEA to recalculate the TMDL.

(bc) Best Management Practices

(i) The Water Quality Improvement Plans for the applicable Watershed Management Areas in Table 5.0 must incorporate the Bacteria Load Reduction Plan (BLRP) required to be developed pursuant to Resolution No. R9-2008-0027.

(ii) The Responsible Copermittee must implement BMPs to support the achievement of the ~~receiving water limitations under Specific Provision 5.b.(2)(a) and/or the~~ effluent limitations under Specific Provision 5.b.(2)(b) for the segments or areas of the water bodies listed in Table 5.0

(4) Final TMDL Compliance Determination

Compliance with the final WQBELs, on or after the final TMDL compliance dates, may be demonstrated via one of the following methods:

(a) There is no ~~direct or indirect~~ discharge from the Responsible Copermittee's MS4s to the receiving water; OR

(b) There are no exceedances of the final receiving water limitations under Specific Provision 5.b.(2)(a) in the receiving water at, or downstream of the Responsible Copermittee's MS4 outfalls; OR

(c) There are no exceedances of the final effluent limitations under Specific Provision 5.b.(2)(b)(i) at the Responsible Copermittee's MS4 outfalls; OR

(d) The pollutant loads discharging from the Responsible Copermittees' MS4 outfalls do not exceed the final effluent limitations under Specific Provision 5.b.(2)(b)(ii); OR

(e) The pollutant load reductions for discharges from the Responsible Copermittees' MS4 outfalls are greater than or equal to the final effluent limitations under Specific Provision 5.b.(2)(b)(iii); OR

(f) The Responsible Copermittees can demonstrate that exceedances of the final receiving water limitations under Specific Provision 5.b.(2)(a) in the receiving water are due to loads from natural sources, AND pollutant loads from the Copermittees' MS4s are not causing or contributing to the exceedances; OR

(g) The Responsible Copermittees develop and implement the Water Quality Improvement Plan as follows:

(i) Incorporate the BMPs required under Specific Provision 5.b.(2)(c) as part of the Water Quality Improvement Plan,

(ii) Include an analysis in the Water Quality Improvement Plan, utilizing a watershed model or other watershed analytical tools, to demonstrate that the implementation of the BMPs required under Provision 5.b.(2)(c) achieves compliance with Specific Provisions 5.b.(3)(a), 5.b.(3)(b), 5.b.(3)(c), 5.b.(3)(d), 5.b.(3)(e) and/or 5.b.(3)(f),

(iii) The results of the analysis must be accepted by the San Diego Water Board as part of the Water Quality Improvement Plan,

(iv) The Responsible Copermittees continue to implement the BMPs required under Specific Provision 5.b.(2)(c), AND

(v) The Responsible Copermittees continue to perform the specific monitoring and assessments specified in Specific Provision 5.d, to demonstrate compliance with Specific Provisions 5.b.(3)(a), 5.b.(3)(b), 5.b.(3)(c), 5.b.(3)(d), 5.b.(3)(e) and/or 5.b.(3)(f).

c. INTERIM TMDL COMPLIANCE REQUIREMENTS

The interim indicator bacteria TMDL compliance requirements for segments or areas of the water bodies listed in Table 5.0[41] consist of the following:

(1) Baby Beach in Dana Point Harbor

(a) Interim TMDL Compliance Dates and WQBELs

The Responsible Copermittees for MS4 discharges to Baby Beach must comply with the following interim WQBELs by the interim compliance dates given in Tables 5.6a and/or 5.6b:

Table 5.6a
Interim Water Quality Based Effluent Limitations Expressed as Bacteria Loads in MS4 Discharges to Baby Beach in Dana Point Harbor

Constituent	Interim Compliance Dates	Dry Weather Interim Effluent Limitation	Wet Weather Interim Effluent Limitation
Total Coliform	September 15, 2012	4.93×10^9 MPN/day	$3{,}254 \times 10^9$ MPN/30days*
Fecal Coliform	September 15, 2012	0.59×10^9 MPN/day	112×10^9 MPN/30days*
Enterococcus	September 15, 2012	0.42×10^9 MPN/day	301×10^9 MPN/30days
	September 15, 2016	0.03×10^9 MPN/day *	207×10^9 MPN/30days

Notes:
* Same as the final effluent limitations in Table 5.4a.

Table 5.6b
Interim Water Quality Based Effluent Limitations Expressed as Percent Load Reductions in MS4 Discharges to Baby Beach in Dana Point Harbor*

Constituent	Interim Compliance Dates	Dry Weather Interim Effluent Limitation	Wet Weather Interim Effluent Limitation
Total Coliform	September 15, 2012	45.2%	0%**
Fecal Coliform	September 15, 2012	41.4%	0%**
Enterococcus	September 15, 2012	48.1%	0%
	September 15, 2016	96.2%**	31.1%

Notes:
* The percent load reductions are relative to data collected between 1996-2002. For pollutant load reductions of 0%, pollutant loads discharged from the Responsible Copermittees' MS4s must not exceed

[41] Per Resolution R9-2008-0027, the interim and final WQBELs only apply to waterbodies that remain on the 303(d) list for REC-1 water quality objectives due to impacts from controllable sources of bacteria. If waterbodies are put back on the list or delisted in subsequent iterations, the San Diego Water Board will revise the current NPDES requirements and/or issue additional waste discharge requirements to be consistent with these TMDLs.

the loads in Table 5.6a, unless an updated model or analysis, accepted by the San Diego Water Board, identifies a different allowable pollutant load that can be discharged from the Responsible Copermittee's MS4s to the waterbody.

** Same as the final effluent limitations in Table 5.5a.

(b) Interim Compliance Determination

Compliance with interim WQBELs, on or after the interim TMDL compliance dates, may be demonstrated via one of the following methods:

(i) There is no ~~direct or indirect~~ discharge from the Responsible Copermittee's MS4s to the receiving water; OR

(ii) There are no exceedances of the final receiving water limitations under Specific Provision 5.b.(2)(a) in the receiving water at, or downstream of the Responsible Copermittee's MS4 outfalls; OR

(iii) There are no exceedances of the final effluent limitations under Specific Provision 5.b.(2)(b)(i) at the Responsible Copermittee's MS4 outfalls; OR

(iv) The pollutant loads discharging from the Responsible Copermittees' MS4 outfalls do not exceed the final effluent limitations under Specific Provision 5.b(2)(b)(ii); OR

(v) The Responsible Copermittees can demonstrate that exceedances of the applicable receiving water limitations under Specific Provision 5.b.(2)(a) in the receiving water are due to loads from natural sources, AND pollutant loads from the Copermittees' MS4s are not causing or contributing to the exceedances; OR

(vi) The pollutant loads discharging from the Responsible Copermittees' MS4 outfalls do not exceed the interim effluent limitations under Table 5.6a of Specific Provision 5.c.(1)(a); OR

(vii) The pollutant load reductions for discharges from the Responsible Copermittees' MS4 outfalls are greater than or equal to the interim effluent limitations under Table 5.6b of Specific Provision 5.c.(1)(a); OR

(viii) The Responsible Copermittees have submitted and are fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the interim TMDL compliance requirements will be achieved by the interim compliance dates.

Upon the effective date of this Order, a Copermittee's full compliance with all of the following requirements shall constitute a Copermittee's compliance with provisions pertaining to interim WQBELs with compliance deadlines occurring prior to approval of a WQIP.

(i) Meets all interim and final deadlines for development of a WQIP,

(ii) Targets implementation of watershed control measures in its existing storm water management program, including watershed control

measures to eliminate non-storm water discharges of pollutants through the MS4 to receiving waters, to address known contributions of pollutants from MS4 discharges that cause or contribute to the impairment(s) addressed by the TMDL(s), and

(iii) Receives final approval of its WQIP from the Regional Board.

~~(viii)~~(ix)

(2) Shelter Island Shoreline Park in San Diego Bay

The Responsible Copermittee for MS4 discharges to Shelter Island Shoreline Park must be in compliance with the final indicator bacteria TMDL requirements as of December 31, 2012.

d. SPECIFIC MONITORING AND ASSESSMENT REQUIREMENTS

The BLRPs to be submitted by the Responsible Copermittees and approved by the Regional Board Executive Officer contain monitoring programs. Implementation of those Regional Board-approved monitoring programs constitutes compliance with the Monitoring Station and Monitoring Procedure requirements described below.

(1) Monitoring Stations

Monitoring locations should consist of, at a minimum, the same locations used to collect data required pursuant to Order Nos. R9-2007-0001 and R9-2009-0002, and beach monitoring for Health and Safety Code section 115880.[42] If discharges of bacteria from the MS4 persist at levels that exceed the applicable ~~interim or final WQBELs~~receiving water limitations, additional monitoring locations and/or other source identification methods must be implemented to identify the controllable sources causing the chronic contamination ~~exceedances~~. ~~The additional monitoring locations must also be used to demonstrate that the bacteria loads from the identified anthropogenic sources have been addressed and are no longer causing exceedances in the receiving waters.~~

If natural and background sources appear to be the sole source of the impairment, Responsible Copermittees may collect and provide additional data and the application of the NSEA to revise the TMDLs may be appropriate. Such revisions would be made to the TMDL via a Basin Plan Amendment and then subsequently incorporated into this Order consistent with Provision H.5.

(2) Monitoring Procedures

(a) The Responsible Copermittees must conduct the dry and wet weather monitoring consistent with the monitoring and reporting program developed as part of the BLRP. ~~collect dry weather monitoring samples from the receiving water monitoring stations at least monthly~~. Dry weather samples collected from additional monitoring stations established to support application of the NSEA ~~identify sources~~ must be collected at an appropriate frequency to demonstrate bacteria loads from the identified controllable anthropogenic sources have been addressed and ~~are no longer causing exceedances in the receiving waters~~do not indicate a health risk.

(b) The Responsible Copermittees must collect wet weather monitoring

[42] Commonly referred to as AB 411 monitoring

samples within the first 24 hours of a storm event[43] of the rainy season (i.e. October 1 through April 30). Wet weather samples collected from receiving water stations and any additional monitoring stations established to ~~identify sources~~support the application of the NSEA must be collected at an appropriate frequency to demonstrate bacteria loads from the identified sources have been addressed and ~~are no longer causing exceedances in the receiving waters~~do not indicate a health risk.

(c) Samples must be analyzed for total coliform, fecal coliform, and *Enterococcus* indicator bacteria.

[43] Wet weather days are defined by the TMDL as storm events of 0.2 inches or greater and the following 72 hours. The Responsible Copermittees may choose to limit their wet weather sampling requirements to storm events of 0.2 inches or greater, or also include storm events of 0.1 inches or greater as defined by the federal regulations [40CFR122.26(d)(2)(iii)(A)(2)].

(3) Assessment and Reporting Requirements

(a) The Responsible Copermittees must analyze the dry weather and wet weather monitoring data to assess whether the interim and final WQBELs have been achieved.

(b) For assessing and determining compliance with the concentration-based effluent limitations under Specific Provision 5.b.(2)(b)(i), dry and wet weather discharge bacteria densities may be calculated based on a flow-weighted average across all major MS4 outfalls along a water body segment or within a jurisdiction if samples are collected within a similar time period.

(c) The Responsible Copermittees must analyze the dry weather and wet weather monitoring data to correlate elevated bacteria levels with known or suspected sewage spills from wastewater collection systems and treatment plants or boats.

(d) The monitoring and assessment results must be submitted as part of the Transitional Monitoring and Assessment Program and Water Quality Improvement Plan Annual Reports required under Provision F.3.b of this Order.

6. Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)

a. APPLICABILITY

(1) TMDL Basin Plan Amendment: Resolution No. R9-2010-0001

(2) TMDL Adoption and Approval Dates:

San Diego Water Board Adoption Date:	February 10, 2010
State Water Board Approval Date:	December 14, 2010
Office of Administrative Law Approval Date:	April 4, 2011
US EPA Approval Date:	June 22, 2011

(3) TMDL Effective Date: April 4, 2011

(4) Watershed Management Areas: See Table 6.0

(5) Water Bodies: See Table 6.0

(6) Responsible Copermittees: See Table 6.0

Table 6.0[44]
Applicability of Total Maximum Daily Loads for Indicator Bacteria
Project I - Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek)

Watershed Management Area and Watershed	Water Body	Segment or Area	Responsible Copermittees
South Orange County San Joaquin Hills HSA (901.11) and Laguna Beach HSA (901.12)	Pacific Ocean Shoreline	Cameo Cove at Irvine Cove Drive – Riviera Way	-City of Laguna Beach -County of Orange -Orange County Flood Control District
		at Heisler Park - North	
	Pacific Ocean Shoreline	at Main Laguna Beach	-City of Aliso Viejo -City of Laguna Beach -City of Laguna Woods -County of Orange -Orange County Flood Control District
		Laguna Beach at Ocean Avenue	
		Laguna Beach at Cleo Street	
		Arch Cove at Bluebird Canyon Road	
		Laguna Beach at Dumond Drive	
South Orange County Aliso HSA (901.13)	Pacific Ocean Shoreline	Laguna Beach at Lagunita Place / Blue Lagoon Place at Aliso Beach	-City of Aliso Viejo -City of Laguna Beach -City of Laguna Hills -City of Laguna Niguel -City of Laguna Woods -City of Lake Forest
	Aliso Creek	Entire reach (7.2 miles) and associated tributaries:	

[44] These TMDL provisions do not apply to waterbodies, segments, or areas, removed from the 303(d) list for REC-1 indicator bacteria numeric objectives, consistent with the assumptions and requirements of the Basin Plan amendment. If the waterbodies are subsequently placed back on the 303(d) list for exceedances of the REC-1 indicator bacteria numeric objectives, all TMDL provisions will apply to those waterbodies and the Responsible Copermittees for those waterbodies.

		- Aliso Hills Channel - English Canyon Creek - Dairy Fork Creek - Sulfur Creek - Wood Canyon Creek	-City of Mission Viejo -County of Orange -Orange County Flood Control District
	Aliso Creek Mouth	at mouth	

Table 6.0 (Cont'd)
Applicability of Total Maximum Daily Loads for Indicator Bacteria
Project I - Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek)

Watershed Management Area and Watershed	Water Body	Segment or Area	Responsible Copermittees
South Orange County Dana Point HSA (901.14)	Pacific Ocean Shoreline	Aliso Beach at West Street	-City of Dana Point -City of Laguna Beach -City of Laguna Niguel -County of Orange -Orange County Flood Control District
		Aliso Beach at Table Rock Drive	
		100 Steps Beach at Pacific Coast Hwy at hospital (9th Avenue)	
		at Salt Creek (large outlet)	
		Salt Creek Beach at Salt Creek service road	
		Salt Creek Beach at Strand Road	
South Orange County Lower San Juan HSA (901.27)	Pacific Ocean Shoreline	at San Juan Creek	-City of Dana Point -City of Laguna Hills -City of Laguna Niguel -City of Mission Viejo -City of Rancho Santa Margarita -City of San Juan Capistrano -County of Orange -Orange County Flood Control District
	San Juan Creek	lower 1 mile	
	San Juan Creek Mouth	at mouth	
South Orange County San Clemente HA (901.30)	Pacific Ocean Shoreline	at Poche Beach	-City of Dana Point -City of San Clemente -County of Orange -Orange County Flood Control District
		Ole Hanson Beach Club Beach at Pico Drain	
		San Clemente City Beach at El Portal Street Stairs	
		San Clemente City Beach at Mariposa Street	
		San Clemente City Beach at Linda Lane	
		San Clemente City Beach at South Linda Lane	
		San Clemente City Beach at Lifeguard Headquarters	
		under San Clemente Municipal Pier	

		San Clemente City Beach at Trafalgar Canyon (Trafalgar Lane)	
		San Clemente State Beach at Riviera Beach	
		Can Clemente State Beach at Cypress Shores	

Table 6.0 (Cont'd)
Applicability of Total Maximum Daily Loads for Indicator Bacteria
Project I - Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek)

Watershed Management Area and Watershed	Water Body	Segment or Area	Responsible Copermittees
San Luis Rey River San Luis Rey HU (903.00)	Pacific Ocean Shoreline	at San Luis Rey River mouth	-City of Oceanside -City of Vista -County of San Diego
Carlsbad San Marcos HA (904.50)	Pacific Ocean Shoreline	at Moonlight State Beach	-City of Carlsbad -City of Encinitas -City of Escondido -City of San Marcos -County of San Diego
San Dieguito River San Dieguito HU (905.00)	Pacific Ocean Shoreline	at San Dieguito Lagoon mouth	-City of Del Mar -City of Escondido -City of Poway -City of San Diego -City of Solana Beach -County of San Diego
Penasquitos Miramar Reservoir HA (906.10)	Pacific Ocean Shoreline	Torrey Pines State Beach at Del Mar (Anderson Canyon)	-City of Del Mar -City of Poway -City of San Diego -County of San Diego
Mission Bay Scripps HA (906.30)	Pacific Ocean Shoreline	La Jolla Shores Beach at El Paseo Grande	-City of San Diego
		La Jolla Shores Beach at Caminito del Oro	
		La Jolla Shores Beach at Vallecitos	
		La Jolla Shores Beach at Avenida de la Playa	
		at Casa Beach, Children's Pool	
		South Casa Beach at Coast Boulevard	
		Whispering Sands Beach at Ravina Street	
		Windansea Beach at Vista de la Playa	
		Windansea Beach at Bonair Street	
		Windansea Beach at Playa del Norte	
		Windansea Beach at Palomar Avenue	
		at Tourmaline Surf Park	
		Pacific Beach at Grand Avenue	
Mission Bay Tecolote HA (906.50)	Tecolote Creek	Entire reach and tributaries	

Table 6.0 (Cont'd)
Applicability of Total Maximum Daily Loads for Indicator Bacteria
Project I- Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek)

Watershed Management Area and Watershed	Water Body	Segment or Area	Responsible Copermittees
San Diego River Mission San Diego HSA (907.11) and Santee HSA (907.12)	Forrester Creek	lower 1 mile	-City of El Cajon -City of Santee -County of San Diego
	San Diego River	lower 6 miles	-City of El Cajon -City of La Mesa -City of San Diego -City of Santee -County of San Diego
	Pacific Ocean Shoreline	at San Diego River mouth at Dog Beach	
San Diego Bay Chollas HSA (908.22)	Chollas Creek	lower 1.2 miles	-City of La Mesa -City of Lemon Grove -City of San Diego -County of San Diego - San Diego Unified Port District

b. FINAL TMDL COMPLIANCE REQUIREMENTS

The final indicator bacteria TMDL compliance requirements for the water bodies listed in Table 6.0 consist of the following:

(1) ~~Final TMDL~~WQBELs Compliance Dates

The Responsible Copermittees for MS4 discharges to a segment or area of the water bodies listed in Table 6.0[45] are required to achieve the Wasteload Allocations (WLAs) defined as the WQBELs under Specific Provision 6.b, ~~must be in compliance with the final TMDL compliance requirements~~ according to the following compliance dates:

Table 6.1
Compliance Dates to Achieve ~~Final TMDL Compliance Requirements~~Indicator Bacteria WLAs

Constituent	Dry Weather TMDL Compliance Date	Wet Weather TMDL Compliance Date
Total Coliform	April 4, 2021	April 4, 2031
Fecal Coliform		
Enterococcus		

(1) Final Receiving Water Limitations Compliance Requirements

[45] The WQBELs (WLAs) do not apply to waterbodies that are not on the 303(d) list for exceedances of the REC-1 indicator bacteria numeric objectives. Consistent with the assumptions and requirements of the Basin Plan Amendment, no further action is required for these waterbodies. If the waterbodies are subsequently placed back on the 303(d) list or delisted in subsequent iterations, the San Diego Water Board will revise the current NPDES requirements and/or issue additional waste discharge requirements to be consistent with these TMDLs.

The Responsible Copermittees for MS4 discharges to a segment or area of the water bodies listed in Table 6.0[46] are required to achieve the Final Receiving Water Limitations according to the following compliance schedule:

Table 6.6
Compliance Schedule Dates to Achieve Indicator Bacteria WLAs

Constituent	Dry Weather WLA Compliance Date	Wet Weather WLA Compliance Date
Total Coliform*	April 4, 2021	April 4, 2031
Fecal Coliform		
Enterococcus		

* Total coliform receiving water limitations only apply to segments or areas of Pacific Ocean Shoreline listed in Table 6.0.

[46] The WQBELs (WLAs) do not apply to waterbodies that are not on the 303(d) list for exceedances of the REC-1 indicator bacteria numeric objectives. Consistent with the assumptions and requirements of the Basin Plan Amendment, no further action is required for these waterbodies. If the waterbodies are subsequently placed back on the 303(d) list for exceedances of the REC-1 indicator bacteria numeric objectives, all TMDL provisions will apply to these waterbodies and the Responsible Copermittees for those waterbodies.

(2) Final Receiving Water ~~Quality Based Effluent~~ Limitations[47]

(a) Final Receiving Water Limitations

Discharges from the MS4s must not cause or contribute to the exceedance of the following receiving water limitations by the compliance dates under Specific Provision 6.b.(1), unless the responsible Copermittees provide evidence that indicates another controllable or uncontrollable source is responsible for the exceedances in the receiving water (as described in E.6.(3)(b)):

Table 6.2a
Final Receiving Water Limitations Expressed as Bacteria Densities and Allowable Exceedance Frequencies for Beaches

Constituent	Wet Weather Days		Dry Weather Days	
	Single Sample Maximum[a,b] (MPN/100mL)	Single Sample Maximum Allowable Exceedance Frequency[c]	30-Day Geometric Mean[b] (MPN/100mL)	30-Day Geometric Mean Allowable Exceedance Frequency[c]
Total Coliform[f]	10,000	22%	1,000	0%
Fecal Coliform	400	22%	200	0%
Enterococcus	104[d, e]	22%	35[d]	0%

Notes:
a. During wet weather days, only the single sample maximum receiving water limitations are required to be achieved (the geometric mean does not apply to wet weather days).
b. During dry weather days, ~~the single sample maximum and~~ only the 30-day geometric mean receiving water limitations are required to be achieved (the single sample maximum does not apply to dry weather days).
c. The 22% single sample maximum allowable exceedance frequency only applies to wet weather days. For dry weather days, the dry weather bacteria densities must be consistent with the single sample maximum REC-1 water quality objectives in the Ocean Plan.
d. This *Enterococcus* receiving water limitation applies to segments of areas of Pacific Ocean Shoreline listed in Table 6.0.
e. A wet weather receiving water limitation for Enterococcus of 104 MPN/100mL may be applied as a receiving water limitation for creeks, instead of 61 MPN/100mL, if one or more of the creeks addressed by these TMDLs (San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, San Diego River, and/or Chollas Creek) is designated with a "moderately to lightly used area" or less frequent usage frequency in the Basin Plan. Otherwise, the wet weather receiving water limitation of 61 MPN/100mL for Enterococcus will be used to assess compliance with the wet weather allowable exceedance frequency.
f Total Coliform Receiving Water Limitations only apply to the Pacific Ocean Shoreline segments listed in Table 6.0 and do not apply to the creeks or creek mouths listed in Table 6.0.

Table 6.2b
Final Receiving Water Limitations Expressed as Bacteria Densities and Allowable Exceedance Frequencies for Creeks

Constituent	Wet Weather Days		Dry Weather Days	
	Single Sample Maximum[a,b] (MPN/100mL)	Single Sample Maximum Allowable Exceedance	30-Day Geometric Mean[b] (MPN/100mL)	30-Day Geometric Mean Allowable Exceedance

[47] The Final Receiving Water Limitations requirements do not apply to waterbodies that are not on the 303(d) list for exceedances of the REC-1 indicator bacteria numeric objectives. Consistent with the assumptions and requirements of the Basin Plan Amendment, no further action is required for these waterbodies. If the waterbodies are subsequently placed back on the 303(d) list for exceedances of the REC-1 indicator bacteria numeric objectives, all TMDL provisions will apply to these waterbodies and the Responsible Copermittees for those waterbodies.

		Frequency[c]		Frequency
Fecal Coliform	400	22%	200	0%
Enterococcus	61[e] (104)	22%	33[e]	0%

Notes:

a. During wet weather days, only the single sample maximum receiving water limitations are required to be achieved.
b. During dry weather days, the single sample maximum and 30-day geometric mean receiving water limitations are required to be achieved.
c. The 22% single sample maximum allowable exceedance frequency only applies to wet weather days. For dry weather days, the dry weather bacteria densities must be consistent with the single sample maximum REC-1 water quality objectives in the Basin Plan.
d. A single sample maximum of 104 MPN/100ml for *Enterococcus* may be applied as a receiving water limitation for creeks, instead of 61 MPN/100mL, if one or more of the creeks addressed by these TMDLs (San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, San Diego River, and/or Chollas Creek) is designated with a "moderately to lightly used area" or less frequent usage frequency in the Basin Plan. Otherwise, the single sample maximum of 61 MPN/100mL for *Enterococcus* must be used to assess compliance with the allowable exceedance frequency.
e. This *Enterococcus* receiving water limitations applies to segments or areas of creeks or creek mouths listed in Table 6.0.

(a) If the above receiving water limitations are not met in the receiving water, the Responsible Copermittees must demonstrate that the discharges from the MS4s are not causing or contributing to the violation of receiving water limitations. Such demonstration may be achieved by (1) demonstrating that the discharges from the MS4s are meeting the effluent limitations under Specific Provision 6.b.(1) for dry weather discharges and Specific Provision 6.b.(2) for wet weather discharges, (2) through~~.~~ the attainment of the final WQBELs in Specific Provision 6.b.(1) for dry weather discharges and Specific Provision 6.b.(2) for wet weather discharges, (3) by providing data from their discharge points to the receiving waters, (4) by providing data collected at jurisdictional boundaries, and/or (5) by using other methods accepted by the San Diego Water Board, which may include but are not limited to the reference system antidegradation approach (RSAA) or natural sources exclusion approach (NSEA)[48]..

(b) Final Water Quality Based Effluent Limitations [49]

The WQBELs for segments or areas of the water bodies listed in Table 6.0 consist of the following:

Table 6.1
Final Dry Weather WQBELs Expressed as Mass-Based Limits

	Effluent Limitation		
Waterbody	**Total Coliform Billion MPN/month**	**Fecal Coliform Billion MPN/month**	**Enterococcus Billion MPN/month**
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	1,134	**227**	40
Aliso HSA (901.13)	1,208	242	40
Dana Point HSA (901.14)	462	92	16
Lower San Juan HSA (901.27)	8,342	1,665	275
San Clemente HA (901.30)		192	

[48] Resolution R9-2008-0028
[49] The Water Quality Based Effluent Limitations, both interim and final, do not apply to the waterbodies and the associated Responsible Copermittees for that waterbody if the waterbody segment in Table 6.0 is not on the 303(d) list for exceedances of the REC-1 numeric objectives for indicator bacteria. If the waterbody is subsequently placed back on the 303(d) for exceedances of the REC-1 numeric objectives for indicator bacteria, the WQBELs, both interim and final, will apply to the associated Responsible Copermittees for that waterbody.

Table 6.2
Final Wet Weather WQBELs Expressed as Mass-Based Limits

Waterbody	Effluent Limitation		
	Total Coliform Billion MPN/year	Fecal Coliform Billion MPN/year	Enterococcus Billion MPN/year
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	880,652	37,167	66,417
Aliso HSA (901.13)	8,923,264	477,069	735,490
Dana Point HSA (901.14)	3,404,008	152,446	219,528
Lower San Juan HSA (901.27)	16,093,160	1,156,419	1,385,094
San Clemente HA (901.30)	3,477,739	192,653	295,668

~~(i) Discharges from the MS4s containing indicator bacteria densities that do not exceed the following effluent limitations by the compliance dates under Specific Provision 6.c.(1) will not cause or contribute to exceedances of the receiving water limitations under Specific Provision 6.b.(2)(a):~~

~~**Table 6.2c**~~
~~*Final Effluent Limitations Expressed as Bacteria Densities and Allowable Exceedance Frequencies in MS4 Discharges to the Water Body*~~

~~Constituent~~	~~Concentration-Based Effluent Limitations~~			
	~~Single Sample Maximum[a,b] (MPN/100mL)~~	~~Single Sample Maximum Allowable Exceedance Frequency[c]~~	~~30-Day Geometric Mean[b] (MPN/100mL)~~	~~30 Day Geometric Mean Allowable Exceedance Frequency~~
~~Total Coliform[d]~~	~~10,000~~	~~22%~~	~~1,000~~	~~0%~~
~~Fecal Coliform~~	~~400~~	~~22%~~	~~200~~	~~0%~~
~~*Enterococcus*~~	~~104[e] / 61[f]~~	~~22%~~	~~35[e] / 33[f]~~	~~0%~~

~~Notes:~~
~~a. During wet weather days, only the single sample maximum effluent limitations are required to be achieved.~~
~~b. During dry weather days, the single sample maximum and 30-day geometric mean effluent limitations are required to be achieved.~~
~~c. The 22% single sample maximum allowable exceedance frequency only applies to wet weather days. For dry weather days, the dry weather bacteria densities must be consistent with the single sample maximum REC-1 water quality objectives in the Ocean Plan for discharges to beaches, and the Basin Plan for discharges to creeks and creek mouths.~~
~~d. Total coliform effluent limitations only apply to MS4 outfalls that discharge to the Pacific Ocean Shorelines and creek mouths listed in Table 6.0.~~
~~e. This *Enterococcus* effluent limitation applies to MS4 discharges to segments of areas of Pacific Ocean Shoreline listed in Table 6.0.~~
~~f. This *Enterococcus* effluent limitation applies to MS4 discharges to segments or areas of creeks or creek mouths listed in Table 6.0.~~

(3) Final Water Quality Based Effluent Limitations[50]

(ii) Indicator bacteria percent load reductions from the Responsible Copermittees' MS4s that are greater than or equal to the following effluent limitations by the compliance dates under Specific Provision 6.b.(1) will not cause or contribute to exceedances of the receiving water limitations under Specific Provision 6.b.(2)(a):

Table 6.3
Final Effluent Limitations Expressed as Percent Load Reductions in MS4 Discharges to the Water Body*

Watershed Management Areas	*Watershed and Water Bodies*	*Load-Based Effluent Limitations*					
		Dry Weather			*Wet Weather*		
		Total Coliform	*Fecal Coliform*	*Entero-coccus*	*Total Coliform*	*Fecal Coliform*	*Entero-coccus*
South Orange County	San Joaquin Hills HSA (901.11) and Laguna Hills HSA (901.12) - Pacific Ocean Shoreline	91.78%	91.72%	98.28%	46.85%	52.07%	51.26%
	Aliso HSA (901.13) - Pacific Ocean Shoreline - Aliso Creek - Aliso Creek mouth	95.47%	95.58%	99.13%	25.29%	26.62%	27.52% (27.37%)**
	Dana Point HSA (901.14) - Pacific Ocean Shoreline	95.04%	95.03%	98.98%	13.15%	14.86%	15.16%
	Lower San Juan HSA (901.27) - Pacific Ocean Shoreline - San Juan Creek - San Juan Creek mouth	72.96%	74.21%	94.94%	19.21%	12.82%	27.12% (26.90%)**
	San Clemente HA (901.30) - Pacific Ocean Shoreline	94.28%	94.23%	98.83%	23.85%	24.58%	25.26%

[50] The Water Quality Based Effluent Limitations, both interim and final, do not apply to the waterbodies and the associated Responsible Copermittees for that waterbody if the waterbody segment in Table 6.0 is not on the 303(d) list for exceedances of the REC-1 numeric objectives for indicator bacteria. If the waterbody is subsequently placed back on the 303(d) list for exceedances of the REC-1 numeric objectives for indicator bacteria, the WQBELs, both interim and final, will apply to the associated Responsible Copermittees for that waterbody.

Watershed Management Areas	*Watershed and Water Bodies*	*Load-Based Effluent Limitations*					
		Dry Weather			*Wet Weather*		
		Total Coliform	*Fecal Coliform*	*Entero-coccus*	*Total Coliform*	*Fecal Coliform*	*Entero-coccus*
San Luis Rey River	San Luis Rey HU (903.00) - Pacific Ocean Shoreline	38.13%	39.09%	87.38%	5.62%	3.12%	11.69%

Table 6.3 (Cont'd)
Final Effluent Limitations Expressed as Percent Load Reductions in MS4 Discharges to the Water Body*

Watershed Management Areas	*Watershed and Water Bodies*	*Load-Based Effluent Limitations*					
		Dry Weather			*Wet Weather*		
		Total Coliform	*Fecal Coliform*	*Entero-coccus*	*Total Coliform*	*Fecal Coliform*	*Entero-coccus*
Carlsbad	San Marcos HA (904.50) - Pacific Ocean Shoreline	82.82%	82.55%	96.03%	18.47%	18.98%	20.19%
San Dieguito River	San Dieguito HU (905.00) - Pacific Ocean Shoreline	14.39%	20.72%	83.48%	4.29%	1.46%	7.72%
Penasquitos	Miramar Reservoir HA (906.10) - Pacific Ocean Shoreline	96.50%	96.59%	99.42%	1.61%	1.99%	1.93%
Mission Bay	Scripps HA (906.30) - Pacific Ocean Shoreline	96.44%	96.42%	99.25%	16.32%	21.14%	18.82%
	Tecolote HA (906.50) - Tecolote Creek	94.51%	94.59%	98.94%	16.51%	20.47%	18.15% (18.08%)**
San Diego River	Mission San Diego HSA (907.11) and Santee HSA (907.12) - Pacific Ocean Shoreline - Forrester Creek (lower 1 mile) - San Diego River (lower 6 miles)	74.03%	69.44%	93.96%	38.14%	53.22%	42.74% (42.47%)**
San Diego Bay	Chollas HSA (908.22) - Chollas Creek	92.06%	92.15%	98.46%	17.82%	24.84%	21.46% (21.36%)**

Notes:
* The percent load reductions are based on reducing loads compared to pollutant loads from 2001 to 2002.
** The alternative *Enterococcus* percent load reduction was calculated based on a numeric target of 104 MPN/100mL instead of 61 MPN/100mL, protective of the REC-1 "moderately to lightly used area" usage frequency that is protective of freshwater creeks and downstream beaches. Acceptable evidence that impaired freshwater creeks can be considered "moderately to lightly used areas" must be provided before these alternative pollutant load reductions can be utilized.

(c) Best Management Practices

(i) The Water Quality Improvement Plans for the applicable Watershed Management Areas in Table 6.0 must incorporate the Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) required to be developed pursuant to Resolution No. R9-2010-0001. For segments or areas in Table 6.0 that have been delisted from the Clean Water Act Section 303(d) List of Water Quality Limited Segments, a BLRP and/or CLRP is not required.

(ii) The Responsible Copermittee must implement BMPs to support the achievement of the receiving water limitations under Specific Provision 6.b.(2)(a) and/or the effluent limitations under Specific Provision 6.b.(2)(b) for the segments or areas of the water bodies listed in Table 6.0.

(iii) The Responsible Copermittees should coordinate any BMPs implemented to address this TMDL with Caltrans, owners/operators of small MS4s, and/or agricultural dischargers as possible.

~~(3)~~(4) Final TMDL Compliance Determination

Compliance with the final WQBELs, on or after the final TMDL compliance dates, may be demonstrated via one of the following methods:

(a) There is no ~~direct or indirect~~ discharge from the Responsible Copermittee's MS4s to the receiving water; OR

(b) There are no exceedances of the final receiving water limitations under Specific Provision 6.b.(2)(a) in the receiving water at, or downstream of the Responsible Copermittee's MS4 outfalls; OR

(c) There are no exceedances of the final effluent limitations under Specific Provision 6.b.(2)(b)(i) at the Responsible Copermittee's MS4 outfalls; OR

(d) The pollutant load reductions for discharges from the Responsible Copermittees' MS4 outfalls are greater than or equal to the final effluent limitations under Specific Provision 6.b.(2)(b)(ii); OR

(e) The Responsible Copermittees can demonstrate that exceedances of the final receiving water limitations under Specific Provision 6.b.(2)(a) in the receiving water are due to loads from natural sources, AND pollutant loads from the Copermittees' MS4s are not causing or contributing to the exceedances; OR

(f) The Responsible Copermittees develop and implement the Water Quality Improvement Plan as follows:

(i) Incorporate the BMPs required under Specific Provision 6.b.(2)(c) as part of the Water Quality Improvement Plan,

(ii) Include an analysis in the Water Quality Improvement Plan, utilizing a watershed model or other watershed analytical tools, to demonstrate that the implementation of the BMPs required under Provision 6.b.(2)(c) achieves compliance with Specific Provisions 6.b.(3)(a), 6.b.(3)(b), 6.b.(3)(c), 6.b.(3)(d), and/or 6.b.(3)(e),

(iii) The results of the analysis must be accepted by the San Diego Water Board as part of the Water Quality Improvement Plan,

(iv) The Responsible Copermittees continue to implement the BMPs required under Specific Provision 6.b.(2)(c), AND

(v) The Responsible Copermittees continue to perform the specific monitoring and assessments specified in Specific Provision 6.d, to demonstrate compliance with Specific Provisions 6.b.(3)(a), 6.b.(3)(b), 6.b.(3)(c), 6.b.(3)(d), 6.b.(3)(e) and/or 6.b.(3)(f).

c. INTERIM TMDL COMPLIANCE REQUIREMENTS

The interim indicator bacteria TMDL compliance requirements for the water bodies listed in Table 6.0 consist of the following:

(1) Interim Receiving Water Limitations Compliance Requirements
(2)
(3) The Responsible Copermittees must comply with ~~the following interim~~the Interim ~~WQBELs~~ Receiving Water Limitations ~~by the interim compliance dates:~~by the interim compliance dates specified within the Regional Board approved CLRPs or BLRPs.

~~(1) Interim TMDL Compliance Dates~~

~~The Responsible Copermittees must achieve compliance with the interim TMDL compliance requirements, as determined in accordance with Specific Provision 6.c.(3), by the interim compliance dates given in Table 6.4, unless alternative interim compliance dates are accepted by the San Diego Water Board Executive Officer as part of the Water Quality Improvement Plan.~~

Table 6.4
Interim Compliance Dates to Achieve Interim TMDL Compliance Requirements

Watershed Management Area and Watershed	Water Body	Segment or Area	Interim Compliance Dates	
			Interim Dry Weather WQBELs	Interim Wet Weather WQBELs
South Orange County San Joaquin Hills HSA (901.11) and Laguna Beach HSA (901.12)	Pacific Ocean Shoreline	Cameo Cove at Irvine Cove Drive – Riviera Way	April 4, 2016	April 4, 2021
		at Heisler Park - North		
	Pacific Ocean Shoreline	at Main Laguna Beach	April 4, 2016	April 4, 2021
		Laguna Beach at Ocean Avenue		
		Laguna Beach at Cleo Street		
		Arch Cove at Bluebird Canyon Road		
		Laguna Beach at Dumond Drive		
South Orange County Aliso HSA (901.13)	Pacific Ocean Shoreline	Laguna Beach at Lagunita Place / Blue Lagoon Place at Aliso Beach	April 4, 2016	April 4, 2021
	Aliso Creek	Entire reach (7.2 miles) and associated tributaries: - Aliso Hills Channel - English Canyon Creek - Dairy Fork Creek - Sulfur Creek - Wood Canyon Creek	April 4, 2018	April 4, 2021
	Aliso Creek Mouth	at mouth	April 4, 2018	April 4, 2021
South Orange County Dana Point HSA (901.14)	Pacific Ocean Shoreline	Aliso Beach at West Street	April 4, 2016	April 4, 2021
		Aliso Beach at Table Rock Drive		
		100 Steps Beach at Pacific Coast Hwy at hospital (9th Avenue)		
		at Salt Creek (large outlet)		
		Salt Creek Beach at Salt Creek service road	April 4, 2017	April 4, 2021
		Salt Creek Beach at Strand Road	April 4, 2017	April 4, 2021

Table 6.4 (Cont'd)
Interim Compliance Dates to Achieve Interim WQBELs

Watershed Management Area and Watershed	Water Body	Segment or Area	Interim Compliance Dates	
			Interim Dry Weather WQBELs	Interim Wet Weather WQBELs
South Orange County Lower San Juan HSA (901.27)	Pacific Ocean Shoreline	at San Juan Creek	April 4, 2016	April 4, 2021
	San Juan Creek	lower 1 mile	April 4, 2018	April 4, 2021
	San Juan Creek Mouth	at mouth	April 4, 2016	April 4, 2021
South Orange County San Clemente HA (901.30)	Pacific Ocean Shoreline	at Poche Beach	April 4, 2016	April 4, 2021
		Ole Hanson Beach Club Beach at Pico Drain	April 4, 2016	April 4, 2021
		San Clemente City Beach at El Portal Street Stairs	April 4, 2017	April 4, 2021
		San Clemente City Beach at Mariposa Street		
		San Clemente City Beach at Linda Lane	April 4, 2016	April 4, 2021
		San Clemente City Beach at South Linda Lane	April 4, 2018	April 4, 2021
		San Clemente City Beach at Lifeguard Headquarters	April 4, 2017	April 4, 2021
		under San Clemente Municipal Pier		
		San Clemente City Beach at Trafalgar Canyon (Trafalgar Lane)	April 4, 2018	April 4, 2021
		San Clemente State Beach at Riviera Beach	April 4, 2016	April 4, 2021
		Can Clemente State Beach at Cypress Shores	April 4, 2017	April 4, 2021
San Luis Rey River San Luis Rey HU (903.00)	Pacific Ocean Shoreline	at San Luis Rey River mouth	April 4, 2017	April 4, 2021
Carlsbad San Marcos HA (904.50)	Pacific Ocean Shoreline	at Moonlight State Beach	April 4, 2016	April 4, 2021
San Dieguito River San Dieguito HU (905.00)	Pacific Ocean Shoreline	at San Dieguito Lagoon mouth	April 4, 2016	April 4, 2021

Table 6.4 (Cont'd)
Interim Compliance Dates to Achieve Interim WQBELs

Watershed Management Area and Watershed	Water Body	Segment or Area	Interim Compliance Dates	
			Interim Dry Weather WQBELs	Interim Wet Weather WQBELs
Penasquitos Miramar Reservoir HA (906.10)	Pacific Ocean Shoreline	Torrey Pines State Beach at Del Mar (Anderson Canyon)	April 4, 2016	April 4, 2021
Mission Bay Scripps HA (906.30)	Pacific Ocean Shoreline	La Jolla Shores Beach at El Paseo Grande	April 4, 2016	April 4, 2021
		La Jolla Shores Beach at Caminito del Oro		
		La Jolla Shores Beach at Vallecitos		
		La Jolla Shores Beach at Avenida de la Playa		
		at Casa Beach, Children's Pool		
		South Casa Beach at Coast Boulevard		
		Whispering Sands Beach at Ravina Street		
		Windansea Beach at Vista de la Playa		
		Windansea Beach at Bonair Street		
		Windansea Beach at Playa del Norte		
		Windansea Beach at Palomar Avenue		
		at Tourmaline Surf Park		
		Pacific Beach at Grand Avenue		
Mission Bay Tecolote HA (906.50)	Tecolote Creek	Entire reach and tributaries		
San Diego River Mission San Diego HSA (907.11) and Santee HSA (907.12)	Forrester Creek	lower 1 mile	April 4, 2018	April 4, 2021
	San Diego River	lower 6 miles		
	Pacific Ocean Shoreline	at San Diego River mouth at Dog Beach		
San Diego Bay Chollas HSA (908.22)	Chollas Creek	lower 1.2 miles	April 4, 2018	April 4, 2021

~~(2)~~(4) Interim Water Quality Based Effluent Limitations

The Responsible Copermittees for discharges to the water bodies in Table 6.0 must comply with the following interim WQBELs by the interim compliance dates given in Specific Provision 6.c.(1):

(a) Interim Receiving Water Limitations

(i) *Interim Dry Weather Receiving Water Limitations*

The Responsible Copermittee must calculate the "existing" exceedance frequencies of the 30-day geometric mean water quality objectives for each of the indicator bacteria by analyzing the available monitoring data collected between January 1, 1996 and December 31, 2002. "Existing" exceedance frequencies may be calculated by segment or area of a water body or by waterbody, and/or by Watershed Management Area listed in Table 6.0. Separate "existing" exceedance frequencies must be calculated for beaches and creeks/creek mouths.

The Responsible Copermittees must achieve a 50 percent reduction in the "existing" exceedance frequency of the 30-day geometric mean Receiving Water Limitations ~~WQBELs~~ for the segments or areas of the water bodies listed in Table 6.0 by the interim compliance dates given in Table 6.4. A 50 percent reduction in the "existing" exceedance frequency is equivalent to half of the "existing" exceedance frequency of the 30-day geometric mean final Receiving Water Limitations~~WQBELs~~.

The "existing" exceedance frequencies and the interim dry weather allowable exceedance frequencies (i.e. interim dry weather receiving water limitations) calculated by the Responsible Copermittees must be included in the Water Quality Improvement Plans for the applicable Watershed Management Areas. Consistent with the assumptions and requirements of the Basin Plan Amendment, the Responsible Copermittees may provide evidence that indicates another controllable or uncontrollable source is responsible for the exceedances in the receiving waters. Responsible Copermittees may therefore include such demonstrations (including but not limited to reference system exceedance frequencies, natural source exclusion approach) as part of the "existing" exceedance frequency calculation.

The schedule for attaining the interim Receiving Water Limitations is specified in Provision 6.d.(3).

(ii) *Interim Wet Weather Receiving Water Limitations*

The Responsible Copermittees must achieve the interim wet weather receiving water limitations in Table 6.5, expressed as interim wet weather allowable exceedance frequencies, by the interim compliance dates given in Table 6.4.

The Responsible Copermittees must achieve a 50 percent reduction in the "existing" exceedance frequency of the applicable wet weather Receiving Water Limitation for the segments or areas of the water bodies listed in Table 6.0[40]. A 50 percent reduction in the "existing" exceedance frequency is equivalent to half of the "existing" exceedance frequency of the applicable final Receiving Water Limitations. The exceedance frequency estimated to be equivalent to a 50 percent reduction in the "existing" exceedance frequency is shown in Table 6.4. Unless the Responsible Copermittees calculate a revised "existing" exceedance frequency that is part of an approved WQIP, the allowable existing exceedance frequencies in Table 6.~~4~~3 shall apply.

As the wet weather Receiving Water Limitations include an allowable exceedance frequency, the 50 percent reduction shall not require Responsible Permittees to attain an exceedance frequency less than the final allowable exceedance frequency.

Where Responsible Copermittees elect to calculate a revised "existing" exceedance frequency, the "existing" exceedance frequencies and the interim wet weather allowable exceedance frequencies (i.e. interim wet weather Receiving Water Limitations) calculated by the Responsible Copermittees must be included in the Water Quality Improvement Plans for the applicable Watershed Management Areas. Consistent with the assumptions and requirements of the Basin Plan Amendment, the Responsible Copermittees may provide evidence that indicates another controllable or uncontrollable source is responsible for the exceedances in the receiving waters. Responsible Copermittees may therefore include such demonstrations (including but not limited to reference system antidegradation approach or natural source exclusion approach) as part of the "existing" exceedance frequency calculation.

The schedule for attaining the interim Receiving Water Limitations is specified in Provision 6.d(3).

Table 6.5
Interim Wet Weather Receiving Water Limitations Expressed as Interim Wet Weather Allowable Exceedance Frequencies

Watershed Management Area and Watershed	Water Body	Segment or Area	Interim Wet Weather Allowable Exceedance Frequencies		
			Total Coliform	Fecal Coliform	*Entero-coccus*
South Orange County San Joaquin Hills HSA (901.11) and Laguna Beach HSA (901.12)	Pacific Ocean Shoreline	Cameo Cove at Irvine Cove Drive – Riviera Way	38%	37%	39%
		at Heisler Park - North			
	Pacific Ocean Shoreline	at Main Laguna Beach			
		Laguna Beach at Ocean Avenue			
		Laguna Beach at Cleo Street			
		Arch Cove at Bluebird Canyon Road			
		Laguna Beach at Dumond Drive			
South Orange County Aliso HSA (901.13)	Pacific Ocean Shoreline	Laguna Beach at Lagunita Place / Blue Lagoon Place at Aliso Beach	41%	41%	42%
	Aliso Creek	Entire reach (7.2 miles) and associated tributaries: - Aliso Hills Channel - English Canyon Creek - Dairy Fork Creek - Sulfur Creek - Wood Canyon Creek	41%	41%	42%
	Aliso Creek Mouth	at mouth	41%	41%	42%
South Orange County Dana Point HSA (901.14)	Pacific Ocean Shoreline	Aliso Beach at West Street	36%	36%	36%
		Aliso Beach at Table Rock Drive			
		100 Steps Beach at Pacific Coast Hwy at hospital (9th Avenue)			
		at Salt Creek (large outlet)			
		Salt Creek Beach at Salt Creek service road			
		Salt Creek Beach at Strand Road			

Table 6.5 (Cont'd)
Interim Wet Weather Receiving Water Limitations Expressed as Interim Wet Weather Allowable Exceedance Frequencies

Watershed Management Area and Watershed	Water Body	Segment or Area	Interim Wet Weather Allowable Exceedance Frequencies		
			Total Coliform	Fecal Coliform	*Entero-coccus*
South Orange County Lower San Juan HSA (901.27)	Pacific Ocean Shoreline	at San Juan Creek	44%	44%	48%
	San Juan Creek	lower 1 mile	44%	44%	47%
	San Juan Creek Mouth	at mouth	44%	44%	47%
South Orange County San Clemente HA (901.30)	Pacific Ocean Shoreline	at Poche Beach	35%	35%	36%
		Ole Hanson Beach Club Beach at Pico Drain			
		San Clemente City Beach at El Portal Street Stairs			
		San Clemente City Beach at Mariposa Street			
		San Clemente City Beach at Linda Lane			
		San Clemente City Beach at South Linda Lane			
		San Clemente City Beach at Lifeguard Headquarters			
		under San Clemente Municipal Pier			
		San Clemente City Beach at Trafalgar Canyon (Trafalgar Lane)			
		San Clemente State Beach at Riviera Beach			
		Can Clemente State Beach at Cypress Shores			
San Luis Rey River San Luis Rey HU (903.00)	Pacific Ocean Shoreline	at San Luis Rey River mouth	45%	44%	47%
Carlsbad San Marcos HA (904.50)	Pacific Ocean Shoreline	at Moonlight State Beach	40%	40%	41%
San Dieguito River San Dieguito HU (905.00)	Pacific Ocean Shoreline	at San Dieguito Lagoon mouth	33%	33%	36%

Table 6.5 (Cont'd)
Interim Wet Weather Receiving Water Limitations Expressed as Interim Wet Weather Allowable Exceedance Frequencies

Watershed Management Area and Watershed	Water Body	Segment or Area	Interim Wet Weather Allowable Exceedance Frequencies		
			Total Coliform	Fecal Coliform	*Entero-coccus*
Penasquitos Miramar Reservoir HA (906.10)	Pacific Ocean Shoreline	Torrey Pines State Beach at Del Mar (Anderson Canyon)	26%	26%	26%
Mission Bay Scripps HA (906.30)	Pacific Ocean Shoreline	La Jolla Shores Beach at El Paseo Grande	37%	37%	37%
		La Jolla Shores Beach at Caminito del Oro			
		La Jolla Shores Beach at Vallecitos			
		La Jolla Shores Beach at Avenida de la Playa			
		at Casa Beach, Children's Pool			
		South Casa Beach at Coast Boulevard			
		Whispering Sands Beach at Ravina Street			
		Windansea Beach at Vista de la Playa			
		Windansea Beach at Bonair Street			
		Windansea Beach at Playa del Norte			
		Windansea Beach at Palomar Avenue			
		at Tourmaline Surf Park			
		Pacific Beach at Grand Avenue			
Mission Bay Tecolote HA (906.50)	Tecolote Creek	Entire reach and tributaries	49%	49%	51%
San Diego River Mission San Diego HSA (907.11) and Santee HSA (907.12)	Forrester Creek	lower 1 mile	46%	43%	49%
	San Diego River	lower 6 miles	46%	43%	49%
	Pacific Ocean Shoreline	at San Diego River mouth at Dog Beach	46%	43%	51%
San Diego Bay Chollas HSA (908.22)	Chollas Creek	lower 1.2 miles	41%	41%	43%

(b) Interim Effluent Limitations

Indicator bacteria percent load reductions from the Responsible Copermittees' MS4s that are greater than or equal to the following effluent limitations by the interim compliance dates under Specific Provision 6.c.(1) will not cause or contribute to exceedances of the receiving water limitations under Specific Provision 6.c.(2)(a):

Table 6.6
Interim Effluent Limitations Expressed as Percent Load Reductions in MS4 Discharges to the Water Body*

Watershed Management Areas	*Watersheds and Water Bodies*	*Load-Based Effluent Limitations*					
		Dry Weather			*Wet Weather*		
		Total Coliform	*Fecal Coliform*	*Entero-coccus*	*Total Coliform*	*Fecal Coliform*	*Entero-coccus*
South Orange County	San Joaquin Hills HSA (901.11) and Laguna Hills HSA (901.12) - Pacific Ocean Shoreline	45.89%	45.86%	49.14%	23.43%	26.04%	25.63%
	Aliso HSA (901.13) - Pacific Ocean Shoreline - Aliso Creek - Aliso Creek mouth	47.74%	47.79%	49.57%	12.65%	13.31%	13.76% (13.69%)**
	Dana Point HSA (901.14) - Pacific Ocean Shoreline	47.52%	47.52%	49.49%	6.58%	7.43%	7.58%
	Lower San Juan HSA (901.27) - Pacific Ocean Shoreline - San Juan Creek - San Juan Creek mouth	36.48%	37.11%	47.47%	9.61%	6.41%	13.56% (13.45%)**
	San Clemente HA (901.30) - Pacific Ocean Shoreline	47.14%	47.12%	49.42%	11.93%	12.29%	12.63%
San Luis Rey River	San Luis Rey HU (903.00) - Pacific Ocean Shoreline	19.07%	19.55%	43.69%	2.81%	1.56%	5.85%
Carlsbad	San Marcos HA (904.50) - Pacific Ocean Shoreline	41.41%	41.28%	48.02%	9.24%	9.49%	10.10%

Table 6.6 (Cont'd)
Interim Effluent Limitations Expressed as Percent Load Reductions in MS4 Discharges to the Water Body*

Watershed Management Areas	*Watersheds and Water Bodies*	*Load-Based Effluent Limitations*					
		Dry Weather			*Wet Weather*		
		Total Coliform	*Fecal Coliform*	*Entero-coccus*	*Total Coliform*	*Fecal Coliform*	*Entero-coccus*
San Dieguito River	San Dieguito HU (905.00) - Pacific Ocean Shoreline	7.20%	10.36%	41.74%	2.15%	0.73%	3.86%
Penasquitos	Miramar Reservoir HA (906.10) - Pacific Ocean Shoreline	48.25%	48.30%	49.71%	0.81%	1.00%	0.97%
Mission Bay	Scripps HA (906.30) - Pacific Ocean Shoreline	48.22%	48.21%	49.63%	8.16%	10.57%	9.41%
	Tecolote HA (906.50) - Tecolote Creek	47.26%	47.30%	49.47%	8.26%	10.24%	9.08% (9.04%)**
San Diego River	Mission San Diego HSA (907.11) and Santee HSA (907.12) - Pacific Ocean Shoreline - Forrester Creek (lower 1 mile) - San Diego River (lower 6 miles)	37.02%	34.72%	46.98%	19.07%	26.61%	21.37% (21.24%)**
San Diego Bay	Chollas HSA (908.22) - Chollas Creek	46.03%	46.08%	49.23%	8.91%	12.42%	10.73% (10.68%)**

Notes:
* The percent load reductions are based on reducing loads compared to pollutant loads from 2001 to 2002.
** The alternative *Enterococcus* percent load reduction was calculated based on a numeric target of 104 MPN/100mL instead of 61 MPN/100mL, protective of the REC-1 "moderately to lightly used area" usage frequency that is protective of freshwater creeks and downstream beaches. Acceptable evidence that impaired freshwater creeks can be considered "moderately to lightly used areas" must be provided before these alternative pollutant load reductions can be utilized.

~~(3)~~(5) Interim TMDL Compliance Determination

Compliance with the interim WQBELs, on or after the interim TMDL compliance dates, may be demonstrated via one of the following methods:

(a) There is no ~~direct or indirect~~ discharge from the Responsible Copermittee's MS4s to the receiving water; OR

(b) There are no exceedances of the final receiving water limitations under Specific Provision 6.b.(2)(a) in the receiving water at, or downstream of the Responsible Copermittee's MS4 outfalls; OR

(c) There are no exceedances of the final effluent limitations under Specific Provision 6.b.(2)(b)(i) at the Responsible Copermittee's MS4 outfalls; OR

(d) The pollutant load reductions for discharges from the Responsible Copermittees' MS4 outfalls are greater than or equal to the final effluent limitations under Specific Provision 6.b.(2)(b)(ii); OR

(e) The Responsible Copermittees can demonstrate that exceedances of the final receiving water limitations under Specific Provision 6.b.(2)(a) in the receiving water are due to loads from natural sources, AND pollutant loads from the Copermittees' MS4s are not causing or contributing to the exceedances; OR

(f) There are no exceedances of the interim receiving water limitations under Specific Provision 6.c.(2)(a) in the receiving water at, or downstream of the Responsible Copermittees' MS4 outfalls; OR

(g) The pollutant load reductions for discharges from the Responsible Copermittees' MS4 outfalls are greater than or equal to the interim effluent limitations under Specific Provision 6.c.(2)(b); OR

(h) The Responsible Copermittees have submitted and are fully implementing a Water Quality Improvement Plan, accepted by the San Diego Water Board, which provides reasonable assurance that the interim TMDL compliance requirements will be achieved by the interim compliance dates; OR

(i) Upon the effective date of this Order, a Copermittee's full compliance with all of the following requirements shall constitute a Copermittee's compliance with provisions pertaining to interim WQBELs with compliance deadlines occurring prior to approval of a WQIP.

(i) Meets all interim and final deadlines for development of a WQIP,

(ii) Targets implementation of watershed control measures in its existing storm water management program, including watershed control measures to eliminate non-storm water discharges of pollutants through the MS4 to receiving waters, to address known contributions of pollutants from MS4 discharges that cause or contribute to the impairment(s) addressed by the TMDL(s), and

(iii) Receives final approval of its WQIP from the Regional Board.

~~(h)~~(j) ~~.~~

(2) Submittals to Support TMDL Basin Plan Amendment

The Responsible Copermittees are encouraged to submit data to support the TMDL reopener scheduled for April 2016 including but not limited to data related to implementation of the reference system antidegradation approach (RSAA), the natural sources exclusion approach (NSEA), reference watershed monitoring and beneficial use usage frequency.

d. SPECIFIC MONITORING AND ASSESSMENT REQUIREMENTS

(1) Monitoring and Assessment Requirements for Beaches

The BLRPs and CLRPs to be submitted by the Copermittees and approved by the Regional Board Executive Officer contain monitoring programs. Implementation of those Regional Board-approved monitoring programs constitutes compliance with the Monitoring Station and Monitoring Procedure requirements, described below.

Waterbodies that have been delisted are not required to develop and/or implement a BLRP or CLRP, including additional monitoring. Therefore, the monitoring requirements of this provision do not apply to delisted waterbodies. Delisted waterbodies shall continue monitoring consistent with Provision D.

(a) Monitoring Stations

For beaches addressed by the TMDL, monitoring locations should consist of, at a minimum, the same locations used to collect data required pursuant to Order Nos. R9-2007-0001 and R9-2009-0002, and beach monitoring for Health and Safety Code section 115880.[51] If exceedances of the applicable interim or final receiving water limitations are observed in the monitoring data, additional monitoring locations and/or other source identification methods must be implemented to identify the sources causing the exceedances. The additional monitoring locations must also be used to demonstrate that the bacteria loads from the identified anthropogenic sources have been addressed and are no longer causing exceedances in the receiving waters.

(b) Monitoring Procedures

(i) The Responsible Copermittees must collect dry weather monitoring samples from the receiving water monitoring stations at least monthly. Dry weather samples collected from additional monitoring stations established to identify sources must be collected at an appropriate frequency to demonstrate bacteria loads from the identified sources have been addressed and are no longer causing exceedances in the receiving waters.

(ii) The Responsible Copermittees must collect wet weather monitoring samples from the receiving water monitoring stations at least once within ~~the first~~ 24 hours of the end of a storm event[52] during the rainy

[51] Commonly referred to as AB 411 monitoring

[52] Wet weather days are defined by the TMDL as storm events of 0.2 inches or greater and the following 72 hours. The Responsible Copermittees may choose to limit their wet weather sampling requirements to

season (i.e. October 1 through April 30). Wet weather samples collected from receiving water stations and any additional monitoring stations established to identify sources must be collected at an appropriate frequency to demonstrate bacteria loads from the identified sources have been addressed and are no longer in exceedance of the allowable exceedance frequencies in the receiving waters.

(iii) Samples must be analyzed for total coliform, fecal coliform, and *Enterococcus* indicator bacteria.

(iv) For Pacific Ocean Shoreline segments or areas listed in Table 6.0 that have been de-listed from the Clean Water Act Section 303(d) List, the Responsible Copermittees may propose alternative monitoring procedures to demonstrate that the water bodies continue to remain in compliance with water quality standards under wet weather and dry weather conditions. The alternative monitoring procedures must be submitted as a part of the Water Quality Improvement Plans or any updates required under Provisions F.1 and F.2.c of the Order.

(c) Assessment and Reporting Requirements

(i) The Responsible Copermittees must analyze the dry weather and wet weather monitoring data to assess whether the interim and final WQBELs for the Pacific Ocean Shoreline segments or areas listed in Table 6.0 have been achieved.

(ii) Dry weather exceedance frequencies must be calculated as follows:

[a] 30-day geometric means must be calculated from the results of any dry weather samples collected from the segments or areas for each water body listed in Table 6.0;
[b] The method and number of samples need for calculating the 30-day geometric means must be consistent with the number of samples required by the Ocean Plan;
[c] Where there are multiple segments or areas associated with a water body listed in Table 6.0, the Copermittees may calculate geometric means for each segment or area, or combine the dry weather monitoring data from all the segments or areas to calculate geometric means for the water body;
[d] The exceedance frequency must be calculated by dividing the number of geometric means that exceed the geometric mean receiving water limitations in Table 6.2 by the total number of

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storm events of 0.2 inches or greater, or also include storm events of 0.1 inches or greater as defined by the federal regulations [40CFR122.26(d)(2)(iii)(A)(2)].

geometric means calculated from samples collected during the dry season.

(iii) Wet weather exceedance frequencies must be calculated as follows:

[a] If only one sample is collected for a storm event, the bacteria density for every wet weather day associated with that storm event must be assumed to be equal to the results from the one sample collected;

[b] If more than one sample is collected for a storm event, but not on a daily basis, the bacteria density for all wet weather days of the storm event not sampled must be assumed to be equal to the highest bacteria density result reported from the samples collected;

[c] If there are any storm events not sampled, the bacteria density for every wet weather day of those storm events must be assumed to be equal to the average of the highest bacteria densities reported from each storm event sampled; and

[d] The single sample maximum exceedance frequency must be calculated by dividing the number of wet weather days that exceed the single sample maximum receiving water limitations in Table 6.2 by the total number of wet weather days during the rainy season.

[e] The data collected for dry weather must be used in addition to the data collected for wet weather to calculate the wet weather 30-day geometric means. The exceedance frequency of the wet weather 30-day geometric means must be calculated by dividing the number of geometric means that exceed the geometric mean receiving water limitations in Table 6.2 by the total number of geometric means calculated from samples collected during the wet season.

(iv) For assessing and determining compliance with the concentration-based effluent limitations under Specific Provision 6.b.(2)(b)(i), dry and wet weather discharge bacteria densities may be calculated based on a flow-weighted average across all major MS4 outfalls along a water body segment or within a jurisdiction if samples are collected within a similar time period.

(v) The monitoring and assessment results must be submitted as part of the Transitional Monitoring and Assessment Program and Water Quality Improvement Plan Annual Reports required under Provision F.3.b of this Order.

(2) Monitoring and Assessment Requirements for Creeks and Creek Mouths

The BLRPs and CLRPs to be submitted by the Copermittees and approved by

the Regional Board Executive Officer contain monitoring programs. Implementation of those Regional Board-approved monitoring programs constitutes compliance with the Monitoring Station and Monitoring Procedure requirements, described below.

Waterbodies that have been delisted are not required to develop and/or implement a BLRP or CLRP, including additional monitoring. Therefore, the monitoring requirements of this provision do not apply to delisted waterbodies. Delisted waterbodies shall continue monitoring consistent with Provision D.

(a) Monitoring Stations

For creeks addressed by the TMDL, monitoring locations should consist of, at a minimum, a location at or near the mouth of the creek (e.g. Mass Loading Station or Mass Emission Station) and one or more locations upstream of the mouth (e.g. Watershed Assessment Station). If exceedances of the applicable interim or final receiving water limitations are observed in the monitoring data, additional monitoring locations and/or other source identification methods must be implemented to identify the sources causing the exceedances. The additional monitoring locations must also be used to demonstrate that the bacteria loads from the identified sources have been addressed and are no longer causing exceedances in the receiving waters.

(b) Monitoring Procedures

(i) The Responsible Copermittees must collect dry weather monitoring samples from the receiving water monitoring stations in accordance with the requirements of Provision D.

(ii) The Responsible Copermittees must collect wet weather monitoring samples from the receiving water monitoring stations within ~~the first~~ 24 hours of the end of a storm event[53] during the rainy season (i.e. October 1 through April 30).

(iii) Samples collected from receiving water monitoring stations must be analyzed for fecal coliform and *Enterococcus* indicator bacteria.

(iv) For creeks or creek mouths listed in Table 6.0 that have been de-listed from the Clean Water Act Section 303(d) List, the Responsible Copermittees may propose alternative monitoring procedures to demonstrate that the water bodies continue to remain in compliance with water quality standards under wet weather and dry weather

[53] Wet weather days are defined by the TMDL as storm events of 0.2 inches or greater and the following 72 hours. The Responsible Copermittees may choose to limit their wet weather sampling requirements to storm events of 0.2 inches or greater, or also include storm events of 0.1 inches or greater as defined by the federal regulations [40CFR122.26(d)(2)(iii)(A)(2)].

conditions. The alternative monitoring procedures must be submitted as a part of the Water Quality Improvement Plans or any updates required under Provisions F.1 and F.2.c of the Order.

(c) Assessment and Reporting Requirements

(i) The Responsible Copermittees must analyze the receiving water monitoring data to assess whether the interim and final receiving water WQBELs for the creeks and creek mouths listed in Table 6.0 have been achieved.

(ii) Dry weather exceedance frequencies must be calculated as follows:

[a] 30-day geometric means must be calculated from the results of any dry weather samples collected from the segment or area for each water body listed in Table 6.0;
[b] The method and number of samples need for calculating the 30-day geometric means must be consistent with the number of samples required by the Basin Plan;
[c] The exceedance frequency must be calculated by dividing the number of 30-day geometric means that exceed the 30-day geometric mean receiving water limitations in Table 6.2 by the total number of 30-day geometric means calculated from samples collected during the dry season.

(iii) Wet weather exceedance frequencies must be calculated as follows:

[a] If only one sample is collected for a storm event, the bacteria density for every wet weather day associated with that storm event must be assumed to be equal to the results from the one sample collected;
[b] If more than one sample is collected for a storm event, but not on a daily basis, the bacteria density for all wet weather days of the storm event not sampled must be assumed to be equal to the highest bacteria density result reported from the samples collected;
[c] If there are any storm events not sampled, the bacteria density for every wet weather day of those storm events must be assumed to be equal to the average of the highest bacteria densities reported from each of the storm events sampled; and

[d] The exceedance frequency must be calculated by dividing the number of wet weather days that exceed the single sample maximum receiving water limitations in Table 6.2 by the total number of wet weather days during the rainy season.
[e] The data collected for dry weather must be used in addition to the data collected for wet weather to calculate the wet weather 30-day geometric means. The exceedance frequency of the wet

weather 30-day geometric means must be calculated by dividing the number of geometric means that exceed the geometric mean receiving water limitations in Table 6.2 by the total number of geometric means calculated from samples collected during the wet season.

(iv) The Responsible Copermittee must identify and incorporate additional MS4 outfall and receiving water monitoring stations and/or adjust monitoring frequencies to identify sources causing exceedances of the receiving water WQBELs.

(v) For assessing and determining compliance with the concentration-based effluent limitations under Specific Provision 6.b.(2)(b)(i), dry and wet weather discharge bacteria densities may be calculated based on a flow-weighted average across all major MS4 outfalls along a water body segment or within a jurisdiction if samples are collected within a similar time period.

(vi) The monitoring and assessment results must be submitted as part of the Transitional Monitoring and Assessment Program and Water Quality Improvement Plan Annual Reports required under Provision F.3.b of this Order.

7. Total Maximum Daily Loads for Sediment in Los Peñasquitos Lagoon

a. Applicability

(1) TMDL Basin Plan Amendment: Resolution No. R9-2012-0033

(2) TMDL Adoption and Approval Dates:

San Diego Water Board Adoption Date:	June 13, 2012
State Water Board Approval Date:	January 21, 2014
Office of Administrative Law Approval Date:	July 14, 2014
US EPA Approval Date:	Month XX, Year

(3) TMDL Effective Date: July 14, 2014

(4) Watershed Management Area: Los Peñasquitos

(5) Water Body: Los Peñasquitos Lagoon

(6) Responsible Copermittees: County of San Diego, City of San Diego, City of Del Mar, and City of Poway

b. Final TMDL Compliance Requirements

The final sediment TMDL compliance requirements for Los Peñasquitos Lagoon consist of the following:

(1) Final TMDL Compliance Date

The Responsible Copermittees must be in compliance with the final TMDL compliance requirements by December 31, 2034.

(2) Final Water Quality Based Effluent Limitations

(a) Final Receiving Water Limitations

Discharges from the MS4s must not prohibit the sustainable restoration of tidal and non-tidal saltmarsh vegetation of at least 346 acres.

(b) Final Effluent Limitations

Discharges from the MS4s containing pollutant loads that do not exceed the following effluent limitations by the compliance date under Provision 7.b(1) will not cause or contribute to a failure of the receiving water condition specified under Specific Provision 7.b.(2)(a):

Table 7.1
Final Effluent Limitations as Expressed as Annual Loads in MS4 Discharges to Los Peñasquitos Lagoon

Constituent	Effluent Limitation
Sediment	2,580 tons/yr

(c) Best Management Practices

(i) The Water Quality Improvement Plan for the Los Peñasquitos Watershed Management Area must incorporate the Sediment Load Reduction Plan required to be developed pursuant to Resolution No. R9-2012-0033.

(ii) The Responsible Copermittees must implement BMPs to achieve the receiving water limitations under Specific Provision 7.b.(2)(a) and the effluent limitations under Specific Provision 7.b.(2)(b) for Los Peñasquitos Lagoon.

(3) Final TMDL Compliance Determination

Compliance with the final WQBELs, on or after the final TMDL compliance date, may be demonstrated via one of the following methods:

(a) Successful restoration of 346 total acres of tidal and non-tidal saltmarsh vegetation in Los Peñasquitos Lagoon; OR

(b) The Responsible Copermittees must develop and implement the Water Quality Improvement Plan as follows:

(i) Incorporate the BMPs required under Specific Provision 7.b.(2)(c)(ii) as part of the Water Quality Improvement Plan,

(ii) Include an analysis in the Water Quality Improvement Plan, utilizing a watershed model or other watershed analytical tools, to demonstrate that the implementation of the BMPs required under Provision 7.b.(2)(c)(ii) achieves compliance with Specific Provision 7.b.(3)(a),

(iii) The results of the analysis must be accepted by the San Diego Water Board as part of the Water Quality Improvement Plan,

(iv) The Responsible Copermittees must continue to implement the BMPs required under Specific Provision 7.b.(2)(c)(ii), AND

(v) The Responsible Copermittees must continue to perform the specific monitoring and assessments specified in Specific Provision 7.d to demonstrate compliance with Specific Provision 2.b.(3)(a).

c. Interim TMDL Compliance Requirements

The Responsible Copermittees must comply with the interim WQBELs, expressed as annual loads, by December 31 of the interim compliance year set forth in Table 7.2.

Table 7.2
Interim Water Quality Based Effluent Limitations Expressed as Annual Loads in MS4 Discharges

Interim Compliance Date	Interim Effluent Limitations (tons/yr)	Associated Percentage of Reduction
December 31, 2019	6,691	20%
December 31, 2023	5,663	40%
December 31, 2027	4,636	60%
December 31, 2029	3,608	80%

d. Specific Monitoring and Assessment Requirements

(1) Watershed Monitoring

The Responsible Copermittees must conduct suspended sediment, bed load, and flow monitoring to calculate total sediment loading to the Los Peñasquitos Lagoon for each wet season (October 1 thru April 30) as set forth below:

(a) The Responsible Copermittees must monitor enough storm events throughout the season to quantify sediment loading over each wet season, and

(b) The Responsible Copermittees must monitor at least 3 stations to quantify cumulative sediment loading into Los Peñasquitos Lagoon. Stations must be located within the Los Peñasquitos, Carroll Canyon, and Carmel Creek tributaries prior to discharging into Los Peñasquitos Lagoon.

(2) Lagoon Monitoring

The Responsible Copermittees must monitor Los Peñasquitos Lagoon each Fall for changes in the extent of the vegetation types as set forth below:

(a) The Responsible Copermittees must acquire aerial photos of Los Peñasquitos Lagoon and digitize them at an approximate scale of 1:2,500,

(b) The Responsible Copermittees must appropriately interpret the vegetation and classify the various types as saltmarsh, non-tidal saltmarsh, freshwater marsh, non-tidal saltmarsh –*Lolium perrene* infested, southern willow scrub/mulefat scrub, herbaceous wetland, or upland land cover.

(3) Assessment and Reporting Requirements

(a) The Responsible Copermittees must analyze the monitoring data collected under Specific Provision 7.d(1) and 7.d(2) to assess whether the interim and final WQBELs have been achieved.

(b) For assessing and determining compliance with the final receiving water limitations under Specific Provision 7.b.(2)(a), the Responsible Copermittees must use the data acquired under Specific Provision 7.d.(2) to estimate the acreage of tidal and non-tidal saltmarsh actually restored.

(c) For assessing and determining compliance with the final effluent limitations under Specific Provision 7.b.(2)(b), the Responsible Copermittees must use the data acquired under Specific Provision 7.d.(1) to estimate sediment loading into Los Peñasquitos Lagoon. Sediment loading must be evaluated using a 3-year, weighted rolling average. The first reported average shall be calculated using data collected in the year 2014-2015, 2015-2016, and 2016-2017 wet seasons.

(d) The monitoring and assessment results must be submitted as part of the Water Quality Improvement Plan Annual Reports required under Provision F.3.b of this Order.

ATTACHMENT F

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN DIEGO REGION

FACT SHEET / TECHNICAL

REPORT FOR

ORDER NO. R9-2013-0001
NPDES NO.
CAS0109266

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s) DRAINING THE WATERSHEDS WITHIN THE SAN DIEGO REGION

VIII. PROVISIONS

The provisions (i.e. NPDES permit requirements) of the Order are discussed below.

A. Prohibitions and Limitations

Provision A.3 (Effluent Limitations) specifies the condition of the discharges from the Copermittees' MS4s that must be achieved if and when there are discharges.

Consistent with CWA section 301(b)(1)(A) and 40 CFR 122.44(a), Provision A.3.a includes the technology-based effluent limitations that must be included in the Order. The technology-based effluent limits, representing the minimum level of control that must be imposed in a permit under CWA section 402, requires that pollutants in discharges of storm water from the Copermittees' MS4s be reduced to the MEP. This provision applies specifically to storm water discharges. Non-storm water discharges must be effectively prohibited, as required under Provision A.1.b. Non-storm water (dry weather) discharges from the MS4 are not considered storm water (wet weather) discharges and therefore are not subject to the MEP standard.

The technology-based MEP standard is an ever-evolving, flexible, and advancing concept. Neither Congress nor USEPA has specifically defined the term "maximum extent practicable." Congress established this flexible MEP standard so that the administrative bodies would have "*the tools to meet the fundamental goals of the Clean Water Act in the context of storm water pollution*." (*Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866, 884.) As knowledge about controlling storm water runoff and discharges continues to evolve, so does the knowledge which constitutes MEP. Reducing the discharge of pollutants in storm water from the MS4 to the MEP requires the Copermittees to assess each program component and revise activities, control measures, BMPs, and measurable goals, as necessary to meet MEP.

The San Diego Water Board or the State Water Board ultimately define MEP, and may include requirements that provide specific guidance on what is expected to demonstrate MEP. It is the responsibility of the Copermittees to propose actions that implement BMPs to reduce storm water pollution to the MEP. In other words, the Copermittees' runoff management programs developed and implemented under the Order are the Copermittees' proposals for achieving MEP. Their total collective and individual activities conducted pursuant to their runoff management programs become their proposal for achieving MEP as it applies both to their overall effort, as well as to specific activities. Provisions B through E of the Order provides a minimum framework to guide the Copermittees in achieving the MEP standard for discharges of pollutants in storm water.

Provision A.3.b incorporates any water quality based effluent limitations (WQBELs) applicable to the MS4s established for TMDLs adopted and approved for the San

Diego Region and requires the Copermittees to comply with those WQBELs. This is consistent with 40 CFR 122.44(d)(1)(vii)(B), which requires that NPDES permits to incorporate WQBELs "*developed to protect a narrative water quality criterion, a numeric water quality criterion, or both…consistent with the assumptions and requirements of any available wasteload allocation for the discharge...*"

Pursuant to CWA section 303(d), for surface water bodies identified as impaired by one or more pollutants, the San Diego Water Board is required to establish TMDLs "*at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality*." The

TMDLs identify sources of the pollutants causing the impairments and assign portions of the TMDL as WLAs to point sources, which include MS4s.
~~WLAs must be expressed in NPDES permits as WQBELs, which may include one or more numeric components such as numeric effluent limits, and/or receiving water limitations, and/or BMP requirements. Because numeric targets for TMDLs typically include a component that will be protective of water quality standards, a TMDL will likely include one or more numeric receiving water limitations and/or effluent limitations as part of the assumptions or requirements of the TMDL. Any numeric receiving water limitations and/or effluent limitations developed as part of the assumptions or requirements of a TMDL must be incorporated and included as part of WQBELs for the MS4s.~~

Because the development and approval of new TMDLs, or modification of existing TMDLs, may occur during the term of this Order, the specific provisions of those TMDLs, including effluent limitations applicable to MS4s are provided within Attachment E to the Order. Attachment E will be updated with new TMDLs and modifications to existing TMDLs in a timely manner as they occur.

Provision A.4 (Compliance with Discharge Prohibitions and Receiving Water Limitations) describes the process required to be implemented by the Copermittees if compliance with the discharge prohibitions of Provisions A.1.a and A.1.c and receiving water limitations of Provision A.2.a are not being achieved under current conditions.

In its Phase II Stormwater Regulations, Final Rule, USEPA states that MS4 "*permit conditions must provide for attainment of applicable water quality standards (including designated uses), allocations of pollutant loads established by a TMDL, and timing requirements for implementation of a TMDL.*"[18] In a series of comment letters on MS4 permits issued by various Regional Water Boards, USEPA has also reiterated that MS4 discharges must meet water quality standards.[19] In addition, the Ninth Circuit Court of Appeals explained in a recent ruling that, *"[w]ater quality standards are used as a supplementary basis for effluent limitations [guidelines] so that numerous dischargers, despite their individual compliance with technology based effluent limitations, can be regulated to prevent water quality from falling below acceptable levels.*"[20]

Water quality standards for the San Diego Region are established in the Basin Plan. The water quality standards of the Basin Plan are incorporated into this Order as the discharge prohibitions under Provisions A.1.a and A.1.c and receiving water limitations under Provision A.2.a. The discharge prohibitions and receiving water limitations in this Order consist of all applicable numeric or narrative water quality objectives or criteria, or limitations or prohibitions to implement the applicable water quality objectives or criteria, for receiving waters as contained in the Basin Plan, water quality control plans or policies adopted by the State Water Board, including Resolution No. 68-16, or federal regulations, including but not limited to, 40 CFR 131.12 and 131.38. The waste discharge prohibitions and water quality objectives in the Basin Plan have been approved by USEPA and combined with the designated beneficial uses constitute the water quality standards required under federal law.

[18] Phase II Stormwater Regulations, Final Rule, 64 Fed. Reg. 68722, 68737.
[19] Letter from Alexis Strauss, Acting Director, Water Division, USEPA Region IX, to Walt Pettit, Executive Director, State Water Board, re: SWRCB/OCC File A-1041 for Orange County, dated January 21, 1998.
[20] NRDC v. County of Los Angeles (9th Cir. 2011), 673 F.3d 880, 886 (revd. on other grounds and remanded by *Los Angeles County Flood Control District v. Natural Resources Defense Council* (133 S.Ct. 710 (2013))). See also, *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866, 884-886, citing *Defenders of Wildlife v. Browning,* (9th Cir. 1999) 191 F.3d 1159.)

