

**FACT SHEET/TECHNICAL REPORT**

**FOR**

**TENTATIVE ORDER NO. R9-~~2006-0011~~2007-0001  
NPDES NO. CAS0108758**

**WASTE DISCHARGE REQUIREMENTS  
FOR  
DISCHARGES OF URBAN RUNOFF FROM  
THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)  
DRAINING THE WATERSHEDS OF THE COUNTY OF SAN DIEGO,  
THE INCORPORATED CITIES OF SAN DIEGO COUNTY,  
THE SAN DIEGO UNIFIED PORT DISTRICT, AND THE SAN DIEGO COUNTY  
REGIONAL AIRPORT AUTHORITY**

**JANUARY 24, 2007~~AUGUST 30, 2006~~**

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Attachment B – Responses to Comments dated August 30, 2006

Attachment C – Revised Tentative Order No. R9-2006-0011 dated December 13, 2006

Attachment D – Responses to Comments II dated December 13, 2006

Attachment E – Revised Tentative Order No. R9-2007-0001 dated January 24, 2007

Attachment F – Responses to Comments III dated January 24, 2007

## **I. LIST OF ACRONYMS AND ABBREVIATIONS**

ADT - Average Daily Traffic  
BAT - Best Available Technology  
BIA - Building Industry Association of San Diego County  
BMP - Best Management Practice  
Basin Plan - Water Quality Control Plan for the San Diego Basin  
CASQA - California Stormwater Quality Association  
CCC - California Coastal Commission  
CDFG - California Department of Fish and Game  
CEQA - California Environmental Quality Act  
CFR - Code of Federal Regulations  
Copermittees - County of San Diego, the 18 incorporated cities within the County of San Diego, the San Diego Unified Port District, and the San Diego County Regional Airport Authority  
CWA - Clean Water Act  
CWC - California Water Code  
CZARA - Coastal Zone Act Reauthorization Amendments of 1990  
ESAs - Environmentally Sensitive Areas  
FR - Federal Register  
GIS - Geographic Information System  
IC/ID - Illicit Connections and Illicit Discharges  
JURMP - Jurisdictional Urban Runoff Management Plan  
LARWQCB - Los Angeles Regional Water Quality Control Board  
MEP - Maximum Extent Practicable  
MRP - Receiving Waters Monitoring and Reporting Program  
MS4 - Municipal Separate Storm Sewer System  
NOI - Notice of Intent  
NPDES - National Pollutant Discharge Elimination System  
NRDC - Natural Resources Defense Council  
NURP - Nationwide Urban Runoff Program  
Regional Board - San Diego Regional Water Quality Control Board  
RGOs - Retail Gasoline Outlets  
ROWD - San Diego County Copermittees' Report of Waste Discharge  
RURMP - Regional Urban Runoff Management Plan  
RWLs - Receiving Water Limitations  
SANDAG - San Diego Association of Governments  
SIC - Standard Industrial Classification Code  
SUSMP - Standard Urban Storm Water Mitigation Plan  
SWMP - Storm Water Management Plan  
SWRCB - State Water Resources Control Board  
SWPPP - Storm Water Pollution Prevention Plan  
TAC - State Water Resources Control Board Urban Runoff Technical Advisory Committee  
TIE - Toxicity Identification Evaluation  
TMDL - Total Maximum Daily Load  
USEPA - United States Environmental Protection Agency  
WDRs - Waste Discharge Requirements  
WLAs - Waste Load Allocation  
WQC - Water Quality Criteria

WQBELs - Water Quality Based Effluent Limits  
WSPA - Western States Petroleum Association  
WURMP - Watershed Urban Runoff Management Plan

## II. FACT SHEET FORMAT

This Fact Sheet briefly sets forth the principle facts and the significant factual, legal, methodological, and policy questions that the California Regional Water Quality Control Board, San Diego Region (Regional Board) considered in preparing Order No. R9-~~2006-0011~~2007-0001. In accordance with the Code of Federal Regulations (CFR) title 40 parts 124.8 and 124.56, this Fact Sheet includes, but is not limited to, the following information:

- Contact information
- Public process and notification procedures
- Background information
- Permitting approach discussion
- Economic issues discussion
- Legal authority discussion
- Findings discussions
- Directives discussions

The main body of the Fact Sheet (sections IX and X) reflects the findings and requirements of the Order as they were originally proposed in Tentative Order No. R9-2006-0011, dated March 10, 2006. Through the subsequent public participation process, the findings and requirements of the Tentative Order evolved and were modified in response to comments received. These modifications, as well as discussions providing the rationale for the modifications, are provided in the Attachments to the Fact Sheet.

The Regional Board's files applicable to the issuance of Order No. R9-2007-0001 are incorporated into the administrative record in support of the findings and requirements of Order No. R9-2007-0001.

## III. CONTACT INFORMATION

### Regional Board

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The Order and other related documents can be downloaded from the Regional Board website at:  
[http://www.waterboards.ca.gov/sandiego/programs/sd\\_stormwater.html](http://www.waterboards.ca.gov/sandiego/programs/sd_stormwater.html)

All documents referenced in this Fact Sheet and in Order No. R9-~~2006-0011~~2007-0001 are available for public review at the Regional Board office, located at the address listed above. Public records are available for inspection during regular business hours, from 8:00 am to 5:00

pm Monday through Friday. To schedule an appointment to inspect public records, contact Sylvia Wellnitz at 858-637-5593, or DiAnne Broussard at 858-492-1763.