Under federal law (CWA section 402(p)(3)(B)(iii)), an MS4 permit must include "*controls to reduce the discharge of pollutants to the maximum extent practicable...and such other provision as...the State determines appropriate for control of such pollutants*." The State Water Board has previously determined that limitations necessary to meet water quality standards are appropriate for the control of pollutants discharged by MS4s and must be included in MS4 permits. (State Water Board Orders WQ 91-03, 98-01, 99-05, 2001-15; see also *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159.) This Order prohibits discharges that cause or contribute to violations of water quality standards.
The discharge prohibitions under Provisions A.1.a and A.1.c and receiving water limitations under Provision A.2.a are included in this Order to ensure that discharges from the MS4s do not cause or contribute to exceedances of water quality objectives necessary to protect the beneficial uses of the receiving waters.

Provision A.4 is consistent with the precedent-setting language in State Water Board Order WQ 99-05 required to be included in municipal storm water permits. State Water Board Order WQ 2001-15 refined Order WQ 99-05 by requiring an iterative approach to compliance with water quality standards involving ongoing assessments and revisions, as referred to as the "iterative process." The "iterative process" is a fundamental NPDES requirement for municipal storm water permits to achieve the objectives of the CWA.

The State Water Board and Regional Water Boards have stated that the provisions under Provisions A.1.a, A.1.c, A.2.a, and A.4 are independently applicable, meaning that compliance with one provision does not provide a "safe harbor" where there is non-compliance with another provision (i.e., compliance with the Provision A.4 does not shield a Copermittee who may have violated Provision A.1.a, A.1.c, or A.2.a from an enforcement action). The intent of Provision A.4 is to ensure that the Copermittees have the necessary storm water management programs and controls in place, and that they are modified by the Copermittees in a timely fashion when necessary, so that compliance with Provisions A.1.a, A.1.c, and/or A.2.a is achieved as soon as possible. USEPA expressed the importance of this independent applicability in a series of comment letters on MS4 permits proposed by various Regional Water Boards. At that time, USEPA expressly objected to certain MS4 permits that included language stating, *"permittees will not be in violation of this [receiving water limitation] provision … [if certain steps are taken to evaluate and improve the effectiveness of the jurisdictional runoff management programs],"* concluding that this phrase would not comply with the CWA.[21]

The Ninth Circuit held in *Natural Resources Defense Council v. County of Los Angeles* (2011) 673 F3d. 880, 886 (revd. on other grounds and remanded by *Los Angeles County Flood Control District v. Natural Resources Defense Council* (133 S.Ct. 710 (2013))) that engagement in the iterative process does not provide a safe harbor from liability for violations of permit terms prohibiting exceedances of water quality standards. The Ninth Circuit holding is consistent with the position of the State and

Regional Water Boards that exceedances of water quality standards in an MS4 permit constitute violations of permit terms subject to enforcement by the Water Boards or through a citizen suit. While the Water Boards have generally directed dischargers to achieve compliance by improving control measures through the iterative process, the San Diego Water Board retains the discretion to take other appropriate enforcement and the iterative process does not shield dischargers from citizen suits under the CWA.

The requirements of Provision A.4, therefore, are required to be implemented until the water quality standards expressed under Provisions A.1.a, A.1.c, and A.2.a are achieved. The CWA requires MS4 permits to "*require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants*." The requirements of this Order have been deemed or determined to be "appropriate" to achieve water quality standards in receiving waters.

Part of the "*controls*" required by the Order is the process described in Provision A.4. Provision A.4 includes the process that is ultimately expected to achieve compliance with the requirement that discharges from the MS4 do not cause or contribute to violations of water quality standards in the receiving waters. The implementation of Provision A.4 is required when the Copermittees or the San Diego Water Board have determined that discharges from the MS4 are causing or contributing to violations of water quality standards in the receiving waters.

The Copermittees must effectively prohibit non-storm water discharges into the MS4s, reduce the discharge of pollutants in storm water from the MS4s to the MEP, and ensure that their MS4 discharges do not cause or contribute to violations of water quality standards. If the Copermittees have effectively prohibited non-storm water discharges and reduced storm water pollutant discharges to the MEP, but their discharges are still causing or contributing to violations of water quality standards, Provision A.4 provides a clear "iterative process" for the Copermittees to follow.

Provision A.4 essentially requires the Copermittees to implement additional BMPs until MS4 discharges no longer cause or contribute to a violation of water quality standards.

[21] Letter from Alexis Strauss, Acting Director, Water Division, USEPA Region IX, to Walt Pettit, Executive Director, State Water Board, re: SWRCB/OCC File A-1041 for Orange County, dated January 21, 1998.

In assessing compliance and potential enforcement actions, the San Diego Water Board looks at the Copermittees' efforts in total to meet the requirements of Provisions A.1.a, A.1.c, A.2.a and Provision A.4. The Copermittees need to demonstrate that they are making improvements to their programs and making progress toward achieving the discharge prohibitions and receiving water limitations in Provisions A.1.a, A.1.c, and A.2.a by implementing the requirements of Provision A.4. The San Diego Water Board would consider these efforts prior to strictly enforcing the requirements of Provisions A.1.a, A.1.c, and A.2.a. Causes of exceedances of the receiving water limitations can often be more difficult to identify and attribute solely to the Copermittees' MS4s. The intent of the Order is to provide the Copermittees more clarity and flexibility in addressing these exceedances through the iterative approach and adaptive management process until the requirements under Provisions A.1.a, A.1.c, and A.2.a are fully achieved.

An exception to the iterative approach and adaptive management process would be in receiving waters subject to adopted and approved TMDLs. For TMDLs that are incorporated into the Order, there is a specific date for compliance to be achieved. The Copermittees are in compliance with Provision A.4 as long as the Copermittees demonstrate compliance consistent with one of the methods identified in Attachment E for interim or final WQBELs consistent with the specific compliance dates~~, after which the iterative approach and adaptive management process required under Provision A.4 no longer provides the flexibility to achieve compliance. Where compliance dates for a TMDL have passed, compliance with the WQBELs incorporated into the Order established by a TMDL in Attachment E to protect water quality standards is required. Thus, after the interim or final compliance dates for a TMDL have passed, if the discharges from the Copermittees' MS4s are causing or contributing to a violation of WQBELs, exceedances of WQBELs must be strictly enforced by the San Diego Water Board. In the meantime, however, the Copermittees are in compliance with the interim or final TMDL requirements in Attachment E as long as the interim or final WQBELs are being achieved in accordance with the interim or final compliance dates.~~

Provision F.2 (Updates) requires the Copermittees to update specific documents that the Copermittees will utilize to implement the requirements of this Order.

Each Copermittee is required to continue implementing a jurisdictional runoff management program, as required under Provision E. Implementation of each Copermittee's jurisdictional runoff management program is directed by its jurisdictional runoff management program document. Provision F.2.a requires each Copermittee to update its jurisdictional runoff management program document to be consistent with the requirements of Provision E concurrent with the submittal of the Water Quality Improvement Plan.

Likewise, each Copermittee must continue to require new development and redevelopment projects to implement BMPs to control pollutants in storm water runoff. The control of pollutants in storm water runoff from development and redevelopment projects within each Copermittee's jurisdiction is guided and directed by its BMP Design Manual, formerly known as a Standard Storm Water Mitigation Plan (SSMP). Provision F.2.b requires each Copermittee to update its BMP Design Manual to be consistent with the requirements of Provision E.3 concurrent with the submittal of the Water Quality Improvement Plan.

In general, the requirements of the Order should not necessitate a complete rewrite of each Copermittee's jurisdictional runoff management program document or BMP Design Manual, as was required by the Third Term Permits. The jurisdictional runoff management program and BMP Design Manual requirements of this Order are not significantly different than the requirements of the Fourth Term Permits. Thus, only sections of the Order which are new or have been significantly changed should warrant revisions to specific sections of the Copermittee's jurisdictional runoff management program document and BMP Design Manual.

Finally, the Water Quality Improvement Plans are expected to require updates as the iterative approach and adaptive management process included in the Water Quality Improvement Plan, as required under Provision B.5, is implemented by the Copermittees. Provision F.2.c.(1) requires the Copermittees to implement a public participation process for the proposed updates, review the proposed updates with the Panel, and submit the updates to the Water Quality Improvement Plan as part of the Annual Reports required under Provision F.3.b.

Also, because TMDLs are likely to be developed, adopted and approved during the term of the Order, Provision F.2.c.(2) has been included to expedite the ~~incorporation~~ inclusion of actions to implement TMDLs into the Copermittees' Water Quality Improvement Plans as part of the update process, potentially before the Order is re-opened to incorporated the requirements of the new TMDLs. While WQIPs may be updated to include additional actions, TMDLs are not self-implementing and the Order must be re-opened to incorporate the TMDLs. Therefore TMDL requirements

and associated provisions, including WQBELs, are not enforceable until incorporated into the Order.

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Legal Authority

Illicit Discharge Detection and Elimination

Development Planning

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OC PublicWorks
Our Community. Our Commitment.

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November 19, 2014

By E-Mail and Delivery

Laurie Walsh, P.E.
California Regional Water Quality Control Board, San Diego region
2375 Northside Drive, Suite 100
San Diego, CA 92108

Subject: Comment – Tentative Order No. R9-2015-0001, Regional MS4 Permit, Place ID: 658018Lwalsh.

Dear Ms. Walsh:

The County of Orange, as Principal Permittee of the Orange County Stormwater Program, appreciates the opportunity to provide comments on *Tentative Order No. R9-2015-0001, An Order Amending the Regional Municipal Separate Storm Sewer (MS4) Permit for the San Diego Region (Order No. R9-2013-0001)* issued on September 18, 2014. The south Orange County Permittees (hereinafter, Copermittees) were involved in the development of these comments and the Cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Lake Forest and Mission Viejo have directed that they be recognized as concurring entities on this letter.

We acknowledge the significant efforts of Regional Board staff to continue to collaboratively engage with the Copermittees and key stakeholders in the further development of a fifth term permit municipal stormwater permit for south Orange County. We also recognize that Tentative Order No. R9-2015-0001 incorporates a number of changes directly in response to specific recommendations made in our Report of Waste Discharge. The Tentative Order, however, still presents key issues of significant concern including the attainability of the proposed Prohibitions and Limitations provisions.

This letter is a summary of five overarching concerns with the Tentative Order and Regional Permit. Attachment A includes a more detailed discussion of these concerns in addition to providing you with comprehensive technical and legal comments on outstanding issues with the Tentative Order. Attachment B consists of proposed redlines to the Tentative Order consistent with the comments made in Attachment A. In addition to these comments, the Copermittees by this reference incorporate all prior letters, comments, reports, presentations, oral and written testimony, data, communications, and other evidence made by, on behalf of, and in support of the Copermittees during the various workshops, hearings, and meetings relevant to the adoption of Order R9-2013-0001 and Tentative Order R9-2015-0001. The Copermittees reserve the right to provide further comment as applicable.

I. The State of the Environment

The Fact Sheet / Technical Report discuss the statutes, regulations, plans and policies that establish the regulatory and evidentiary basis for the Regional Permit. It omits, however, the numerous environmental quality monitoring programs that have been undertaken over many years, and is silent on the environmental rationale for the stormwater mandate. The Findings include a single paragraph on "Water Quality Effects." In contrast, our Report of Waste Discharge included a comprehensive *State of the Environment* discussion that has since been published as a standalone report, summarizing the results of long term monitoring and special studies related to swimming safety and aquatic ecosystem health. The report's findings have significant implications for the structure of the Tentative Order and the compliance framework for stormwater and its future management in south Orange County. Based on the successes of the Orange County Stormwater Program, there is little justification for much of the Tentative Order.

Bacteria: Bacterial contamination of coastal waters in south Orange County is very low during dry weather, as a direct result of the Copermittees' targeted and comprehensive control actions, and beach report card grades are now consistently high. While contamination is more prevalent in wet weather, the annual percentage of A grades for wet weather on the Heal The Bay Report Card has reached 70 percent in recent years. Achieving further reductions in wet weather contamination will be a challenge as bacterial contamination in wet weather arises from a much wider range of sources compared to dry weather. Also, limitations in current monitoring methods make it difficult to determine if human fecal contamination, a significant health threat, is actually present.

Total Dissolved Solids (TDS) and Nutrients: TDS and Nutrients consistently exceed Basin Plan Objectives in wet and dry weather and create the potential for detrimental impacts on aquatic ecosystems. TDS is suspected as a causal factor in poor macroinvertebrate community condition. Nutrient impacts, such as excessive macroalgal growth, are not prevalent in south Orange County streams in spite of exceedances of regulatory thresholds for bio-stimulatory substances. For both constituents, the principal source is unlikely to be urban in nature and instead can be identified as a consequence of marine sedimentary formations characteristic of the area and their overlying saline soils. The key to effective future management efforts will therefore be to determine the environmental significance, if any, of the urban sources of TDS and nutrients. The permit should recognize this current uncertainty and not mandate on-site retention of runoff in the first instance where it may exacerbate the exfiltration of shallow groundwater with elevated TDS and nutrients.

Toxicity: Toxicity occurs sporadically in streams and creeks in south Orange County. It occurs at low levels and at different locations and different times and varies unpredictability across test species. In dry weather, aquatic toxicity is encountered in open (undeveloped) areas at levels equivalent to those in urban areas. This pattern

suggests that dry weather toxicity is not caused by urban sources of pollutants. There is a greater prevalence of toxicity in wet weather and pesticides are implicated as the principal source of this toxicity. Pesticide use, however, presents a moving target for management efforts due to the continuous introduction of new products. Moreover, the regulation of pesticide use is exclusively within the jurisdiction of state and federal agencies and not the role of MS4s.

II. Prohibitions and Limitations Provisions

The proposed Prohibitions and Limitations provisions in the Tentative Order do not provide the Copermittees with the necessary compliance pathway needed to ensure innovation and progress. Although there is flexibility in the water quality management plans, without some form of compliance path, the Copermittees remain strictly liable for any exceedance. This was not the intent of Congress or the EPA under the Clean Water Act and has not been the intent of the State Water Board under Orders 1999-05 and 2001-15.

The required linkage between implementing control programs and the prohibitions and limitations provisions is created if the Tentative Order is modified to affirm an adaptive management process as the basis for compliance. The adaptive management or iterative process is and has been a fundamental tenet of MS4 programs, as envisioned by USEPA, State Water Board Order 99-05 and later reconfirmed in Order WQ 2001 15 (BIA Order), and is the mechanism by which the Copermittees can and should demonstrate compliance. The County strongly supports this approach which we believe is technically necessary given the major findings both in our *State of the Environment Report* and in the recent American Society of Civil Engineers (ASCE) publication – *Pathogens in Urban Stormwater Systems*. The Regional Board has discretion with receiving water limitations language beyond what is required to be included by Order 99-05, and the County envisions the Water Quality Improvement Plan (WQIPs) being the foundation for the required iterative BMP-based compliance approach for the discharge prohibitions and limitations provisions.

III. TMDL Incorporation

The Regional Board has adopted two Basin Plan Amendments to establish Total Maximum Daily Loads (TMDLs) where the Copermittees are assigned wasteload allocations: (1) Indicator Bacteria in Baby Beach in Dana Point Harbor and (2) Indicator Bacteria, Project I - Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek).

There are several fundamental and substantive discrepancies between the adopted TMDL Basin Plan Amendments and the provisions of the Tentative Order. These inconsistencies negate the Basin Plan Amendment process that occurred to establish the TMDLs, and clearly contradict the Board's intent for how the TMDLs would be incorporated into the MS4 Permit. The Tentative Order should be revised to ensure that the TMDLs are properly incorporated as mass-based WLAs and not as concentration-based limits and that BMP-based compliance is established for the TMDL provisions. The Tentative Order should also provide an explicit re-opener provision to ensure that any revision to a TMDL is included in the adopted Order.

IV. Complementary Watershed and Jurisdictional Planning

The WQIP framework allows for the identification and development of a program built around the highest priority water quality conditions and constraints within a specific watershed. The WQIP also allows for the integration of all program elements and focuses the efforts on the highest priorities for each watershed through the customization of actions and strategies. If positioned correctly, the WQIP is the necessary next step in making the Tentative Order and corresponding compliance programs truly strategic, adaptive, and optimally supportive of the *Practical Vision (Resolution No. R9-2013-0153).*

The County believes the Tentative Order provisions—especially Provision E, JRMP—deviate from the strategic and adaptive approach to the "one-size fits all" approach. For example, the Existing Development provisions dictate that specific BMPs that must be implemented, regardless of the high priority water quality concerns within a watershed. These provisions become "additive" instead of "prioritized" and are not supportive of the overarching WQIP. The Tentative Order needs to be modified so that the WQIPs and related Jurisdictional Runoff Management Plans can be streamlined and focus on the highest priorities within each watershed.

V. Regional Permit

The Permittees understand that the regional nature of the permit is one of the defining features of our fifth term permit renewal and that this permitting approach is supported by the members of the Regional Board. Nonetheless, it must also be noted that the Regional Board does not have the legal authority to include Orange County in a Regional Permit because there is no system-wide, jurisdiction-wide, or common watershed basis to do so.

Thank you for your attention to our comments. Please contact me directly if you have any questions. For technical questions, please contact Chris Crompton at (714) 955-0630 or Richard Boon at (714) 955-0670. For legal questions, please contact Ryan Baron at (714) 834-5206.

Sincerely,

Mary Anne Skorpanich
Deputy Director, OC Public Works Department
OC Environmental Resources

Attachments: A – Detailed Comments
B – Redline Version of the Tentative Order

Cc: (Electronic copies only)
David Gibson, San Diego Regional Board
Tony Felix, San Diego Regional Board
South Orange County Permittees
Orange County Technical Advisory Committee
Tony Olmos, Orange County Public Works
Todd Snyder, County of San Diego
Jason Uhley, Riverside County Flood Control and Water Conservation District
Andrew Kleis, City of San Diego

WARREN D. WILLIAMS
General Manager-Chief Engineer

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RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

November 19, 2014

sent via email 11/19/14: Laurie.Walsh@waterboards.ca.gov

Ms. Laurie Walsh, P.E., WRC Engineer
CRWQCB - San Diego Region
2375 Northside Drive, Suite 100
San Diego, CA 92108

Dear Ms. Walsh:

Re: Comment - Tentative Order No. R9-2015-0001Place ID:65801LWalsh

This letter is written by the Riverside County Flood Control and Water Conservation District (District), on behalf of itself, the County of Riverside and the Cities of Murrieta, Temecula, and Wildomar (collectively, the Riverside County Co-Permittees) regarding Tentative Order No. R9-2015-0001 (Tentative Order). The Tentative Order proposes to add the County of Orange and other agencies located in South Orange County within the existing San Diego County Municipal Separate Storm Sewer System (MS4) Permit. The Riverside County Co-Permittees appreciate the opportunity provided by the San Diego Regional Water Quality Control Board (Regional Board) to offer its comments on the Tentative Order.

The Riverside County Co-Permittees wish to reiterate their concerns regarding a Regional MS4 Permit for San Diego, Orange, and Riverside Counties. Those concerns are set out more fully in our written comment letter dated January 10, 2013, on Order No. R9-2013-0001. The Riverside County Co-Permittees will be submitting a Report of Waste Discharge prior to the expiration of their current MS4 Permit, seeking either modification to the Regional Permit or an individual permit covering only those Co-Permittees. For your convenience, the January 10, 2013 comments are attached to this letter. The Co-Permittees request that this comment letter and attachments be added to the record for the Tentative Order, since most of the issues raised in those comments still pertain to the Tentative Order. The Co-Permittees also request that the oral testimony of Riverside County Co-Permittees on Order No. R9-2013-0001 be included in the record for the Tentative Order. The Riverside County Co-Permittees support the South Orange County Co-Permittees general approach to the issues raised by the Tentative Order.

Notwithstanding the Riverside County Co-Permittees' concerns to a Regional Permit, and subject to it, the Co-Permittees offer the following observations regarding the Tentative Order.

1. Need for Path to Compliance

As set forth in our written and oral comments on Order No. R9-2013-0001, the Riverside County Co-Permittees continue to believe strongly that every MS4 permit, including the Tentative Order, should

incorporate a clear and achievable path to compliance for Co-Permittees. As the Executive Officer and staff indicated in the hearings on Order No. R9-2013-0001, the San Diego County Co-Permittees will be out of compliance with the Permit's receiving water limitations (RWL) provisions for years. We agree with staff's assessment, and state further, that the lack of a provision to allow Co-Permittees to be considered in compliance with the RWL provisions leaves the Co-Permittees open to possible enforcement by third-parties and, as importantly, threatens the compliance approach that has been successfully employed by the Riverside County Co-Permittees to address water quality impairments in the Santa Margarita Region.

The Riverside County Co-Permittees agree with staff that a MS4 permit which allows the Permittees to adopt a "fail early and fail often" iterative approach to water quality is preferable to a permit which simply mandates certain actions. The Santa Margarita River Watershed Water Quality Workplan in Riverside County follows an iterative, flexible, and priority-setting approach that is intended to enable the Co-Permittees to focus on the most important water quality impairments in the Region, and make real, quantifiable improvements in water quality. As we have previously commented, if the Co-Permittees have no protection from liability for exceedances of water quality standards, they must address each such exceedance, even when that exceedance may be transitory or of minimal environmental or public health consequence. Stretching resources to address such issues diverts limited Co-Permittee resources from the most important threats to water quality and delays overall water quality improvement.

Recognizing this deficiency in the 2001 MS4 Permit for the Los Angeles County Co-Permittees, in its 2012 Permit, the Los Angeles Water Board adopted a path to compliance with RWLs through the development of adaptive and prioritized watershed management plans. The Riverside County Co-Permittees believe that a similar approach to RWL compliance should be included in the Tentative Order.

2. Hydromodification Provisions

While most of the substantive changes in the Tentative Order have specific application only to San Diego and/or South Orange Counties, the Riverside County Co-Permittees support exemptions for engineered channels and large river reaches in Provision E.3.c.(2)(e). This provision also provides an interim timeframe exemption for the implementation of hydromodification management BMP requirements for priority development projects.

The exemptions identified in Provision E.3.c.(2)(e) are appropriate and reasonable, and should be made permanent exemptions moving forward.

3. Basin Planning and Water Quality Improvement Plan (WQIP) General Comments

For the WQIPs to ultimately succeed, they need to be based upon regionally appropriate water quality standards. These water quality standards require review to ensure that they reflect sustainable conditions for beneficial uses, explicitly consider regulatory policy and environmental trade-offs

inherent in the protection of beneficial uses, and address the nature and impact of stormwater upon beneficial uses.

The Riverside County Co-Permittees would like to thank the Regional Board and staff for working with the Santa Margarita River Nutrient Initiative Group on such a review. This group, which includes dischargers, tribal interests, interested non-profits, scientists, and Regional Board staff, is using a scientifically based and rigorous approach to evaluate potential water quality targets for, and sources of, nutrients in the Santa Margarita Watershed. It is our belief that this effort will lead to more considered, effective, and appropriate management of local receiving waters, and thereby promote quicker and more effective environmental outcomes. It may also assist with the identification and development of innovative and alternative programs to manage nutrients within the Region. This effort will inform the development of the Santa Margarita River Watershed Water Quality Workplan and other regulatory programs.

The Co-Permittees request and encourage Regional Board staff to work with other stakeholders to consider, prioritize, and address other perceived constraints and inconsistencies within the San Diego Region Basin Plan. Such efforts will ultimately result in a better focus of local and regional compliance programs, including the WQIPs, on actions that are more likely to effectively and quickly address public health risks and environmental risks to receiving waters. Such an approach is exactly in line with staff's emphasis on workable solutions to these challenges.

The Riverside County Co-Permittees appreciate the opportunity to comment on the Tentative Order. Should you have any questions regarding these comments, please contact David Garcia at 951.955.1330/dhgarcia@rcflood.org.

Very truly yours,

for JASON E. UHLEY
Chief of Watershed Protection Division

Attachment

DHG:cw
P8/165901

WARREN D. WILLIAMS
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RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

January 10, 2013

Mr. Wayne Chiu, P.E.
California Regional Water Quality
Control Board, San Diego Region
9174 Sky Park Court, Suite 100
San Diego, California 92123-4340

Dear Mr. Chiu:

Re: Tentative Order No. R9-2013-0001
Regional MS4 Permit
Place ID: 786088Wchiu

The Riverside County Flood Control and Water Conservation District (District) is submitting this comment letter on the above listed Tentative Draft Order on behalf of the Riverside County MS4 Copermittees within the San Diego Region (Riverside County Copermittees) which includes the District, the County of Riverside and the Cities of Murrieta, Temecula and Wildomar. Tentative Draft Order R9-2013-0001 (Draft Permit) was drafted by Board staff to cover Phase I municipal separate storm sewer system (MS4) Copermittees in San Diego County, southern Orange County, and the portion of southwestern Riverside County within the Santa Margarita Hydrologic Unit.

The Riverside County Copermittees have previously commented that the San Diego Water Board lacks authority to adopt a regional permit covering Orange and Riverside Counties, in addition to San Diego County; a comment which is discussed in further detail below and in the attached legal comments. Notwithstanding such objection, and subject to it, the Riverside County Copermittees are providing comments on the Draft Permit.

In the workshop on the Administrative Draft Order held on April 22, 2012 San Diego Water Board staff identified the following desired outcomes for the proposed permit:

- Improving the quality of water discharged from the MS4
- Restoring or enhancing Beneficial Uses and Receiving Water quality

It was further identified by Board staff that to be able to meet those goals, the proposed regional MS4 permit needed to be 1) Strategic, 2) Adaptive, and 3) Synergistic.

Notwithstanding the concerns of the Riverside County Copermittees with regard to the legal authority to issue a regional MS4 permit, the Copermittees agree that being able to adapt and direct resources toward specific water quality priorities in a given watershed, rather than all potential problems simultaneously, is more likely to result in actual and meaningful improvements in water quality. However, to be able to achieve those improvements the MS4 Permit must be crafted to provide the Copermittees with the ability to truly and fully

adaptively manage their programs to focus resources on those BMP strategies and monitoring efforts that are identified as being most effective, consistent with the MEP standard, at addressing watershed priorities.

Unfortunately, many provisions in the Draft Permit, including but not limited to the Receiving Water limitation provisions in Provision A and others discussed in this letter, still do not fully support the achievement of those outcomes. The Draft Permit does not provide the Copermittees with the flexibility to be fully strategic in managing their resources nor the ability to fully adapt their programs to focus on the highest priority water quality needs of the watershed. This comment letter and the other documents submitted herewith (a redline of the Draft Permit and Legal Comments) identify some suggestions which, if adopted by the San Diego Water Board, will help to address these limitations and facilitate the desired improvements.

This comment letter is organized as follows:

As noted, the Riverside County Copermittees also are submitting a redline of the Draft Permit ("Redline") that proposes alternative language intended at achieving solutions to the various issues raised in this letter, and a Legal Comment document ("Legal Comments") that provides additional legal context for the various issues raised in this letter. The Riverside County Copermittees reserve their right, in the context of filing a Report of Waste Discharge ("ROWD") prior to the expiration of Order R9-2010-0016 (the 2010 MS4 Permit), to again address these issues and others relevant and appropriate to the SMR.

1 BACKGROUND

The Riverside County Copermittees were issued an extensive and prescriptive MS4 Permit in November 2010 which greatly expanded monitoring obligations, required special studies, a jurisdictional runoff management program, and Watershed Workplan requirements that were very different than the requirements set forth in the previous MS4 Permit issued to the Copermittees. Development and implementation of the 2010 MS4 Permit compliance requirements has been very expensive, especially in comparison to the relatively few demonstrated impairments of Beneficial Uses in the region and the Copermittees' resources. These requirements have left other important societal needs unfulfilled by the Riverside County Copermittees during a period of unprecedented and continuing economic distress. Further, the Riverside County Copermittees are still in the process of developing and implementing these 2010 MS4 Permit requirements, which is a serious concern given the very different compliance approach proposed in the Draft Permit. The Copermittees hope that the compliance efforts under the current MS4 Permit are taken into account when they submit their ROWD at the expiration of the 2010 MS4 Permit.

2 General Comments

2.1 Regional Permit

The Riverside County Copermittees respectfully submit that the San Diego Water Board is not authorized under the Clean Water Act or under its implementing regulations to issue a regional permit to Copermittees in San Diego County, South Orange County and the Santa Margarita Region (SMR) of Riverside County. As discussed more fully in the Legal Comments, the only circumstance under which the San Diego Water Board could issue such a permit would be if the Copermittees in these counties agreed to such a permit. Additionally, while the Draft Permit purports to affect the conduct of the Riverside County Copermittees upon expiration of the 2010 MS4 Permit in November 2015, the Riverside County Copermittees have not submitted a ROWD requesting coverage under a regional permit. Because no application has been made for the regional permit, which is a requirement set forth in the CWA regulations, the San Diego Water Board lacks jurisdiction to name the Riverside County Copermittees on the Draft Permit at this time.

Notwithstanding the above, the Riverside County Copermittees are submitting the comments in this letter based on:

- The San Diego Water Board staff's stated intent to enroll the Riverside County Copermittees in this permit upon expiration of the 2010 MS4 Permit.
- Statements made by San Diego Water Board staff that this comment period would serve as the primary opportunity for the Riverside County Copermittees to influence their next term MS4 Permit. The Riverside County Copermittees are entitled, as part of the ROWD process, to again raise relevant issues regarding permit provisions, but have undertaken in these comments to address major current concerns.

2.2 Outcome Focus

As mentioned above, the Copermittees agree that being able to adapt and direct resources toward addressing the specific water quality priorities in a given watershed, rather than all potential problems simultaneously, is more likely to result in actual/meaningful improvements in water quality. However, to be able to achieve those improvements, the MS4 Permit must fully integrate the following principles:

- **The Jurisdictional Program requirements must be fully flexible:** The Permit must be written in a way that allows the Copermittees to truly and adaptively manage their programs to fully focus their existing resources on those BMP strategies and monitoring efforts that are identified within the Water Quality Improvement Plan (WQIP) as being most effective, consistent with the Maximum Extent Practicable (MEP) standard, at addressing the watershed's priorities. We understand this to be the goal of the San Diego Water Board as well. While some elements of the Draft Permit embody this need, others do not and require dedication of resources to specific pre-defined efforts, regardless of the identified need for that effort in the watershed. The specific program areas that need more work to this end are:

    - The approach to addressing Non-stormwater discharges
    - Development Planning
    - Retrofitting
    - Channel Rehabilitation

These issues and proposed new language to address these issues are included throughout this letter and/or in the attached Redline.

- **Basin Plan updates need to be Prioritized by the San Diego Water Board:** For outcome-based permitting to be successful, the desired outcomes must be achievable by and appropriate to the Copermittee. To do that, the outcomes must take into account the background conditions in the watershed, and be appropriate for the attainment of Beneficial Uses in the specific waterbody, based on the specific conditions within and influencing that waterbody. The values in the Basin Plan should be comprehensively re-evaluated to ensure that water quality standards are scientifically justified to protect Beneficial Uses. Without updating the Basin Plan, the outcomes that the Copermittees target in the WQIPs would be arbitrary and not guaranteed to achieve the desired beneficial use improvements. Such an update should be pursued aggressively, led by and adequately funded by the San Diego Water Board, with participation by the MS4 Copermittees and other dischargers and stakeholders in the watershed.

- **Other Dischargers need to be Similarly Regulated by the San Diego Water Board:** The MS4 Copermittees are not the only dischargers of pollutants in the watershed. For example, the SMR of Riverside County includes State Lands (such as Caltrans), Tribal Lands, Agricultural Operators, Industrial Permit dischargers, Construction Permit dischargers, Phase II entities, Water Districts, and 'De Minimus' dischargers issued general permit coverage; all of which:

- Have separate regulatory programs (such as permits or waivers) implemented by the San Diego Water Board;
- May discharge pollutants, including non-stormwater, that can affect the quantity and quality of runoff, both directly within Receiving Waters, and in runoff discharges that may enter into and be discharged from the MS4; and
- Cannot be regulated by the Copermittees for the quantity and quality of their runoff because of their separate permits or waivers granted by the NPDES Program Administrator.

As such, while MS4 Copermittees can implement programs to reduce pollutants in discharges that are within their legal jurisdiction, no amount of effort by the MS4 Copermittees can be expected to fully attain water quality standards in the Receiving Waters. The only way to achieve that outcome will be for the NPDES Program Administrator (the San Diego Water Board in most cases) to directly regulate each of these entities to similar levels and standards as set forth by this Permit.

2.3 Responsibility for meeting goals of CWA

The CWA requires Copermittees subject to any MS4 permit, including the Draft Permit, only to address discharges from their MS4s. 33 U.S.C. § 1342(p)(3)(B). The Copermittees are not required to restore Beneficial Uses in any Receiving Water, or to address sources of pollution to those Receiving Waters that are not being discharged into or from those MS4s. However, in various provisions in the Draft Permit, there is a suggestion that the Copermittees are solely responsible for attaining water quality standards in their respective Receiving Waters. The San Diego Water Board must make clear in the Draft Permit that the responsibilities of the Copermittees are limited to their MS4s and the requirements of the CWA for municipal stormwater dischargers. Redline changes have been proposed in the above referenced portions of the Draft Permit to address this issue.

3 Specific Comments

The following comments represent specific high level concerns that the Riverside County Copermittees have identified at this time. Additional comments on the Draft Permit can be found in the Redline, as well as in the attached Legal Comments.

3.1 Findings

The Riverside County Copermittees have two separate sets of comments on the Findings. The first addresses the need for additional findings, with respect to aspects of California law and the physical setting of the SMR. The second set of comments focuses on existing Findings in the Draft Permit.

3.1.1 Needed Additional Findings

The Findings in the Draft Permit fail to fully address the context and conditions under which the proposed permit requirements are to be applied. A more complete explanation of this background is necessary to ensure that the Provisions ultimately included in the Draft Permit are credible, appropriate and legally required, and that the Permit Provisions (which must stem from the Findings) reflect the

context of the broader issues that affect MS4s within the region. The Riverside County Copermittees request that San Diego Water Board staff work with the MS4 Copermittees to expand the Findings, including the addition of findings to address the following:

California Water Law

California law requires that downstream entities must accept runoff from up-gradient properties. Owners and operators of MS4s are not exempt from this legal mandate, even if that runoff contains pollutants. Moreover, flood control districts, including the District, are mandated by the California Legislature (Legislature) to protect the lives and property of residents from floodwaters. The Riverside County Copermittees request that a finding, in the form set forth in the Redlines, be added to the Draft Permit.

Flooding

Many areas that would be under the jurisdiction of the Draft Permit are subject to periodic catastrophic flooding, which results from natural conditions, specifically the presence of mountains and hilly areas in close proximity to development, along with the effect of strong Pacific storms. This flooding would occur even in the absence of development. The Legislature recognized the importance of this issue in the early 20th Century, when it established flood control districts across the state, including in Riverside, Orange and San Diego Counties. Such flooding has, and if not controlled, could result in loss of life and widespread property damage. Further, the flooding can mobilize significant amounts of pollutants from industrial, commercial, residential and agricultural lands, damaging watercourses, habitat, and the Beneficial Uses therein. MS4 systems are designed and constructed to mitigate these impacts. The Riverside County Copermittees request that a finding in the form set forth in the Redline be added to the Draft Permit.

Flood Control District Acts

As noted above, the Legislature established Flood Control Districts in Orange, Riverside, and San Diego Counties through a series of Flood Control Acts. The Legislature determined that protection of life and property from the effects of flooding through the implementation of flood control improvements was a priority, and assigned those Districts with the sole responsibility to design, construct and maintain those improvements necessary to manage and contain floodwaters to prevent such negative impacts, as well as to conserve floodwaters for beneficial use. As noted above, these improvements represent fundamental water quality BMPs inasmuch as they reduce the widespread exposure of runoff to pollutants. The Flood Control Districts, while owners and operators of MS4s, have no authority or powers beyond those granted by the Legislature. The Legislature did not provide the Flood Control Districts, for example, the authority to regulate land uses within the municipal jurisdictions of Riverside County, nor to control the volume or quality of runoff discharged by those land uses. Findings describing the legislative priority for flood control and the limitations on the governing power of the Flood Control Districts should be added to set forth the appropriate role of the Flood Control Districts as MS4 Copermittees. The Riverside County Copermittees request that a finding, in the form set forth in the Redline, be added to the Draft Permit.

Limits on Extent of Permittee Legal Authority

The MS4 Copermittees lack the authority to regulate many significant sources of pollutants that may impact Receiving Waters. For example, the Copermittees cannot regulate pollutants discharged from federal and state lands, facilities, tribal lands, special districts, utilities, agricultural lands, or railroads. Moreover, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) preclude local regulation of pesticides. The Riverside County Copermittees request that a finding in the form set forth in the Redline be added to the Draft Permit.

3.1.2 Comments on Existing Findings

Findings 3 and 15 (and elsewhere in Draft Permit)

In Findings 3 and 15 (and throughout the Draft Permit), it is stated that the CWA requires controls to reduce the discharge of pollutants "in stormwater" to the MEP. Finding 15, moreover, states that non-stormwater discharges from the MS4 are "not considered stormwater discharges and therefore are not subject to the MEP standard, stating that the MEP standard "is explicitly for 'Municipal . . . Stormwater Discharges" from the MS4s.

These conclusions are directly contrary to the plain language of the CWA, as set forth in the November 16, 1990 preamble accompanying the CWA stormwater regulations. Those authorities provide that the MEP standard applies to *all* pollutants discharged from the MS4, notwithstanding that some may be transported by non-stormwater. Additionally, the Redline reflects deletion of the limitation of the MEP standard to stormwater discharges in multiple locations, reflecting federal law. For a further discussion of this issue, please see the Legal Comments. The Riverside County Copermittees also request deletion of Finding 15.

Finding 11

This Finding states that "[r]ivers, streams and creeks in developed areas used [to convey runoff] . . . are part of the Copermittees' MS4s regardless of whether they are natural, anthropogenic, or partially modified features. In these cases, the rivers, streams and creeks in the developed areas of the Copermittees' jurisdictions are both an MS4 and Receiving Water." This statement is incorrect and must be deleted (as reflected in the Redline). For reasons more fully set forth in the Legal Comments, natural streams cannot be considered MS4; there is no MS4 "outfall" from a channelized river or stream to a natural stream; and, USEPA itself requires a distinction between MS4s and Receiving Waters.

Finding 12

This Finding states that as operators of MS4s, "Copermittees cannot passively receive and discharge pollutants from third parties." By providing free and open access to an MS4 that conveys discharges to Waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or otherwise control. This statement is incorrect and must be deleted (as set forth in the Redline). As the discussion in the Legal Comments indicates, municipalities must maintain the MS4 to protect the lives and property of their citizens and to prevent nuisance. Flood Control Districts have a statutory obligation to operate and maintain such MS4, an obligation which is not affected by

either the CWA or the terms of the Draft Permit. While an MS4 operator has the obligation to effectively prohibit the entry of non-stormwater into the MS4, it does not have legal responsibility for such discharges, which are the responsibility of the discharger itself and subject to the jurisdiction of the San Diego Water Board, pursuant to Water Code section 13260 *et seq.*

Finding 28

This Finding recites that the San Diego Water Board finds that the requirements of the Draft Permit "are not more stringent than the minimum federal requirements." The Riverside County Copermittees disagree with this finding, as it is not supported by the evidence, *i.e.*, the many requirements in the Draft Permit which exceed the federal MEP standard. Moreover, any decision by the San Diego Water Board to adopt "other provisions" going beyond MEP is not a federal requirement, but rather a discretionary decision taken by a state agency under authorization in the CWA. *See Defenders of Wildlife v. Browner,* 191 F.3d 1159, 1164-65 (9th Cir. 1999). Please see discussion in the Legal Comments. The Finding also indicates that the San Diego Water Board has developed an economic analysis of the Draft Permit. As set forth in the Legal Comments, the Riverside County Copermittees challenge the adequacy of that analysis.

Finding 29

This finding purports to find that the Draft Permit does not constitute an unfunded state mandate. The Riverside County Copermittees disagree with the conclusions set forth in this finding. More importantly, the finding is without legal effect because exclusive jurisdiction as to whether a state mandate exists, and whether it is unfunded lies with the Commission on State Mandates. Government Code §§ 17751 and 17552; *Lucia Mar Unified School District v. Honig* (1988) 44 Cal.3d 830, 837; *Hayes v. Commission on State Mandates* (1992) 11 Cal.App.4th 1546, 1596-97. The finding of an agency that has no jurisdiction to make that finding is entitled to no weight and should be deleted, as shown in the Redline. For an additional discussion of these issues, please see the Legal Comments.

Finding 31

The Riverside County Copermittees believe that the Receiving Water Limitation ("RWL") language set forth in the Draft Permit renders compliance with the permit impossible, since exceedances of water quality standards occur routinely through no fault of the MS4 Permittees. Thus, unless the RWL is modified to provide the Copermittees with a means to be in compliance, those Copermittees risk the threat of arbitrary San Diego Water Board enforcement or the bringing of citizen suit lawsuits under the CWA, which could nullify compliance with all other terms set forth in the Draft Permit, as discussed more fully in the Legal Comments. The exposure to third party litigation from the proposed RWL language is one of the most significant threats to an otherwise collaborative approach to achieving long term water quality improvement. This threat was emphasized by the recent bringing of a citizen suit lawsuit against the City of Malibu, the County of Los Angeles and the Los Angeles County Flood Control District based on similar language in the 2001 Los Angeles County MS4 Permit. The Riverside County Copermittees have suggested modifications to Provision A in the Redline and as discussed below and in the Legal Comments that are intended to better support the Iterative Process for compliance authorized by the State Water Resources Control Board in Order No.

2001-15, through the WQIP process. The Copermittees also note that the State Board considered the problems with the RWL language at a recent workshop, which may eventually result in modifications which should, if applicable, be reflected in the Draft Permit. Other requested changes to the Findings are set forth in the Redline.

3.2 Provision A, Prohibitions and Limitations

As noted above, the requirements set forth in Provision A are of great concern to the Riverside County Copermittees. The Copermittees generally support an approach to compliance that utilizes WIQPs as the implementing mechanism for the 'Iterative Process' described in Provision A.4, and that by implementing that iterative process in accordance with A.4, that the Copermittee should be in compliance with Provisions A.1 and A.2. The Redline reflects edits of Provision A to clarify the linkage between the prohibitions and limitations in Provisions A.1. through A.3. and Provision A.4 – which is described as the method for complying with the prohibitions and limitations. It must be noted, however, that the Riverside County Copermittees do not agree with the approach suggested, that any WQIP-based compliance approach be necessarily accompanied by a Reasonable Assurance Analysis. Such analyses can be extremely complex, expensive and time-intensive to develop, and similar analyses are commonly developed within TMDL models; taking a number of years to develop and refine. Given that the Santa Margarita Watershed has no adopted TMDLs; thus, comprehensive pollutant transport and BMP models are not available for the suite of constituents that might be considered for prioritization within a WQIP for the Santa Margarita Watershed. In the context of a TMDL, such models would be developed by the combined resources of the San Diego Water Board and a range of stakeholders and dischargers. Undertaking such an exercise solely with the public resources of the 275,000 residents of the SMR is beyond the financial ability of the Copermittees and would shift the responsibility for development of TMDLs from the San Diego Water Board to the Copermittees. Comments on Provision A can be found below, in the Redline and in the Legal Comments.

3.2.1 Overview of Key Issues

As noted above, an overriding issue for the Riverside County Copermittees is having a permit that, while being appropriately proactive and aggressive at addressing the prioritized water quality conditions with the Receiving Waters, is one that all Copermittees can remain in compliance with while implementing those requirements. As presently drafted (and as made clear by statements in the Fact Sheet), Provision A imposes immediate potential liability on every Copermittee if monitoring in the Receiving Waters reflects exceedances of water quality standards that may have been caused or contributed to by MS4 discharges. San Diego Water Board staff has repeatedly indicated in workshop presentations that they expect that Copermittees will not be able to comply with the Receiving Water Limitations and Discharge Prohibitions for some time. Staff has separately indicated that they are interested in having the Copermittees undertake bold initiatives in trying to address urban runoff pollution, and that the Copermittees have actually been encouraged to "fail early and fail often" as this would reflect such progress in refining these initiatives. The iterative, flexible and priority-setting approach reflected in the WQIP is intended to allow the Copermittees to focus on the most important problems in their watershed. The entire approach is endangered, however, by RWL provisions which would allow either the San Diego Water Board or a citizen plaintiff to sue the Copermittees for any individual exceedance of the

RWLs. Under the current version of Provision A, the unmitigated risk of such actions leads not to bold initiatives but rather to attempts to minimize liability.

As set forth in the Legal Comments, this approach is not mandated by the CWA, State Board orders or the opinion of the Ninth Circuit Court of Appeals in *Natural Resources Defense Council v. County of Los Angeles*, 673 F.3d 880 (9th Cir. 2011), *reversed*, 568 U.S. __ (January 8, 2013). As importantly, the threat of immediate potential noncompliance actually interferes with the ability of the Copermittees, including the Riverside County Copermittees, to comply with the Draft Permit. Instead of being able to focus on pollutants of highest concern in the watershed, as called for in the WQIP, the Copermittees will be forced to try to address every pollutant monitored, since the exceedance of any water quality standard leads to immediate potential liability. Moreover, because citizen plaintiffs are entitled to injunctive relief under Section 505(a) of the CWA, a federal judge could order the Copermittees to undertake steps completely independent of the WQIP or other compliance provisions in the Draft Permit.

The Riverside County Copermittees do not object to compliance provisions that will provide a means to achieve real improvement in water quality. The Copermittees are willing to undertake these Provisions, because the success or failure is in their control. Compliance with the requirements of Provision A, however, is beyond the control of the Copermittees. Based on the statements made during the workshop process, the Riverside County Copermittees believe that the San Diego Water Board is serious about working with the Copermittees on a permit that provides flexibility and problem solving approaches. To ensure that this flexibility is not lost, the Draft Permit must tie in compliance with Provisions A.1 through A.3 to a process set forth in Provision A.4. This approach is shown in the Redline and is discussed further below.

3.2.2 Comments in support of specific changes

Provision A, Introduction

The introduction notes that pollutants "in stormwater discharges" from the MS4 must be controlled to the MEP. As discussed above, the CWA does not differentiate between stormwater and non-stormwater discharges from the MS4; both must be controlled to the MEP standard. The Riverside County Copermittees have requested revised language in the Redline. Additionally, the linkage between compliance with Discharge Prohibitions (Provision A.1), Receiving Water Limitations (Provision A.2) and Effluent Limitations (Provision A.3) should be noted as being defined by Provision A.4. This change is reflected in the Redline.

A.1.a

First, language must be added providing that compliance may be addressed through the process set forth in Provision A.4. This language is provided in the Redline. Second, the Provision prohibiting discharges which are "threatening to cause" a condition of pollution, etc., is unenforceable, because it prohibits an action that, with respect to MS4 operators, is beyond their control. Moreover, there is no authority for such provisions in the Porter-Cologne Act. The Riverside County Copermittees request

deletion of this phrase, as shown in the Redline. Additionally, as set forth in the Legal Comments, the Provision improperly expands the Discharge Prohibitions to Waters of the State.

A.1.b

40 CFR § 122.26(d)(2)(iv)(B)(1) clarifies that the requirement for an MS4 Copermittee to "effectively prohibit" the discharge of Non-stormwater/illegal discharges into its MS4s is to be accomplished through "a program, including inspections, to implement and enforce an ordinance, orders or similar means…". The language of this Provision should reflect federal law in this respect. The Redline reflects this change.

A.1.c

First, this Provision requires the Copermittees to comply with the Basin Plan prohibitions listed in Attachment A. This list is over-inclusive, as it contains requirements that are not applicable to some or all of the Copermittees' MS4 discharges, or to the Riverside County Copermittees in particular. The Riverside County Copermittees request that this Provision be amended to read as follows: "Discharges from MS4s are subject to all applicable waste Discharge Prohibitions in the Basin Plan." This change is noted in the Redline. Second, language must be added providing that compliance with this restriction can be obtained through the process set forth in Provision A.4. This language is provided in the Redline.

A.2.a

First, this Provision and Provisions A.1. and A.3 should be linked to the iterative process described in A.4. Please see the Redline.

Second, not all plans, policies, etc. set forth in Provision A.2.a.(1)-(4) may qualify as "water quality standards" or be applicable to all the MS4 Copermittees. These subsections should be deleted, and replaced with a reference to "Water Quality Standards," which is a defined term in the Draft Permit (This change is reflected in the Redline). Otherwise, the MS4 Permit would become over inclusive with respect to what is considered a water quality standard. Such standards must be established in accordance with federal and state law. If this process has not been followed for a particular requirement, it is not a "water quality standard."

A.3.a

As discussed above, this Provision erroneously states that pollutants "in stormwater discharges" from MS4s must be reduced to the MEP. Please see the Redline.

A.3.b

This Provision should also provide that compliance with a TMDL constitutes compliance with Provisions A.1 and A.2, for those pollutants/waterbodies subject to the TMDL.

A.4.a

The Riverside County Copermittees support an approach whereby compliance with Provisions A.1 through A.3 are achieved through a truly iterative approach, one which reflects the intent of the

precedential State Water Board Order Nos. 99-05 and 2001-015. As set forth in the Redline, the Riverside County Copermittees believe that they and the other Copermittees under the Draft Permit should be considered in compliance with Provisions A.1, A.2 and A.3, as applicable, through development of the WQIP, unless the San Diego Water Board denies approval of a WQIP or amendment thereof. This ensures that the Iterative Process which is the focus of the WQIP, is utilized to provide a means to be in compliance for the Copermittees.

A.4.c

This Provision should be deleted, as is reflected in the Redline. Again, this Provision defeats the purpose of an iterative approach to compliance with the Provisions A.1 through A.3, because it allows the San Diego Water Board to enforce any provision of the Draft Permit, including those provisions at any time. The San Diego Water Board obviously retains full ability to enforce the provisions of the Draft Permit, including with respect to the failure of the Copermittees to carry out required provisions. To short circuit the WQIP/JRMP process, however, is to defeat the entire intent of the Draft Permit.

3.3 Provision B, Water Quality Improvement Plans

3.3.1 Overview of Key Issues

- The goals and requirements of the WQIP need to be aligned with the requirements of the CWA that were established specifically for MS4 permits, and not impose the restoration of Receiving Waters entirely upon MS4 Copermittees.
- The WQIP should focus on addressing sources of pollutants within the jurisdiction of the respective Copermittees.
- The BMP strategies identified in the WQIP should fully inform the selection and design of programs identified in the JRMP. Some minor edits were proposed in Provision B, with additional edits as warranted in Provisions D and E.

3.3.2 Comments in support of specific changes

Introductory paragraph

The introductory language implies that the WQIP should be designed to unilaterally protect, preserve, enhance, and restore water quality and Beneficial Uses in waters of the state. As noted in Section 2.3 above, MS4 Copermittees are responsible only for discharges from their MS4s, not the unilateral protection of Beneficial Uses within their watersheds.

Redline edits were provided to:

- Tie the goals of the WQIP to the requirements of the CWA applicable to MS4 Permits.
- Replace 'waters of the state' with 'Receiving Waters' to be consistent with federal law.
- Clarify the linkage between Provision A and Provision B.

Additionally, Redline edits were provided to clarify that the strategies identified in the WQIP are intended to guide the specific actions that will be implemented by the Copermittees pursuant to Provision E.

B.1

The Riverside Copermittees support the redlines of the San Diego County Copermittees with regard to setting forth that the WQIP for the Santa Margarita Watershed Management Area (WMA) would commence upon enrollment of the Riverside County Copermittees into the Order.

B.2.e.

Two changes have been proposed, as shown in the Redline:

- The introductory paragraph includes language that clarifies that the Numeric Goals are not enforceable compliance standards, effluent limitations, or Receiving Water limitations. This clarification is consistent with San Diego Water Board staffs' verbally stated intent.
- Provision B.2.e.(1) as written requires that the final Numeric Goals be "capable of demonstrating the achievement of the restoration and/or protection of water quality standards in Receiving Waters". As discussed in Provision 2.3 above, meeting WQS in Receiving Waters is a goal of the overall NPDES regulatory programs under the CWA and not as a requirement to be accomplished alone by MS4 Copermittees. Redline edits have been provided to clarify that such goals are only required to be for MS4 discharges.

B.3.

In the Redline, edits were made to the introductory paragraph to ensure that the requirements are consistent with federal law. The CWA requires the 'effective prohibition' of non-stormwater discharges, not 'preventing' or 'eliminating' them.

Edits were also made to Provision B.3.a. to link the strategies more clearly to the Numeric Goals developed pursuant to Provision B.2.e, as well as to link them to the JRMP programs in Provision E.

B.5

In the Redline, edits were made to the introductory paragraph to clarify that the WQIP (and by extension the JRMP and Monitoring programs) are intended to meet the requirements of Provisions A.1, A.2, and A.3. The Tentative Order particularly excluded Provision A.1.b. (dealing with non-stormwater discharges). However, as discussed in the attached Legal Comments, the CWA requires that illegal discharges must be addressed via a program (as included in Provision E.2), and it is appropriate that the program be guided by the priorities and strategies included in the WQIP.

Other edits were made to clearly link Provision B.5 to the applicable requirements of Provision F.

3.4 Provision C, Action Levels

3.4.1 Overview of Key Issues

- The Action Levels (non-stormwater, and stormwater) applicable within each watershed should only be those that are associated with the priority water quality conditions in that watershed, or that are 303(d) listed for that watershed. For example, if Zinc is not a priority pollutant for a watershed, and is not 303(d) listed, there should not be a Zinc action level. This change is needed because Provision D requires analysis for all 'action level' parameters. Analysis for pollutants that are not a priority for a watershed is a waste of Copermittee resources.
- The Copermittees should be able to establish alternative action levels that are appropriate to the WMA within their WQIP. Such alternative action levels would be subject to Executive Officer approval as part of the WQIP approval process.
- Footnote 8 and 10 need to clarify that the NALs and SALs are not enforceable limitations.
- Various references to 'waters of the state' need to be changed to Receiving Waters for consistency with the Draft Order and the CWA.

Please see the Redline for further detailed comments and language changes.

3.5 Provision D, Monitoring and Assessment

The Riverside County Copermittees appreciate the changes in the monitoring program reflected in the Draft Permit, as compared to the Administrative Draft. However, elements of the revised requirements are still infeasible for the Riverside County Copermittees. The comments below identify modifications of areas of the monitoring requirement's which can significantly improve the Copermittees' ability to implement and comply with the requirements, while still maintaining appropriate jurisdictional accountability and assessment requirements to guide the implementation of the WQIPs and JRMP programs. The Redline provides further detailed comments and language changes.

3.5.1 Overview of Key Issues

- Dry Weather MS4 Outfall Monitoring
  - The level of effort dedicated to monitoring and addressing outfalls with non-stormwater discharges should be commensurate with the potential impact that discharge has on a Receiving Water. If a discharge, whether persistent or transient, has no or little potential for impacting a flowing Receiving Water, (e.g. due to infiltration, evaporation, or treatment of the flows), the outfall should be de-emphasized relative to other outfalls that have discharges that have connectivity to a flowing Receiving Water.
  - Outfall Dry Weather Field Screening – As currently drafted, the number of required visual inspections of outfalls during dry weather required per Provision D.2.a.(2)(a) and Provision D.2.b.(1) is both excessive and disproportionate. This will particularly impact smaller jurisdictions, which may be required to do more visual inspections of MS4 outfalls than would larger jurisdictions with more outfalls and more resources.
  - Similarly, as written, the Persistent Flow Outfall Monitoring requirements of Provision D.2.b.(2)(b) are excessive and also will disproportionately impact smaller jurisdictions.

Jurisdictions with several hundred outfalls will likely have significantly more resources to perform the required monitoring than smaller jurisdictions with fewer outfalls, yet both are required to implement the same level of persistent flow monitoring.

- Assessment Requirements
  - The assessment requirements require modeled extrapolation of monitored outfall data to non-monitored outfalls for the purposes of calculating loads from each outfall in each jurisdiction. Such extrapolations though modeling or other calculations will not accurately reflect actual jurisdictional loads, and have no benefit that directly analyzing the monitored data cannot more accurately provide.

3.5.2 Other Global Issues

- As currently drafted, MS4s operated by a flood control district within a city or county would be effectively double-counted for identification of outfalls in each jurisdiction and for performance of the load calculations from each jurisdiction. Additionally, Flood Control Districts have no land use or enforcement authorities outside of the MS4 and rely on the local Copermittee to address pollutant sources and discharges to their MS4. Redline edits have been included to clarify the relationship between districts and the municipal jurisdictions they serve for the purposes of outfall monitoring and the assessment requirements.
- Timelines for monitoring and assessments were clarified throughout and linked to specific reporting requirements of Provision F in the Redline.

3.5.3 Comments in support of specific changes

D.1.a.(3) and D.1.e.

The Redline clarifies that the Receiving Water monitoring described in these sections must be conducted as applicable to the WMA and the Copermittees' MS4 discharges, because some of the monitoring requirements only apply to MS4 discharges to certain waterbodies. Not all Copermittees within a WMA will have discharges to that waterbody.

D.1.b.

The Redline proposes language to allow for alternative long-term monitoring stations to be identified. Using the SMR as an example, the Copermittees might wish to utilize a location other than the existing stations due to the influence of groundwater during dry weather and/or the general lack of MS4 contributions in dry weather to those locations.

Table D-1 and D-6

The Redline proposes an addition to the list of field observations, an assessment for flow connectivity of any MS4 discharges to the sampled Receiving Water. It is important to know whether the sampled Receiving Water included a contribution of flows from MS4 discharges, or whether the data reflect conditions in the absence of an apparent MS4 discharge contribution.

D.2.a.(2)

The Redline clarifies that the identification of annual outfall monitoring requirements is based on municipal Copermittee boundaries, inclusive of Flood Control District MS4 outfalls within their jurisdiction.

The Redline clarifies that the field screening requirements apply to those outfalls in the Copermittee's inventory that are 'accessible'. If an outfall is inaccessible for safety reasons or due to habitat restrictions, it would not need to be field screened.

The Redline simplifies the 'tiers' in Provision D.2.a.(2)(a) by removing the lower tier (i), and expanding the second tier (ii) to cover all Copermittees with 500 or less outfalls. This resolves the disproportionality that occurs for Copermittees with a number of outfalls near the current 125 outfall threshold. For example, as currently drafted, a city with 150 outfalls would be required to do 150 visual inspections per year, but a smaller city with 120 outfalls would be required to do 192 visual inspections per year. The Redline also maintains the 80% requirement from the first tier to help smaller Copermittees manage their workload for meeting the field screening requirements while also conducting the additional source identifications that are required under the Draft Permit.

The Redline includes edits to Footnote 19 to clarify that persistent flow should effectively be a discharge that is hydraulically connected to a flowing Receiving Water. Any other discharges that are not affecting a flowing Receiving Water (such as pooled or ponded water) would be addressed as a Transient Discharge, with source IDs any time an obvious illegal discharge (i.e. color or odor) is identified.

D.2.a.(3)

The Redline incorporates edits proposed by the San Diego County Copermittees to require 10% of the samples in each WMA to be from a first storm event. As described in the comments of the San Diego County Copermittees, this will help avoid overly skewing of the data to 'first flush' data, while still incorporating such data into the data and analyses.

D.2.b.(1)

The Redline removes the requirement that the number of visual inspections performed be equivalent to the number of inspections required under Provision D.2.a.(2)(a).

As areas within a jurisdiction are confirmed not to have non-stormwater discharges, inspections of other outfalls would have to be perpetually (and unnecessarily) increased to maintain compliance with this requirement. For example, if a Copermittee had 150 outfalls, but after the transitional period it confirmed that 100 of those outfalls had no evidence of non-stormwater discharges to flowing Receiving Waters, it would have to visit the remaining 50 outfalls for up to three times a year to meet the requirement in this Provision. As the Copermittee got closer to eliminating non-stormwater flows at more outfalls, inspections at the remaining outfalls would quickly become excessive and unreasonable. Removing this requirement will better incentivize the elimination of non-stormwater

flows, as a Copermittee can look forward to reducing its workload in areas confirmed to not have non-stormwater flows.

D.2.b.(2)(b)

While the Riverside County Copermittees support the San Diego County Copermittees' proposal to reduce the number of required outfalls from 10 to 5 persistently flowing outfalls per WMA, the Riverside County Copermittees believe that applying the same minimum bar to all Copermittees is inappropriate and disproportionately affects smaller Copermittees that have commensurately less staff and resources.

The Riverside County Copermittees propose requiring monitoring of the top 10% of the prioritized persistent flow outfalls, with a lower and upper limit of 1 and 5 respectively, as shown in the redlines. With this change, the level of effort required of any individual Copermittee would scale consistent with the number of persistent flow outfalls within each Copermittees' jurisdiction.

Additionally, the Riverside County Copermittees request changing the requirement of Provision D.2.b.(2)(b)(ii) to require annual monitoring rather than semi-annual monitoring. With this change, a Copermittee could focus more of their annual budget on conduction Source ID efforts – which can result in eliminating problematic non-stormwater flows, rather than on a second monitoring event. Copermittees would still have the option to conduct a second monitoring event if they have more resources available and want to remove the outfall from their monitoring list sooner in accordance with Sub-Provisions [a] through [d].

D.2.b.(2)(e)

The Riverside County Copermittees support the San Diego County Copermittees' comments regarding allowing for a tailored list of constituents to be developed for each WMA. The Redline incorporates those edits.

D.3.

The Riverside County Copermittees support the changes recommended by the San Diego County Copermittees to this section, and these changes are reflected in the Redline.

D.4.a.(2)

This Provision as drafted would require the MS4 Copermittees to make comprehensive evaluations of Beneficial Uses that are beyond their expertise or the scope of an MS4 permit. Such evaluations and determinations would require advanced studies and cannot be answered with the monitoring data collected through this permit. This Provision should either be deleted or, alternatively the Riverside County Copermittees request that the assessments be focused on determining the status and progress toward addressing any Numeric Goals established for those Receiving Waters in the WQIP. Please see the Redline.

D.4.b.(1)

The Redline clarifies that outfall assessments are to be done for the area covered by each Municipal Copermittee (consistent with the proposed definition), and that the data to be used by each Municipal Copermittee would include the data collected from any Flood Control District Copermittee operated MS4s within its jurisdiction. This ensures that jurisdictional data is not double reported for Flood Control District MS4s within a city or county.

For Sub-Provision D.4.b.(1)(c)(iv) three key changes are requested in the Redline:

1) Annual volumes and pollutant loads should only be calculated from the monitored outfalls with persistent discharge to a flowing Receiving Water. This is directly applicable to the purpose of the Draft Permit and an important change, because volume and pollutant data extrapolated to non-monitored MS4 outfalls would be inaccurate and potentially misused if taken out of context. It is understood that San Diego Water Board staff want to ensure that jurisdictional accountability is maintained. However, since MS4 outfall monitoring will be conducted within each jurisdiction, inter-jurisdiction comparisons and accountability can be accomplished using the monitoring data directly without such extrapolations.
2) Added language to require a Copermittee to include in its jurisdictional load calculations any discharge that was demonstrated to have entered another Copermittees' MS4 before being discharged into the flowing Receiving Waters. This is important to ensure that each Copermittee maintains accountability for pollutants discharged to flowing Receiving Waters from within its jurisdiction.
3) The Redline proposes that the calculations of pollutant loads be only for the priority water quality constituents identified in the WQIP.

D.4.b.(2)(b)

Two key changes are recommended in the Redline:

1) Annual volumes and pollutant loads should only be calculated from the monitored outfalls for the monitored storm events. This is an important change because volume and pollutant data extrapolated to non-monitored events would be inaccurate and potentially misused if taken out of context. It is understood that San Diego Water Board staff want to ensure that jurisdictional accountability is maintained, so the Redline proposes that data from the monitored outfalls be extrapolated to identify loads for each jurisdiction during each monitored event. With this information, inter-jurisdiction comparisons and the desired 'accountability' can be accomplished using the monitoring data directly without such extrapolations to non-monitored events.
2) The Redline requests that calculations of pollutant loads be performed only for the priority water quality constituents identified in the WQIP.

D.4.b.(2)(c)

The Redline edits are consistent with those proposed by the San Diego County Copermittees, with minor modifications for clarity.

D.4.d.(2)(c)

It would be difficult to proactively determine the pollutant load reductions that *would* be necessary to demonstrate that discharges *are not* causing or contributing to exceedances of Receiving Water Limitations. Instead it would make more sense to calculate the necessary pollutant load reductions where the discharge has been demonstrated to be causing or contributing to such exceedances. In such circumstances, the necessary parameters would be known to calculate the needed load reduction. These changes are set forth in the Redline.

3.6 Provision E.1, Legal Authority

3.6.1 Overview of Key Issues

The Riverside County Copermittees note that Provision E.1, relating to the establishment of adequately legal authority, exceeds the requirements of federal CWA regulations in several respects. The federal regulations at 40 CFR 122.26(d)(2)(i)(A)-(F), provide explicit guidance for the Copermittees in developing the necessary legal authority to control MS4 discharges within its jurisdiction. However, several of the subsections of Provision E.1 go beyond these federal requirements, with respect to areas not within the responsibility of MS4 dischargers, such as negotiating with non-Copermittee entities. The Riverside County Copermittees have provided requested changes in the Redline, which are explained briefly below.

3.6.2 Comments in support of specific changes

E.1.a(1)

Changes in the Redline to accurately reflect the language of 40 CFR 122.26(d)(2)(i)(B).

E.1.a(2)

Changes in the Redline to accurately reflect the language of 40 CFR 122.26(d)(2)(i)(A). In addition, the Provision as written improperly requires the Copermittees to control the quality of runoff from sites covered by the state general permits for industrial activity and construction. These general permits are enforced by the State Board and the regional boards, and it is a state responsibility which cannot be handed off to the Municipal Copermittees.

E.1.a(3)

Changes in the Redline to accurately reflect the language of 40 CFR 122.26(d)(2)(i)(C).

E.1.a(5)

The Redline requests deletion of this Provision, which is not a requirement for municipal stormwater dischargers set forth in the CWA regulations. The Provision also improperly requests the Municipal Copermittees to attempt to negotiate with third parties the contribution of pollutants to the Copermittees' MS4. The Copermittees have no jurisdiction over such parties. The San Diego Water

Board has such jurisdiction, and should take responsibility for addressing non-MS4 sources of pollutants that may ultimately enter the MS4.

E.1.a(6)

Changes in the Redline to reflect accurately the language of 40 CFR 122.26(d)(2)(i)(E).

E.1.a(7)

The Redline requests deletion of this Provision, which is not a requirement for municipal stormwater dischargers set forth in the CWA regulations.

E.1.a(8)

The Redline requests deletion of this Provision, which is not a requirement for municipal stormwater dischargers set forth in the CWA regulations.

E.1.a(9)

The Redline requests deletion of this Provision, which is not a requirement for municipal stormwater dischargers set forth in the CWA regulations.

E.1.a(10)

The Redline requests both correction of the language in this Provision to comport with the federal regulations in 40 CFR 122.26(d)(2)(i)(F) and deletion of the second clause of this Provision, which is not found in 40 CFR 122.26(d)(2)(i)(F). Moreover, the requirement to inspect and monitor in the first clause of this Provision covers the issues set forth in the second clause. It is therefore unnecessary.

3.7 Provision E.2, IDDE

3.7.1 Overview of Key Issues

- The Draft Permit requires the Copermittees to address all non-stormwater discharges from the MS4 as illegal discharges, and then describes certain sources that need not be prohibited. This is effectively a 'guilty until proven innocent' provision, where a Copermittee will be required to expend potentially significant resources conducting source identification efforts any time non-stormwater is observed discharging from the MS4. In addition to the issues discussed in the Legal Comments, the Provision raises two practical and logistical problems:

    - This requirement is entirely independent of the determination that there are in fact any significant pollutants in such a discharge. A Copermittee could be spending substantial sums tracking (and then potentially enforcing upon) the source of a discharge that is not negatively impacting Receiving Waters. This not only is a waste of public resources, but would undermine the credibility of stormwater programs.
    - The San Diego Water Board and the State Water Board do not treat non-stormwater flows in the same manner across all of their regulatory mechanisms. For example, Order

> No. R9-2008-0002 allows non-stormwater discharges to occur, POTWs are issued permits for their discharges and agricultural operators can discharge irrigation water. The Copermittees should not be forced to conduct an expensive source investigation, only to find that the discharge complies with a permit or a waiver granted by the Water Board. The Copermittee would have no ability to address such a discharge as an 'illegal discharge', and further would have no ability to recuperate their costs for the source identification.

The best way to address these issues, is to require the Copermittee to have and enforce an effective prohibition of illegal discharges of ***pollutants*** (through statutes, ordinances, permits, contracts, orders or similar means), and then allow the Copermittee full discretion to determine which non-stormwater discharges have the potential to negatively impact Receiving Waters, consistent with the WQIP priorities – and address those as illegal discharges.

- Several categories of non-stormwater discharge that were previously conditionally exempt consistent with the CWA, are required by the Draft Permit to be treated as illegal discharges, unless they have coverage under another order issued by the San Diego Water Board. In addition to the problems identified above for conducting enforcement in the absence of a pollutant discharge, the San Diego Water Board, not the Copermittees, is responsible for evaluating coverage, need for coverage, and compliance with other orders issued by the Water Board. The Copermittees have neither authority nor jurisdiction. Please see the Redline.
- Several categories of non-stormwater discharge that were previously conditionally exempt consistent with the CWA, are required by the draft permit to be 'controlled' or otherwise prohibited by the Copermittees. The Fact Sheet further describes that such controls are warranted because they could potentially contain pollutants. However, the CWA only requires controls where the discharges are determined to be a significant source of pollutants. Please see Legal Comments for a further discussion of this issue as well as the Redline.
- The Draft Permit eliminates the conditional exemptions for Landscape Irrigation, Irrigation Water, and Lawn Watering (collectively 'irrigation runoff'). The San Diego Water Board has provided no data demonstrating that these discharge categories have contributed a significant pollutant load to Receiving Waters within Riverside County. Information discussed in the Fact Ssheet focuses on data from other counties. The only data from Riverside County is public educational material referring to irrigation runoff; this material, however, was adapted from public education material from other counties. That public educational material was intended to help prevent such discharges from becoming a significant source of impact on the Receiving Waters, and did not constitute a determination that such discharges are in fact, actually a significant source that needs to be subject to a prohibition. See the discussion in the Legal Comments as well as the Redline.
- The Draft Permit, in Provision E.2.a.(7) requires efforts to minimize or eliminate all non-stormwater flows, including those that are natural, conditionally exempt, or otherwise permitted by the San Diego Water Board, regardless of whether or not such discharges are not contributing pollutants to the MS4. Such a requirement conflicts with the prior Provisions E.2.a.(1) through

(5), which state conditions where such discharges need not be prohibited. The requirement should therefore be removed, as set forth in the Redline.

3.7.2 Comments in support of specific changes

E.2.a.(1) and (3)

The Riverside County Copermittees request that this Provision be deleted (as shown in the Redline) and the categories of non-stormwater discharges be re-incorporated into Provision E.2.a.(3). The apparent premise of Provision E.2.a(1) as drafted is that since the San Diego Water Board requires those discharges to have coverage under a separate order, they are illegal if they lack such coverage. The MS4 Copermittees, however, are not responsible for enforcing discharge coverage under separate San Diego Water Board orders; that is the responsibility of the San Diego Water Board itself. Requiring the Copermittees to enforce such entities for their lack of coverage under a separate San Diego Order shifts that responsibility from the Board to Copermittees. This is not authorized by the CWA or the Porter-Cologne Water Quality Act. The Copermittees are, under the CWA, only required to address such discharges as illegal discharges if the discharge is found to be contributing a significant pollutant load to the MS4. By moving those categories to Provision E.2.a.(3), as shown in the Redline, the Copermittees will still be required to treat such discharges as illegal discharges if and when they are found to be contributing significant pollutants to the MS4. This proposed approach is consistent with other MS4 permits in the state, including prior San Diego Water Board orders, and is further consistent with the approach taken for the WQIP, which is intended to allow the Copermittees to focus resources on addressing the specific impacts that MS4 discharges are having on Receiving Water quality.

E.2.a.(2)

This Provision requires the Copermittees to treat water line breaks as illegal discharges, which in turn requires the Copermittee to conduct enforcement measures. Water main breaks are accidental occurrences, or may be the result of acts of nature. It is no more appropriate to treat accidents as illegal and subject to enforcement than it would be for a city to declare vehicular accidents as illegal, and conduct enforcement against those involved. This language needs to be removed as shown in the Redline. Additionally, as discussed in the Legal Comments, a recent case from the federal district court in Virginia suggests that the regulation of mere flow may exceed the authority of the CWA.

E.2.a.(4)

The Redline clarifies that if the 'statues, ordinances, permits, contracts, orders or similar means' are enacted/adopted by a Copermittee, the categories of non-stormwater discharges listed do not need to be treated as illegal discharges. Otherwise, the language could be read to imply that, for example, if it was infeasible for a particular resident to direct wash water to landscaped areas, that the Copermittee would be required to treat that residents' discharge as illegal and enforce upon them.

E.2.a.(5)

Contrary to the provisions of the CWA regulations, prior MS4 permits issued by the San Diego Water Board and other permits in the state, the Draft Permit requires implementation of BMPs, where

feasible, during emergency firefighting activities. During such emergencies, all focus of public resources must appropriately be dedicated to protecting life and property. Any diversions from that mission would only serve to diminish and potentially compromise that mission. The Redline proposes language consistent with that adopted by the San Diego Water Board in 2010 for the Riverside County MS4 Permit (Order R9-2010-0016).

E.2.a.(7)

Provisions E.2.a.(1) through E.2.a.(6) describe circumstances where non-stormwater discharges need not be prohibited. This Provision then requires the Copermittees to minimize such 'conditionally allowed' flows anyway. This requirement exceeds the scope of the CWA and its implementing regulations and makes no sense. The Redline requests deletion of these Provisions.

E.2.b.(1)(d)

This Provision requires the MS4 Copermittees to map all known private outfalls to Receiving Waters. Such a requirement is beyond the scope of an MS4 permit and should be removed, as shown in the Redline. The Draft Permit does not require a Copermittee to address private outfalls to Receiving Waters; this is the responsibility of the San Diego Water Board, which governs all waste dischargers under the authority of the CWA or the Porter-Cologne Act.

E.2.b.(4)

This Provision requires the Copermittees, in conjunction with a spill, to 'prevent contamination of surface water, groundwater, and soil.'This requirement is clearly beyond the scope of an MS4 permit issued under the CWA (which regulates only discharges of water containing pollutants *from* the MS4 to Receiving Waters) and must be removed, as shown in the Redline. The Draft Permit could more appropriately require the Copermittees to 'coordinate, to the extent possible, with spill response teams to prevent entry of spills into the MS4.'

E.2.d.(2)(e)

The Redline requests edits to clarify that the intent of this Provision is to document and attempt to quantify any obvious sources of non-stormwater illegal discharges in response to the outfall monitoring, and that it is not necessary to conduct a full source identification any time there is evidence of water near an outfall.

New Provisions E.2.d.(3)(e)-(f)

The Redline adds two new provisions to this section to address a gap in potential outcomes from a source identification effort. These Provisions address scenarios where a Copermittee identifies A) the illegal discharge is coming from another upstream Copermittees' MS4, or B) that the discharge has been authorized by the San Diego Water Board, either through an order or waiver of WDRs. In the first scenario, the responsibility to continue the source identification, and conduct enforcement, would be transferred to the upstream Copermittee. In the second scenario, the responsibility for follow-up would fall on the San Diego Water Board, after receiving relevant information from the Copermittee. This Provision also provides for reimbursement to the Copermittee for the cost of the source identification, since the San Diego Water Board required the Copermittee to conduct the investigation,

while not commensurately prohibiting all non-storm water discharges from all other sources regulated by the Water Boards.

3.8 Provision E.3, Development Planning

3.8.1 Overview of Key Issues

- Priority Development Projects - The Tentative Order identifies categories of projects that are to be defined as 'Priority Development Projects' (PDPs), which in turn will be required to comply with specific water quality and Hydromodification mitigation and quantitative requirements. The criteria for PDPs is quite broad and would include the majority of development projects, from small convenience stores and residences, to mega malls and specific plan developments. The Fact Sheet describes that while some smaller project types may not have significant pollutant loads, they may have a hydrologic impact upon Receiving Waters. However, it is important to recognize that pursuant to Provision E.3.a., All projects are required to implement a variety of LID principles such as disconnecting impervious surfaces, draining impervious surfaces to landscaped areas, and minimization of soil compaction in landscaped areas. Since such LID principles will be implemented wherever feasible consistent with the MEP standard, these smaller development projects are unlikely to create a pollutant or hydrologic impact. Additionally, the Fact Sheet advocates incentivizing LID design concepts and green infrastructure and building principles. Accordingly, the Redline requests changes to Provision E.3.b.(3) as described in Provision 3.8.2 below. The Legal Comments further note the potential impact of the Virginia case (*Virginia Dept. of Transp. v. U.S. Environmental Protection* Agency) holding that the CWA does not regulate stormwater as a pollutant.
- Design Capture Volume – There are two problems with how the Draft Permit defines the Design Capture Volume:
    - The Draft Permit changes the 'design capture volume' from previous permits by eliminating the term 'runoff'. Prior permits described that the design capture volume is the volume of stormwater runoff from the 24-hour 85th percentile storm event. This permit changes that to be the volume of stormwater produced from a 24-hour 85th percentile storm event. The elimination of the term 'runoff' means that BMPs would need to be sized potentially much larger than previously. For example, if the 85th percentile storm is 1" and a BMP is designed to treat 1 acre of residential land with a coefficient of runoff of 0.6, then under the current permits the BMP must be sized to hold 2,178 cubic feet of water. However, under the language of the Draft Permit, the BMP treating the same area would be required to hold 3,630 cubic feet of water, a 70% increase in BMP size. Accordingly, the Redline restores the term 'runoff'.
    - Additionally, the Draft Permit defines the Design Capture Volume alternatively as: *"the volume of storm water that would be retained onsite if the site was fully undeveloped and naturally vegetated, as determined using continuous simulation modeling techniques based on site-specific soil conditions and typical native vegetative cover."* In addition, to the problem identified above regarding the volume of storm water runoff, this language does not provide a temporal standard for determining which volume to

calculate from a continuous simulation model. Additionally, such models are not commonly used among general practitioners in the civil engineering community. The Redlines propose an alternative and simpler approach for this second definition: "The volume of stormwater runoff produced from a 24-hour 85th percentile storm event, that would be retained onsite in the pre-project condition." This definition is advantageous for several reasons: 1) it is simple for any civil engineer to understand, calculate, and comply with and is based on the same storm and hydrologic calculations as the first option, 2) it respects natural hydrology for the site, which may have had runoff in the pre-project condition, and as such, is more compatible with the intent of LID to mimic natural hydrology, and 3) as a result it is less likely to result in potential degradation of Beneficial Uses downstream, from reductions in flows beyond the pre-project condition.

- Pre-Project vs Pre-Development – Both the Storm Water Pollutant Control BMP requirements and the Hydromodification Management BMP requirements in the Draft Permit specify a 'pre-development' condition as the mitigation standard for all PDPs. In addition to the legal problems with such a standard as set forth in the Legal Comments, there are practical problems with the standard.
    - The presumption made in the discussions in the Fact Sheet are that all Receiving Waters can, and will, be restored to a fully natural condition - effectively to a natural floodplain. This presumption does not address reality, which is that development has occurred in those floodplains over many generations. The San Diego Water Board obviously lacks the authority to force homeowners and businesses to vacate such floodplains to effectuate restored natural conditions. Such an action would represent an unconstitutional taking. Moreover, the Legislature, in the Flood Control Acts covering all three counties proposed to be covered by the Draft Permit, has specifically authorized Flood Control Districts to construct flood control structures required to protect the lives and properties of the citizens.
    - Mitigation to a pre-development condition also may not be necessary to protect Receiving Waters from the effects of Hydromodification. If, for example a Receiving Water with existing development tributary to it, has not experienced increased erosion due to that existing development, there is no reason to require Hydromodification mitigation to anything more than the existing condition. In the counter-example, if under the existing condition the Receiving Water has experienced increased erosion due to that existing development, then, legal issues aside, there would be technical benefit to mitigating to that pre-development condition.

  The Redline proposes alternative language that requires mitigation to a pre-development standard only where it is legal and technically justified based on the conditions of the Receiving Water.
- Alternative Compliance – The alternative compliance project options as set forth in the Draft Permit pose two key problems:

- Several statements are conflicting and thus confusing as to what the required standard is for the various alternative compliance projects. For example, throughout Provision E.3.c. it is stated that 'a PDP may be allowed to comply with Provision E.3.c.(1)(a) and/or Provision E.3.c.(2) if they …'. This language can be mis-read to imply that the project must comply both with Provisions E.3.c.(1)(a) and E.3.c.(2) *and* implement the alternative compliance project (thus negating the benefit of alternative compliance). The Redline clarifies this language.
- The Biofiltration option set forth in the Draft Permit arbitrarily, and without technical basis or justification, **doubles** the sizing standard for biofiltration BMPs from 0.75 times the design capture volume (as set forth in the 2010 MS4 Permit and the 2009 Orange County Permit) to 1.5 times the design capture volume. The existing 0.75 standard was set due to the fact that 1) the 85th percentile 24-hour storm occurs over a period of time, and 2) such BMPs have outflows and will regain some capacity during the storm event, and as such, do not need to instantaneously hold the entire 'Design Capture Volume' to have fully treated that volume. In fact, studies have shown that in addition to yielding excellent pollutant concentration reductions, LID Biofiltration BMPs are excellent at reducing the volume of runoff similar to retention BMPs. According to the ASCE International BMP database 60% or more of the long-term volume of runoff from a site can be retained within a Bioretention BMP (Bioretention BMPs are the primary 'biofiltration' BMP now allowed in Riverside County). In comparison, a Retention BMP sized to hold the runoff from the 85th percentile storm event (the Design Capture Volume) will end up retaining approximately 80% of the long-term volume of runoff. Thus, by simple proportions, a Bioretention BMP sized to 'hold' 100% of the Design Capture Volume may also be able to retain 80% of the long-term volume of runoff. $\left(\frac{0.75\times DCV}{60\%\ retained} = \frac{1.0\times DCV}{80\%\ retained}\right)$. This is being validated through Bioretention BMPs that have been constructed and are being monitored for such volume reductions at the Riverside County Flood Control District's headquarters in Riverside. Further, Biofiltration BMPs have the added benefit of providing better overall treatment of back to back storms. Where a Retention BMP would be full after the first storm, fully bypassing the second storm without treatment, a Biofiltration BMP will have restored some capacity after the first storm, providing for treatment of some or all of the second of the back to back storms. Thus, the attached redlines propose changing the sizing factor for Biofiltration BMPs to 1.0 times the Design Capture Volume. The Redline proposes changes consistent with these comments.

3.8.2 Comments in support of specific changes

Introduction

Provision E.3.g (Strategies to address the highest priority water quality conditions) was moved to the beginning to support and better integrate the development planning programs in the JRMP with the strategies developed in the WQIP.

E.3.a.(3)

The Redline changes the title of this section (and other appropriate references to this Provision) to refer to LID Principles, as identified in the CASQA LID Manual for Southern California (https://www.casqa.org/LIDDemo/LowImpactDevelopmentManual/tabid/242/Default.aspx)

E.3.b.(1)(c) (New Provision)

This Provision was added to clarify the requirements if a project that was already subjected to SSMP requirements redevelops a portion of the site.

E.3.b.(2)

The Redline edits shown for this Provision are primarily to simplify this Provision, by grouping various categories by their applicable square footage threshold and including some of the specifics in the definitions (Attachment C). Other changes (beyond reorganization) include:

- Removing the addition of 'driveways' from subsection (g) as described in Provision 3.8.1 of this letter.
- Adding a footnote for parking lots, to clarify that the trigger would not include parking lots that are not exposed to runoff, such as subterranean or covered parking lots. It is beneficial to not have parking lots exposed to runoff; excluding such parking lots from being defined as a PDP is a good way to encourage such practices.
- Hillside development projects were not included as it is not believed to be necessary anymore with the relatively low threshold (10,000 square feet) identified for other categories included in this and other recent MS4 permits.
- The definition for "Environmentally Sensitive Areas" from existing MS4 permits was restored to include the language referring to discharges that are not commingled with flows from adjacent or other upstream lands (note that the change is shown in the definitions per the re-organization suggested above).

E.3.b.(3)

- The PDP exemption for sidewalks, bicycle lanes, or trails, [E.3.b.(3)(a)] has been expanded to as shown in the Redline to include driveways and parking lots. If those projects implement criteria already described in that section, they are also unlikely to create an impact to Receiving Waters. Further, including those project types in that exemption will further incentivize developers to utilize those LID Principles.
- The exemption described in Provision E.3.b(3)(b), was modified as shown in the Redline, and as discussed in the comment letter submitted by the Riverside County Transportation Department. Please see that letter for a justification for the requested changes.
- As shown in the Redline, the exemptions for new and redeveloped single family residences [E.3.b.(3)(c) and (d)] were consolidated into a new provision [E.3.b.(3)(c)], covering all single family residential projects (both new and redeveloped). The key difference is that such projects would be considered exempt if they are both 1) not part of a larger common plan of development or planned subdivision, and 2) successfully incorporate each of the applicable source control and LID Principles identified in Provision E.2.a.(2)-(3) to the MEP.

- A new Provision-E.3.b.(3)(d), titled 'Watershed Protection Projects' was added in the Redline. The project types described therein are all projects that are undertaken to rehabilitate or prevent environmental, social, and economic damage within the watershed, including Receiving Waters. These projects, while they may in some cases require some level of impervious surfaces to be constructed, are 1) not designed for human use or activity that would generate pollutants, or are designed specifically to mitigate such pollutants; and 2) will implement each of the applicable source control and LID Principles identified in Provision E.2.a.(2)-(3) to the MEP.

E.3.c.(1)

In addition to the edits discussed in Provision 3.8.1 of this letter, the Redline removed subprovision E.3.c.(1)(c) , for two reasons:

- The requirements that must be met to when implementing an alternative compliance project are more fully described in Provision E.3.c.(3).
- The language, as drafted, appeared to require double-mitigation. It requires that: 1) conventional treatment is required to treat the entire volume not retained onsite, and 2) the pollutant load discharged must also be mitigated with an alternative compliance project. Such a scenario would be requiring double-mitigation. The Redline provides a clearer and more simple mitigation standard.

E.3.c.(2)

The Riverside County Copermittees have two concerns with this Provision:

- The first concern is the universal requirement to mitigate to the 'pre-development' standard, as discussed above in section 3.8.1 of this letter. The Copermittees in the Redline propose that this language be changed to the 'pre-project' condition. For new development projects, the 'pre-project' condition will be equivalent to the 'pre-development' condition. For redevelopment projects, the standard would be the conditions that exist onsite prior to the construction of the project. This is appropriate, because in many areas, particularly in areas of existing development that would be subject to 'redevelopment', Receiving Waters are engineered and maintained to 1) provide flood protection for the public, 2) ensure that floodwaters don't comingle with pollutants on adjacent private properties and 3) to ensure that the existing development draining to that system does not cause erosion. In cases where the Receiving Waters are not engineered and maintained, and erosion problems caused by existing development are observed, language has been added to the Redline to provide for additional standards to be developed in the WQIP, based on the WQIP priorities.
- Additionally, the Redline proposes an additional exemption from HMP requirements for projects that discharge into conveyance channels that are engineered and maintained for the build-out condition all the way from the project to a waterbody that is sufficiently resistant to Hydromodification. This language is consistent with the above discussions, and ensures the PDPs are not required to mitigate for non-existent impacts. Please see the specific language in the Redline. The engineered channel exemption can be found in other recent MS4 permits, including the recently adopted Los Angeles County MS4 Permit.

E.3.c.(3)(a) and (b)

These two Provisions were re-written in the Redline to be simpler and clearer on what BMPs, criteria, sizing standards are required for what type of project. This alternative language still meets the intent of the Draft Permit, while being easier to understand and comply with. Aside from simplifying the language, the following other changes were made in the Redline:

- The alternative compliance options must be determined to provide an equal or greater overall water quality benefit for the WMA.
- Additional options were provided for who can design the alternative compliance projects
- All alternative compliance projects are required to be consistent with the strategies in the WQIP. While the specific alternative compliance project would not be required to be identified in the WQIP, the goal of this language is to ensure that allowing the alternative compliance project would not in any way be detrimental to or contrary to the strategies in the WQIP.
- Requirements E.3.c.(3)(a)(iv) and (v) were removed entirely, as they conflict with E.3.c.(3)(a)(iii) which allowed the projects to be in the same WMA (preferably the same HSA)
- Changed the sizing factor for Biofiltration BMPs to 1.0 as discussed in section 3.8.1 of this letter, and deleted the option [d] which required triple mitigation by requiring Biofiltration + Conventional Treatment + Alternative Compliance projects.
- Added Conventional Treatment Control BMPs as an alternative compliance option, only where it has been shown to be technically infeasible to meet E.3.c.(1) and technically infeasible to implement LID Biofiltration Treatment Control BMPs.

E.3.c.(3)(c)

Redline edits in this section are primarily to simplify and consolidate the requirements. Sub-Provision [C] was removed, as it was duplicative of the mitigation standards for the alternative compliance project are specified in E.3.c.(3)(b) and E.3.c.(3)(c)(i)[a].

3.9 Provision E.4, Construction

3.9.1 Overview of Key Issues

This Riverside County Copermittees' comments and edits are set forth in the Redline.

- One key issue for the Copermittees is the edit shown in the Redline to Provision E.4.c, which clarifies that the Copermittees are responsible for *requiring* BMPs at private construction sites, and *implementing* BMPs at Copermittee construction sites.

3.9.2 Comments in support of specific changes

The Redline edits include comments supporting the requested edits.

3.10 Provision E.5., Existing Development

3.10.1 Overview of Key Issues

The Draft Permit includes requirements for advanced programs to identify opportunities and implement programs to facilitate the construction of Retrofit and Stream/Channel/Habitat Rehabilitation projects on private properties. Such requirements are clearly beyond the requirements of the CWA for a management plan to be implemented by an MS4 Copermittee. The Riverside County Copermittees request deletion of these requirements.

Alternatively, the Riverside County Copermittees have the following comments:

While these retrofitting and rehabilitation approaches can be helpful and/or needed in some circumstances, they are not required in all circumstances, nor are required to address all pollutants that may be identified in a WQIP as the highest priority water quality conditions. For example, some pollutants are best addressed with regulatory source controls at the state or federal level, such as the removal of copper from brake pads, and controls on pesticides, while other pollutants can be adequately addressed through inspections and enforcement. There are several problems with requiring Copermittee resources to be invested in such Retrofit and/or Rehabilitation strategies (collectively referred to as 'retrofit'):

- Land Ownership: The land that could potentially be identified for retrofit would likely not be owned by a Copermittee. The Copermittee therefore has no ability to force the property owner to retrofit their property. Although the Copermittee could potentially implement programs to "facilitate" implementation, such a program would still be limited by the rights of the individual property owner. Even if a Copermittee were to attempt to purchase a privately owned existing development for the purposes of retrofit (a step going far beyond any requirements in the CWA or the Porter-Cologne Act), such a process can take many years, and if the owner is unwilling to sell, the retrofit project could never be realized. In any scenario, the process to facilitate such "retrofits" is extremely costly and lengthy, with no guarantee of a benefit to water quality. Retrofits should only be undertaken where the Copermittee identifies it as a necessary step to addressing the MS4 contributions to Receiving Water problems to the MEP. Otherwise, it forces the Copermittee to utilize resources very ineffectively, which is contrary to the goals of the WQIP and may actually be detrimental to water quality.
- Permitting: Aside from the limitations discussed above, stream/channel/habitat restorations have the additional complexities of requiring other regulatory permits that are not the discretion of the San Diego Water Board nor the Copermittees to issue. Such projects can take many decades to implement, and thus, are not expected to be highly effective at addressing the goals of the WQIP, except in rare circumstances.

Redline edits have been provided to clarify that these strategies and programs should only be used when, and to the extent directed by the strategies developed in the WQIP.

3.10.2 Comments in support of specific changes

E.5.b.(1)(b) and (d)

BMP implementation requirements of Provision E.5.b.(1)(b) and (d) have been clarified in the Redline to require the Copermittee to implement BMPs on their existing development, and require implementation of BMPs on private existing development.

E.5.c.(1)(a)(iv)

The Riverside County Copermittees request deletion of this Provision. The Copermittees should be provided the flexibility to schedule inspections as they see fit, provided that the schedules they establish pursuant to E.5.c.(1)(a), and the minimum frequency in E.5.c.(1)(a)(i) are met. Requiring 20% every year will be difficult to track as businesses may be opened or closed throughout the year and throughout the permit term.

Additionally, the Riverside Copermittees understand that other Copermittees may be recommending that E.5.c.(1)(a)(i) be changed to 'once per permit term'. The Riverside Copermittees believe that the current language of 'once every five years' is more appropriate for two reasons: 1) not all Copermittees (i.e. OC and Riverside) will be enrolled into the permit at the beginning of the 'permit term', and 2) not all businesses will be in existence at the beginning of the permit term. Accordingly it is more appropriate to simply require the minimum to be once every five years, that way a program manager can simply look at the last time a facility was inspected, and use that date to schedule the next inspection.

3.11 Provision E.6, Enforcement Response Plans

3.11.1 Overview of Key Issues

The Riverside County Copermittees' edits and comments are shown in the Redline and discussed below.

3.11.2 Comments in support of specific changes

E.6.d.

The terminology in this Provision was changed in the Redline from 'escalated' enforcement to 'progressive' enforcement. The proposed language better reflects the nature of enforcement actions, which are not simply 'escalated' or 'not escalated', as implied by Provision E.6.d.(2), but are progressive as needed in response to the severity of the violation. Since every violation comes with a unique set of circumstances, it is not reasonable to presume that a single set of 'triggers' will universally result in the same level of enforcement.

3.12 Provision E.7, Public Education

3.12.1 Overview of Key Issues

The Riverside County Copermittees' edits and comments are shown in the Redline.

3.13 Provision, E.8 Fiscal Analysis

3.13.1 Overview of Key Issues

The requirement that the Copermittees "must secure all the resources necessary to comply with this Order" exceeds the requirements of the CWA and illegally intrudes on the home rule authority of municipalities to govern themselves. This must be deleted. Please also see Legal Comments.

With regard to other provisions, the Riverside County Copermittees' edits and comments are shown in the Redline.

3.14 Provision F

3.14.1 Overview of Key Issues

- F.1 – WQIP Submittal
  - Based on the schedule for the initial submittal of the Priority Water Quality Conditions and Numeric Goals, and the subsequent 60-day public review, only one month would be left for the Copermittees to finalize strategies based on those conditions and goals and the public input received. This is an insufficient amount of time. The Redline requests modifications to the schedule that would provide for the submittal of the final WQIP within 24 months (instead of 18), to provide additional time for the development of strategies.
- F.1 and F.2.
  - The schedules for submittals should be linked to the receipt of comments on prior submittals, or the approval of prior submittals, rather than the permit adoption date. If it is tied to the permit adoption date, the submittal dates could become out of sync with the comment periods or San Diego Water Board approvals if any unexpected delays occur (for example if the San Diego Water Board is delayed in approving a document, or posting a document online for public comment). The Redline requests appropriate modifications.
  - Implementation dates for the plans are unclear / undefined. The Redline clarifies this issue.
- F.3. Progress Reports
  - The reporting requirements across the transitional period were unclear. Redlines are provided to clarify and consolidate.
  - The Regional Monitoring and Assessment Report language was revised to be consistent with the requirements of the Integrated Assessment of the Water Quality Improvement Plan, rather than an additional, slightly different report, due at the same time.

3.15 Attachments B and C

Comments and edits to Attachments B and C are shown in the Redline.

Very truly yours,

for JASON E. UHLEY
Chief of Watershed Protection Division

CP:cw
P8/

Riverside Copermittee Redlines

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

TENTATIVE
ORDER NO. R9-2013-0001
NPDES NO. CAS0109266

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s) DRAINING THE WATERSHEDS WITHIN THE SAN DIEGO REGION

The San Diego County Copermittees in Table 1a are subject to waste discharge requirements set forth in this Order.

Table 1a. San Diego County Copermittees

Municipal Copermittees	
City of Carlsbad	City of Oceanside
City of Chula Vista	City of Poway
City of Coronado	City of San Diego
City of Del Mar	City of San Marcos
City of El Cajon	City of Santee
City of Encinitas	City of Solana Beach
City of Escondido	City of Vista
City of Imperial Beach	County of San Diego
City of La Mesa	San Diego County Regional Airport Authority
City of Lemon Grove	San Diego Unified Port District
City of National City	

After the San Diego Water Board receives and considers the Orange County Copermittees' Report of Waste Discharge and makes any necessary changes to the Order, the Orange County Copermittees in Table 1b will become subject to waste discharge requirements set forth in this Order after expiration of Order No. R9-2009-0002, NPDES No. CAS0108740 on or after December 16, 2014.

Table 1b. Orange County Copermittees

Municipal Copermittees	
City of Aliso Viejo	City of Rancho Santa Margarita
City of Dana Point	City of San Clemente
City of Laguna Beach	City of San Juan Capistrano
City of Laguna Hills	City of Laguna Woods
City of Laguna Niguel	County of Orange
City of Lake Forest	~~Orange County Flood Control District~~

City of Mission Viejo	
Special District Copermittee	
Orange County Flood Control District	

After the San Diego Water Board receives and considers the Riverside County Copermittees' Report of Waste Discharge and makes any necessary changes to this Order, the Riverside County Copermittees in Table 1c will become subject to waste discharge requirements set forth in this Order after expiration of Order No. R9-2010-0016, NPDES No. CAS0108766 on or after November 10, 2015.

Table 1c. Riverside County Copermittees

Municipal Copermittee	
City of Murrieta	County of Riverside
City of Temecula	~~Riverside County Flood Control and Water Conservation District~~
City of Wildomar	
Special District Copermittee	
Riverside County Flood Control and Water Conservation District	

The Orange County Copermittees and Riverside County Copermittees may become subject to the requirements of this Order at a date earlier than the expiration date of their current Orders subject to the conditions described in Provision F.6 of this Order if the Copermittees in the respective county receive a notification of coverage from the San Diego Water Board.

The term Copermittee in this Order refers to any San Diego County, Orange County, or Riverside County Copermittee covered under this Order, unless specified otherwise.

This Order provides permit coverage for the Copermittee discharges described in Table 2.

Table 2. Discharge Locations and Receiving Waters

Discharge Points	Locations throughout San Diego Region
Discharge Description	Municipal Separate Storm Sewer System (MS4) Discharges
Receiving Waters	Inland Surface Waters, Enclosed Bays and Estuaries, and Coastal Ocean Waters of the San Diego Region

Table 3. Administrative Information

This Order was adopted by the San Diego Water Board on:	**Month Day, 2013**
This Order will become effective on:	**Month Day, 2013**
This Order will expire on:	**Month Day, 2018**
The Copermittees must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than 180 days in advance of the Order expiration date.	

Riverside Copermittee Redlines

I, David W. Gibson, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region, on Month Day, 2013.

TENTATIVE

David W. Gibson
Executive Officer

Riverside Copermittee Redlines

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Riverside Copermittee Redlines

II. PROVISIONS (Cont'd)

ATTACHMENTS

Riverside Copermittee Redlines

I. FINDINGS

Comment [A1]: See discussions in section 3.1 of the comment letter

The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), finds that:

JURISDICTION

1. **MS4 Ownership or Operation.** Each of the Copermittees owns or operates an MS4, through which it discharges storm water and non-storm water into waters of the U.S. within the San Diego Region. These MS4s fall into one or more of the following categories: (1) a medium or large MS4 that services a population of greater than 100,000 or 250,000 respectively; or (2) a small MS4 that is "interrelated" to a medium or large MS4; or (3) an MS4 which contributes to a violation of a water quality standard; or (4) an MS4 which is a significant contributor of pollutants to waters of the U.S.

Many geographical areas subject to this Order are subject to the threat of periodic catastrophic flooding resulting from natural conditions, specifically the presence of mountains and hilly areas in close proximity to urban development and the effect of period strong Pacific Ocean storms. Such flooding would occur in the absence of development. The Legislature recognized the importance of this issue when it established flood control districts across the state, including in Orange, Riverside and San Diego Counties. Such flooding has in the past, and if not controlled, could in the future result in loss of life and property damage. Such flooding can also mobilize significant Pollutants from industrial, commercial, residential and agricultural lands, damaging watercourses and the beneficial uses thereof, including habitat. MS4s are designed and constructed to mitigate such impacts.

2. Riverside County Flood Control and Water Conservation District.

Comment [A2]: See discussion in section 3.1.1 of the comment letter.

In 1945, the California Legislature enacted the Riverside County Flood Control and Water Conservation District Act, establishing the Riverside County Flood Control and Water Conservation District (District). The objects and purposes of the Act are to provide for the control and conservation of flood and storm waters and for the protection of watercourses, watersheds, public highways, life and property within the District from damage or destruction from flood waters. Among its other powers, the District also has the power to conserve, reclaim and save such waters for beneficial use. However the Act does not provide the District with the power to control the volume or quality of discharges that runs off of private property, which may end up in the District's flood control system. The District is governed by the District's Board of Supervisors as a separate legal entity from the County of Riverside.

Many of the flood management systems that the District operates are defined by the Clean Water Act as an MS4, and include many of the larger MS4s within the Santa Margarita watershed region of Riverside County (SMR). District does not however

own or operate streets, catch basins or storm drains smaller than 36 inches that collect runoff from the incorporated and unincorporated jurisdictions within the SMR, and commonly connect into the District's flood management system. Such systems are typically owned and operated by either the County of Riverside or the incorporated Cities within the SMR.

The waters and pollutants that may enter the regional receiving waters and/or the District's flood management systems come from various sources. These sources can include storm water and non-storm water from the Municipal Copermittees under this permit as well as from other NPDES and non-NPDES permittees, including industrial waste water dischargers, waste water treatment facilities, industrial and construction stormwater dischargers, water suppliers, tribal lands, other state and federal government entities, and Caltrans. Sources can also include discharges from Phase II entities such as school districts and discharges from entities that have been granted waste discharge requirements or waivers of waste discharge requirements, including agricultural operations.

The District does not own or operate any municipal sanitary sewer systems, public streets, roads, or highways. The District has no planning, zoning, development permitting or other land use authority, thus, it has no permitting or governing authority over industrial or commercial facilities, residents, new developments or re-development projects, and development construction sites located in any incorporated or unincorporated areas within its service area, including the SMR. The Copermittees that have such authority are responsible for implementing a storm water management program to address pollutants discharged from such industrial and commercial facilities, residential areas, new development and re-development projects, and development construction sites within their jurisdictional boundaries. Nonetheless, as an owner and operator of an MS4, the District is required to control pollutant discharges into and from its MS4, such as through interagency agreements among Copermittees and other owners of a MS4, the contribution of pollutants from one portion of the MS4 to another portion of the MS4 within their jurisdiction.

2. **Legal and Regulatory Authority.** This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations (Code of Federal Regulations [CFR] Title 40, Part 122 [40 CFR 122]) adopted by the United States Environmental Protection Agency (USEPA), and chapter 5.5, division 7 of the California Water Code (CWC) (commencing with section 13370). This Order serves as an NPDES permit for discharges from MS4s to surface waters. This Order also serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the CWC (commencing with section 13260).

   The San Diego Water Board has the legal authority to issue a regional MS4 permit pursuant to its authority under CWA section 402(p)(3)(B) and 40 CFR 122.26(a)(1)(v). The USEPA also made it clear that the permitting authority, in this case the San Diego Water Board, has the flexibility to establish system- or region-wide permits (55 Federal Register [FR] 47990, 48039-48042). The regional nature of this Order will ensure consistency of regulation within watersheds and is expected

to result in overall cost savings for the Copermittees and San Diego Water Board.

The federal regulations make it clear that the Copermittees need only comply with permit conditions relating to discharges from the MS4s for which they are operators (40 CFR 122.26(a)(3)(vi)). This Order does not require the Copermittees to manage storm water outside of their jurisdictional boundaries, but rather to work collectively to improve storm water management within watersheds.

3. **CWA NPDES Permit Conditions.** Pursuant to CWA section 402(p)(3)(B), NPDES permits for storm water discharges from MS4s must include requirements to effectively prohibit non-storm water discharges into MS4s, and require controls to reduce the discharge of pollutants from the MS4s ~~in storm water~~ to the maximum extent practicable (MEP), and to require other provisions as the San Diego Water Board determines are appropriate to control such pollutants. This Order prescribes conditions to assure compliance with the CWA requirements for owners and operators of MS4s to effectively prohibit non-storm water discharges in to the MS4s, and require controls to reduce the discharge of pollutants ~~in storm water~~ from the MS4s to the MEP.

Comment [A3]: See discussion in section 3.1.2 of the comment letter.

4. **CWA and CWC Monitoring Requirements.** CWA section 308(a) and 40 CFR 122.41(h),(j)-(l) and 122.48 require that NPDES permits must specify monitoring and reporting requirements. Federal regulations applicable to large and medium MS4s also specify additional monitoring and reporting requirements in 40 CFR 122.26(d)(1)(iv)(D), 122.26(d)(1)(v)(B), 122.26(d)(2)(i)(F), 122.26(d)(2)(iii)(D), 122.26(d)(2)(iv)(B)(2) and 122.42(c). CWC section 13383 authorizes the San Diego Water Board to establish monitoring, inspection, entry, reporting and recordkeeping requirements. This Order establishes monitoring and reporting requirements to implement federal and State requirements.

5. **Total Maximum Daily Loads.** CWA section 303(d)(1)(A) requires that "[e]ach state shall identify those waters within its boundaries for which the effluent limitations…are not stringent enough to implement any water quality standard applicable to such waters." The CWA also requires states to establish a priority ranking of impaired water bodies known as Water Quality Limited Segments and to establish Total Maximum Daily Loads (TMDLs) for such waters. This priority list of impaired water bodies is called the Clean Water Act Section 303(d) List of Water Quality Limited Segments, commonly referred to as the 303(d) List. The CWA requires the 303(d) List to be updated every two years.

   TMDLs are numerical calculations of the maximum amount of a pollutant that a water body can assimilate and still meet water quality standards. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point sources (waste load allocations or WLAs) and non-point sources (load allocations or LAs), background contribution, plus a margin of safety. Discharges from MS4s are point source discharges. The federal regulations (40 CFR 122.44(d)(1)(vii)(B)) require that NPDES permits to incorporate water quality based effluent limitations (WQBELs) developed to protect a narrative water quality criterion, a numeric water

quality criterion, or both, consistent with the assumptions and requirements of any available WLA for the discharge. Requirements of this Order implement the TMDLs adopted by the San Diego Water Board and approved by USEPA.

6. **Non-Storm Water Discharges.** Pursuant to CWA section 402(p)(3)(B)(ii), this Order requires each Copermittee to effectively prohibit discharges of non-storm water into its MS4. Nevertheless, non-storm water discharges into and from the MS4s continue to be reported to the San Diego Water Board by the Copermittees and other persons. Monitoring conducted by the Copermittees, as well as the 303(d) List, have identified dry weather, non-storm water discharges from the MS4s as a source of pollutants causing or contributing to receiving water quality impairments in the San Diego Region. The federal regulations (40 CFR 122.26(d)(2)(iv)(B)(1)) require the Copermittees to have a program to prevent illicit discharges to the MS4. The federal regulations, however, allow for specific categories of non-storm water discharges or flows to be addressed as illicit discharges only where such discharges are identified as sources of pollutants to waters of the U.S.

7. **In-Stream Treatment Systems.** Pursuant to federal regulations (40 CFR 131.10(a)), in no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the U.S. Authorizing the construction of a runoff treatment facility within a water of the U.S., or using the water body itself as a treatment system or for conveyance to a treatment system, would be tantamount to accepting waste assimilation as an appropriate use for that water body. Runoff treatment must occur prior to the discharge of runoff into receiving waters. Treatment control best management practices (BMPs) must not be constructed in waters of the U.S. Construction, operation, and maintenance of a pollution control facility in a water body can negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body.

DISCHARGE CHARACTERISTICS AND RUNOFF MANAGEMENT

8. **Point Source Discharges of Pollutants.** Discharges from the MS4s may contain waste, as defined in the CWC, and pollutants that adversely affect the quality of the waters of the state. A discharge from an MS4 is a "discharge of pollutants from a point source" into waters of the U.S. as defined in the CWA. Storm water and non-storm water discharges from the MS4s may contain pollutants that cause or threaten to cause a violation of surface water quality standards, as outlined in the Water Quality Control Plan for the San Diego Basin (Basin Plan). ~~Storm water and non-storm water discharges from the MS4s are subject to the conditions and requirements established in the Basin Plan for point source discharges.~~

9. **Potential Beneficial Use Impairment.** The discharge of pollutants and/or increased flows from MS4s may cause or threaten to cause the concentration of pollutants to exceed applicable receiving water quality objectives and impair or threaten to impair designated beneficial uses or which may result~~ing~~ in a condition of pollution, contamination, or nuisance. In addition, the reduction of flows below the

existing condition may impact negatively impact beneficial uses.

10. **Pollutants Generated by Land Development.** Land development has created and continues to create new sources of non-storm water discharges and pollutants in storm water discharges as human population density increases. This brings higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, and trash. Pollutants from these sources are dumped or washed off the surface by non-storm water or storm water flows into and from the MS4s. When development converts natural vegetated pervious ground cover to impervious surfaces such as paved highways, streets, rooftops, and parking lots, the natural absorption and infiltration abilities of the land are lost. Therefore, runoff leaving a developed area without BMPs that can maintain pre-development conditions will contain greater pollutant loads and have significantly greater runoff volume, velocity, and peak flow rate than pre-development runoff from the same area.

11. **Runoff Discharges to Receiving Waters.** The MS4s discharge runoff into lakes, drinking water reservoirs, rivers, streams, creeks, bays, estuaries, coastal lagoons, the Pacific Ocean, and tributaries thereto within the eleven hydrologic units comprising the San Diego Region. ~~Historic and current development makes use of natural drainage patterns and features as conveyances for runoff. Rivers, streams and creeks in developed areas used in this manner are part of the Copermittees' MS4s regardless of whether they are natural, anthropogenic, or partially modified features. In these cases, the rivers, streams and creeks in the developed areas of the Copermittees' jurisdictions are both an MS4 and receiving water.~~ Numerous receiving water bodies and water body segments have been designated as impaired by the San Diego Water Board pursuant to CWA section 303(d).

Comment [A4]: See discussion in section 3.1.2 of the comment letter.

Pollutants in Runoff. The most common pollutants in runoff discharged from the MS4s include total suspended solids, sediment, pathogens (e.g., bacteria, viruses, protozoa), heavy metals (e.g., cadmium, copper, lead, and zinc), petroleum products and polynuclear aromatic hydrocarbons, synthetic organics (e.g., pesticides, herbicides, and PCBs), nutrients (e.g., nitrogen and phosphorus), oxygen-demanding substances (e.g., decaying vegetation, animal waste), detergents, and trash. ~~As operators of the MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not effectively prohibit or otherwise control.~~ These discharges may cause or contribute to a condition of pollution or a violation of water quality standards. California law requires downstream landowners, including owners and operators of MS4, to accept upstream flows, even if that flow contains Pollutants. Failure to do can create conditions.

Comment [A5]: See discussion in section 3.1.2 of the comment letter.

Limitation on Powers of Copermittees. This Order regulates the discharge of non-stormwater into and Pollutants from non-agricultural Anthropogenic sources from the MS4s owned and/or operated by the Copermittees. The Copermittees lack legal

Comment [A6]: This finding is based on Findings I.B and I.C in Order R8-2010-33, applicable to portions of Riverside County within the Santa Ana region.

jurisdiction over discharges into their MS4 from agricultural activities, State and federal facilities, public schools and hospitals, utilities, railroads, special districts, Native American tribal lands, wastewater management agencies and other point and non-point source discharges otherwise permitted by the Water Board. The Water Board recognizes that the Copermittees should not be held responsible for discharges from such facilities or Pollutants in those discharges. Also, certain activities and sources that generate pollutants present in urban runoff may be beyond the ability of the Copermittees to prevent or eliminate. Examples of these activities and sources include, but are not limited to: emissions from internal combustion engines, brake pad wear and tear, atmospheric deposition, non-Anthropogenic sources of bacteria (including wildlife and feral cats and dogs), the regulation of pesticides and leaching of naturally occurring nutrients and minerals from local soils. This Order is not intended to address background or naturally occurring Pollutants or flows.

12.

13. **Human Health and Aquatic Life Impairment.** Pollutants in runoff discharged from the MS4s can threaten and adversely affect human health and aquatic organisms. Adverse responses of organisms to chemicals or physical agents in runoff range from physiological responses such as impaired reproduction or growth anomalies to mortality. Increased volume, velocity, rate, and duration of storm water runoff greatly accelerate the erosion of downstream natural channels. This alters stream channels and habitats and can adversely affect aquatic and terrestrial organisms.

14. **Water Quality Effects.** The Copermittees' water quality monitoring data submitted to date documents various persistent exceedances of Basin Plan water quality objectives for runoff-related pollutants at various watershed monitoring stations. Persistent toxicity has also been observed at several watershed monitoring stations. In addition, bioassessment data indicate that the majority of the monitored receiving waters have Poor to Very Poor Index of Biological Integrity (IBI) ratings. ~~These findings indicate that runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in the San Diego Region. Non-storm water discharges from the MS4s have been shown to contribute significant levels of pollutants and flow in arid, developed Southern California watersheds, and contribute significantly to exceedances of applicable receiving water quality objectives.~~

Comment [A7]: These statements are completely unsubstantiated.

15. ~~**Non-Storm Water and Storm Water Discharges.** Non-storm water discharges from the MS4s are not considered storm water discharges and therefore are not subject to the MEP standard of CWA section 402(p)(3)(B)(iii), which is explicitly for "Municipal … *Stormwater Discharges* (emphasis added)" from the MS4s. Pursuant to CWA 402(p)(3)(B)(ii), non-storm water discharges into the MS4s must be effectively prohibited.~~

Comment [A8]: See discussion in section 3.1.2 of the comment letter.

16. **Best Management Practices.** Waste and pollutants which are deposited and accumulate in MS4 drainage structures may~~will~~ be discharged from these structures

to waters of the U.S. unless they are removed. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. For this reason, pollutants in storm water discharges from the MS4s can be and must be effectively reduced in runoff by the application of a combination of pollution prevention, source control, and treatment control BMPs. Pollution prevention is the reduction or elimination of pollutant generation at its source and is the best "first line of defense". Source control BMPs (both structural and non-structural) minimize the contact between pollutants and runoff, therefore keeping pollutants onsite and out of receiving waters. Treatment control BMPs remove pollutants that have been mobilized by storm water or non-storm water flows.

17. **BMP Implementation.** Runoff needs to be addressed during the three major phases of development (planning, construction, and use) in order to reduce the discharge of storm water pollutants to the MEP, effectively prohibit non-storm water discharges, and protect receiving waters. Development which is not guided by water quality planning policies and principles can result in increased pollutant load discharges, flow rates, and flow durations which can negatively affect receiving water beneficial uses. Construction sites without adequate BMP implementation result in sediment runoff rates which greatly exceed natural erosion rates of undisturbed lands, causing siltation and impairment of receiving waters. Existing development can generate substantial pollutant loads which are discharged in runoff to receiving waters. Retrofitting areas of existing development with storm water pollutant control and hydromodification management BMPs may in many cases be ~~is~~ necessary to address storm water discharges from existing development that may cause or contribute to a condition of pollution or a violation of water quality standards.

Comment [A9]: It is not necessary in all cases.

18. **Long Term Planning and Implementation.** Federal regulations require municipal storm water permits to expire 5 years from adoption, after which the permit must be renewed and reissued. The San Diego Water Board recognizes that the degradation of water quality and impacts to beneficial uses of the waters in the San Diego Region occurred over several decades. The San Diego Water Board further recognizes that a decade or more may be necessary to realize demonstrable improvement to the quality of waters in the Region. This Order includes a long term planning and implementation approach that will require more than a single permit term to complete.

WATER QUALITY STANDARDS

19. **Basin Plan.** The San Diego Water Board adopted the Water Quality Control Plan for the San Diego Basin (Basin Plan) on September 8, 1994 that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for receiving waters addressed through the plan. The Basin Plan was subsequently approved by the State Water

Resources Control Board (State Water Board) on December 13, 1994. Subsequent revisions to the Basin Plan have also been adopted by the San Diego Water Board and approved by the State Water Board. Requirements of this Order implement the Basin Plan.

The Basin Plan identifies the following existing and potential beneficial uses for inland surface waters in the San Diego Region: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PROC), Industrial Service Supply (IND), Ground Water Recharge (GWR), Contact Water Recreation (REC1), Non-contact Water Recreation (REC2), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRSH), Hydropower Generation (POW), and Preservation of Biological Habitats of Special Significance (BIOL). The following additional existing and potential beneficial uses are identified for coastal waters of the San Diego Region: Navigation (NAV), Commercial and Sport Fishing (COMM), Estuarine Habitat (EST), Marine Habitat (MAR), Aquaculture (AQUA), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), and Shellfish Harvesting (SHELL).

20. **Ocean Plan.** The State Water Board adopted the Water Quality Control Plan for Ocean Waters of California, California Ocean Plan (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, and 2005. The State Water Board adopted the latest amendment on April 21, 2005 and it became effective on February 14, 2006. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. Requirements of this Order implement the Ocean Plan.

    The Ocean Plan identifies the following beneficial uses of ocean waters of the state to be protected: Industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance; rare and endangered species; marine habitat; fish spawning and shellfish harvesting

21. **Sediment Quality Control Plan**. On September 16, 2008, the State Water Board adopted the Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality (Sediment Quality Control Plan). The Sediment Quality Control Plan became effective on August 25, 2009. The Sediment Quality Control Plan establishes: 1) narrative sediment quality objectives for benthic community protection from exposure to contaminants in sediment and to protect human health, and 2) a program of implementation using a multiple lines of evidence approach to interpret the narrative sediment quality objectives. Requirements of this Order implement the Sediment Quality Control Plan.

22. **National Toxics Rule and California Toxics Rule.** USEPA adopted the National Toxics Rule (NTR) on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the California Toxics Rule (CTR). The CTR promulgated

new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

23. **Antidegradation Policy.** This Order is in conformance with the federal Antidegradation Policy described in 40 CFR 131.12, and State Water Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality Waters in California*. Federal regulations at 40 CFR 131.12 require that the State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. State Water Board Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. State Water Board Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies.

CONSIDERATIONS UNDER FEDERAL AND STATE LAW

24. **Coastal Zone Act Reauthorization Amendments.** Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires coastal states with approved coastal zone management programs to address non-point source pollution impacting or threatening coastal water quality. CZARA addresses five sources of non-point source pollution: agriculture, silviculture, urban, marinas, and hydromodification. This Order addresses the management measures required for the urban category, with the exception of septic systems. The runoff management programs developed pursuant to this Order fulfills the need for coastal cities to develop a runoff non-point source plan identified in the Non-Point Source Program Strategy and Implementation Plan. The San Diego Water Board addresses septic systems through the administration of other programs.

25. **Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 USC sections 1531 to 1544). This Order requires compliance with receiving water limits, and other requirements to protect the beneficial uses of waters of the State. The Copermittees are responsible for meeting all requirements of the applicable Endangered Species Act.

26. **Report of Waste Discharge Process.** The waste discharge requirements set forth in this Order are based upon the Report of Waste Discharge submitted by the San Diego County Copermittees prior to the expiration of Order No. R9-2007-0001 (NPDES No. CAS0109266). The Orange County and Riverside County Copermittees are not immediately covered by the waste discharge requirements in this Order. The San Diego Water Board understands that each municipality is

unique although the Counties share watersheds and geographical boundaries. The Order will continue to use the Report of Waste Discharge process prior to initially making Orange County or Riverside County Copermittees subject to the requirements of this Order.

The federal regulations (40 CFR 122.21(d)(2)) and CWC section 13376 impose a duty on the Copermittees to reapply for continued coverage through submittal of a Report of Waste Discharge no later than 180 days prior to expiration of a currently effective permit. This requirement is set forth in the Orange County Copermittees' and Riverside County Copermittees' currently effective permits at Provisions K.2.b and K.2.c, respectively. The Orange County Permit, Order No. R9-2009-0002 (NPDES No. CAS0108740) expires on December 16, 2014 and the Riverside County MS4 Permit, Order No. R9-2010-0016 (NPDES No. CAS0108766) expires on November 10, 2015.

Unless the Orange County or Riverside County Copermittees apply for and receive early coverage under this Order, the Orange County Copermittees' and the Riverside County Copermittees' respective permits will be superseded by this Order upon expiration of their respective permits, subject to any necessary revisions to the requirements of this Order made after the San Diego Water Board considers their respective Reports of Waste Discharge through the public process provided in 40 CFR 124.

Comment [A10]: Please see Comment Letter and Legal Comments regarding regional permit authority,

27. **Integrated Report and Clean Water Act Section 303(d) List.** The San Diego Water Board and State Water Board submit an Integrated Report to USEPA to comply with the reporting requirements of CWA sections 303(d), 305(b) and 314, which lists the attainment status of water quality standards for water bodies in the San Diego Region. USEPA issued its *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act* on July 29, 2005, which advocates the use of a five category approach for classifying the attainment status of water quality standards for water bodies in the Integrated Report. Water bodies included in Category 5 in the Integrated Report indicate at least one beneficial use is not being supported or is threatened, and a TMDL is required. Water bodies included in Category 5 in the Integrated Report are placed on the 303(d) List.

Water bodies with available data and/or information that indicate at least one beneficial use is not being supported or is threatened, but a TMDL is not required, are included in Category 4 in the Integrated Report. Impaired surface water bodies may be included in Category 4 if a TMDL has been adopted and approved (Category 4a); if other pollution control requirements required by a local, state or federal authority are stringent enough to implement applicable water quality standards within a reasonable period of time (Category 4b); or, if the failure to meet an applicable water quality standard is not caused by a pollutant, but caused by other types of pollution (Category 4c).

Implementation of the requirements of this Order may allow the San Diego Water Board to include surface waters impaired by discharges from the Copermittees'

MS4s in Category 4 in the Integrated Report for consideration during the next 303(d) List submittal by the State to USEPA.

28. **Economic Considerations.** The California Supreme Court has ruled that although CWC section 13263 requires the State and Regional Water Boards (collectively Water Boards) to consider factors set forth in CWC section 13241 when issuing an NPDES permit, the Water Board may not consider the factors to justify imposing pollutant restrictions that are less stringent than the applicable federal regulations require. (*City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613, 618, 626-627.) However, when pollutant restrictions in an NPDES permit are more stringent than federal law requires, CWC section 13263 requires that the Water Boards consider the factors described in CWC section 13241 as they apply to those specific restrictions.

Comment [A11]: See discussion in section 3.1.2 of the Comment Letter and also Legal Comments..

As noted in the following finding, the San Diego Water Board finds that the requirements in this permit are not more stringent than the minimum federal requirements. Therefore, a CWC section 13241 analysis is not required for permit requirements that implement the effective prohibition on the discharge of non-storm water into the MS4 or for controls to reduce the discharge of pollutants ~~in storm water~~ to the MEP, or other provisions that the San Diego Water Board has determined appropriate to control such pollutants, as those requirements are mandated by federal law. Notwithstanding the above, the San Diego Water Board has developed an economic analysis of the requirements in this Order. The economic analysis is provided in the Fact Sheet.

29. ~~**Unfunded Mandates.** This Order does not constitute an unfunded local government mandate subject to subvention under Article XIIIB, Section (6) of the California Constitution for several reasons, including, but not limited to, the following:~~

Comment [A12]: See discussion in section 3.1.2 of the comment letter and in the Legal Comments.

~~**a.** This Order implements federally mandated requirements under CWA section 402 (33 USC section 1342(p)(3)(B)).~~

~~**b.** The local agency Copermittees' obligations under this Order are similar to, and in many respects less stringent than, the obligations of non-governmental and new dischargers who are issued NPDES permits for storm water and non-storm water discharges.~~

~~**c.** The local agency Copermittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order.~~

~~**d.** The Copermittees have requested permit coverage in lieu of compliance with the complete effective prohibition against the discharge of pollutants contained in CWA section 301(a) (33 USC section 1311(a)) and in lieu of numeric restrictions on their MS4 discharges (i.e. effluent limitations).~~

~~**e.** The local agencies' responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under State law predates the enactment of Article XIIIB, Section (6) of the California Constitution.~~

~~f. The provisions of this Order to implement TMDLs are federal mandates. The CWA requires TMDLs to be developed for water bodies that do not meet federal water quality standards (33 USC section 1313(d)). Once the USEPA or a state develops a TMDL, federal law requires that permits must contain water quality based effluent limitations consistent with the assumptions and requirements of any applicable wasteload allocation (40 CFR 122.44(d)(1)(vii)(B)).~~

~~See the Fact Sheet for further discussion of unfunded mandates.~~

30. **California Environmental Quality Act.** The issuance of waste discharge requirements and an NPDES permit for the discharge of runoff from MS4s to waters of the U.S. is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, Chapter 3, section 21000 et seq.) in accordance with CWC section 13389.

STATE WATER BOARD DECISIONS

31. **Compliance with Prohibitions and Limitations.** The receiving water limitation language specified in this Order is consistent with language recommended by the USEPA and established in State Water Board Order WQ 99-05, *Own Motion Review of the Petition of Environmental Health Coalition to Review Waste Discharge Requirements Order No. 96-03, NPDES Permit No. CAS0108740*, adopted by the State Water Board on June 17, 1999. The receiving water limitation language in this Order requires storm water discharges from MS4s to not cause or contribute to a violation of water quality standards, which is to be achieved through an iterative approach requiring the implementation of improved and better-tailored BMPs over time. Implementation of the iterative approach to comply with receiving water limitations based on applicable water quality standards is necessary to ensure that Pollutant ~~storm water~~ discharges from the MS4 will not ultimately cause or contribute to violations of water quality standards and will not create conditions of pollution, contamination, or nuisance.

Comment [A13]: See discussion in section 3.1.2 of the comment letter.

Comment [A14]: Please see discussion in section 3.1.2 of the Comment Letter and Legal Comments.

32. **Special Conditions for Areas of Special Biological Significance.** On March 20, 2012, the State Water Board approved Resolution No. 2012-0012 approving an exception to the Ocean Plan effective prohibition against discharges to Areas of Special Biological Significance (ASBS) for certain nonpoint source discharges and NPDES permitted municipal storm water discharges. State Water Board Resolution No. 2012-0012 requires monitoring and testing of marine aquatic life and water quality in several ASBS to protect California's coastline during storms when rain water overflows into coastal waters. Specific terms, effective prohibitions, and special conditions were adopted to provide special protections for marine aquatic life and natural water quality in ASBS. The City of San Diego's municipal storm water discharges to the San Diego Marine Life Refuge in La Jolla, and the City of Laguna Beach's municipal storm water discharges to the Heisler Park ASBS are subject terms and conditions of State Water Board Resolution No. 2012-0012. The Special

Protections contained in Attachment B to Resolution No. 2012-0012, applicable to these discharges, are hereby incorporated into this Order as if fully set forth herein.

ADMINISTRATIVE FINDINGS

33. **Executive Officer Delegation of Authority.** The San Diego Water Board by prior resolution has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf pursuant to CWC section 13223. Therefore, the Executive Officer is authorized to act on the San Diego Water Board's behalf on any matter within this Order unless such delegation is unlawful under CWC section 13223 or this Order explicitly states otherwise.

34. **Standard Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment B to this Order.

35. **Fact Sheet.** The Fact Sheet for this Order contains background information, regulatory and legal citations, references and additional explanatory information and data in support of the requirements of this Order. The Fact Sheet is hereby incorporated into this Order and constitutes part of the Findings of this Order.

36. **Public Notice.** In accordance with State and federal laws and regulations, the San Diego Water Board notified the Copermittees, and interested agencies and persons of its intent to prescribe waste discharge requirements for the control of discharges into and from the MS4s to waters of the U.S. and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet.

37. **Public Hearing.** The San Diego Water Board held a public hearing on Month Day, 2013 and heard and considered all comments pertaining to the terms and conditions of this Order. Details of the public hearing are provided in the Fact Sheet.

38. **Effective Date.** This Order serves as an NPDES permit pursuant to CWA section 401 or amendments thereto, and becomes effective fifty (50) days after the date of its adoption, provided that the Regional Administrator, USEPA, Region IX, does not object to this Order.

39. **Review by the State Water Board.** Any person aggrieved by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with CWC section 13320 and California Code of Regulations, title 23, sections 2050, et seq. The State Water Board must receive the petition by 5:00 p.m., 30 days after the San Diego Water Board action, except that if the thirtieth day following the action falls on a Saturday, Sunday or State holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the

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Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

THEREFORE, IT IS HEREBY ORDERED that the Copermittees, in order to meet the provisions contained in division 7 of the CWC and regulations adopted thereunder, and the provisions of the CWA and regulations adopted thereunder, must each comply with the following:

II. PROVISIONS

A. PROHIBITIONS AND LIMITATIONS

The purpose of this provision is to describe the conditions under which storm water and non-storm water discharges into and from MS4s are to be effectively prohibited or limited. The goal of the prohibitions and limitations is to protect the water quality and designated beneficial uses of waters of the state from adverse impacts caused or contributed to by MS4 discharges. This goal will be accomplished through the implementation of water quality improvement strategies and runoff management programs that effectively prohibit non-storm water discharges into the Copermittees' MS4s, and reduce pollutants in ~~storm water~~ discharges from the Copermittees' MS4s to the MEP. The process for determination of compliance with the Discharge Prohibitions (A.1), Receiving Water Limitations (A.2), and Effluent Limitations (A.3) is defined in Provisions A.3.b and A.4.

1. Discharge Prohibitions

a. Discharges from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance in receiving waters ~~of the state~~ are to be ~~prohibited.~~ effectively prohibited, unless the Regional Board determines such discharges are addressed by the Copermittee through A.3.b or A.4, including any modifications.~~prohibited.~~

b. Non-storm water discharges into MS4s are to be effectively prohibited through a program consistent with the requirements of provision E.2. of this order, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the MS4, unless such discharges are either authorized by a separate NPDES permit, or the discharge is a category of non-storm water discharges or flows that must be addressed pursuant to Provisions E.2.a.(1)-(5) of this Order.

c. Discharges from MS4s are subject to all applicable waste discharge prohibitions in the Basin Plan, included in Attachment A to this Order, unless the Regional Board determines such discharges are addressed by the Copermittee through A.3.b or A.4, including any modifications.

d. Storm water discharges from the City of San Diego's MS4 to the San Diego Marine Life Refuge in La Jolla, and the City of Laguna Beach's MS4 to the Heisler Park ASBS are authorized under this Order subject to the Special Protections contained in Attachment B to State Water Board Resolution No.

Comment [A15]: See discussion in section 3.2 of the comment letter.

Comment [A16]: See discussion in section 3.2.2 of the comment letter.

Comment [A17]: See discussion in section 3.2.2 of the comment letter.

Comment [A18]: See discussion in section 3.2.2 of the comment letter.

2012-0012 applicable to these discharges, included in Attachment A to this Order. All other discharges from the Copermittees' MS4s to ASBS are ~~to be effectively~~ prohibited.

2. Receiving Water Limitations

Comment [A19]: See discussion in section 3.2.2 of the comment letter.

a. Discharges from MS4s must not cause or contribute to the violation of water quality standards in any receiving waters, including but not limited to all applicable provisions ~~contained in:~~below, unless the Regional Board determines such discharges are addressed by the Copermittee through A.3.b or A.4::~~contained in:~~

(1) The San Diego Water Board's Basin Plan, including beneficial uses, water quality objectives, and implementation plans;

(2) State Water Board plans for water quality control including the following:

(a) Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries (Thermal Plan), and

(b) The Ocean Plan, including beneficial uses, water quality objectives, and implementation plans;

(3) State Water Board policies for water and sediment quality control including the following:

(a) Water Quality Control Policy for the Enclosed Bays and Estuaries of California,

(b) Sediment Quality Control Plan which includes the following narrative objectives for bays and estuaries:

(i) Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities, and

(ii) Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health,

(c) The Statement of Policy with Respect to Maintaining High Quality of Waters in California;[1]

(4) Priority pollutant criteria promulgated by the USEPA through the following:

[1] State Water Board Resolution No. 68-16

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(a) National Toxics Rule (NTR)[2] (promulgated on December 22, 1992 and amended on May 4, 1995), and

(b) California Toxics Rule (CTR).[3,4]

b. Discharges from MS4s composed of storm water runoff must not alter natural ocean water quality in an ASBS.

[2] 40 CFR 131.36
[3] 65 Federal Register 31682-31719 (May 18, 2000), adding Section 131.38 to 40 CFR
[4] If a water quality objective and a CTR criterion are in effect for the same priority pollutant, the more stringent of the two applies.

3. Effluent Limitations

a. TECHNOLOGY BASED EFFLUENT LIMITATIONS

Comment [A20]: See discussion in section 3.2.2 of the comment letter.

Pollutants in ~~storm water~~ discharges from MS4s must be reduced to the MEP.[5]

b. WATER QUALITY BASED EFFLUENT LIMITATIONS

This Order establishes water quality based effluent limitations (WQBELs) consistent with the assumptions and requirements of all available TMDL waste load allocations (WLAs) assigned to discharges from the Copermittees' MS4s. Each Copermittee must comply with applicable WQBELs established for the TMDLs in Attachment E to this Order, pursuant to the applicable TMDL compliance schedules.

4. Compliance with Discharge Prohibitions and Receiving Water Limitations

Comment [A21]: See discussion in section 3.2.2 of the comment letter.

Each Copermittee must achieve compliance with Provisions A.1.a~~,~~ through A.1.c and A.2.a of this Order through timely implementation of control measures and other actions as specified in Provisions B and E of this Order, including any modifications. The Water Quality Improvement Plans required under Provision B must be designed and adapted to ultimately achieve compliance with Provisions A.1.a~~,~~ through A.1.c and A.2.a~~.~~, as described in Provision B.2.~~.~~

a. If exceedance(s) of water quality standards persist in receiving waters notwithstanding implementation of this Order, the Copermittees must comply with the following procedures:

(1) For exceedance(s) of a water quality standard in the process of being addressed by the Water Quality Improvement Plan, the Copermittee(s) must implement the Water Quality Improvement Plan as accepted by the San Diego Water Board, and update the Water Quality Improvement Plan, as necessary, pursuant to Provision F.2.c;

(2) Upon a determination by either the Copermittees or the San Diego Water Board that discharges from the MS4 are causing or contributing to a new exceedance of an applicable water quality standard not addressed by the Water Quality Improvement Plan, the Copermittees must submit the following updates to the Water Quality Improvement Plan pursuant to Provision F.2.c or as part of the Annual Report required under Provision F.3.b, unless the San

[5] This does not apply to MS4 discharges which receive subsequent treatment to reduce pollutants in storm water discharges to the MEP prior to entering receiving waters (e.g., low flow diversions to the sanitary sewer). Runoff treatment must occur prior to the discharge of runoff into receiving waters per Finding 7.

Diego Water Board directs an earlier submittal:

(a) The water quality improvement strategies being implemented that are effective and will continue to be implemented,

(b) Water quality improvement strategies (i.e. BMPs, retrofitting projects, stream and/or habitat rehabilitation or restoration projects, adjustments to jurisdictional runoff management programs, etc.) that will be implemented to reduce or eliminate any pollutants or conditions that are causing or contributing to the exceedance of water quality standards,

(c) Updates to the schedule for implementation of the existing and additional water quality improvement strategies, and

(d) Updates to the monitoring and assessment program to track progress toward achieving compliance with Provisions A.1.a, A.1.c and A.2.a of this Order;

(3) The San Diego Water Board may require the incorporation of additional modifications to the Water Quality Improvement Plan required under Provision B. The applicable Copermittees must submit any modifications to the update to the Water Quality Improvement Plan within 90 days of notification that additional modifications are required by the San Diego Water Board, or as otherwise directed;

(4) Within 90 days of the San Diego Water Board determination that the update to the Water Quality Improvement Plan meets the requirements of this Order, the applicable Copermittees must revise the jurisdictional runoff management program documents to incorporate the updated water quality improvement strategies that have been and will be implemented, the implementation schedule, and any additional monitoring required; and

(5) Each Copermittee must implement the updated Water Quality Improvement Plan.

b. The procedure set forth above to achieve compliance with Provisions A.1.a, A.1.c and A.2.a of this Order do not have to be repeated for continuing or recurring exceedances of the same water quality standard(s) following implementation of scheduled actions unless directed to do otherwise by the San Diego Water Board.

c. Nothing in Provisions A.4.a and A.4.b prevents the San Diego Water Board from enforcing any of provisions B through I of this Order while the applicable Copermittees prepare and implement the above update to the Water Quality Improvement Plan and jurisdictional runoff management programs.

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B. WATER QUALITY IMPROVEMENT PLANS

The purpose of this provision is to develop Water Quality Improvement Plans (WQIPs) that guide the Copermittees' jurisdictional runoff management programs towards achieving the outcome of improved water quality in MS4 discharges and receiving waters. The goal of the Water Quality Improvement Plans is to ~~protect, preserve, enhance, and restorerestore the~~address the impacts of MS4 discharges so that such discharges do not impair water quality and designated beneficial uses of receiving waters~~. of the state.~~ Therefore, implementation of the WQIPs also provides the basis for complying with Provisions II.A.1, II.A.2, and II.A.3, as described in Provision II.A.4. This goal will be accomplished through an adaptive planning and management process that identifies the highest priority water quality conditions within a watershed and implements strategies through the jurisdictional runoff management programs to achieve improvements in the quality of discharges from the MS4s ~~and~~ to receiving waters. As such, the requirements outlined in Provision E may be modified for consistency with the WQIP priorities for the applicable Watershed Management Area, if appropriate justification is provided approved within the WQIP.

Comment [A22]: See section 3.3 of the comment letter for discussions of the changes requested herein.

Comment [A23]: See discussion in section 3.3.2 of the comment letter.

1. Watershed Management Areas

Comment [A24]: See discussion in section 3.3.2 of the comment letter.

The Copermittees must develop a Water Quality Improvement Plan for each of the Watershed Management Areas in Table B-1. A total of ten Water Quality Improvement Plans must be developed for the San Diego Region.

Development of the Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area shall commence upon notification of coverage of the Riverside County Copermittees under this Order. Until this time, the County of San Diego shall use the water quality priorities in the Santa Margarita River Watershed Urban Runoff Management Plan, developed pursuant to Order No. R9-2007-0001, to guide implementation of Provisions D and E within its jurisdiction

Table B-1. Watershed Management Areas

Hydrologic Unit(s)	Watershed Management Area	Major Surface Water Bodies	Responsible Copermittees
San Juan (901.00)	South Orange County	- Aliso Creek - San Juan Creek - San Mateo Creek - Pacific Ocean - Heisler Park ASBS	- City of Aliso Viejo[1] - City of Dana Point[1] - City of Laguna Beach[1] - City of Laguna Hills[1] - City of Laguna Niguel[1] - City of Laguna Woods[1] - City of Lake Forest[1] - City of Mission Viejo[1] - City of Rancho Santa Margarita[1] - City of San Clemente[1] - City of San Juan Capistrano[1] - County of Orange[1] - Orange County Flood Control District[1]

Table B-1. Watershed Management Areas

Hydrologic Unit(s)	Watershed Management Area	Major Surface Water Bodies	Responsible Copermittees
Santa Margarita (902.00)	Santa Margarita River	- Murrieta Creek - Temecula Creek - Santa Margarita River - Santa Margarita Lagoon - Pacific Ocean	- City of Murrieta[2] - City of Temecula[2] - City of Wildomar[2] - County of Riverside[2] - County of San Diego[3] - Riverside County Flood Control and Water Conservation District[2]
San Luis Rey (903.00)	San Luis Rey River	- San Luis Rey River - San Luis Rey Estuary - Pacific Ocean	- City of Oceanside - City of Vista - County of San Diego
Carlsbad (904.00)	Carlsbad	- Loma Alta Slough - Buena Vista Lagoon - Agua Hedionda Lagoon - Batiquitos Lagoon - San Elijo Lagoon - Pacific Ocean	- City of Carlsbad - City of Encinitas - City of Escondido - City of Oceanside - City of San Marcos - City of Solana Beach - City of Vista - County of San Diego
San Dieguito (905.00)	San Dieguito River	- San Dieguito River - San Dieguito Lagoon - Pacific Ocean	- City of Del Mar - City of Escondido - City of Poway - City of San Diego - City of Solana Beach - County of San Diego
Penasquitos (906.00)	Penasquitos	- Los Penasquitos Lagoon - Pacific Ocean	- City of Del Mar - City of Poway - City of San Diego - County of San Diego
	Mission Bay	- Mission Bay - Pacific Ocean - San Diego Marine Life Refuge ASBS	- City of San Diego
San Diego (907.00)	San Diego River	- San Diego River - Pacific Ocean	- City of El Cajon - City of La Mesa - City of San Diego - City of Santee - County of San Diego
Pueblo San Diego (908.00) Sweetwater (909.00) Otay (910.00)	San Diego Bay	- Sweetwater River - Otay River - San Diego Bay - Pacific Ocean	- City of Chula Vista - City of Coronado - City of Imperial Beach - City of La Mesa - City of Lemon Grove - City of National City - City of San Diego - County of San Diego - San Diego County Regional Airport Authority - San Diego Unified Port District
Tijuana (911.00)	Tijuana River	- Tijuana River - Tijuana Estuary - Pacific Ocean	- City of Imperial Beach - City of San Diego - County of San Diego

Notes:
1. The Orange County Copermittees will be covered under this Order after expiration of Order No. R9-2009-0002, or earlier if the Orange County Copermittees meet the conditions in Provision F.6.
2. The Riverside County Copermittees will be covered under this Order after expiration of Order No. R9-2010-0016, or earlier if the Riverside County Copermittees meet the conditions in Provision F.6.
3. The County of San Diego is required to implement the requirements of Provision B for its jurisdiction within the Santa

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Margarita River Watershed Management Area until the Riverside County Copermittees have been notified of coverage under this Order.

2. Priority Water Quality Conditions

The Copermittees must identify the water quality priorities within each Watershed Management Area that will be addressed by the Water Quality Improvement Plan. Where appropriate, Watershed Management Areas may be separated into subwatersheds to focus water quality prioritization and jurisdictional runoff management program implementation efforts by receiving water.

a. ASSESSMENT OF RECEIVING WATER CONDITIONS

The Copermittees must consider the following, at a minimum, to identify water quality priorities based on impacts of MS4 discharges on receiving water beneficial uses:

(1) Receiving waters listed as impaired on the CWA Section 303(d) List of Water Quality Limited Segments (303(d) List);

(2) TMDLs adopted and under development by the San Diego Water Board;

(3) Receiving waters recognized as sensitive or highly valued by the Copermittees, including estuaries designated under the National Estuary Program under CWA section 320, wetlands defined by the State or U.S. Fish and Wildlife Service's National Wetlands Inventory as wetlands, and receiving waters identified as ASBS subject to the provisions of Attachment B to State Water Board Resolution No. 2012-0012 (Attachment A);

(4) The receiving water limitations of Provision A.2;

(5) Known historical versus current physical, chemical, and biological water quality conditions;

(6) Available, relevant, and appropriately collected and analyzed physical, chemical, and biological receiving water monitoring data, including, but not limited to, data describing:

(a) Chemical constituents,

(b) Water quality parameters (i.e. pH, temperature, conductivity, etc.),

(c) Toxicity Identification Evaluations for both receiving water column and sediment,

(d) Trash impacts,

(e) Bioassessments, and

(f) Physical habitat;

(7) Available evidence of erosional impacts in receiving waters due to accelerated flows (i.e. hydromodification);

(8) Available evidence of adverse impacts to the chemical, physical, and biological integrity of receiving waters; and

(9) The potential improvements in the overall condition of the Watershed Management Area that can be achieved.

b. ASSESSMENT OF IMPACTS FROM MS4 DISCHARGES

The Copermittees must consider the following, at a minimum, to identify the potential impacts to receiving waters that may be caused or contributed to by discharges from the Copermittees' MS4s:

(1) The discharge prohibitions of Provision A.1 and effluent limitations of Provision A.3; and

(2) Available, relevant, and appropriately collected and analyzed storm water and non-storm water monitoring data from the Copermittees' MS4 outfalls;

(3) Locations of each Copermittee's MS4 outfalls that discharge to receiving waters;

(4) Locations of MS4 outfalls that are known to persistently discharge non-storm water to receiving waters likely causing or contributing to impacts on receiving water beneficial uses;

(5) Locations of MS4 outfalls that are known to discharge pollutants in storm water causing or contributing to impacts on receiving water beneficial uses; and

(6) The potential improvements in the quality of discharges from the MS4 that can be achieved.

c. IDENTIFICATION OF PRIORITY WATER QUALITY CONDITIONS

(1) The Copermittees must use the information gathered for Provisions B.2.a and B.2.b to develop a list of priority water quality conditions as pollutants, stressors and/or receiving water conditions that are the highest threat to receiving water quality or that most adversely affect the physical, chemical, and biological integrity of receiving waters. The list must include the following information for each priority water quality condition:

(a) The beneficial use(s) associated with the priority water quality condition;

(b) The geographic extent of the priority water quality condition within the Watershed Management Area, if known;

(c) The temporal extent of the priority water quality condition (e.g., dry weather and/or wet weather);

(d) The Copermittees with MS4s discharges that may cause or contribute to the priority water quality condition; and

(e) An assessment of the adequacy of and data gaps in the monitoring data to characterize the conditions causing or contributing to the priority water quality condition, including a consideration of spatial and temporal variation.

(2) The Copermittees must identify the highest priority water quality conditions to be addressed by the Water Quality Improvement Plan, and provide a rationale for selecting a subset of the water quality conditions identified pursuant to Provision B.2.c.(1) as the highest priorities.

d. IDENTIFICATION OF MS4 SOURCES OF POLLUTANTS AND/OR STRESSORS

The Copermittees must identify and prioritize known and suspected sources of storm water and non-storm water pollutants and/or other stressors within their jurisdiction, associated with MS4 discharges that cause or contribute to the highest priority water quality conditions identified under Provision B.2.c. ~~The identification of known and suspected sources of pollutants and/or stressors that cause or contribute to the highest priority water quality conditions as identified for Provision B.2.c must~~ considering the following:

(1) Pollutant generating facilities, areas, and/or activities within the Watershed Management Area, including:

(a) Each Copermittee's inventory of construction sites, commercial facilities or areas, industrial facilities, municipal facilities, and residential areas,

(b) Publicly owned parks and/or recreational areas,

(c) Open space areas,

(d) All currently operating or closed municipal landfills or other treatment, storage or disposal facilities for municipal waste,,, and

(e) Areas not within the Copermittees' jurisdictions (e.g., Phase II MS4s, tribal lands, state lands, federal lands) that are known or suspected to be discharging to the Copermittees' MS4s;

(2) Locations of the Copermittees' MS4s, including the following:

(a) All major MS4 outfalls [per 40CFR 122.26 (b)(5)] that discharge to receiving waters, and

(b) Locations of major structural controls for storm water and non-storm water (e.g., retention basins, detention basins, major infiltration devices, etc.);

(3) Other known and suspected sources of non-storm water or pollutants in storm water discharges to receiving waters within the Watershed Management Area, including the following:

(a) Other MS4 outfalls (e.g., Phase II Municipal and Caltrans),

(b) Other NPDES permitted discharges,

(c) Any other discharges that may be considered point sources (e.g., private outfalls), and

(d) Any other discharges that may be considered non-point sources (e.g., agriculture, wildlife or other natural sources);

(4) Review of available data, including but not limited to:

(a) Findings from the Copermittees' illicit discharge detection and elimination programs,

(b) Findings from the Copermittees' MS4 outfall discharge monitoring,

(c) Findings from the Copermittees' receiving water monitoring,

(d) Findings from the Copermittees' MS4 outfall discharge and receiving water assessments, and

(e) Other available, relevant, and appropriately collected data, information, or studies related to pollutant sources and/or stressors that contribute to the highest priority water quality conditions as identified for Provision B.2.c.

(5) The adequacy of the available data to identify and prioritize sources and/or stressors associated with MS4 discharges that cause or contribute to the highest priority water quality conditions identified under Provision B.2.c.

e. NUMERIC GOALS AND SCHEDULES

Comment [A25]: See discussion in section 3.3.2 of the comment letter.

The Copermittees must develop and incorporate action levels, interim and final numeric goals[6] and schedules into the Water Quality Improvement Plan. Numeric goals must be used to support Water Quality Improvement Plan implementation and measure progress towards addressing the highest priority water quality conditions identified under Provision B.2.c. . Action Levels, Numeric goals are not enforceable compliance standards, effluent limitations, or receiving water limitations. When establishing numeric goals and corresponding schedules, the Copermittees must consider the following:

(1) Final numeric goals must be based on measureable criteria or indicators, to be achieved in ~~the receiving waters and/or~~ MS4 discharges for the highest priority water quality conditions which will ~~be capable of demonstrating the achievement of the restoration and/or protection~~ comply with the Receiving Water Limitations (A.2) of this Order; ~~water quality standards in receiving waters;~~

(2) Interim numeric goals must be based on measureable criteria or indicators capable of demonstrating incremental progress toward achieving the final numeric goals in the receiving waters and/or MS4 discharges; and

(3) Schedules must be adequate for measuring progress toward achieving the interim and final numeric goals required for Provisions B.2.e.(1) and B.2.e.(2). Schedules must incorporate the following:

(a) Interim dates for achieving the interim numeric goals,

(b) Compliance schedules for any applicable TMDLs in Attachment E to this Order,

(c) Compliance schedules for any ASBS subject to the provisions of Attachment B to State Water Board Resolution No. 2012-0012 (see Attachment A),

(d) Achievement of the final numeric goals in the receiving waters and/or MS4 discharges for the highest water quality priorities must be as soon as possible, and

[6] Interim and final numeric goals may take a variety of forms such as TMDL established WQBELs, action levels, pollutant concentration, load reductions, number of impaired water bodies delisted from the List of Water Quality Impaired Segments, Index of Biotic Integrity (IBI) scores, or other appropriate metrics. Interim and final numeric goals are not necessarily limited to one criterion or indicator, but may include multiple criteria and/or indicators. Except for TMDL established WQBELs, interim and final numeric goals and corresponding schedules may be revised through the adaptive management process under Provision B.5.

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(e) Final dates for achieving the final numeric goals must not initially extend more than 10 years beyond the effective date of this Order, unless a longer period of time is authorized by the San Diego Water Board Executive Officer through an approved WQIP or the schedule includes an applicable TMDL in Attachment E to this Order[7].

Comment [A26]: Clarify that a longer period can be granted through the WQIP process.

[7] Achievement of final numeric goals within 10 years represents progress towards attainment of water quality standards, but is not a requirement to fully attain all applicable water quality standards or all priority receiving water conditions within 10 years.

3. Water Quality Improvement Strategies and Schedules

Comment [A27]: See discussion in section 3.3.2 of the comment letter.

The Copermittees must develop specific water quality improvement strategies to address the highest priority water quality conditions identified within a Watershed Management Area. The water quality improvement strategies must address the highest priority water quality conditions by ensuring the effective prohibition of~~preventing or eliminating~~ non-storm water discharges to and from the MS4, reducing pollutants in ~~storm water~~ discharges from the MS4 to the MEP, as applicable to the priority water quality conditions established per provision B.2. ~~and restoring and/or protecting the water quality standards of receiving waters~~.

a. Water Quality Improvement Strategies

The Copermittees must identify and prioritize water quality improvement strategies based on their likely effectiveness and efficiency, and design the JRMP programs to focus resources on those strategies to~~implement strategies to effectively prohibit non-storm water discharges to the MS4, reduce pollutants in storm water discharges from the MS4 to the MEP, improve the physical, chemical, and biological receiving water conditions, and~~ achieve the interim and final numeric goals in accordance with the schedules required for Provision B.2.e.(3). The following water quality improvement strategies must be included and described in the Water Quality Improvement Plan:

(1) Specific strategies and/or activities that may be implemented by one or more Copermittees within their jurisdictions through the jurisdictional runoff management programs that will address the highest priority water quality conditions within the Watershed Management Area, in accordance with the following requirements:

(a) Strategies and/or activities must, at a minimum, be described for each jurisdictional runoff management program component where strategies to address the highest priority water quality conditions are required under Provision E;

(b) The Water Quality Improvement Plan must describe the circumstances or conditions when and where the strategies or/activities should be or will be implemented, but specific details about how each Copermittee will implement the strategies and/or activities within its jurisdiction are not required; and

(c) Descriptions of strategies and/or activities must include any monitoring, information collection, special studies, and/or data analysis that is necessary to assess the effectiveness of the strategy and/or activity toward addressing the highest priority water quality conditions.

(2) Additional strategies and/or activities that may be implemented within the Watershed Management Area on a jurisdictional, sub-watershed, or watershed scale by one or more Copermittees, not specifically required under

Provision E, which are designed to achieve the interim and final numeric goals identified in Provisions B.2.e.(1) and B.2.e.(2);

b. IMPLEMENTATION SCHEDULES

(1) The Copermittees must develop schedules for implementing the water quality improvement strategies identified under Provision B.3.a to achieve the interim and final numeric goals identified under Provision B.2.e.(1) and B.2.e.(2). Schedules must be developed for both the water quality improvement strategies implemented by each Copermittee within its jurisdiction and for strategies that the Copermittees choose to implement on a collaborative basis.

(2) The Copermittees must incorporate the implementation compliance schedules for any ASBS subject to the provisions of Attachment B to State Water Board Resolution No. 2012-0012 (see Attachment A).

4. Water Quality Improvement Monitoring and Assessment Program

a. The Copermittees in each Watershed Management Area must develop and incorporate an integrated monitoring and assessment program into the Water Quality Improvement Plan that assesses: 1) the progress toward achieving the numeric goals and schedules, 2) the progress toward addressing the highest priority water quality conditions for each Watershed Management Area, and 3) each Copermittee's overall efforts to implement the Water Quality Improvement Plan.

b. The monitoring and assessment program must incorporate the monitoring and assessment requirements of Provision D, which may allow the Copermittees to modify the program to be consistent with and focus on the highest priority water quality conditions for each Watershed Management Area.

c. For Watershed Management Areas with applicable TMDLs, the monitoring and assessment program must incorporate the specific monitoring and assessment requirements of Attachment E.

d. For Watershed Management Areas with any ASBS, the water quality monitoring and assessment program must incorporate the monitoring requirements of Attachment B to State Water Board Resolution No. 2012-0012 (see Attachment A).

5. Iterative Approach and Adaptive Management Process

Comment [A28]: See discussion in section 3.3.2 of the comment letter.

The Copermittees in each Watershed Management Area must implement the iterative approach pursuant to Provision A.4 to adapt the Water Quality Improvement Plan, monitoring and assessment program, and jurisdictional runoff management

programs to become more effective toward achieving compliance with Provisions A.1, A.2, and A.3.~~A.1.a, A.1.c and A.2.a~~, and must include the following:

a. Re-Evaluation of Priority Water Quality Conditions

The priority receiving water quality conditions, and numeric goals and corresponding schedules, included in the Water Quality Improvement Plan pursuant to Provisions B.2.c and B.2.e, may be re-evaluated by the Copermittees as needed during the term of this Order as part of the Annual Report. Re-evaluation and recommendations for modifications to the priority water quality conditions, and numeric goals and corresponding schedules must be provided in the Regional Monitoring and Assessment Report pursuant to F.3.c~~Report of Waste Discharge~~, and must consider the following:

(1) Achieving the outcome of improved water quality in MS4 discharges and receiving waters through implementation of the water quality improvement strategies identified in the Water Quality Improvement Plan;

(2) Progress toward achieving interim and final numeric goals in receiving waters and/or MS4 discharges for the highest priority water quality conditions in the Watershed Management Area,

(3) Progress toward achieving outcomes according to established schedules;

(4) New information developed when the requirements of Provisions B.2.a-c have been re-evaluated;

(5) New policies or regulations that may affect identified numeric goals;

(6) Spatial and temporal accuracy of monitoring data collected to inform prioritization of water quality conditions and implementation strategies to address the highest priority water quality conditions;

(7) Availability of new information and data from sources other than the jurisdictional runoff management programs within the Watershed Management Area that informs the effectiveness of the actions implemented by the Copermittees;

(8) San Diego Water Board recommendations; and

(9) Recommendations for modifications solicited through a public participation process.

b. Adaptation of Strategies and Schedules

The water quality improvement strategies and schedules, included in the Water Quality Improvement Plan pursuant to Provisions B.3, must be re-evaluated and adapted as new information becomes available to result in more effective and efficient measures to achieve the numeric goals established pursuant to

Provision B.2.e. Re-evaluation of and modifications to the water quality improvement strategies, if determined to be necessary, must be provided in the applicable Annual Report per F.3.b.(3)., and must consider the following:

(1) Modifications to the priority water quality conditions, and numeric goals and corresponding schedules based on Provision B.5.a;

(2) Measurable or demonstrable reductions of non-storm water discharges to and from each Copermittee's MS4;

(3) Measurable or demonstrable reductions of pollutants in ~~storm water~~ discharges from each Copermittee's MS4 to the MEP;

(4) New information developed when the requirements of Provisions B.2.b and B.2.d have been re-evaluated;

(5) Efficiency in implementing the Water Quality Improvement Plan;

(6) San Diego Water Board recommendations; and

(7) Recommendations for modifications solicited through a public participation process.

c. ADAPTATION OF MONITORING AND ASSESSMENT PROGRAM

The water quality improvement monitoring and assessment program, included in the Water Quality Improvement Plan pursuant to Provisions B.4, must be re-evaluated and adapted when new information becomes available. Re-evaluation and recommendations for modifications to the monitoring and assessment program, pursuant to the requirements of Provision D, may be provided in the Annual Report, but must be provided in the Report of Waste Discharge.

6. Water Quality Improvement Plan Submittal, Updates, and Implementation

a. The Copermittees must submit the Water Quality Improvement Plans in accordance with the requirements of Provision F.1.

b. The Copermittees must submit proposed updates to the Water Quality Improvement Plan for acceptance by the San Diego Water Board Executive Officer in accordance with the requirements of Provision F.2.c.

c. The Copermittees must commence with implementation of the Water Quality Improvement Plans ~~immediately after acceptance by the San Diego Water Board, in accordance with the schedules, or subsequently updated schedules, within the Water Quality Improvement Plan.~~in accordance with Provision F.1.b.(5).

Riverside Copermittee Redlines

C. ACTION LEVELS

Comment [A29]: See comment letter section 3.4 for a discussion of the redlines shown herein.

The purpose of this provision is for the Copermittees to incorporate numeric non-stormwater action levels (NALs) and stormwater action levels (SALs) in the Water Quality Improvement Plans (Provision B), and numeric non-stormwater action levels (NALs) in the Illicit Discharge Detection and Elimination (IDDE) program (Provision E.2.).

- For the purposes of the WQIPs, ~~T~~the goal of the action levels is to guide ~~Water Quality Improvement Plan~~ the implementation efforts and measure progress towards the protection of the identified high priority water quality conditions and associated designated beneficial uses of waters of the state from adverse impacts caused or contributed to by MS4 discharges. This goal will be accomplished through monitoring and assessing the quality of the MS4 discharges during the implementation of the Water Quality Improvement Plans.

- For the purposes of the IDDE program, the goal of the non-stormwater action levels is to assist in determining whether a persistent non-stormwater discharge into or from the MS4 contains pollutants at levels that have the potential to negatively affect the identified high priority water quality conditions.

Action levels will be developed and incorporated into the WQIP (Provision B) and the IDDE Program (Provision E). Depending upon the goals/objectives for the use of the action levels and the priority receiving water conditions, the constituents and values at which they are set may differ between watersheds. Copermittees may develop Watershed Management Area specific numeric action levels for non-stormwater and stormwater MS4 discharges using an approach approved by the Regional Board or use the default non-stormwater and stormwater action levels prescribed in C.1 and C.2 below.

The Copermittees will submit the action levels as a part of the WQIP and JRMP submittals. The action levels currently established will serve as the interim action levels until revised action levels are completed and approved. Exceedances of the action levels are not subject to enforcement or non-compliance actions under this Order.

1. Default Non-Storm Water Action Levels[8]

~~The Copermittees must develop and incorporate numeric non-storm water action levels (NALs) into the Water Quality Improvement Plan to: 1) support the development and prioritization of water quality improvement strategies for addressing non-storm water discharges to and from the MS4s, 2) assess the effectiveness of the water quality improvement strategies toward addressing MS4~~

Comment [A30]: As discussed in section 2.4 of the Riverside comment letter.

[8] NALs are not ~~considered by the San Diego Water Board to be~~ enforceable limitations under this Order.

~~non-storm water discharges, required pursuant to Provision D.4.b.(1), and 3) support the detection and elimination of non-storm water and illicit discharges to and from the MS4, required pursuant to Provision E.2.~~[9]

a. The following NALs must be incorporated as applicable to the WMA and the Copermittees' MS4 discharges, ~~:~~ if the Copermittees do not establish numeric action levels within the WQIP based on watershed priorities:

(1) Non-Storm Water Discharges from MS4s to Ocean Surf Zone

Table C-1. Non-Storm Water Action Levels for Discharges from MS4s to Ocean Surf Zone

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Total Coliform	MPN/100 ml	1,000	-	10,000/1,000[1]	OP
Fecal Coliform	MPN/100 ml	200[2]	-	400	OP
Enterococci	MPN/100 ml	35	-	104[3]	OP

Abbreviations/Acronyms
AMAL – average monthly action level
MDAL – maximum daily action level
OP – Ocean Plan water quality objective
MPN/100 ml – most probable number per 100 milliliters

Notes:
1. Total coliform density NAL is 1,000 MPN/100 ml when the fecal/total coliform ratio exceeds 0.1.
2. Fecal coliform density NAL is 200 MPN per 100 ml during any 30 day period.
3. This value has been set to the Basin Plan water quality objective for saltwater "designated beach areas."