**Copermittees**

County of San Diego Department of Public Works Jon Van Rhyn 9325 Hazard Way San Diego, CA 92123 (858) 495-5133	City of El Cajon John Phillips 200 East Main St., Floor 4 El Cajon, CA 92020 (619) 441-5580	City of Oceanside Water Utilities Department Mo Lahsaie 300 N. Coast Highway Oceanside, CA 92057 (760) 435-5803
Unified Port of San Diego Karen Helyer P.O. Box 120488 San Diego, CA 92112-0488 (619) 725-6073	City of Encinitas Kathy Weldon 505 S. Vulcan Avenue Encinitas, CA 92024 (760) 633-2632	City of Poway Development Services Danis Bechter P.O. Box 789 Poway, CA 92074 (858) 668-4630
San Diego County Regional Airport Authority Paul Manasjan P.O. Box 82776 San Diego, CA 92138-2776 (619) 400-2783	City of Escondido Patrick Thomas 201 N. Broadway Escondido, CA 92025 (760) 839-6315	City of San Diego Stormwater Pollution Prevention Program Chris Zirkle 1970 B Street San Diego, CA 92101 (619) 525-8647
City of Carlsbad Elaine Lukey 1635 Faraday Avenue Carlsbad, CA 92008 (760) 602-7580	City of Imperial Beach Hank Levien 825 Imperial Beach Blvd. Imperial Beach, CA 91932 (619) 628-1370	City of San Marcos Public Works Jasen Boyens 201 Mata Way San Marcos, CA 92069 (760) 752-7550X3333
City of Chula Vista Khosro Aminpour 1800 Maxwell Road Chula Vista, CA 91911 (619) 397-6111	City of La Mesa Malik Tamimi 8130 Allison Avenue La Mesa, CA 91941 (619) 667-1153	City of Santee Cary Stewart 10601 Magnolia Avenue Santee, CA 92071 (619) 258-4100
City of Coronado Public Services Scott Huth 101 B Avenue Coronado, CA 92118 (619) 522-7312	City of Lemon Grove Cora Long 3232 Main Street Lemon Grove, CA 91945 (619) 825-3800X3925	City Of Solana Beach Danny King 635 South Highway 101 Solana Beach, CA 92075 (858) 720-2477
City of Del Mar Rosanna Lacarra 9275 Sky Park Court, Suite 200 San Diego, CA 92123 (858) 874-1810	City of National City Din Daneshfar 1243 National City Blvd. National City, CA 91950 (619) 336-4387	City of Vista Engineering Linda Isakson 1165 East Taylor Street Vista, Ca 92084 (760) 726-1340

**IV. PUBLIC PROCESS AND NOTIFICATION PROCEDURES**

The Regional Board followed the schedule listed below for the preparation of Order No. R9-~~2006-001~~+2007-0001:

- In July 2004, the Regional Board issued the San Diego County Municipal Storm Water Permit Reissuance Analysis Summary, which considered various permitting options such as watershed-based permits and identified the Regional Board’s preferred permitting approach for this permit cycle. The Regional Board solicited and received public comments on the document.

- From October 2004 to July 2005, the Regional Board met with the County of San Diego, the 18 incorporated cities within the County of San Diego, and the San Diego Unified Port District (hereinafter Copermittees) representatives on six occasions to discuss the Copermittees' Report of Waste Discharge (ROWD) and potential changes to the permit.
- The Regional Board received the ROWD on August 25, 2005.
- On September 14, 2005, the Regional Board held a public workshop to inform Regional Board members of the principal issues facing permit re-issuance and allow interested parties to address the Regional Board on permit issues.
- On December 14, 2005, the Regional Board held a workshop on the requirements for fiscal assurances in municipal separate storm sewer system (MS4) permits in the San Diego Region.
- On March 10, 2006, the Regional Board released the Tentative Order and supporting Fact Sheet, beginning the public comment period.
- On April 26, 2006, the Regional Board held a workshop on the requirements of the Tentative Order.
- On May 24, 2006, the Regional Board held a workshop on the requirements of the Tentative Order.
- On June 21, 2006, the Regional Board held a public hearing on the requirements of the Tentative Order.
- On August 30, 2006, the Regional Board released a revised Tentative Order and supporting Fact Sheet, as well as a Responses to Comments document.
- Until October 30, 2006, the Regional Board accepted written comments on the revised Tentative Order.
- On December 4, 2006, the Regional Board released a second revised Tentative Order and supporting Fact Sheet, as well as a Responses to Comments II document (all dated December 13, 2006). Starting December 15, 2006, the Regional Board accepted comments on revisions made in the second revised Tentative Order.
- On January 15, 2007, the Regional Board released a third revised Tentative Order and supporting Fact Sheet, as well as a Responses to Comments III document (all dated January 24, 2007).
- On January 24, 2007, the Regional Board accepted oral comments on all revisions made to the Tentative Order following the June 21, 2006 public hearing.
- On (date), the Regional Board adopted Order No. R9-2007-0001.

## V. BACKGROUND

The federal Clean Water Act (CWA) was amended in 1987 to address urban runoff. One requirement of the amendment was that many municipalities throughout the United States were obligated for the first time to obtain National Pollutant Discharge Elimination System (NPDES) permits for discharges of urban runoff from their MS4s. In response to the CWA amendment (and the pending federal NPDES regulations which would implement the amendment), the Regional Board issued a municipal storm water permit, Order No. 90-42, in July 1990 to the Copermittees for their urban runoff discharges.<sup>1</sup>

Five years after adoption, Order No. 90-42 was due for renewal in July 1995, but was administratively extended pursuant to federal law because of limited Regional Board resources. Two formal drafts of the renewal permit were released to the public (in 1995 and 1998

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<sup>1</sup> The San Diego County Regional Airport Authority was not added as a Copermittee until 2003, at the time when it separated from the San Diego Unified Port District.

respectively) and substantial written public comments on the drafts were considered by the Regional Board. In addition, the Regional Board convened a working group of Copermittees and stakeholders in 1997 and 1998 to advise the Regional Board on permit renewal issues. Despite the efforts by the public, the stakeholder group, and Regional Board, and in part due to the concurrent issuance and appeal of three other municipal storm water permits, Order No. 90-42 was not reissued by the Regional Board until February 21, 2001 as Order No. 2001-01.

The regulatory approach incorporated into Order No. 2001-01 was a significant departure from the regulatory approach of Order No. 90-42. Where Order No. 90-42 included broad nonspecific requirements in order to provide the Copermittees with the maximum amount of flexibility in implementing their programs, Order No. 2001-01 utilized detailed specific requirements which outlined the minimum level of implementation required for the Copermittees' programs. The shift in permitting approaches from Order No. 90-42 to Order No. 2001-01 resulted from the Regional Board's conclusion that the lack of specificity in Order No. 90-42 resulted in frequently unenforceable permit requirements, which in turn allowed some Copermittees to only make limited progress in implementing their programs.