[9] ~~The Copermittees may utilize NALs or other benchmarks currently established by the Copermittees as interim NALs until the Water Quality Improvement Plans are accepted by the San Diego Water Board Executive Officer.~~

(2) Non-Storm Water Discharges from MS4s to Bays, Harbors, and Lagoons/Estuaries

Table C-2. Non-Storm Water Action Levels for Discharges from MS4s to Bays, Harbors, and Lagoons/Estuaries

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Turbidity	NTU	75	-	225	OP
pH	Units	Within limit of 6.0 to 9.0 at all times			OP
Fecal Coliform	MPN/100 ml	200[1]	-	400[2]	BP
Enterococci	MPN/100 ml	35	-	104[3]	BP
Priority Pollutants	ug/L	See Table C-3			

Abbreviations/Acronyms:
AMAL – average monthly action level
OP – Ocean Plan water quality objective
NTU – Nephelometric Turbidity Units
ug/L – micrograms per liter
MDAL – maximum daily action level
BP – Basin Plan water quality objective
MPN/100 ml – most probable number per 100 milliliters

Notes:
1. Based on a minimum of not less than five samples for any 30-day period.
2. The NAL is reached if more than 10 percent of total samples exceed 400 MPN per 100 ml during any 30 day period.
3. This value has been set to the Basin Plan water quality objective for saltwater "designated beach areas" and is not applicable to waterbodies that are not designated with the water contact recreation (REC-1) beneficial use.

Table C-3. Non-Storm Water Action Levels for Priority Pollutants

Parameter	Units	Freshwater (CTR)		Saltwater (CTR)	
		MDAL	AMAL	MDAL	AMAL
Cadmium	ug/L	**	**	16	8
Copper	ug/L	*	*	5.8	2.9
Chromium III	ug/L	**	**	-	-
Chromium VI	ug/L	16	8.1	83	41
Lead	ug/L	*	*	14	2.9
Nickel	ug/L	**	**	14	6.8
Silver	ug/L	*	*	2.2	1.1
Zinc	ug/L	*	*	95	47

Abbreviations/Acronyms:
CTR – California Toxic Rule
AMAL – average monthly action level
ug/L – micrograms per liter
MDAL – maximum daily action level

Notes:
* Action levels developed on a case-by-case basis (see below)
** Action levels developed on a case-by-case basis (see below), but calculated criteria are not to exceed Maximum Contaminant Levels (MCLs) under the California Code of Regulations, Title 22, Division 4, Chapter 15, Article 4, Section 64431

The Cadmium, Copper, Chromium (III), Lead, Nickel, Silver and Zinc NALs for MS4 discharges to freshwater receiving waters will be developed on a case-by-case basis because the freshwater criteria are based on site-specific water quality data (receiving water hardness). For these priority pollutants, refer to ~~the following equations (~~40 CFR 131.38.b.2 for details~~) will be required~~:

~~Cadmium (Total Recoverable) = exp(0.7852[ln(hardness)] - 2.715)~~
~~Chromium III (Total Recoverable) = exp(0.8190[ln(hardness)] + 0.6848)~~
~~Copper (Total Recoverable) = exp(0.8545[ln(hardness)] - 1.702)~~
~~Lead (Total Recoverable) = exp(1.273[ln(hardness)] - 4.705)~~
~~Nickel (Total Recoverable) = exp(.8460[ln(hardness)] + 0.0584)~~
~~Silver (Total Recoverable) = exp(1.72[ln(hardness)] - 6.52)~~
~~Zinc (Total Recoverable) = exp(0.8473[ln(hardness)] + 0.884)~~

Comment [A31]: Consistent with SD Permittee recommendations.

(3) Non-Storm Water Discharges from MS4s to Inland Surface Waters

Table C-4. Non-Storm Water Action Levels for Discharges from MS4s to Inland Surface Waters

Parameter	Units	AMAL	MDAL	Instantaneous Maximum	Basis
Dissolved Oxygen	mg/L	Not less than 5.0 in WARM waters and not less than 6.0 in COLD waters			BP
Turbidity	NTU	-	20	See MDAL	BP
pH	Units	Within limit of 6.5 to 8.5 at all times			BP
Fecal Coliform	MPN/100 ml	200[1]	-	400[2]	BP
Enterococci	MPN/100 ml	33	-	61[3]	BP
Total Nitrogen	mg/L	-	1.0	See MDAL	BP
Total Phosphorus	mg/L	-	0.1	See MDAL	BP
MBAS	mg/L	-	0.5	See MDAL	BP
Iron	mg/L	-	0.3	See MDAL	BP
Manganese	mg/L	-	0.05	See MDAL	BP
Priority Pollutants	ug/L	See Table C-3			

Abbreviations/Acronyms:
AMAL – average monthly action level
BP – Basin Plan water quality objective
COLD – cold freshwater habitat beneficial use
NTU – Nephelometric Turbidity Units
mg/L – milligrams per liter
MDAL – maximum daily action level
WARM – warm freshwater habitat beneficial use
MBAS – Methylene Blue Active Substances
MPN/100 ml – most probable number per 100 milliliters
ug/L – micrograms per liter

Notes:
1. Based on a minimum of not less than five samples for any 30-day period.
2. The NAL is reached if more than 10 percent of total samples exceed 400 MPN per 100 ml during any 30 day period.
3. This value has been set to the Basin Plan water quality objective for freshwater "designated beach areas" and is not applicable to waterbodies that are not designated with the water contact recreation (REC-1) beneficial use.

b. NALs must be identified, developed and incorporated in the Water Quality Improvement Plan for any pollutants or waste constituents that cause or contribute, or are threatening to cause or contribute to a condition of pollution or nuisance in Receiving waters ~~of the state~~ associated with the highest priority water quality conditions related to non-storm water discharges from the MS4s. NALs must be based on:

(1) Applicable water quality standards which may be dependent upon site-specific or receiving water-specific conditions or assumptions to be identified by the Copermittees; or

(2) Applicable numeric WQBELs required to meet the WLAs established for the TMDLs in Attachment E to this Order.

c. ~~For the NALs incorporated into the Water Quality Improvement Plan, the Copermittees may develop and incorporate secondary NALs specific to the Watershed Management Area at levels greater than the NALs required by Provisions C.1.a and C.1.b which can be utilized to further refine the prioritization and assessment of water quality improvement strategies for addressing non-~~

~~storm water discharges to and from the MS4s, as well as the detection and elimination of non-storm water and illicit discharges to and from the MS4. The secondary NALs may be developed using an approach acceptable to the San Diego Water Board.~~

d. Dry weather monitoring data from MS4 outfalls collected in accordance with Provision D.2.b may be utilized to develop or revise NALs based on watershed-specific data, subject to San Diego Water Board Executive Officer approval.

2. Default Storm Water Action Levels[10]

The Copermittees must develop and incorporate numeric storm water action levels (SALs) in the Water Quality Improvement Plans to: 1) support the development and prioritization of water quality improvement strategies for reducing pollutants in storm water discharges from the MS4s, and 2) assess the effectiveness of the water quality improvement strategies toward reducing pollutants in storm water discharges, required pursuant to Provision D.4.b.(2).[11]

a. The following SALs for discharges of storm water from the MS4 must be incorporated~~:~~ if the Copermittees do not establish stormwater action levels within the WQIP based on watershed priorities:~~:~~

Table C-5. Storm Water Action Levels for Discharges from MS4s to Receiving Waters

Parameter	Units	Action Level
Turbidity	NTU	126
Nitrate & Nitrite (Total)	mg/L	2.6
Phosphorus (Total P)	mg/L	1.46
Cadmium (Total Cd)*	µg/L	3.0
Copper (Total Cu)*	µg/L	127
Lead (Total Pb)*	µg/L	250
Zinc (Total Zn)*	µg/L	976

Abbreviations/Acronyms:
NTU – Nephelometric Turbidity Units
mg/L – milligrams per liter
ug/L – micrograms per liter

Notes:
* The sampling must include a measure of receiving water hardness at each MS4 outfall. If a total metal concentration exceeds the corresponding metals SAL in Table C-5, that concentration must be compared to the California Toxics Rule criteria and the USEPA 1-hour maximum concentration for the detected level of receiving water hardness associated with that sample. If it is determined that the sample's total metal concentration for that specific metal exceeds that SAL, but does not exceed the applicable USEPA 1-hour maximum concentration criterion for the measured level of hardness, then the sample result will not be considered above the SAL for that measurement.

[10] SALs are not ~~considered by the San Diego Water Board to be~~ enforceable limitations under this Order.
[11] The Copermittees may utilize SALs or other benchmarks currently established by the Copermittees as interim SALs until the Water Quality Improvement Plans are accepted by the San Diego Water Board Executive Officer.

b. SALs must be identified, developed and incorporated in the Water Quality Improvement Plan for pollutants or waste constituents that cause or contribute, or are threatening to cause or contribute to a condition of pollution or nuisance in Receiving waters ~~of the state~~ associated with the highest water quality priorities related to storm water discharges from the MS4s. SALs must be based on:

(1) Federal and State water quality guidance and/or water quality standards; and

(2) Site-specific or receiving water-specific conditions; or

(3) Applicable numeric WQBELs required to meet the WLAs established for the TMDLs in Attachment E to this Order.

c. ~~For the SALs incorporated into the Water Quality Improvement Plan, the Copermittees may develop and incorporate secondary SALs specific to the Watershed Management Area at levels greater than the SALs required by Provisions C.2.a and C.2.b which can be utilized to further refine the prioritization and assessment of water quality improvement strategies for reducing pollutants in storm water discharges from the MS4s. The secondary SALs may be developed based on the approaches recommended by the State Water Board's Storm Water Panel[12] or using an approach acceptable to the San Diego Water Board.~~

d. Wet weather monitoring data from MS4 outfalls collected in accordance with Provision D.2.c may be used to develop or revise SALs based upon watershed-specific data, subject to San Diego Water Board Executive Officer approval.

[12] ~~Storm Water Panel Recommendations to the California State Water Resources Control Board: The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 2006)~~

D. MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS

Comment [A32]: See discussion in section 3.5 of the comment letter.

The purpose of this provision is for the Copermittees to monitor and assess the impact on the chemical, physical, and biological conditions of receiving waters caused by discharges from the Copermittees' MS4s under wet weather and dry weather conditions. The goal of the monitoring and assessment program is to inform the Copermittees about the nexus between the health of receiving waters and the water quality condition of the discharges from their MS4s to those receiving waters.~~.~~ This goal will be accomplished through monitoring and assessing the conditions of the receiving waters, discharges from the MS4s to those receiving waters, pollutant sources and/or stressors, and effectiveness of the water quality improvement strategies implemented as part of the Water Quality Improvement Plans.

1. Receiving Water Monitoring Requirements

The Copermittees must develop and conduct a program to monitor the condition of the receiving waters in each Watershed Management Area during dry weather and wet weather. Following acceptance of the Water Quality Improvement Plans for each Watershed Management Area, the Copermittees must conduct long-term receiving water monitoring during implementation of the Water Quality Improvement Plan to assess the long term trends and determine if water quality conditions in receiving waters are improving. Any available monitoring data not collected specifically for this Order that meet the quality assurance criteria of the Copermittees and the monitoring requirements of this Order may be utilized by the Copermittees. The Copermittees must conduct the following receiving water monitoring procedures:

a. TRANSITIONAL RECEIVING WATER MONITORING

Beginning October 1st or May 1st (whichever is sooner) following enrollment under this order and until~~Until~~ the monitoring requirements of Provisions D.1.b-e are incorporated into a Water Quality Improvement Plan that is accepted by the San Diego Water Board pursuant to Provision F.1, the Copermittees must conduct the following receiving water monitoring in the Watershed Management Area:

(1) Continue the receiving water monitoring programs required in Order Nos. R9-2007-0001~~,~~ (Attachment A, Section II. A. 1-5).~~,~~ R9-2009-0002, and R9-2010-0016;

(2) Continue the monitoring in the Hydromodification Management Plans approved by the San Diego Water Board;

(3) Participate in the following regional receiving water monitoring programs, as applicable to the Watershed Management Area and each Copermittees' MS4 discharges:

Comment [A33]: See discussion in section 3.5.3 of the comment letter.

(a) Storm Water Monitoring Coalition Regional Monitoring,

(b) Southern California Bight Regional Monitoring, and

(c) Sediment Quality Monitoring;

(4) Implement the monitoring programs developed as part of any implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) for the TMDLs in Attachment E to this Order; and

(5) For Watershed Management Areas with ASBS, implement the monitoring requirements of Attachment B to State Water Board Resolution No. 2012-0012, included in Attachment A to this Order.

b. LONG-TERM RECEIVING WATER MONITORING STATIONS

The Copermittees must select at least one long-term receiving water monitoring station from among the existing mass loading stations, temporary watershed assessment stations, bioassessment stations, and stream assessment stations previously established by the Copermittees to be representative of the receiving water quality in the Watershed Management Area. Additional or alternative long-term receiving water monitoring stations may~~must~~ be selected where necessary to support the implementation and adaptation of the Water Quality Improvement Plan.

Comment [A34]: See discussion in section 3.5.3 of the comment letter.

c. DRY WEATHER RECEIVING WATER MONITORING

During the term of the Order, the Copermittees must perform monitoring during at least three dry weather monitoring events at each of the long-term receiving water monitoring stations. At least one monitoring event must be conducted during the dry season (May 1 – September 30) and at least one monitoring event must be conducted during a dry weather period during the wet season (October 1 – April 30), after the first wet weather event of the season, with an antecedent dry period of at least 72 hours following a storm event producing measureable rainfall of greater than 0.1 inch.

(1) Dry Weather Receiving Water Field Observations

For each dry weather monitoring event, the Copermittees must record field observations consistent with Table D-1 at each long-term receiving water monitoring station.

Table D-1. Field Observations for Receiving Water Monitoring Stations

Field Observations
• Station identification and location • Presence of flow, or pooled or ponded water • If flow is present: - Flow estimation (i.e. width of water surface, approximate depth of water, approximate flow velocity, flow rate) - Flow characteristics (i.e. presence of floatables, surface scum, sheens, odor, color) • If pooled or ponded water is present: - Characteristics of pooled or ponded water (i.e. presence of floatables, surface scum, sheens, odor, color) • Assessment of any observed connectivity of MS4 discharges to a flowing receiving water. • Station description (i.e. deposits or stains, vegetation condition, structural condition, and observable biology) • Presence and assessment of trash in and around station

Comment [A35]: See discussion in section 3.5.3 of the comment letter.

(2) Dry Weather Receiving Water Field Monitoring

For each dry weather monitoring event, if conditions allow the collection of the data, the Copermittees must monitor and record the parameters in Table D-2 at each long-term receiving water monitoring station.

Table D-2. Field Monitoring Parameters for Receiving Water Monitoring Stations

Parameters
• pH • Temperature • Specific conductivity • Dissolved oxygen • Turbidity

(3) Dry Weather Receiving Water Analytical Monitoring

For each dry weather monitoring event, the Copermittees must collect and analyze samples from each long-term receiving water monitoring station as follows:

(a) Analytes that are field measured are not required to be analyzed by a laboratory;

(b) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;

(c) Grab samples may be collected for pH, temperature, specific conductivity,

dissolved oxygen, turbidity, hardness, and indicator bacteria Grab samples may also be collected for the analyses described in (f) where MS4 discharge runoff constitutes less than ten percent of the flow;

Comment [A36]: The receiving water stations in Riverside County either do not receive runoff from MS4 discharges or receive deminimus flows during dry weather conditions. The flow at these stations during dry weather consists virtually entirely of rising groundwater. Background receiving water quality conditions In such cases composite samples of receiving waters not affected by MS4 discharges is not warranted.

(d) For all other constituents where runoff constitutes more than ten percent of the flow, composite samples must be collected for a duration adequate to be representative of changes in pollutant concentrations and runoff flows using one of the following techniques:

(i) Time-weighted composites composed of 24 discrete hourly samples, which may be collected through the use of automated equipment, or

(ii) Flow-weighted composites collected over a typical 24-hour period, which may be collected through the use of automated equipment;

(e) Only one analysis of the composite of aliquots is required;

(f) Analysis for the following constituents is required:

(i) Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,

(ii) Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List,

(iii) Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in Attachment E to this Order,

(iv) Applicable NAL constituents, and

(v) Constituents listed in Table D-3.

Table D-3. Analytical Monitoring Constituents for Receiving Water Monitoring Stations

Conventionals, Nutrients	Metals (Total and Dissolved)	Pesticides	Indicator Bacteria
• Total Dissolved Solids • Total Suspended Solids • Turbidity • Total Hardness • Total Organic Carbon • Dissolved Organic Carbon • Sulfate • Methylene Blue Active Substances (MBAS) • Total Phosphorus • Orthophosphate • Nitrite[1]	• Arsenic • Cadmium • Chromium • Copper • Iron • Lead • Mercury • Nickel • Selenium • Thallium • Zinc	• Organophosphate Pesticides • Pyrethroid Pesticides	• Total Coliform • Fecal Coliform[2] • *Enterococcus*

• Nitrate[1] • Total Kjeldhal Nitrogen • Ammonia			

Notes:
1. Nitrite and nitrate may be combined and reported as nitrite+nitrate.
2. *E. Coli* may be substituted for Fecal Coliform.

(4) Dry Weather Receiving Water Toxicity Monitoring

For each dry weather monitoring event, the Copermittees must collect grab or composite samples from each long-term receiving water monitoring station to be analyzed for toxicity in accordance with Table D-4:

Table D-4. Dry Weather Toxicity Testing for Receiving Water Monitoring Stations

Freshwater Organism	Test Approach	USEPA Protocol[2]
Pimephales promelas	1 acute 1 chronic[1]	EPA-821-R-02-012
Hyalella Azteca	1 acute 1 chronic[1]	EPA-821-R-02-012
Psuedokirchneriella subcapitata	1 acute 1 chronic[1]	EPA-821-R-02-013

Notes:
1. Chronic toxicity testing is not required at receiving water monitoring stations located at mass loading stations if the channel flows are diverted year-round during dry weather conditions to the sanitary sewer for treatment.
2. USEPA protocols must be utilized for toxicity testing unless alternate toxicity testing protocols have been approved by the San Diego Water Board.

(5) Dry Weather Receiving Water Bioassessment Monitoring

Bioassessment monitoring for each long-term receiving water monitoring station is required at least once during the term of this Order. The Copermittees must conduct bioassessment monitoring during at least one dry weather monitoring event at each long-term receiving water monitoring station as follows:

(a) The following bioassessment samples and measurements must be collected:

(i) Macroinvertebrate samples must be collected in accordance with the "Reachwide Benthos (Multihabitat) Procedure" in the most current Surface Water Ambient Monitoring Program (SWAMP) Bioassessment Standard Operating Procedures (SOP), and amendments, as applicable;[13]

(ii) The "Full" suite of physical habitat characterization measurements

[13] Ode, P.R.. 2007. Standard operating procedures for collecting macroinvertebrate samples and associated physical and chemical data for ambient bioassessments in California. California State Water Resources Control Board Surface Water Ambient Monitoring Program (SWAMP) Bioassessment SOP 001. http://www.swrcb.ca.gov/water_issues/programs/swamp/tools.shtml#monitoring

must be collected in accordance with the most current SWAMP Bioassessment SOP, and as summarized in the SWAMP Stream Habitat Characterization Form – Full Version;[14] and

(iii) Freshwater algae samples must be collected in accordance with the SWAMP Standard Operating Procedures for Collecting Algae Samples.[15] Analysis of samples must include algal taxonomic composition (diatoms and soft algae) and algal biomass.

(b) The bioassessment samples, measurements, and appropriate water chemistry data must be used to calculate the following:

(i) An Index of Biological Integrity (IBI) for macroinvertebrates for each monitoring station where bioassessment monitoring was conducted, based on the most current calculation method;[16] and

(ii) An IBI for algae for each monitoring station where bioassessment monitoring was conducted, when a calculation method is developed.[17]

(c) In lieu of the requirements of Provision D.1.c.(5)(a), the Copermittees may conduct the bioassessment monitoring in accordance with the "Triad" assessment approach[18] to calculate the IBIs required for Provision D.1.c.(5)(b). The Copermittees must conduct sampling, analysis, and reporting of specified in-stream biological and habitat data according to the protocols specified in the SCCWRP Technical Report No. 539, or subsequent protocols, if developed.

(6) Dry Weather Receiving Water Hydromodification Monitoring

In addition to the hydromodification monitoring conducted as part of the Copermittees' Hydromodification Management Plans, hydromodification monitoring for each long-term receiving water monitoring station is required at least once during the term of this Order. The Copermittees must collect the

[14] Available at: http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/reports/fieldforms_fullversion052908.pdf
[15] Fetscher et al. 2009. Standard Operating Procedures for Collecting Stream Algae Samples and Associated Physical Habitat and Chemical Data for Ambient Bioassessments in California.
[16] The most current calculation method at the time the Order was adopted is outlined in "A Quantitative Tool for Assessing the Integrity of Southern California Coastal Streams" (Ode, et al. 2005. Environmental Management. Vol. 35, No. 1, pp. 1-13). If an updated or new calculation method is developed, either both (i.e. current and updated/new) methods must be used, or historical IBIs must be recalculated with the updated or new calculation method.
[17] When a calculation method is developed, IBIs must be calculated for all available and appropriate historical data.
[18] Stormwater Monitoring Coalition Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. Technical Report #419. August 2004.

following hydromodification monitoring observations and measurements within an appropriate domain of analysis during at least one dry weather monitoring event for each long-term receiving water monitoring station:

(a) Channel conditions, including:

(i) Channel dimensions,

(ii) Hydrologic and geomorphic conditions, and

(iii) Presence and condition of vegetation and habitat;

(b) Location of discharge points;

(c) Habitat integrity;

(d) Photo documentation of existing erosion and habitat impacts, with location (i.e. latitude and longitude coordinates) where photos were taken;

(e) Measurement or estimate of dimensions of any existing channel bed or bank eroded areas, including length, width, and depth of any incisions; and

(f) Known or suspected cause(s) of existing downstream erosion or habitat impact, including flow, soil, slope, and vegetation conditions, as well as upstream land uses and contributing new and existing development.

d. WET WEATHER RECEIVING WATER MONITORING

During the term of the Order, the Copermittees must perform monitoring during at least three wet weather monitoring events at each long-term receiving water monitoring station. At least one wet weather monitoring event must be conducted during the first wet weather event of the wet season (October 1 – April 30), and at least one wet weather monitoring event during a wet weather event that occurs after February 1.

(1) Wet Weather Receiving Water Field Observations

For each wet weather monitoring event, the following narrative descriptions and observations must be recorded at each long-term receiving water monitoring station:

(a) A narrative description of the station that includes the location, date and duration of the storm event(s) sampled, rainfall estimates of the storm event, and the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event;

(b) The flow rates and volumes measured or estimated (data from nearby

USGS gauging stations may be utilized, or flow rates may be measured or estimated in accordance with the USEPA Storm Water Sampling Guidance Document (EPA-833-B-92-001), section 3.2.1, or other method proposed by the Copermittees that is acceptable to the San Diego Water Board);

(c) Station condition (i.e. deposits or stains, vegetation condition, structural condition, observable biology); and

(d) Presence and assessment of trash in and around station.

(2) Wet Weather Receiving Water Field Monitoring

For each wet weather monitoring event, the Copermittees must monitor and record the parameters in Table D-2 at each long-term receiving water monitoring station.

(3) Wet Weather Receiving Water Analytical Monitoring

For each wet weather monitoring event, the Copermittees must collect and analyze samples from each long-term receiving water monitoring station as follows:

(a) Analytes that are field measured are not required to be analyzed by a laboratory;

(b) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;

(c) Grab samples may be collected for pH, temperature, specific conductivity, dissolved oxygen, turbidity, hardness, and indicator bacteria;

(d) For all other constituents, composite samples must be collected for a duration adequate to be representative of changes in pollutant concentrations and runoff flows using one of the following techniques:

(i) Time-weighted composites composed of 24 discrete hourly samples, which may be collected through the use of automated equipment, or

(ii) Flow-weighted composites collected over the length of the storm event or a typical 24-hour period, which may be collected through the use of automated equipment;

(e) Only one analysis of the composite of aliquots is required;

(f) Analysis for the following constituents is required:

(i) Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,

(ii) Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List,

(iii) Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in Attachment E to this Order,

(iv) Applicable SAL constituents, and

(v) Constituents listed in Table D-3.

(4) Wet Weather Receiving Water Toxicity Monitoring

For each wet weather monitoring event, the Copermittees must collect grab or composite samples from each long-term receiving water monitoring station to be analyzed for toxicity in accordance with Table D-5:

Table D-5. Wet Weather Toxicity Testing for Receiving Water Monitoring Stations

Freshwater Organism	Test Approach	USEPA Protocol[1]
Pimephales promelas	1 acute	EPA-821-R-02-012
Hyalella Azteca	1 acute	EPA-821-R-02-012
Psuedokirchneriella subcapitata	1 acute	EPA-821-R-02-013

Notes:
1. USEPA protocols must be utilized for toxicity testing unless alternate toxicity testing protocols have been approved by the San Diego Water Board.

e. OTHER RECEIVING WATER MONITORING REQUIREMENTS

(1) Regional Monitoring

The Copermittees must participate in the following regional receiving waters monitoring programs, as applicable to the Watershed Management Area and the Copermittee's MS4 discharges:

(a) Storm Water Monitoring Coalition Regional Monitoring; and

(b) Southern California Bight Regional Monitoring.

(2) Sediment Quality Monitoring

The applicable Copermittees must perform sediment monitoring to assess compliance with sediment quality receiving water limits applicable to MS4

discharges to enclosed bays and estuaries. The monitoring may be performed either by individual or multiple affected Copermittees to assess compliance with receiving water limits, or through participation in a water body monitoring coalition. The Copermittees must identify sediment sampling stations that are spatially representative of the sediment within the water body segment or region of interest. Sediment quality monitoring must be conducted in conformance with the monitoring requirements set forth in the State Water Board Sediment Quality Control Plan.

(3) ASBS Monitoring

For Watershed Management Areas with ASBS, the applicable Copermittees must implement the monitoring requirements of Attachment B to State Water Board Resolution No. 2012-0012, included in Attachment A to this Order.

f. ALTERNATIVE WATERSHED MONITORING REQUIREMENTS

The San Diego Water Board may direct the Copermittees to participate in an effort to develop alternative watershed monitoring with other regulated entities, other interested parties, and the San Diego Water Board to refine, coordinate, and implement regional monitoring and assessment programs to determine the status and trends of water quality conditions in 1) coastal waters, 2) enclosed bays, harbors, estuaries, and lagoons, and/or 3) streams. As directed by the San Diego Water Board, such alternative watershed monitoring would be done in place and stead of the commensurate requirements set forth in Provision D.1.

2. MS4 Outfall Discharge Monitoring Requirements

The Copermittees must develop and conduct a program to monitor the discharges from the major MS4 outfalls to receiving waters in each Watershed Management Area during dry weather and wet weather. Following acceptance of the Water Quality Improvement Plans and schedule for implementation of monitoring for each Watershed Management Area, the Copermittees must conduct MS4 outfall discharge monitoring during implementation of the Water Quality Improvement Plan to assess the effectiveness of their jurisdictional runoff management programs toward effectively prohibiting non-storm water discharges into the MS4 and reducing pollutants in ~~storm water~~ discharges ~~to and~~ from their MS4s to the MEP. Any available monitoring data not collected specifically for this Order that meet the quality assurance criteria of the Copermittees and the monitoring requirements of this Order may be utilized by the Copermittees. The Copermittees must conduct the following MS4 outfall monitoring procedures:

Comment [A37]: Suggest same edits for SD and OC.

a. TRANSITIONAL MS4 OUTFALL DISCHARGE MONITORING

Beginning October 1st or May 1st (whichever is sooner) following enrollment under this order and until~~Until~~ the monitoring requirements of Provisions D.2.b-c

are incorporated into a Water Quality Improvement Plan and schedule for implementation of monitoring that is accepted by the San Diego Water Board pursuant to Provision F.1, the Copermittees must conduct the following monitoring of MS4 outfall discharges to flowing receiving waters ~~monitoring~~ in the Watershed Management Area:

(1) MS4 Outfall Discharge Monitoring Station Inventory

Each Municipal Copermittee must identify all major MS4 outfalls (including those operated by a Special District Copermittee) that discharge directly to receiving waters within its jurisdiction and geo-locate those outfalls on a map of the MS4 pursuant to Provision E.2.b.(1). This information must be compiled into a MS4 outfall discharge monitoring station inventory, and must include the following information:

(a) Latitude and longitude of MS4 outfall point of discharge;

(b) Watershed Management Area;

(c) Hydrologic subarea;

(d) Outlet size;

(e) Accessibility (i.e. safety and without disturbance of critical habitat);

(f) Approximate drainage area; and

(g) Classification of whether the MS4 outfall is known to have persistent dry weather flows, transient dry weather flows, no dry weather flows, or unknown dry weather flows.

(2) Transitional Dry Weather MS4 Outfall ~~Discharge~~ Field Screening ~~Monitoring~~

Until the monitoring requirements of Provision D.2.b are incorporated into a Water Quality Improvement Plan that is accepted by the San Diego Water Board pursuant to Provision F.1, each Municipal Copermittee must perform the following dry weather MS4 outfall field screening monitoring to identify non-storm water and illicit discharges being discharged from MS4s within its jurisdiction in accordance with Provision E.2.c, to determine which discharges are transient ~~flows~~ and which are persistent discharges to flowing receiving waters~~flows~~, and prioritize the dry weather MS4 discharges that will be investigated and eliminated in accordance with Provision E.2.d. ~~Each Copermittee must conduct the following dry weather MS4 outfall discharge field screening monitoring within its jurisdiction:~~

Comment [A38]: Suggested change of title to better characterize the requirements of this section, compared to that of D.2.b.

Comments in this section are discussed in section 3.5.3 of the comment letter.

Comment [A39]: Duplicative of previous sentence

(a) Transitional Dry Weather MS4 Outfall Discharge Field Screening Monitoring Frequency

Each Municipal Copermittee must field screen the accessible MS4 outfalls in its inventory developed pursuant to Provision D.2.a.(1) as follows:

(i) ~~For Copermittees with less than 125 major MS4 outfalls that discharge to receiving waters within a Watershed Management Area, at least 80 percent of the outfalls must be visually inspected two times per year during dry weather conditions.~~

(ii) For Municipal Copermittees with ~~125 major MS4 outfalls or more, but~~ less than or equal to 500 MS4 outfalls~~,~~ that discharge to receiving waters within a Watershed Management Area, ~~all~~ at least 80 percent of the accessible outfalls must be visually inspected at least annually during dry weather conditions.

(iii) For Municipal Copermittees with more than 500 major MS4 outfalls that discharge to receiving waters within a Watershed Management Area, at least 500 outfalls must be visually inspected at least annually during dry weather conditions. Copermittees with more than 500 major MS4 outfalls within a Watershed Management Area must identify and prioritize at least 500 outfalls to be inspected considering the following:

[a] Assessment of connectivity of the discharge to a flowing receiving water;
[b] Reported exceedances of NALs in water quality monitoring data;
[c] Surrounding land uses;
[d] Presence of constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List; and
[e] Flow rate.

(iv) Municipal Copermittees with more than 500 major MS4 outfalls within its jurisdiction that are located in more than one Watershed Management Area, at least 500 major MS4 outfalls within its inventory must be visually inspected at least annually during dry weather conditions. Copermittees with more than 500 major MS4 outfalls in more than one Watershed Management Area must identify and prioritize at least 500 outfalls to be inspected considering the following:

[a] Assessment of connectivity of the discharge to a flowing receiving water;
[b] Reported exceedances of NALs in water quality monitoring data;
[c] Surrounding land uses;

[d] Presence of constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List; and
[e] Flow rate.

(v) Inspections of major MS4 outfalls conducted in response to public reports and staff or contractor reports and notifications may count toward the required visual inspections of MS4 outfall discharge monitoring stations.

(b) Transitional Dry Weather MS4 Outfall Discharge Field Screening Visual Observations

(i) An antecedent dry period of at least 72 hours following any storm event producing measurable rainfall greater than 0.1 inch is required prior to conducting field screening visual observations during a field screening monitoring event.

(ii) During the field screening monitoring event, each Municipal Copermittee must record visual observations consistent with Table D-6 at each MS4 outfall discharge monitoring station inspected.

Table D-6. Field Screening Visual Observations for MS4 Outfall Discharge Monitoring Stations

Field Observations
• Station identification and location • Presence of flow, or pooled or ponded water • If flow is present: - Flow estimation (i.e. width of water surface, approximate depth of water, approximate flow velocity, flow rate) - Flow characteristics (i.e. presence of floatables, surface scum, sheens, odor, color) - Flow source(s) suspected or identified from non-storm water source investigation - Flow source(s) eliminated during non-storm water source identification • If pooled or ponded water is present: - Characteristics of pooled or ponded water (i.e. presence of floatables, surface scum, sheens, odor, color) - Known or suspected source(s) of pooled or ponded water • Assessment of any observed MS4 discharge ~~with~~ to a flowing receiving water. • Station description (i.e. deposits or stains, vegetation condition, structural condition, observable biology) • Presence and assessment of trash in and around station • Evidence or signs of illicit connections or illegal dumping

(iii) Each Municipal Copermittee must implement the requirements of Provisions E.2.d.(2)(c)-(e) based on the field observations.

(iv) Each Copermittee must evaluate field observations together with existing information available from prior reports, inspections and monitoring results to determine whether any observed flowing,

pooled, or ponded waters are likely to be transient or persistent flow.[19]

Comment [A40]: See footnote edits

(c) Transitional Dry Weather MS4 Outfall Discharge Field Screening ~~Monitoring~~ Records

Based upon the results of the transitional dry weather MS4 outfall discharge field screening monitoring conducted pursuant to Provisions D.2.a.(2)(a)-(b), each Municipal Copermittee must update its MS4 outfall discharge monitoring station inventory, compiled pursuant to Provision D.2.a.(1), with any new information on the classification of whether the MS4 outfall produces persistent flow, transient flow, or no dry weather flow.

(3) Transitional Wet Weather MS4 Outfall Discharge Monitoring

Comment [A41]: See discussion in section 3.5.3 of the comment letter.

Until the monitoring requirements of Provision D.2.c are incorporated into a Water Quality Improvement Plan that is accepted by the San Diego Water Board pursuant to Provision F.1, the Copermittees must conduct the following wet weather MS4 outfall discharge monitoring within the Watershed Management Area:

(a) Transitional Wet Weather MS4 Outfall Discharge Monitoring Stations

The Copermittees must select at least five wet weather MS4 outfall discharge monitoring stations from the inventories developed pursuant to Provision D.2.a.(1) that are representative of storm water discharges from areas consisting primarily of residential, commercial, industrial, and typical mixed-use land uses present within the Watershed Management Area.

(b) Transitional Wet Weather MS4 Outfall Discharge Monitoring Frequency

Each wet weather MS4 outfall discharge monitoring station selected pursuant to Provision D.2.a.(3)(a) must be monitored twice during the wet season (October 1 – April 30~~)~~.) in the transitional period. The~~). One~~ wet weather monitoring ~~event~~events shall be selected to be representative of the range of hydrologic conditions experienced in the region. At least 10% of samples~~event~~ must be conducted during the first wet weather event of the wet season, ~~and~~to include~~and one wet weather monitoring event~~ at least one such sample in each Watershed Management Area~~, a month after the first wet weather event of the wet season.~~

[19] Persistent flow, for the purposes of provision II.D.2.b.(2) is defined as the presence of an MS4 discharge that is hydraulically connected to a flowing receiving~~, pooled, or ponded~~ water more than 72 hours after a measureable rainfall event of 0.1 inch or greater, during three consecutive monitoring and/or inspection events. All other flowing, pooled, or ponded water is considered transient.

(c) Transitional Wet Weather MS4 Outfall Discharge Field Observations

For each wet weather monitoring event, the following narrative descriptions and observations must be recorded of the flow from~~at~~ each wet weather MS4 outfall discharge monitoring station:

(i) A narrative description of the station that includes the location, date and duration of the storm event(s) sampled, rainfall estimates of the storm event, and the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and

(ii) The flow rates and volumes measured or estimated from the outfall (data from nearby USGS gauging stations may be utilized, or flow rates may be measured or estimated in accordance with the USEPA Storm Water Sampling Guidance Document (EPA-833-B-92-001), section 3.2.1, or other method proposed by the Copermittees that is acceptable to the San Diego Water Board);

(iii) ~~Station condition (i.e. deposits or stains, vegetation condition, structural condition, observable biology); and~~

(iv) Presence ~~and assessment~~ of trash in and around station.

Comment [A42]: This isn't appropriate for a wet weather event.

Comment [A43]: This isn't appropriate for a wet weather event.

(d) Transitional Wet Weather MS4 Outfall Discharge Field Monitoring

For each wet weather monitoring event, the Copermittees must monitor and record the parameters in Table D-2 at each wet weather MS4 outfall discharge monitoring station.

(e) Transitional Wet Weather MS4 Outfall Discharge Analytical Monitoring

For each wet weather monitoring event, the Copermittees must collect and analyze samples from each wet weather MS4 outfall discharge monitoring station as follows:

(i) Analytes that are field measured are not required to be analyzed by a laboratory;

(ii) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;

(iii) Grab samples may be collected for pH, temperature, specific conductivity, dissolved oxygen, turbidity, and indicator bacteria;

(iv) For all other constituents, composite samples must be collected for a duration adequate to be representative of changes in pollutant

concentrations and runoff flows using one of the following techniques:

[a] Time-weighted composites composed of 24 discrete hourly samples, which may be collected through the use of automated equipment, or
[b] Flow-weighted composites collected over the length of the storm event or a typical 24 hour period, whichever is shorter, which may be collected through the use of automated equipment, or
[c] If automated compositing is not feasible, a composite sample may be collected using a minimum of 4 grab samples, collected during the first 24 hours of the storm water discharge, or for the entire storm water discharge if the storm event is less than 24 hours;

(v) Only one analysis of the composite of aliquots is required;

(vi) The samples must be analyzed for the following constituents:

[a] Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List,
[b] Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in Attachment E to this Order, and
[c] Constituents listed in in Table D-7.

Table D-7. Analytical Monitoring Constituents for Wet Weather MS4 Outfall Discharge Monitoring Stations

Conventionals, Nutrients	Metals (Total and Dissolved)	Indicator Bacteria
• Total Dissolved Solids • Total Suspended Solids • Turbidity • Total Hardness • Total Organic Carbon • Dissolved Organic Carbon • Sulfate • Methylene Blue Active Substances (MBAS) • Total Phosphorus • Orthophosphate • Nitrite[1] • Nitrate[1] • Total Kjeldhal Nitrogen • Ammonia	• Arsenic • Cadmium • Chromium • Copper • Iron • Lead • Nickel • Selenium • Thallium • Zinc	• Total Coliform • Fecal Coliform[2] • *Enterococcus*

Notes:
1. Nitrite and nitrate may be combined and reported as nitrite+nitrate.
2. *E. Coli* may be substituted for Fecal Coliform.

(f) Other Transitional Wet Weather MS4 Outfall Discharge Monitoring

The San Diego County Copermittees must continue the wet weather MS4 outfall monitoring program developed under Order No. R9-2007-0001, as approved by the San Diego Water Board, through its planned completion.

b. DRY WEATHER MS4 OUTFALL DISCHARGE MONITORING

Each Municipal Copermittee must perform the following dry weather MS4 outfall monitoring within its jurisdiction to identify non-storm water and illicit discharges within its jurisdiction pursuant to Provision E.2.c, and to prioritize the dry weather MS4 discharges that will be investigated and eliminated pursuant to Provision E.2.d. ~~Each Copermittee must conduct the following dry weather MS4 outfall discharge monitoring within its jurisdiction:~~

Comment [A44]: Repetitive of previous sentence

(1) Dry Weather MS4 Outfall Discharge Field Screening Monitoring

Comment [A45]: See discussion in section 3.5.3 of the comment letter.

Each Municipal Copermittee must continue to perform the dry weather MS4 outfall discharge field screening monitoring in accordance with the requirements of Provision D.2.a.(2). ~~The~~ however the Municipal Copermittee may adjust the field screening monitoring frequencies and locations for the MS4 outfalls in its inventory, as needed, to identify and eliminate sources of persistent ~~flow~~ non-storm water illegal discharges from the MS4 to flowing receiving waters in accordance with the highest priority water quality conditions identified in the Water Quality Improvement Plan. ~~, provided the~~

~~number of visual inspections performed is equivalent to the number of visual inspections required under Provision D.2.a.(2)(a).~~

Comment [A46]: See comments in comment letter

(2) Non-Storm Water Persistent Flow MS4 Outfall Discharge Monitoring

Each Municipal Copermittee must perform the following non-storm water monitoring of MS4 outfalls that persistently ~~flow MS4 outfall~~ discharge to flowing receiving waters ~~monitoring~~ to determine which persistent non-storm water discharges contain concentrations of pollutants below NALs, and which persistent non-storm water discharges impact receiving water quality during dry weather. ~~Each Copermittee must conduct the following non-storm water persistent flow MS4 outfall discharge monitoring within its jurisdiction:~~

Comment [A47]: Repetitive of previous sentence.

(a) Prioritization of Non-Storm Water Persistent Flow MS4 Outfalls

Based upon the dry weather MS4 outfall discharge field screening monitoring records developed pursuant to Provision D.2.a.(2)(c), each Municipal Copermittee must identify and prioritize the MS4 outfalls within its jurisdiction that have~~with~~ persistent discharges to flowing receiving waters ~~flows~~ based on the highest priority water quality conditions identified in the Water Quality Improvement Plan and any additional criteria developed by the Copermittee, which may include historical data and data from sources other than what the Copermittee collects.

(b) Non-Storm Water Persistent Flow MS4 Outfall Discharge Monitoring Frequency

Comment [A48]: See comment letter section 3.5.3

(i) Based on the prioritization of major MS4 outfalls developed under Provision D.2.b.(2)(a), each Municipal Copermittee must identify, at a minimum, the top 10 percent of the~~10~~ highest priority major MS4 outfalls with non-storm water persistent flows that the Copermittee will monitor within each Watershed Management Area within its jurisdiction, with a minimum of one persistent ~~flow~~discharge outfall, and a maximum of 5 required per WMA. The location of the selected highest priority non-storm water persistent ~~flow~~ discharge MS4 outfall monitoring stations must be identified on the map required pursuant to Provision E.2.b.(1).

(ii) Each of the highest priority non-storm water persistent flow MS4 outfall monitoring stations identified pursuant to Provision D.2.b.(2)(b)(i) must be monitored under dry weather conditions at least ~~semi~~ annually until one of the following occurs:

[a] The non-storm water discharges have been effectively eliminated (i.e. no flowing, pooled, or ponded water) for three consecutive dry weather monitoring events; or

[b] The source(s) of the persistent flows has been identified as a category of non-storm water discharges that does not require an NPDES permit and does not have to be addressed as an illicit discharge because it was not identified as a source of pollutants (i.e. constituents in non-storm water discharge do not exceed NALs), and the persistent flow can be re-prioritized to a lower priority; or

[c] The constituents in the persistent flow non-storm water discharge do not exceed NALs, and the persistent flow can be re-prioritized to a lower priority; or

[d] The source(s) of the persistent flows has been identified as a non-storm water discharge authorized by a separate NPDES permit.

(iii) Where the criteria under Provision D.2.b.(2)(c)(ii) are not met, but the threat to water quality has been reduced by the Copermittee, the highest priority persistent flow MS4 outfall monitoring stations may be reprioritized accordingly for continued dry weather MS4 outfall discharge field screening monitoring required pursuant to Provision D.2.b.(1).

(iv) Each Municipal Copermittee must document removal or re-prioritization of the highest priority persistent flow MS4 outfall monitoring stations identified under Provision D.2.b.(2)(b) in the Annual Report. Persistent flow MS4 outfall monitoring stations that have been removed must be replaced with the next highest prioritized MS4 major outfall in the Watershed Management Area within its jurisdiction, unless there are no remaining qualifying major MS4 outfalls within the Copermittee's jurisdiction in the Watershed Management Area.

(c) Non-Storm Water Persistent Flow MS4 Outfall Discharge Field Observations

During each semi-annual monitoring event, each Municipal Copermittee must record field observations consistent with Table D-6 at each of the highest priority persistent flow MS4 outfall monitoring stations within its jurisdiction.

(d) Non-Storm Water Persistent Flow MS4 Outfall Discharge Field Monitoring

During each ~~semi-annual~~ monitoring event, if conditions allow the collection of the data, each Municipal Copermittee must monitor and record the parameters in Table D-2 at each of the highest priority persistent flow MS4 outfall monitoring stations within its jurisdiction.

(e) Non-Storm Water Persistent Flow MS4 Outfall Discharge Analytical Monitoring

Comment [A49]: See discussion in section 3.5.3 of the comment letter.

During each semi-annual monitoring event in which measurable flow from the MS4 outfall to a flowing receiving water is present, each Municipal Copermittee must collect and analyze samples from each of the highest priority persistent flow MS4 outfall monitoring stations within its jurisdiction as follows:

(i) Analytes that are field measured are not required to be analyzed by a laboratory;

(ii) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;

(iii) During development of the WQIP, for each WMA, consider the following sources to select constituents for collection of~~Collect~~ grab or composite samples to be analyzed at a qualified analytical laboratory:~~for the following constituents:~~

[a] Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,
[b] Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List,
[c] Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in Attachment E to this Order,
[d] Applicable NAL constituents, and
[e] Constituents listed in Table D-8, unless the Copermittee has historical data that can demonstrate or provide justification that the analysis of the constituent is not necessary.

(iv) Copermittees may adjust the analytical list for a given WMA in successive monitoring events to add or eliminate constituents based on data that can demonstrate or provide justification regarding need or lack of need for the analysis of specific constituents.

Table D-8. Analytical Monitoring Constituents for Persistent Flow MS4 Outfall Discharge Monitoring Stations

Conventionals, Nutrients	Metals (Total and Dissolved)	Indicator Bacteria
• Total Dissolved Solids • Total Suspended Solids • Total Hardness • Total Phosphorus • Orthophosphate • Nitrite[1] • Nitrate[1] • Total Kjeldhal Nitrogen	• Cadmium • Copper • Lead • Zinc	• Total Coliform • Fecal Coliform[2] • *Enterococcus*

• Ammonia		

Notes:
1. Nitrite and nitrate may be combined and reported as nitrite+nitrate.
2. *E. Coli* may be substituted for Fecal Coliform.

~~(iv)~~(v) If the Copermittee identifies and eliminates the source of the persistent flow non-storm water discharge, analysis of the sample is not required.

c. WET WEATHER MS4 OUTFALL DISCHARGE MONITORING

The Copermittees must perform wet weather MS4 outfall monitoring to identify sources areas of pollutants in ~~storm water~~ discharges from the MS4s in the Watershed Management Area. The Copermittees must conduct the following wet weather MS4 outfall discharge monitoring within the Watershed Management Area:

(1) Wet Weather MS4 Outfall Discharge Monitoring Stations

The Copermittees may adjust the wet weather MS4 outfall discharge monitoring locations and frequencies in the Watershed Management Area, as needed, to identify sources of pollutants in storm water discharges from MS4s in the Watershed Management Area in accordance with the highest priority water quality conditions identified in the Water Quality Improvement Plan, provided the number of stations is at least equivalent to the number of stations required under Provision D.2.a.(3)(a).

(2) Wet Weather MS4 Outfall Discharge Monitoring Frequency

The Copermittees must monitor the wet weather MS4 outfall discharge monitoring stations in the Watershed Management Area at an appropriate frequency to identify source areas of pollutants in ~~storm water~~ discharges from the MS4s causing or contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan.

(3) Wet Weather MS4 Outfall Discharge Field Observations

For each wet weather monitoring event, the following narrative descriptions and observations must be recorded at each wet weather MS4 outfall discharge monitoring station:

(a) A narrative description of the station that includes the location, date and duration of the storm event(s) sampled, rainfall estimates of the storm event, and the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and

(b) The flow rates and volumes measured or estimated (data from nearby USGS gauging stations may be utilized, or flow rates may be measured or

estimated in accordance with the USEPA Storm Water Sampling Guidance Document (EPA-833-B-92-001), section 3.2.1, or other method proposed by the Copermittees that is acceptable to the San Diego Water Board);

~~(c) Station condition (i.e. deposits or stains, vegetation condition, structural condition, observable biology); and~~

~~(d) Presence and assessment of trash in and around station.~~

Comment [A50]: These are inappropriate for wet weather observations.

(4) Wet Weather MS4 Outfall Discharge Field Monitoring

For each wet weather monitoring event, the Copermittees must monitor and record the parameters in Table D-2 at each wet weather MS4 outfall discharge monitoring station.

(5) Wet Weather MS4 Outfall Discharge Analytical Monitoring

For each wet weather monitoring event, the Copermittees must collect and analyze samples from each wet weather MS4 outfall discharge monitoring station as follows:

(a) Analytes that are field measured are not required to be analyzed by a laboratory;

(b) The Copermittees must implement consistent sample collection methods for regional comparability of data, unless site-specific conditions indicate the need for alternate methods;

(c) Grab samples may be collected for pH, temperature, specific conductivity, dissolved oxygen, turbidity, hardness, and indicator bacteria;

(d) For all other constituents, composite samples must be collected for a duration adequate to be representative of changes in pollutant concentrations and runoff flows using one of the following techniques:

(i) Time-weighted composites composed of 24 discrete hourly samples, which may be collected through the use of automated equipment, or

(ii) Flow-weighted composites collected over the length of the storm event or a typical 24 hour period, whichever is shorter, which may be collected through the use of automated equipment, or

(iii) If automated compositing is not feasible, a composite sample may be collected using a minimum of 4 grab samples, collected during the first 24 hours of the storm water discharge, or for the entire storm water discharge if the storm event is less than 24 hours.

(e) Only one analysis of the composite of aliquots is required;

(f) Analysis for the following constituents is required:

(i) Constituents contributing to the highest priority water quality conditions identified in the Water Quality Improvement Plan,

(ii) Constituents listed as a cause for impairment of receiving waters in the Watershed Management Area listed on the CWA section 303(d) List,

(iii) Constituents for implementation plans or load reduction plans (e.g. Bacteria Load Reduction Plans, Comprehensive Load Reduction Plans) developed for watersheds where the Copermittees are listed responsible parties under the TMDLs in Attachment E to this Order, and

(iv) Applicable SAL constituents.

3. Special Studies

Comment [A51]: See discussion in section 3.5.3 of the comment letter.

a. Within the term of this Order, the Copermittees must initiate~~develop and implement~~ the following special studies:

(1) At least two~~three~~ special studies in each Watershed Management Area to address pollutant and/or stressor data gaps and/or develop information necessary to more effectively address the pollutants and/or stressors that cause or contribute to highest priority water quality conditions identified in the Water Quality Improvement Plan.

(2) At least one~~two~~ special study~~studies~~ for the San Diego Region to address pollutant and/or stressor data gaps and/or develop information necessary to more effectively address the pollutants and/or stressors that are impacting receiving waters on a regional basis in the San Diego Region.

(3) One of the two~~three~~ special studies in each Watershed Management Area may be replaced by a special study implemented pursuant to Provision D.3.a.(2).

b. The special studies must, at a minimum, be in conformance with the following criteria:

(1) The special studies must be related to the highest priority water quality conditions identified by the Copermittees in the Watershed Management Area and/or for the entire San Diego Region;

(2) The special studies developed pursuant to Provision D.3.a.(1) must:

(a) Be implemented within the applicable Watershed Management Area, and

(b) Require some form of participation by all the Copermittees within the Watershed Management Area;

(3) The special studies developed pursuant to Provision D.3.a.(2) must:

(a) Be implemented within the San Diego Region, and

(b) Require some form of participation by all Copermittees covered under the requirements of this Order.

c. Special studies developed to identify sources of pollutants and/or stressors should be pollutant and/or stressor specific and based on historical monitoring data and monitoring performed pursuant to Provisions D.1 and D.2. Development of source identification special studies should include the following:

(1) A compilation of known information on the specific pollutant and/or stressor, including data on potential sources and movement of the pollutant and/or stressor within the watershed. Data generated by the Copermittees and others, as well as information available from a literature research on the pollutant and/or stressor should be compiled and analyzed as appropriate.

(2) An identification of data gaps, based on the compiled information generated on the specific pollutant and/or stressor in Provision D.3.d.(1). Source identification special studies should be developed to fill identified data gaps.

(3) A monitoring plan that will collect and provide data the Copermittees can utilize to do the following:

(a) Quantify the relative loading or impact of a pollutant and/or stressor from a particular source or pollutant generating activity;

(b) Improve understanding of the fate of a pollutant and/or stressor in the environment;

(c) Develop an inventory of known and suspected sources of a pollutant and/or stressor in the Watershed Management Area; and/or

(d) Prioritize known and suspected sources of a pollutant and/or stressor based on relative magnitude in discharges, geographical distribution (i.e.,

regional or localized), frequency of occurrence in discharges, human health risk, and controllability.

d. Special studies initiated prior to the termacceptance of thethis Orderthe Water Quality Improvement Plan that meet the requirements of Provision D.3.b and are implementedcompleted during the term of this Order may be utilized to fulfill the special study requirements of Provision D.3.a.

e. The Copermittees must submit the monitoring plans for the special studies in the Water Quality Improvement Plans required pursuant to Provision F.1.

f. The Copermittees are encouraged to share the results of the special studies regionally among the Copermittees to provide information useful in improving and adapting the management of non-storm water and storm water runoff through the implementation of the Water Quality Improvement Plans.

4. Assessment Requirements

Each Copermittee must evaluate the data collected pursuant to Provisions D.1, D.2 and D.3, and information collected during the implementation of the jurisdictional runoff management programs required pursuant to Provision E, to assess the progress of the water quality improvement strategies in the Water Quality Improvement Plan toward achieving compliance with Provisions A.1.a, A.1.c and A.2.a. Assessments must be performed as described in the following provisions:

a. Receiving Waters Assessments

(1) The Copermittees must assess and report the conditions of the receiving waters in the Watershed Management Area as follows:

(a) Based on data collected pursuant to Provision D.1.a, the assessments under Provision D.4.a.(2) must be included in the transitionalfirst Annual Report required pursuant to Provision F.3.b.(21).

(b) Based on the data collected pursuant to Provisions D.1.a-e, the assessments required under Provision D.4.a.(2) must be included in the Report of Waste Discharge required pursuant to Provision F.5.b.

(2) The Copermittees must assess the status and trends of receiving water quality conditions in 1) coastal waters, 2) enclosed bays, harbors, estuaries, and lagoons, and 3) streams under dry weather and wet weather conditions, as those conditions are affected by discharges from the Copermittees' MS4, to determine the progress towards meeting interim or final goals of the Water Quality Implementation Plan for the Watershed Management Area. For each of the three types of receiving waters that are present in each Watershed Management Area the applicable Copermittees must:

Comment [A52]: See our edits to that section

Comment [A53]: See discussion in section 3.5.3 of the comment letter.

(a) Determine whether or not the conditions of the receiving waters are meeting any applicable numeric goals established pursuant to provision B.2.e.~~protective of the designated beneficial uses~~;

~~(b) Identify the most critical beneficial uses that must be protected or restored to ensure overall health of the receiving water;~~

~~(c) Determine whether or not those critical beneficial uses are being protected and where those beneficial used must be restored;~~

~~(d)~~(b) Identify short-term and/or long-term improvements or degradation of Receiving Water conditions related to those numeric goals~~those critical beneficial uses~~;

~~(e)~~(c) Identify data gaps in the monitoring data necessary to assess Provisions D.4.a.(2)(a)-(d).

b. MS4 OUTFALL DISCHARGES ASSESSMENTS

(1) Non-Storm Water Discharges Reduction Assessments

(a) ~~Each Copermittee must assess and report the progress of its illicit discharge detection and elimination program, required to be implemented pursuant to Provision E.2, toward reducing and effectively prohibiting non-storm water and illicit discharges into the MS4 within its jurisdiction as follows:~~

~~(i) Based on data collected pursuant to Provisions D.2.a.(2), the assessments under Provision D.4.b.(1)(b) must be included when complete in the Annual Report required pursuant to Provision F.3.b.(1).~~

~~(ii) Based on the data collected pursuant to Provisions D.2.b, the assessments required under Provision D.4.b.(1)(c) must be included in the first Annual Report required pursuant to Provision F.3.b.(1), and annually thereafter.~~

~~(iii) Based on the data collected pursuant to Provisions D.2.b, the assessment required under Provision D.4.b.(1)(c) must be included in the Report of Waste Discharge required pursuant to F.5.b.~~

(b) Based on the transitional dry weather MS4 outfall discharge field screening monitoring required pursuant to Provision D.2.a.(2), each

Comment [A54]: See discussion in section 3.5.3 of the comment letter for key changes. Other changes are described in comments below.

Comment [A55]: For clarity and simplicity, these timelines were integrated into the following sections.

Municipal Copermittee must assess and report the following, as applicable to discharges from the MS4 (including Special District Copermittee MS4s) to flowing receiving waters within their jurisdiction, in the Annual Report required pursuant to Provision F.3.b.(2):~~:~~

Comment [A56]: Per edits to that section

(i) Identify the known and suspected controllable sources (e.g. facilities, areas, land uses, pollutant generating activities) of transient and persistent flow discharges to flowing receiving waters~~flows~~ within the Copermittee's jurisdiction in the Watershed Management Area;

(ii) Identify sources of transient and persistent flow discharges to flowing receiving waters~~flows~~ within the Copermittee's jurisdiction in the Watershed Management Area that have been reduced or eliminated; and

(iii) Identify modifications to the field screening monitoring locations and frequencies for the MS4 outfalls in its inventory necessary to identify and eliminate sources of persistent flow non-storm water discharges to flowing receiving waters, pursuant to Provision D.2.b.(1).

(c) Based on the dry weather MS4 outfall discharge field screening monitoring required pursuant to Provision D.2.b, each Municipal Copermittee must assess and report the following, as applicable to discharges from the MS4 (including Special District Copermittee MS4s) within their jurisdiction, in each Annual Report required pursuant to F.3.b.(3) and in the Report of Waste Discharge required pursuant to Provision F.5.b.:~~:~~

Comment [A57]: Per edits to that section

(i) The assessments required pursuant to Provision D.4.b.(1)(a~~b~~);

Comment [A58]: Per edits above

(ii) Based on the data collected and applicable NALs in the Water Quality Improvement Plan, rank the MS4 outfalls in the Copermittee's jurisdiction according to potential threat to receiving water quality, and produce a prioritized list of major MS4 outfalls for follow-up action to update the Water Quality Improvement Plan, with the goal of eliminating persistent flow non-storm water discharges to flowing receiving waters and/or pollutant loads in order of the ranked priority list through targeted programmatic actions and source investigations;

(iii) For the highest priority major MS4 outfalls with persistent flow discharges to a flowing receiving water~~flows~~ that are in exceedance of NALs, identify the known and suspected sources within the Copermittee's jurisdiction in the Watershed Management Area that may cause or contribute to the NAL exceedances;

(iv) Each Copermittee must analyze the data collected pursuant to Provision D.2.b.(2), and: ~~utilize a model or other method, to calculate or estimate the non-storm water volumes and pollutant loads collectively discharged from all the major MS4s outfalls in its jurisdiction identified as having persistent dry weather flows during~~

Comment [A59]: Edits to this section (and sub-sections) is different than SD edits.

~~the monitoring year. These calculations or estimates must be updated annually. Each Copermittee must calculate or estimate:~~

[a] Calculate or estimate annual non-storm water volumes and pollutant loads (associated with the priority constituents identified in the WQIP) collectively discharged from the monitored persistently flowing ~~Copermittee's~~ major MS4 outfalls discharging to flowing receiving waters within the Copermittee's jurisdiction, or discharged into another Copermittee's MS4 as demonstrated through provision E.2.d.~~with an estimate of the percent contribution from each known and suspected source for each MS4 outfall~~;

[b] Identify ~~identify~~ and quantify, where feasible, known sources of non-stormwater flows not ~~[b] Annual non-storm water volumes and pollutant loads from areas or facilities~~ subject to the Copermittee's legal authority that are discharged from the Copermittee's major MS4 outfalls to downstream receiving waters.

Comment [A60]: This is to help ensure jurisdictional accountability for what is being discharged from their jurisdiction.

(v) Each Copermittee must review the data collected pursuant to Provision D.2.b and findings from the assessments required pursuant to Provision D.4.b.(1)(c)(i)-(iv) ~~once per Permit term on an annual basis, and then report~~ within the Regional Monitoring and Assessment Report per Provision F.3.c., the following ~~to~~:

[a] Identify reductions and progress in achieving reductions in non-storm water and illicit discharges to the Copermittee's MS4 in the Watershed Management Area;

[b] Assess the effectiveness of water quality improvement strategies being implemented by the Copermittees within the Watershed Management Area toward reducing or eliminating non-storm water and pollutant loads discharging from the MS4 to receiving waters within its jurisdiction, with an estimate, if possible, of the non-storm water volume and/or pollutant load reductions attributable to specific water quality strategies implemented by the Copermittee; and

[c] Identify modifications necessary to increase the effectiveness of the water quality improvement strategies implemented by the Copermittee in the Watershed Management Area toward reducing or eliminating non-storm water and pollutant loads discharging from the MS4 to receiving waters within its jurisdiction.

(vi) Identify data gaps in the monitoring data necessary to assess Provisions D.4.b.(2)(c)(i)-(v).

(2) Storm Water Pollutant Discharges Reduction Assessments

(a) ~~The Copermittees must assess and report the progress of the water quality improvement strategies, required to be implemented pursuant to~~

~~Provisions B and E, toward reducing pollutants in storm water discharges from the MS4s within the Watershed Management Area as follows:~~

~~(i) Based on data collected pursuant to Provisions D.2.a.(3), the assessments under Provision D.4.b.(2)(b) must be included in the first Annual Report required pursuant to Provision F.3.b.(1).~~

~~Based on the data collected pursuant to Provisions D.2.c, the assessments required under ProvisionProvision first Annual Report required pursuant to Provision F.3.b.(1), and annually thereafter.~~

~~Based on the data collected pursuant to Provisions D.2.c, the assessment required under Provisions D.4.b.(2)(c)-(d) must be included in the Report of Waste Discharge required pursuant to F.5.b.~~

(b) Based on the transitional wet weather MS4 outfall discharge monitoring required pursuant to Provision D.2.a.(3) the Copermittees must assess and report the following in the Transitional Period Monitoring Report required pursuant to Provision F.3.b.(2):

(i) The Copermittees must analyze the monitoring data collected pursuant to Provision D.2.a.(3), and utilize a watershed model or other method, to calculate or estimate: ~~storm water volumes and pollutant loads discharged from the MS4s in each Copermittee's jurisdiction within the Watershed Management Area. The Copermittees must calculate or estimate the following for each monitoring year:~~

[a] The average storm water runoff coefficient for each land use type within the Watershed Management Area;

[b] The volume of storm water and pollutant loads discharged from each of the Copermittee's monitored major MS4 outfalls in its jurisdiction to receiving waters within the Watershed Management Area for each monitored storm event with measurable rainfall greater than 0.1 inch, for each of the priority water quality constituents identified in the WQIP;

[c] The total volume and pollutant loads potentially discharged from each Municipal Copermittee's jurisdiction within the watershed management area, for each monitored event, extrapolated from the data produced from the monitored outfalls.

~~The pollutant loads discharged from each of the Copermittee's major MS4 outfalls in its jurisdiction to receiving waters within the Watershed Management Area for each storm event with measurable rainfall greater than 0.1 inch; and~~

~~[d] The percent contribution of storm water volumes and pollutant loads discharged from each land use type within the drainage basin to each of the Copermittee's major MS4 outfalls in its~~

Comment [A61]: See discussion in section 3.5.3 of the comment letter.

Comment [A62]: Removed as this was confusing as it was duplicative of the subsections below.

Comment [A63]: There is no need to perform this analysis for other pollutants not identified as priorities in the WQIP.

~~jurisdiction to receiving waters within the Watershed Management Area for each storm event with measurable rainfall greater than 0.1 inch.~~

(ii) Identify modifications to the wet weather MS4 outfall discharge monitoring locations and frequencies necessary to identify ~~sources~~ pollutants in storm water discharges from the MS4s in the Watershed Management Area pursuant to Provision D.2.c.(1).

(c) Based on the wet weather MS4 outfall discharge monitoring required pursuant to Provision D.2.c the Copermittees must assess and report (i) and (ii) below in the annual reports required per F.3.b.(3), and (i) through (iv) below in the Regional Monitoring and Assessment Report required per F.3.c. ~~the following~~:

(i) The assessments required pursuant to Provision D.4.b.(2)(a~~b~~);

(ii) Based on the data collected and applicable SALs in the Water Quality Improvement Plan, analyze and compare the monitoring data to the analyses and assumptions used to develop the Water Quality Improvement Plans, including strategies developed per Provision B.3, and evaluate whether ~~,rank the MS4 outfalls in the Watershed Management Area according to potential threat to receiving water quality, and produce a prioritized list of major MS4~~ there is a need to update the Water Quality Improvement Plan;

(iii) The Copermittees must review the data collected pursuant to Provision D.2.c and findings from the assessments required pursuant to Provisions D.4.b.(2)(c)(i)-(ii) ~~on an annual basis~~ to:

[a] Identify reductions and progress in achieving reductions in pollutant concentrations and/or pollutant loads from different land uses and/or drainage areas discharging from the Copermittees' MS4s in the Watershed Management Area;

[b] Assess the effectiveness of water quality improvement strategies being implemented by the Copermittees within the Watershed Management Area toward reducing pollutants in ~~storm water~~ discharges from the MS4s to receiving waters within the Watershed Management Area to the MEP, with an estimate, if possible, of the pollutant load reductions attributable to specific water quality strategies implemented by the Copermittees; and

[c] Identify modifications necessary to increase the effectiveness of the water quality improvement strategies implemented by the Copermittees in the Watershed Management Area toward reducing pollutants in ~~storm water~~ discharges from the MS4s to receiving waters in the Watershed Management Area to the MEP.

(iv) Identify data gaps in the monitoring data necessary to assess Provisions D.4.b.(2)(c)(i)-(iii).

Comment [A64]: See discussion in section 3.5.3 of the comment letter.

Comment [A65]: Per edits to that section

Comment [A66]: Per edits above

(d) Within the Regional Monitoring and Assessment report required pursuant to F.3.c. ~~The~~ Copermittees must evaluate all the data collected pursuant to Provision D.2.c, and incorporate new outfall monitoring data into time series plots for each long-term monitoring constituent for the Watershed Management Area, and perform statistical trends analysis on the cumulative long-term wet weather MS4 outfall discharge water quality data set.

c. SPECIAL STUDIES ASSESSMENTS

The Copermittees must in the applicable annual report required pursuant to F.3.b., ~~annually~~ evaluate the results and findings from the special studies developed and implemented pursuant to Provision D.3, and assess their relevance to the Copermittees' efforts to characterize receiving water conditions, understand sources of pollutants and/or stressors, and control and reduce the discharges of pollutants from the MS4 outfalls to receiving waters in the Watershed Management Area. The Copermittees must report the results of the special studies assessments applicable to the Watershed Management Area, and identify any necessary modifications or updates to the Water Quality Improvement Plan based on the results in the Annual Reports required pursuant to Provision F.3.b.

d. INTEGRATED ASSESSMENT OF WATER QUALITY IMPROVEMENT PLAN

As part of the iterative approach and adaptive management process required for the Water Quality Improvement Plan pursuant to Provision B.5, the Copermittees in each Watershed Management Area must integrate the data collected pursuant to Provisions D.1-D.3, the findings from the assessments required pursuant to Provisions D.4.a-c, and information collected during the implementation of the jurisdictional runoff management programs required pursuant to Provision E to assess the effectiveness of, and identify necessary modifications to, the Water Quality Improvement Plan as follows:

(1) The Copermittees must re-evaluate the priority water quality conditions and numeric goals for the Watershed Management Area, as needed, during the term of this Order pursuant to Provision B.5.a. The re-evaluation and recommendations for modifications to the priority water quality conditions, and/or numeric goals and corresponding schedules may be provided in the Annual Reports required pursuant to Provision F.3.b, but must at least be provided in the Regional Monitoring and Assessment Report ~~of Waste Discharge~~ pursuant to Provision F.3.c ~~5.b~~. The priority water quality conditions and numeric goals for the Watershed Management Area must be re-evaluated as follows:

(a) Re-evaluate the receiving water conditions in the Watershed Management Area in accordance with Provision B.2.a;

(b) Re-evaluate the impacts on receiving waters in the Watershed Management Area from MS4 discharges in accordance with Provision B.2.b;

(c) Re-evaluate the identification of MS4 sources of pollutants and/or stressors in accordance with Provision B.2.d;

(d) Identify beneficial uses of the receiving waters that are protected or must be restored in accordance with Provision D.4.a;

(e) Evaluate the progress toward achieving the interim and final numeric goals for restoring impacted beneficial uses in the receiving waters.

(2) The Copermittees must re-evaluate the water quality improvement strategies for the Watershed Management Area during the term of this Order pursuant to Provision B.5.b. The re-evaluation and recommendations for modifications to the water quality improvement strategies and schedules may be provided in the Annual Reports required pursuant to Provision F.3.b, but must at least be provided in the Regional Monitoring and Assessment Report pursuant to Provision F.3.c~~must be provided in the Annual Reports required pursuant to Provision F.3.b, and provided in the Report of Waste Discharge pursuant to Provision F.5.b~~. The water quality improvement strategies for the Watershed Management Area must be re-evaluated as follows:

(a) Identify the non-storm water and storm water pollutant loads from the Copermittees' MS4 outfalls in the Watershed Management Area, calculated or estimated pursuant to Provisions D.4.b;

(b) Identify the non-storm water and storm water pollutant load reductions, or other improvements to receiving water or water quality conditions, that are necessary to attain the interim and final numeric goals identified in the WQIP~~for restoring impacted beneficial uses in the receiving waters~~;

(c) Identify any~~the~~ non-storm water and storm water pollutant load reductions, or other improvements to the quality of MS4 discharges, that are necessary for the Copermittees to ~~demonstrate that non-storm water and storm water~~ reduce discharges of pollutants from their MS4s that have been demonstrated to be~~are not~~ causing or contributing to exceedances of receiving water limitations;

Comment [A67]: See discussion in section 3.5.3 of the comment letter.

(d) Evaluate the progress of the water quality improvement strategies toward achieving the interim and final numeric goals identified in the WQIP~~for restoring impacted beneficial uses in the receiving waters~~.

(3) The Copermittees must re-evaluate and adapt the water quality monitoring and assessment program for the Watershed Management Area when new information becomes available to improve the monitoring and assessment

program pursuant to Provision B.5.c. The re-evaluation and recommendations for modifications to the monitoring and assessment program may be provided in the Annual Reports required pursuant to Provision F.3.b, but must at least be provided in the Regional Monitoring and Assessment Report ~~of Waste Discharge~~ pursuant to Provision F.3.c~~5.b~~. Modifications to the water quality monitoring and assessment program must be consistent with the requirements of Provision D.1-D.3. The re-evaluation of the water quality monitoring and assessment program for the Watershed Management Area must consider the data gaps identified by the assessments required pursuant to Provisions D.4.a-b, and results of the special studies implemented pursuant to Provision D.4.c.

5. Monitoring Provisions

Each Copermittee must comply with all the monitoring, reporting, and recordkeeping provisions of the Standard Permit Provisions and General Provisions contained in Attachment B to this Order.

E. JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS

The purpose of this provision is for each Copermittee to implement a program to control the contribution of pollutants to and the discharges from the MS4 within its jurisdiction. The goal of the jurisdictional runoff management programs is to implement strategies that effectively prohibit non-storm water discharges to the MS4 and reduce the discharge of pollutants in ~~storm water~~ to the MEP. This goal will be accomplished through implementing the jurisdictional runoff management programs in accordance with the strategies identified in the Water Quality Improvement Plans.

Each Copermittee must update its jurisdictional runoff management program document, in accordance with Provision F.2.a, to incorporate all the requirements of Provision E, consistent with their legal authority. Until the Copermittee has updated its jurisdictional runoff management program document with the applicable requirements of Provision E, the Copermittee must continue implementing its current jurisdictional runoff management program.

Modification of Jurisdictional Runoff Management Program Requirements

Modifications shall be considered and where selected, proposed according to the process in Provision B.5. Proposed modifications may increase, decrease, and/or replace minimum requirements identified in Provision E.

1. Legal Authority Establishment and Enforcement

Comment [A68]: See discussion in section 3.6 of the comment letter.

a. Each Copermittee must establish, maintain, and enforce adequate legal authority within its jurisdiction to control pollutant discharges into and from its MS4 through statute, ordinance, permit, or series of contracts, ~~order, or similar means~~ which~~.~~ ~~This legal authority must~~, at a minimum, authorize the Copermittee to:

(1) Effectively prohibit through ordinance, order or other similar means~~Prohibit and eliminate all~~ illicit discharges ~~and illicit connections~~ to its MS4;

(2) Control, through ordinance, permit, contract, order or similar means the contribution of pollutants in discharges to the MS4 by storm water discharges ~~of runoff~~ associated with industrial and construction activity ~~to its MS4~~, and ~~control~~ the quality of storm water discharges ~~runoff~~ from sites of industrial and construction activity~~sites~~, whose discharges have not been separately authorized through ~~that do not, including industrial and construction sites which~~ have coverage under ~~the statewide General Permit for Discharges of Storm Water Associated with Industrial Activities (Industrial General Permit) or General Permit for Discharges of Storm Water Associated with Construction Activities (Construction General Permit)~~, ~~as well as to those sites which do not;~~

Comment [A69]: See discussion in section 3.6.2 of the comment letter.

(3) Control, through ordinance, order or similar means the discharge to the MS4 of spills, dumping, or disposal of materials other than storm water ~~into its~~

Comment [A70]: See discussion in section 3.6.2 of the comment letter.

~~MS4~~;

(4) Control through interagency agreements among Copermittees the contribution of pollutants from one portion of the MS4 to another portion of the MS4;

(5) ~~Control, by coordinating and cooperating with other owners of the MS4 such as Caltrans, the U.S. federal government, or sovereign Native American Tribes through interagency agreements, where possible, the contribution of from their portion of the MS4 to the portion of the MS4 within the Copermittee's jurisdiction;~~

Comment [A71]: See discussion in section 3.6.2 of the comment letter.

(6) Require compliance with conditions in its ~~statutes,~~ ordinances, permits, contracts, or orders~~, or similar means to hold dischargers to its MS4 accountable for their contributions of pollutants and flows~~;

Comment [A72]: See discussion in section 3.6.2 of the comment letter.

(7) ~~Require the use of BMPs to prevent or reduce the discharge of pollutants in storm water from its MS4 to the MEP;~~

(8) ~~Require documentation on the effectiveness of BMPs implemented to prevent or reduce the discharge of pollutants in storm water from its MS4 to the MEP;~~

(9) ~~Utilize enforcement mechanisms to require compliance with its statutes, ordinances, permits, contracts, orders, or similar means; and~~

Comment [A73]: See discussion in section 3.6.2 of the comment letter.

(10) Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with permit conditions~~its statutes, ordinances, permits, contracts, orders, or similar means and with the requirements of this Order~~, including the prohibition of illicit discharges and connections to its MS4; ~~the Copermittee must also have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from industrial facilities, including construction sites, discharging into its MS4.~~

Comment [A74]: See discussion in section 3.6.2 of the comment letter.

b. With the first Annual Report required pursuant to Provision F.3.b, each Copermittee must submit a statement certified by its Principal Executive Officer, Ranking Elected Official, or Duly Authorized Representative that the Copermittee has taken the necessary steps to obtain and maintain full legal authority within its jurisdiction to implement and enforce each of the requirements contained in this Order.

2. Illicit Discharge Detection and Elimination

Comment [A75]: See discussion in section 3.7 of the comment letter.

Each Copermittee must implement a program to actively detect and eliminate illicit discharges and improper disposal into the MS4, or otherwise require the discharger

to apply for and obtain a separate NPDES permit. The illicit discharge detection and elimination program must be implemented in accordance with the strategies identified in the Water Quality Improvement Plan and include, at a minimum, the following requirements:

STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS

Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented as part of the illicit discharge detection and elimination program to address ~~non-storm water and~~ illicit discharges and connections that the Copermittee has identified as potential sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:

(1) Provide specific details about how the strategies and/or activities will be implemented (e.g. designate ~~additional~~ BMPs, focus education, and/or increase/decrease frequency of inspections in specific areas); and

(2) The strategies and/or activities ~~must~~ may be modified from ~~consistent with~~ the default requirements of Provisions E.2.b-e~~a-d and~~ to be consistent with the strategies identified in the Water Quality Improvement Plan;

(3) The requirements of the programs as outlined in the following sub-provisions may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).

a. NON-STORM WATER DISCHARGES

To the extent allowable by law, each~~Each~~ Copermittee must address all non-storm water discharges ~~from~~into the MS4 as illicit discharges, where the likelihood exists that they are a source of pollutants to the Receiving Waters, unless ~~a non-storm water~~the discharge is either identified as a discharge authorized by a separate NPDES permit, or identified as a category of non-storm water discharges or flows that is consistent with~~must be addressed pursuant to~~ the following requirements:

(1) ~~Discharges of non-storm water to the MS4 from the following categories must be addressed as illicit dischargeunless the discharge has coverage under NPDES Permit No. CAG919001 (Order No. R9-2007-0034, or subsequent order) for discharges to San Diego Bay, or NPDES Permit No. CAG919002 (Order No. R9-2008-0002, or subsequent order) for discharges to surface waters other than San Diego Bay.~~

Comment [A76]: See discussion in section 3.7.2 of the comment letter.

~~(a) Uncontaminated pumped ground water;~~

~~(b) Discharges from foundation drains;~~[20]

~~(c) Water from crawl space pumps; and~~

~~(d) Water from footing drains.~~[19]

(2) Discharges of non-storm water from water line flushing and water main breaks to the MS4 must be addressed as illicit discharges unless the discharge has coverage under a valid NPDES Permit~~, No. CAG 679001~~ (Order No. R9-2010-0003, or a subsequent order). This category includes potable water line flushing ~~and water main break~~ discharges from water purveyors issued a water supply permit by the California Department of Public Health or federal military installations. Discharges from recycled or reclaimed water lines to the MS4 must be addressed as illicit discharges, unless the discharges have coverage under a separate NPDES permit.

Comment [A77]: See discussion in section 3.7.2 of the comment letter.

(3) Discharges of non-storm water into the MS4 from the following categories must be addressed by the Copermittee as illicit discharges only if the Copermittee or the San Diego Water Board identifies the individual discharge as a source of pollutants to receiving waters:

Comment [A78]: See discussion in section 3.7.2 of the comment letter.

(a) Diverted stream flows;

(b) Rising ground waters;

(c) Uncontaminated ground water infiltration to MS4s;

(d) Uncontaminated pumped ground water;

(e) Springs;

(f) Water from crawl space pumps;

~~(c)~~(g) Flows from riparian habitats and wetlands;

(h) Landscape irrigation;

(i) Irrigation water;

(j) Lawn watering;

Comment [A79]: See Legal Comments discussion.

[20] ~~Provision E.2.a.(1) only applies to this category on non-storm water if the system is designed to be located at or below the highest historical groundwater table to actively or passively extract groundwater during any part of the year.~~

~~(d)~~(k) Discharges from potable water sources;

~~(e)~~(l) Discharges from foundation drains;[21] ~~and~~

(m)Discharges from footing drains. .[21]

(4) Discharges of non-storm water into the MS4 from the following categories must be controlled by the requirements given below through statute, ordinance, permit, contract, order, or similar means~~. Discharges of non-storm water to the MS4 from the following categories not controlled by the requirements given below through~~ If such statutes, ordinances, permits, contracts, orders, or similar means have not been enacted by the Copermittee, the applicable categories below must be addressed by the Copermittee as illicit discharges.

Comment [A80]: See discussion in section 3.7.2 of the comment letter.

(a) Air conditioning condensation

The discharge of air conditioning condensation should~~must~~ be directed to landscaped areas or other pervious surfaces where feasible.

(b) Individual residential vehicle washing

(i) The discharge of wash water ~~must~~ should be directed to landscaped areas or other pervious surfaces where feasible; and

(ii) Minimize the use of water for vehicle washing, use as little washing detergent and other vehicle wash products as possible, wash vehicles at commercial wash facilities, and implement other practices or behaviors that will prevent the discharge of pollutants associated with individual residential vehicle washing from entering the MS4.

(c) Dechlorinated swimming pool discharges

(i) Eliminate residual chlorine, algaecide, filter backwash, or other pollutants from swimming pools prior to discharging to the MS4; and

(ii) The discharge of saline swimming pool water must be directed to the sanitary sewer, landscaped areas, or other pervious surfaces that can accommodate the volume of water, unless the saline swimming pool water can be discharged via a pipe or concrete channel directly to a naturally saline water body (e.g. Pacific Ocean).

(5) Firefighting discharges to the MS4 must be addressed by the Copermittee as

Comment [A81]: See discussion in section 3.7.2 of the comment letter.

[21] ~~Provision E.2.a.(3) only applies to this category of non-storm water discharge if the system is designed to be located above the highest historical groundwater table at all times of the year, and the system is only expected to discharge non-storm water under unusual circumstances.~~

follows:~~illicit discharges only if the Copermittee or the San Diego Water Board identifies the discharge as a significant source of pollutants to receiving waters. Firefighting discharges to the MS4 not identified as a significant source of pollutants to receiving waters, must be addressed, at a minimum, as follows:~~

(a) Non-emergency firefighting discharges

(i) Building fire suppression system maintenance discharges (e.g~~.~~., sprinkler line flushing) to the MS4 must be addressed as illicit discharges unless appropriate BMPs are implemented.

(ii) Non-emergency firefighting discharges (i.e., discharges from controlled or practice blazes, firefighting training, and maintenance activities not associated with building fire suppression systems) must be addressed by a program, to be developed and implemented by the Copermittee in conjunction with the local Fire Authority/District, to reduce or eliminate pollutants in such discharges from entering the MS4.

(b) Emergency firefighting discharges (i.e., flows necessary for the protection of life or property) do not require BMPs and need not be prohibited.

~~Each Copermittee should develop and encourage implementation of BMPs to reduce or eliminate pollutants in emergency firefighting discharges to the MS4s and receiving waters within its jurisdiction. During emergency situations, priority of efforts should be directed toward life, property, and the environment (in descending order). BMPs should not interfere with immediate emergency response operations or impact public health and safety.~~

(6) If the Copermittee or San Diego Water Board identifies any category of non-storm water discharges listed under Provisions E.2.a.(1)-(4) as a source of pollutants to receiving waters, the category must be effectively prohibited through ordinance, order, or similar means and addressed as an illicit discharge.

(7) ~~Each Copermittee must, where feasible, reduce or eliminate non-storm water discharges listed under Provisions E.2.a.(1)-(4) into its MS4 whether or not the non-storm water discharge has been identified as an illicit discharge, unless a non-storm water discharge is identified as a discharge authorized by a separate NPDES permit.~~

Comment [A82]: See discussion in section 3.7.2 of the comment letter.

b. PREVENT AND DETECT ILLICIT DISCHARGES AND CONNECTIONS

Each Copermittee must include the following measures within its program to prevent and detect illicit discharges to the MS4:

(1) Each Copermittee must maintain an updated map of its entire MS4 and the corresponding drainage areas. The accuracy of the MS4 map must be confirmed during the field screening required pursuant to Provision E.2.c. The MS4 map must be included as part of the jurisdictional runoff management program document. Any geographic information system (GIS) layers or files used by the Copermittee to maintain the MS4 map must be made available to the San Diego Water Board upon request. The MS4 map must identify the following:

(a) All segments of the MS4 owned, operated, and maintained by the Copermittee;

(b) All known locations of inlets that discharge and/or collect runoff into the Copermittee's MS4;

(c) All known locations of connections with other MS4s not owned or operated by the Copermittee (e.g. Caltrans MS4s);

(d) All known locations of major MS4 outfalls as defined by 40 CFR §122.26(b)(5-6) ~~and private outfalls,~~ that discharge runoff collected from areas within the Copermittee's jurisdiction;

Comment [A83]: See discussion in section 3.7.2 of the comment letter.

(e) All segments of receiving waters within the Copermittee's jurisdiction that receive and convey runoff discharged from the Copermittee's MS4 outfalls;

(f) Locations of the MS4 outfalls, identified pursuant to Provision D.2.a.(1), within its jurisdiction; and

(g) Locations of the non-storm water persistent flow MS4 outfall discharge monitoring stations, identified pursuant to Provision D.2.b.(2)(b), within its jurisdiction.

(2) Each Copermittee must use Copermittee personnel and contractors to assist in identifying and reporting illicit discharges and connections during their daily employment activities.

(3) Each Copermittee must promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality impacts associated with discharges to or from the MS4, including the following methods for public reporting:

(a) Operate a public hotline, which can be Copermittee-specific or shared by the Copermittees, and must be capable of receiving reports in both English and Spanish 24 hours per day and seven days per week; and

(b) Designate an e-mail address for receiving electronic reports from the public, which can be Copermittee-specific or shared by the Copermittees, and must be prominently displayed on the Copermittee's webpage and the Regional Clearinghouse required pursuant to Provision F.4.

(4) Each Copermittee must implement practices and procedures (including a notification mechanism) to prevent, respond to, contain, and clean up any spills that may discharge into the MS4 within its jurisdiction from any source. Such practices and procedures may include the coordination with other parties, such as sanitary sewer operators. The Copermittee must coordinate, to the extent possible, with spill response teams to prevent entry of spills into the MS4~~, and prevent contamination of surface water, ground water, and soil.~~ The Copermittee must coordinate spill prevention, containment, and response activities throughout all appropriate internal~~Copermittee~~ departments, programs, and agencies.

Comment [A84]: See discussion in section 3.7.2 of the comment letter.

(5) Each Copermittee must implement practices and procedures to ~~prevent~~ control and limit infiltration of seepage from sanitary sewers owned by a Copermittee agency (including private laterals and failing septic systems) to the MS4.

(6) Each Copermittee shall~~must~~ coordinate, when necessary, with upstream Copermittees and/or entities to prevent illicit discharges from upstream sources into the MS4 within its jurisdiction.

c. Field Screening

Each Copermittee must conduct field screening (i.e. visual observations, field testing, and/or analytical testing) of MS4 outfalls and other portions of its MS4 within its jurisdiction to detect non-storm water and illicit discharges and connections to the MS4 in accordance with the dry weather MS4 outfall discharge monitoring requirements in Provisions D.2.a.(2) and D.2.b.(1).

d. Investigate and Eliminate Illicit Discharges And Connections

Each Copermittee must include the following measures within its program to investigate and eliminate illicit discharges to the MS4 to comply with provision A.1.b:

(1) Each Copermittee must prioritize and determine when follow-up investigations will be performed in response to visual observations and/or water quality monitoring data collected during an investigation of a detected non-storm water ~~or~~ illicit discharge into or from the MS4. The criteria for prioritizing investigations must consider the following:

(a) Pollutants identified as causing or contributing to the highest water quality

priorities identified in the Water Quality Improvement Plan;

(b) Pollutants identified as causing or contributing, or threatening to cause or contribute to impairments in water bodies on the 303(d) List and/or in environmentally sensitive areas (ESAs), located within its jurisdiction;

(c) Pollutants identified from sources or land uses known to exist within the area, drainage basin, or watershed that discharges to the portion of the MS4 within its jurisdiction included in the investigation;

(d) Pollutants identified as causing or contributing to an exceedance of a NAL in the Water Quality Improvement Plan, where the source has not been identified as natural or otherwise permitted; and

(e) Pollutants identified as an immediate and significant threat to human health or the environment.

(2) Each Copermittee must implement procedures to investigate and inspect portions of its MS4 that, based on reports or notifications, field screening, or other appropriate information, indicate a reasonable potential of receiving, containing, or discharging pollutants due to illicit discharges, or illicit connections~~, or other sources of non-storm water~~. The procedures must include the following:

(a) Each Copermittee must develop criteria to:

(i) Assess the validity of each report or notification received; and

(ii) Prioritize the response to each report or notification received.

(b) Each Copermittee must prioritize and respond to each valid report or notification (e.g., public reports, staff or contractor reports and notifications, etc.) of an incident in a timely manner.

(c) ~~Each~~In accordance with the procedures defined in Provision E.2.d.(1), each~~Each~~ Copermittee must investigate and seek to identify the source(s) of discharges of non-storm water illicit discharges or illicit connections ~~where flows are~~ observed into and from the MS4 during the field screening required pursuant to Provision D.2.b.(1) as follows:

(i) Obvious illicit discharges (i.e., unusual color or odor) must be immediately investigated to identify the source(s) of non-storm water illegal discharges;

(ii) The investigation must include field investigations to identify sources or potential sources for the discharge, unless the source or potential source has already been identified during previous investigations; and

(iii) The investigation may include follow-up field investigations and/or reviewing Copermittee inventories and other land use data to identify potential sources of the discharge.

(d) Each Copermittee must maintain records and a database of the following information:

(i) Location of incident, including hydrologic subarea, portion of MS4 receiving the non-storm water ~~or~~ illicit discharge, and point of discharge or potential discharge from MS4 to receiving water;

(ii) Source of information initiating the investigation (e.g., public reports, staff or contractor reports and notifications, field screening, etc.);

(iii) Date the information used to initiate the investigation was received;

(iv) Date the investigation was initiated;

(v) Dates of follow-up investigations;

(vi) Identified or suspected source of the illicit discharge or connection, if determined;

(vii) Known or suspected related incidents, if any;

(viii) Result of the investigation; and

(ix) If a source cannot be identified and the investigation is not continued, a rationale for why a discharge does not pose a threat to water quality and/or does not require additional investigation.

(e) Each Copermittee must ~~track~~ document, and where feasible quantify, any readily~~and seek to~~ identifiable~~y~~ the source(s) of non-storm water illegal discharges from the MS4 where there is evidence of non-storm water ~~having been discharged~~illegal discharges or connections into or from the MS4 (e.g., pooled water), in accordance with MS4 outfall discharge monitoring requirements in Provisions D.2.a.(2) and D.2.b.

Comment [A85]: See discussion in section 3.7.2 of the comment letter.

(3) Each Copermittee must initiate the implementation of procedures, in a timely manner, to eliminate all detected and identified illicit discharges and connections within its jurisdiction. The procedures must include the following responses:

(a) Each Copermittee must enforce its legal authority, as required under Provision E.1, to eliminate illicit discharges and connections to the MS4.

(b) If the Copermittee identifies the source as a controllable source of non-storm water ~~or~~ illicit discharge or connection, the Copermittee must implement its Enforcement Response Plan pursuant to Provision E.6 and enforce its legal authority to effectively prohibit and with the goal of eliminati~~ng~~e illicit discharges and connections to its MS4.

(c) If the Copermittee identifies the source of the discharge as a category of non-storm water discharges in Provision E.2.a, and the discharge is in exceedance of NALs in the Water Quality Improvement Plan, then the Copermittee must determine if: (1) this is an isolated incident or set of circumstances that will be addressed through its Enforcement Response Plan pursuant to Provision E.6, or (2) the category of discharge must be addressed through the effective prohibition of that category of discharge as an illicit discharge pursuant to Provision E.2.a.(6).

(d) If the Copermittee suspects the source of the non-storm water discharge as natural in origin (i.e. non-anthropogenically influenced) and in conveyance into the MS4, then the Copermittee must document and provide the data and evidence necessary to demonstrate to the San Diego Water Board that it is natural in origin and does not require further investigation.

(e) If the Copermittee identifies that the discharge is coming from another Copermittees' jurisdiction, the receiving Copermittee must document and provide the findings to the upstream Copermittee. The obligation to implement the requirements of provision E.2.d.(3) are thenceforth the responsibility of the upstream Copermittee.

(f) If the Copermittee identifies the source as a non-storm water discharge that has been separately authorized by the San Diego Water Board, or that is contributing pollutants to the MS4 and that may require coverage under a WDR from the San Diego Water Board, the Copermittee shall provide all relevant findings to the San Diego Water Board and may back charge the Regional Board for the entire cost of conducting the source investigation.

~~(e)~~(g) If the Copermittee is unable to identify and document the source of a recurring non-storm water discharge to or from the MS4, then the Copermittee must ~~address the discharge as an illicit discharge and~~ update its jurisdictional runoff management program to address the common and suspected sources of the non-storm water discharge within its jurisdiction in accordance with the Copermittee's priorities.

(4) Each Copermittee must submit a summary of the non-storm water discharges and illicit discharges and connections investigated and eliminated within its jurisdiction with each Annual Report required under Provision F.3.b of this Order.

3. Development Planning

Each Copermittee must, within their jurisdiction, use their land use and planning

Comment [A86]: See discussion in section 3.7.2 of the comment letter.

Comment [A87]: See discussion in section 3.8 of the comment letter.

authorities, to the extent that they may lawfully impose requirements, to implement a development planning program in accordance with the strategies identified in the Water Quality Improvement Plan and includes, at a minimum, the following requirements:

STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS

Comment [A88]: See discussion in section 3.8.2 of the comment letter.

Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented as part of the development planning program to address development and redevelopment projects that may become sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:

(1) Provide specific details about how the strategies and/or activities will be implemented (e.g. designate additional or alternative BMPs, focus education, increase frequency of verifications and/or inspections, alternative compliance options);

(2) Each Copermittee must identify areas within its jurisdiction where Priority Development Projects may be allowed or should be encouraged to implement or contribute toward the implementation of alternative compliance retrofitting and/or stream, channel, or habitat rehabilitation projects;

(3) Each Copermittee should collaborate and cooperate with other Copermittees and/or entities in the Watershed Management Area to identify regional alternative compliance projects that Priority Development Projects may be allowed or should be encouraged to implement or participate in implementing; and

(4) The requirements of the programs as outlined in the following sub-provisions may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s). ~~The strategies and/or activities must be consistent with the requirements of Provisions E.3.a-c and E.3.e-f and the strategies identified in the Water Quality Improvement Plan.~~

a. BMP REQUIREMENTS FOR ALL DEVELOPMENT PROJECTS

Each Copermittee, as practical and feasible, must prescribe the following BMP requirements during the planning process (i.e. prior to project approval and issuance of local permits) for all development projects (regardless of project type or size), where local permits are issued, including unpaved roads and flood management projects, except emergency / public safety projects implemented for the protection of persons and property:

(1) General Requirements

(a) Onsite BMPs must be located so as to remove pollutants from runoff prior to its discharge to any receiving waters, and as close to the source as possible; and

(b) Structural BMPs must not be constructed within a waters of the U.S.. ~~or waters of the state.~~

(2) Source Control BMP Requirements

The following source control BMPs must be implemented at all development projects where applicable and feasible:

(a) Prevention of illicit discharges into the MS4;

(b) Storm drain system stenciling or signage;

(c) Properly designed outdoor material storage areas;

(d) Properly designed outdoor work areas;

(e) Properly designed trash storage areas; and

(f) Any additional BMPs determined necessary by the Copermittee to minimize pollutant generation at each project.

(3) Low Impact Development (LID) ~~BMP Requirements~~Principles

Comment [A89]: See discussion in section 3.8.2 of the comment letter.

The following LID ~~BMPs~~ Principles must be implemented at all development projects where applicable and feasible:

(a) Maintenance or restoration of natural storage reservoirs and drainage corridors (including topographic depressions, areas of permeable soils, natural swales, and ephemeral and intermittent streams);[22]

(b) Buffer zones for natural water bodies (where buffer zones are technically infeasible, require project applicant to include other buffers such as trees, access restrictions, etc.);

(c) Conservation of natural areas within the project footprint including existing trees, other vegetation, and soils;

[22] Development projects proposing to dredge or fill materials in waters of the U.S. must obtain a CWA Section 401 Water Quality Certification. Projects proposing to dredge or fill waters of the state must obtain waste discharge requirements.

(d) Construction of streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided public safety is not compromised;

(e) Minimization of the impervious footprint of the project;

(f) Minimization of soil compaction to landscaped areas;

(g) Disconnection of impervious surfaces through distributed pervious areas;

(h) Landscaped or other pervious areas designed and constructed to effectively receive and infiltrate, retain and/or treat runoff from impervious areas, prior to discharging to the MS4;

(i) Small collection strategies located at, or as close as possible to, the source (i.e. the point where storm water initially meets the ground) to minimize the transport of runoff and pollutants to the MS4 and receiving waters;

(j) Use of permeable materials for projects with low traffic areas and appropriate soil conditions;

(k) Landscaping with native or drought tolerant species; and

(l) Harvesting and using precipitation.

b. PRIORITY DEVELOPMENT PROJECTS

(1) Definition of Priority Development Project

Priority Development Projects include the following:

(a) All new development projects that fall under the Priority Development Project categories listed under Provision E.3.b.(2) (where a new development project feature, such as a parking lot, falls into a Priority Development Project category, the entire project footprint is subject to Priority Development Project requirements); and

(b) Those redevelopment projects that create, add, or replace at least 5,000 square feet of impervious surfaces on an already developed site, and the redevelopment project is a Priority Development Project category listed under Provision E.3.b.(2) (where redevelopment results in an increase of less than fifty percent of the impervious surfaces of a previously existing development, and the existing development was not subject to Priority Development Project requirements, the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) apply only to the addition or replacement, and not to the entire development; where redevelopment

results in an increase of more than fifty percent of the impervious surfaces of a previously existing development, the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) apply to the entire development).

(c) Projects where redevelopment results in an increase of more than fifty percent of impervious surfaces of a previously existing development, and the existing development *was* subject to previous Priority Project Development Requirements, only the altered portion of development is subject to the new Priority Development Project requirements.

Comment [A90]: See discussion in section 3.8.2 of the comment letter.

(2) Priority Development Project Categories

Comment [A91]: See discussion in section 3.8.2 of the comment letter.

(a) New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This category includes commercial, industrial, residential, mixed-use, and public development projects on public or private land which fall under the planning and building authority of the Copermittee.

(b) New development projects that create 5,000 square feet or more of impervious surfaces (collectively over the entire project site), and are designed for support one or more of the following uses (see Appendix for definitions):

(i) Automotive repair shop
(ii) Restaurant
(iii) Parking lot[23]
(iv) Street, road, highway, freeway
(v) Retail gasoline outlet (RGO)

Comment [A92]: See footnote

~~(b) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539.~~

~~(c) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is 5,000 square feet or more.~~

~~(d) Hillside development projects. This category includes any development which creates 5,000 square feet or more of impervious surface which is~~

[23] Excluding parking lots that are not subject to runoff, such as but not limited to covered or subterranean parking lots

~~located in an area with known erosive soil conditions, where the development will grade on any natural slope that is twenty-five percent or greater.~~

~~(e)~~(c) New development projects that create 2,500 square feet or more of impervious surfaces (collectively over the entire project site), and are ~~Environmentally sensitive areas (ESAs). This category includes any development~~ located within, directly adjacent to, or discharging directly to an ESA, ~~which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10 percent or more of its naturally occurring condition.~~ "Directly adjacent to" means situated within 200 feet of the ESA. "Discharging directly to" means outflow from a drainage conveyance system that collects runoff from the subject development or redevelopment site and terminates at or in receiving waters within the ESA and is not commingled with flows from adjacent or other upstream lands.

~~(f) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce that has 5,000 square feet or more of impervious surface.~~

~~(g) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface that is 5,000 square feet or more used for the transportation of automobiles, trucks, motorcycles, and other vehicles.~~

~~(h) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.~~

~~(i)~~(d) Large development projects. This category includes any post-construction pollutant-generating new development projects that result in the permanent disturbance of one acre or more of land.

(3) Priority Development Project Exemptions

Comment [A93]: See discussion in section 3.8.2 of the comment letter.

Each Copermittee has the discretion to exempt the following projects from being defined as Priority Development Projects:

(a) New paved sidewalks, driveways, parking lots, bicycle lanes, or trails that meet the following criteria:

(i) Designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas; OR

(ii) Designed and constructed to be hydraulically disconnected from paved streets or roads; OR

(iii) Designed and constructed with permeable pavements or surfaces in accordance with USEPA Green Streets guidance.[24]

(b) Any impervious surface that is 5,000 square feet or more used for the transportation of automobiles, trucks, motorcycles, and other vehicles that is designed and constructed to the Maximum Extent Practicable in accordance with the USEPA Green Streets Guidance "Managing Wet Weather with Green Infrastructure: Green Streets"[25]. ~~Retrofitting of existing paved alleys, streets or roads that meet the following criteria:~~

~~(i) Must be two lanes or less; AND~~

~~(ii) Must be a retrofitting project implemented as part of an alternative compliance project option under Provision E.3.c.(3)(b)(v) to achieve the performance requirements of Provisions E.3.c.(1) and/or E.3.c.(2) for a Priority Development Project; AND~~

~~(iii) Designed and constructed in accordance with the USEPA Green Streets guidance.[26]~~

(c) Single-family residential projects that meet the following criteria:

(i) Must not be constructed as part of a larger development or proposed subdivision;

(ii) Successfully incorporate and document that they have incorporated, each of the applicable Source Control and LID BMP strategies identified in provisions E.3.a.(2)-(3) to the MEP.

~~(c) New single family residences that meet the following criteria:~~

~~(i) Must not be constructed as part of a larger development or proposed subdivision; AND~~

~~(ii) Designed and constructed to be certified under the U.S. Green Building Council (USGCB) Leadership in Energy and Environmental Design (LEED) for Homes green building certification program, receiving at least four (4) Surface Water Management credits under the Sustainable Sites category[27] OR~~

~~Designed and constructed with structural BMPs that will achieve the~~

[24] USEPA. 2008. http://water.epa.gov/infrastructure/greeninfrastructure/upload/gi_munichandbook_green_streets.pdf and http://water.epa.gov/infrastructure/greeninfrastructure/gi_policy.cfm#municipalhandbook ~~See "Managing Wet Weather with Green Infrastructure – Municipal Handbook: Green Streets" (USEPA, 2008).~~

~~[26] Ibid.~~

~~[27] See LEED for Homes rating system at http://www.usgbc.org~~

~~performance requirements of Provisions E.3.c.(1) and E.3.c.(2) onsite~~

~~(d) Redevelopment of existing single family residences that meet the following criteria:~~

~~(i) Designed and constructed to be certified under the USGCB LEED for Homes green building certification program, receiving at least four (4) Surface Water Management credits under the Sustainable Sites category;[28] OR~~

~~(ii) Designed and constructed with structural BMPs that will achieve the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) onsite.~~

(d) Watershed Protection Projects that meet the following criteria:

(i) Projects undertaken to rehabilitate or prevent environmental, social, and economic damage to the watershed, including receiving waters, by providing one or more of the following:

- Water quality protection by the proper management of stormwater and floodplains
- Flood risk reduction to adjacent land uses, stored matter and stockpiled material
- Elimination of the comingling of stormwater and hazardous materials
- Erosion Mitigation
- Restoration of Rivers and Ecosystems
- Groundwater Recharge
- Creation of new open space and wetlands
- Programs for water conservation, stormwater capture and management
- Retrofit projects constructed to improve water quality or address hydromodification.

(ii) AND are not expected to be pollutant generating or are designed to reduce existing pollutant loads

(iii) AND incorporate and document that they have incorporated, each of the applicable Source Control and LID BMP strategies identified in provisions E.3.a.(2)-(3) to the MEP.

(e) Emergency public safety projects in any of the Priority Development Categories may be excluded if the delay caused due to the requirement for a SSMP compromises public safety, public health and/or environmental protection

~~[28] See LEED for Homes rating system at http://www.usgbc.org~~

c. Priority Development Project Structural BMP Performance Requirements

In addition to the BMP requirements listed for all development projects under Provision E.3.a, Priority Development Projects must also implement structural BMPs that conform to performance requirements below. If watershed-specific performance requirements are ~~may be~~ developed as part of a Water Quality Improvement Plan; these requirements would take precedence over the general performance requirements below. The watershed-specific requirement must provide at least equal protection as the general performance requirements below.

(1) Storm Water Pollutant Control BMP Requirements

Each Copermittee must require each Priority Development Project to implement onsite structural BMPs to control pollutants in storm water that may be discharged from a project as follows:

(a) Each Priority Development Project must be required to implement LID BMPs that are designed to retain (i.e. intercept, store, infiltrate, evaporate, and evapotranspire) onsite the pollutants contained in the design capture volume. The design capture volume is equivalent to:

(i) The volume of storm water runoff produced from a 24-hour 85th percentile storm event;[29] OR

(ii) The volume of storm water runoff produced from a 24-hour 85th percentile storm event, that would be retained onsite ~~if~~ in the pre-project condition. ~~site was fully undeveloped and naturally vegetated, as determined using continuous simulation modeling techniques based on site-specific soil conditions and typical native vegetative cover.~~

(b) A Priority Development Project may be allowed to utilize alternative compliance under Provision E.3.c.(3) in lieu of~~to~~ complying with the storm water pollutant control BMP performance requirements of Provision E.3.c.(1)(a).

~~(c) If a Priority Development project is allowed to utilize alternative compliance pursuant to Provisions E.3.c.(1)(b), flow-thru conventional~~

[29] This volume is not a single volume to be applied to all areas covered by this Order. The size of the 85th percentile storm event is different for various parts of the San Diego Region. The Copermittees are encouraged to calculate the 85th percentile storm event for each of its jurisdictions using local rain data pertinent to its particular jurisdiction. In addition, isopluvial maps may be used to extrapolate rainfall data to areas where insufficient data exists in order to determine the volume of the local 85th percentile storm event in such areas. Where the Copermittees will use isopluvial maps to determine the 85th percentile storm event in areas lacking rain data, the Copermittees must describe their method for using isopluvial maps in its BMP Design Manuals. The volume is a single event-based volume that occurs after an extended dry period.

Comment [A94]: See discussion in section 3.8.2 of the comment letter.

~~treatment control BMPs must be implemented to treat the portion of the design capture volume that is not retained onsite. Additionally, project applicants must mitigate for the portion of the pollutant load in the design capture volume that is not retained onsite through one or more alternative compliance options under Provision E.3.c.(3). Conventional treatment control BMPs must be sized and designed to:~~

~~(i) Remove pollutants from storm water to the MEP;~~

~~(ii) Filter or treat either: 1) the maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour, for each hour of a storm event, or 2) the maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity (for each hour of a storm event), as determined from the local historical rainfall record, multiplied by a factor of two;~~

~~(iii) Be ranked with high or medium pollutant removal efficiency for the Priority Development Project's most significant pollutants of concern. Conventional treatment control BMPs with a low removal efficiency ranking must only be approved by a Copermittee when a feasibility analysis has been conducted which exhibits that implementation of conventional treatment control BMPs with high or medium removal efficiency rankings are infeasible for a Priority Development Project or portion of a Priority Development Project.~~

(2) Hydromodification Management BMP Requirements

Comment [A95]: See discussion in section 3.8.2 of the comment letter.

Each Copermittee must require each Priority Development Project disturbing greater than one acre to implement management measures~~onsite structural BMPs~~ to ensure ~~manage hydromodification~~ that ~~may be caused by~~ storm water runoff discharged from the~~a~~ project won't cause adverse Hydromodification impacts in the downstream receiving waters as follows:

The Copermittees in each Watershed Management Area may establish within the WQIP, watershed specific mitigation requirements that will apply to priority development projects, based on the susceptibility of the receiving waters to Hydromodification impacts caused by the project, and consistent with the priorities and strategies identified in the WQIP. Such requirements may be uniform across a Hydrologic Unit, or identified at an appropriate smaller scale to ensure that receiving waters are properly protected.

(a) Post-project runoff flow rates and durations must not exceed pre-project ~~development (naturally occurring)~~ runoff flow rates and durations by more than 10 percent (for the range of flows that result in increased potential for erosion, or degraded instream habitat conditions downstream of Priority Development Projects~~)~~.

(i) In evaluating the range of flows that results in increased potential for

erosion of natural (non-hardened) channels, the lower boundary must correspond with the critical channel flow that produces the critical shear stress that initiates channel bed movement or that erodes the toe of channel banks.

~~(ii) For artificially hardened channels, analysis to identify the lower boundary must use characteristics of a natural stream segment similar to that found in the watershed. The lower boundary must correspond with the critical channel flow that produces the critical shear stress that initiates channel bed movement or erodes the toe of the channel banks.~~

~~(iii)~~(ii) The Copermittees may use monitoring results collected pursuant to Provision D.1.a.(2) to re-define the range of flows resulting in increased potential for erosion, or degraded instream habitat conditions, as warranted by the data.

(b) Priority Development Projects ~~Post-project runoff flow rates and durations~~ must implement appropriate measures to minimize the ~~compensate for~~ the loss of sediment supply delivered ~~due~~ to the Receiving Waters, consistent with WQIP priorities, ~~development project,~~ should loss of sediment supply be anticipated to occur as a result of the development project.

(c) A Priority Development Project may be allowed to utilize alternative compliance under Provision E.3.c.(3) in lieu of~~to comply with~~ the performance requirements of Provisions E.3.c.(2)(a)-(b).

(d) Exemptions

Each Copermittee has the discretion to exempt a Priority Development Project from the hydromodification management BMP performance requirements of Provisions E.3.c.(2)(a)-(b) where the project:

(i) Discharges storm water runoff into existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean;

(ii) Discharges of storm water into conveyance channels whose bed and bank are engineered and maintained for the 10-year ultimate development flow rate all the way from the point of discharge from the project to an water body that is sufficiently resistant to hydromodification (water storage reservoirs, lakes, enclosed embayments, pacific ocean, or other water bodies identified in the WQIP);

~~(ii)~~(iii) Is a redevelopment Priority Development Project that meets the alternative compliance requirements of Provision E.3.c.(3)(b)(ii); or

~~(iii)~~(iv) Discharges storm water runoff into other areas identified by the San Diego Water Board as exempt from the requirements of Provisions E.3.c.(2)(a)-(b), through an approved WQIP.

(3) Alternative Compliance to Onsite Structural BMP Performance Requirements

Comment [A96]: See discussion in section 3.8.2 of the comment letter.

(a) Applicability

At the discretion of each Copermittee, Priority Development Projects may be allowed to implement one or more of the alternative compliance project options described in E.3.c.(3)(b) below, in lieu of complying with the onsite structural BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2), under the following conditions:

(i) The Copermittee must determine that implementation of the alternative compliance option will have an equal or greater overall water quality benefit for the Watershed Management Area than fully complying with the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) onsite;

(ii) The alternative compliance options must be designed by a registered professional engineer, geologist, architect, biologist, hydrologist, landscape architect, or other appropriate certified professional;

(iii) The alternative compliance option must be consistent with the strategies developed within the WQIP, for the highest priority water quality conditions.

(iv) The alternative compliance options must be implemented within the same Watershed Management Area as the Priority Development Project, and preferably within the same hydrologic subarea;

(v) The alternative compliance options must have reliable sources of funding for operation and maintenance.

(b) Alternative Compliance Options

(i) *LID Biofiltration Treatment Control BMPs*

LID biofiltration treatment control BMPs may be used as an alternative compliance option if the BMPs are sized and designed to:

[a] Remove pollutants from storm water to the MEP; AND
[b] Have an appropriate surface loading rate to prevent erosion, scour and channeling; AND
[c] Biofilter at least 1.0 times the design capture volume that is not reliably retained onsite

(ii) *LEED Certified Redevelopment Projects*

Priority Development Projects that are designed and constructed to be certified under the USGCB LEED for New Construction and Major Renovations green building certification program, or other locally accepted certification of equivalent effectiveness, may be considered as an acceptable alternative compliance option if the project meets the following criteria:

[a] The project is designed to receive at least: One (1) Site Design credit, and Two (2) Stormwater Design credits under the Sustainable Sites category.[30], and

[b] The existing and future configuration of the receiving water must not be unnaturally altered or adversely impacted by the project.

(iii) *Watershed-Based Planned Development Projects*

Priority Development Projects greater than 100 acres in total project size (or smaller than 100 acres in size yet part of a larger common plan of development that is over 100 acres) may be considered as an acceptable alternative compliance option if the project meets the following conditions:

[a] The Priority Development Project was planned utilizing watershed and/or subwatershed based water quality, hydrologic, and fluvial geomorphologic planning principles that implement regional LID BMPs in accordance with the performance and location criteria of this Order and acceptable to the San Diego Water Board;

[b] Regional LID BMPs may be used provided that the BMPs capture and retain the volume of runoff produced from the design capture volume defined in Provision E.3.c.(1)(a)(i) and that such controls are located upstream of receiving waters;

[c] Regional LID BMPs must clearly exhibit that they will not result in a net impact from pollutant loadings over and above the impact caused by capture and retention of the design capture volume;

[d] Any portion of the design capture volume that is not retained by the regional LID BMPs must be treated using biofiltration BMPs; and

[e] Where regional LID BMPs are demonstrated to the Copermittee as technically infeasible to retain the entire design capture volume, any volume up to and including the design capture volume not retained by regional LID BMPs, nor treated by biofiltration BMPs, must be treated using conventional treatment control BMPs and the project applicant must implement additional alternative compliance project, in-lieu fee and/or water quality

[30] See LEED for New Construction and Major Renovations rating system at http://www.usgbc.org

credit system options below.

(iv) *Offsite Projects*

Offsite Projects, such as but not limited to Regional BMPs; Retrofitting Projects; Channel, Stream or Habitat Rehabilitation Projects; Water Supply Augmentation Projects; or other Offsite Projects proposed by a project proponent, may be considered as an acceptable alternative compliance option if the offsite project meets the following requirements:

- The project must provide a net result of at least the same level of pollutant removal, and/or protection from potential downstream and upstream erosion in the receiving water as would be required to meet the performance requirements of Provision E.3.c.(1) and E.3.c.(2), as applicable.
- The project must be consistent with the strategies identified in the WQIP.
- The project must be constructed and operational prior to occupancy being granted for the PDP.

(v) *Conventional Treatment Control BMPs*

Onsite Conventional Treatment Control BMPs may be used as an alternative compliance option, only if the following criteria have been met:

[a] It has been demonstrated to the satisfaction of the Copermittee that it is technically infeasible to comply with the onsite requirements of E.3.c.(1), AND

[b] It has been demonstrated to the satisfaction of the Copermittee that it is technically infeasible to implement onsite Biofiltration Treatment Control BMPs, AND

[c] The Conventional Treatment Control BMPs will remove pollutants from storm water to the MEP; AND

[d] The Conventional Treatment Control BMPs will filter or treat either: 1) the maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour, for each hour of a storm event, or 2) the maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity (for each hour of a storm event), as determined from the local historical rainfall record, multiplied by a factor of two; AND

[e] The Conventional Treatment Control BMPs are ranked with high or medium pollutant removal efficiency for the Priority Development Project's most significant pollutants of concern. Conventional treatment control BMPs with a low removal

efficiency ranking must only be approved by a Copermittee when a feasibility analysis has been conducted which exhibits that implementation of conventional treatment control BMPs with high or medium removal efficiency rankings are infeasible for a Priority Development Project or portion of a Priority Development Project.

~~(a) Applicability~~

~~At the discretion of each Copermittee, Priority Development Projects may be allowed to utilize an alternative option to comply with the onsite structural BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2) under the following conditions:~~

~~(i) The Copermittee must determine that implementation of the alternative compliance option will have a greater overall water quality benefit for the Watershed Management Area than fully complying with the performance requirements of Provisions E.3.c.(1) and E.3.c.(2) onsite;~~

~~(ii) The alternative compliance options must be designed by a registered professional engineer, geologist, architector landscape architect;~~

~~(iii) The alternative compliance options must be implemented within the same hydrologichydrologic unit as the Priority Development Project, and preferably within the same hydrologic subarea;~~

~~(iv) Receiving waters must not be utilized to convey storm water runoff to the alternative compliance options;~~

~~(v) The pollutants in storm water runoff from the Priority Development Project must be treated to the MEP by the alternative compliance options prior to being discharged to receiving waters;~~

~~(vi) Unless otherwise allowed by Provision E.3.c.(3)(b), the alternative compliance options must have a net result of at least the same level of pollutant removal as would have been achieved if the Priority Development Project had fully complied with the storm water pollutant control BMP performance requirements of Provision E.3.c.(1) onsite;~~

~~(vii) Unless otherwise allowed by Provision E.3.c.(3)(b), the alternative compliance options must have a net result of at least the same level of protection from potential downstream and upstream erosion in the receiving water as would have been achieved if the Priority Development Project had fully complied with the hydromodification management BMP performance requirements of Provision E.3.c.(2) onsite; and~~

~~(viii) The alternative compliance options utilized by the Priority Development Project must have reliable sources of funding for operation and maintenance.~~

(b) Alternative Compliance Project Options

The Copermittee may allow implementation of one or more of the following project options as part of an alternative approach to complying with the onsite structural BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2):

(i) *Onsite LID Biofiltration Treatment Control BMPs*

The Copermittee may allow Priority Development Projects to utilize onsite LID biofiltration treatment control BMPs to comply with the storm water pollutant control BMP performance requirements of Provision E.3.c.(1). Onsite LID biofiltration treatment control BMPs must be sized and designed to:

[a] Remove pollutants from storm water to the MEP; AND
[b] Have an appropriate surface loading rate to prevent erosion, scour and channeling within the BMP; AND
[c] Biofilter at least 1.5 times the design capture volume that is not reliably retained onsite; OR
[d] Biofilter up to the design capture volume that is not reliably retained onsite, AND 1) treat the remaining portion of the design capture volume not retained onsite with conventional treatment control BMPs in accordance with Provision E.3.c.(1)(c), and 2) if necessary, mitigate for the portion of the pollutant load in the design capture volume not retained onsite through one or more alternative compliance project, in-lieu fee and/or water quality credit system options below.

(ii) *LEED Certified Redevelopment Projects*

The Copermittee may allow redevelopment Priority Development Projects to comply with designed and constructed to be certified under the USGCB LEED for New Construction and Major Renovations green building certification program. The Priority Development Project must receive at least one (1) Site Design credit and two (2) Stormwater Design credits under the Sustainable Sites category.[31] In addition, the existing and future configuration of the receiving water must not be unnaturally altered or adversely impacted by storm water flow rates and durations discharged from the site.

(iii) *Watershed Based Planned Development Projects*

The Copermittee may allow Priority Development Projects greater than 100 acres in total project size (or smaller than 100 acres in size

[31] See LEED for New Construction and Major Renovations rating system at http://www.usgbc.org

yet part of a larger common plan of development that is over 100 acres) to comply with the onsite structural BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2). The Priority Development Project must comply with the following conditions:

[a] The Priority Development Project was planned utilizing watershed and/or subwatershed based water quality, hydrologic, and fluvial geomorphologic planning principles that implement regional LID BMPs in accordance with the performance and location criteria of this Order and acceptable to the San Diego Water Board;

[b] Regional LID BMPs may be used provided that the BMPs capture and retain the volume of runoff produced from the design capture volume defined in Provision E.3.c.(1)(a)(i) and that such controls are located upstream of receiving waters;

[c] Regional LID BMPs must clearly exhibit that they will not result in a net impact from pollutant loadings over and above the impact caused by capture and retention of the design capture volume;

[d] Any portion of the design capture volume that is not retained by the regional LID BMPs must be treated using biofiltration BMPs; and

[e] Where regional LID BMPs are demonstrated to the Copermittee as technically infeasible to retain the entire design capture volume, any volume up to and including the design capture volume not retained by regional LID BMPs, nor treated by biofiltration BMPs, must be treated using conventional treatment control BMPs and the project applicant must implement additional alternative compliance project, in-lieu fee and/or water quality credit system options below.

(iv) *Offsite Regional BMPs*

[a] The Copermittee may allow Priority Development Projects to utilize offsite regional BMPs to comply with the storm water pollutant control BMP performance requirements of Provision E.3.c.(1) if the offsite regional BMPs have the capacity to receive and retain at least 1.1 times the design capture volume that is not reliably retained onsite.

[b] The Copermittee may allow Priority Development Projects to utilize offsite regional BMPs to comply with the hydromodification management BMP performance requirements of Provision E.3.c.(2) if the offsite regional BMPs have the capacity to manage the storm water flows rates and durations from the site such that the receiving waters are protected from the potential for increased erosion that would be caused if the unmanaged portion of the runoff was discharged from the site.

(v) *Offsite Retrofitting Projects*

~~The Copermittee may allow Priority Development Projects to utilize offsite retrofitting projects to comply with the storm water pollutant control and hydromodification management BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2) if the retrofitting projects have been identified within the strategies included in the Water Quality Improvement Plan, or identified as potential retrofitting projects by the Copermittee pursuant to Provision E.5.~~

~~(vi) *Offsite Channel, Stream, or Habitat Rehabilitation Projects*~~

~~The Copermittee may allow Priority Development Projects to utilize offsite channel, stream, or habitat rehabilitation projects to comply with the hydromodification management BMP performance requirements of Provision E.3.c.(2) if the rehabilitation projects have been identified within the strategies included in the Water Quality Improvement Plan, or identified as potential channel rehabilitation projects by the Copermittee pursuant to Provision E.5. The channel, stream, or habitat rehabilitation project cannot be utilized for pollutant treatmentexcept where artificial wetlands areand located upstream of receiving waters.~~

~~(vii) *Offsite Regional Water Supply Augmentation Projects*~~

~~The Copermittee may allow Priority Development Projects to utilize offsite regional water supply augmentation projects (i.e. groundwater recharge, recycled water, storm water harvesting) to comply with the storm water pollutant control and hydromodification management BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2) if the projects have been identified within the strategies included in the Water Quality Improvement Plan.~~

~~(viii) *Project Applicant Proposed Alternative Compliance Projects*~~

~~The Copermittee may allow one or more Priority Development Project applicant(s) to propose and implement alternative compliance projects to comply with the storm water pollutant control and hydromodification management BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2) if the alternative compliance projects are consistent with, and will address the highest water quality priorities of the Water Quality Improvement Plan, and comply with the requirements of Provision E.3.c.(3)(a).~~

(c) Alternative Compliance In-Lieu Fee Option

The Copermittee may develop and implement an alternative compliance in-lieu fee option, individually or with other Copermittees and/or entities, as a means for designing, developing, constructing, operating and/or maintaining offsite alternative compliance projects under Provision E.3.c.(3)(b). Priority Development Projects allowed to utilize the

alternative compliance in-lieu fee option must comply with the following conditions:

(i) The in-lieu fee must be collected and held in accordance with the Mitigation Fee Act and all other applicable development fee laws. ~~transferred to the Copermittee (for public projects) or an escrow account (for private projects) prior to the date construction of the Priority Development Project is initiated~~.

Comment [A97]: Please see Legal Comments.

(ii) If the in-lieu fee is applied to the development, design, ~~and~~ construction, operation and maintenance of offsite alternative compliance projects, the following conditions must be met:

[a] The offsite alternative compliance projects must meet ~~allow~~ the criteria identified within E.3.c.(3)(b)-, for each Priority Development Project relying on~~to comply with~~ the alternative compliance project;~~onsite BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2);~~

[b] The offsite alternative compliance projects must be constructed as soon as possible, but no later than 4 years after the certificate of occupancy is granted for the first Priority Development Project that contributed funds toward the construction of the offsite alternative compliance projects, unless a longer period of time is provided for in an approved WQIP~~authorized by the San Diego Water Board Executive Officer~~;

~~[c] The in-lieu fee for the Priority Development Project must include mitigation of the pollutant loads and increased storm water flow rates and durations that are allowed to discharge from the site before the offsite alternative compliance projects are constructed; and~~

[d] The in-lieu fee must also include the cost to operate and maintain the offsite alternative compliance projects for the anticipated life of the constructed priority development project.

(iii) If the in-lieu fee applies only~~is applied~~ to the operation and maintenance of offsite alternative compliance projects that have already been constructed, the offsite alternative compliance projects must meet~~allow~~ the requirements of E.3.c.(3)(a)(iv) and (v) as applicable, for each Priority Development Project relying on~~to comply with~~ the alternative compliance project..~~onsite structural BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2).~~

(d) Alternative Compliance Water Quality Credit System Option

The Copermittee may develop and implement an alternative compliance water quality credit system option, individually or with other Copermittees

and/or entities, provided that such a credit system clearly exhibits that it will not allow discharges from Priority Development Projects to cause or contribute to a net impact over and above the impact caused by projects meeting the onsite structural BMP performance requirements of Provisions E.3.c.(1) and E.3.c.(2). Any credit system that a Copermittee chooses to implement must be submitted to the San Diego Water Board Executive Officer for review and acceptance as part of the Water Quality Improvement Plan.

(4) Long-Term Structural BMP Maintenance

Each Copermittee must require the project applicant to submit proof of the mechanism under which ongoing long-term maintenance of all structural BMPs will be conducted.

(5) Infiltration and Groundwater Protection

(a) Structural BMPs designed to primarily function as large, centralized infiltration devices (such as large infiltration trenches and infiltration basins) must not cause or contribute to an exceedance of an applicable groundwater quality objective. At a minimum, such infiltration BMPs must be in conformance with the design criteria listed below, unless the development project applicant demonstrates to the Copermittee that one or more of the specific design criteria listed below are not necessary to protect groundwater quality. The design criteria listed below do not apply to small infiltration systems dispersed throughout a development project.

(i) Runoff must undergo pretreatment such as sedimentation or filtration prior to infiltration;

(ii) Pollution prevention and source control BMPs must be implemented at a level appropriate to protect groundwater quality at sites where infiltration BMPs are to be used;

(iii) Infiltration BMPs must be adequately maintained to remove pollutants in storm water to the MEP;

(iv) The vertical distance from the base of any infiltration BMP to the seasonal high groundwater mark must be at least 10 feet. Where groundwater basins do not support beneficial uses, this vertical distance criteria may be reduced, provided groundwater quality is maintained;

(v) The soil through which infiltration is to occur must have physical and chemical characteristics (e.g., appropriate cation exchange capacity, organic content, clay content, and infiltration rate) which are adequate for proper infiltration durations and treatment of runoff for the protection of groundwater beneficial uses;

(vi) Infiltration BMPs must not be used for areas of industrial or light

industrial activity, and other high threat to water quality land uses and activities as designated by each Copermittee, unless first treated or filtered to remove pollutants prior to infiltration; and

(vii) Infiltration BMPs must be located a minimum of 100 feet horizontally from any water supply wells.

(b) The Copermittee may develop, individually or with other Copermittees, alternative mandatory design criteria to that listed above for infiltration BMPs which are designed to primarily function as centralized infiltration devices. Before implementing the alternative design criteria in the development planning process the Copermitee(s) must:

(i) Notify the San Diego Water Board of the intent to implement the alternative design criteria submitted; and

(ii) Comply with any conditions set by the San Diego Water Board.

d. BMP DESIGN MANUAL UPDATE

Each Copermittee must update and implement its BMP Design Manual[32] pursuant to Provision F.2.b. ~~Until the Copermittee has updated its BMP Design Manual with the requirements of Provisions E.3.a-c, the Copermittee must continue implementing its current BMP Design Manual. Unless directed otherwise by the San Diego Water Board, the Copermittee must implement the BMP Design Manual within 180 days of completing the update.~~ The update of the BMP Design Manual must include the following:

Comment [A98]: This info was incorporated into F.2.b.

(1) Updated procedures to determine the nature and extent of storm water requirements applicable to a potential development or redevelopment projects. These procedures must inform project applicants of the storm water management requirements applicable to their project including, but not limited to, general requirements for all development projects, structural BMP design procedures and requirements, hydromodification management requirements, requirements specific to phased projects, and procedures specific to private developments and public improvement projects;

(2) Updated procedures to identify ~~pollutants and conditions of concern for selecting~~ the most appropriate structural BMPs that consider, at a minimum, the following:

(a) The requirements of E.3.c.(1) and (2)

~~(a)~~(b) Receiving water quality (including pollutants for which receiving waters are listed as impaired under the CWA section 303(d) List);

[32] The BMP Design Manual was formerly known as the Standard Storm Water Mitigation Plan under Order Nos. R9-2007-0001, R9-2009-0002, and R9-2010-0016.

~~(b)~~(c) Pollutants, stressors, and/or receiving water conditions that cause or contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan;

~~(c)~~(d) Land use type of the project and pollutants associated with that land use type; and

~~(d)~~(e) Pollutants expected to be present onsite.

(3) Updated procedures for designing structural BMPs, including any updated performance requirements to be consistent with the requirements of Provision E.3.c for all structural BMPs listed in the BMP Design Manual;

(4) Long-term maintenance criteria for each structural BMP listed in the BMP Design Manual; and

(5) Alternative compliance criteria, in accordance with the requirements under Provision E.3.c.(3), if the Copermittee elects to allow Priority Development Projects within its jurisdiction to utilize alternative compliance.

e. PRIORITY DEVELOPMENT PROJECT BMP IMPLEMENTATION AND OVERSIGHT

Each Copermittee must implement a program that requires and confirms structural BMPs on all Priority Development Projects are designed, constructed, and maintained to remove pollutants in storm water to the MEP.

(1) Structural BMP Approval and Verification Process

(a) Each Copermittee must require and confirm that for all Priority Development Project applications that have not received prior lawful approval by the Copermittee by 18 months after the commencement of coverage under this Order, the requirements of Provision E.3 are implemented. For project applications that have received prior lawful approval by 18 months after the commencement of coverage under this Order, the Copermittee may allow previous land development requirements to apply.

(b) Each Copermittee must identify the roles and responsibilities of their various municipal departments in implementing the structural BMP requirements, including each stage of a project from application review and approval through BMP maintenance and inspections.

(c) Each Copermittee must require and confirm that appropriate easements and ownerships are properly recorded in public records and the information is conveyed to all appropriate parties when there is a change in project or site ownership.

(d) Each Copermittee must require and confirm that prior to occupancy and/or intended use of any portion of the Priority Development Project, each structural BMP is inspected to verify that it has been constructed and is operating in compliance with all of its specifications, plans, permits, ordinances, and the requirements of this Order.

(2) Priority Development Project Inventory and Prioritization

(a) Each Copermittee must develop, maintain, and update ~~at~~regularly~~at least annually~~, a watershed-based database to track and inventory all constructed Priority Development Projects and associated structural BMPs within its jurisdiction. Inventories must be accurate and complete beginning from January 2002 for the San Diego County Copermittees, February 2003 for the Orange County Copermittees, and July 2005 for the Riverside County Copermittees~~.~~, where data is available.~~.~~ The use of an automated database system, such as GIS, is highly recommended. The database must include, at a minimum, the following information:

(i) Priority Development Project location (address and hydrologic subarea);

(ii) Descriptions of structural BMP type(s);

(iii) Date(s) of construction;

(iv) Party responsible for structural BMP maintenance;

(v) Dates and findings of structural BMP maintenance verifications; and

(vi) Corrective actions and/or resolutions when applicable.

(b) Each Copermittee must prioritize the Priority Development Projects with structural BMPs within its jurisdiction. The designation of Priority Development Projects as high priority must consider the following:

(i) The highest water quality priorities identified in the Water Quality Improvement Plan;

(ii) Receiving water quality;

(iii) Number and sizes of structural BMPs;

(iv) Recommended maintenance frequency of structural BMPs;

(v) Likelihood of operation and maintenance issues of structural BMPs;

(vi) Land use and expected pollutants generated; and

(vii) Compliance record.

(3) Structural BMP Maintenance Verifications and Inspections

Each Copermittee is required to verify that structural BMPs on each Priority

Development Project are adequately maintained, and continue to operate effectively to remove pollutants in storm water to the MEP through inspections, self-certifications, surveys, or other equally effective approaches.

(a) All (100 percent) of the structural BMPs at Priority Development Projects that are designated as high priority must be inspected directly by the Copermittee annually prior to each rainy season;

(b) For verifications performed through a means other than direct Copermittee inspection, adequate documentation must be required by the Copermittee to provide assurance that the required maintenance of structural BMPs at each Priority Development Project has been completed; and

(c) Appropriate follow-up measures (including re-inspections, enforcement, etc.) must be conducted to ensure that structural BMPs at each Priority Development Project continue to reduce pollutants in storm water to the MEP as originally designed.

f. DEVELOPMENT PROJECT ENFORCEMENT

Each Copermittee must enforce its legal authority established pursuant to Provision E.1 for all development projects, as necessary, to achieve compliance with the requirements of this Order, in accordance with its Enforcement Response Plan pursuant to Provision E.6.

g. ~~STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS~~

Comment [A99]: This section was moved to the beginning of provision E.3.

~~Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented as part of the development planning program to address development and redevelopment projects that may become sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:~~

~~(5) Provide specific details about how the strategies and/or activities will be implemented (e.g. designate additional BMPs, focus education, increase frequency of verifications and/or inspections, alternative compliance options);~~

~~(6) Each Copermittee must identify areas within its jurisdiction where Priority Development Projects may be allowed or should be encouraged to implement or contribute toward the implementation of alternative compliance retrofitting and/or stream, channel, or habitat rehabilitation projects;~~

~~(7) Each Copermittee should collaborate and cooperate with other Copermittees and/or entities in the Watershed Management Area to identify regional alternative compliance projects that Priority Development Projects may be allowed or should be encouraged to implement or participate in implementing; and~~

~~(8) The strategies and/or activities must be consistent with the requirements of Provisions E.3.a-c and E.3.e-f and the strategies identified in the Water Quality Improvement Plan.~~

4. Construction Management

Each Copermittee must implement a construction management program in accordance with the strategies identified in the Water Quality Improvement Plan and includes, at a minimum, the following requirements:

STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS

Comment [A100]: This section was moved from provision E.4.f, Changes are shown in Redline

Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented as part of the construction management program to address construction sites that the Copermittee has identified as potential sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:

(1) Provide specific details about how the strategies and/or activities will be implemented (e.g. designate additional BMPs, focus education, and/or increase/decrease frequency of inspections for specific types of sites and/or activities); and

(2) The strategies and/or activities must be consistent with the requirements of Provisions E.4.c-e and the strategies identified in the Water Quality Improvement Plan.

(3) The requirements of the programs as outlined in the following sub-provisions may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).

a. PROJECT APPROVAL PROCESS

Prior to issuance of any local permit(s) that allows the commencement of construction projects that involve ground disturbance or soil disturbing activities that has the reasonable potential to discharge a pollutant load to and from the MS4, as defined in each Copermittees' JRMP~~can potentially generate pollutants in storm water runoff~~, each Copermittee must:

(1) Require a ~~site-specific~~ Pollution Control Plan~~pollution control~~, construction BMP, and/or erosion and sediment control plan, to be submitted by the project applicant to the Copermittee;

(2) Confirm the Pollution Control Plan~~pollution control~~, construction BMP, and/or erosion and sediment control plan, complies with the local grading ordinance, other applicable local ordinances, and the requirements of this Order;

(3) Confirm the Pollution Control Plan~~pollution control~~, construction BMP, and/or erosion and sediment control plan, includes seasonally appropriate and effective BMPs and management measures described in Provision E.4.c, as applicable to the project; and

(4) Verify that the project applicant has obtained coverage under ~~applicable permits, including, but not limited to~~ the Construction General Permit~~, Clean Water Act Section 401 Water Quality Certification and Section 404 Permit, and California Department of Fish and Game Streambed Alteration Agreement~~.

b. CONSTRUCTION SITE INVENTORY AND TRACKING

(1) Each Copermittee must maintain, and update ~~at least monthly~~regularly, a watershed-based inventory of all construction projects issued a local permit that allows ground disturbance or soil disturbing activities that can potentially generate pollutants in storm water runoff. The use of an automated database system, such as GIS, is highly recommended. The inventory must include:

(a) Relevant contact information for each site (e.g., name, address, phone, and email for the owner and contractor);

(b) The basic site information including location (address and hydrologic subarea), Waste Discharge Identification (WDID) number (if applicable), size of the site, and approximate area of disturbance;

(c) Whether or not the site is considered a high threat to water quality, as defined in Provision E.4.b.(2) below;

(d) The project start and ~~anticipated~~ completion dates;

~~(e) Current construction phase;~~

~~(f)~~(e) The required inspection frequency, as defined in the Copermittee's jurisdictional runoff management program document;

~~(g)~~(f) The date the Copermittee accepted and/or approved the ~~site-specific~~ pollution control plan, construction BMP, and/or erosion and sediment control plan; and

~~(h)~~(g) Whether or not there are ongoing enforcement actions administered to the site.

Comment [A101]: Some of the info can only be updated based on an inspection, which may or may not be monthly year round for all sites.

Comment [A102]: The anticipated completion date is often unknown and can fluctuate based on unpredictable and unforeseen circumstances. Keeping track of accurate dates in an inventory would be difficult and would not add significant value to the database. Construction Inspectors keep a close eye on the progress of projects and would not need to rely on inventory data to achieve effective stormwater management and oversight. Once a project is completed, the date can be entered into the database,.

(2) Each Copermittee must identify all construction sites within its jurisdiction that represent a high threat to downstream surface water quality. The designation of construction sites as high threat to water quality must consider the following:

(a) Sites located within a hydrologic subarea where sediment is known or suspected to contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan;

(b) Sites located within the same hydrologic subarea and tributary to a water body segment listed as impaired for sediment on the CWA section 303(d) List;

(c) Sites located within, directly adjacent to, or discharging directly to a receiving water within an ESA; and

(d) Other sites determined by the Copermittees or the San Diego Water Board as a high threat to water quality.

c. CONSTRUCTION SITE BMP IMPLEMENTATION

Each Copermittee must implement, or require the implementation of effective BMPs (for Copermittee construction sites and private construction sites, respectively) to reduce discharges of pollutants in ~~storm water~~ runoff from construction sites to the MEP, and effectively prohibit~~prevent~~ non-storm water discharges from construction sites into the MS4. These BMPs must be site specific, seasonally appropriate, and construction phase appropriate. BMPs must be implemented at each construction site year round. Dry season BMP implementation must plan for and address unseasonal rain events that may occur during the dry season (May 1 through September 30). Copermittees must implement, or require the implementation of, BMPs in the following categories:

(1) Project Planning;

(2) Good Site Management "Housekeeping", including waste management;

(3) Non-storm Water Management;

(4) Erosion Control;

(5) Sediment Control;

(6) Run-on and Run-off Control; and

(7) Active/Passive Sediment Treatment Systems, where applicable.

Comment [A103]: See discussion in section 3.9.1 of the comment letter.

d. CONSTRUCTION SITE INSPECTIONS

Each Copermittee must conduct construction site inspections to require and confirm compliance with its local permits and applicable local ordinances, and the requirements of this Order. Priority for site inspections must consider threat to water quality pursuant to Provision E.4.b as well as the nature of the construction activity, topography, and the characteristics of soils and receiving water quality.

(1) Inspection Frequency

(a) Each Copermittee must conduct inspections at all inventoried sites, including high threat to water quality sites, at an appropriate frequency for each phase of construction to confirm~~ensure~~ the site reduces the discharge of pollutants in runoff~~storm water~~ from construction sites to the MEP, and effectively prevents non-storm water discharges from entering the MS4.

(b) Each Copermittee must establish appropriate inspection frequencies for high threat to water quality sites, and all other sites, for each phase of construction. Inspection frequencies appropriate for addressing the highest water quality priorities identified in the Water Quality Improvement Plan, and for complying with the requirements of this Order must be identified in each Copermittee's jurisdictional runoff management program document.

(c) Based upon inspection findings, each Copermittee must implement all follow-up actions (i.e., re-inspection, enforcement) necessary to require and confirm site compliance with its local permits and applicable local ordinances, and the requirements of this Order.

(2) Inspection Content

Inspections of construction sites by the Copermittee must include, at a minimum:

(a) Verification of coverage under the Construction General Permit (Notice of Intent (NOI) and/or WDID number) during initial inspections, when applicable;

(b) Assessment of compliance with its local permits and applicable local ordinances related to pollution prevention, including the implementation and maintenance of applicable BMPs;

(c) Assessment of BMP adequacy and effectiveness;

(d) Visual observations of actual non-storm water discharges;

(e) Visual observations of actual or potential discharge of sediment and/or construction related materials from the site;

(f) Visual observations of actual or potential illicit connections; and

(g) If any violations are found and BMP corrections are needed, inspectors must take and document appropriate actions in accordance with the Enforcement Response Plan pursuant to Provision E.6.

(3) Inspection Tracking and Records

Each Copermittee must track all inspections and re-inspections at all inventoried construction sites. The Copermittee must retain all inspection records in an electronic database or tabular format, which must be made available to the San Diego Water Board upon request. Inspection records must include, at a minimum:

(a) Site name, location (address and hydrologic subarea), and WDID number (if applicable);

(b) Inspection date;

(c) Weather condition during~~Approximate amount of rainfall since last~~ inspection;

(d) Description of problems observed with BMPs and indication of need for BMP addition/repair/replacement and any scheduled re-inspection, and date of re-inspection;

(e) Descriptions of any other specific inspection comments which must, at a minimum, include rationales for longer compliance time;

(f) Description of enforcement actions issued in accordance with the Enforcement Response Plan pursuant to Provision E.6; and

(g) Resolution of problems noted and date problems fixed.

e. CONSTRUCTION SITE ENFORCEMENT

Each Copermittee must enforce its legal authority established pursuant to Provision E.1 for all its inventoried construction sites, as necessary, to achieve compliance with the requirements of this Order, in accordance with its Enforcement Response Plan pursuant to Provision E.6.

5. Existing Development Management

Comment [A104]: See discussion in section 3.10 of the comment letter.

Each Copermittee must implement an existing development management program in accordance with the strategies identified in the Water Quality Improvement Plan. and includes, at a minimum, the following requirements:

STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS

Comment [A105]: Moved from sub-provision e. Changes shown in redline

Each Copermittee must implement the water quality improvement strategies, where necessary, to address areas of existing development within its jurisdiction that are identified as sources of pollutants and/or stressors contributing to the highest priority water quality conditions in the Watershed Management Area. For the existing development management program, the following strategies must be implemented:

(1) Specific Existing Development Management Program Strategies

Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented within its jurisdiction to address areas of existing development that the Copermittee has identified as sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:

(a) Provide specific details about how the strategies and/or activities will be implemented (e.g. designate additional BMPs, focus education, and/or increase/decrease frequency of inspections for specific types of facilities, areas and/or activities);

(b) The facilities and/or areas within the Copermittee's jurisdiction where the strategies and/or activities will be implemented; and

(2) The requirements of the programs as outlined in the following sub-provisions may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s). ~~The strategies and/or activities must be consistent with the requirements of Provisions E.5.b-d and the strategies identified in the Water Quality Improvement Plan.~~

a. EXISTING DEVELOPMENT INVENTORY AND TRACKING

Each Copermittee must maintain, and update at least annually, a watershed-based inventory of the existing development within its jurisdiction that ~~may~~has the reasonable potential to~~may~~ discharge a high priority pollutant load to and from the MS4, as defined in the Copermittee's JRMP. The use of an automated database system, such as GIS, is highly recommended. The inventory must, at a minimum, evaluate and include the following if identified as a source of a high priority pollutant~~include~~:

(1) Name, location (hydrological subarea and address, if applicable) of the following types of existing development with its jurisdiction:

(a) Commercial facilities or areas;

(b) Industrial facilities;

(c) Copermittee owned Municipal facilities, including:

(i) MS4 and related structures,[33]

(ii) Roads, streets, and highways,

(iii) Parking facilities,

(iv) Municipal airfields,

(v) Parks and recreation facilities,

(vi) Flood management projects and flood control devices and structures,

(vii) Operating or closed municipal landfills,

(viii) Publicly owned treatment works (including water and wastewater treatment plants) and sanitary sewer collection systems,

(ix) Corporate yards, including maintenance and storage yards for materials, waste, equipment, and vehicles,

(x) Hazardous waste collection facilities,

(xi) Other treatment, storage or disposal facilities for municipal waste, and

(xii) Other Copermittee owned municipal facilities that the Copermittee determines may contribute a significant high priority pollutant load to the MS4; and

(d) Residential areas, which may be designated by one or more of the following:

(i) Residential management area,

(ii) Drainage basin or area,

(iii) Land use (e.g., single family, multi-family, rural),

(iv) Neighborhood,

[33] The inventory may refer to the MS4 map required to be maintained pursuant to Provision E.2.b.(1).

(v) Common Interest Area,

(vi) Home Owner Association,

(vii) Mobile home park, and/or

(viii) Other designations accepted by the San Diego Water Board Executive Officer.

(2) A description of the facility or area, including the following information:

(a) Classification as commercial, industrial, municipal, or residential;

(b) Status of facility or area as active or inactive;

(c) Identification if a business is a mobile business;

(d) SIC Code or NAICS Code, if applicable;

(e) Industrial General Permit NOI and/or WDID number, if applicable;

(f) Identification if a residential area is or includes a Common Interest Area / Home Owner Association, or mobile home park;

(g) Identification of pollutants generated and potentially generated by the facility or area;

(h) Whether the facility or area is adjacent to an ESA;

(i) Whether the facility or area is tributary to and within the same hydrologic subarea as a water body segment listed as impaired on the CWA section 303(d) List and generates pollutants for which the water body segment is impaired; and

(j) Whether the facility or area contributes or potentially contributes to the highest priority water quality conditions identified in the Water Quality Improvement Plan.

(3) An annually updated map showing the location of inventoried existing development, watershed boundaries, and water bodies.

b. EXISTING DEVELOPMENT BMP IMPLEMENTATION AND MAINTENANCE

Each Copermittee must designate a minimum set of BMPs required for all inventoried existing development, including special event venues. The designated minimum BMPs must be specific to facility or area types and pollutant generating activities, as appropriate.

(1) Commercial, Industrial, and Municipal Facilities and Areas

(a) Pollution Prevention

Each Copermittee must require the use of appropriate pollution prevention methods by the commercial, industrial, and municipal facilities and areas in its inventoried existing development, as determined necessary by the Copermittee to address the priorities and strategies addressed in the WQIP.

(b) BMP Implementation

Each Copermittee must ~~implement, or~~ require the implementation of, designated BMPs at commercial facilities and areas, industrial facilities, and implement designated BMPs at municipal facilities in its inventoried existing development, as determined necessary by the Copermittee to address the priorities and strategies addressed in the WQIP.

(c) BMP Operation and Maintenance

(i) Each Copermittee must properly operate and maintain, or require the proper operation and maintenance of designated BMPs at commercial facilities and areas, industrial facilities, and municipal facilities in its inventoried existing development.

(ii) Each Copermittee must implement a schedule of operation and maintenance activities for its MS4 and related structures (including but not limited to catch basins, storm drain inlets, detention basins, etc.), and verify proper operation of all its municipal structural treatment controls designed to reduce pollutants (including floatables) in storm water discharges to or from its MS4s and related drainage structures. Operation and maintenance activities may include, but is not limited to, the following:

[a] Inspections of the MS4 and related structures;
[b] Cleaning of the MS4 and related structures; and
[c] Proper disposal of materials removed from cleaning of the MS4 and related structures.

(iii) Each Copermittee must implement a schedule of operation and maintenance for public streets, unpaved roads, paved roads, and paved highways and freeways within its jurisdiction to minimize pollutants that can be discharged in storm water.

(iv) Each Copermittee must implement the following controls to prevent infiltration of sewage into the MS4 from leaking sanitary sewers:

[a]. Copermittees that operate both a municipal sanitary sewer system and a MS4 must implement controls and measures to

Comment [A106]: See discussion in section 3.10.2 of the comment letter.

prevent and eliminate seeping sewage from infiltrating the MS4.

[b]- Copermittees that do not operate both a municipal sanitary sewer system and a MS4 must coordinate with sewering agencies to keep themselves informed of relevant and appropriate maintenance activities and sanitary sewage projects in their jurisdiction that may cause or contribute to seepage of sewage into the MS4.

(d) Pesticides, Herbicides, and Fertilizers BMPs

Each Copermittee must ~~implement BMPs, or~~ require the implementation of BMPs, to reduce pollutants in runoff~~storm water~~ discharges to the MEP and effectively prohibit non-storm water discharges associated with the application, storage, and disposal of pesticides, herbicides and fertilizers from commercial facilities and areas, industrial facilities;~~,~~ and implement such BMPs at municipal facilities in its inventoried existing development. Such BMPs must include, as appropriate, educational activities, permits, certifications and other measures for applicators and distributors.

(2) Residential Areas

(a) Pollution Prevention

Each Copermittee must promote and encourage the use of pollution prevention methods, where appropriate, by the residential areas in its inventoried existing development.

(b) BMP Implementation

Each Copermittee must promote and encourage the implementation of designated BMPs at residential areas in its inventoried existing development.

(c) BMP Operation and Maintenance

Each Copermittee must properly operate and maintain, or require the proper operation and maintenance of designated BMPs at residential areas in its inventoried existing development.

(d) Pesticides, Herbicides, and Fertilizers BMPs

Each Copermittee must promote and encourage the implementation of BMPs to reduce pollutants in runoff~~storm water~~ discharges to the MEP and effectively prohibit non-storm water discharges associated with the application, storage, and disposal of pesticides, herbicides and fertilizers from residential areas in its inventoried existing development.

Comment [A107]: See discussion in section 3.10.2 of the comment letter.

c. EXISTING DEVELOPMENT INSPECTIONS

Each Copermittee must conduct inspections of inventoried existing development that have been identified by the Copermittee as having the reasonable potential to discharge pollutant loads from their MS4, to ensure compliance with applicable local ordinances and permits, and the requirements of this Order.

(1) Inspection Frequency

(a) Each Copermittee must establish appropriate inspection frequencies for inventoried existing development in accordance with the following requirements:

(i) At a minimum, inventoried existing development must be inspected once every five years utilizing one or more of the following methods:

[a] Drive-by inspections by Copermittee municipal and contract staff,
[b] Onsite inspections by Copermittee municipal and contract staff, and/or
[c] Inspections by volunteer monitoring or patrol programs trained by the Copermittee;

(ii) The frequency of inspections must be appropriate to confirm that BMPs are being implemented to reduce the discharge of pollutants in runoff~~storm water~~ from the MS4 to the MEP and effectively prohibit non-storm water discharges to the MS4;

(iii) The frequency of inspections must be based on the potential for a facility or area to discharge non-storm water and pollutants in storm water, and should reflect the priorities set forth in the Water Quality Improvement Plan;

~~(iv) Each Copermittee must annually perform onsite inspections of an equivalent of at least 20 percent of the commercial facilities and areas, industrial facilities, and municipal facilities in its inventoried existing development;[34] and~~

~~(v)~~(iv) Inventoried existing development must be inspected by the Copermittee, as needed, in response to valid public complaints and findings from the Copermittee's municipal and contract staff or volunteer monitoring or patrol program inspections.

(b) Based upon inspection findings, each Copermittee must implement all follow-up actions (i.e. education and outreach, re-inspection, enforcement) necessary to require and confirm compliance with its applicable local

Comment [A108]: Recommend keeping this instead of SD proposed 'during the permit term'. The 'during the permit term' language is problematic for businesses that are added to the inventory during the permit term. For example, if a business is added to the inventory one month before the expiration of the permit, it may not be reasonable to expect it to be immediately inspected. It is also problematic for Riverside (and OC?), who may be added to the permit less than two years before the end of the permit term.

Comment [A109]: See discussion in section 3.10.2 of the comment letter.

~~[34] If any commercial, industrial, or municipal facilities or areas require multiple onsite inspections during any given year, those additional inspection may count toward the total annual inspection requirement. This requirement excludes linear municipal facilities (i.e., MS4, streets, roads and highways).~~

ordinances and permits and the requirements of this Order, in accordance with its Enforcement Response Plan pursuant to Provision E.6.

(2) Inspection Content

(a) Inspections of existing development by the Copermittee or volunteer monitoring or patrol programs must include, at a minimum:

(i) Visual inspections for actual non-storm water discharges, if present;

(ii) Visual inspections for actual or potential discharge of pollutants, if present;

(iii) Visual inspections for actual or potential illicit connections, if present; and

(iv) Verification that the description of the facility or area in the inventory, required pursuant to Provision E.5.a.(2), has not changed.

(b) Onsite inspections of existing development by the Copermittee must include, at a minimum:

(i) Assessment of compliance with its applicable local ordinances and permits related to non-storm water and storm water discharges and runoff;

(ii) Assessment of the implementation of the designated BMPs;

(iii) Verification of coverage under the Industrial General Permit, when applicable; and

(iv) If any problems or violations are found, inspectors must take and document appropriate actions in accordance with the Enforcement Response Plan pursuant to Provision E.6.

(3) Inspection Tracking and Records

Each Copermittee must track all inspections and re-inspections at all inventoried existing development. The Copermittee must retain all inspection records in an electronic database or tabular format, which must be made available to the San Diego Water Board upon request. Inspection records must include, at a minimum:

(a) Name and location of facility or area (address and hydrologic subarea) consistent with the inventory name and location, pursuant to Provision E.5.a.(1);

(b) Inspection and re-inspection date(s);

(c) Inspection method(s) (i.e. drive-by, onsite);

(d) Observations and findings from the inspection(s);

(e) For onsite inspections of existing development by Copermittee municipal or contract staff, the records must also include, as applicable:

(i) Description of any problems or violations found during the inspection(s),

(ii) Description of enforcement actions issued in accordance with the Enforcement Response Plan pursuant to Provision E.6, and

(iii) The date problems or violations were resolved.

d. EXISTING DEVELOPMENT ENFORCEMENT

Each Copermittee must enforce its legal authority established pursuant to Provision E.1 for all its inventoried existing development, as necessary, to achieve compliance with the requirements of this Order, in accordance with its Enforcement Response Plan pursuant to Provision E.6.

e. RETROFITTING AND REHABILITATION~~STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS~~

~~Each Copermittee must implement the water quality improvement strategies, where necessary, to address areas of existing development within its jurisdiction that are identified as sources of pollutants and/or stressors contributing to the highest priority water quality conditions in the Watershed Management Area. For the existing development management program, the following strategies must be implemented:~~

~~(3)~~ Specific Existing Development Management Program Strategies

~~Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented within its jurisdiction to address areas of existing development that the Copermittee has identified as sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:~~

~~(a) Provide specific details about how the strategies and/or activities will be implemented (e.g. designate additional BMPs, focus education, and/or increase/decrease frequency of inspections for specific types of facilities, areas and/or activities);~~

~~(b) The facilities and/or areas within the Copermittee's jurisdiction where the strategies and/or activities will be implemented; and~~

~~(c)~~(a) ~~The strategies and/or activities must be consistent with the requirements of Provisions E.5.b-d and the strategies identified in the Water Quality Improvement Plan.~~

~~(4)~~(3) Retrofitting Areas of Existing Development

Where identified in the WQIP as a required strategy to address the highest priority water quality conditions, each~~Each~~ Copermittee must describe in its jurisdictional runoff management program document, a program to retrofit areas of existing development within its jurisdiction to address identified sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area. The program must be implemented as follows:

(a) Each Copermittee must, where necessary pursuant to the strategies identified in the WQIP, identify areas of existing development as candidates for retrofitting, focusing on areas where retrofitting will address pollutants and/or stressors that contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan;

(b) Candidates for retrofitting projects may be utilized to reduce pollutants that may be discharged in storm water from areas of existing development, and/or address storm water runoff flows and durations from areas of existing development that cause or contribute to hydromodification in receiving waters;

(c) Each Copermittee must develop a strategy to facilitate the implementation of retrofitting projects, where needed in areas of existing development identified as candidates;

(d) Each Copermittee should identify areas of existing development where Priority Development Projects may be allowed or should be encouraged to implement or contribute toward the implementation of alternative compliance retrofitting projects; and

(e) Where retrofitting projects within specific areas of existing development are determined to be infeasible to address the highest priority water quality conditions in the Water Quality Improvement Plan, the Copermittee should collaborate and cooperate with other Copermittees and/or entities in the Watershed Management Area to identify, develop, and implement regional retrofitting projects (i.e. projects that can receive and/or treat storm water from one or more areas of existing development and will result in a net benefit to water quality and the environment) adjacent to and/or downstream of the areas of existing development.

~~(5)~~(4) Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development

Where identified in the WQIP as a required strategy to address the highest priority water quality conditions, each~~Each~~ Copermittee must describe in its jurisdictional runoff management program document, a program to rehabilitate streams, channels, and/or habitats in areas of existing development within its jurisdiction to address the highest priority water quality conditions in the Watershed Management Area. The program must be implemented as follows:

(a) Each Copermittee must, where necessary pursuant to the strategies identified in the WQIP, identify streams, channels, and/or habitats in areas of existing development as candidates for rehabilitation, focusing on areas where stream, channel, and/or habitat rehabilitation projects will address the highest priority water quality conditions identified in the Water Quality Improvement Plan;

(b) Candidates for stream, channel, and/or habitat rehabilitation projects may be utilized to address storm water runoff flows and durations from areas of existing development that cause or contribute to hydromodification in receiving waters, rehabilitate channelized or hydromodified streams, restore wetland and riparian habitat, restore watershed functions, and/or ~~restore~~ protect beneficial uses of receiving waters;

(c) Each Copermittee must develop a strategy to facilitate the implementation of stream, channel, and/or habitat rehabilitation projects, where needed, in areas of existing development identified as candidates;

(d) Each Copermittee should identify areas of existing development where Priority Development Projects may be allowed or should be encouraged to implement or contribute toward the implementation of alternative compliance stream, channel, and/or habitat rehabilitation projects; and

(e) Where stream, channel, and/or habitat rehabilitation projects within specific areas of existing development are determined to be infeasible to address the highest priority water quality conditions in the Water Quality Improvement Plan, the Copermittee should collaborate and cooperate with other Copermittees and/or entities in the Watershed Management Area to identify, develop, and implement regional stream, channel, and/or habitat rehabilitation projects (i.e. projects that can receive storm water from one or more areas of existing development and will result in a net benefit to water quality and the environment).

(5) Upon Regional Board Executive Officer approval the Copermittees may reallocate resources in the WQIPs for retrofit and rehabilitation project(s).

6. Enforcement Response Plans

Each Copermittee must develop and implement an Enforcement Response Plan as part of its jurisdictional runoff management program document. The Enforcement Response Plan must describe the applicable approaches and options to enforce its legal authority established pursuant to Provision E.1, as necessary, to achieve compliance with the requirements of this Order. Copermittees may continue to utilize and implement established, equivalent guidelines and procedures for enforcement. If such equivalent guidelines and procedures have not been developed, ~~T~~the Enforcement Response Plan must include the following:

a. ENFORCEMENT RESPONSE PLAN COMPONENTS

The Enforcement Response Plan must include the following individual components:

(1) Illicit Discharge Detection and Elimination Enforcement Component;

(2) Development Planning Enforcement Component;

(3) Construction Management Enforcement Component; and

(4) Existing Development Enforcement Component.

b. ENFORCEMENT RESPONSE APPROACHES AND OPTIONS

Each component of the Enforcement Response Plan must describe the enforcement response approaches that the Copermittee will implement to compel compliance with its statutes, ordinances, permits, contracts, orders, or similar means, and the requirements of this Order. The description must include the protocols for implementing progressively stricter enforcement responses. The enforcement response approaches must include appropriate sanctions, as legally appropriate, to compel compliance, including, at a minimum, the following tools or their equivalent:

(1) Verbal and written notices of violation;

(2) Cleanup requirements;

(3) Fines;

(4) Bonding requirements;

(5) Administrative and criminal (if intentional or criminally negligent) penalties;

(6) Liens;

(7) Stop work orders; and

(8) Permit and occupancy denials.

c. CORRECTION OF VIOLATIONS

(1) Violations must be corrected in a timely manner with the goal of correcting the violations within 30 calendar days after the violations are discovered, or prior to the next predicted rain event, whichever is sooner.

(2) The status of the enforcement actions ~~If more than 30 calendar days are required to achieve compliance, then a rationale~~ must be recorded and updated in the applicable electronic database or tabular system used to track violations.

d. ~~ESCALATED~~ PROGRESSIVE ENFORCEMENT

(1) The Enforcement Response Plan must include a definition of "~~escalated~~ progressive enforcement." ~~Escalated~~ Progressive enforcement must include a series of enforcement actions that match the severity of the violations and include distinct, progressive steps. ~~any enforcement scenario where a violation or other non-compliance is determined to cause or contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan~~. ~~Escalated~~ Progressive enforcement may be defined differently for development planning, construction sites, commercial facilities or areas, industrial facilities, municipal facilities, and/or residential areas.

(2) Where the Copermittee determines ~~escalated~~ the identified progressive enforcement steps ~~is~~are not required, a rationale must be recorded in the applicable electronic database or tabular system used to track violations.

(3) ~~Escalated~~ Progressive enforcement actions must continue to increase in severity, as necessary, to compel compliance as soon as possible.

e. REPORTING OF NON-COMPLIANT SITES

(1) Each Copermittee must notify the San Diego Water Board in writing within ~~22~~5 calendar~~2 working~~ days of issuing escalated enforcement (as defined in the Copermittee's Enforcement Response Plan) to a construction site that poses a significant threat to water quality as a result of violations or other non-compliance with its permits and applicable local ordinances, and the requirements of this Order. Written notification may be provided electronically by email.

Comment [A110]: This is just asking for paperwork violations if someone forgets to write a specific justification – even if all appropriate steps are being diligently pursued. Request alternatively to simply require that the status be updated as appropriate.

Comment [A111]: See discussion in section 3.11.2 of the comment letter.

(2) Each Copermittee must notify the San Diego Water Board of non-filers under the Industrial General Permit and Construction General Permit by email to Nonfilers_R9@waterboards.ca.gov.

7. Public Education and Participation

Each Copermittee must implement, individually or with other Copermittees, a public education and participation program in accordance with the strategies identified in the Water Quality Improvement Plan to promote and encourage the development of programs, management practices, and behaviors that reduce the discharge of pollutants in runoff~~storm water~~ to the MEP, prevent controllable non-storm water discharges from entering the MS4, and protect water quality standards in receiving waters.