Partially due to this shift in regulatory approaches, as well as new categories of permit requirements, the adoption process for Order No. 2001-01 generated extensive interest. Over 1,500 public comments were received on the Order, though many were duplicative. In addition, five public workshops were held covering various aspects of the Order. Following this extensive public participation process, the Regional Board adopted Order No. 2001-01 on February 21, 2001.

Subsequently, Order No. 2001-01 was administratively appealed to the State Water Resources Control Board (SWRCB) in March 2001 by the Building Industry Association of San Diego County (BIA) and the Western States Petroleum Association (WSPA). BIA utilized an across-the-board approach to its appeal, challenging a wide range of requirements included in the Order, while WSPA challenged the Order's legality in requiring treatment of runoff from retail gasoline outlets. In Order No. 2001-15, the SWRCB upheld the vast majority of the Order's requirements challenged by BIA, making insignificant alterations for clarification purposes to three of the Order's requirements. The SWRCB ruled in favor of WSPA, however, determining that the Regional Board had not adequately supported its position regarding retail gasoline outlets in the order's findings and fact sheet.

BIA continued its challenge of the Order in the Superior Court of the State of California, San Diego County in 2002. At that time, BIA was joined by several building industry and other groups, as well as the City of Santee and the City of San Marcos. The Court ruled in favor of the Regional Board on all counts, with all requirements of the Order being upheld. In particular, the Court found that the Order's requirements had not been shown to be impracticable or unreasonable, including provisions requiring compliance with receiving water quality standards. The Court also found that the Regional Board is exempt from California Environmental Quality Act (CEQA) review when adopting municipal storm water permits.

Following the Superior Court decision, BIA, several building industry and other groups, and the City of San Marcos appealed to the State of California Court of Appeal, Fourth Appellate District. Again the Order was upheld on all counts, with the court making the primary finding that the Regional Board has the authority to require compliance with state water quality standards in storm water permits. BIA's final appeal was to the State of California Supreme Court, which declined to hear the issue in March 2005.



Since adoption of Order No. 2001-01, and despite the subsequent legal actions, the Copermittees' storm water programs have expanded dramatically. Audits of the Copermittees' programs exhibit that the Copermittees' jurisdictional programs are largely in compliance with the Order. Some of the efforts currently being conducted on a regular basis by the Copermittees, which were not conducted on a widespread basis prior to adoption of Order No. 2001-01, include: construction site storm water inspections, industrial and commercial facility storm water inspections, municipal facility storm water inspections, management of storm water quality from new development, development of best management practice requirements for existing development, and assessment of storm water program effectiveness.

However, when viewed relative to the magnitude of the urban runoff problem, enormous challenges remain, particularly regarding the management of urban runoff on a watershed level. Today, urban runoff continues to be the leading cause of water quality impairment in the San Diego Region. The Copermittees' monitoring data exhibits persistent exceedances of water quality objectives in most watersheds. Many watersheds also have urban runoff conditions that are frequently toxic to aquatic life. Bioassessment data from the watersheds further reflects these conditions, finding that macroinvertebrate communities in creeks have widespread Poor to Very Poor Index of Biotic Integrity ratings. Finally, the now too familiar "health advisory or beach closure" signs, which often result from high levels of bacteria in urban runoff, exhibit the continued threat to public health by urban runoff.

## **VI. PERMITTING APPROACH (PROGRAM INTEGRATION, FLEXIBILITY, AND DETAIL)**

The Order contains an increased emphasis ~~on~~ urban runoff management on a watershed basis. This shift towards increased watershed urban runoff management is consistent with earlier planning efforts conducted by the Regional Board regarding reissuance of Order No. 2001-01.<sup>2</sup> It is also consistent with the Copermittees' ROWD.<sup>3</sup> There are several reasons for this shift in emphasis. First, it has been found that the Copermittees are generally doing an effective job at implementing their jurisdictional programs, while on the other hand, it has been found that the Copermittees' watershed programs need improvement. In addition, an emphasis on watersheds is necessary to shift the focus of the Copermittees from program implementation to water quality results. After over 15 years of Copermittee program implementation, it is critical that the Copermittees link their efforts with positive impacts on water quality. Addressing urban runoff management on a watershed scale focuses on water quality results by emphasizing the receiving waters within the watershed. The conditions of the receiving waters drive management actions, which in turn focus on the water quality problems of the receiving waters in each watershed.

Focusing on watershed implementation does not mean that the Copermittees must expend funds outside of their jurisdictions, however. Rather, the Copermittees within each watershed are expected to collaborate to develop a watershed strategy to address the high priority water quality problems within each watershed. They then have the option of implementing the strategy in the manner they find to be most effective. Each Copermittee can implement the strategy individually within its jurisdiction, or the Copermittees can group together to implement the strategy throughout the watershed as a group.

While the Order includes a new emphasis on addressing urban runoff on a watershed basis, the Order includes recognition of the importance of continued program implementation on

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<sup>2</sup> Regional Board, 2004. San Diego County Municipal Storm Water Permit Reissuance Summary. P. 7.

<sup>3</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. C-12.



jurisdictional and regional levels. The Order also acknowledges that jurisdictional, watershed, and regional efforts are not always mutually exclusive. For this reason, an attempt has been made to allow for the Copermittees' jurisdictional, watershed, and regional programs to integrate. In the Order, the watershed requirements serve as the mechanism for this program integration. Since jurisdictional and regional activities can also serve watershed purposes, such activities can be integrated into the Copermittees' watershed programs, provided the activities meet certain criteria. In this manner, the Copermittees' activities do not always need to distinguish between jurisdictional, watershed, and regional levels of implementation. Instead, they can be integrated on multiple levels.