STRATEGIES TO ADDRESS THE HIGHEST PRIORITY WATER QUALITY CONDITIONS

Comment [A112]: Recommended move from (c)

Each Copermittee must describe in its jurisdictional runoff management program document the strategies and/or activities that will be implemented within its jurisdiction, as applicable, to educate the public and encourage public participation to address potential sources of pollutants and/or stressors that contribute to the highest priority water quality conditions in the Watershed Management Area as follows:

(1) The target audiences and/or areas within the Copermittee's jurisdiction where the strategies and/or activities will be implemented;

(2) Provide specific details about how the strategies and/or activities will be implemented (e.g. educational topics, materials and/or activities, public outreach and participation programs and/or opportunities);

(3) Each Copermittee should collaborate and cooperate with other Copermittees and/or entities in the Watershed Management Area to identify and implement regional public education and participation activities, programs and opportunities;

(4) Each Copermittee must incorporate a mechanism for evaluating and assessing educational and other public outreach activities, as needed, to identify progress and incorporate modifications necessary to increase the effectiveness of the public education and participation program.

(5) The requirements of the programs as outlined in the following sub-provisions

may be modified and prioritized as appropriate for consistency with the highest water quality priorities and strategies as identified in the corresponding Water Quality improvement Plan(s).

a. PUBLIC EDUCATION

The public education program component implemented within the Copermittee's jurisdiction must include, at a minimum, the following:

(1) Educational activities, public information activities, and other appropriate outreach activities intended to reduce pollutants associated with the ~~application of pesticides, herbicides and fertilizer and other pollutants of concern in storm water discharges to and from its MS4 to the MEP, as determined and prioritized by the Copermittee(s) by jurisdiction and/or watershed to address the~~ highest priority water quality conditions identified in the Water Quality Improvement Plan;

(2) Educational activities, public information activities, and other appropriate outreach activities to facilitate the proper management and disposal of used oil and toxic materials; and

(3) Appropriate education and training measures for specific target audiences, such as construction site operators, residents, underserved target audiences and school-aged children, as determined and prioritized by the Copermittee(s) by jurisdiction and/or watershed, based on high risk behaviors and pollutants of concern.

b. PUBLIC PARTICIPATION

The public participation program component implemented within the Copermittee's jurisdiction must include, at a minimum, the following:

(1) A process for members of the public to participate in updating the highest priority water quality conditions, numeric goals, and water quality improvement strategies in the Water Quality Improvement Plan.

(2) Opportunities for members of the public to participate in providing the Copermittee recommendations for improving the effectiveness of the water quality improvement strategies implemented within its jurisdiction.

(3) Opportunities for members of the public to participate in programs and/or activities that can result in the prevention or elimination of non-storm water discharges to the MS4, reduction of pollutants in ~~storm wate~~r discharges from

the MS4, and/or ~~restoration and~~ protection of the quality of receiving waters.

8. Fiscal Analysis

a. ~~Each Copermittee must secure the resources necessary to meet all the requirements of this Order~~.

b. Each Copermittee must conduct an annual fiscal analysis of its jurisdictional runoff management program in its entirety. The fiscal analysis must include the following:

(1) Identification of the various categories of expenditures necessary to implement the requirements of this Order, including a description of the specific capital, operation and maintenance, and other expenditure items to be accounted for in each category of expenditures;

(2) The staff resources needed and allocated to meet the requirements of this Order, including any development, implementation, and enforcement activities required;

(3) The estimated expenditures for Provisions E.8.b.(1) and E.8.b.(2) for the current fiscal year; and

(4) The source(s) of funds that are proposed to meet the necessary expenditures described in Provisions E.8.b.(1) and E.8.b.(2), including legal restrictions on the use of such funds, for the current fiscal year and next fiscal year.

c. Each Copermittee must submit a summary of the annual fiscal analysis with each Annual Report required pursuant to Provision F.3.b.

d. Each Copermittee must provide the documentation used to develop the summary of the annual fiscal analysis upon request by the San Diego Water Board.

Comment [A113]: Since the monitoring period is different than a fiscal year, we won't be able to consistently and accurately report monitoring costs incurred by the Copermittees. (which are a big part of overall budgets)

Comment [A114]: Please see Legal Comments.

Riverside Copermittee Redlines

F. REPORTING

Comment [A115]: See discussion in section 3.14 of the comment letter.

The purpose of this provision is to determine and document compliance with the requirements set forth in this Order. The goal of reporting is to communicate to the San Diego Water Board and the people of the State of California the implementation status of each jurisdictional runoff management program and compliance with the requirements of this Order. This goal is to be accomplished through the submittal of specific deliverables to the San Diego Water Board by the Copermittees.

1. Water Quality Improvement Plans

Comment [A116]: See discussion in section 3.14.1 of the comment letter.

The Copermittees for each Watershed Management Area must develop and submit the Water Quality Improvement Plan in accordance with the following requirements:

a. WATER QUALITY IMPROVEMENT PLAN DEVELOPMENT

Each Water Quality Improvement Plan must be developed in accordance with the following process:

(1) Priority Water Quality Conditions and Numeric Goals

(a) The Copermittees must implement a public participation process to solicit data and information to be utilized in the development and identification of the priority water quality conditions for the Watershed Management Area.

(b) The Copermittees are encouraged to involve the public and key stakeholders as early and often as possible during the development of the priority water quality conditions and numeric goals to be included in the Water Quality Improvement Plan.

(c) Within 6 months after the commencement of coverage under this Order, the Copermittees must develop and submit the Water Quality Improvement Plan requirements of Provision B.2 to the San Diego Water Board. The San Diego Water Board will issue a public notice and solicit public comments on the Water Quality Improvement Plan for a minimum of 60 days.

(d) The Copermittees must revise the priority water quality conditions and numeric goals based on comments received and/or recommendations or direction from the San Diego Water Board Executive Officer.

(2) Water Quality Improvement Strategies and Schedules

(a) The Copermittees are encouraged to involve the public and key stakeholders as early and often as possible during the development of the water quality improvement strategies and schedules to be included in the Water Quality Improvement Plan.

(b) Within 9 months after receipt~~the commencement~~ of public comments and/or recommendations from the Executive Officer per (1)(c) above~~coverage under this Order~~, the Copermittees must develop and submit the Water Quality Improvement Plan requirements of Provision B.3 to the San Diego Water Board. The San Diego Water Board will issue a public notice and solicit public comments on the Water Quality Improvement Plan for a minimum of 60 days.

(c) The Copermittees must revise the water quality improvement strategies and schedules based on comments received and/or recommendations or direction from the San Diego Water Board Executive Officer.

b. WATER QUALITY IMPROVEMENT PLAN SUBMITTAL

(1) Within 6~~1~~8 months after receipt~~the commencement~~ of public comments and/or recommendations from the Executive Officer per (2)(c) above~~coverage under this Order~~, the Copermittees for each Watershed Management Area must submit a complete Water Quality Improvement Plan in accordance with the requirements of Provision B to the San Diego Water Board. The San Diego Water Board will issue a public notice and solicit public comments on the Water Quality Improvement Plan for a minimum of 30 days.

(2) Based on the comments received, the San Diego Water Board will determine whether to hold a public hearing or to limit public input to submittal of written comments. If no hearing is held the San Diego Water Board will notify the Copermittees within 6 months that the Water Quality Improvement Plan has been accepted as complete following its review and determination that the Water Quality Improvement Plan meets the requirements of this Order.

(3) The Copermittees must revise the Water Quality Improvement Plan based on comments received and/or recommendations or direction from the San Diego Water Board Executive Officer.

(4) The Water Quality Improvement Plan must be made available on the Regional Clearinghouse required pursuant to Provision F.4 within 30 days of acceptance by the San Diego Water Board.

(5) Copermittees must commence with implementation of the BMP strategies identified in the Water Quality Improvement Plan no later than the fiscal year (July 1) following San Diego Water Board approval of the Water Quality Improvement Plan, and the monitoring strategies identified in the Water Quality Improvement Plan no later than October 1st (or May 1st, whichever is sooner) following the San Diego Water Board approval of the Water Quality Improvement Plan.

Riverside Copermittee Redlines

2. Updates

a. JURISDICTIONAL RUNOFF MANAGEMENT PROGRAM DOCUMENT UPDATES

Each Copermittee must update its jurisdictional runoff management program document in accordance with the following requirements:

(1) Each Copermittee is encouraged to involve the public and key stakeholders as early and often as possible to solicit recommendations for updates to its jurisdictional runoff management program document.

(2) Each Copermittee must update its jurisdictional runoff management program document to incorporate the requirements of Provision E and the strategies identified in the applicable WQIPs no later than 6~~18~~ months after approval~~the commencement~~ of the applicable Water Quality Improvement Plans (or updates thereto).~~coverage under this Order.~~

(3) The updated JRMP document must be implemented beginning July 1st following completion of the update, unless directed otherwise by the Executive Officer.

~~(3)~~(4) Each Copermittee must submit any subsequent updates to its jurisdictional runoff management program, with a rationale for the modifications, either in the Annual Report required pursuant to Provision F.3.b, or as part of the Report of Waste Discharge required pursuant to Provision F.5.b.

~~(4)~~(5) The Copermittee must revise the modifications as directed by the San Diego Water Board Executive Officer.

~~(5)~~(6) Updated jurisdictional runoff management program documents must be made available on the Regional Clearinghouse required pursuant to Provision F.4 within 30 days of submitting the Annual Report.

b. BMP DESIGN MANUAL UPDATES

Each Copermittee must update its BMP Design Manual in accordance with the following requirements:

(1) Each Copermittee must update its BMP Design Manual to incorporate the requirements of Provisions E.3.a-d, and E.3.g. no later than 6~~18~~ months after approval~~the commencement~~ of the applicable Water Quality Improvement Plans..

(2) Unless directed otherwise by the San Diego Water Board, the Copermittee must implement the updated BMP Design Manual within 180 days of

Comment [A117]: See discussion in section 3.14.1 of the comment letter.

Comment [A118]: This is necessary for the WQIP strategies to inform the Development Planning process

Comment [A119]: An implementation date was missing from the Tentative Order

completing updates to the BMP Design Manual.

~~(1)~~(3) Until the Copermittee begins implementation of its updated BMP Design Manual, the Copermittee must continue implementing its current BMP Design Manual~~coverage under this Order~~.

Comment [A120]: This was moved to here

~~(2)~~(4) Subsequent updates must be consistent with the requirements of Provisions E.3.a-d and must be submitted as part of the Annual Reports required pursuant to Provision F.3.b, or as part of the Report of Waste Discharge required pursuant to Provision F.5.b.

~~(3)~~(5) Updated BMP Design Manuals must be made available on the Regional Clearinghouse required pursuant to Provision F.4 within 30 days of completing the update.

c. WATER QUALITY IMPROVEMENT PLAN UPDATES

The Water Quality Improvement Plans must be updated in accordance with the following process:

(1) The Copermittees must implement a public participation process to solicit data and information to be utilized in updating the Water Quality Improvement Plan.

(2) The Copermittees are encouraged to involve the public and key stakeholders as early and often as possible during the updates to the Water Quality Improvement Plan.

(3) The Copermittees for each Watershed Management Area must submit requested updates to the Water Quality Improvement Plan, with the public input received and the rationale for the requested updates, either in the Annual Reports required pursuant to Provision F.3.b, or as part of the Report of Waste Discharge required pursuant to Provision F.5.b. The requested updates are considered accepted by the San Diego Water Board if no response is provided to the Copermittee after 3 months of submitting the request.

(4) The Copermittees must revise the requested updates as directed by the San Diego Water Board Executive Officer.

(5) Updated Water Quality Improvement Plans must be made available on the Regional Clearinghouse required pursuant to Provision F.4 within 30 days of acceptance of the requested updates by the San Diego Water Board.

3. Progress Reporting

Comment [A121]: See discussion in section 3.14.1 of the comment letter.

a. PROGRESS REPORT PRESENTATIONS

The Copermittees for each Watershed Management Area must appear before the San Diego Water Board, as requested by the San Diego Water Board, to provide progress reports on the implementation of the Water Quality Improvement Plan and jurisdictional runoff management programs.

b. ANNUAL REPORTS

Comment [A122]: See discussion in section 3.14.1 of the comment letter.

(1) Transitional Period JRMP Reports: Each Copermittee must complete and submit a Jurisdictional Runoff Management Program Annual Report Form (Attachment D or accepted revision) no later than October 31 of each year prior to the implementation of updated JRMP programs pursuant to F.2.a. Each Copermittee must submit the information on the Jurisdictional Runoff Management Program Annual Report Form specific to the area within its jurisdiction in each Watershed Management Area.

(2) Transitional Period Monitoring Report: The transitional period monitoring conducted pursuant to D.1.a and D.2.a. shall be reported in a single report that covers the entire reporting period from the initiation of the transitional period monitoring (as described in D.1.a and D.2.a.), through September 30th following approval of the Water Quality Improvement Plan. The Transitional Period Monitoring Report shall include the assessments required per D.4.a.(1)(a), D.4.b.(1)(a) and D.4.b.(2)(a); and be submitted by January 31st following completion of the above mentioned transitional period.

~~(1)~~(3) Post-Transitional Annual Reports – Following the initial transitional period after enrollment into this Order, the~~The~~ Copermittees for each Watershed Management Area must submit an combined Annual Report for each reporting period no later than January 31 of the following year. The annual reporting period consists of two periods: 1) July 1 to June 30 of the following year for the jurisdictional runoff management programs, 2) October 1 to September 30 of the following year for the monitoring and assessment programs~~. The first Annual Report must be prepared for the reporting period beginning July 1 after commencement of coverage under this Order, and upon San Diego Water Board determination that the Water Quality Improvement Plan meets the requirements of this Order to June 30 in the following year for the jurisdictional runoff management programs, and September 30 in the following year for the monitoring and assessment programs.~~ Annual Reports must be made available on the Regional Clearinghouse required pursuant to Provision F.4. Each Annual Report must include the following:

(a) The receiving water and MS4 outfall discharge monitoring data collected pursuant to Provisions D.1 and D.2, summarized and presented in tabular and graphical form;

(b) Progress of the special studies required pursuant to Provision D.3, and the results or findings when a special study, or each phase of a special study, is completed;

(c) The findings from the applicable assessments required pursuant to Provision D.4;

Comment [A123]: Not all are required annually.

(d) The progress of implementing the Water Quality Improvement Plan, including, but not limited to, the following:

(i) The progress toward achieving the interim and final numeric goals for the highest water quality priorities for the Watershed Management Area,

(ii) The water quality improvement strategies that were implemented and/or no longer implemented by each of the Copermittees during the reporting period and previous reporting periods, and are planned to be implemented during the next reporting period,

(iii) Proposed modifications to the water quality improvement strategies, with public input received and rationale for the proposed modifications,

(iv) Previously proposed modifications or updates incorporated into the Water Quality Improvement Plan and/or each Copermittee's jurisdictional runoff management program document and implemented by the Copermittees in the Watershed Management Area, and

(v) Proposed modifications or updates to the Water Quality Improvement Plan and/or each Copermittee's jurisdictional runoff management program document;

(e) A completed Jurisdictional Runoff Management Program Annual Report Form (Attachment D or accepted revision) for each Copermittee in the Watershed Management Area, certified by a Principal Executive Officer, Ranking Elected Official, or Duly Authorized Representative.

~~(2) Each Copermittee must complete and submit a Jurisdictional Runoff Management Program Annual Report Form (Attachment D or accepted revision) no later than October 31 of each year until the first Annual Report is required to be submitted. Each Copermittee must submit the information on the Jurisdictional Runoff Management Program Annual Report Form specific to the area within its jurisdiction in each Watershed Management Area.~~

Comment [A124]: Adapted into new section (1)

~~(3)~~(4) Each Copermittee must provide any data or documentation utilized in

developing the Annual Report upon request by the San Diego Water Board. ~~AnyAny~~Copermittee~~Any~~ monitoring data utilized in developing the Annual Report must be uploaded to the California Environmental Data Exchange Network (CEDEN).[35] Any Copermittee monitoring and assessment data utilized in developing the Annual Report must be provided on the Regional Clearinghouse required pursuant to Provision F.4.

c. Regional Monitoring and Assessment Report

(1) The Copermittees must submit a Regional Monitoring and Assessment Report no later than 180 days in advance of the expiration date of this Order. The Regional Monitoring and Assessment Report may be submitted as part of the Report of Waste Discharge required pursuant to Provision F.5.b. The Regional Monitoring and Assessment Report shall incorporate the Integrated Assessment of the Water Quality Improvement Plan per D.4.d.

~~(1) The Copermittees must review the receiving water and MS4 outfall discharge monitoring data collected pursuant to Provisions D.1 and D.2, and findings from the assessments required pursuant to Provision D.4, to assess the following:~~

~~(2)~~

~~(3) The beneficial uses of the receiving waters within the San Diego Region that are protected or must be restored;~~

~~(4)~~

~~(5) The progress toward restoring impacted beneficial uses in the receiving waters within the San Diego Region; and~~

~~(6)~~

~~(7) Pollutants or conditions of emerging concern that may impact beneficial uses in the receiving waters within the San Diego Region.~~

~~(8)~~

~~(9) The Regional Monitoring and Assessment Report must include recommendations for improving the implementation and assessment of the Water Quality Improvement Plans and jurisdictional runoff management programs.~~

(2) Each Copermittee must provide any data or documentation utilized in developing the Regional Monitoring and Assessment Report upon request by the San Diego Water Board. Any monitoring and assessment data utilized in developing the Regional Monitoring and Assessment Report must be provided on the Regional Clearinghouse required pursuant to Provision F.4.

[35] Data must be uploaded to CEDEN Southern California Regional Data Center (http://www.sccwrp.org/Data/DataSubmission/SouthernCaliforniaRegionalDataCenter.aspx) using the templates provided on the CEDEN website.

4. Regional Clearinghouse

The Copermittees must develop, update, and maintain an internet-based Regional Clearinghouse that is made available to the public no later than 18 months after the effective date of this Order.[36]

a. The Copermittees, through the Regional Clearinghouse, must make the following documents and data available, organized by Watershed Management Area, which may be linked to other internet-based data portals and databases where the original documents are stored:

(1) Water Quality Improvement Plan for the Watershed Management Area, and all updated versions with date of update;

(2) Annual Reports for the Watershed Management Area;

(3) Jurisdictional Runoff Management Program document for each Copermittee within the Watershed Management Area, and all updated versions with date of update;

(4) BMP Design Manual for each Copermittee within the Watershed Management Area, and all updated versions with date of update;

(5) Reports from special studies (e.g. source identification, BMP effectiveness assessment) conducted in the Watershed Management Area;

(6) Monitoring data collected pursuant to Provision D for each Watershed Management Area must be uploaded to CEDEN,[37] with links to the uploaded data; and

(7) Available GIS data, layers, and/or shapefiles used to develop the maps generated and maintained by the Copermittees for the Water Quality Improvement Plans, Annual Reports, and jurisdictional runoff management program documents.

b. The Copermittees, through the Regional Clearinghouse, must make the following information and documents available:

(1) Contact information (point of contact, phone number, email address, and mailing address) for each Copermittee;

[36] The Copermittee may elect to develop and maintain the clearinghouse(s) provided by other Copermittees or agencies.

[37] Data must be uploaded to CEDEN Southern California Regional Data Center (http://www.sccwrp.org/Data/DataSubmission/SouthernCaliforniaRegionalDataCenter.aspx) using the templates provided on the CEDEN website.

(2) Public hotline number for reporting non-storm water and illicit discharges for each Copermittee;

(3) Email address for reporting non-storm water and illicit discharges for each Copermittee;

(4) Link to each Copermittee's website, if available, where the public may find additional information about the Copermittee's storm water management program and for requesting records for the implementation of its program;

(5) Information about opportunities for the public to participate in programs and/or activities that can result in the prevention or elimination of non-storm water discharges to the MS4, reduction of pollutants in ~~storm water~~ discharges from the MS4, and/or restoration and protection of the quality of receiving waters; and

(6) Reports from regional monitoring programs in which the Copermittees participate (e.g. Southern California Monitoring Coalition, Southern California Coastal Water Research Project Bight Monitoring);

(7) Regional Monitoring and Assessment Reports; and

(8) Any other information, data, and documents the Copermittees determine as appropriate for making available to the public.

5. Report of Waste Discharge

a. The Orange County Copermittees and the Riverside County Copermittees are required to submit a complete Report of Waste Discharge pursuant to the requirements of their current Orders. The San Diego Water Board will review and consider the Reports of Waste Discharge to determine whether modification to this Order, pursuant to the requirements of Provision H, will be required prior the Orange County Copermittees and/or Riverside County Copermittees becoming covered under this Order. The current Orders for the Orange County Copermittees and Riverside County Copermittees are rescinded upon notification of coverage under this Order except for enforcement purposes.

b. The Copermittees subject to the requirements of this Order must submit to the San Diego Water Board a complete Report of Waste Discharge as an application for the re-issuance of this Order and NPDES permit. The Report of Waste Discharge must be submitted no later than 180 days in advance of the expiration date of this Order. The Report of Waste Discharge must contain the following minimum information:

(1) Names and addresses of the Copermittees;

(2) Names and titles of the primary contacts of the Copermittees;

(3) Proposed changes to the Copermittees' Water Quality Improvement Plans and the supporting justification;

(4) Proposed changes to the Copermittees' jurisdictional runoff management programs and the supporting justification;

(5) Any other information necessary for the re-issuance of this Order;

(6) Any information to be included as part of the Report of Waste Discharge pursuant to the requirements of this Order; and

(7) Any other information required by federal regulations for NPDES permit reissuance.

6. Application for Early Coverage

a. The Orange County Copermittees, collectively, or Riverside County Copermittees, collectively, may apply for early coverage under this Order by submitting a Report of Waste Discharge Form 200 with a written request for early coverage under this Order.

Comment [A125]: This form requests information that is not applicable to MS4s.

b. The San Diego Water Board will review the application for early coverage. A notification of coverage under this Order will be issued to the Copermittees in the respective county by the San Diego Water Board upon completion of the early coverage application requirements. The effective coverage date will be specified in the notification of coverage. The Copermittees in the respective county are authorized to have MS4 discharges pursuant to the requirements of this Order starting on the effective coverage date specified in the notification of coverage. The existing Order for the respective county is rescinded upon the effective coverage date specified in the notification of coverage except for enforcement purposes.

7. Reporting Provisions

Each Copermittee must comply with all the reporting and recordkeeping provisions of the Standard Permit Provisions and General Provisions contained in Attachment B to this Order.

G. PRINCIPAL WATERSHED COPERMITTEE RESPONSIBILITIES

1. The Copermittees within each Watershed Management Area must designate a Principal Watershed Copermittee and notify the San Diego Water Board of the name of the Principal Watershed Copermittee. ~~An individual Copermittee should not be designated a Principal Watershed Copermittee for more than two Watershed Management Areas.~~ The notification may be submitted with the Water Quality Improvement Plan required pursuant to Provision F.1 of this Order.

2. The Principal Watershed Copermittee is responsible for, at a minimum, the following:

a. Serving as liaison between the Copermittees in the Watershed Management Area and the San Diego Water Board on general permit issues, and when necessary and appropriate, representing the Copermittees in the Watershed Management Area before the San Diego Water Board.

b. Facilitating the development of the Water Quality Improvement Plan in accordance with the requirements of Provision B of this Order

c. Coordinating the submittal of the deliverables required by Provisions F.1, F.2, F.3.a, and F.3.b of this Order.

d. Coordinating the development of~~and developing~~, with the other Principal Watershed Copermittees, the requirements of Provisions F.3.c, F.4, and F.5.b of this Order.

Riverside Copermittee Redlines

H. MODIFICATION OF PROGRAMS

1. Modifications of the Order may be initiated by the San Diego Water Board or by the Copermittees, including as part of the ROWD process applicable to the Orange County and Riverside County Copermittees. Requests by Copermittees must be made to the San Diego Water Board.

2. Minor modifications to the Order may be made by the San Diego Water Board Executive Officer, where the proposed modification complies with all the effective prohibitions and limitations, and other requirements of this Order.

3. Proposed modifications to the Order outside of the WQIP process that are not minor require amendment of this Order in accordance with this Order's rules, policies, and procedures.

4. The San Diego Water Board may re-open and modify this Order at any time prior to its expiration, after opportunity for public comment and a public hearing, if the State Water Board determines that revisions are warranted to those provisions of the Order addressing compliance with water quality standards in the receiving water and/or those provisions of the Order establishing an iterative process for implementation of management practices to assure compliance with water quality standards in the receiving water.

Riverside Copermittee Redlines

I. STANDARD PERMIT PROVISIONS AND GENERAL PROVISIONS

Each Copermittee must comply with all the Standard Permit Provisions and General Provisions contained in Attachment B to this Order.

Riverside Copermittee Redlines

ATTACHMENT A

DISCHARGE PROHIBITIONS AND SPECIAL PROTECTIONS

1. Basin Plan Waste Discharge Prohibitions

California Water Code Section 13243 provides that a Regional Water Board, in a water quality control plan, may specify certain conditions or areas where the discharge of waste or certain types of waste is not permitted. The following waste discharge effective prohibitions in the Water Quality Control Plan for the San Diego Basin (Basin Plan) are applicable to any person, as defined by Section 13050(c) of the California Water Code, who is a citizen, domiciliary, or political agency or entity of California whose activities in California could affect the quality of waters of the state within the boundaries of the San Diego Region.

1. The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in California Water Code Section 13050, is prohibited.

2. The discharge of waste to land, except as authorized by waste discharge requirements or the terms described in California Water Code Section 13264 is prohibited.

3. The discharge of pollutants or dredged or fill material to waters of the United States except as authorized by a National Pollutant Discharge Elimination System (NPDES) permit or a dredged or fill material permit (subject to the exemption described in California Water Code Section 13376) is prohibited.

4. Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto are prohibited, unless this San Diego Water Board issues a NPDES permit authorizing such a discharge; the proposed discharge has been approved by the State Department of Health Services (DHS) and the operating agency of the impacted reservoir; and the discharger has an approved fail-safe long-term disposal alternative.

5. The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the San Diego Water Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.

6. The discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger is prohibited, unless the discharge is authorized by the San Diego Water Board.

7. The dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited unless authorized by the San Diego Water Board.

8. Any discharge to a storm water conveyance system that is not composed entirely of "*storm water*" is effectively prohibited unless authorized by the San Diego Water Board. [The federal regulations, 40 CFR 122.26(b)(13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities.] [§122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].

9. The unauthorized discharge of treated or untreated sewage to waters of the state or to a storm water conveyance system is prohibited.

10. The discharge of industrial wastes to conventional septic tank/subsurface disposal systems, except as authorized by the terms described in California Water Code Section 13264, is prohibited.

11. The discharge of radioactive wastes amenable to alternative methods of disposal into the waters of the state is prohibited.

12. The discharge of any radiological, chemical, or biological warfare agent into waters of the state is prohibited.

13. The discharge of waste into a natural or excavated site below historic water levels is prohibited unless the discharge is authorized by the San Diego Water Board.

14. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity or discoloration in waters of the state or which unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.

15. The discharge of treated or untreated sewage from vessels to Mission Bay, Oceanside Harbor, Dana Point Harbor, or other small boat harbors is prohibited.

16. The discharge of untreated sewage from vessels to San Diego Bay is prohibited.

17. The discharge of treated sewage from vessels to portions of San Diego Bay that are less than 30 feet deep at mean lower low water (MLLW) is prohibited.

18. The discharge of treated sewage from vessels, which do not have a properly functioning US Coast Guard certified Type I or Type II marine sanitation device, to portions of San Diego Bay that are greater than 30 feet deep at mean lower low water (MLLW) is prohibited.

Riverside Copermittee Redlines

2. Attachment B to State Water Board Resolution 2012-0012

Special Protections for Areas of Special Biological Significance, Governing Point Source Discharges of Storm Water and Nonpoint Source Waste Discharges

I. PROVISIONS FOR POINT SOURCE DISCHARGES OF STORM WATER AND NONPOINT SOURCE WASTE DISCHARGES

The following terms, effective prohibitions, and special conditions (hereafter collectively referred to as special conditions) are established as limitations on point source storm water and nonpoint source discharges. These special conditions provide Special Protections for marine aquatic life and natural water quality in Areas of Special Biological Significance (ASBS), as required for State Water Quality Protection Areas pursuant to California Public Resources Code Sections 36700(f) and 36710(f). These Special Protections are adopted by the State Water Board as part of the California Ocean Plan (Ocean Plan) General Exception.

The special conditions are organized by category of discharge. The State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards (Regional Water Boards) will determine categories and the means of regulation for those categories [e.g., Point Source Storm Water National Pollutant Discharge Elimination System (NPDES) or Nonpoint Source].

A. PERMITTED POINT SOURCE DISCHARGES OF STORM WATER

1. General Provisions for Permitted Point Source Discharges of Storm Water

   a. Existing storm water discharges into an ASBS are allowed only under the following conditions:

      (1) The discharges are authorized by an NPDES permit issued by the State Water Board or Regional Water Board;

      (2) The discharges comply with all of the applicable terms, effective prohibitions, and special conditions contained in these Special Protections; and

      (3) The discharges:

         (i) Are essential for flood control or slope stability, including roof, landscape, road, and parking lot drainage;

         (ii) Are designed to prevent soil erosion;

         (iii) Occur only during wet weather;

         (iv) Are composed of only storm water runoff.

   b. Discharges composed of storm water runoff shall not alter natural ocean water quality in an ASBS.

   c. The discharge of trash is effectively prohibited.

d. Only discharges from existing storm water outfalls are allowed. Any proposed or new storm water runoff discharge shall be routed to existing storm water discharge outfalls and shall not result in any new contribution of waste to an ASBS (i.e., no additional pollutant loading). “Existing storm water outfalls” are those that were constructed or under construction prior to January 1, 2005. “New contribution of waste” is defined as any addition of waste beyond what would have occurred as of January 1, 2005. A change to an existing storm water outfall, in terms of re-location or alteration, in order to comply with these special conditions, is allowed and does not constitute a new discharge.

e. Non-storm water discharges are effectively prohibited except as provided below:

(1) The term “non-storm water discharges” means any waste discharges from a municipal separate storm sewer system (MS4) or other NPDES permitted storm drain system to an ASBS that are not composed entirely of storm water.

(2) (i) The following non-storm water discharges are allowed, provided that the discharges are essential for emergency response purposes, structural stability, slope stability or occur naturally:

(a) Discharges associated with emergency fire fighting operations.

(b) Foundation and footing drains.

(c) Water from crawl space or basement pumps.

(d) Hillside dewatering.

(e) Naturally occurring groundwater seepage via a storm drain.

(f) Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.

(ii) An NPDES permitting authority may authorize non-storm water discharges to an MS4 with a direct discharge to an ASBS only to the extent the NPDES permitting authority finds that the discharge does not alter natural ocean water quality in the ASBS.

(3) Authorized non-storm water discharges shall not cause or contribute to a violation of the water quality objectives in Chapter II of the Ocean Plan nor alter natural ocean water quality in an ASBS.

2. Compliance Plans for Inclusion in Storm Water Management Plans (SWMP) and Storm Water Pollution Prevention Plans (SWPPP).

The discharger shall specifically address the effective prohibition of non-storm water runoff and the requirement to maintain natural water quality for storm water discharges to an ASBS in an ASBS Compliance Plan to be included in its SWMP or a SWPPP, as appropriate to permit type. If a statewide permit includes a SWMP, then the discharger shall prepare a stand-alone compliance plan for ASBS discharges. The ASBS Compliance Plan is subject to approval by the Executive Director of the State Water Board (statewide permits) or

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Executive Officer of the Regional Water Board (for permits issued by Regional Water Boards).

a. The Compliance Plan shall include a map of surface drainage of storm water runoff, showing areas of sheet runoff, prioritize discharges, and describe any structural Best Management Practices (BMPs) already employed and/or BMPs to be employed in the future. Priority discharges are those that pose the greatest water quality threat and which are identified to require installation of structural BMPs. The map shall also show the storm water conveyances in relation to other features such as service areas, sewage conveyances and treatment facilities, landslides, areas prone to erosion, and waste and hazardous material storage areas, if applicable. The SWMP or SWPPP shall also include a procedure for updating the map and plan when changes are made to the storm water conveyance facilities.

b. The ASBS Compliance Plan shall describe the measures by which all non-authorized non-storm water runoff (e.g., dry weather flows) has been eliminated, how these measures will be maintained over time, and how these measures are monitored and documented.

c. For Municipal Separate Storm Sewer System (MS4s), the ASBS Compliance Plan shall require minimum inspection frequencies as follows:

   (1) The minimum inspection frequency for construction sites shall be weekly during rainy season;

   (2) The minimum inspection frequency for industrial facilities shall be monthly during the rainy season;

   (3) The minimum inspection frequency for commercial facilities (e.g., restaurants) shall be twice during the rainy season; and

   (4) Storm water outfall drains equal to or greater than 18 inches (457 mm) in diameter or width shall be inspected once prior to the beginning of the rainy season and once during the rainy season and maintained to remove trash and other anthropogenic debris.

d. The ASBS Compliance Plan shall address storm water discharges (wet weather flows) and, in particular, describe how pollutant reductions in storm water runoff, that are necessary to comply with these special conditions, will be achieved through BMPs. Structural BMPs need not be installed if the discharger can document to the satisfaction of the State Water Board Executive Director (statewide permits) or Regional Water Board Executive Officer (Regional Water Board permits) that such installation would pose a threat to health or safety. BMPs to control storm water runoff discharges (at the end-of-pipe) during a design storm shall be designed to achieve on average the following target levels:

   (1) Table B Instantaneous Maximum Water Quality Objectives in Chapter II of the Ocean Plan; or

   (2) A 90% reduction in pollutant loading during storm events, for the applicant's total discharges. The baseline for the reduction is the effective date of the Exception. The

baseline for these determinations is the effective date of the Exception, and the reductions must be achieved and documented within four (4) years of the effective date.

e. The ASBS Compliance Plan shall address erosion control and the prevention of anthropogenic sedimentation in ASBS. The natural habitat conditions in the ASBS shall not be altered as a result of anthropogenic sedimentation.

f. The ASBS Compliance Plan shall describe the non-structural BMPs currently employed and planned in the future (including those for construction activities), and include an implementation schedule. The ASBS Compliance Plan shall include non-structural BMPs that address public education and outreach. Education and outreach efforts must adequately inform the public that direct discharges of pollutants from private property not entering an MS4 are effectively prohibited. The ASBS Compliance Plan shall also describe the structural BMPs, including any low impact development (LID) measures, currently employed and planned for higher threat discharges and include an implementation schedule. To control storm water runoff discharges (at the end-of-pipe) during a design storm, permittees must first consider using LID practices to infiltrate, use, or evapotranspirate storm water runoff on-site.

g. The BMPs and implementation schedule shall be designed to ensure that natural water quality conditions in the receiving water are achieved and maintained by either reducing flows from impervious surfaces or reducing pollutant loading, or some combination thereof.

h. If the results of the receiving water monitoring described in IV.B. of these special conditions indicate that the storm water runoff is causing or contributing to an alteration of natural ocean water quality in the ASBS, the discharger shall submit a report to the State Water Board and Regional Water Board within 30 days of receiving the results.

(1) The report shall identify the constituents in storm water runoff that alter natural ocean water quality and the sources of these constituents.

(2) The report shall describe BMPs that are currently being implemented, BMPs that are identified in the SWMP or SWPPP for future implementation, and any additional BMPs that may be added to the SWMP or SWPPP to address the alteration of natural water quality. The report shall include a new or modified implementation schedule for the BMPs.

(3) Within 30 days of the approval of the report by the State Water Board Executive Director (statewide permits) or Regional Water Board Executive Officer (Regional Water Board permits), the discharger shall revise its ASBS Compliance Plan to incorporate any new or modified BMPs that have been or will be implemented, the implementation schedule, and any additional monitoring required.

(4) As long as the discharger has complied with the procedures described above and is implementing the revised SWMP or SWPPP, the discharger does not have to repeat the same procedure for continuing or recurring exceedances of natural ocean water quality conditions due to the same constituent.

(5) Compliance with this section does not excuse violations of any term, effective prohibition, or condition contained in these Special Protections.

3. Compliance Schedule

a. On the effective date of the Exception, all non-authorized non-storm water discharges (e.g., dry weather flow) are effectively prohibited.

b. Within one year from the effective date of the Exception, the discharger shall submit a written ASBS Compliance Plan to the State Water Board Executive Director (statewide permits) or Regional Water Board Executive Officer (Regional Water Board permits) that describes its strategy to comply with these special conditions, including the requirement to maintain natural water quality in the affected ASBS. The ASBS Compliance Plan shall include a time schedule to implement appropriate non-structural and structural controls (implementation schedule) to comply with these special conditions for inclusion in the discharger's SWMP or SWPPP, as appropriate to permit type.

c. Within 18 months of the effective date of the Exception, any non-structural controls that are necessary to comply with these special conditions shall be implemented.

d. Within four (4) years of the effective date of the Exception, any structural controls identified in the ASBS Compliance Plan that are necessary to comply with these special conditions shall be operational.

e. Within four (4) years of the effective date of the Exception, all dischargers must comply with the requirement that their discharges into the affected ASBS maintain natural ocean water quality. If the initial results of post-storm receiving water quality testing indicate levels higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, then the discharger must re-sample the receiving water, pre- and post-storm. If after re-sampling the post-storm levels are still higher than the 85th percentile threshold of reference water quality data, and the pre-storm receiving water levels, for any constituent, then natural ocean water quality is exceeded. See attached Flowchart.

f. The Executive Director of the State Water Board (statewide permits) or Executive Officer of the Regional Water Board (Regional Water Board permits) may only authorize additional time to comply with the special conditions d. and e., above if good cause exists to do so. Good cause means a physical impossibility or lack of funding.

If a discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the discharger first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in d. or e. The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of this Exception. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality.

The discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

(1) for municipalities, a demonstration of significant hardship to discharger ratepayers, by showing the relationship of storm water fees to annual household income for residents within the discharger's jurisdictional area, and the discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate; or
(2) for other governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process.

B. NONPOINT SOURCE DISCHARGES

[NOT INCLUDED]
[PROVISIONS FOR NONPOINT SOURCE DISCHARGES NOT APPLICABLE]

II. ADDITIONAL REQUIREMENTS FOR PARKS AND RECREATION FACILITIES

[NOT INCLUDED]
[ADDITIONAL REQUIREMENTS FOR PARKS AND RECREATION FACILITIES NOT APPLICABLE]

III. ADDITIONAL REQUIREMENTS – WATERFRONT AND MARINE OPERATIONS

[NOT INCLUDED]
[ADDITIONAL REQUIREMENTS FOR WATERFRONT AND MARINE OPERATIONS NOT APPLICABLE]

IV. MONITORING REQUIREMENTS

Monitoring is mandatory for all dischargers to assure compliance with the Ocean Plan. Monitoring requirements include both: (A) core discharge monitoring, and (B) ocean receiving water monitoring. The State and Regional Water Boards must approve sampling site locations and any adjustments to the monitoring programs. All ocean receiving water and reference area monitoring must be comparable with the Water Boards' Surface Water Ambient Monitoring Program (SWAMP).

Safety concerns: Sample locations and sampling periods must be determined considering safety issues. Sampling may be postponed upon notification to the State and Regional Water Boards if hazardous conditions prevail.

Analytical Chemistry Methods: All constituents must be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, must be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

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A. CORE DISCHARGE MONITORING PROGRAM

1. General sampling requirements for timing and storm size:

   Runoff must be collected during a storm event that is greater than 0.1 inch and generates runoff, and at least 72 hours from the previously measurable storm event. Runoff samples shall be collected when post-storm receiving water is sampled, and analyzed for the same constituents as receiving water and reference site samples (see section IV B) as described below.

2. Runoff flow measurements

   a. For municipal/industrial storm water outfalls in existence as of December 31, 2007, 18 inches (457mm) or greater in diameter/width (including multiple outfall pipes in combination having a width of 18 inches, runoff flows must be measured or calculated, using a method acceptable to and approved by the State and Regional Water Boards.
   b. This will be reported annually for each precipitation season to the State and Regional Water Boards.

3. Runoff samples – storm events

   a. For outfalls equal to or greater than 18 inches (0.46m) in diameter or width:

      (1) samples of storm water runoff shall be analyzed during the same storm as receiving water samples for oil and grease, total suspended solids, and, within the range of the southern sea otter indicator bacteria or some other measure of fecal contamination, ; and

      (2) samples of storm water runoff shall be analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS

      (3) If an applicant has no outfall greater than 36 inches, then storm water runoff from the applicant's largest outfall shall be further analyzed during the same storm as receiving water samples for Ocean Plan Table B metals for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates).

   b. For outfalls equal to or greater than 36 inches (0.91m) in diameter or width:

      (1) samples of storm water runoff shall be analyzed during the same storm as receiving water samples for oil and grease, total suspended solids, and, within the range of the southern sea otter indicator bacteria or some other measure of fecal contamination; and

      (2) samples of storm water runoff shall be further analyzed during the same storm as receiving water samples for Ocean Plan Table B metals for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides

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(pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates) and

(3) samples of storm water runoff shall be analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.

c. For an applicant not participating in a regional monitoring program [see below in Section IV (B)] in addition to (a.) and (b.) above, a minimum of the two largest outfalls or 20 percent of the larger outfalls, whichever is greater, shall be sampled (flow weighted composite samples) at least three times annually during wet weather (storm event) and analyzed for all Ocean Plan Table A constituents, Table B constituents for marine aquatic life protection (except for toxicity, only chronic toxicity for three species shall be required), DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, and Ocean Plan indicator bacteria. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one (the largest) such discharge shall be sampled annually in each Region.

4. The Executive Director of the State Water Board (statewide permits) or Executive Officer of the Regional Water Board (Regional Water Board permits) may reduce or suspend core monitoring once the storm runoff is fully characterized. This determination may be made at any point after the discharge is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

B. OCEAN RECEIVING WATER AND REFERENCE AREA MONITORING PROGRAM

In addition to performing the Core Discharge Monitoring Program in Section II.A above, all applicants having authorized discharges must perform ocean receiving water monitoring. In order to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS, dischargers may choose either (1) an individual monitoring program, or (2) participation in a regional integrated monitoring program.

1. Individual Monitoring Program: The requirements listed below are for those dischargers who elect to perform an individual monitoring program to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within the affected ASBS. In addition to Core Discharge Monitoring, the following additional monitoring requirements shall be met:

   a. Three times annually, during wet weather (storm events), the receiving water at the point of discharge from the outfalls described in section (IV)(A)(3)(c) above shall be sampled and analyzed for Ocean Plan Table A constituents, Table B constituents for marine aquatic life, DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, salinity, chronic toxicity (three species), and Ocean Plan indicator bacteria.

      The sample location for the ocean receiving water shall be in the surf zone at the point of discharges; this must be at the same location where storm water runoff is sampled. Receiving water shall be sampled at approximately the same time prior to (pre-storm) and during (or immediately after) the same storm (post storm). Reference water quality shall also be sampled and analyzed for the same constituents pre-storm and post-storm, during the same storms when receiving water is sampled. Reference stations will be

determined by the State Water Board's Division of Water Quality and the applicable Regional Water Board(s).

b. Sediment sampling shall occur at least three times during every five (5) year period. The subtidal sediment (sand or finer, if present) at the discharge shall be sampled and analyzed for Ocean Plan Table B constituents for marine aquatic life, DDT, PCBs, PAHs, pyrethroids, and OP pesticides. For sediment toxicity testing, only an acute toxicity test using the amphipod Eohaustorius estuarius must be performed.

c. A quantitative survey of intertidal benthic marine life shall be performed at the discharge and at a reference site. The survey shall be performed at least once every five (5) year period. The survey design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The results of the survey shall be completed and submitted to the State Water Board and Regional Water Board at least six months prior to the end of the permit cycle.

d. Once during each five (5) year period, a bioaccumulation study shall be conducted to determine the concentrations of metals and synthetic organic pollutants at representative discharge sites and at representative reference sites. The study design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The bioaccumulation study may include California mussels (Mytilus californianus) and/or sand crabs (Emerita analoga or Blepharipoda occidentalis). Based on the study results, the Regional Water Board and the State Water Board's Division of Water Quality, may adjust the study design in subsequent permits, or add or modify additional test organisms (such as shore crabs or fish), or modify the study design appropriate for the area and best available sensitive measures of contaminant exposure.

e. Marine Debris: Representative quantitative observations for trash by type and source shall be performed along the coast of the ASBS within the influence of the discharger's outfalls. The design, including locations and frequency, of the marine debris observations is subject to approval by the Regional Water Board and State Water Board's Division of Water Quality.

f. The monitoring requirements of the Individual Monitoring Program in this section are minimum requirements. After a minimum of one (1) year of continuous water quality monitoring of the discharges and ocean receiving waters, the Executive Director of the State Water Board (statewide permits) or Executive officer of the Regional Water Board (Regional Water Board permits) may require additional monitoring, or adjust, reduce or suspend receiving water and reference station monitoring. This determination may be made at any point after the discharge and receiving water is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

2. Regional Integrated Monitoring Program: Dischargers may elect to participate in a regional integrated monitoring program, in lieu of an individual monitoring program, to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS. This regional approach shall characterize natural water quality, pre- and post-storm, in ocean reference areas near the mouths of identified open space watersheds and the effects of the discharges on natural water quality (physical, chemical, and toxicity) in the ASBS receiving waters, and should include benthic marine aquatic life and bioaccumulation components. The design of the ASBS stratum of a regional integrated monitoring program may deviate from the otherwise prescribed individual

monitoring approach (in Section IV.B.1) if approved by the State Water Board's Division of Water Quality and the Regional Water Boards.

a. Ocean reference areas shall be located at the drainages of flowing watersheds with minimal development (in no instance more than 10% development), and shall not be located in CWA Section 303(d) listed waterbodies or have tributaries that are 303(d) listed. Reference areas shall be free of wastewater discharges and anthropogenic non-storm water runoff. A minimum of low threat storm runoff discharges (e.g. stream highway overpasses and campgrounds) may be allowed on a case-by-case basis. Reference areas shall be located in the same region as the ASBS receiving water monitoring occurs. The reference areas for each Region are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean reference water samples must be collected from each station, each from a separate storm. A minimum of one reference location shall be sampled for each ASBS receiving water site sampled per responsible party. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.

b. ASBS ocean receiving water must be sampled in the surf zone at the location where the runoff makes contact with ocean water (i.e. at "point zero"). Ocean receiving water stations must be representative of worst-case discharge conditions (i.e. co-located at a large drain greater than 36 inches, or if drains greater than 36 inches are not present in the ASBS then the largest drain greater than18 inches.) Ocean receiving water stations are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean receiving water samples must be collected during each storm season from each station, each from a separate storm. A minimum of one receiving water location shall be sampled in each ASBS per responsible party in that ASBS. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.

c. Reference and receiving water sampling shall commence during the first full storm season following the adoption of these special conditions, and post-storm samples shall be collected when annual storm water runoff is sampled. Sampling shall occur in a minimum of two storm seasons. For those ASBS dischargers that have already participated in the Southern California Bight 2008 ASBS regional monitoring effort, sampling may be limited to only one storm season.

d. Receiving water and reference samples shall be analyzed for the same constituents as storm water runoff samples. At a minimum, constituents to be sampled and analyzed in reference and discharge receiving waters must include oil and grease, total suspended solids, Ocean Plan Table B metals for protection of marine life, Ocean Plan PAHs, pyrethroids, OP pesticides, ammonia, nitrate, phosphates, and critical life stage chronic toxicity for three species. In addition, within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination shall be analyzed.

3. Waterfront and Marine Operations: In addition to the above requirements for ocean receiving water monitoring, additional monitoring must be performed for marinas and boat launch and pier facilities:

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a. For all marina or mooring field operators, in mooring fields with 10 or more occupied moorings, the ocean receiving water must be sampled for Ocean Plan indicator bacteria, residual chlorine, copper, zinc, grease and oil, methylene blue active substances (MBAS), and ammonia nitrogen.

   (1) For mooring field operators opting for an individual monitoring program (Section IV.B.1 above), this sampling must occur weekly (on the weekend) from May through October.

   (2) For mooring field operators opting to participate in a regional integrated monitoring program (Section IV.B.2 above), this sampling must occur monthly from May through October on a high use weekend in each month. The Water Boards may allow a reduction in the frequency of sampling, through the regional monitoring program, after the first year of monitoring.

b. For all mooring field operators, the subtidal sediment (sand or finer, if present) within mooring fields and below piers shall be sampled and analyzed for Ocean Plan Table B metals (for marine aquatic life beneficial use), acute toxicity, PAHs, and tributyltin. For sediment toxicity testing, only an acute toxicity test using the amphipod Eohaustorius estuarius must be performed. This sampling shall occur at least three times during a five (5) year period. For mooring field operators opting to participate in a regional integrated monitoring program, the Water Boards may allow a reduction in the frequency of sampling after the first sampling effort's results are assessed.

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ATTACHMENT B

STANDARD PERMIT PROVISIONS AND GENERAL PROVISIONS

1. Standard Permit Provisions

Code of Federal Regulations Title 40 Section 122.41 (40 CFR 122.41) includes conditions, or provisions, that apply to all National Pollutant Discharge Elimination System (NPDES) permits. Additional provisions applicable to NPDES permits are in 40 CFR 122.42. All applicable provisions in 40 CFR 122.41 and 40 CFR 122.42 must be incorporated into this Order and NPDES permit. The applicable 40 CFR 122.41 and 40 CFR 122.42 provisions are as follows:

a. DUTY TO COMPLY [40 CFR 122.41(a)]

The Copermittee must comply with all of the provisions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

(1) The Copermittee must comply with effluent standards or effective prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or effective prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement. [40 CFR 122.41(a)(1)]

(2) The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402(a)(3) or 402(b)(8) of the CWA, is subject to a civil penalty not to exceed $25,000 per day for each violation. The CWA provides that any person who *negligently* violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA, or any requirement imposed in a pretreatment program approved under Section 402(a)(3) or 402(b)(8) of the CWA, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than 2 years, or both. Any person who *knowingly* violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both. Any person who knowingly violates Section 301, 302, 303, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of

not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in Section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.
[40 CFR 122.41(a)(2)]

(3) Any person may be assessed an administrative penalty by the San Diego Regional Water Quality Control Board (San Diego Water Board), State Water Resources Control Board (State Water Board), or United States Environmental Protection Agency (USEPA) for violating Section 301, 302, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.
[40 CFR 122.41(a)(3)]

b. DUTY TO REAPPLY [40 CFR 122.41(b)]

If a Copermittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Copermittee must apply for and obtain a new permit.

c. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE [40 CFR 122.41(c)]

It shall not be a defense for a Copermittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

d. DUTY TO MITIGATE [40 CFR 122.41(d)]

The Copermittee must take all reasonable steps to minimize or prevent any discharge or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

e. PROPER OPERATION AND MAINTENANCE [40 CFR 122.41(e)]

The Copermittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Copermittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by a Copermittee only when the operation is necessary to achieve compliance with the conditions of this permit.

f. PERMIT ACTIONS [40 CFR 122.41(f)]

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Copermittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

g. PROPERTY RIGHTS [40 CFR 122.41(g)]

This permit does not convey any property rights of any sort, or any exclusive privilege.

h. DUTY TO PROVIDE INFORMATION [40 CFR 122.41(h)]

The Copermittee must furnish to the San Diego Water Board, State Water Board, or USEPA within a reasonable time, any information which the San Diego Water Board, State Water Board, or USPEA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Copermittee must also furnish to the San Diego Water Board, State Water Board, or USPEA upon request, copies of records required to be kept by this permit.

i. INSPECTION AND ENTRY [40 CFR 122.41(i)]

The Copermittee must allow the San Diego Water Board, State Water Board, USEPA, and/or their authorized representative (including an authorized contractor acting as their representative), upon presentation of credentials and other documents as may be required by law, to:

(1) Enter upon the Copermittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit; [40 CFR 122.41(i)(1)]

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit; [40 CFR 122.41(i)(2)]

(3) Inspect and photograph at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; [40 CFR 122.41(i)(3)] and

(4) Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location. [40 CFR 122.41(i)(4)]

j. MONITORING AND RECORDS [40 CFR 122.41(j)]

(1) Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity. [40 CFR 122.41(j)(1)]

(2) Except for records of monitoring information required by this permit related to the Copermittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR Part 503), the

Copermittee must retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the San Diego Water Board at any time. [40 CFR 122.41(j)(2)]

(3) Records for monitoring information must include: [40 CFR 122.41(j)(3)]

(a) The date, exact place, and time of sampling or measurements; [40 CFR 122.41(j)(3)(i)]
(b) The individual(s) who performed the sampling or measurements; [40 CFR 122.41(j)(3)(ii)]
(c) The date(s) analyses were performed; [40 CFR 122.41(j)(3)(iii)]
(d) The individual(s) who performed the analyses; [40 CFR 122.41(j)(3)(iv)]
(e) The analytical techniques or methods used; [40 CFR 122.41(j)(3)(v)] and
(f) The results of such analyses. [40 CFR 122.41(j)(3)(vi)]

(4) Monitoring must be conducted according to test procedures under 40 CFR Part 136 unless another method is required under 40 CFR Subchapters N or O. [40 CFR 122.41(j)(4)]

In the case of pollutants for which there are no approved methods under 40 CFR Part 136 or otherwise required under 40 CFR Subchapters N and O, monitoring must be conducted according to a test procedure specified in the permit for such pollutants. [40 CFR 122.44(i)(1)(iv)]

(5) The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both. [40 CFR 122.41(j)(5)]

k. SIGNATORY REQUIREMENT [40 CFR 122.41(k)]

(1) All applications, reports, or information submitted to the San Diego Water Board, State Water Board, or USEPA must be signed and certified. (See 40 CFR 122.22) [40 CFR 122.41(k)(1)]

(a) *For a municipality, State, Federal, or other public agency.* [All applications must be signed] [b]y either a principal executive officer or ranking elected official. [40 CFR 122.22(a)(3)]

(b) All reports required by permits, and other information requested by the San Diego Water Board, State Water Board, or USEPA must be signed by a person described in paragraph (a) of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if: [40 CFR 122.22(b)]

(i) The authorization is made in writing by a person described in paragraph (a) of this section; [40 CFR 122.22(b)(1)]

(ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company, (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) [40 CFR 122.22(b)(2)] and,

(iii) The written authorization is submitted to the San Diego Water Board and State Water Board. [40 CFR 122.22(b)(3)]

(c) *Changes to authorization.* If an authorization under paragraph (b) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to the San Diego Water Board prior to or together with any reports, information, or applications to be signed by an authorized representative. [40 CFR 122.22(c)]

(d) *Certification.* Any person signing a document under paragraph (a) or (b) of this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." [40 CFR 122.22(d)]

(2) The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both. [40 CFR 122.41(k)(2)]

I. REPORTING REQUIREMENTS [40 CFR 122.41(l)]

(1) *Planned changes.* The Copermittee must give notice to the San Diego Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when: [40 CFR 122.41(l)(1)]

(a) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); [40 CFR 122.41(l)(1)(i)] or

(b) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which

are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1). [40 CFR 122.41(l)(1)(ii)]

(c) The alteration or addition results in a significant change in the Copermittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. [40 CFR 122.41(l)(1)(iii)]

(2) *Anticipated noncompliance*. The Copermittee must give advance notice to the San Diego Water Board or State Water Board of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. [40 CFR 122.41(l)(2)]

(3) *Transfers*. This permit is not transferable to any person except after notice to the San Diego Water Board. The San Diego Water Board may require modification or revocation and reissuance of the permit to change the name of the Copermittee and incorporate such other requirements as may be necessary under the CWA. [40 CFR 122.41(l)(3)]

(4) *Monitoring reports.* Monitoring results must be reported at the intervals specified elsewhere in this permit. [40 CFR 122.41(l)(4)]

(a) Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the San Diego Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. [40 CFR 122.41(l)(4)(i)]

(b) If the Copermittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or another method required for an industry-specific waste stream under 40 CFR Subchapters N or O, the results of this monitoring must be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the San Diego Water Board or State Water Board. [40 CFR 122.41(l)(4)(ii)]

(c) Calculations for all limitations which require averaging of measurements must utilize an arithmetic mean unless otherwise specified in the permit. [40 CFR 122.41(l)(4)(iii)]

(5) *Compliance schedules*. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date. [40 CFR 122.41(l)(5)]

(6) *Twenty-four hour reporting.*

(a) The Copermittee must report any noncompliance that may endanger health or the environment. Any information must be provided orally within 24 hours from the time the Copermittee becomes aware of the circumstances. A written submission must also be provided within five (5) days of the time the Copermittee becomes aware of the circumstances. The written submission must contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6)(i)]

(b) The following must be included as information which must be reported within 24 hours under this paragraph: [40 CFR 122.41(l)(6)(ii)]

(i) Any unanticipated bypass that exceeds any effluent limitation in the permit (See 40 CFR 122.41(g)). [40 CFR 122.41(l)(6)(ii)(A)]
(ii) Any upset which exceeds any effluent limitation in the permit. [40 CFR 122.41(l)(6)(ii)(B)] and,
(iii) Violation of a maximum daily discharge limitation for any of the pollutants listed by the San Diego Water Board in the permit to be reported within 24 hours. (See 40 CFR 122.44(g)) [40 CFR 122.41(l)(6)(ii)(C)]

(c) The San Diego Water Board may waive the above-required written report on a case-by-case basis if the oral report has been received within 24 hours. [40 CFR 122.41(l)(6)(iii)]

(7) *Other noncompliance.* The Copermittee must report all instances of noncompliance not reported in accordance with the standard provisions required under 40 CFR 122.41(l)(4), (5), and (6), at the time monitoring reports are submitted. The reports must contain the information listed in the standard provisions required under 40 CFR 122.41(l)(6). [40 CFR 122.41(l)(7))]

(8) *Other information.* When the Copermittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the San Diego Water Board, State Water Board, or USEPA, the Copermittee must promptly submit such facts or information. [40 CFR 122.41(l)(8)]

~~**m. BYPASS** [40 CFR 122.41(m)]~~

~~(1) *Definitions.*~~

~~(a) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. [40 CFR 122.41(m)(1)(i)] or~~

~~(b) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be~~

Comment [A126]: While this is a standard condition for NPDES permits, it is manifestly inapplicable to MS4 permits. Since BMPs constructed to comply with the Order include bypass provisions to protect their entirety, the Copermittees would have to notify the Regional Board whenever a storm was predicted. This provision should be deleted.

~~expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.~~
~~[40 CFR 122.41(m)(1)(ii)]~~

~~(2) *Bypass not exceeding limitations*. The Copermittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the standard provisions required under 40 CFR 122.41(m)(3) and (4).~~
~~[40 CFR 122.41(m)(2)]~~

~~(3) *Notice*.~~

~~(a) *Anticipated bypass*. If the Copermittee knows in advance of the need for a bypass, it must submit a notice, if possible at least ten days before the date of the bypass. [40 CFR 122.41(m)(3)(i)] or~~

~~(b) *Unanticipated bypass*. The Copermittee must submit notice of an unanticipated bypass in accordance with the standard provisions required under 40 CFR 122.41(l)(6) (24-hour notice).~~
~~[40 CFR 122.41(m)(3)(ii)]~~

~~(4) *Prohibition of Bypass*.~~

~~(a) Bypass is prohibited, and the San Diego Water Board may take enforcement action against a Copermittee for bypass, unless:~~
~~[40 CFR 122.41(m)(4)(i)]~~

~~(i) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; [40 CFR 122.41(m)(4)(i)(A)]~~
~~(ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance;~~
~~[40 CFR 122.41(m)(4)(i)(B)] and,~~
~~(iii) The Copermittee submitted notice in accordance with the standard provisions required under 40 CFR 122.41(m)(3).~~
~~[40 CFR 122.41(m)(4)(i)(C)]~~

~~(b) The San Diego Water Board may approve an anticipated bypass, after considering its adverse effects, if the San Diego Water Board determines that it will meet the three conditions listed above.~~
~~[40 CFR 122.41(m)(4)(ii)]~~

~~n.~~m. **UPSET** [40 CFR 122.41(n)]

(1) *Definition.* "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Copermittee. An upset does not

include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. [40 CFR 122.41(n)(1)]

(2) *Effect of an upset*. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the standard provisions required under 40 CFR 122.41(n)(3) are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. [40 CFR 122.41(n)(2)]

(3) *Conditions necessary for a demonstration of upset*. A Copermittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that: [40 CFR 122.41(n)(3)]

(a) An upset occurred and that the Copermittee can identify the cause(s) of the upset; [40 CFR 122.41(n)(3)(i)]
(b) The permitted facility was at the time being properly operated; [40 CFR 122.41(n)(3)(ii)] and
(c) The Copermittee submitted notice of the upset in accordance with the standard provisions required under 40 CFR 122.41(l)(6)(ii)(B) (24-hour notice). [40 CFR 122.41(n)(3)(iii)]
(d) The Copermittee complied with any remedial measures pursuant to the standard provisions required under 40 CFR 122.41(d). [40 CFR 122.41(n)(3)(iii)]

(4) *Burden of proof*. In any enforcement proceeding, the Copermittee seeking to establish the occurrence of an upset has the burden of proof. [40 CFR 122.41(n)(4)]

~~o.~~n. **STANDARD PERMIT PROVISIONS FOR MUNICIPAL SEPARATE STORM SEWER SYSTEMS**
[40 CFR 122.42(c)]

The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer that has been designated by the San Diego Water Board or State Water Board under 40 CFR 122.26(a)(1)(v) must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report must include:

(1) The status of implementing the components of the storm water management program that are established as permit conditions; [40 CFR 122.42(c)(1)]

(2) Proposed changes to the storm water management programs that are established as permit conditions. Such proposed changes must be consistent with 40 CFR 122.26(d)(2)(iii); [40 CFR 122.42(c)(2)] and

(3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under 40 CFR 122.26(d)(2)(iv) and (v); [40 CFR 122.42(c)(3)]

(4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; [40 CFR 122.42(c)(4)]

(5) Annual expenditures and budget for year following each annual report; [40 CFR 122.42(c)(5)]

(6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; [40 CFR 122.42(c)(6)]

(7) Identification of water quality improvements or degradation. [40 CFR 122.42(c)(7)]

~~p.~~ o. **STANDARD PERMIT PROVISIONS FOR STORM WATER DISCHARGES** [40 CFR 122.42(d)]

The initial permits for discharges composed entirely of storm water issued pursuant to 40 CFR 122.26(e)(7) must require compliance with the conditions of the permit as expeditiously as practicable, but in no event later than three years after the date of issuance of the permit.

2. General Provisions

In addition to the standard provisions required to be incorporated into the Order and NPDES permit pursuant to 40 CFR 122.41 and 40 CFR 122.42, several other general provisions apply to this Order. The general provisions applicable to this Order and NPDES permit are as follows:

a. DISCHARGE OF WASTE IS A PRIVILEGE

No discharge of waste into the waters of the State, whether or not such discharge is made pursuant to waste discharge requirements, shall create a vested right to continue such discharge. All discharges of waste into waters of the State are privileges, not rights. [CWC Section 13263(g)]

b. DURATION OF ORDER AND NPDES PERMIT

(1) *Effective date*. This Order and NPDES permit becomes effective on the 50th day after its adoption provided the USEPA has no objection. If the USEPA objects to its issuance, this Order shall not become effective until such objection is withdrawn. This Order supersedes Order No. R9-2007-0001 upon the effective date of this Order, and supersedes Order Nos. R9-2009-0002 and R9-2010-0016 upon their expiration or earlier notice of coverage.

(2) *Expiration*. This Order and NPDES permit expires five years after its effective date. [40 CFR 122.46(a)]

(3) *Continuation of expired order*. After this Order and NPDES permit expires, the terms and conditions of this Order and NPDES permit are automatically continued pending issuance of a new permit if all requirements of the federal NPDES regulations on the continuation of expired permits (40 CFR 122.6) are complied with.

c. AVAILABILITY

A copy of this Order must be kept at a readily accessible location and must be available to on-site personnel at all times.

d. CONFIDENTIALITY OF INFORMATION

Except as provided for in 40 CFR 122.7, no information or documents submitted in accordance with or in application for this Order will be considered confidential, and all such information and documents shall be available for review by the public at the San Diego Water Board office.

Claims of confidentiality for the following information will be denied:
[40 CFR 122.7(b)]

(1) The name and address of any permit applicant or Copermittee;
[40 CFR 122.7(b)(1)] and

(2) Permit applications and attachments, permits, and effluent data.
[40 CFR 122.7(b)(2)]

e. EFFLUENT LIMITATIONS

(1) *Interim effluent limitations*. The Copermittee must comply with any interim effluent limitations as established by addendum, enforcement action, or revised waste discharge requirements which have been, or may be, adopted by the San Diego Water Board.

(2) *Other effluent limitations and standards*. If any applicable toxic effluent standard or effective prohibition (including any schedule of compliance specified in such effluent standard or effective prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant and that standard or effective prohibition is more stringent than any limitation on the pollutant in the permit, the San Diego Water Board shall institute proceedings under these regulations to modify or revoke and reissue the permit to conform to the toxic effluent standard or effective prohibition. [40 CFR 122.44(b)(1)]]]).]]

f. DUTY TO MINIMIZE OR CORRECT ADVERSE IMPACTS

The Copermittee must take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncompliance.

g. PERMIT ACTIONS

The filing of a request by the Copermittee for modification, revocation and reissuance, or termination of this Order, or a notification of planned change in or anticipated

noncompliance with this Order does not stay any condition of this Order. (See 40 CFR 122.41(f)) In addition, the following provisions apply to this Order:

(1) Upon application by any affected person, or on its own motion, the San Diego Water Board may review and revise the requirements in this Order. All requirements must be reviewed periodically. [CWC Section 13263(e)]

(2) This Order may be terminated or modified for cause, including, but not limited to, all of the following: [CWC Section 13381]

(a) Violation of any condition contained in the requirements of this Order. [CWC Section 13381(a)]

(b) Obtaining the requirements in this Order by misrepresentation, or failure to disclose fully all relevant facts. [CWC Section 13381(b)]

(c) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge. [CWC Section 13381(c)]

(3) When this Order is transferred to a new owner or operator, such requirements as may be necessary under the CWC may be incorporated into this Order.

h. NPDES PERMITTED NON-STORM WATER DISCHARGES

The San Diego Water Board has, in prior years, issued a limited number of individual NPDES permits for non-storm water discharges to MS4s. The San Diego Water Board or State Water Board may in the future, upon prior notice to the Copermittee(s), issue an NPDES permit for any non-storm water discharge (or class of non-storm water discharges) to an MS4. A Copermittee will not be held responsible for pollutants in its MS4 discharge originating from an NPDES-permitted non-storm water discharge.

Comment [A127]: This comment reflects the appropriate responsibility between NPDES dischargers.

i. MONITORING

In addition to the standard provisions required under 40 CFR 122.41(j) and (l)(4), the following general monitoring provisions apply to this Order:

(1) Where procedures are not otherwise specified in Order, sampling, analysis and quality assurance/quality control must be conducted in accordance with the Quality Assurance Management Plan (QAMP) for the State of California's Surface Water Ambient Monitoring Program (SWAMP), adopted by the State Water Resources Control Board (State Water Board).

(2) Pursuant to 40 CFR 122.41(j)(2) and CWC Section 13383(a), each Copermittee must retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five (5) years from the date of the sample, measurement, report or application. This period may be extended by request of the San Diego Water Board at any time.

Comment [A128]: This provision and the provision in Attachment B 1.j(2) conflict. The Water Board should reconcile these provisions or delete one.

(3) All chemical, bacteriological, and toxicity analyses must be conducted at a laboratory certified for such analyses by the California Department of Public Health or a laboratory approved by the San Diego Water Board.

(4) For priority toxic pollutants that are identified in the California Toxics Rule (CTR) (65 Fed. Reg. 31682), the Copermittees must instruct their laboratories to establish calibration standards that are equivalent to or lower than the Minimum Levels (MLs) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). If a Copermittee can demonstrate that a particular ML is not attainable, in accordance with procedures set forth in 40 CFR Part 136, the lowest quantifiable concentration of the lowest calibration standard analyzed by a specific analytical procedure (assuming that all the method specified sample weights, volumes, and processing steps have been followed) may be used instead of the ML listed in Appendix 4 of the SIP. The Copermittee must submit documentation from the laboratory to the San Diego Water Board for approval prior to raising the ML for any priority toxic pollutant.

j. ENFORCEMENT

(1) The San Diego Water Board is authorized to enforce the terms of this Order under several provisions of the CWC, including, but not limited to, CWC Sections 13385, 13386, and 13387.

(2) Nothing in this Order shall be construed to protect the Copermittee from its liabilities under federal, state, or local laws.

(3) The CWC provides for civil and criminal penalties comparable to, and in some cases greater than, those provided for under the CWA.

(4) Except as provided in the standard conditions required under 40 CFR 122.41(m) and (n), nothing in this Order shall be construed to relieve the Copermittee from civil or criminal penalties for noncompliance.

(5) Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the Copermittee from any responsibilities, liabilities, or penalties to which the Copermittee is or may be subject to under Section 311 of the CWA.

(6) Nothing in this Order shall be construed to preclude institution of any legal action or relieve the Copermittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authoring preserved by Section 510 of the CWA.

k. SEVERABILITY

The provisions of this Order are severable, and if any provision of this Order, or the application of any provisions of this Order to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this Order shall not be affected thereby.

l. APPLICATIONS

Any application submitted by a Copermittee for reissuance or modification of this Order must satisfy all applicable requirements specified in federal regulations as well as any additional requirements for submittal of a Report of Waste Discharge specified in the CWC and the California Code of Regulations.

m. IMPLEMENTATION

All plans, reports and subsequent amendments submitted in compliance with this Order must be implemented immediately (or as otherwise specified). All submittals by Copermittees must be adequate to implement the requirements of this Order.

n. REPORT SUBMITTALS

(1) All report submittals must include an executive summary, introduction, conclusion, recommendations, and signed certified statement.

(2) Each Copermittee must submit a signed certified statement covering its responsibilities for each applicable submittal.

(3) The Principal Watershed Copermittee(s) must submit a signed certified statement covering its responsibilities for each applicable submittal and the sections of the submittals for which it is responsible.

(4) Unless otherwise directed, the Copermittees must submit one hard copy and one electronic copy of each report required under this Order to the San Diego Water Board, and one electronic copy to the USEPA.

(5) The Copermittees must submit reports and provide notifications as required by this Order to the following:

EXECUTIVE OFFICER
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
9174 SKY PARK COURT, SUITE 100
SAN DIEGO CA 92123-4340
Telephone: (858) 467-2952 Fax: (858) 571-6972

EUGENE BROMLEY
US ENVIRONMENTAL PROTECTION AGENCY
REGION IX
PERMITS ISSUANCE SECTION (W-5-1)
75 HAWTHORNE STREET
SAN FRANCISCO CA 94105

Riverside Copermittee Redlines

ATTACHMENT C

ACRONYMS AND ABBREVIATIONS

AMAL	Average Monthly Action Level
ASBS	Area(s) of Special Biological Significance
BMP	Best Management Practice
Basin Plan	Water Quality Control Plan for the San Diego Basin
CEQA	California Environmental Quality Act
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWC	California Water Code
CZARA	Coastal Zone Act Reauthorization Amendments of 1990
ESAs	Environmentally Sensitive Areas
GIS	Geographic Information System
IBI	Index of Biological Integrity
LID	Low Impact Development
MDAL	Maximum Daily Action Level
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
NAL	Non-Storm Water Action Level
NAICS	North American Industry Classification System
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
ROWD	Report of Waste Discharge (application for NPDES reissuance)
SAL	Storm Water Action Level
San Diego Water Board	California Regional Water Quality Control Board, San Diego Region
SIC	Standard Industrial Classification Code
State Water Board	State Water Resources Control Board
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
WDID	Waste Discharge Identification Number
WLA	Waste Load Allocation
WQBEL	Water Quality Based Effluent Limitation

DEFINITIONS

Active/Passive Sediment Treatment - Using mechanical, electrical or chemical means to flocculate or coagulate suspended sediment for removal from runoff from construction sites prior to discharge.

Anthropogenic Litter – Trash generated from human activities, not including sediment.

Automotive Repair Shop – a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539 or equivalent NAICS code.

Average Monthly Action Level – The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month, or the geometric mean for bacteria, as applicable.

Beneficial Uses - The uses of water necessary for the survival or wellbeing of man, plants, and wildlife. These uses of water serve to promote tangible and intangible economic, social, and environmental goals. "Beneficial Uses" ~~of the waters of the State~~ that may be protected include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. Existing beneficial uses are uses that were attained in the surface or ground water on or after November 28, 1975; and potential beneficial uses are uses that would probably develop in future years through the implementation of various control measures. "Beneficial Uses" are equivalent to "Designated Uses" under federal law. [California Water Code Section 13050(f)].

Best Management Practices (BMPs) - Defined in 40 CFR 122.2 as schedules of activities, effective prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In the case of municipal discharge permits, BMPs may be used in the place of numeric effluent limits.

Bioassessment - The use of biological community information to evaluate the biological integrity of a water body and its watershed. With respect to aquatic ecosystems, bioassessment is the collection and analysis of samples of the benthic macroinvertebrate community together with physical/habitat quality measurements associated with the sampling site and the watershed to evaluate the biological condition (i.e. biotic integrity) of a water body.

Biofiltration - Practices that use vegetation and amended soils to detain and treat runoff from impervious areas. Treatment is through filtration, infiltration, adsorption, ion exchange, and biological uptake of pollutants.

Biological Integrity - Defined in Karr J.R. and D.R. Dudley. 1981. Ecological perspective on water quality goals. *Environmental Management* 5:55-68 as: "A balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region." Also referred to as ecosystem health.

Riverside Copermittee Redlines

BMP Design Manual – A plan developed to eliminate, reduce, or mitigate the impacts of runoff from development projects, including Priority Development Projects.

Channel Rehabilitation and Improvement – Remedial measures or activities for the purpose of improving or restoring the environmental health of streams, channels or river systems. Techniques may vary from in-stream restoration techniques to off-line stormwater management practices installed in the system corridor or upland areas. Rehabilitation techniques may include, but are not limited to the following: riparian zone restoration, constructed wetlands, bank stabilization, channel modifications, and day lighting of drainage systems.

Clean Water Act Section 303(d) Water Body - An impaired water body in which water quality does not meet applicable water quality standards and/or is not expected to meet water quality standards, even after the application of technology based pollution controls required by the CWA. The discharge of runoff to these water bodies by the Copermittees is significant because these discharges can cause or contribute to violations of applicable water quality standards.

Construction Site – Any project, including projects requiring coverage under the Construction General Permit, that involves soil disturbing activities greater than 10,000 square feet including, but not limited to, clearing, grading, disturbances to ground such as stockpiling, and excavation. This does not include interior construction activities such as interior remodeling, plumbing, electrical, or mechanical work.

Contamination - As defined in the Porter-Cologne Water Quality Control Act, contamination is "an impairment of the quality of waters of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. 'Contamination' includes any equivalent effect resulting from the disposal of waste whether or not waters of the State are affected."

Copermittee – An incorporated city within the County of Orange, County of Riverside, or County of San Diego in the San Diego Region~~,~~ (Region 9),~~,~~ the County of Orange, the County of Riverside, the County of San Diego, the Orange County Flood Control District, the Riverside County Water Conservation and Flood Control District, the San Diego Regional Airport Authority, or the San Diego Unified Port District. See also "Municipal Copermittee" and "Special District Copermittee".

Copermittees – All of the individual Copermittees, collectively, unless the obligation in question is directed to one or a sub-group of Copermittees.

Critical Channel Flow (Qc) – The channel flow that produces the critical shear stress that initiates bed movement or that erodes the toe of channel banks. When measuring Qc, it should be based on the weakest boundary material – either bed or bank.

Daily Discharge – Defined as either: (1) the total mass of the constituent discharged over the calendar day or any 24 hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g. concentration.)

The Daily Discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day, or other 24 hour period other than a day), or by the arithmetic mean of analytical results from one or more grab samples taken over the course of a

Comment [A129]: This term should be defined in Attachment C given its use in the Order.

Comment [A130]: As set forth above, the Riverside County Copermittees make a distinction in these classes of Copermittees based on their respective legal authorities.

Comment [A131]: This clarifies that not all obligations in the Order directed to "Copermittees" are in fact applicable to all Copermittees.

day.

Development Projects - Construction, rehabilitation, redevelopment, or reconstruction of any public or private residential project, industrial~~,~~ or commercial facility, or any other projects designed for post-construction human activity or occupation and involving land disturbance activities.

Direct Discharge to an Environmentally Sensitive Area – refers to outflow from a drainage conveyance system that collects runoff from the subject development or redevelopment site and terminates at or in receiving waters within the ESA, and is not commingled with flows from adjacent or other upstream lands.

Comment [A132]: This definition clarifies the nature of Development Projects covered under the Order.

Dry Season –May 1 to September 30.

Dry Weather – Weather is considered dry if the preceding 72 hours has been without measurable precipitation (>0.1 inch).

Enclosed Bays – Enclosed bays are indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost bay works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays do not include inland surface waters or ocean waters.

Erosion – When land is diminished or worn away due to wind, water, or glacial ice. Often the eroded debris (silt or sediment) becomes a pollutant via storm water runoff. Erosion occurs naturally but can be intensified by land clearing activities such as farming, development, road building, and timber harvesting. This permit is concerned particularly with non-naturally occurring Erosion that eventually results in a Sediment discharge from MS4s into Receiving Waters.

Environmentally Sensitive Areas (ESAs) - Areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; areas designated as preserves or their equivalent under the Natural Communities Conservation Program within the Cities and County of Orange; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees.

Estuaries – Waters, including coastal lagoons, located at the mouth of streams that serve as areas of mixing fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and ocean water. Estuaries do not include inland surface waters or ocean waters.

Existing Development – Any area that has been developed and exists for municipal, commercial, industrial, or residential purposes, uses, or activities. May include areas that are not actively used for its originally developed purpose, but may be re-purposed or redeveloped

for another use or activity.

Flow Duration – The long-term period of time that flows occur above a threshold that causes significant sediment transport and may cause excessive erosion damage to creeks and streams (not a single storm event duration). The simplest way to visualize this is to consider a histogram of pre- and post-project flows using long-term records of hourly data. To maintain pre-development flow duration means that the total number of hours (counts) within each range of flows in a flow-duration histogram cannot increase between the pre- and post-development condition. Flow duration within the range of geomorphologically significant flows is important for managing erosion.

Grading - The cutting and/or filling of the land surface to a desired slope or elevation.

Hazardous Material – Any substance that poses a threat to human health or the environment due to its toxicity, corrosiveness, ignitability, explosive nature or chemical reactivity. These also include materials named by the USEPA in 40 CFR 116 to be reported if a designated quantity of the material is spilled into the waters of the U.S. or emitted into the environment.

Hazardous Waste - Hazardous waste is defined as "any waste which, under Section 600 of Title 22 of this code, is required to be managed according to Chapter 30 of Division 4.5 of Title 22 of this code" [CCR Title 22, Division 4.5, Chapter 11, Article 1].

Household Hazardous Waste – Paints, cleaning products, and other hazardous wastes generated during home improvement or maintenance activities.

Hydromodification – The change in the natural watershed hydrologic processes and runoff characteristics (i.e., interception, infiltration, overland flow, and groundwater flow) caused by urbanization or other land use changes that result in increased stream flows and sediment transport. In addition, alteration of stream and river channels, such as stream channelization, concrete lining, installation of dams and water impoundments, and excessive streambank and shoreline erosion are also considered hydromodification, due to their disruption of natural watershed hydrologic processes.

Illicit Connection – Any connection to the MS4 that conveys an illicit discharge.

Illicit Discharge - Any discharge to the MS4 that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities [40 CFR 122.26(b)(2)]. Discharges from natural sources or from conditionally exempt sources described in this Order are not considered Illicit Discharges.

Inactive Areas – Areas of construction activity that are not active and those that have been active and are not scheduled to be re-disturbed for at least 14 days.

Infiltration – Water other than wastewater that enters a sewer system (including sewer service connections and foundation drains) from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow [40 CFR 35.2005(20)].

Comment [A133]: Wrong definition. Should be defining infiltration (of stormwater into soil)

Inland Surface Waters – Includes all surface waters of the U.S.~~State~~ that do not include the ocean, enclosed bays, or estuaries.

Jurisdictional Runoff Management Program Document – A written description of the specific jurisdictional runoff management measures and programs that each Copermittee will implement to comply with this Order and ensure that illicit discharges are effectively prohibited, and storm water pollutant discharges in runoff are reduced to the MEP and do not cause or contribute to a violation of water quality standards.

Low Impact Development (LID) – A storm water management and land development strategy that emphasizes conservation and the use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely reflect pre-development hydrologic functions.

Low Impact Development Best Management Practices (LID BMPs) – LID BMPs include schedules of activities, effective prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States through storm water management and land development strategies that emphasize conservation ~~s~~and the use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely reflect pre-development hydrologic functions. LID BMPs include retention practices that do not allow runoff, such as infiltration, rain water harvesting and reuse, and evapotranspiration. LID BMPs also include flow-through practices such as biofiltration that may have some discharge of storm water following pollutant reduction.

Major Outfall – As defined in the Code of Federal Regulations, a major outfall is a MS4 outfall that discharges from a single pipe with an inside diameter of 36 inches or more or its equivalent (i.e. discharge from a single conveyance other than a circular pipe which is associated with a drainage area of more than 50 acres); or, for MS4s that receive storm water from lands zoned for industrial activity (based on comprehensive zoning plans or equivalent), a MS4 outfall that discharges from a single pipe with an inside diameter of 12 inches or more or from its equivalent (i.e. discharge from other than a circular pipe associated with a drainage area of 2 acres or more).