Such opportunities for program integration inherently provide flexibility to the Copermittees in implementing their programs. Program integration can be expanded or minimized as the Copermittees see fit. For example, there is flexibility provided in determining the activities to be integrated and implemented in the watershed programs – watershed-based efforts, regional efforts, enhanced jurisdictional efforts, or a mixture of the three. Significant flexibility is also provided throughout other portions of the Order. Copermittees can choose the best management practices (BMPs) to be implemented, or required to be implemented, for development, construction, and existing development areas. Flexibility to determine which industrial or commercial sites are to be inspected is also provided to the Copermittees. Educational approaches are also to be determined by the Copermittees under the Order. Implementation of efforts on a regional basis is largely optional for the Copermittees as well. Significant leeway is also provided to the Copermittees in utilizing methods to assess the effectiveness of their various urban runoff management programs. This flexibility is further extended to the monitoring program requirements, which allow the Copermittees to develop monitoring approaches to several aspects of the monitoring program.

The challenge in drafting the Order is to provide the flexibility described above while ensuring that the Order is still enforceable. To achieve this, the Order frequently prescribes minimum measurable outcomes, while providing the Copermittees with flexibility in the approaches they use to meet those outcomes. Enforceability has been found to be a critical aspect of the Order. For example, the watershed requirements of Order No. 2001-01 were some of the most flexible requirements found in that Order. This lack of specificity in the watershed requirements resulted in disagreement about the adequacy of the Copermittees' watershed compliance efforts. On one hand, the Regional Board considered the Copermittees' watershed efforts to be inadequate because they would not result in a significant reduction in pollutant discharges. On the other hand, the Copermittees contended their watershed programs were adequate and in compliance with Order No. 2001-01, even after being notified by the Regional Board of needed improvements on multiple occasions spanning several years. This situation reflects a common outcome of flexible permit language. Such language can be unclear and unenforceable, and lead to implementation of inadequate programs.

To avoid these types of situations, a balance between flexibility and enforceability has been crafted into the Order. Minimum measurable outcomes are utilized to ensure the Order is enforceable, while the Copermittees are provided flexibility in deciding how they will implement their programs to meet the minimum measurable outcomes.

## **VII. ECONOMIC ISSUES**

Economic discussions of urban runoff management programs tend to focus on costs incurred by municipalities in developing and implementing the programs. Understandably so, since these costs are significant. However, when considering the cost of implementing the urban runoff

programs, it is also important to consider the alternative costs incurred by not fully implementing the programs, as well as the benefits which result from program implementation.

It is very difficult to ascertain the true cost of implementation of the Copermittees' urban runoff management programs because of inconsistencies in reporting by the Copermittees. Reported costs of compliance for the same program element can vary widely from city to city, often by a very wide margin that is not easily explained.<sup>4</sup> Despite these problems, efforts have been made to identify urban runoff management program costs, which can be helpful in understanding the costs of program implementation.

In 1999, United States Environmental Protection Agency (USEPA) reported on multiple studies it conducted to determine the cost of urban runoff management programs. A study of Phase II municipalities determined that the annual cost of the Phase II program was expected to be \$9.16 per household. USEPA also studied 35 Phase I municipalities, finding costs to be similar to those anticipated for Phase II municipalities, at \$9.08 per household annually.<sup>5</sup> The USEPA cost estimate for Phase I municipalities is valuable because it considers municipalities (including Orange County and cities) that are implementing programs similar to those required in San Diego.

A study on program cost was also conducted by the Los Angeles Regional Water Quality Control Board (LARWQCB), where program costs reported in the municipalities' annual reports were assessed. The LARWQCB estimated that average per household cost to implement the MS4 program in Los Angeles County was \$12.50. Since the Los Angeles County permit is very similar to Order No. 2001-01, this estimate is useful in assessing general program costs in San Diego County.

The SWRCB also recently commissioned a study by the California State University, Sacramento to assess costs of the Phase I MS4 program. This study is current and includes an assessment of costs incurred by the City of Encinitas in implementing their program. Annual cost per household in the study ranged from \$18-46, with the City of Encinitas representing the upper end of the range.<sup>6</sup> The cost of the City of Encinitas' program is understandable, given the city's coastal location, reliance on tourism, and consent decree with environmental groups regarding its program. For these reasons, as well as the general recognition the City of Encinitas receives for implementing a superior program, the city's program cost can be considered as the high end of the spectrum for Copermittee urban runoff management program costs.

It is important to note that reported program costs are not all attributable to compliance with MS4 permits. Many program components, and their associated costs, existed before any MS4 permits were ever issued. For example, street sweeping and trash collection costs cannot be solely or even principally attributable to MS4 permit compliance, since these practices have long been implemented by municipalities. Therefore, true program cost resulting from MS4 permit requirements is some fraction of reported costs. The California State University, Sacramento study found that only 38% of program costs are new costs fully attributable to MS4 permits. The remainder of the program costs were either pre-existing or resulted from enhancement of pre-existing programs.<sup>7</sup> The County of Orange found that even lesser amounts of program costs are solely attributable to MS4 permit compliance, reporting that the amount attributable to implement

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<sup>4</sup> LARWQCB, 2003. Review and Analysis of Budget Data Submitted by the Permittees for Fiscal Years 2000-2003. P. 2.

<sup>5</sup> Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68791-68792.

<sup>6</sup> SWRCB, 2005. NPDES Stormwater Cost Survey. P. ii.

<sup>7</sup> Ibid. P. 58.

the Drainage Area Management Plan, which is similar to the Jurisdictional Urban Runoff Management Program in the San Diego County MS4 permit, is less than 20% of the total budget. The remaining 80% is attributable to pre-existing programs.<sup>8</sup>

It is also important to acknowledge that the vast majority of costs that will be incurred as a result of implementing Order No. R9-~~2006-001~~2007-0001 are not new. Urban runoff management programs have been in place in San Diego County for over 15 years. Any increase in cost to the Copermittees will be incremental in nature. Moreover, since Order No. R9-~~2006-001~~2007-0001 “fine tunes” the requirements of Order No. 2001-01, these cost increases are expected to be modest.

Urban runoff management programs cannot be considered in terms of their costs only. The programs must also be viewed in terms of their value to the public. For example, household willingness to pay for improvements in fresh water quality for fishing and boating has been estimated by USEPA to be \$158-210.<sup>9</sup> This estimate can be considered conservative, since it does not include important considerations such as marine waters benefits, wildlife benefits, or flood control benefits. The California State University, Sacramento study corroborates USEPA’s estimates, reporting annual household willingness to pay for statewide clean water to be \$180.<sup>10</sup> When viewed in comparison to household costs of existing urban runoff management programs, these household willingness to pay estimates exhibit that per household costs incurred by Copermittees to implement their urban runoff management programs remain reasonable.

Another important way to consider urban runoff management program costs is to consider the implementation cost in terms of costs incurred by not improving the programs. Urban runoff in southern California has been found to cause illness in people bathing near storm drains.<sup>11</sup> A study of south Huntington Beach and north Newport Beach found that an illness rate of about 0.8% among bathers at those beaches resulted in about \$3 million annually in health-related expenses.<sup>12</sup> Extrapolation of such numbers to the wide range of beaches of San Diego County could result in huge expenses to the public.

Urban runoff and its impact on receiving waters also places a cost on tourism. In past years, San Diego was featured in the national press for its water quality problems.<sup>13</sup> Such news can have a negative impact on San Diego tourism, since polluted beaches are generally not attractive to tourists. According to a 1996 San Diego Association of Governments (SANDAG) Memorandum, the California Division of Tourism has estimated that each out-of-state visitor spends \$101.00 a day. The memo goes on to state that based on projections from the California Department of Boating and Waterways, nearly \$1.2 billion in direct revenue and \$1.2 billion in indirect revenue is pumped into the San Diego area economy each year by out-of-state visitors.<sup>14</sup> The experience of Huntington Beach provides an example of the potential economic impact of poor water quality. Approximately 8 miles of Huntington Beach were closed for two months in the middle of summer of 1999, impacting beach visitation and the local economy.

<sup>8</sup> County of Orange, 2000. A NPDES Annual Progress Report. P. 60. More current data from the County of Orange is not used in this discussion because the County of Orange no longer reports such information.

<sup>9</sup> Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68793.

<sup>10</sup> SWRCB, 2005. NPDES Stormwater Cost Survey. P. iv.

<sup>11</sup> Haile, R.W., et al, 1996. An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay. Santa Monica Bay Restoration Project.

<sup>12</sup> Los Angeles Times, May 2, 2005. Here’s What Ocean Germs Cost You: A UC Irvine Study Tallies the Cost of Treatment and Lost Wages for Beachgoers Who Get Sick.

<sup>13</sup> Regional Board, 2001. Fact Sheet/Technical Report for SDRWQCB Order No. 2001-01. P. 8.

<sup>14</sup> San Diego Association of Governments, 1996. Memorandum: California Department of Boating and Waterways: Unpublished Survey Information Regarding Beach Use. Written to the Shoreline Erosion Committee.

Finally, it is important to consider the benefits of urban runoff management programs in conjunction with their costs. A recent study conducted by USC/UCLA assessed the costs and benefits of implementing various approaches for achieving compliance with the MS4 permits in the Los Angeles Region. The study found that non-structural systems would cost \$2.8 billion but provide \$5.6 billion in benefit. If structural systems were determined to be needed, the study found that total costs would be \$5.7 to \$7.4 billion, while benefits could reach \$18 billion.<sup>15</sup> Costs are anticipated to be borne over many years – probably ten years at least. As can be seen, the benefits of the programs are expected to considerably exceed their costs. Such findings are corroborated by USEPA, which found that the benefits of implementation of its Phase II storm water rule would also outweigh the costs.<sup>16</sup>

Additional discussion of economic issues can be found at section 3 of the Fact Sheet/Technical Report for ~~Region Board-SDRWQCB~~ Order No. 2001-01, available at:

[http://www.waterboards.ca.gov/sandiego/programs/sd\\_stormwater.html](http://www.waterboards.ca.gov/sandiego/programs/sd_stormwater.html).

## VIII. LEGAL AUTHORITY

The following statutes, regulations, and Water Quality Control Plans provide the basis for the requirements of Order No. R9-~~2006-001~~2007-0001: CWA, California Water Code (CWC), 40 CFR Parts 122, 123, 124 (National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, Final Rule), Part II of 40 CFR Parts 9, 122, 123, and 124 (National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule), Water Quality Control Plan – Ocean Waters of California (California Ocean Plan), Water Quality Control Plan for the San Diego Basin (Basin Plan), 40 CFR 131 Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule (California Toxics Rule), and the California Toxics Rule Implementation Plan.

The ~~following~~ legal authority citations below generally apply to directives in Order No. R9-~~2006-001~~2007-0001, and provide the Regional Board with ample underlying authority to require each of the directives of Order No. R9-~~2006-001~~2007-0001. Legal authority citations are also provided with each permit section discussion in section X of this Fact Sheet/Technical Report.

CWA 402(p)(3)(B)(ii) – The CWA requires in section 402(p)(3)(B)(ii) that permits for discharges from municipal storm sewers “shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers.”

CWA 402(p)(3)(B)(iii) – The CWA requires in section 402(p)(3)(B)(iii) that permits for discharges from municipal storm sewers “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.”

40 CFR 122.26(d)(2)(i)(B,C,E, and F) – Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) provide that each Copermittee’s permit application “shall consist of: (i) Adequate legal authority. A demonstration that the applicant can operate pursuant to legal

<sup>15</sup> LARWQCB, 2004. Alternative Approaches to Stormwater Control.

<sup>16</sup> Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68791.

authority established by statute, ordinance or series of contracts which authorizes or enables the applicant at a minimum to: [...] (B) Prohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer; (C) Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water; [...] (E) Require compliance with condition in ordinances, permits, contracts or orders; and (F) Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.”

40 CFR 122.26(d)(2)(iv) – Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) provides that the Copermittee shall develop and implement a proposed management program which “shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate. The program shall also include a description of staff and equipment available to implement the program. [...] Proposed programs may impose controls on a system wide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. [...] Proposed management programs shall describe priorities for implementing controls.”

40 CFR 122.26(d)(2)(iv)(A - D) – Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff from new development and significant redevelopment, construction, and commercial, residential, industrial, and municipal land uses or activities. Control of illicit discharges is also required.