Maximum Daily Action Level (MDAL) –The highest allowable daily discharge of a pollutant, over a calendar day (or 24 hour period). For pollutants with action levels expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with action levels expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Maximum Extent Practicable (MEP) – The technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) ~~for storm water~~ that operators of MS4s must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of source control and treatment control BMPs. MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense). MEP considers economics and is generally, but not necessarily, less stringent than BAT. A definition for MEP is not provided either in the statute or in the regulations. Instead the definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their runoff management programs. Their total collective and individual activities conducted pursuant to the runoff management programs becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for MS4 maintenance). In the absence of a proposal acceptable to the San Diego Water Board, the San Diego Water Board

defines MEP.

In a memo dated February 11, 1993, entitled "Definition of Maximum Extent Practicable," Elizabeth Jennings, Senior Staff Counsel, SWRCB addressed the achievement of the MEP standard as follows:

> "*To achieve the MEP standard, municipalities must employ whatever Best Management Practices (BMPs) are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:*
>
> a. *Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?*
> b. *Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?*
> c. *Public Acceptance: Does the BMP have public support?*
> d. *Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?*
> e. *Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc.?*
>
> *The final determination regarding whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the Regional or State Water Boards, and not by the municipal discharger. If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit derived, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP based solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented."*

Monitoring Year – October 1 to September 30

Municipal Copermittee – Any Copermittee, exclusive of Special District Copermittees.

Comment [A134]: This definition clarifies distinction between municipal and special district copermittees.

Municipal Separate Storm Sewer System (MS4) – A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designated or used for collecting or conveying storm water;

(iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.226. Copermittees need only comply with permit conditions relating to "discharges from the municipal separate storm sewers for which they are operators." 40 CFR 122.26(a)(vi).

Comment [A135]: These changes correct a citation and clarifies the responsibility of the copermittees as to other MS4s.

National Pollutant Discharge Elimination System (NPDES) - The national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the CWA.

Non-Storm Water - All discharges to and from a MS4 that do not originate from precipitation events (i.e., all discharges from a MS4 other than storm water). ~~Non-storm water includes illicit discharges and NPDES permitted discharges.~~

Comment [A136]: This is overly limiting, There are other types of Non-storm discharges that do not fit these two categories (e.g. irrigated agriculture, natural flows, conditionally exempt flows, others). Rather than trying to identify all types of non-stormwater discharges, suggest just deleting this sentence.

Nuisance - As defined in the Porter-Cologne Water Quality Control Act, a nuisance is "anything which meets all of the following requirements: 1) Is injurious to health, or is indecent, or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. 2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. 3) Occurs during, or as a result of, the treatment or disposal of wastes."

Ocean Waters – the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Board's California Ocean Plan.

Order – Unless otherwise specified, refers to this Order, Order No. R9-2013-0001 (NPDES No. CAS0109266)

Outfall – *Outfall* means a *point source* as defined by 40 CFR 122.2 at the point where a MS4 discharges to waters of the United States and does not include open conveyances connecting two MS4s, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United. 40 CFR 122.26(b)(9).

Comment [A137]: This federal regulatory definition clarifies the nature of an outfall.

Parking Lot – a land area or facility for the tempraory parking or storage of motor vehicles used personally, for business, or for commerce.

Comment [A138]: Definition placed in Attachment C for consistency.

Persistent Flow - Persistent flow is defined as the presence of an MS4 discharge that is hydraulically connected to a flowing~~, pooled, or ponded~~ receiving water more than 72 hours after a measureable rainfall event of 0.1 inch or greater during three consecutive monitoring and/or inspection events. All other flowing, pooled, or ponded water is considered transient.

Comment [A139]: Changes reflect the necessity of a connection to flowing receiving waters. Discharges that are pooled are not discharges to waters of the United States. Please see Comment Letter section 3.5.3.

Person - A person is defined as an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof [40 CFR 122.2].

Point Source - Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operations, landfill leachate collection systems, vessel, or other floating craft from which pollutants are or may be discharged. This term does not include return

flows from irrigated agriculture or agricultural storm water runoff.

Pollutant - Any agent that may cause or contribute to the degradation of water quality such that a condition of pollution or contamination is created or aggravated.

Pollution - As defined in the Porter-Cologne Water Quality Control Act, pollution is "the alteration of the quality of the waters of the State by waste, to a degree that unreasonably affects the either of the following: 1) The waters for beneficial uses; or 2) Facilities that serve these beneficial uses." Pollution may include contamination.

Pollution Prevention - Pollution prevention is defined as practices and processes that reduce or eliminate the generation of pollutants, in contrast to source control BMPs, treatment control BMPs, or disposal.

Pre-Project~~Development~~ Runoff Conditions – Runoff conditions that exist~~existed~~ onsite immediately before the ~~existing development was constructed, or exists onsite before~~ planned development activities occur. Pre-development is not intended to be interpreted as that period before any human-induced land disturbance has occurred. 64 FR 68761.

Comment [A140]: This definition reflects the exact language used by U.S. EPA in the Federal Register. Moreover, it avoids the constitutional and statutory problems with requiring developers to mitigate for impacts not attributable to their project. It also is consistent with the CEQA standard for project impact mitigation.

Priority Development Projects - New development and redevelopment projects defined under Provision E.3.b of Order No. R9-2012-0011.

Properly Designed – Designed in accordance with the Copermittee's BMP Design Manual and/or any appropriate design requirements set forth by the Copermittee and based on widely accepted design criteria and in accordance with this Order.

Comment [A141]: This definition is required to address this standard, which is mentioned in the Order but not defined.

Rainy Season (aka Wet Season) –October 1 to April 30

Receiving Waters – Waters of the United States.

Receiving Water Limitations - Waste discharge requirements issued by the San Diego Water Board typically include both: (1) "Effluent Limitations" (or "Discharge Limitations") that specify the technology-based or water-quality-based effluent limitations; and (2) "Receiving Water Limitations" that specify the water quality objectives in the Basin Plan as well as any other limitations necessary to attain those objectives. In summary, the "Receiving Water Limitations" provision is the provision used to implement the requirements of CWA section 402(p)(3)(B).

Redevelopment - The creation, addition, and or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include trenching and resurfacing associated with utility work; parking lots; resurfacing existing roadways; cutting and reconfiguring of surface parking lots; new sidewalk construction, pedestrian ramps, or bike lane on existing roads; and routine replacement of damaged pavement, such as pothole repair and emergency restoration and public safety projects.

Comment [A142]: The changes requested in this definition appropriately exempts de minimis or emergency/public safety projects.

Reporting Period – The period of information that is reported in the Annual Report. The reporting period consists of two components: 1) July 1 to June 30, consistent with the fiscal

year, for the implementation of the jurisdictional runoff management programs, and 2) October 1 to September 30, consistent with the monitoring year for the monitoring and assessment programs. Together, these two time periods constitute the reporting year for the Annual Report due January 31 following the end of the monitoring year.

Restaurant – a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812).

Retail gasoline outlet (RGO) – a business that sells automotive or truck fuel to the general public with a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.

Retain –Keep or hold in a particular place, condition, or position without discharge to ~~surface~~ Receiving W~~w~~aters.

Retrofitting – Storm water management practices put into place after development has occurred in watersheds where the practices previously did not exist~~.~~ or are ineffective.~~.~~ Retrofitting of developed areas is intended to improve water quality, protect downstream channels, reduce flooding, or meet other specific objectives. Retrofitting developed areas may include, but is not limited to replacing roofs with green roofs, disconnecting downspouts or impervious surfaces to drain to pervious surfaces, replacing impervious surfaces with pervious surfaces, installing rain barrels, installing rain gardens, and trash area enclosures.

Runoff - All flows in a storm water conveyance system that consists of the following components: (1) storm water (wet weather flows) and (2) non-storm water including dry weather flows.

San Diego Water Board – As used in this document the term "San Diego Water Board" is synonymous with the term "Regional Board" as defined in Water Code section 13050(b) and is intended to refer to the California Regional Water Quality Control Board for the San Diego Region as specified in Water Code Section 13200.

Sediment - Soil, sand, and minerals washed from land into water. Sediment resulting from anthropogenic sources (i.e. human induced land disturbance activities) that is discharged into Receiving Waters is considered a pollutant. This Order regulates only the discharges of sediment from anthropogenic sources into Receiving Waters and does not regulate naturally occurring sources of sediment. Sediment can destroy fish-nesting areas, clog animal habitats, and cloud waters so that sunlight does not reach aquatic plants.

Special District Copermittee – A separate legal entity that may own or operate MS4 systems, but has no land use authorities outside of their MS4. The Riverside County Flood Control and Water Conservation District [and Orange County Flood Control District?] is a [are] Special District Copermittee[s].

Source Control BMP – Land use or site planning practices, or structural or nonstructural measures that aim to prevent runoff pollution by reducing the potential for contamination at the source of pollution. Source control BMPs minimize the contact between pollutants and runoff.

Storm Water – Per 40 CFR 122.26(b)(13), means storm water runoff, snowmelt runoff and surface runoff and drainage. ~~Surface runoff and drainage pertains to runoff and drainage resulting from precipitation events.~~

Comment [A143]: Relocation of definition to Attachment C.

Comment [A144]: Definition added for clarity and consistency with prior redlines

Comment [A145]: Edit clarifies intent of definition.

Stream, Channel, or Habitat Rehabilitation – Measures or activities for the purpose of improving or restoring the environmental health (i.e. physical, chemical and biological integrity) of streams, channels, or river systems. Rehabilitation techniques may include, but are not limited to, riparian zone restoration, constructed wetlands, bank stabilization, channel reconfiguration, and daylighting drainage systems.

Street, Road, Highway, Freeway– Any paved impervious surface that is used for the transportation of automobiles, trucks, motorcycles, and other vehicles, with an ADT of at least 100 vehicles per day.

Comment [A146]: Definition relocated to Attachment C.

Comment [A147]: Consistent with RGO definition.

Structural BMPs - A subset of BMPs which detains, retains, filters, removes, or prevents the release of pollutants to surface waters from development projects in perpetuity, after construction of a project is completed.

Total Maximum Daily Load (TMDL) - The maximum amount of a pollutant that can be discharged into a water body from all sources (point and non-point) and still maintain water quality standards. Under CWA section 303(d), TMDLs must be developed for all water bodies that do not meet water quality standards after application of technology-based controls.

Toxicity - Adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). The water quality objectives for toxicity provided in the Basin Plan, state in part…"All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life….The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge".

Treatment Control BMP – Any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process.

Unpaved Road – Any long, narrow stretch without pavement used for traveling by motor passenger vehicles between two or more points. Unpaved roads are generally constructed of dirt, gravel, aggregate or macadam and may be improved or unimproved.

Waste - As defined in CWC Section 13050(d), "waste includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal."

Article 2 of CCR Title 23, Chapter 15 (Chapter 15) contains a waste classification system that applies to solid and semi-solid waste, which cannot be discharged directly or indirectly to water of the state and which therefore must be discharged to land for treatment, storage, or disposal in accordance with Chapter 15. There are four classifications of waste (listed in order of highest to lowest threat to water quality): hazardous waste, designated waste, non-hazardous solid waste, and inert waste.

Water Quality Objective - Numerical or narrative limits on constituents or characteristics of

water designated to protect designated beneficial uses of the water. [California Water Code Section 13050 (h)]. California's water quality objectives are established by the State and Regional Water Boards in the Water Quality Control Plans. Numeric or narrative limits for pollutants or characteristics of water designed to protect the beneficial uses of the water. In other words, a water quality objective is the maximum concentration of a pollutant that can exist in a receiving water and still generally ensure that the beneficial uses of the receiving water remain protected (i.e., not impaired). Since water quality objectives are designed specifically to protect the beneficial uses, when the objectives are violated the beneficial uses are, by definition, no longer protected and become impaired. This is a fundamental concept under the Porter Cologne Act. Equally fundamental is Porter Cologne's definition of pollution. A condition of pollution exists when the water quality needed to support designated beneficial uses has become unreasonably affected or impaired; in other words, when the water quality objectives have been violated. These underlying definitions (regarding beneficial use protection) are the reason why all waste discharge requirements implementing the federal NPDES regulations require compliance with water quality objectives. (Water quality objectives are also called water quality criteria in the CWA.)

Water Quality Standards - Water quality standards, as defined in Clean Water Act section 303(c) consist of the beneficial uses (e.g., swimming, fishing, municipal drinking water supply, etc.,) of a water body and criteria (referred to as water quality objectives in the California Water Code) necessary to protect those uses. Under the Water Code, the water boards establish beneficial uses and water quality objectives in water quality control or basin plans. Together with an anti-degradation policy, these beneficial uses and water quality objectives serve as water quality standards under the Clean Water Act. In Clean Water Act parlance, state beneficial uses are called "designated uses" and state water quality objectives are called "criteria." Throughout this Order, the relevant term is used depending on the statutory scheme.

Waters of the State - Any water, surface or underground, including saline waters within the boundaries of the State [CWC section 13050 (e)]. The definition of the Waters of the State is broader than that for the Waters of the United States in that all water in the State is considered to be a Waters of the State. ~~regardless of circumstances or condition.~~

Comment [A148]: The intent of the definition is to cover natural water sources, and not anthropogenic structures that collect runoff to reduce volume/velocity or pollutants.

Waters of the United States - As defined in the 40 CFR 122.2, the Waters of the U.S. are defined as: "(a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate "wetlands;" (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purposes by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the United States under this definition: (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial seas; and (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA."

Riverside Copermittee Redlines

Watershed - That geographical area which drains to a specified point on a water course, usually a confluence of streams or rivers (also known as drainage area, catchment, or river basin).

Wet Season (aka Rainy Season) –October 1 to April 30

Wet Weather – Weather is considered wet if there is a storm event of 0.1 inches and greater and the following 72 hours, unless otherwise defined by the Copermittee for the purposes of monitoring consistent with the USEPA Storm Water Sampling Guidance Document (EPA-833-B-92-001), or developed pursuant to another regulatory mechanism.

Comment [A149]: This is important as the monitoring requirements require you to sample the first 'Wet Weather' event. 0.1" of rainfall doesn't result in runoff in all watersheds. Copermittees should be able to define mobilization criteria to identify storms that are likely to produce runoff in that drainage area consistent with this EPA guidance.

LEGAL AND FACT SHEET COMMENTS ON TENTATIVE ORDER R9-2013-0001 MADE ON BEHALF OF THE RIVERSIDE COUNTY COPERMITTEES

This document provides comments on various legal issues raised by Tentative Order No. R9-2013-0001 (the "Draft Permit") and associated attachments, including Attachment F, the Fact Sheet/Technical Report ("Fact Sheet"), and are made on behalf of the Riverside County Flood Control & Water Conservation District ("District"), the County of Riverside and the Cities of Murrieta, Temecula and Wildomar (collectively, the "Riverside County Copermittees").

These legal comments are in addition to the other comments on the Draft Permit and attachments made by the Riverside County Copermittees (including the Comment Letter dated January 10, 2013 and signed by Jason E. Uhley, Chief of the District's Watershed Protection Division) and the redline attachment ("Redline"), as well as any comments or testimony which may be offered at the public hearing(s) on the Draft Permit. The Comment Letter and Redline also discuss legal issues. The Riverside County Copermittees appreciate this opportunity to comment and welcome any questions that Water Board staff may have.

These comments are submitted subject to the same reservations set forth in the Comment Letter regarding the Water Board's lack of authority, in the absence of agreement by the Riverside County Copermittees or the filing of a Report of Waste Discharge ("ROWD"), to issue a regional municipal separate storm sewer system ("MS4") permit to the Riverside County Copermittees. Submission of these comments does not waive this objection.

Request for Additional Public Comment

Before turning to comments on the Draft Permit, the Riverside County Copermittees wish to note that in view of the extensive comments made by them, as well as what we anticipate will be extensive comments by the South Orange County and San Diego County Copermittees, as well as from other stakeholders, it would greatly facilitate the permit adoption process if the Water Board were to release a revised Tentative Order for further review and comment prior to final adoption of the Permit. This will enable the Water Board staff to address the comments in a more orderly fashion and provide all parties with the opportunity to see how staff proposes to incorporate the comments in the Draft Permit.

Comments on Findings

Finding 2 and Fact Sheet Section VII.B: This finding recites that the Water Board "has the legal authority to issue a regional MS4 permit pursuant to its authority under Clean Water Act ("CWA") section 402(p)(3)(B) and 40 CFR 122.26(a)(i)(v)." Section VII.B of the Fact Sheet provides a more detailed rationale for this finding (at pages F-22-23).

The Riverside County Copermittees respectfully disagree with this finding and the analysis provided in the Fact Sheet. We do not believe that a regional MS4 permit is authorized under the CWA or the implementing regulations, absent agreement by the copermittees to be bound by such a MS4 permit (as is the case with the Bay Area MS4 permit covering discharges into the Bay).

The CWA itself does not explicitly authorize MS4 permits that, like the Draft Permit, cross county lines. CWA section 402(p)(3)(B) provides only that "[p]ermits for discharges from municipal storm sewers . . . may be issued on a system- or jurisdiction-wide basis." This language, contrary to the conclusion in Finding 2, indicates that a multi-county permit, covering several distinct non-interconnected municipal stormwater "systems" in multiple watersheds with multiple receiving waters, is not one issued on a "system-wide" basis and that an MS4 permit covering multiple jurisdictions in three different counties is not one issued on a "jurisdiction-wide basis." Because neither "system-wide" nor "jurisdiction-wide" are defined in the CWA, however, the CWA regulations must also be reviewed.

The regulatory provision cited in Finding 2, 40 CFR § 122.26(a)(1)(v), does not add clarity, since it merely repeats the "system-wide" and "jurisdiction-wide" language of the Act and the regulations define neither term. The regulations do, however, suggest that "system-wide" is not intended to cover multiple large MS4s in different jurisdictions. The regulations, at 40 CFR § 122.26(a)(1)(v) state that in making the determination to designate a system-wide or jurisdiction-wide basis" the permitting authority should consider the location of the "discharge" with respect to waters of the United States, the size of the discharge, the quantity and nature of the pollutants discharge and other relevant factors.

The Draft Permit covers multiple "discharges" into receiving waters located in three separate counties and the size, quality and nature of the discharges vary widely, due to varying hydrologic and climatic conditions in the three areas.

The Fact Sheet cites 40 CFR § 122.26(a)(3)(iv), which provides, in relevant part, that the Water Board "may issue one systemwide permit covering all, or a portion of all municipal separate storm systems in adjacent or interconnected large or medium municipal separate storm sewer systems." This provision does not, however, authorize issuance of a regional MS4 permit covering multiple counties and multiple watersheds that are not interconnected and which do not share a common receiving water. In fact, the only common fact uniting the various MS4s in the three counties under the Water Board's jurisdiction is that common jurisdiction.

First, even if the subject MS4 facilities otherwise met the criteria specified in the federal regulations (which, as noted below, they do not), the prospective permittees must apply for such a MS4 permit, as set forth in the first sentence of 40 CFR § 122.26(a)(3)(iv): "*One permit application may be submitted for all or a portion of all* municipal separate storm sewers within adjacent or interconnected large or medium municipal separate storm sewer systems." (emphasis supplied). No such application has been filed with respect to the Draft Permit. Only the San Diego County copermittees submitted a ROWD for MS4 facilities within that county.[1]

[1] Moreover, the fact that permittees have the ability to determine the geographic scope of the permit is reinforced by the language in 40 CFR § 122.26(a)(3)(iii)(B), which allows an individual municipality to submit "a distinct permit application which only covers discharges from the [MS4] for which the owner is responsible . . ." If a permittee can "opt out" of a multi-MS4 permit by submitting a individual permit application, a permitting authority such as a water board cannot impose a multi-MS4 permit on that permittee.

Second, this provision requires that the MS4s to be covered in the permit be "adjacent or interconnected." This is not true with respect to the MS4s proposed to be included within the Draft Permit. For example, the MS4 within the Santa Margarita Region of Riverside County is not "interconnected" with any other MS4s except those within that region. This is true also of the MS4s within South Orange County and San Diego County, which are not interconnected. Additionally, none of the MS4s in the three counties is "adjacent" to each other – each is separated by miles of non-urban area. In the SMR for example, the confluence of Temecula and Murrieta Creeks to form the Santa Margarita River is miles upstream of Rainbow Creek, the first discharge from San Diego County to the River. And, the confluence of Temecula and Murrieta Creeks is over 30 miles from the discharge of the Santa Margarita River to the Pacific Ocean.

The next inquiry is whether the three separate county MS4s could be considered, together, to form a single "large municipal separate storm sewer system." The federal MS4 regulations define this term as follows:

> *Large municipal separate storm sewer system* means all municipal separate storm sewers that are either:
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> (i) Located in an incorporated place with a population of 250,000 or more . . . ."
>
> (ii) Located in the counties listed in Appendix H, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties; or
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> (iii) Owned or operated by a municipality other than those described [in paragraphs (i) and (ii)] . . . and that are designated by the Director as part of the large or medium municipal separate storm sewer system due to the interrelationship between the discharges of the designated storm sewer and the discharges from municipal separate storm sewers described [in paragraphs (i) and (ii)]. In making this determination the Director may consider the following factors:
>
> (A) Physical interconnections between the municipal separate storm sewers;
>
> (B) The location of discharges from the designated municipal separate storm sewer relative to discharges from municipal separate storm sewers described in [paragraph (i)];
>
> (C) The quantity and nature of pollutants discharged to waters of the United States;
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> (D) The nature of the receiving waters; and
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> (E) Other relevant factors, or
>
> (iv) The Director may, upon petition, designate as a large municipal separate storm sewer system, municipal separate storm sewers located within the boundaries of a region

> defined by a storm water management regional authority based on a jurisdictional, watershed, or other appropriate basis that includes one or more of the systems described [in paragraphs (i), (ii) or (iii)].

40 CFR § 122.26(b)(4).

None of paragraphs (i), (ii) or (iii) authorizes a regional MS4 permit such as that envisioned in the Draft Permit. The Draft Permit applies beyond a single incorporated place, County or municipality. Of these paragraphs, only paragraph (iv) could arguably be used to define the MS4s in the three Counties as a single MS4 and thus authorize a regional permit. The key limiting language is, however, "within the boundaries of a region **defined by a storm water management regional authority,** based on a jurisdictional, watershed, or other appropriate basis . . . ." A regional water board is not a stormwater management regional authority. This is clear from the MS4 regulations, which provide that a "**regional authority may be responsible for submitting a permit application"** under certain conditions. 40 CFR § 122.26(a)(3)(iii)(C). Clearly, a Water Board is not responsible for submitting MS4 permit applications.

U.S. EPA, in the Preamble to the final Phase I MS4 regulations (55 Fed Reg. 47990, November 16, 1990), further illuminated the meaning of the regulatory language. The Preamble indicates that commenters proposed eight different MS4 permitting options:

> Option 1 – systems owned or operated by incorporated places augmented by integrated discharges; Option 2 – systems owned or operated by incorporated places augmented with significant other municipal discharges; Option 3 – systems owned or operated by counties; Option 4 – systems owned and operated by States or State departments of transportation; Option 5 – systems within the boundaries of an incorporated place; Option 6 – systems within the boundaries of counties; Option 7 – systems in census designated urbanized areas; and Option 8 – systems defined by watershed boundaries.

55 Fed Reg. at 48039. None of these options encompasses the fact pattern presented by the Draft Permit, which covers multiple counties and multiple watersheds, are not interconnected, do not share common receiving waters and are located in separate census designated urbanized areas.

In explaining the derivation of 40 CFR 122.26(b)(4)(iv), U.S. EPA noted that it was "an outgrowth of comments on all options, especially Option 4 (State owned systems/State highways) and Option 8 (watersheds)." 55 Fed. Reg. at 48040. Thus, the Caltrans MS4 permit (which applies statewide) is authorized under paragraph (iv), since the "storm water management regional authority" defining the region to be covered is Caltrans itself. No such single authority exists for the three-county area proposed to be included in the Draft Permit, which also would encompass multiple watersheds.

Moreover, paragraph (iv) provides that the regional authority must "petition" the U.S. EPA Director to have a single MS4 designated within the boundaries of the region defined by the regional authority. Because California has been delegated NPDES permitting authority, a regional authority would presumably need to petition its Water Board to authorize such a regional permit. Since no such regional authority exists to establish the geographical basis for a

three-county MS4 permit, there is no such entity to "petition" the Water Board to establish a regional permit. This is clear from the Preamble to the Phase I regulations, which indicate that "regional storm water authorities" established by "some States or counties" may "petition the Director [or its state designee] to assume a regional role. 55 Fed. Reg. at 48042. It is clear from the Preamble that it is not the Water Board that has the authority to make such a petition, but rather the "storm water authorities" (i.e., municipalities, districts and Caltrans).

It should be noted that the Bay Area Regional MS4 Permit was a joint Bay Area Water Board and copermittee effort, coordinated by the Bay Area Stormwater Agencies Management Association ("BASMAA"). It is not the case that the Bay Area Water Board imposed this regional MS4 permit. The copermittees, coordinated by BASMAA, themselves determined to develop a regional MS4 permit. Further, all of the copermittees to the Bay Area Regional MS4 Permit discharge to a common receiving water, San Francisco Bay. Also, an Alaska MS4 permit cited in a letter from the Office of Chief Counsel to county counsel for Orange and Riverside Counties was issued to several municipalities and entities within a single "borough," which is equivalent in Alaska to a county.

Additionally, neither the Riverside County Copermittees nor those in South Orange County have filed ROWDs with the San Diego Water Board, which serve as the application for an NPDES MS4 permit in California. Water Code § 13260. The current Riverside County MS4 permit for the Santa Margarita Region provides that the ROWD is not required to be filed until May 2015, 180 days prior to the November 10, 2015 expiration date of that permit. Order R9-2010-0016, Part II.K.2.c.

> This ROWD must include:
>
> (1) Proposed changes to the Copermittees' runoff management programs; (2) Proposed changes to monitoring programs; (3) Justification for proposed changes; (4) Name and mailing addresses of the Copermittees; (5) Names and titles of primary contacts of the Copermittees; (6) Any other information necessary for the reissuance of this Order and (7) Any other information required by federal regulations for permit reapplications.

Id. It should be noted that several items of this ROWD are specifically intended to assist in the formulation of a new, SMR-specific MS4 permit, including proposed changes to the runoff management and monitoring programs, as well as justification for such changes, information necessary for "reissuance" of the SMR MS4 permit and information required by the federal regulations for MS4 permit reapplications.

As a simple jurisdictional matter, the Water Board cannot issue a regional MS4 permit to MS4 dischargers that have not applied for it. Moreover, as noted above, the SMR copermittees are entitled to apply for an MS4 permit applicable to their jurisdiction. Further, each individual copermittee has the right to apply for a MS4 permit covering only its discharges, as has the City of Long Beach in the Los Angeles Region.

Finding 3, Finding 15, in Fact Sheet Section VII.A and in Multiple Locations Throughout Draft Permit: In Finding 3, the Fact Sheet and in multiple locations throughout the Draft Permit (which are identified in the redline of the Draft Permit submitted with these comments by the Riverside County Copermittees ("Redline")), it is stated that the maximum extent practicable ("MEP") applies only to "storm water" discharges from the MS4. This is not correct.[2]

In fact, the Clean Water Act does not distinguish between non-stormwater and stormwater in terms of MS4 discharges which must be controlled to the MEP standard. *See* 33 U.S.C. § 1342(p)(3)(B)(iii)(the MS4 permit "shall require controls to reduce the discharge of pollutants to the maximum extent practicable . . . ." While the heading of 33 U.S.C. § 1342(p) refers to "Municipal and industrial stormwater discharges," this is not dispositive, as 33 U.S.C. § 1342(p)(3)(B)(ii), which requires the effective prohibition of "non-stormwater discharges" into the MS4. Thus, the language of this heading does not in fact support the argument that the MEP standard applies only to pollutants in stormwater discharges.

That both non-stormwater and stormwater must be controlled to the MEP standard was made clear by U.S. EPA itself in the preamble to the final Phase I stormwater regulations. In that preamble, U.S. EPA made it clear that "MEP control measures" would be implemented to address not only pollutants in "storm water" but also from "non-storm water discharges." As the preamble states:

> "Permittees are required to develop management programs for four types of pollutant sources which discharge to large and medium municipal storm sewer systems. Discharges from [such systems] are usually expected to be composed primarily of: (1) Runoff from commercial and residential areas; (2) storm water runoff from industrial areas; (3) runoff from construction sites; and (4) *non-storm water discharges*. Part 2 of the permit application has been designed to allow [permittees] the opportunity to propose *MEP control measures for each* of these components of the discharge."

55 Fed. Reg. at 48052 (emphasis supplied).

This language sets forth USEPA's understanding of the plain language of the CWA: "pollutants" must be controlled to the MEP from any MS4 "discharge," not merely pollutants in stormwater.

Finding 11: This finding, in relevant part, states that "[h]istoric and current development makes use of natural drainage patterns and features as conveyances for runoff. Rivers, streams and creeks in developed areas used in this manner are part of the Copermittees' MS4s regardless of whether they are natural, anthropogenic, or partially modified features. In these cases, the rivers, streams and creeks in the developed areas of the Copermittees' jurisdictions are both an MS4 and receiving water." This conclusion is legally incorrect.

First, under no circumstance can a natural stream constitute an MS4. The definition of "MS4" in the CWA regulations (a definition found in Attachment C of the Draft Permit) refers to a

[2] Finding 15 also states, erroneously, that the MEP standard "is explicitly for "Municipal . . . *Stormwater Discharges* (emphasis added)" from the MS4.

"conveyance or system of conveyances" "owned or operated" by a municipality. 40 CFR §122.26(b)(8). In California, natural rivers and streams are not "owned" nor "operated" by the municipality through which they flow. Moreover, a municipality obviously cannot "operate" a natural creek or stream. In further support of the point that a MS4 is an artificial, not natural, watercourse, the types of "conveyances" identified in the regulation ("roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains") all refer to anthropogenic structures, not natural streams. 40 CFR § 122.26(b)(8).

Second, a "receiving water" cannot also be an MS4, as is plain from the CWA regulations. An MS4 is itself defined as discharging to waters of the United States. 40 C.F.R. §122.26(b)(8). An MS4 cannot, in essence, discharge to itself. Moreover, an "outfall" from an MS4 (the point at which the discharge enters a receiving water) does not, pursuant to 40 C.F.R §122.26 (b)(9), include conveyances connecting "segments of the same stream or other waters of the United States and are used to convey waters of the United States."

Moreover, U.S. EPA, in the Preamble to the initial version of the MS4 regulations (53 Fed. Reg. 49416 (Dec. 7, 1988)) expressly determined that "streams, wetlands and other water bodies that are waters of the United States are not storm sewers for the purposes of this rule" and that "stream channelization, and stream bed stabilization, which occur in waters of the United States" were not subject to National Pollutant Discharge Elimination System ("NPDES") permits under Section 402 of the CWA. 53 Fed. Reg. at 49442.

Additionally, the United States Supreme Court recently reversed the Ninth Circuit Court of Appeals and ruled that flows from sections of the Los Angeles and San Gabriel Rivers that are comprised of concrete flood control channels are not a "discharge" under the CWA, confirming that such rivers, even if improved, are "receiving waters" along with any natural portions of those rivers. *Los Angeles County Flood Control Dist. v. Natural Resources Defense Council*, 568 U.S. __(January 8, 2013) (slip op.).

The above-cited statement in the finding is incorrect and should be stricken, as recommended in the Redline.

Finding 12: This finding states, in relevant part, that "[a]s operators of the MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or otherwise control." This statement is legally incorrect, and ignores the salient point that the "discharger" of a pollutant is primarily responsible for controlling/permitting that discharge, under both the CWA and the Porter-Cologne Act. For example, under the Porter-Cologne Act, any persons discharging or proposing to discharge "waste" into waters of the state must file a report of waste discharge and obtain a waste discharge requirement. Water Code §§ 13260, 13263. The operator of the MS4 into which that water eventually flows is not "essentially accepting" responsibility for the discharge. The responsibility of the MS4 operator is established under the CWA, and that is to effectively prohibit non-stormwater discharges into [the MS4] and to control the discharge of pollutants from the MS4 to the MEP.

Moreover, the statement ignores the fact that in California, downstream property owners (including municipalities owning and operating MS4 facilities) must accept the flow of upstream waters. In fact, for a downstream municipality to block such flow would constitute an inverse condemnation or the creation of a nuisance under California law. *See Arreola v. County of Monterey* (2002) 99 Cal.App.4th 722 (obstruction of flood waters by improperly designed highway constituted inverse condemnation and nuisance).

Finding 28 and Fact Sheet Section VI: In the Finding, it is stated that the Water Board "finds that the requirements in this permit are not more stringent than the minimum federal requirements" and that therefore "a CWC section 13241 analysis is not required." The Finding further recites that notwithstanding this fact, "the San Diego Water Board has developed an economic analysis of the requirements in this Order."

For the reasons set forth in the comments of the Riverside County Copermittees, numerous provisions in the Draft Permit are in fact more stringent than the requirements of the CWA and its implementing regulations and therefore require an adequate Water Code § 13241 analysis. Unfortunately, this analysis is not provided in the Fact Sheet.

First, the economic analysis set forth in the Fact Sheet does not meet the requirements of Section 13241, as it does not analyze the six specific factors required to be analyzed under the section. Second, the analysis uses cost data from other sources, only a few of which were from the municipalities proposed to be included under the Draft Permit. These data are also a number of years old; the most recent study referenced in the Fact Sheet, the one done for the State Board by Cal State Sacramento, was dated January 2005 and included decade-old cost data from the City of Encinitas that dated from 2002-2003.

Third, the section of the Fact Sheet discussing the benefits of water quality notes that "there have been no studies for the San Diego Region to quantify the added value that surface waters with healthy water quality can provide." Thus, the Water Board has no evidence with which to compare the costs and benefits of the programs set forth in the Draft Permit. Moreover, the discussion makes the incorrect assumption that the alternative to the programs in the Draft Permit would be no controls on pollutants in urban runoff. As the Fact Sheet correctly notes, the Draft Permit is the fifth term MS4 permit for the copermittees. The previous four permits all contained increasingly complex and expensive control requirements, both structural and non-structural, designed to improve the quality of MS4 discharges. Thus, an appropriate cost analysis must compare the incremental costs of the programs set forth in the Draft Permit and the incremental benefits attributable to that permit. This has not been done in the Fact Sheet. Finally, the analysis does not recognize that the receiving waters provided economic benefits to residents of the San Diego Region long before issuance of the first MS4 permits in 1990. It is thus illogical to suggest that these pre-existing economic benefits would be lost if the Draft Permit is not adopted.

Finding 29 and Fact Sheet Section VII.F: The finding and the supporting argument in the Fact Sheet represents an attempt by Water Board staff to address whether the requirements of the Draft Permit represent an unfunded state mandate. That attempt, however, is beyond the scope of the Water Board's powers, since the *only* agency charged by the Legislature with determining

the presence of a state mandate, and whether that mandate is unfunded, is the Commission on State Mandates. Govt. Code § 17552; *Kinlaw v. State of California* (1991) 54 Cal.3d 326, 333. The Water Board has no jurisdiction to make a legal finding or discuss in the Fact Sheet that the Draft Permit, in whole or in part, does not constitute an unfunded state mandate.

Additionally fact sheets are required, under the CWA regulations, to provide the legal authority and reasons for each substantive permit provision (40 CFR § 124.8(a)(4); 40 CFR § 124.56(a)). *See also City of Rancho Cucamonga v. Regional Water Quality Control Board-Santa Ana Region* (2006), 135 Cal.App.4th 1377, 1382 (stating that fact sheets contains "the legal and factual grounds for the Water Board's recommendation to adopt the . . . permit"). Finding 29 and the discussion in Section VII.F of the Fact Sheet do not relate to any Draft Permit provision, nor provide legal authority or justification for the Draft Permit's adoption. As such, the finding and Fact Sheet discussion are surplussage and should be deleted.

The Riverside County Copermittees disagree with each of the arguments set forth in the Finding and Fact Sheet as to why the Draft Permit does not constitute an unfunded state mandate. Nevertheless, because the exclusive arena for such disagreements is the Commission on State Mandates, whose jurisdiction does not commence unless and until a test claim is filed before the Commission, the Copermittees need not and will not address those arguments.

Comments on Provisions in Draft Permit

Provision A and Fact Sheet Section VIII.A:

Lack of True Iterative Compliance Process

As set forth in the Redline and in the Comment Letter, the Riverside County Copermittees believe that to effectuate the iterative approach to compliance with water quality standards and other discharge prohibitions in the Draft Permit, the copermittees must be provided with the means to be in compliance. Based on monitoring, exceedances of water quality standards are occurring in the receiving waters subject to the Draft Permit, as set forth in Table G-14 to the latest 2011-2012 monitoring report submitted by the Riverside County Copermittees. Thus, if the copermittees are not provided an iterative means to be in compliance, which was contemplated by State Board's Order No. 2001-15, the copermittees will be issued an illegal MS4 permit, since it is a permit with which they cannot comply. This violates the intent of Congress in the CWA, which "is presumed not to have intended absurd (impossible) results." *Hughey v. JMS Development Corp.*, 78 F.3d 1523, 1529 (11th Cir. 1996); *accord, Mississippi River Revival v. City of Minneapolis*, 319 F.3d 1013, 1017-1018 (8th Cir. 2003).

With regard to the iterative process, Water Board staff has indicated numerous times during the workshop process that achievement of water quality standards is expected to take many years. The entire WQIP approach is aimed at the eventual attainment of such standards, as are the TMDLs issued to other copermittees, which have final compliance dates years into the future.

This approach is, however, put into jeopardy by the requirement, as expressed in the Fact Sheet at F-39, that the discharge prohibition and receiving water limitation provisions are

"independently applicable, meaning that compliance with one provision does not provide a 'safe harbor' where there is non-compliance with another provision (i.e., compliance with Provision A.4 does not shield a Copermittee who may have violated Provision A.1.a, A.1.c, or A.2.a from an enforcement action." While the Fact Sheet appropriately notes how this process should work through Provision A.4 (which "essentially requires the Copermittees to implement additional BMPs until MS4 discharges no longer cause or contribute to a violation of water quality standards") it also states that despite this iterative process, "the San Diego Water Board retains the discretion to take other appropriate enforcement and the iterative process does not shield dischargers from citizen suits under the CWA." Fact Sheet at F-40.

The consequences of this approach cannot be overemphasized. Despite the copermittees' good faith undertaking to follow the iterative process outlined in Provision A.4, a Water Board enforcement proceeding or a citizen suit can be brought for violations of water quality standards and, if the citizen plaintiff is successful, a federal judge is empowered to use his/her injunctive powers under Section 505(a) of the CWA to throw out the WQIP, JRMP or other compliance efforts of the copermittees and require other efforts. In such a case, the time and money spent by the copermittees in trying to comply with the Draft Permit, as well as the effort spent by the copermittees and Water Board staff in developing the Draft Permit's terms, are completely wasted.

Thus, the essential conundrum of Provision A, as presently drafted, is clearly exposed. Even though a copermittee may spend significant sums and undertake significant tasks under its WQIP or JRMP, be conducting expensive monitoring and special studies, and be in *full compliance* with all of the programmatic requirements of the Draft Permit, it would still face either a Water Board enforcement action or a citizen suit under Section 505 of the CWA. And, such a suit would allege exceedances of water quality standards (some of which are hardly capable of laboratory detection, much less control) that the Water Board acknowledges cannot be achieved for years.

Provision A is not, however, required by the CWA, as held by the Ninth Circuit in *Defenders of Wildlife v. Browner*, 191 F.3d 1159 (9th Cir. 1999). The holding in *Browner* is further reflected in State Board Order WQ 2001-15 (which the Fact Sheet acknowledges incorporates an "iterative process") which states:

> [O]ur [receiving water limitation] language, similar to the U.S. EPA's permit language discussed in the Browner case, **does not require strict compliance with water quality standards.** Our language requires that **storm water management plans be designed to achieve compliance with water quality standards**. **Compliance is to be achieved over time, through an iterative approach requiring improved BMPs**. As pointed out by the Browner court, there is nothing inconsistent between this approach and the determination that the Clean Water Act does not mandate strict compliance with water quality standards.

Order WQ 2001-15 at 7 (emphasis added). Thus, Provision A is inconsistent with the State Board's own precedential order, which requires the iterative approach effectuated by the suggested Redline changes.[3]

In further support, it may be noted that the U.S. EPA-drafted MS4 permit for the District of Columbia does not contain the type of language found in Provision A, but rather requires "an iterative and an adaptive management process for pollutant reduction and for achieving applicable water quality standard and/or total maximum daily load (TMDL) compliance." DC MS4 Permit Fact Sheet, page 5 (attached as Exhibit A).

Also, despite the assertion in the Fact Sheet that the copermittees are seeking a "safe harbor" from liability, this is incorrect. Every provision of an MS4 permit is subject to enforcement; given the complexity of the Draft Permit, the failure by a copermittee to comply with any provision could lead to such enforcement.

As noted above, MS4 discharges may not be achieving compliance with strict water quality standards, as recognized by the Issue Paper released by State Board staff in preparation for a November 20, 2012 workshop on receiving water limitation issues raised by *NRDC v. County of Los Angeles*. That Issue Paper stated that as "the storm water management programs of municipalities have matured, **an increasing body of monitoring data indicates that water quality standards are in fact not being met by many MS4s.**" (State Board Issue Paper, Page 2, emphasis supplied) (*see* Exhibit B.)

Perhaps most importantly, requiring strict and immediate compliance with discharge prohibition and receiving water limitations inhibits, not supports, the philosophy of the Draft Permit, which is to encourage the copermittees to focus on the most significant problems in their watersheds and to prioritize their resources to address those problems. Provision A, by contrast, discourages innovative approaches or prioritization, since all pollutants exceeding water quality standards create liability. Moreover, as discussed above, in the event of a citizen suit being brought such as that in the *NRDC* case, a federal judge could award injunctive relief to a successful plaintiff that could completely ignore or supplant the WQIP and other permit terms.

For additional discussion of receiving water limitations issues, please see Exhibit C, a letter submitted by the District to the State Board in connection with the recent workshop held by the State Board on receiving water limitations language. The Riverside County Copermittees hereby reference and incorporate this Exhibit into these comments.

The Riverside County Copermittees support a true iterative process that requires refinement and amendment of the WQIP and associated BMPs when receiving water limitation violations are recorded. That is the essence of the iterative process; the identification of problems and the development of BMPs to attempt to address those problems.

[3] While the Fact Sheet cites as authority *Natural Resources Defense Council v. County of Los Angeles*, discussed above, the Ninth Circuit was simply responding to language in the former Los Angeles County MS4 permit, and did not determine that such non-iterative language was required by the CWA.

The Redline proposes a means to achieve compliance using the WQIPs, which are intended to bring the copermittees into compliance with the discharge prohibition and receiving water limitation provisions of the Draft Permit over time. The Redline links compliance with Provisions A.1, A.2 and A.3 to A.4, which indicates that compliance is obtained through the preparation and updating of the WQIPs.

It must be noted, however, that the Riverside County Copermittees do not agree with the approach suggested by others, that any WQIP-based compliance approach be necessarily accompanied by a "Reasonable Assurance Analysis." Such an analysis could be extremely complex, expensive and time intensive to develop. Generally, such analyses are developed in the preparation of TMDLs and take a number of years to develop and refine. Given that the Santa Margarita Watershed has no adopted TMDLs, there are no comprehensive pollutant transport or BMP models available for the suite of constituents that might be considered for prioritization within a WQIP for that watershed. In the context of a TMDL, such models would be developed by the combined resources of the Water Board, stakeholders and dischargers. Requiring such an exercise to be undertaken solely with the public resources of the residents of the SMR is beyond the Copermittees' financial ability and would shift responsibility for development of TMDLs from the Water Board to the Copermittees.

Discussion in Fact Sheet

The Fact Sheet discussion also contains a number of legal and factual errors. First, the statement on page F-34 that non-stormwater discharges from the MS4 are subject to NPDES permitting requirements is unsupported by the plain language of the CWA, which (as noted above) applies the MEP standard to *all* discharges of pollutants from the MS4, not just those in stormwater. Also, such discharges are not subject to separate requirements under the NPDES program, as suggested on F-34, and non-storm water discharges are not the same, legally, as "illicit discharges." Please see discussion below.

Similarly, the Fact Sheet's conclusion that "Regional Water Boards are not limited by the iterative MEP approach to storm water regulation in crafting appropriate regulations for non-storm water discharges" is incorrect. The Fact Sheet correctly states that MEP has not been defined in the CWA or by U.S. EPA in the CWA regulations. However, the Fact Sheet incorrectly concludes that MEP is "ultimately defined" by the Water Boards or the State Board. What constitutes "MEP" is a question of federal law under the CWA, not a matter for definition by agencies which merely have been delegated the authority to enforce the CWA in California. The only source for such a finding is a memorandum from a State Board attorney, not case authority.

Moreover, Provisions B-E of the Draft Permit, far from establishing a "minimum framework" for the copermittees to achieve the MEP standard, sets forth in many cases requirements that far exceed the plain requirements of the CWA, the implementing regulations and in some cases even state law, or which require the copermittees to undertake steps that are not "practicable." These requirements are identified in the comments of the Riverside County Copermittees. In such respects, those requirements do not represent a "minimum framework" for MEP.

Other Issues

The Riverside County Copermittees also object to the provision in A.1.a and other portions of the Draft Permit that prohibit certain discharges into "waters of the state." The CWA regulates discharges into waters of the United States, which are surface waters. Expanding the prohibition to cover waters of the state expands the scope of the Draft Permit to protect groundwater, as a matter of state law. It should be noted that the recent Los Angeles County MS4 Permit appropriately applies this prohibition to waters of the United States.

Provision B.5: As noted in the Comment Letter, the CWA requires that illegal discharges into the MS4 be addressed by a program of steps taken to address such discharges. The Redline emphasizes that this program be guided by WQIP priorities, which is consistent with the overall intent of the Draft Program.

Provision E.2.a and E.2.a.(7): These provisions require the Copermittees to, as a part of their Illicit Discharge Detection and Elimination (IDDE) program, address all non-stormwater discharges as "illicit discharges," thus requiring the copermittees to "reduce or eliminate non-stormwater discharges" whether or not the discharges have been identified as "illicit."

The Fact Sheet asserts that "Provision E.2.a.(7) is consistent with the requirements of the CWA section 402(p)(3)(B)(ii) and 40CFR 122.26(d)(1)(v)(B). That assertion is not correct. Section 402(p)(3)(B)(ii) of the CWA states that MS4 permits "shall include a requirement to *effectively prohibit* non-stormwater discharges into the storm sewers" (emphasis supplied). The CWA regulations include two provisions designed to begin implementation of the "effective prohibition." The first provision requires MS4 permittees to perform a screening analysis, intended to provide sufficient information to develop priorities for a program to detect and remove illicit discharges. 40 CFR 122.26(d)(1)(iv)(D). The second requires MS4 permittees to develop a recommended site-specific management plan to detect and remove illicit discharges (or ensure they are covered by an NPDES permit) and to control improper disposal to MS4s. 40 CFR 122.26(d)(1)(iv)(D) and 122.26(d)(2)(B). The MS4 permittees are required to identify the non-stormwater discharge as an illicit discharge prior to having an obligation to effectively prohibit it. There is not otherwise a presumption to reduce or eliminate it.

40 CFR 122.26(d)(1)(v)(B), cited in the Fact Sheet, requires "[a] description of the existing program to identify illicit connections to the municipal storm sewer system. The description should include inspection procedures and methods for detecting and preventing illicit discharges, and describe areas where this program has been implemented."

The provision and rationale within the Fact Sheet blur the distinction between the copermittees' need to "effectively" prohibit non-stormwater discharges and to detect and eliminate illicit discharges.

- The requirement is "effectively prohibit" non-stormwater discharges, not "reduce or eliminate" non-stormwater discharges.
- Although copermittees are required to have a program to prevent illicit discharges to the MS4, non-stormwater discharges should only be addressed as illicit discharges where

such discharges are identified as sources of pollutants that may cause or contribute to an exceedance of a water quality objective.

- The IDDE program is established to detect and eliminate "illicit discharges", not non-stormwater discharges in general.

Please see the Redline for modifications to Provision E.2 addressing these issues.

Provision E.2.a.(3): In the Redline, the Riverside County Copermittees request that categories of irrigation runoff discharges (landscape irrigation, irrigation water and lawn watering) be considered as conditionally exempt discharges (not subject to treatment as illicit discharges).

The rationale for not including irrigation runoff discharges lacks a legal and factual basis. As noted in the Comment Letter, the only factual basis for this provision with respect to the Riverside County Copermittees is discussion in a public information informational brochure, which was itself based on a similar document from Orange County. Fact Sheet F-76. Despite assertions to the contrary in the Fact Sheet, this brochure does not represent a determination by the Riverside County Copermittees that irrigation runoff is a category of non-stormwater discharge that must be effectively prohibited. The other evidence in support of prohibiting the conditional exemption for irrigation runoff is entirely from different areas of the region, with different urban development patterns, lithology and hydrology. No specific determination has been made by the Copermittees (or the Water Board) that irrigation runoff in the Santa Margarita Region has actually been shown to be significant source of pollutants to receiving waters in the SMR.

EPA, in the preamble to the federal MS4 regulations, required that a *permittee* must make a finding that the "irrigation water" discharges must be a "source of pollutants to waters of the United States . . . ." 55 Fed. Reg. 48037. Moreover, such discharges must represent a "significant" source of pollutants to waters of the United States "under certain conditions." U.S. EPA, *Guidance Manual for the Preparation of Part 2 of the NPDES Permit Application for Discharges from Municipal Separate Storm Sewer Systems,* November 1992 ("EPA Part 2 Guidance Manual"), at p. 6-33. These conditions require a focus not on an entire category of discharges, but rather a discharger-by-discharger examination.

In the MS4 regulatory preamble, EPA stated that "[i]n general, municipalities will not be held responsible for prohibited some specific components of discharges or flows listed below through their [MS4], even though such components may be considered non-storm water discharges, unless such discharges *are specifically identified on a case-by-case basis as needing to be addressed."* 55 Fed. Reg. 47995 (emphasis supplied). In the Guidance Manual, EPA states:

> If an applicant knows . . . that landscape irrigation water from a ***particular site*** flows through and picks up pesticides **or *excess*** nutrients from fertilizer applications, there may be a reasonable potential for a storm water discharge to result in a water quality impact. In such an event, the applicant should contact the NPDES permitting authority to request that the authority order ***the discharger*** . . . to obtain a separate NPDES permit (or in this case, the discharge could be controlled through the storm water management program of the MS4).

EPA Part 2 Guidance Manual, p. 6-33 (emphasis added). Read in this context of this language, the Water Board has no power greater than a municipality in terms of its ability to identify non-stormwater discharges as "illicit" and thus required to be regulated, and must identify specific discharges, and not entire categories of discharges. *See* 55 Fed. Reg. 48037. This has not been done in the Fact Sheet.

Provision E.3(c): This provision requires the Copermittees to compel development projects that may not result in a hydromodification impact to the applicable receiving waters, to implement on-site or "alternative compliance" hydromodification mitigation measures and to use using "pre-development (naturally occurring)" runoff reference condition as applied to sites that are, in fact, developed.

The Riverside County Copermittees are concerned that implementing these requirements would subject the Copermittees to liability under the takings clauses of the U.S. and California Constitutions as well as under the Mitigation Fee Act because of the questionable nexus between such a project's lack of actual hydromodification impacts upon the receiving waters, and the hydromodification management measures required in the Draft Permit.

When imposing a condition on a development permit, a local government is required under the federal and state constitutions to establish that the condition bears a reasonable relationship to the impacts of the development project. This rule applies even to legislatively enacted requirements and impact fees or exactions.[4] Moreover, fees imposed on a discretionary ad hoc basis are subject to heightened scrutiny under a two-part test. First, local governments must show that there is a substantial relationship between the burden created by the impact of development and any fee or exaction.[5] Second, a development project's impacts must bear a "rough proportionality" to any development fee or exaction.[6] Under California law, the *Nollan/Dolan* heightened scrutiny test also applies to in-lieu fees.[7]

The Legislature has memorialized these requirements in the Mitigation Fee Act, which establishes procedures that local governments must follow to impose impact fees.[8] Irrespective of whether the hydromodification management requirements are implemented by legislative act or on an ad hoc basis, the copermittees' attempt to enforce them as proposed in the Draft Permit would likely result in claims by developers and property owners alleging unconstitutional takings of private property and violations of the Mitigation Fee Act. This is because a developer could argue that limiting hydromodification impacts of already developed property to its "naturally occurring" state, or requiring hydromodification mitigation measures for impacts not imposed by the project, would not have a legally sufficient nexus to the impact of the development project.

In addition, the Copermittees wish to bring the Water Board's attention to a recent case, *Virginia Dept. of Transportation v. United States Environmental Protection Agency*, Civ. Action No.

[4] *Building Indus. Ass'n v. City of Patterson* (2009)171 Cal. App. 4th 886, 898.
[5] *Nollan v. California Coastal Comm'n*, 483 U.S. 825, 837 (1987).
[6] *Dolan v. City of Tigard*, 512 U.S. 374, 391 (1994).
[7] *Ehrlich v. City of Culver City* (1996) 12 Cal. 4th 854, 876.
[8] Cal. Gov't Code §§ 66000-66025.

1:12-CV-775 (E.D. Va. January 3, 2013) (slip op.), which is attached for the Water Board's convenience as Exhibit D. In this case, a federal district judge found that the CWA did not authorize U.S. EPA to regulate stormwater itself as a pollutant. The impact of this case is not known at this time, as it will probably be appealed to the Fourth Circuit Court of Appeals. Still, any approach to hydromodification which focuses on flows *per se*, as opposed to pollutants, may not withstand legal scrutiny.

Provision E.3.c.(3)(c)(i): This provision requires the entire alternative compliance in-lieu fee to be transferred to the copermittee or an escrow account prior to construction of a Priority Development Project (PDP). This provision is problematic, as development fees (which would include the in-lieu fees) are collected at the time of building permit issuance. In large-scale projects, permits may be issued (and development fees collected) in phases. Further, for master-planned developments, fees are generally negotiated through a development agreement to be collected based on certain development milestones. Therefore, collecting and holding the entire in-lieu fee prior to construction interferes with the development practice and may violate the Mitigation Fee Act and local development ordinances. The Redline requests that in-lieu fees be collected in accordance with state and local law.

Provision E.5: In addition to other comments on this provision and others in the Draft Permit relating to retrofitting, any requirements in Draft Permit relating to the retrofitting of engineered channels and other structures employed for flood control purposes must be consistent with the judgment of the flood control districts, to which the Legislature has assigned sole authority for the protection of the lives and property of their citizens from flooding. (Please see Comment Letter and proposed new findings in Redline for further discussion). Due to the urbanization of the counties over the past 150 years, as well as the particular topography and weather conditions found in Southern California, there is a great risk of flooding and hence the need for flood control structures and channels. The flood control districts have both the expertise and the sole legal authority to determine whether retrofitting of flood control structures can be accomplished in light of their statutory obligations, and that expertise and authority must be recognized in the Draft Permit.

Provision E.8: As noted in the Redline, the first requirement under Fiscal Analysis, that each "Copermittee must secure the resources necessary to meet all the requirements of this Order" has been deleted. This requirement is not found in the CWA regulations, which require only the conduct of a fiscal analysis. Moreover, this requirement intrudes on the home rule power of cities and counties by requiring, in essence, that municipal budgets must reflect the priority of compliance with the Order over any competing obligation, including police, fire protection and public health. A key issue in complying with stormwater and MS4 obligations is the ability of municipalities to afford the increasing costs associated with those obligations. In California, of course, the ability to raise taxes to pay for such obligations has been severely curtailed through several voter-approved propositions.

The Riverside County Copermittees request that Provision E.8.a be deleted.

EXHIBIT A

NPDES Permit No. DC0000221

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM MUNICIPAL SEPARATE STORM SEWER SYSTEM PERMIT

In compliance with the provisions of the Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*

Government of the District of Columbia
The John A. Wilson Building
1350 Pennsylvania Avenue, N.W.
Washington, D.C. 20004

is authorized to discharge from all portions of the municipal separate storm sewer system owned and operated by the District of Columbia to receiving waters named:

Potomac River, Anacostia River, Rock Creek and stream segments tributary to each such water body

in accordance with the Stormwater Management Program(s) dated February 19, 2009, subsequent updates, and related reports, strategies, effluent limitations, monitoring requirements and other conditions set forth in Parts I through IX herein.

The effective issuance date of this permit is: October 7, 2011.

This permit and the authorization to discharge shall expire at midnight, on: October 7, 2016.

Signed this 30th day of September, 2011.

Jon M. Capacasa, Director
Water Protection Division
U.S. Environmental Protection Agency
Region III

1. DISCHARGES AUTHORIZED UNDER THIS PERMIT

1.1 Permit Area

This permit covers all areas within the jurisdictional boundary of the District of Columbia served by, or otherwise contributing to discharges from, the Municipal Separate Storm Sewer System (MS4) owned or operated by the District of Columbia. This permit also covers all areas served by or contributing to discharges from MS4s owned or operated by other entities within the jurisdictional boundaries of the District of Columbia unless those areas have separate NPDES MS4 permit coverage or are specifically excluded herein from authorization under the District's stormwater program. Hereinafter these areas collectively are referred to as "MS4 Permit Area".

1.2 Authorized Discharges

This permit authorizes all stormwater point source discharges to waters of the United States from the District of Columbia's MS4 that comply with the requirements of this permit. This permit also authorizes the discharge of stormwater commingled with flows contributed by process wastewater, non-process wastewater, or stormwater associated with industrial activity provided such discharges are authorized under separate NPDES permits.

This permit authorizes the following non-stormwater discharges to the MS4 when appropriate stormwater activities and controls required through this permit have been applied and which are: (1) discharges resulting from clear water flows, roof drainage, dechlorinated water line flushing, landscape irrigation, ornamental fountains, diverted stream flows, rising ground waters, uncontaminated ground water infiltration to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation waters, springs, footing drains, lawn watering, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, wash water, fire fighting activities, and similar types of activities; and (2) which are managed so that water quality is not further impaired and that the requirements of the federal Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, and EPA regulations are met.

1.3 Limitations to Coverage

1.3.1 Non-stormwater Discharges

The permittee, as defined herein, shall effectively prohibit non-stormwater discharges into the MS4, except to the extent such discharges are regulated with an NPDES permit.

1.3.2 Waivers and Exemptions

This permit does not authorize the discharge of any pollutant from the MS4 which arises from or is based on any existing waivers and exemptions that may otherwise apply and are not consistent with the Federal Clean Water Act and other pertinent guidance, policies, and regulations. This narrative prohibition on the applicability of such waivers and exemptions extends to any activity that would otherwise be authorized under District law, regulations or

ordinance but which impedes the reduction or control of pollutants through the use of stormwater control measures and/or prevents compliance with the narrative /numeric effluent limits of this permit. Any such discharge not otherwise authorized may constitute a violation of this permit.

1.4 Discharge Limitations

The permittee must manage, implement and enforce a stormwater management program (SWMP) in accordance with the Clean Water Act and corresponding stormwater NPDES regulations, 40 C.F.R. Part 122, to meet the following requirements:

1.4.1. Effectively prohibit pollutants in stormwater discharges or other unauthorized discharges into the MS4 as necessary to comply with existing District of Columbia Water Quality Standards (DCWQS);

1.4.2. Attain applicable wasteload allocations (WLAs) for each established or approved Total Maximum Daily Load (TMDL) for each receiving water body, consistent with 33 U.S.C. § 1342(p)(3)(B)(iii); 40 C.F.R. § 122.44(k)(2) and (3); and

1.4.3. Comply with all other provisions and requirements contained in this permit, and in plans and schedules developed in fulfillment of this permit.

Compliance with the performance standards and provisions contained in Parts 2 through 8 of this permit shall constitute adequate progress toward compliance with DCWQS and WLAs for this permit term.

2. LEGAL AUTHORITY, RESOURCES AND STORMWATER PROGRAM ADMINSTRATION

2.1 Legal Authority

2.1.1 The permittee shall use its existing legal authority to control discharges to and from the Municipal Separate Storm Sewer System in order to prevent or reduce the discharge of pollutants to achieve water quality objectives, including but not limited to applicable water quality standards. To the extent deficiencies can be addressed through regulation or other Executive Branch action, the permittee shall remedy such deficiencies within 120 days. Deficiencies that can only be addressed through legislative action shall be remedied within 2 years of the effective date of this permit, except where otherwise stipulated, in accordance with the District's legislative process. Any changes to or deficiencies in the legal authority shall be explained in each Annual Report.

2.1.2 No later than 18 months following the effective date of this permit, the District shall update and implement Chapter 5 of Title 21 of District of Columbia Municipal Regulations (Water Quality and Pollution) ("updated DC Stormwater Regulations"), to address the control of stormwater throughout the MS4 Permit Area. Such regulations shall be consistent with this

FACT SHEET

National Pollutant Discharge Elimination System (NPDES)
Municipal Separate Storm Sewer System (MS4)
Permit No. DC0000221 (Government of the District of Columbia)

NPDES PERMIT NUMBER: DC0000221 (Reissuance)

FACILITY NAME AND MAILING ADDRESS:

Government of the District of Columbia
The John A. Wilson Building
1350 Pennsylvania Avenue, N.W.
Washington, D.C. 20004

MS4 ADMINISTRATOR NAME AND MAILING ADDRESS:

Director, District Department of the Environment
1200 First Street, N.E., 6th Floor
Washington, D.C. 20002

FACILITY LOCATION:

District of Columbia's Municipal Separate Storm Sewer System (MS4)

RECEIVING WATERS:

Potomac River, Anacostia River, Rock Creek, and Stream Segments Tributary
To Each Such Water Body

INTRODUCTION:

Today's action finalizes reissuance of the District of Columbia Municipal Separate Storm Sewer System (MS4) Permit. In the Final Permit EPA has continued to integrate the adaptive management approach with enhanced control measures to address the complex issues associated with urban stormwater runoff within the corporate boundaries of the District of Columbia, where stormwater discharges via the Municipal Separate Storm Sewer System (MS4).

Since the United States Environmental Protection Agency, Region III (EPA) issued the District of Columbia (the District) its first MS4 Permit in 2000, the Agency has responded to a number of legal challenges involving both that Permit (as well as amendments thereto) and the second-round MS4 Permit issued in 2004. For the better part of ten years, the Agency has worked with various parties in the litigation, including the District and two non-governmental organizations, Defenders of Wildlife and Friends of the Earth, to address the concerns of the various parties. The Agency has engaged in both litigation and negotiation, including formal

mediation.[1] These activities ultimately led to an enhanced stormwater management strategy in the District, consisting of measurable outputs for addressing the issues raised during the litigation and mediation process.

FACILITY BACKGROUND AND DESCRIPTION:

The Government of the District of Columbia owns and operates its own MS4, which discharges stormwater from various outfall locations throughout the District into its waterways.[2]

On April 21, 2010 EPA public noticed the Draft Permit. The Draft Fact Sheet published with that Draft Permit contains more extensive permit background information, and the reader is referred to that document for the history of the District of Columbia MS4 permit.

The public comment period closed on June 4, 2010. EPA received comments from 21 individual commenters and an additional 53 form letters. The Draft Permit, Draft Fact Sheet, and comments received on those documents are all available at: http://www.epa.gov/reg3wapd/npdes/draft_permits.html. The Final Permit reflects many of the comments received. EPA is simultaneously releasing a responsiveness summary responding to these comments.

ACTION TO BE TAKEN:

EPA is today reissuing the District of Columbia NPDES MS4 Permit. The Final Permit replaces the 2004 Permit, which expired on August 18, 2009 and has been administratively extended since that time. The Final Permit incorporates concepts and approaches developed from studies and pilot projects that were planned and implemented by the District under the 2000 and 2004 MS4 permits and modifying Letters of Agreement, and implements Total Maximum Daily Loads (TMDLs) that have been finalized since the prior permit was issued, including the Chesapeake Bay TMDL. A number of applicable measurable performance standards have been incorporated into the Final Permit. These and other changes between the 2004 Permit and today's Final Permit are reflected in a Comparison Document that is part of today's Permit issuance.

WATER QUALITY IN DISTRICT RECEIVING WATERS:

The District's *2008 Integrated Report to the Environmental Protection Agency and U.S. Congress Pursuant to Sections 305(b) and 303(d) Clean Water Act*[3] documents the serious water

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1 A procedural history of Permit appeals can be viewed at the EPA Environmental Appeals Board web: http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/77355bee1a56a5aa8525711400542d23/b5e5b68e89edabe98525714f00731c6f!OpenDocument&Highlight=2,municipal.

2 Portions of the District are served by a combined sanitary and storm sewer system. The discharges from the combined sewer system are not subject to the MS4 permit, but are covered under NPDES Permit No. xxxx issued to the District of Columbia Water and Sewer Authority.

3 District Department of the Environment, *The District of Columbia Water Quality Assessment, 2008 Integrated Report to the Environmental Protection Agency and U.S. Congress Pursuant to Sections 305(b) and 303(d) Clean Water Act* (hereinafter "2008 Integrated Report").

quality impairments in the surface waters in and around the District. A number of the relevant designated uses are not being met, *e.g.*, aquatic life, fish consumption, and full body contact, and there are a number of specific pollutants of concern that have been identified (for additional discussion on relevant TMDLs *see* Section 4.10 of this Final Fact Sheet).

Commenters on the Draft Permit expressed some frustration over very slow progress or even lack of progress after a decade of implementation of the MS4 program and even longer for other water quality programs. EPA appreciates this concern. Although the District's receiving waters are affected by a range of discharge sources, discharges from the MS4 are a significant contributor of pollutants and cause of stream degradation. EPA also recognizes, however, that stormwater management efforts that achieve a reversal of the ongoing degradation of water quality caused by urban stormwater discharges entail a long term, multi-faceted approach.

Consistent with the federal stormwater regulations for characterizing discharges from the MS4 (40 C.F.R. §122.26(d)(2)(iii)), the first two permit terms for the District's MS4 program required end-of-pipe monitoring to determine the type and severity of pollutants discharging via the system. The monitoring program was not designed to evaluate receiving water quality *per se*, therefore detection of trends or patterns was not reasonably possible. Today's Final Permit includes requirements for a Revised Monitoring Program, and one of the objectives for the program is to use a suite of approaches and indicators to evaluate and track water quality over the long-term (*see* discussion of Section 5.1 in this Final Fact Sheet).
There have been identified improvements in some areas. For example the *2008 Integrated Report* noted improvements in the diversity of submerged aquatic vegetation in the Potomac River, as well as improvements in fish species richness in Rock Creek. Biota metrics are often the best indicators of the integrity of any aquatic system.

EPA also notes that there are a variety of indirect measures indicative of improvement. The federal stormwater regulations foresaw the difficulty, especially in the near-term, of detecting measurable improvement in receiving waters, and relied instead on indirect measures, such as estimates of pollutant load reductions (40 C.F.R. §122.26(d)(2)(v)). The District documents these types of indirect measures in its annual reports, *e.g.*, tons of solids collected from catch basin clean-outs, amount of household hazardous waste collected, number of trees planted, square footage of green roofs installed, and many other measures of success.[4]

EPA believes that documenting trends in water quality, whether improvements, no change, or even further degradation, is an important element of a municipal water quality program. Today's Final Permit recognizes this principle, both in the types of robust measures required as well as the transition to new monitoring paradigms. EPA encourages all interested parties to provide the District with input during the development of these program elements.

THIS FACT SHEET:

(http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/information2/water.reg.leg/DC_IR_2008_Revised_9-9-2008.pdf)

4 District MS4 Annual Reports can be found at: http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,495855.asp

This Final Fact Sheet is organized to correspond with the chronological organization and numbering in today's Final Permit. Where descriptions or discussions may be relevant to more than one element of the Final Permit the reader will be referred to the relevant section(s).

To keep today's Final Fact Sheet of readable length, many of the elements included in the fact sheet published with the Draft Permit (Draft Fact Sheet) on April 21, 2010 have not been repeated, but are referenced. Readers are referred to the Draft Fact Sheet published with the Draft Permit for additional discussion on provisions that have been finalized as proposed.[5] The Final Fact Sheet does discuss significant changes since the 2004 Permit (even if discussed in the Draft Fact Sheet). The Final Fact Sheet also contains additional explanation of the Final Permit where commenters requested additional clarification. In addition, this Final Fact Sheet explains modifications to the Final Permit where provisions were changed in response to comments.

In many cases EPA made a number of very simple modifications to the Final Permit, *e.g.*, a word, phrase, or minor reorganization, simply for purposes of clarification. These modifications were not intended to change the substance of the permit provisions, only to clarify them. Most of those types of edits are not discussed in this Final Fact Sheet, but EPA has provided a Comparison Document of the Draft and Final Permits for readers who would like that level of detail.

Many commenters noted that the Draft Permit was not logically organized. EPA agrees. The major reorganization principles include:

1) There is a new Section 3, Stormwater Management Program (SWMP) Plan consolidating the various plans, strategies and other documents developed in fulfillment of permit requirements.
2) All implementation measures, *i.e.*, those stipulating management measures and implementation policies, are included in Section 4 of today's Final Permit. This includes "Source Identification" elements (Section 3 in the Draft Permit) and "Other Applicable Provisions" elements (Section 8 in the Draft Permit), which included TMDL requirements.
3) All monitoring requirements are consolidated in Section 5 of the Final Permit.
4) All reporting requirements are consolidated in Section 6 of the Final Permit.

EPA also refers readers to the Responsiveness Summary released today along with the Final Permit and Final Fact Sheet, for responses to comments and questions received on the Draft Permit. That document contains additional detailed explanations of the rationale for changes made to the Draft Permit in the Final Permit.

Finally, EPA made significant effort to avoid appending or incorporating by reference other documents containing permit requirements into the Final Permit. In the interest of clarity

5 The Permit and Fact Sheet proposed on April 21, 2010 can be viewed at: http://www.epa.gov/reg3wapd/npdes/draft_permits.html

and transparency EPA, to the extent possible, has included all requirements directly in the permit. Thus, EPA reviewed a variety of documents with relevant implementation measures, *e.g.*, TMDL Implementation Plans and the 2008 Modified Letter of Agreement to the 2004 permit[6], and translated elements of those plans and strategies into specific permit requirements that are now contained in the Final Permit. This Fact Sheet provides an explanation of the sources of provisions that are significant and are a direct result of one of those strategies.

1. DISCHARGES AUTHORIZED UNDER THIS PERMIT

(1.2 Authorized Discharges): The Final Permit authorizes certain non-stormwater discharges, including discharges from water line flushing. One commenter noted that many of these discharges, especially from potable water systems, contain concentrations of chlorine that may exceed water quality standards. EPA agrees, and has therefore clarified that dechlorinated water line flushing is authorized to be discharged under the Final Permit.

(1.4 Discharge Limitations): Comments on the language in Part 1.4 varied widely. Some commenters did not believe it was reasonable to require discharges to meet water quality standards. Other commenters believed this to be an unambiguous requirement of the Clean Water Act.

Today's Final Permit is premised upon EPA's longstanding view that the MS4 NPDES permit program is both an iterative and an adaptive management process for pollutant reduction and for achieving applicable water quality standard and/or total maximum daily load (TMDL) compliance. *See generally,* "National Pollutant Discharge Elimination System Permit Application Regulations for Stormwater Discharges," 55 F.R. 47990 (Nov. 16, 1990).

EPA is aware that many permittees, especially those in highly urbanized areas such as the District, likely will be unable to attain all applicable water quality standards within one or more MS4 permit cycles. Rather the attainment of applicable water quality standards as an incremental process is authorized under section 402(p)(3)(B)(iii) of the Clean Water Act, 33 U.S.C. § 1342(p)(3)(B)(iii), which requires an MS4 permit "to reduce the discharge of pollutants to the maximum extent practicable" (MEP) "and such other provisions" deemed appropriate to control pollutants in municipal stormwater discharges. To be clear, the goal of EPA's stormwater program is attainment of applicable water quality standards, but Congress expected that many municipal stormwater dischargers would need several permit cycles to achieve that goal.

Specifically, the Agency expects that attainment of applicable water quality standards in waters to which the District's MS4 discharges, requires staged implementation and increasingly more stringent requirements over several permitting cycles. During each cycle, EPA will continue to review deliverables from the District to ensure that its activities constitute sufficient progress toward standards attainment. With each permit reissuance EPA will continue to increase

6 District Department of the Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF

stringency until such time as standards are met in all receiving waters. Therefore today's Final Permit is clear that attainment of applicable water quality standards and consistency with the assumptions and requirements of any applicable WLA are requirements of the Permit, but, given the iterative nature of this requirement under CWA Section 402(p)(3)(B)(iii), the Final Permit is also clear that "compliance with all performance standards and provisions contained in the Final Permit shall constitute adequate progress toward compliance with DCWQS and WLAs for this permit term" (Section 1.4).

EPA believes that permitting authorities have the obligation to write permits with clear and enforceable provisions and thus the determination of what is the "maximum extent practicable" under a permit is one that must be made by the permitting authority and translated into provisions that are understandable and measurable. In this Final Permit EPA has carefully evaluated the maturity of the District stormwater program and the water quality status of the receiving waters, including TMDL wasteload allocations. In determining whether certain measures, actions and performance standards are practicable, EPA has also looked at other programs and measures around the country for feasibility of implementation. Therefore today's Final Permit does not qualify any provision with MEP thus leaving this determination to the discretion of the District. Instead each provision has already been determined to be the maximum extent practicable for this permit term for this discharger.

EPA modified the language in the Final Permit to provide clarity on the expectations consistent with the preceding explanation. Specifically Section 1.4.2 of the Final Permit requires that discharges 'attain' applicable wasteload allocations rather than just 'be consistent' with them, since the latter term is somewhat ambiguous.

In addition, the general discharge limitation 'no increase in pollutant loadings from discharges from the MS4 may occur to receiving waters' was removed because of the difficulty in measuring, demonstrating and enforcing this provision. Instead, consistent with EPA's belief that the Final Permit must include all of the enforceable requirements that would achieve this principle, the following discharge limitation is substituted: "comply with all other provisions and requirements contained in this permit, and in plans and schedules developed in fulfillment of this permit."

In addition, EPA made the following modifications: "Compliance with the performance standards and provisions contained in Parts 2 through 8 of this permit shall constitute adequate progress towards compliance with DCWQS and WLAs for this permit term" (*underlined text added*) (Section 1.4 of the Final Permit). EPA eliminated circularity with the addition of "Parts 2 through 8", clarifying that this requirement does not circle back to include the statements in 1.4.1 and 1.4.2, but rather interprets them. Also, although WLAs are a mechanism for attainment of water quality standards, EPA added the specific language "and WLAs" to make this concept explicit rather than just implicit. In addition this revised language emphasizes that the specific measures contained in the Final Permit, while appropriate for this permit term, will not necessarily constitute full compliance in subsequent permit terms. It is the expectation that with each permit reissuance, additional or enhanced requirements will be included with the objective

of ensuring that MS4 discharges do not cause or contribute to an exceedance of applicable water quality standards, including attainment of relevant WLAs.

2. LEGAL AUTHORITY, RESOURCES, AND STORMWATER PROGRAM ADMINISTRATION

(2.1 Legal Authority): Several commenters pointed out that there were a number of requirements in the Draft Permit without clear compliance schedules or deadlines, or with deadlines that did not correspond well to others in the permit. In the Final Permit, EPA has made several revisions to address these comments. For example, EPA changed a requirement that deficiencies in legal authority must be remedied "as soon as possible" to a 120-day requirement for deficiencies that can be addressed through regulation, and two years for deficiencies that require legislative action (Section 2.1.1). Also, EPA increased the compliance schedule for updating the District's stormwater regulation from twelve months to eighteen months, *id.,* so that this action could be adequately coordinated with the development of the District's new offsite mitigation/payment-in-lieu program (for more discussion see Section 4.1.3 below).

(2.2 Fiscal Resources): One commenter suggested eliminating the reference to the District's Enterprise Fund since funding was likely to come from a number of different budgets within the District. EPA agrees with this comment and has removed this reference.

On the other hand, many commenters noted that the implementation costs of the District's stormwater program will be significant. EPA agrees. The federal stormwater regulations identify the importance of adequate financial resources [40 C.F.R. §122.26(d)(1)(vi) and (d)(2)(vi)]. In addition, after seeing notable differences in the caliber of stormwater programs across the country, EPA recognizes that dedicated funding is critical for implementation of effective MS4 programs.[7,8,9] In 2009 the District established, and in 2010 revised, an impervious-based surface area fee for service to provide core funding to the stormwater program[10] (understanding that stormwater-related financing may still come from other sources as they fulfill multiple purposes, *e.g.,* street and public right-of-way retrofits). In conjunction with the 2010 rule-making to revise the fee the District issued a Frequently Asked Questions document[11] that indicates the intent to restrict this fee to its original purpose, *i.e.,* dedicated funding to implement the stormwater program and comply with MS4 permit requirements. EPA believes this action is essential, and he expects that the District will maintain a dedicated source of funding for the stormwater program.

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7 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

8 National Association of Flood and Stormwater Agencies, Funded by EPA, *Guidance for Municipal Stormwater Funding* (2006) http://www.nafsma.org/Guidance%20Manual%20Version%202X.pdf

9 EPA, *Funding Stormwater Programs* (2008) http://www.epa.gov/npdes/pubs/region3_factsheet_funding.pdf

10 District of Columbia, Rule 21-566 Stormwater Fees, http://www.dcregs.dc.gov/Gateway/RuleHome.aspx?RuleID=474056

11 District of Columbia, FAQ Document *Changes to the District's Stormwater Fee* (2010) http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/information2/water_reg_leg/Stormwater_Fee_FAQ_10-5-10_-final.pdf

EXHIBIT B

State Water Resources Control Board

Issue Paper
Municipal Storm Water Permit Receiving Water Limitations
Board Workshop
November 20, 2012

ISSUE:

The State Water Resources Control Board (State Water Board) has been asked, in public comments received on National Pollutant Discharge Elimination System (NPDES) permits for Municipal Separate Storm Sewer Systems (MS4s), to adopt permit provisions that create a partial or complete exemption from enforcement for violations of water quality standards while a discharger engages in an iterative process of improving controls (commonly referred to as a "safe harbor" provision). The State Water Board has scheduled a public workshop to consider the issue.

DISCUSSION:

Background:

The Clean Water Act generally requires NPDES permits to include technology-based effluent limitations and any more stringent limitations necessary to meet water quality standards. In the context of NPDES permits for MS4s, however, the Clean Water Act does not reference the requirement to meet water quality standards. MS4 discharges must meet a technology-based standard of reducing pollutants in the discharge to the Maximum Extent Practicable (MEP), but requirements to meet water quality standards are at the discretion of the permitting agency.[1] Further, under the Porter-Cologne Water Quality Control Act, waste discharge requirements must implement applicable water quality control plans, including water quality objectives; however, the Porter-Cologne Act also affords the State Water Board and regional water quality control boards (collectively, Water Boards) flexibility to consider other factors, such as economics, when establishing any NPDES permit requirements that are more stringent than required by the Clean Water Act.[2]

The State Water Board has exercised its discretion with regard to requiring compliance with water quality standards in MS4 permits by directing, in precedential orders, that MS4 permits contain provisions requiring discharges to be controlled so as not to cause or contribute to exceedances of water quality standards in receiving waters.[3] However, consistent with federal

[1] 33 U.S.C. § 1342(p); *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159.

[2] Wat. Code, §§ 13241, 13263; *City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613.

[3] SWRCB Order WQ 98-01 (*Environmental Health Coalition*), WQ 99-05 (*Environmental Health Coalition)*.

law, the State Water Board has found it appropriate to implement Best Management Practices (BMPs) in lieu of numeric water quality-based effluent limitations to meet water quality standards.[4] Additionally, in lieu of "strict compliance" with water quality standards, the State Water Board has prescribed an iterative process whereby an exceedance of a water quality standard triggers a process of BMP improvements: reporting of the violation, submission of a report describing proposed improvements to BMPs expected to better meet water quality standards, and implementation of these new BMPs.