CWC 13377 – CWC section 13377 provides that “Notwithstanding any other provision of this division, the state board or the regional boards shall, as required or authorized by the CWA, as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with anymore stringent effluent standards or limitation necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.”

Order No. R9-~~2006-001~~2007-0001 is an essential mechanism for achieving the water quality objectives that have been established for protecting the beneficial uses of the water resources in the San Diego Region portion of San Diego County. Federal NPDES regulation 40 CFR 122.44(d)(1) requires MS4 permits to include any requirements necessary to “achieve water quality standards established under CWA section 303, including State narrative criteria for water quality.” The term “water quality standards” in this context refers to a water body’s beneficial uses and the water quality objectives necessary to protect those beneficial uses, as established in the Basin Plan.

## **IX. FINDINGS DISCUSSION**

The findings of the Order have been modified to reduce repetition in their discussions and address new requirements. Each finding of the Order is provided and discussed below. Additional discussion relative to the findings can be found in section X of the Fact Sheet, which provides discussions of the Order’s directives.



## A. Basis For The Order

**Finding A.1:** This Order is based on the federal CWA, the Porter-Cologne Water Quality Control Act (Division 7 of the CWC, commencing with Section 13000), applicable state and federal regulations, all applicable provisions of statewide Water Quality Control Plans and Policies adopted by the SWRCB, the Basin Plan, the California Toxics Rule, and the California Toxics Rule Implementation Plan.

**Discussion:** In 1987, Congress established CWA Amendments to create requirements for storm water discharges under the NPDES program, which provides for permit systems to regulate the discharge of pollutants. Under the Porter-Cologne Water Quality Control Act, the SWRCB and Regional Water Quality Control Boards (Regional Boards) have primary responsibility for the coordination and control of water quality, including the authority to implement the CWA. Porter-Cologne (section 13240) directs the Regional Boards to set water quality objectives via adoption of Basin Plans that conform to all state policies for water quality control. As a means for achieving those water quality objectives, Porter-Cologne (section 13243) further authorizes the Regional Boards to establish waste discharge requirements (WDRs) to prohibit waste discharges in certain conditions or areas. Since 1990, the Regional Board has issued area-wide MS4 NPDES permits. The Order will renew Order No. 2001-01 to comply with the CWA and attain water quality objectives in the Basin Plan by limiting the contributions of pollutants conveyed by urban runoff. Further discussions of the legal authority associated with the prohibitions and directives of the Order are provided in section VIII this document.

**Finding A.2:** This Order renews NPDES Permit No. CAS0108758, which was first issued on July 16, 1990 (Order No. 90-42), and then renewed on February 21, 2001 (Order No. 2001-01). On August 25, 2005, in accordance with Order No. 2001-01, the County of San Diego, as the Principal Permittee, submitted a ROWD for renewal of their MS4 Permit.

**Discussion:** Supporting information discussing the topic of this finding can be found in section V of this document.

## B. Regulated Parties

**Finding No. B.1:** Each of the Copermittees listed in Table 1 of the Order owns or operates a MS4, through which it discharges urban runoff into waters of the United States 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 United States.

**Discussion:** Section 402 of the CWA prohibits the discharge of any pollutant to waters of the United States from a point source, unless that discharge is authorized by a NPDES permit. Though urban runoff comes from a diffuse source, it is discharged through MS4s, which are point sources under the CWA. Federal NPDES regulation 40 CFR 122.26(a) (iii) and (iv) provide that discharges from MS4s, which service medium or large populations greater than 100,000 or 250,000 respectively, shall be required to obtain a NPDES permit. Federal NPDES regulation 40 CFR 122.26(a)(v) also provides that a NPDES permit is required for “A [storm water] discharge which the Director, or in States with approved NPDES programs, either the Director or the USEPA Regional Administrator, determines to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.” Such sources

are then designated into the program. Please see Attachment 1 of the Fact Sheet/Technical Report for Regional Board Order No. 2001-01 for an explanation on NPDES municipal storm water permit coverage for each municipality.<sup>17</sup> The San Diego County Regional Airport Authority, designated a Copermittee in 2003, was previously a part of the San Diego Unified Port District and has an MS4 interrelated to other Copermittee MS4s.

Other small MS4s, such as those serving universities and military installations, also exist within the watersheds of San Diego County. While these MS4s are not subject to this Order, they are subject to the Phase II NPDES storm water regulations. Over time, these MS4s will be designated for coverage under the SWRCB's statewide general storm water permit for small MS4s.

### **C. Discharge Characteristics**

**Finding No. C.1:** Urban runoff contains waste, as defined in the CWC, and pollutants that adversely affect the quality of waters of the State. The discharge of urban runoff from an MS4 is a "discharge of pollutants from a point source" into waters of the United States as defined in the CWA.

**Discussion:** Section 13050(d) of the CWC defines "waste" 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." 40 CFR 122.2 defines "point source" as "any discernable, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, 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." 40 CFR 122.2 defines "discharge of a pollutant" as "Any addition of any pollutant or combination of pollutants to waters of the U.S. from any point source." Also, the justification for control of pollution into waters of the state can be found at CWC section 13260(a)(1). SWRCB Order WQ 2001-15 verifies that urban runoff contains waste.<sup>18</sup>

**Finding C.2:** The most common categories of pollutants in urban runoff include total suspended solids, sediment (due to anthropogenic activities); pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers), oxygen-demanding substances (decaying vegetation, animal waste), and trash.

**Discussion:** The National Urban Runoff Program (NURP) study showed that heavy metals, organics, coliform bacteria, nutrients, oxygen demanding substances (e.g., decaying vegetation), and total suspended solids are found at relatively high levels in urban runoff.<sup>19</sup> It also found that MS4 discharges draining residential, commercial, and light industrial areas contain significant loadings of total suspended solids and other pollutants. The Basin Plan goes on to identify urban

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<sup>17</sup> Regional Board, 2001. Fact Sheet/Technical Report for SDRWQCB Order No. 2001-01. Attachment 1.

<sup>18</sup> SWRCB, 2001. Order WQ 2001-15. In the Matter of Petitions of Building Industry Association of San Diego County and Western States Petroleum Association: For Review of Waster Discharge Requirements Order No. 2001-01 for Urban Runoff from San Diego County [NPDES No. CAS0108758] Issued by the Regional Board.

<sup>19</sup> Ibid.



runoff pollutants to include lawn and garden chemicals, household and automotive care products dumped or drained on streets, and sediment that erodes from construction sites.<sup>20</sup> In addition, the SWRCB Urban Runoff Technical Advisory Committee (TAC) finds that urban runoff pollutants include sediments, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, pathogenic bacteria, viruses, and pesticides.<sup>21</sup> Runoff that flows over streets, parking lots, construction sites, and industrial, commercial, residential, and municipal areas carries these untreated pollutants through storm drain networks directly to the receiving waters of the San Diego Region.

**Finding No. C.3:** 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 (i.e., unreasonable impairment of water quality for designated beneficial uses), contamination, or nuisance.

**Discussion:** The 1992, 1994, and 1996 National Water Quality Inventory Reports to Congress prepared by USEPA showed a trend of impairment in the nation's waters from contaminated storm water and urban runoff.<sup>22</sup> The 1998 National Water Quality Inventory Report showed that urban runoff discharges affect 11% of rivers, 12% of lakes, and 28% of estuaries. The report states that ocean shoreline impairment due to urban runoff increased from 55% in 1996 to 63% in 1998. The report notes that urban runoff discharges are the leading source of pollution and the main factor in the degradation of surface water quality in California's coastal waters, rivers, and streams. Furthermore, the NURP study found that pollutant levels from illicit discharges were high enough to significantly degrade receiving water quality, and threaten aquatic life, wildlife, and human health.<sup>23</sup>

In addition, the Region's CWA section 303(d) list, which identifies water bodies with impaired beneficial uses within the region, also indicates that the impacts of urban runoff on receiving waters are significant. Many of the impaired water bodies on the 303(d) list are impaired by constituents which have been found at high levels within urban runoff by the regional storm water monitoring program.<sup>24</sup> Examples of constituents frequently responsible for beneficial use impairment include total and fecal coliform, heavy metals, and sediment; these constituents have been found at high levels in urban runoff both regionally and nationwide.<sup>25,26</sup>

**Finding No. C.4:** Pollutants in urban runoff can threaten human health. Human illnesses have been clearly linked to recreating near storm drains flowing to coastal waters. Also, urban runoff pollutants in receiving waters can bioaccumulate in the tissues of invertebrates and fish, which may be eventually consumed by humans.

**Discussion:** A landmark study, conducted by the Santa Monica Bay Restoration Project, found that there was an increased occurrence of illness in people that swam in proximity to a flowing

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<sup>20</sup> Regional Board, 1994. Water Quality Control Plan, San Diego Basin, Region 9. San Diego.

<sup>21</sup> SWRCB, 1994. Urban Runoff Technical Advisory Committee Report and Recommendations. Nonpoint Source Management Program.

<sup>22</sup> USEPA, 2000. Quality of Our Nation's Waters: Summary of the National Water Quality Inventory 1998 Report to Congress – USEPA 841-S-00-001; Water Quality Conditions in the United States: Profile from the 1998 National Water Quality Inventory Report to Congress – USEPA 841-F-00-006.

<sup>23</sup> USEPA, 1993. Results of the Nationwide Urban Runoff Program, Volume 1 – Final Report.

<sup>24</sup> County of San Diego, 2005. San Diego County Municipal Copermittees 2004-2005 Urban Runoff Monitoring.

<sup>25</sup> Ibid.

<sup>26</sup> USEPA, 1983. Results of the Nationwide Urban Runoff Program, Volume 1 – Final Report.

storm drain.<sup>27</sup> Furthermore, urban runoff pollutants in receiving waters can bioaccumulate in the tissues of invertebrates and fish, which may eventually be consumed by humans. Pollutants such as heavy metals and pesticides, which are commonly found in urban runoff, have been found to bioaccumulate and biomagnify in long-lived organisms at the higher trophic levels.<sup>28</sup> Since many aquatic species are utilized for human consumption, toxic substances accumulated in species' tissues can pose a significant threat to public health. USEPA supports this finding when it states, "As runoff flows over areas altered by development, it picks up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters, such as lakes, ponds, and streams. Once deposited, these pollutants can enter the food chain through small aquatic life, eventually entering the tissues of fish and humans."<sup>29</sup>

**Finding No. C.5:** Urban runoff discharges from MS4s often contain pollutants that cause toxicity to aquatic organisms (i.e., adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). Toxic pollutants impact the overall quality of aquatic systems and beneficial uses of receiving waters.

**Discussion:** The Copermittees' monitoring data exhibits frequent toxic conditions in urban runoff during storm events. For example, persistent toxicity has been observed at the Chollas Creek mass loading station and the Tijuana River mass loading station. The Chollas Creek and Sweetwater River mass loading stations were also identified as potential Toxicity Identification Evaluation (TIE) candidate sites based on toxicity to *Hyalella* and *Selenastrum*, respectively.<sup>30</sup> Moreover, a study of urban runoff samples from Chollas Creek, revealed toxic concentrations of organophosphate pesticides and metals.<sup>31</sup> Also, a water quality data assessment conducted in Aliso Creek in Orange County showed that storm events caused varying degrees of mortality to test organisms.<sup>32</sup>

**Finding No. C.6:** The Copermittees discharge urban runoff into lakes, drinking water reservoirs, rivers, streams, creeks, bays, estuaries, coastal lagoons, the Pacific Ocean, and tributaries thereto within ten of the eleven hydrologic units (watersheds) comprising the San Diego Region. Some of the receiving water bodies have been designated as impaired by the Regional Board and the USEPA in 2002 pursuant to CWA section 303(d).

**Discussion:** This finding identifies the Copermittees responsible for MS4 discharges in each watershed management area. The list is identical to Order No. 2001-01, with the addition of the San Diego County Regional Airport Authority added to the San Diego Bay Watershed Management Area.