While the Water Boards have generally directed dischargers to achieve compliance with water quality standards by improving control measures through the iterative process, the iterative process does not provide a "safe harbor" to MS4 permittees: that is, when a discharger is shown to be causing or contributing to an exceedance of water quality standards, that discharger is in violation of the relevant discharge prohibitions and receiving water limitations of the permit and potentially subject to enforcement by the Water Boards or through a citizen suit, even if the discharger is actively engaged in the iterative process. Despite the lack of a safe harbor provision, however, the Water Boards have, as a matter of practice, declined to initiate enforcement actions against MS4 permittees who have been actively engaged in the iterative process. The Water Boards' decisions to decline to include a safe harbor in MS4 permits have been upheld by courts of appeal.[5]

Need for and Purpose of Workshop:

The lack of a safe harbor in the iterative process was recently highlighted by the Ninth Circuit's decision in a citizen suit brought by the Natural Resources Defense Council (NRDC) against the County of Los Angeles and the Los Angeles County Flood Control District for violations of the receiving water limitations of their MS4 permit. The Ninth Circuit confirmed that, as the receiving water limitations of the Water Boards' MS4 permits are currently drafted, engagement in the iterative process does not excuse liability for violations of water quality standards.[6]

As the storm water management programs of municipalities have matured, an increasing body of monitoring data indicates that water quality standards are in fact not being met by many MS4s. MS4s accordingly assert that the receiving water limitations and iterative process provisions of the Water Boards' permits do not afford them with a viable path to compliance for these violations, which may take years of technical efforts to correct, especially for wet weather discharges. MS4s argue that they are increasingly vulnerable to citizen suits and/or Water Board enforcement. This concern has been raised by the California Stormwater Quality Association (CASQA) in comments on the proposed Phase II MS4 permit and by the California Department of Transportation (Caltrans) in comments on the Caltrans MS4 permit adopted

[4] *See* SWRCB Orders WQ 91-03 (*Citizens for a Better Environment)*, WQ 98-01 (*Environmental Health Coalition*), WQ 2001-15 (*Building Industry Association of San Diego County*); *See also* 40 C.F.R. § 122.44(k); Interim Permitting Approach for Water Quality-Based Effluent Limitations In Storm Water Permits, USEPA, September 1995. In such orders and guidance, the State Water Board and Environmental Protection Agency acknowledge that the storm water program may evolve over time to incorporate stricter limitations, including improved BMPs to meet water quality standards or numeric water quality based effluent limitations.

[5] *Building Industry Assn. of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866; *City of Rancho Cucamonga v. Regional Water Quality Control Bd.* (2006) 135 Cal.App.4th 1377; see also *Natural Resources Defense Council v. County of Los Angeles* (9th Cir. 2011) 673 F.3d 880, 897, n.7.

[6] *Natural Resources Defense Council v. County of Los Angeles, supra*, 673 F.3d at p. 897. On July 13, 2012, the United States Supreme Court granted review of this case on other grounds.

September 19, 2012, as well as by numerous MS4s and interested persons in comments on both permits. The issue is additionally relevant to the Phase I MS4 permits issued by the regional water quality control boards.[7]

At the same time, the environmental community has commented that the iterative process has been underutilized and ineffective to date in bringing MS4 discharges into compliance with water quality standards. Environmental parties argue that direct enforcement of water quality standards is necessary to protect water quality, especially in such second- or third-generation permits where dischargers have already had a number of years to come into compliance.

Because of the broad applicability of any policy decisions regarding the receiving water limitations and iterative process provisions, the State Water Board is holding a public workshop to consider several alternatives in addressing the issue and to seek public input on these alternatives. Following the workshop, the State Water Board may propose revisions to the receiving water limitations in the Caltrans MS4 and Phase II MS4 permits, and as necessary, re-open those permits after public review and comment, to make the revisions.

ALTERNATIVES FOR CONSIDERATION:

The State Water Board may consider the alternatives below, individually or in combination, to address concerns with the receiving water limitations in the Caltrans or Phase II MS4 permits. While the listed alternatives attempt to capture the range of alternatives before the State Water Board, the Board welcomes comments proposing other options and will not be limiting its consideration to the alternatives as listed in this issue paper.

The receiving water limitations language prescribed by State Water Board Order WQ 99-05 is attached as Attachment 1 and forms the basis of Alternative 1. CASQA has submitted specific proposed language for the Receiving Water Limitations provision of the proposed Phase II MS4 permit (CASQA Proposal). The CASQA Proposal is attached as Attachment 2 and is referenced as appropriate in the discussion of the alternatives below.

Alternative 1: Keep the status quo of no safe harbor.

This alternative makes no changes to the existing State Water Board approach or to the current language of the adopted Caltrans MS4 permit or the proposed Phase II MS4 permit. As stated previously, the current MS4 permit provisions laying out the iterative process are based on language set forth in precedential State Water Board orders. (See Attachment 1.) Alternative 1 adheres to the prescribed language. Under this alternative, the Water Boards may choose to exercise their enforcement discretion to refrain from taking action against dischargers engaged in good faith implementation of the iterative process; however, they would not be constrained from enforcing the receiving water limitations when an MS4 causes or contributes to exceedances of water quality standards. As a limitation within an NPDES permit, dischargers who cause or contribute to an exceedance of water quality standards could be subject to citizen suits.

[7] Note that the issue is not relevant to any other NPDES permits, including permits for storm water discharges associated with industrial activity, because all other NPDES permits must include technology-based effluent limitations and any more stringent limitations necessary to meet water quality standards. (33 U.S.C. § 1311(b)(1)(C).)

Alternative 2: No safe harbor, but provide greater clarity and specificity for iterative process implementation and wet weather data analysis.

Greater clarity and specificity in the MS4 permits as to the iterative process requirements may result in increased efforts to improve controls and achieve compliance. Such clarity and specificity may include:

1. Clarification on how compliance with the relevant discharge prohibitions and receiving water limitations is determined, including type and frequency of monitoring;
2. Clarification that dischargers must begin the iterative process after documentation of violations without waiting to be directed to do so by the Water Boards;
3. Specification of the minimum efforts that will constitute meaningful compliance with the iterative process;
4. Specification of the scope of any corrective action, including whether it applies only at the location where exceedances are measured or throughout the relevant watershed;
5. Specification of additional wet weather data analysis to better define and assess the impact of municipal storm water discharges on receiving waters, as well as the efficacy of specific best management practices.

As the MS4 program continues to mature and more data becomes available, this alternative may be enhanced by the development of water quality-based effluent limitations for pollutants, as appropriate, as a means of determining compliance with receiving water limitations. In addition, the enhanced wet weather data could be used to identify surrogates that could be used as a measure of protecting beneficial uses. In time, the data could be used to develop actual wet weather water quality standards or wet weather implementation provisions for existing water quality standards that could be applied consistently on a statewide basis.

Given the nature of storm water discharges and of MS4s, questions such as where and how compliance with water quality standards should be measured and how narrowly or broadly corrective actions should be applied, pose complicated technical issues that require careful study and consideration. These challenges notwithstanding, water quality improvements are more likely to be achieved as the iterative process becomes automatic and dischargers follow clear guidelines for determining and addressing non-compliance with permit terms. Such improvements may dissuade the Water Boards and the public from bringing enforcement actions/citizen suits for all except the most egregious and repeated violations.

In addition to being a stand-alone alternative, Alternative 2 may be considered in combination with Alternatives 3 through 5. The CASQA Proposal incorporates some greater specificity in the iterative process requirements as a component of its proposed receiving water limitations.

Alternative 3: Safe harbor that applies only if a discharger is in compliance with the implementation provisions of an approved TMDL.

Under Alternative 3, the receiving water limitations would be amended to provide a safe harbor for permittees that are in compliance with the implementation provisions of a TMDL. In effect, as long as the permittee is in compliance with the TMDL (including any compliance schedule) the terms of the TMDL would replace the requirement to comply with water quality standards for the pollutants that are covered by the TMDL.

The CASQA Proposal contemplates a safe harbor for dischargers in compliance with a TMDL as a component of the receiving water limitations.

Alternative 4: Safe harbor that applies if a discharger is in compliance with the implementation provisions of an approved TMDL, as in Alternative 3, and, in addition, that applies when the discharger engages in good faith compliance with the iterative process for exceedances caused by wet weather discharges.

In addition to the safe harbor for TMDL implementation, Alternative 4 would provide a safe harbor when dischargers engage in the iterative process in good faith to address violations of permit terms caused by wet weather discharges. Thus, if a storm water discharge from an MS4 is causing or contributing to an exceedance of a water quality standard in the receiving water, the exceedance would not constitute a violation of the permit as long as the discharger was engaged in good faith efforts to address the exceedance through improved controls. Alternative 4 recognizes that wet weather discharges from MS4s frequently cause or contribute to violations of water quality standards and allows the MS4s time to address these violations by improving control measures.

However, the safe harbor would not extend to dry weather discharges. Non-storm water discharges are generally prohibited in MS4 permits and only a few categories of non-storm water discharges are exempted from the prohibition, with the condition that these exempted discharges also be prohibited if they are identified as sources of pollutants to receiving waters.

Alternative 5: Full safe harbor.

This alternative would provide a full safe harbor to dischargers complying with the implementation provisions of a TMDL or engaging in the iterative process to address exceedances caused by wet or dry weather discharges.

The CASQA Proposal attached provides for a full safe harbor.

Attachments Removed

EXHIBIT C

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RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

November 13, 2012

Honorable Members of the State Water Resources Control Board
Attn: Ms. Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Dear Honorable Board Members and Ms. Townsend: Re: Comment Letter – Receiving Water Limitations Language Workshop

I am writing on behalf of the Riverside County Flood Control and Water Conservation District ("District") regarding the State Water Resources Control Board's consideration of Receiving Water Limitations ("RWL") language in MS4 permits. This review was triggered by a decision of the Ninth Circuit United States Court of Appeals in *Natural Resources Defense Council v. County of Los Angeles* (9th Cir. 2011) 673 F.3d 880, *cert granted,* __ U.S. __ (June 25, 2012) ("*NRDC*"). This letter is being submitted in advance of the State Board's November 20, 2012 workshop on reform of the RWL language to be incorporated into MS4 permits as a matter of statewide policy.

The District is the Principal Permittee for three Phase I MS4 permits applicable to municipalities across Riverside County: Order R8-2010-0033, issued by the Santa Ana Regional Water Board to municipalities within the Santa Ana River Region of Riverside County; Order R9-2010-016, issued by the San Diego Regional Water Board to municipalities within the Santa Margarita Region of Riverside County; and Order R7-2008-0001, issued by the Colorado River Regional Water Board to municipalities within the Whitewater River Region of Riverside County. Given our unique perspective as the manager of three Phase 1 MS4 permits, the District and its staff thus, have considerable experience and expertise in developing and administering MS4 permits, and a keen understanding of the issues that the above mentioned court case creates.

The District strongly supports reform of the RWL language to make clear the State Board's often-expressed intention that MS4 Permittees' compliance with RWL be effectuated through an iterative process. However, under the Ninth Circuit's interpretation, any MS4 discharge that causes or contributes to an exceedance of a Water Quality Standard subjects the MS4 Permittee to civil penalty liability, injunctive relief and the payment of attorneys' fees in an action brought by a citizen plaintiff, even where the Permittee is fully implementing the programmatic requirements of their MS4 Permit.

The District supports the California Stormwater Quality Association's ("CASQA") efforts to obtain RWL language that ensures that the iterative process favored by the State Board is honored. The District also supports the comments of the California State Association of Counties, and believes the proposed RWL language attached to those comments is a step in the right direction.

This letter contains additional District comments about the RWL language and the iterative process. We believe that they are best expressed in terms of correcting misperceptions regarding the current RWL language, as interpreted by the Ninth Circuit.

Misperception Number One: Strict compliance with Water Quality Standards is required of MS4 Permittees by the Clean Water Act.

The Clean Water Act provides that MS4 discharges must control pollutants in discharges from the MS4 to the "Maximum Extent Practicable" (33 U.S.C. § 1342(p)(3)(B)(iii)). Unlike the case with other NPDES Permittees, the Clean Water Act does not require that municipalities strictly comply with Water Quality Standards, as determined by the Ninth Circuit in *Browner v. Defenders of Wildlife*. The State Board's own precedential Order WQ 2001-15 recognizes this fact and states that the RWL language was intended to be consistent with the *Browner* case. In that Order, which interpreted RWL language similar to that in *NRDC*, the Board stated:

> *[O]ur language, similar to the U.S. EPA's permit language discussed in the Browner case, does not require strict compliance with water quality standards. Our language requires that storm water management plans be designed to achieve compliance with water quality standards. Compliance is to be achieved over time, through an iterative approach requiring improved BMPs. As pointed out by the Browner court, there is nothing inconsistent between this approach and the determination that the Clean Water Act does not mandate strict compliance with water quality standards.* [*Order WQ 2001-15 at 7 (emphasis added)].*

Unfortunately, the Ninth Circuit completely disregarded this language, and the Order, in holding that strict compliance was required of MS4 Permittees.

USEPA itself has issued MS4 permits (in non-delegated states) that do not contain RWL language requiring strict compliance with Water Quality Standards. Therefore, it is clear that such compliance is not required by the Clean Water Act nor is such compliance established by USEPA policy. The most prominent example of a recent MS4 permit promulgated by USEPA is that for the District of Columbia ("DC Permit") (relevant portions of which are attached as Exhibit A), which was adopted in 2011.

Part 1.4 of the DC Permit contains the requirements relating to Water Quality Standards and provides, in relevant part: "Compliance with the performance standards and provisions contained in Parts 2 through 8 of the permit shall constitute adequate progress towards compliance with DCWQS [water quality standards] and WLAs [established under TMDLs] for this permit term." The DC Permit Fact Sheet explains the rationale for that language as follows [DC Permit Fact Sheet, Pages 5-6, emphasis added, attached as Exhibit B]:

> *Comments on the language in Part 1.4 varied widely. Some commenters did not believe it was reasonable to require discharges to meet water quality standards. Other commenters believed this to be an unambiguous requirement of the Clean Water Act.*

Today's Final Permit is premised upon **EPA's longstanding view that the MS4 NPDES permit program is both an iterative and an adaptive management process for pollutant reduction and for achieving applicable water quality standard and/or total maximum daily load (TMDL) compliance.** *See generally, "National Pollutant Discharge Elimination System Permit Application Regulations for Stormwater Discharges," 55 F.R. 47990 (Nov. 16, 1990).*

EPA is aware that many Permittees, especially those in highly urbanized areas such as the District, likely will be unable to attain all applicable water quality standards within one or more MS4 permit cycles. *Rather the attainment of applicable water quality standards* **as an incremental process** *is authorized under section 402(p)(3)(B)(iii) of the Clean Water Act, 33 U.S.C. § 1342(p)(3)(B)(iii), which requires an MS4 permit "to reduce the discharge of pollutants to the maximum extent practicable" (MEP) "and such other provisions" deemed appropriate to control pollutants in municipal stormwater discharges.* **To be clear, the goal of EPA's stormwater program is attainment of applicable water quality standards, but Congress expected that many municipal stormwater dischargers would need several permit cycles to achieve that goal.**

Specifically, the Agency expects that attainment of applicable water quality standards in waters to which the District's MS4 discharges, requires staged implementation and increasingly more stringent requirements over several permitting cycles. During each cycle, EPA will continue to review deliverables from the District to ensure that its activities constitute sufficient progress toward standards attainment. With each permit reissuance EPA will continue to increase stringency until such time as standards are met in all receiving waters. **Therefore today's Final Permit is clear that attainment of applicable water quality standards and consistency with the assumptions and requirements of any applicable WLA are requirements of the Permit, but, given the iterative nature of this requirement under CWA Section 402(p)(3)(B)(iii), the Final Permit is also clear that "compliance with all performance standards and provisions contained in the Final Permit shall constitute adequate progress toward compliance with DCWQS and WLAs for this permit term" (Section 1.4).**

USEPA is now proposing clarifying changes to this language and to other sections of the DC Permit as the result of a settlement with various parties. However, those changes do not require strict compliance with Water Quality Standards, but rather compliance through the programs developed under the Permit.

The State Board is thus, free to adopt new RWL language that effectuates its previously expressed intent that MS4 permits not require strict compliance with Water Quality Standards with regard to contributions from discharges from MS4s.

Misperception Number Two: The MS4 Permittees are Seeking a "Safe Harbor" that would Insulate them from Responsibility Under the Clean Water Act.

While State Board staff's "Issue Paper" uses the term "safe harbor" in describing the iterative process, the District believes that this is fundamentally misleading. Even a cursory review of the terms of a typical MS4 permit in California reveals that it is full of compliance points. In the three MS4 Permits in which the District serves as Principal Permittee, literally every sentence is a separate point of compliance.

This fact is supported by the language of the Permits themselves. For example, in Order R8-2010-0033 Part XX.G provides: **"The Permittees must comply with all terms, requirements, and conditions of this Order. Any violation of this Order constitutes a violation of the CWA, its regulations and the California Water Code, and is grounds for enforcement action . . . ."** (emphasis added). Similar provisions are contained in the other two Riverside County MS4 Permits. Even without the strict Water Quality Standard language imposed under the Ninth Circuit's opinion, there is no "safe harbor" from liability under the Clean Water Act or, where applicable, the California Water Code, for any Permittee that fails to fully implement each the detailed and prescriptive requirements of its MS4 Permit.

There is a fundamental difference however, between fully complying with activities within the control and responsibility of the Permittees, such as monitoring, implementing BMPs and performing other programmatic requirements of the MS4 Permit; and being forced to guarantee that MS4 discharges will not cause or contribute to exceedances of Water Quality Standards in Receiving Waters, a guarantee that the Permittees' have no ability to make.

What the District and other MS4 Permittees seek is relief from what is essentially "guaranteed non-compliance" where a Permittee can be found in violation of their MS4 Permit even if the exceedance occurs at no fault of or failure by the Permittee, or put another way, even in circumstances where there is nothing a Permittee could have done to prevent that exceedance from occurring. In such a case, the Permittee can be held liable for potentially millions of dollars in legal costs, penalties and other expenses. We note that the City of Malibu, a city of only 13,000 residents, spent more than $2 million in defending against a citizen suit filed with respect to its MS4 Permit and more than $6 million to settle the case, including payment of $750,000 in attorney fees to plaintiffs. Given the tremendous financial challenges faced by every California municipality, including the District, the County of Riverside and the Permittee cities within the County, such a diversion of resources that otherwise would be directed at clean water programs or other vital municipal programs is a poor policy choice. And, as noted, it is not a policy choice that is required by the Clean Water Act, nor is it required by USEPA in their own Permits.

The District recognizes that regulatory enforcement actions and citizen suits are authorized by the Clean Water Act and that such suits may be an appropriate remedy where, for example, a Permittee has failed to comply with the programmatic requirements of its MS4 Permit. Where, however, the Permittees are complying with those requirements in good faith but, due to circumstances beyond

their control, their MS4 discharge causes or contributes to a Water Quality Standard exceedance in Receiving Waters, a citizen suit based on those exceedances potentially throws away the work done by the Permittees and the Water Boards under the MS4 Permit, as discussed below.

Misperception Number Three: MS4 can achieve compliance with strict Water Quality Standards.

MS4 Permittees cannot guarantee that discharges from their MS4s will in fact, not cause or contribute to an exceedance of Water Quality Standards in a Receiving Water. The monitoring conducted under our MS4 Permits reflects exceedances of various Water Quality Standards in Receiving Waters, and we understand that such results are typical for MS4 discharges around the state (please see Pages 2-3 of the CASQA comment letter dated November 2, 2012). The extreme variability of stormwater quality and quantity itself (which, in Southern California, arrives infrequently and from widely varying storm sizes) combined with a multitude of potential pollutant sources beyond a Permittee's ability to truly "control", make it impossible for a municipality to ensure that no discharges from its MS4 will ever cause or contribute to exceedances of Water Quality Standards in Receiving Waters. This was recognized by the Issue Paper released by State Board staff in preparation for the November 20th workshop, which found that as "the storm water management programs of municipalities have matured, **an increasing body of monitoring data indicates that water quality standards are in fact not being met by many MS4s**" (Issue Paper, Page 2 (emphasis supplied)).

Thus, even if municipal Permittees are to be held strictly liable for the ensuring that no discharges from their MS4s cause or contribute to an exceedance of Water Quality Standards, as the Ninth Circuit has interpreted the current RWL language, those Permittees have no ability to attain those standards. The reasons are several-fold and include the following:

1) Unlike an industrial NPDES Permittee, a municipal Permittee is not typically the source of the pollutants in the MS4 discharge (whether wet or dry). The municipality can regulate sources to some degree (through, for example, the operation of structural and non-structural BMPs and implementation of an Illegal Connection/Illicit Discharge program), but the municipality cannot guarantee that pollutants will not enter the MS4 and then be discharged into the Receiving Waters.

2) Municipalities cannot control natural sources of pollutants that are discharged through the MS4. Monitoring has indicated that many pollutants are likely from natural and not anthropogenic sources.

3) While Permittees conduct extensive public education programs as part of their MS4 programs, municipalities cannot "control" human behavior, or "prevent" an individual from taking an action that might cause pollution to enter the MS4. As an example, a resident may, despite all ordinances, regulations, potential penalties or enforcement, public outreach, available BMPs, etc., choose not to pick up after their pets, and

stormwater may, through no fault of the Permittee, pick up animal waste and deposit into the MS4.

4) MS4 Permittees cannot "prevent" flows from entering their MS4. To protect the health and property of their residents, MS4 operators must allow the legitimate flows of water into their drains. This is especially true for the District, which is charged directly by the Legislature [in Water Code App. §48-9] with the task of taking necessary steps to protect the people, properties and watersheds of Riverside County from the negative impacts of flooding. The District cannot, in effect, cause flooding by preventing flows from entering their storm drain, simply because such flows may contain pollutants that cause a violation of the Receiving Waters Limitation provisions of their MS4 Permits. In fact, California law requires downstream property owners (such as MS4 operators) to accept flows from upstream property owners.

5) Further, the authorities granted to flood control districts, such as this District, by the Legislature are narrow and do not include the authority to condition or regulate the quality or nature of stormwater runoff discharged from up gradient properties. This responsibility is appropriately assigned by the Legislature to the Regional Boards.

Similarly, MS4 Permittees cannot guarantee compliance with Water Quality Standards in dry weather. "Alternative 4" in the staff's Issue Paper suggests an alternative RWL approach that would not extend the iterative approach to dry weather discharges. The District submits that this alternative does not reflect the reality of urban runoff. Monitoring conducted under the Riverside County MS4 Permits reflects exceedances of Water Quality Standards during dry weather as well as wet weather. There is no justification for imposition of strict liability for exceedances during such conditions, for the following reasons:

1) During dry weather, other NPDES-permitted discharges continue to flow into the Receiving Waters. For example, much of the flow in the Santa Ana River during dry weather conditions is from non-MS4 sources, such as publicly owned treatment works. Additionally, numerous other separate NPDES-permitted discharges will occur, potentially at concentrations of pollutants that exceed Water Quality Standards. Evidence generated during the *NRDC* case involving the County of Los Angeles, for example, indicated that NPDES permits covering hundreds of these dischargers, including POTWs allowed the discharge of pollutants at concentrations *greater* than Water Quality Standards. Because of these discharges, which are legal and authorized by the Regional Boards, the MS4 Permittees have essentially no more control over compliance with Water Quality Standards in dry weather than they would have during wet weather conditions.

2) Accidental or even intentional illicit discharges by third parties into the MS4 obviously can occur during dry weather as well as wet weather. Such discharges would potentially have an even greater impact on sampling, since they are not diluted by large volumes of stormwater. For example, a vehicular accident recently caused hundreds of gallons of

asphalt tar to enter Sandia Creek, a Receiving Water in Riverside County. While this spill was not discharged through an MS4, if the vehicular accident had occurred in another portion of the watershed, the spill could feasibly have entered into and been discharged from an MS4. Similarly in many places throughout the State, sanitary sewer systems are owned and operated by special districts that have no relation to the MS4 Permittees that own or operate the MS4 systems. Nevertheless, an overflow of such sanitary sewer systems may cause an unavoidable discharge into, and from a Permittee-owned MS4. Such accidental or illicit discharges cannot be "prevented" or "controlled" by the Permittees except to the extent that they can be cleaned up or blocked if promptly reported. However, if the discharge has reached Receiving Waters and caused a measured exceedance of Water Quality Standards, under the Ninth Circuit's interpretation, liability for civil penalties, injunctive relief and attorneys fees will attach to the MS4 Permittee.

3) Enforcing strict Water Quality Standard limits in dry or wet weather is counter-productive to the watershed planning-based MS4 Permits currently being promulgated by many regional water boards. Enforcing such limits will divert Permittee attention and resources from watershed-based, monitoring-heavy compliance programs, as will be discussed in greater detail below.

In essence, under the Ninth Circuit's interpretation of the current RWL language, the District, and potentially every other MS4 Permittee in the state, is in violation of its Permit any time that an exceedance of a Water Quality Standard is recorded and attributed to a discharge from its MS4. This means that the Regional Water Boards have issued, and continue to adopt permits that include RWL language **which cannot be complied with**. The Clean Water Act, however, does not require Permittees to achieve the impossible. *See, e.g., Hughey v. JMS Development Corp.* (11th Cir. 1996) 78 F.3d 1523, 1530 ("In interpreting the liability provisions of the CWA, we realize that Congress is presumed not to have intended absurd (impossible) results.").

Misperception Number Four: The Current RWL Language is more Protective of Receiving Water Quality.

This statement is not only untrue but maintaining the current RWL language actually **impedes** efforts to protect Receiving Water Quality.

We understand that some stakeholders believe that there should be Numeric Effluent Limitations (NELs) contained in the MS4 Permits for purposes of accountability. In response, we note that many MS4 permits now contain numeric Stormwater and Non-stormwater Action Levels ("SALs" and "NALs") or other numeric targets or goals, the exceedance of which trigger specific compliance responses by the Permittees. It is these action levels (which were advocated by the Blue Ribbon Panel established by the State Board to investigate the appropriateness of NELs in MS4 permits) which provide such "numeric" accountability. This is in addition to the numerous other compliance documentation and reporting provisions required of MS4 Permittees that also provide measures of accountability.

More importantly, the current RWL language as interpreted by the Ninth Circuit actually impedes efforts by municipalities to protect water quality. First, by requiring immediate compliance, the language undermines efforts to bring Water Quality Standard-impaired waterbodies into compliance through the Total Maximum Daily Load ("TMDL") program. TMDLs are designed with the recognition that, due to the complexity of the issues causing the waterbody to be impaired in the first place, meeting these requirements cannot be achieved immediately. Therefore, TMDL compliance plans include timelines to achieve such compliance over periods of years and sometimes decades.

Second, most MS4 permits have begun incorporating sophisticated watershed management plans, which prioritize pollutants by waterbody and attempt, through aggressive monitoring and source identification efforts, to identify and address the sources of those prioritized pollutants. Municipalities subject to strict RWL language will have no ability to prioritize pollutants, since they must address any pollutant that exceeds a Water Quality Standard, irrespective of the relative impact that that discharge may have had upon the environment or beneficial uses. Moreover, these watershed management plan approaches employ cooperative monitoring and other watershed-based approaches. Permittees faced with potential liability for any exceedance of Water Quality Standards in Receiving Waters that may be caused or contributed to by discharges of their MS4s, will not likely volunteer to cooperate on any watershed-based approach, if cooperation could subject them to additional unnecessary liability.

Third, in a citizen suit brought under the Clean Water Act, a federal judge is free to impose any appropriate injunctive relief to enforce a permit (33 U.S.C. § 1365(a)). Thus, for example, a court could ignore the provisions of a MS4 permit in ordering municipal defendants to address Water Quality Standard exceedances in Receiving Water. This means that the thousands of people-hours invested in the Permit's development, implementation and oversight by municipalities, the Regional Water Boards and other stakeholders would be wasted. In essence, under the Ninth Circuit's reading of the RWL language, all other language in an MS4 permit appears to be superfluous, since the RWL language would control all compliance efforts. This result, of course, is not required by plain language of the Clean Water Act.

Fourth, if a municipality is in unavoidable and automatic non-compliance with the requirements of its MS4 Permit, it will be unable to justify budgeting for water quality management programs and BMPs otherwise required by the Permit as the municipality will simply receive no benefit from making compliance investments. To gain public support for stormwater programs, a municipality must demonstrate to its residents that such investments will constitute compliance with the Permit.

Discussion of Alternatives

The State Board staff's Issue Paper sets forth five alternatives for consideration. Alternative 1, no change in the current RWL language, is completely unacceptable to the District (and, we believe, to other municipalities across the state) because it fails to address the "guaranteed non-compliance" problem of the current language.

Alternative 2, which proposes to maintain the language that puts the MS4 Permittees in a situation of unavoidable and potentially "guaranteed" non-compliance, but would add greater specification as to how the iterative process might be carried out, is also unacceptable as the MS4 Permittees will still have no viable means to ensure their compliance with the RWL language. While the District does not object in principle to RWL language that spells out clearly, and in achievable terms, what is required of MS4 Permittees when exceedances are recorded, such a change alone does not address the fundamental issues identified in this letter.

Alternative 3, which proposes to provide an iterative process for compliance with the RWL only for pollutants being addressed by dischargers in compliance with an approved TMDL, is better than the first two alternatives, but is still entirely insufficient. By failing to provide a viable means for compliance with the RWL language for non-TMDL pollutants, this alternative language would force Permittees into unavoidable non-compliance, and require them to redirect their efforts and resources away from the TMDL activities, to those other pollutants, due to the strict liability attached to those exceedances. This would be a poor policy choice, as pollutants that are not subject to a TMDL may have significantly less, or even no impact on beneficial uses in the Receiving Waters, as noted in the CASQA comment letter.

Alternative 4, which excludes dry weather discharges from the iterative process to comply with the RWL, is unacceptable for the reasons previously set forth regarding an MS4 Permittees inability to truly "prevent" or "control" accidental or illegal dry weather discharges.

Alternative 5, which provides viable means for compliance with the RWL, for all types of MS4 discharges, is the only viable solution among the alternatives presented by State Board staff. In an era of limited budgets, the only and best way to make progress toward improving the quality our Receiving Waters, is to provide MS4 Permittees the ability to prioritize their efforts, as required in the Watershed Management Plan provisions contained in the most recent MS4 Permits, including the Los Angeles County Permit and the proposed Regional Permit for the San Diego Regional Water Board. As previously discussed, such prioritization cannot occur in the context of strict liability for the exceedance of Water Quality Standards in the Receiving Waters. For all of the reasons set forth in this letter, no other alternative makes policy sense or is congruent with the Maximum Extent Practicable standard in the Clean Water Act.

The District would add that Alternative 5 should additionally incorporate the concept of achieving RWL compliance through watershed management plans, and requests the Board to direct staff to work with stakeholders to ensure that any revised RWL language does not force intermittent or minor exceedances of Water Quality Standards to become de-facto higher priorities than those set by the watershed stakeholders.

In summary, the District supports CASQA, the California State Association of Counties and other municipal stakeholders in advocating for a fully iterative and viable approach to compliance with RWL language in both wet and dry weather conditions. Only when such an approach is in place and endorsed by the State Board will Permittees, including the District, feel confident that they can focus

fully on efforts to address pollutants in discharges into and from their MS4s, and not on preparing for costly and pointless litigation.

The District therefore, respectfully requests the State Board direct its staff to commence development of new language providing for an enforceable, iterative and viable process for MS4 Permittees to comply with the RWL language included in MS4 permits.

We wish to thank you and State Board staff for your consideration of these comments and any further comments, written or oral, that the District may make on these important issues.

Very truly yours,

Steve Thomas

for WARREN D. WILLIAMS
General Manager-Chief Engineer

CP:cw
P8/150189

EXHIBIT D

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division

VIRGINIA DEPARTMENT OF TRANSPORTATION, ET AL, Plaintiffs, -v- UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ET AL, Defendants.	Civil Action No. 1:12-CV-775

Memorandum Opinion

Before the Court is the Plaintiffs' motion for judgment on the pleadings under Federal Rule of Civil Procedure 12(c). The Defendants opposed the motion, and the Plaintiffs replied. The Court heard oral arguments on December 14, 2012 and now issues this memorandum opinion and accompanying order granting the Plaintiffs' motion.

Background

The Clean Water Act, 33 U.S.C. § 1251 et seq., establishes the basic structure for regulating discharge of pollutants into the waters of the United States, and provides certain mechanisms to improve and maintain the quality of surface waters.

One such mechanism is the requirement that states identify "designated uses" for each body of water within their borders, as well as "water quality criteria" sufficient to support those uses. 33 U.S.C. § 1313(c)(2)(A). The Environmental Protection Agency ("EPA") evaluates the uses and criteria developed by the states, and either approves them or else proposes and

promulgates its own set of standards. § 1313(c)(3).

Once the standards are in place, each state is required to maintain a list—also subject to approval or modification by EPA—of its waterbodies that are "impaired" because they do not meet their respective water quality criteria. 33 U.S.C. § 1313(d)(1)(A). For each waterbody on the impaired list, the state is required to establish a set of total maximum daily loads ("TMDLs") sufficient to bring the body back into compliance with its water quality criteria. § 1313(d)(1)(C). Each TMDL establishes the maximum amount of a pollutant that may be added to the waterbody daily from all sources (runoff, point sources, etc.). EPA is required to publish a list of pollutants suitable for maximum daily load measurement, § 1314(a)(2)(D), and it has determined that *all* pollutants are suitable for TMDLs, *see* Total Maximum Daily Loads Under Clean Water Act, 43 Fed. Reg. 60,662. Therefore, any pollutant that falls within the relatively broad definition of "pollutant" set forth in § 1362(6) may be regulated via TMDL. EPA can approve or modify as it sees fit TMDLs proposed by the states. § 1313(d)(2).

Here the state in question is Virginia, and the waterbody is a 25-mile long tributary of the Potomac River, located in Fairfax County, called Accotink Creek. The creek has been the subject of litigation in the past that is not relevant to this matter except the result: EPA was required to set TMDLs for Accotink Creek once Virginia failed to do so by a certain date. Specifically, the creek had been identified as having "benthic impairments," which is to say the community of organisms that live on or near the bottom of the creek were not as numerous or healthy as they should be. EPA was to set appropriate TMDLs to improve the health of the benthic community in Accotink Creek.

On April 18, 2011, EPA established a TMDL for Accotink Creek which limited the flow rate of stormwater into Accotink Creek to 681.8 ft^3/acre-day. The TMDL was designed to

regulate the amount of sediment in the Accotink, because EPA believed sediment was a primary cause of the benthic impairment. Both parties agree that sediment is a pollutant, and that stormwater is not. EPA refers to stormwater flow rate as a "surrogate" for sediment.

The Plaintiffs are now challenging the TMDL on multiple grounds, but presently before the Court is a single issue: Does the Clean Water Act authorize the EPA to regulate the level of a pollutant in Accotink Creek by establishing a TMDL for the flow of a nonpollutant into the creek?

Analysis

I. Standard of Review

Count I of the complaint, at issue here, is brought under the Administrative Procedures Act. *See* Comp. ¶ 169. The APA "confines judicial review of executive branch decisions to the administrative record of proceedings before the pertinent agency." *Shipbuilders Council of Am. V. U.S. Dept. of Homeland Sec.*, 770 F. Supp. 2d 793, 802 (E.D. Va. 2011). As such, the district court "sits as an appellate tribunal," and APA claims can be resolved equally well in the context of Rule 12 or Rule 56. *Univ. Med. Ctr. Of S. Nev. V. Shalala*, 173 F.3d 438, 441 n. 3 (D.C. Cir. 1999).

Because Count I presents a question of statutory interpretation, the Court reviews EPA's decision using the two-step analysis set forth in *Chevron, U.S.A., Inc. v. NRDC, Inc.*, 467 U.S. 837 (1984). For a given question of statutory interpretation, the first step under *Chevron* is to determine whether Congress addressed the "precise question at issue." 467 U.S. at 842. "If the intent of Congress is clear, that is the end of the matter . . . ." *Id.* If the Court cannot find that Congress has squarely addressed the question, the Court must move to Chevron's second step. In

the second step of statutory construction under *Chevron*, the Court must determine whether the agency's interpretation of the statute is "permissible." *Id.* at 843. The agency's construction is permissible if it is reasonable, but it need not be what the Court considers the *best* or *most reasonable* construction. *See id.* at 845. The Court is not to simply impose its own construction on the statute, but instead it gives deference to any reasonable statutory construction by the agency. *Id.* at 843.

II. Chevron Step One

Whether statutory ambiguity exists so that the issue cannot be settled at *Chevron's* first step is for the Court to decide, and the Court "owe[s] the agency no deference on the existence of ambiguity." *Am. Bar Ass'n v. FTC*, 430 F.3d 457, 468 (D.C. Cir. 2005). The Court begins the inquiry by "employing traditional tools of statutory construction." *Chevron*, 467 U.S. at 843 n.9. As always, the analysis begins with the text of the statute. *Nat'l Elec. Mfrs. Ass'n v. U.S. Dept't of Energy*, 654 F.3d 496, 504 (4th Cir. 2011).

The text of the statute that requires states to establish their own TMDLs, 33 U.S.C. § 1313(d)(1)(C), is:

> Each State shall establish for the waters identified in paragraph (1)(A) of this subsection, and in accordance with the priority ranking, **the total maximum daily load, for those pollutants which the Administrator identifies** under section 1314(a)(2) of this title as suitable for such calculation. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. (emphasis added)

The next subsection, § 1313(d)(2), grants EPA the authority to set TMDLs when the state

has not done so adequately. "Pollutant" is a statutorily defined term. 33 U.S.C. § 1362(6).

The Court sees no ambiguity in the wording of this statute. EPA is charged with establishing TMDLs for the appropriate pollutants; that does not give them authority to regulate nonpollutants. The parties agree that sediment is a pollutant under 33 U.S.C. § 1362(6), and stormwater is not. Then how does EPA claim jurisdiction over setting TMDLs for stormwater?

EPA frames the stormwater TMDL as a surrogate. EPA's research apparently indicates that the "[sediment] load in Accotink Creek is a function of the amount of stormwater runoff generated within the watershed." Def. Opp. at 8. And EPA believes that framing the TMDL in terms of stormwater flow rate is superior to simply expressing it in terms of maximum sediment load.

The DC Circuit has considered and rejected a similar attempt by EPA to take liberties with the way Congress intended it to express its TMDLs. In *Friends of the Earth, Inc. v. Env. Protection Agency*, EPA had promulgated TMDLs for the Anacostia River that expressed the maximum load of certain pollutants in terms of annual and seasonal amounts. 446 F.3d 140, 143 (D.C. Cir. 2006). The court found that expressing a TMDL in terms of annual or seasonal maximums was not allowed, because the statute granted authority only for daily loads. *Id.* at 148. The court reached its conclusion even though EPA apparently made a strong argument that expressing TMDLs in terms of annual or seasonal loads was an effective and reasonable approach. *See id.* Presumably a daily load could have been derived by simply dividing the annual load by 365, yet the court still required expression in the terms dictated by Congress.

Here too, EPA hopes to express a TMDL in terms other than those contemplated by the statute, arguing that such an expression is the most effective method. But, as *Friends of the Earth* illustrates, EPA may not regulate something over which it has no statutorily granted power—

annual loads or nonpollutants—as a proxy for something over which it *is* granted power—daily loads or pollutants.

EPA's argument that its surrogate approach should be allowed because the statute does not specifically forbid it fails. EPA is not explicitly forbidden from establishing total maximum *annual* loads any more than they are explicitly barred from establishing TMDLs for nonpollutants. The question is whether the statute grants the agency the authority it is claiming, not whether the statute explicitly withholds that authority. And in this case, as in *Friends of the Earth*, the statute simply does not grant EPA the authority it claims.

The dicta in *Weyerhaeuser Co. v. Costle* is not as helpful to EPA's case as it would like. 590 F.2d 1011, 1022 n.6 (D.C. Cir. 1978). It is true that the court said in a footnote "[i]t is well recognized that EPA can use pollution parameters that are not harmful in themselves, but act as indicators of harm." *Id.* But in that case, the non-harmful pollution parameters the EPA sought to regulate were components of the effluent commonly discharged from paper mills, *id.* at 1022, making them effluents themselves. And power to regulate effluents is expressly granted to the EPA in the relevant statutory section. *See* 33 U.S.C. § 1314(b).

EPA would like to create the impression that Congress has given it loose rein to determine exactly what it could and could not regulate. On page 16 of its opposition to this motion, EPA points out that "Congress authorized EPA to determine which pollutants were suitable for TMDL calculation and measurement." (Internal quotes removed). While this may be true, EPA glosses over the fact that 33 U.S.C. § 1314(a)(2)(D) only gives EPA the power to regulate pollutants as that term is defined—by Congress—elsewhere in the statute. And, as discussed above, sediment is a pollutant for these purposes, but stormwater is not.

In a similar vein, EPA regulations which imply that the agency has discretion to set the

TMDL as it sees fit do not bear on the question now before the Court. EPA has promulgated a regulation allowing TMDLs to be "expressed in terms of either mass per time, toxicity, or other appropriate measure," 40 C.F.R. § 130.2(i), and another that allows TMDLs to be expressed as a "property of pollution," 50 Fed. Reg. 1774, 1776 (Jan. 11, 1985). But, EPA citing these regulations to demonstrate that the surrogate TMDL approach is permissible is mere bootstrapping. To the extent the regulations allow EPA to set TMDLs for nonpollutants, they exceed the statutory authority of EPA.

The plain language of the statute trumps all, but legislative history also supports Plaintiffs' argument. Congress's intent to limit EPA's discretion in this context is evidenced by the committee record cited by Plaintiffs, which has also been used by the Ninth Circuit, in which Senator Randolph, Chairman of the Senate committee that amended the act in 1972, explained, "We have written into law precise standards and definite guidelines on how the environment should be protected. We have done more than just provide broad directives [for] administrators to follow." Pl. Mot. 7, *citing Nw. Envtl. Def. Ctr. v. Brown*, 640 F.3d 1063, 1072 (9th Cir. 2011). Congress created a statutory scheme that included a precise definition of the word "pollutant," and then gave EPA authority to set TMDLs for those pollutants. Senator Randolph's comments strongly imply that Congress did not intend anything more or less than what is written in the statute.

The Court considers the language of 33 U.S.C. § 1313(d)(1)(C) to be unambiguous. Congress has spoken directly on the question at issue, and its answer is that EPA's authority does not extend to establishing TMDLs for nonpollutants as surrogates for pollutants. The legislative history of the CWA is consistent with this reading. Therefore, this Court finds EPA's interpretation of § 1313 and the related provisions to be impermissibly broad based on analysis

under the first step of *Chevron* analysis.

III. Chevron Step Two

Because the Court considers Congress's intent to be clear and unambiguously expressed by the language of the statute, it need not move to the second step of *Chevron* analysis. But the Court notes that there is substantial reason to believe EPA's motives go beyond "permissible gap-filling."

Page 9 of EPA's opposition says, "stormwater flow rates as a surrogate would more effectively address the process by which sediment impairs aquatic life in Accontink Creek." If the sediment levels in Accotink Creek have become dangerously high, what better way to address the problem than by limiting the amount of sediment permitted in the creek? If sediment level is truly "a function of" the amount of stormwater runoff, as EPA claims, then the TMDL could just as easily be expressed in terms of sediment load.

In fact, the Board of Supervisors of Fairfax County argued at the December 14th hearing (without objection from EPA) that EPA has approved 3,700 TMDLs for sediment nationwide, and in Virginia has addressed 111 benthic impairments with TMDLs. None of them regulated the flow rate of stormwater. By comparison, EPA has tried out its novel approach of regulating sediment via flow in only four instances nationwide, and all four attempts were challenged in court. One has settled, the other three are still pending.

The Court suspects that the decision to regulate stormwater flow as a surrogate for sediment load would not constitute a permissible construction of § 1313(d)(1)(C), even given the deference due at *Chevron's* second step. This is especially likely because EPA is attempting to increase the extent of its own authority via flow TMDLs, which courts must examine carefully.

See Brown & Williamson Tobacco Corp. v. Food & Drug Admin., 153 F.3d 155, 161-62 (4th Cir. 1998). EPA's attempt to set TMDLs for nonpollutants probably goes beyond "permissible gap-filling" and is instead an impermissible construction of the statute.

Conclusion

The language of § 1313(d)(1)(C) is clear. EPA is authorized to set TMDLs to regulate pollutants, and pollutants are carefully defined. Stormwater runoff is not a pollutant, so EPA is not authorized to regulate it via TMDL. Claiming that the stormwater maximum load is a surrogate for sediment, which is a pollutant and therefore regulable, does not bring stormwater within the ambit of EPA's TMDL authority. Whatever reason EPA has for thinking that a stormwater flow rate TMDL is a better way of limiting sediment load than a sediment load TMDL, EPA cannot be allowed to exceed its clearly limited statutory authority. For these reasons, the Plaintiffs' motion for Rule 12(c) judgment on the pleadings on Count I of their complaint is granted.

January 3, 2013
Alexandria, Virginia

/s/ LOG
Liam O'Grady
United States District Judge

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division

VIRGINIA DEPARTMENT OF TRANSPORTATION, ET AL, Plaintiffs, -v- UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ET AL, Defendants.	Civil Action No. 1:12-CV-775

Order

In accordance with the memorandum opinion that accompanies this order, it is now **ORDERED**:

1. Plaintiffs' motion (Dkt. No. 29) for judgment on the pleadings as to Count I of the complaint is **GRANTED**.
2. The clerk shall enter judgment in favor of the Plaintiffs.
3. The Accotink Creek TMDL is remanded to EPA for reconsideration consistent with this order.

January 3, 2013
Alexandria, Virginia

/s/
Liam O'Grady
United States District Judge

November 19, 2014

San Diego Regional Water Quality Control Board
2375 Northside Drive, Ste. 100
San Diego, CA 92108-2700 SENT VIA EMAIL: Laurie.Walsh@waterboards.ca.gov

Attn: Ms. Laurie Walsh

Subject: Comment – Tentative Order No. R9-2015-0001, Place ID:658018LWalsh

Dear Ms. Walsh,

On behalf of the members of the Industrial Environmental Association, thank you for this opportunity to provide the following comment regarding Tentative Order No. R9-2015-001. We believe additional clarification is necessary to help avoid any confusion in the future regarding the Board's intentions for assigning waste load allocations.

Tentative Order No. R9-2015-0001 (An Order Amending the Regional Municipal Separate Storm Sewer (MS4) Permit for the San Diego Region (Order No. R9-2013-0001)) contains new requirements for implementation of the Total Maximum Daily Load (TMDL) for sediment in the Los Penasquitos Lagoon (Attachment E, Section 7). This TMDL was adopted by the San Diego Regional Water Quality Control Board (Resolution R9-2012-0033) on June 13, 2012 and has been approved by the State Water Resources Control Board, the California Office of Administrative Law and the US EPA-Region 9. Its effective date is 7/14/14.

The TMDL establishes a number of "Responsible Parties" including, but not limited to, the County of San Diego and the cities of San Diego, Poway and Del Mar, which are collectively assigned a single waste load allocation (WLA). The responsible parties are collectively responsible for meeting the WLA of 2,580 tons per year.

Table 7.1 in Section 7 (Attachment E) identifies the "Final Effluent Limitations as Expressed as Annual Loads MS4 Discharges to Los Penasquitos Lagoon". The identified limitation is "2,580 tons/yr." of "Sediment". Since this effluent limit is the same as the WLA for all of the TMDL's Responsible Parties, this could be misinterpreted to imply that the Responsible Copermittees have been allocated the entire WLA, leaving no (i.e., "0") WLA to the other Responsible Parties under the approved TMDL.

To clarify in the MS4 permit that the WLA is shared amongst all of the Responsible Parties, we request the following language changes in Attachment 7:

Section 7.b.2.b. - Revise to state:

> "(b) Final Effluent Limitations
>
> Discharges from the MS4s (together with the other Responsible Parties in Resolution R9-2012-0033) containing pollutant loads that do not exceed the following effluent limitations…".

Section 7.b.2.b.(Table 7.1) - Revise to state:

> "Table 7.1
>
> Final Effluent Limitations as Expressed as Annual Loads in MS4 Discharges (together with the other Responsible Parties in Resolution R9-2012-0033) to Los Penasquitos Lagoon"

Should you have any questions regarding this recommendation, please feel free to contact me directly. In the meantime, thank you for your consideration.

Sincerely,

Jack Monger
Executive Director

SAN DIEGO UNIFIED PORT DISTRICT
OFFICE OF THE GENERAL COUNSEL

November 19, 2014

VIA EMAIL
Laurie.Walsh@waterboards.ca.gov

Ms. Laurie Walsh
San Diego Regional Water Quality Control Board
2375 Northside Drive, Suite 100
San Diego, CA 92108

Re: Comments - Tentative Order No. R9-2015-0001, Place ID: 658018LWalsh

Dear Ms. Walsh:

The San Diego Unified Port District ("Port District") respectfully submits the following comments on Tentative Order R9-2015-0001, *An Order Amending Order No. R9-2013-001, NPDES No. CAS010266 National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region* ("Tentative Order").

The Port District appreciates the time, energy, and thoughtfulness devoted by the San Diego Regional Water Quality Control Board ("Regional Board") to regulate MS4 discharges in a manner that protects human and ecological health while also balancing the substantial economic and practicable feasibility constraints faced by fellow public agencies, such as the Port District. The Port District continues to work with the other San Diego County MS4 copermittees to implement the regional MS4 permit and looks forward to working with the Regional Board to accomplish our many shared goals for San Diego Bay.

The Tentative Order amends but repeats verbatim provisions of the MS4 permit previously issued by the Regional Board, Order No. R9-2013-001, regarding which the Port District respectfully submitted comments and a currently pending petition to the California State Water Resources Control Board ("State Board"). The Port District's comments on Order No. R9-2013-001 apply with equal force to the Tentative Order. Accordingly, the Port District repeats and incorporates by reference those previously submitted comments with regard to the Tentative Order, which are set forth in letters

dated September 14, 2012, and January 11, 2013, and in the transcript from the hearing that took place before the Regional Board on April 10 and 11, and on May 8, 2013. The Port District also incorporates by reference its position on these provisions as set forth in its petition to the State Board, submitted on June 7, 2013 (Petition No. A-2254(o)). Copies of the Port District's previously submitted comment letters are enclosed for your convenience.

Please do not hesitate to contact me should you have any questions.

Sincerely,

John Carter
Deputy General Counsel

cc: Thomas A. Russell, General Counsel
John Bolduc, Acting President/CEO
Randa Coniglio, Executive Vice President
Jason Giffen, Director, ELUM

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September 14, 2012

VIA EMAIL
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9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Re: Comments on the Administrative Draft of Permit Requirements for Discharges from the Municipal Separate Storm Sewer System in the San Diego Region (Tentative Order No. R9-2012-0011)

Dear Ms. Walsh and Mr. Chiu:

The San Diego Unified Port District (Port) submits the following comments supplementing other comments by the Port to the Administrative Draft of Permit Requirements for Discharges from the Municipal Separate Storm Sewer System (MS4) in the San Diego Region (the Permit). We note at the outset that the Port supports the objectives of the Permit. We wish simply to address one point regarding the current draft Permit. The Permit should clarify that each Copermittee is responsible only for discharges from that portion of the MS4 which it owns and operates, not for discharges from all MS4 facilities within that Copermittee's jurisdictional boundaries.

The Clean Water Act upon which the MS4 permit is grounded defines "copermittee" as "a permittee to an NPDES permit that is only responsible for permit conditions relating to the discharge *for which it is operator*." (40 Code of Federal Regulations §122.6(b)(1) [emphasis added].) The Regional Board's recent September 7, 2012, letter addressing its authority states that "[t]he federal regulations make it clear that Copermittees need only comply with permit conditions relating to discharges from the MS4s ***for which they are operators***." (Emphasis added, citing 40 CFR Part 122.26(a)(3)(vi).) The Port is unaware of any legal authority that equates operation with jurisdictional location. Nor is such an interpretation consistent with the

common and plain meaning of the word "operate." "Operate" strongly connotes the performance of a function or exertion of physical control or power over the object being operated.

This is a potentially significant distinction for the Port. The Port's jurisdiction overlaps with the jurisdiction of a number of Copermittees. Due to this fact, a significant amount of the MS4 facilities within the Port's geographic jurisdiction are not operated by the Port, but are instead owned and/or operated by others under easements or other forms of ownership and operation. Accordingly, the Permit should include language affirming the intent of the CWA on this point.

This distinction is also not a hypothetical concern, as the Regional Board has previously construed the Port's responsibility for MS4 facilities more broadly than the plain language of the CWA allows. The Port would propose the following clarifying language, which could be placed in the cover for the Permit, just ahead of Table 2 and just following the sentence added by the Copermittees in their proposed redline version of the Permit referencing 40 CFR §122.21(a)(vi):

"The location of an MS4 facility within any Copermittee's jurisdiction boundaries does not, of itself, make the Copermittee an owner or operator of that MS4 facility."

We emphasize that the Port strongly supports the objectives of the Permit. We welcome the opportunity to respond to any questions the Regional Board may have with respect to our comments. Please contact the undersigned or Bill Brown at (760) 633-4485 if you have any questions or would like any clarification of the Port's position.

Very truly yours,

Scott E. Patterson

SEP/jd
cc: William D. McMinn, Esq.

Unified Port
of San Diego

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January 11, 2013

Mr. Wayne Chiu
San Diego Regional Water Quality Control Board
9174 Sky Park Ct., Suite 100
San Diego, CA 92123-4340

Submitted via email: wchiu@waterboards.ca.gov

Subject: Comment – Tentative Order No. R9-2013-0001, Regional MS4 Permit, Place ID: 786088Wchiu

Dear Mr. Chiu,

The San Diego Unified Port District (Port) respectfully submits this comment letter regarding Tentative Order R9-2013-0001 National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) in the San Diego Region (Tentative Order).

The Port has been actively involved in the development process of the Tentative Order and we support the Regional Board's Water Quality Improvement Plan (WQIP) concept in the Tentative Order with its proposed flexibility to focus resources on the priority problems in the watershed. However, the Tentative Order also contains prescriptive requirements that are in addition to the WQIP and would be very costly and at times infeasible to implement. With constrained budgets and staff resources, these additional costs may unintentionally limit the ability to conduct other water quality efforts having greater environmental benefits for the Bay.

The Port has worked alongside the other San Diego County Municipal Copermitees (Copermitees) to collectively submit a red-line strikeout document recommending changes to the permit language. With the exception of the proposed WQIP-based compliance option, the Port fully supports the recommendations provided in the Copermittee red-line strike-out. This document will be submitted through the County of San Diego. The changes help to clarify permit compliance points and provide a more efficient monitoring program to support the end goal of improving water quality. We strongly encourage you to consider the Copermittee's proposal and the Port's comments listed below.

1. Jurisdictional Accountability

The Port is committed to our role as an environmental steward of San Diego Bay. That commitment is reflected in a number of programs both regulatory driven and beyond compliance, that are focused on protecting and rehabilitating the Bay's resources. The

Port's Stormwater Program is an important part of this effort. At the same time we recognize that discharges from upstream jurisdictions impact our efforts to protect bay water quality. San Diego Bay is the receiving water body for a large watershed in which the Port is located at the extreme end. We are aware that most discharges from the MS4 to San Diego Bay are from storm drain easements under the authority of other jurisdictions. With this in mind, we support jurisdictional accountability throughout the watershed and we encourage the Regional Board to incorporate these concepts throughout the Permit.

2. WQIP-based Compliance and Modifications to Provision A

The Regional Board staff has presented the WQIP as an iterative process that allows for adaptive management so that compliance with water quality standards is achieved over time. It is the Port's opinion that the WQIP process, as currently proposed in the Tentative Order, adequately allows for compliance based upon WQIP implementation. However, what is missing is the linkage between the Discharge Prohibitions, Effluent Limitations, and Receiving Water Limitations in Provision A and the iterative process set forth in the WQIPs.

Modifications to Provision A are required to ensure implementation of that iterative process. Without a modification, jurisdictions are potentially open to third-party lawsuits and their resources may be directed to addressing a one-time exceedance. The Port requests that the Permit establishes a clear linkage between compliance with Provision A to compliance with the WQIP and the other Provisions of the Permit.

3. WQIP Development Timeline

The Tentative Order proposes an aggressive schedule for WQIP development and JURMP program updates. The timeline for WQIP development (9 months) does not allow for adequate time between due dates for required deliverables. Concerns with the timeline are as follows:

- Formal agreements such as a Memorandum of Understanding and/or Cost Share agreements will be required within the watershed groups. Although the preliminary work may begin before permit adoption, the process cannot be completed until the Permit is adopted and the requirements are known. These agreements are integral to upholding jurisdictional accountability within the watershed groups. This process will take an estimated three months.

- The water quality priorities and goals are due within the first six months, followed by a two month public comment period. While this first deliverable deadline may be feasible, potential modifications to the priorities and goals may be necessary as a result of the public comments received. Should modifications to the priorities and goals be required, there will be little time to develop the strategies and schedules.

- Time is needed to address comments from the public or Regional Board throughout the process and to obtain management and jurisdictional governing body approvals. Governing body approvals take an average of three months.

The Port requests that the timeframe for permit deliverables is extended as outlined in the Copermittee's revised WQIP development schedule in the red-line strike-out submittal.

4. Illegal Discharges: Air Conditioning Condensation

The Tentative Order requires air conditioning condensation to be directed to landscaped areas or other pervious surfaces where feasible. Substantial structural modifications may be required to meet this requirement and discharges of this type may not be a priority pollutant source that is identified in the WQIP. The Port requests that the requirement to direct air conditioning condensation to landscaping be encouraged and not required.

5. Retention Requirement for Priority Development Projects

As proposed in the Tentative Order, Priority Development Projects are to implement BMPs to retain the volume of runoff equivalent to the design capture volume or the estimated volume that would be retained if the site was fully undeveloped. Due to the Port's location at the headwaters of San Diego Bay, a high groundwater table and existing soils with low infiltration rates, retention is not technically feasible on Port tidelands. The Port is at the bottom of the watershed so consequently retained runoff must be stored for a longer period of time after the peak of a storm. Large underground storage tanks to store the runoff would be infeasible because most tanks would have significant design constraints due to the high groundwater table, flat topography, and high receiving water elevation, making gravity flow drainage systems nearly impossible. Above ground storage tanks would be infeasible because most of Port tidelands are built-out and there is limited room for these facilities. Also, above ground storage tanks pose a vector hazard and a visual nuisance.

Similarly, the proposed alternative compliance options such as an offsite mitigation option or increasing the treatment area onsite also is not feasible for the Port. The land within the Port is largely built-out and area to use for additional treatment is extremely limited. Meeting this requirement would come at a cost to proposed projects that would make them infeasible. Furthermore, mitigation outside of the Port's jurisdiction is also not an option because the Port would not have the authority to enforce the implementation and maintenance of BMPs outside of its jurisdiction. The Port requests that the retention requirement be removed from the permit.

6. Predevelopment Design Reference Used for Hydromodification Controls

The Tentative Order requires the use of "**pre-development** (naturally occurring)" as a runoff reference condition for hydromodification controls. Establishing the

pre-development condition of a site requires a reference start date, which is not outlined in the draft, and also requires accepted and defensible references to the **pre-development** soils, vegetation and topography which are also not identified in the permit. This requirement will also create additional and unnecessary costs to each jurisdiction and to the project without additional water quality benefits. A recommended alternative would be the use of a "**pre-project**" runoff reference. This reference point is already being used by the Copermittees in the current MS4 permit and has been used in other MS4 permits in the State. The Port requests that the **pre-development** design reference in the permit is replaced with **pre-project**.

7. Hydromodification Exemption

An exemption to hydromodification requirements that is in the current MS4 permit has been removed in the Tentative Order. The exemption applies to projects that discharge to conveyance channels that are stabilized (i.e. concrete lined) all the way to the receiving water. Hydromodification requirements are included in the permit to mitigate for potential erosion and channel degradation downstream of a development project. Projects that discharge to a stabilized conveyance channel do not present potential erosive impacts downstream or channel degradation therefore, the imposition of hydromodification requirements on such projects is unnecessary and will not provide water quality benefits. The Port requests that the hydromodification exemption for projects that discharge to stabilized conveyance systems be reinserted in the permit.

On behalf of the Port, I wanted to thank you for providing us the opportunity to engage with you and the other stakeholders through the public workshops, and the ability to submit comments on the Tentative Order. Please contact Allison Vosskuhler at (619) 686-6434 or avosskuhler@portofsandiego.org if you have any questions or would like additional clarification on the information provided.

Sincerely,

Randa Coniglio

Randa Coniglio,
Executive Vice President, Operations
San Diego Unified Port District

cc: Paul Fanfera
Bill McMinn
Karen Holman
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January 11, 2013

VIA EMAIL
wchiu@waterboards.ca.gov

Wayne Chiu
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Re: **Comments - Tentative Order No. R9-2013-0001, Regional MS4 Permit, Place ID: 786088Wchiu**

Dear Mr. Chiu:

The San Diego Unified Port District (Port) submits the following comments to the revised Tentative Order No. R9-2013-0001, NPDES No. CAS0109266, *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4) Draining the Watersheds within the San Diego Region* (the Permit). Except to any extent inconsistent with the comments below and other comments submitted directly on behalf of the Port, the Port concurs with the San Diego Copermittees' comments throughout the process. The Port wishes to separately address several issues in the current draft Permit. The Port continues to support the objectives of the Permit and welcomes any opportunity to work with the Regional Board to improve the Permit.

1. Establish Connection between Discharge Prohibitions/Receiving Water Limitations and TMDL Compliance Schedules

The Permit as currently drafted includes specific provisions and schedules for implementation of total maximum daily loads (TMDLs) that have been incorporated into the Water Quality Control Plan for the San Diego Basin. *See* Permit, Attachment E. These compliance schedules have been incorporated into the Effluent Limitations provision of the Permit. Permit, II.A.3.b. ("Each Copermittee must comply with applicable WQBELs established from the TMDLs in Attachment E to this Order, pursuant to the applicable TMDL compliance schedule.").

However, no similar language is included in the Discharge Prohibitions (II.A.1.) or the Receiving Water Limitations (II.A.2.) provisions. The absence of similar language regarding TMDL compliance schedules in these provisions could potentially result in Copermittees being in violation of the Permit even though the TMDL implementation dates have not passed. In order for a Copermittee to be in compliance when the Permit becomes effective, it must also be in compliance with the applicable TMDL compliance schedule. Where a TMDL is in place, the Permit establishes compliance schedules for Discharge Prohibitions and Receiving Water Limitations that are in conflict with the TMDL compliance schedules.

The Port requests that the Discharge Prohibitions and Receiving Water Limitations provisions of the Permit be revised to make clear that the Copermittee shall not be in violation of these provisions when the Copermittee is complying with the applicable TMDL compliance schedule. Provision II.A.2.c., which appeared in the previous permit draft contains appropriate language linking the TMDL compliance schedules with the compliance schedules for Discharge Prohibitions and Receiving Water Limitations. The Port requests that similar language be included in Provisions II.A.1. and II.A.2. of the Permit.

2. Permit Compliance Should be Based on the Iterative Process and Implementing Provisions of TMDL and the WQIP Rather than Numeric Limits

The Permit provides that the Copermittees must be in compliance with numeric limits in order to meet water quality standards and to avoid violating the Permit. *See* Permit, II.A.1.a., II.A.1.c., II.A.2.a. The Permit also provides that each Copermittee must engage in an iterative process to implement water quality improvement strategies should water quality exceedances occur to achieve compliance with the discharge prohibitions and receiving water limitations. Permit, II.A.4. However, the Permit states that these provisions are "independently applicable, meaning that compliance with one provision does not provide a 'safe harbor' where there is no compliance with another provision." Permit, Fact Sheet, F-39.

Currently, the Permit creates a situation where the Copermittees may be in violation of the Permit the moment it goes into effect. There may be non-compliance with the Permit by a Copermittee where it is shown that a Copermittee is causing or contributing to an exceedance of water quality standards, even if that Copermittee is actively engaged in the iterative process.

While the Port acknowledges that the Regional Board may choose not to strictly enforce these permit conditions, the Copermittees remain potentially subject to an enforcement action by the Regional Board or a third-party citizen suit unless this point of compliance is clarified. The Regional Board has clear authority under the CWA and State Board policy to issue an MS4 permit that allows for iterative Best Management Practices (BMPs), rather than requiring strict adherence to water quality standards through numeric effluent limitations. *See* State Water Resources Control Board Order No. 2001-15, at pg. 8; *see also Defenders of Wildlife v. Browner,* 191 F.3d 1159, 1163, 165 (9th Cir. 1999).

Accordingly, the Permit should be revised to allow the Copermittees to achieve compliance by actively engaging in a BMP-based iterative process and by complying with implementation provisions of applicable TMDLs. The Port supports using the Receiving Water Limitations Language proposed by the California Stormwater Quality Association (CASQA), attached as Exhibit 1.

3. The Permit Should Clarify the Limits and Basis for Copermittee Liability for Any Exceedances

As noted, the Permit should clarify that Copermittee compliance is achieved through compliance with iterative approaches as set forth in the WQIP and any applicable BMPs, rather than any numeric limits. However, if numeric limits remain in the Permit, certain modifications should be made to avoid improper imposition of liability on Copermittees, consistent with the CWA. As discussed in the Port's comments to the previous draft of the Permit, dated September 14, 2012, the Permit should be revised to make clear that a Copermittee is only responsible for exceedances introduced into portions of MS4 facilities that it owns or operates, not merely discharges into or from all MS4 facilities within that Copermittee's geographical jurisdictional boundaries. There are numerous MS4 facilities and outfalls within the Port's tidelands jurisdictions which the Port does not own or operate. The language of the CWA, repeated in the Permit, confirms that a Copermittee is only responsible for MS4 facilities that it operates. (40 CFR 122.26(a)(3)(vi).)

For this reason, the Port cannot properly be liable for discharges into or from an MS4 facility merely because it is within the Port's tidelands jurisdiction – it must own or operate that MS4 facility. To clarify this point, the Port proposes adding the following language, which could be placed in the cover for the Permit, immediately preceding Table 2:

"The location of an MS4 facility within any Copermittee's jurisdiction boundaries does not, of itself, make the Copermittee an owner or operator of that MS4 facility."

Furthermore, the Permit must include additional provisions that ensure a Copermittee is not improperly held liable for discharges attributable to other Copermittees' MS4 inputs. Of key concern is the specter of liability for downstream MS4 operators. As one of the farthest downstream jurisdictions, the Port faces greater risk of being downstream of other Copermittees' input and discharges into the upstream MS4 facilities. The Permit should be revised to clarify that each Copermittee is liable for any input and discharges into and from its MS4 that may exceed numeric limits, but not for the input and discharges by other Copermittees, whether upstream or downstream. Unless such provisions are included, Copermittees such as the Port will face the risk of legally improper "end of the pipe" liability, even if it did not contribute any pollutants.

As written, the Permit lacks clarity regarding the appropriate basis for determining that any Copermittee has actually caused or contribute to an exceedance of water quality standards. As the Permit states, "[e]ach of the Copermittees owns or operates an MS4, through which it discharges storm water and non-storm water into water of the U.S. within the San Diego Region." Permit, Findings, I.1. It further states:

> The federal regulations make it clear that the Copermittees need only comply with permit conditions relating to discharges from the MS4s for which they are operators (40 CFR 122.26(a)(3)(vi)). This Order does not require Copermittees to manage storm water outside of their jurisdiction boundaries, but rather to work collectively to improve storm water management within watersheds.

Permit, Findings, I.2. While this language is consistent with the CWA, additional provisions are needed to ensure that one Copermittee does not become liable for input and discharges from other Copermittees. The Port requests that the Permit include language clarifying that each Copermittee is only liable for its share of the excess pollutants that it introduces into its MS4 facilities and which result in exceedances of the receiving water limits.

Such a provision is necessary since a Copermittee on an MS4 permit is only responsible for its own discharges or those over which it has control, not discharges or inputs by other Copermittees. *Jones v. E.R. Shell Contractor, Inc.*, 333 F.Supp.2d 1344, 1348 (N.D. Ga. 2004). Similarly, both the California Water Code and the Clean Water Act contemplates that liability for violations shall fall upon the "person" responsible for the violations. *See* Cal. Water Code §§ 13263(f), 13350(a); 33 U.S.C. § 1319. A Copermittee that does not generate or add pollutants to its MS4 facilities cannot credibly be characterized as having discharged pollutants. Likewise, a Copermittee cannot properly be subject to liability for excess pollutants introduced into segments of the MS4 outside its jurisdiction. Copermittees cannot control such MS4 facilities and the CWA clearly does not require a Copermittee to exert such control.

To alleviate this problem and to ensure compliance with the applicable statutes and case law, the Port requests that the Permit be revised to explicitly state the each Copermittee is only liable for the portion of any excess pollutants that cause or contribute to any violations of the Permit that are introduced into the portion of the MS4 owned or operated by that Copermittee.

a. <u>The Permit Should Include the Appropriate Regional Board Burden of Proof to Establish Liability of a Copermittee for MS4 Discharges</u>

The Permit should also include provisions that will ensure one Copermittee is not held liable for pollutant discharges generated by or introduced into the MS4 facilities by other Copermittees. Without delineating the basis for assigning and/or apportioning liability among the Copermittees, there is an unacceptable risk that "end of pipe" Copermittees may be held liable for violations caused by pollutants generated and introduced into MS4 facilities primarily,

or even exclusively, by "upstream" Copermittees. In particular, as the trustee of the tidelands of the San Diego Bay, the Port is one of the Copermittees located farthest downstream. There is an attendant increased risk that in the event any pollutants are discharged into the San Diego Bay, such pollutants would not have originated from any Port MS4 facilities but from MS4 facilities farther upstream.

To ensure that the Regional Board does not hold Copermittees such as the Port responsible for pollutants introduced into or originating from other Copermittees' MS4 facilities, the Permit must be revised to include and clarify the Regional Board's burden of proof for establishing a particular Copermittees' liability. *See Rapanos v. United States*, 547 U.S. 715, 745 (2006); *see also Sackett v. E.P.A*, 622 F.3d 1139, 1145-1147 (9th Cir. 2010), reversed on other grounds, *Sackett v. E.P.A.* (2012) 132 S. Ct. 1367 ("We further interpret the CWA to require that penalties for noncompliance with a compliance order be assessed only after the EPA proves, in district court, and according to traditional rule of evidence and burdens of proof, that defendants violated the CWA in the manner alleged in the compliance order."). The Regional Board must have the affirmative duty to prove that a Copermittee introduced pollutants into the MS4 that are discharged in the violation of the Permit.

In contrast to this legally required approach, the Permit presently states that the Copermittees must comply with certain procedures to come into compliance in the event an exceedance occurs. *See* Permit, II.A.4.a. The language would effectively impose liability on all Copermittees until a Copermittee could prove that it did not contribute to the excess pollutants in the discharge, even though the Regional Board would not have raised, and would not legally be entitled to, a rebuttable presumption that the exceedance resulted from that particular Copermittee's actions. To prevent a Copermittee being put in the legally untenable position of having to prove its innocence in the first instance, the Regional Board should have an initial burden of proving that the exceedances relate to contribution by a particular Copermittee.

Accordingly, the Port requests that Section II.A.4.a. is revised to read:

> If exceedance(s) of water quality standards persist in receiving waters notwithstanding implementation of this Order, *upon a showing by the Regional Board by a preponderance of the evidence that the discharges of pollutant from the MS4 for which each Copermittee is an owner or operator caused or contributed to the exceedance(s) of the water quality standards, those* Copermittees must comply with the following procedures: (emphasis added).

b. Monitoring Requirements Should be Revised to Include Monitoring that Will Ensure Jurisdiction Accountability

As a further necessary safeguard against improperly broad or joint and several liability for discharges, the Permit must include provisions that will allow the Regional Board and the

Copermittees to determine the sources of any exceedances discharged to receiving waters. Unless the Permit requires such monitoring, there remains the risk that downstream Copermittees will be held liable for upstream discharges. This issue of identifying and establishing a Copermittee's violation of an MS4 permit is critical and has been the subject of recent judicial attention. The Port requests that the Permit include a monitoring program that meets and satisfies the evidentiary standards discussed in *Los Angeles County Flood Control District v. Natural Resources Defense Council, Inc., et al.*, No. 11-460 (U.S. Jan. 8, 2013) and *Natural Resources Defense Council, Inc. v. County of Los Angeles*, 673 F.3d 880 (9th Cir. 2011), necessary to establish a particular Copermittee's discharges and/or violations of the Permit. Without such monitoring, the risk persists that "end of pipe" Copermittees will be held liable for upstream jurisdictional discharges, without proper jurisdictional accountability.

We again emphasize that the Port is dedicated to the protection and enhancement of water quality and that the Port strongly supports the objectives of the Permit. We welcome the opportunity to work with the Regional Board in order to achieve our mutual goals. Please contact us if you have any questions or would like any clarification of the Port's position.

Very truly yours,

Scott E. Patterson

SEP/BPS
cc: William D. McMinn, Esq.

EXHIBIT 1

CASQA Proposal for Receiving Water Limitation Provision

D. RECEIVING WATER LIMITATIONS

1. Except as provided in Parts D.3, D.4, and D.5 below, discharges from the MS4 for which a Permittee is responsible shall not cause or contribute to an exceedance of any applicable water quality standard.

2. Except as provided in Parts D.3, D.4 and D.5, discharges from the MS4 of storm water, or non-storm water, for which a Permittee is responsible, shall not cause a condition of nuisance.

3. In instances where discharges from the MS4 for which the permittee is responsible (1) causes or contributes to an exceedance of any applicable water quality standard or causes a condition of nuisance in the receiving water; (2) the receiving water is not subject to an approved TMDL that is in effect for the constituent(s) involved; and (3) the constituent(s) associated with the discharge is otherwise not specifically addressed by a provision of this Order, the Permittee shall comply with the following iterative procedure:

    a. Submit a report to the State or Regional Water Board (as applicable) that:

        i. Summarizes and evaluates water quality data associated with the pollutant of concern in the context of applicable water quality objectives including the magnitude and frequency of the exceedances.

        ii. Includes a work plan to identify the sources of the constituents of concern (including those not associated with the MS4to help inform Regional or State Water Board efforts to address such sources).

        iii. Describes the strategy and schedule for implementing best management practices (BMPs) and other controls (including those that are currently being implemented) that will address the Permittee's sources of constituents that are causing or contributing to the exceedances of an applicable water quality standard or causing a condition of nuisance, and are reflective of the severity of the exceedances. The strategy shall demonstrate that the selection of BMPs will address the Permittee's sources of constituents and include a mechanism for tracking BMP implementation. The strategy shall provide for future refinement pending the results of the source identification work plan noted in D.3. ii above.

        iv. Outlines, if necessary, additional monitoring to evaluate improvement in water quality and, if appropriate, special studies that will be undertaken to support future management decisions.

        v. Includes a methodology (ies) that will assess the effectiveness of the BMPs to address the exceedances.

        vi. This report may be submitted in conjunction with the Annual Report unless the State or Regional Water Board directs an earlier submittal.

b. Submit any modifications to the report required by the State of Regional Water Board within 60 days of notification. The report is deemed approved within 60 days of its submission if no response is received from the State or Regional Water Board.

c. Implement the actions specified in the report in accordance with the acceptance or approval, including the implementation schedule and any modifications to this Order.

d. As long as the Permittee has complied with the procedure set forth above and is implementing the actions, the Permittee does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the State Water Board or the Regional Water Board to develop additional BMPs.

4. For Receiving Water Limitations associated with waterbody-pollutant combinations addressed in an adopted TMDL that is in effect and that has been incorporated in this Order, the Permittees shall achieve compliance as outlined in Part XX (Total Maximum Daily Load Provisions) of this Order. For Receiving Water Limitations associated with waterbody-pollutant combinations on the CWA 303(d) list, which are not otherwise addressed by Part XX or other applicable pollutant-specific provision of this Order, the Permittees shall achieve compliance as outlined in Part D.3 of this Order.

5. If a Permittee is found to have discharges from its MS4 causing or contributing to an exceedance of an applicable water quality standard or causing a condition of nuisance in the receiving water, the Permittee shall be deemed in compliance with Parts D.1 and D.2 above, unless it fails to implement the requirements provided in Parts D.3 and D.4 or as otherwise covered by a provision of this order specifically addressing the constituent in question, as applicable.

County of San Diego

THOMAS E. MONTGOMERY
COUNTY COUNSEL

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November 10, 2014

Laurie Walsh
San Diego Regional Water Quality Control Board
2375 Northside Drive, Suite 100
San Diego, California 92108

Via Email
Laurie.Walsh@waterboards.ca.gov

Re: Tentative Order R9-2015-0001, Place ID:658019LWalsh

Dear Ms. Walsh:

Please accept this correspondence as the County of San Diego's legal comments on the above Tentative Order. County Public Works staff will also be submitting technical comments on aspects of the Tentative Order prior to the comment deadline.

Because it is not clear at this point what legal impact the anticipated adoption of Order R9-2015-0001 will have upon the pending appeals with the State Water Resources Control Board of the order being amended (R9-2013-0001), the County renews all of its objections to various aspects of the Tentative Order as described in the County's Petition to the SWRCB in that proceeding (State Water Resources Control Board Petition and Request for Stay of County of San Diego designated A-2254 (h)), incorporated by reference to this objection letter.

Further, because the Tentative Order does not incorporate the changes requested by the County of San Diego or other petitioners in proceeding A-2254, the County renews all objections from all petitioners to R9-2013-0001 as applicable to the provisions of R9-2015-0001 when adopted by the RWQCB.

Very truly yours,

THOMAS E. MONTGOMERY, County Counsel

By James R. O'Day, Senior Deputy

JRO/tlm
13-90386

County of San Diego

RICHARD E. CROMPTON
DIRECTOR

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November 19, 2014

Ms. Laurie Walsh
San Diego Regional Water Quality Control Board
2375 Northside Drive, Suite 100
San Diego, CA 92108

Tentative Order R9-2015-0001, Place ID: 658018LWalsh

Dear Ms. Walsh:

Please accept this correspondence as the County of San Diego's technical comments on the above Tentative Order. Legal comments will be submitted under separate cover from the Office of County Counsel.

Permit Provision II.E.3.c.(3) enables each Copermittee, at its own discretion, to allow Priority Development Projects (PDPs) to participate in an alternative compliance program in lieu of implementing the onsite structural BMP performance requirements of Provisions II.E.3.c.(1) and II.E.3.c.(2). Alternative compliance is only allowed if the Copermittee determines that implementation of an alternative compliance project will result in a greater overall water quality benefit for the Watershed Management Area than fully complying with the onsite performance requirements.

A regional technical advisory committee (TAC) and stakeholder group have been formed to develop "Water Quality Equivalency" calculations that can be used to establish an objective, science-based method for determining whether an alternative compliance project will result in "greater overall water quality benefit." For example, if a PDP proposes to fund a stream rehabilitation project in lieu of fully implementing the stormwater retention requirements onsite, Water Quality Equivalency calculations would be used to establish an "apples-to-apples" comparison of the relative water quality benefits of each project. TAC members include representatives from various Copermittees, Regional Board staff, industry groups, environmental groups, academia, and regional technical experts, including SCCWRP, SANDAG, and CASQA.

The County of San Diego requests that the Water Quality Equivalency calculations currently under development by the TAC be included as an optional Copermittee deliverable for review and acceptance by the Regional Board Executive Officer. Water Quality Equivalency calculations will provide the scientific basis for Copermittees to create offsite alternative compliance programs via Section II.E.3.c.(3)(b) 'Project Applicant Proposed Alternative Compliance Projects'; Section II.E.3.c.(3)(c) 'Alternative Compliance In-lieu Fee Structure'; and/or Section II.E.3.c.(3)(d) 'Alternative Compliance Water Quality Credit System Option'. Regional Board acceptance of the proposed Water Quality Equivalency calculations would add a much needed measure of validity to the Copermittees' approach. Submittal to the Regional Board would also allow for public comment and participation from those not directly participating through the TAC or stakeholder group. The County requests that the Water Quality Equivalency calculations be accepted by the Regional Board Executive Officer before significant time and resources are expended on developing further offsite alternative compliance implementation strategies within the region.

We request the following language for inclusion at Section II.E.3.c.(3)(b) as follows:

> (b) Water Quality Equivalency
> The Copermittees may develop and submit Water Quality Equivalency calculations to the San Diego Water Board Executive Officer for review and acceptance. The purpose of Water Quality Equivalency calculations is to establish a regional and technical basis for determining the water quality benefits associated with alternative compliance projects as required in Provisions E.3.c.(3)(a)(i). Accepted Water Quality Equivalency calculations must be incorporated as part of any jurisdictional Alternative Compliance Program necessary for processing project applicant proposed projects, in-lieu fee structure, or water quality credit system.

Thank you for your consideration. If you have any questions, please contact Christine Sloan at (858) 495-5257 or by email at Christine.Sloan@sdcounty.ca.gov.

Sincerely,

Todd Snyder, Watershed Protection Program Manager
Department of Public Works

Walsh, Laurie@Waterboards

From: Tory Walker <tory@trwengineering.com>
Sent: Wednesday, November 19, 2014 4:25 PM
To: Walsh, Laurie@Waterboards
Subject: Comment - Tentative Order No. R9-2015-0001, Place ID:658018LWalsh

Laurie,

I appreciate the opportunity to comment on the above referenced tentative order. My comments are brief, but substantive, in that they relate to some important foundational assumptions:

1) Hydromodification requirements in the San Diego Region cannot properly be based on one category of stream or channel and treated as either geomorphically "stable" or highly dynamic – there is a wide variety, even within watersheds. This faulty assumption will not lead to good solutions for the streams they are intended to help.
2) Flow rate reductions caused by dams artificially reduces channel degradation – the hydromodification impacts from many of these dams means that runoff from PDPs may actually promote a more natural dynamic condition. The failure to recognize this possibility will also lead to solutions that are foundationally flawed.
3) All of this points to the need for the permit to accommodate more site-specific flexibility to reflect natural conditions.

Thanks,

Tory Walker, PE, CFM, LEED GA

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