The CWA Section 303(d) List of Impaired Waters, 2002 Update has been approved by the Regional Board, SWRCB, and USEPA. This 303(d) list identifies waters that do not meet water quality standards after applying certain required technology-based effluent limits ("impaired" water bodies). As part of this listing process, states are required to prioritize waters/watersheds

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<sup>27</sup> Haile, R.W., et al., 1996. An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay. Santa Monica Bay Restoration Project.

<sup>28</sup> Abel, P.D, 1996. Water Pollution Biology.

<sup>29</sup> USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. Washington D.C. EPA 833-R-00-002.

<sup>30</sup> Ibid., P. ES-16.

<sup>31</sup> Bay, Steven M., et al., 2001. Characterization of Stormwater Toxicants from an Urban Watershed to Freshwater and Marine Organisms. Southern California Coastal Water Research Project. Annual Report 1999-2000.

<sup>32</sup> Regional Board, 2002. Fact Sheet/Technical Report for Regional Board Order No. R9-2002-0001.

for future development of Total Maximum Daily Loads (TMDLs). The 303(d) Pollutants of Concern or Water Quality Effect in Table 2 of the Order have been summarized from the 2002 303(d) list which can be found in full on our website at:

<http://www.waterboards.ca.gov/sandiego/programs/303dlist.html>.

**Finding No. C.7:** The Copermittees' water quality monitoring data submitted to date documents persistent exceedances of Basin Plan water quality objectives for various urban runoff-related pollutants (diazinon, fecal coliform bacteria, total suspended solids, turbidity, metals, etc.) at various watershed monitoring stations. At some monitoring stations, such as Agua Hedionda, statistically significant upward trends in pollutant concentrations have been observed. Persistent toxicity has also been observed at some watershed monitoring stations. In addition, bioassessment data indicates that the majority of watersheds have Poor to Very Poor Index of Biotic Integrity ratings. In sum, the above findings indicate that urban runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in San Diego County.

**Discussion:** The Copermittees have submitted information indicating persistent wet weather constituents of concern in various waterbodies of fecal coliform, total suspended solids, turbidity, total dissolved solids, diazinon, copper, zinc, toxicity, ammonia, biochemical oxygen demand, chemical oxygen demand, phosphorus, chlorpyrifos, and malathion.<sup>33</sup> The Agua Hedionda mass loading station shows statistically significant trends of increasing chemical oxygen demand, total kjeldahl nitrogen, total phosphorus, total suspended solids, and turbidity.<sup>34</sup> Statistically significant increasing trends have also been observed in Tecolote Creek (arsenic) and Chollas Creek (nitrate and lead).<sup>35</sup> Persistent toxicity has been observed at the Chollas Creek mass loading station and the Tijuana River mass loading station. The Chollas Creek and Sweetwater River mass loading stations were identified as potential Toxicity Identification Evaluation (TIE) candidate sites based on toxicity to *Hyalella* and *Selenastrum*, respectively.<sup>36</sup> However, the toxicity was not consistent among events and relatively slight. Bioassessment data collected during the 2004-2005 year indicates that the majority of the watersheds have Poor to Very Poor Index of Biotic Integrity ratings.<sup>37</sup> The three sites that received Good and Very Good ratings were at reference sites in the Santa Margarita Watershed<sup>38</sup> and San Luis Rey Watershed.<sup>39</sup> In most of these watersheds, there are no other NPDES permits discharging to the creeks. The few NPDES permits in the watersheds are mainly for recycled water which only discharges occasionally during the rainy season. Because the water quality monitoring indicates exceedances of water quality standards and urban runoff is the main source of pollutants in the watersheds, it can be inferred that the urban runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in San Diego County.

**Finding No. C.8:** When natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots, the natural absorption and

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<sup>33</sup> San Diego County Copermittees, 2005. Baseline Long-Term Effectiveness Assessment, San Diego Copermittees Jurisdictional Urban Runoff Management Program, Final Report. P. 2-24, Table 2-5.

<sup>34</sup> Ibid.

<sup>35</sup> Ibid.

<sup>36</sup> County of San Diego, 2005. San Diego County Municipal Copermittees 2004-2005 Urban Runoff Monitoring. P. ES-16.

<sup>37</sup> Ibid., P. ES-4 – ES-19.

<sup>38</sup> Ibid., P. 4-11.

<sup>39</sup> Ibid., P. ES-7.

infiltration abilities of the land are lost. Therefore, runoff leaving a developed urban area is significantly greater in runoff volume, velocity, peak flow rate, and duration than pre-development runoff from the same area. The increased volume, velocity, rate, and duration of runoff greatly accelerate the erosion of downstream natural channels. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 10% conversion from natural to impervious surfaces. The increased runoff characteristics from new development must be controlled to protect against increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

**Finding No. C.9:** Urban development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the MS4. As a result, the runoff leaving the developed urban area is significantly greater in pollutant load than the pre-development runoff from the same area. These increased pollutant loads must be controlled to protect downstream receiving water quality.

**Discussion (C.8 and C.9):** The Natural Resources Defense Council (NRDC) 1999 Report, “Stormwater Strategies, Community Responses to Runoff Pollution” identifies two main causes of the storm water pollution problem in urban areas. Both causes are directly related to development in urban and urbanizing areas:

1. Increased volume and velocity of surface runoff. There are three types of human-made impervious covers that increase the volume and velocity of runoff: (i) rooftop, (ii) transportation imperviousness, and (iii) non-porous (impervious) surfaces. As these impervious surfaces increase, infiltration will decrease, forcing more water to run off the surface, picking up speed and pollutants.
2. The concentration of pollutants in the runoff. Certain industrial, commercial, residential and construction activities are large contributors of pollutant concentrations in urban runoff. As human population density increases, it brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc.

As a result of these two causes, runoff leaving developed urban areas is significantly greater in volume, velocity, and pollutant load than pre-development runoff from the same area.

Studies have shown that the level of imperviousness in an area strongly correlates with the quality of nearby receiving waters.<sup>40</sup> One comprehensive study, which looked at numerous areas, variables, and methods, revealed that stream degradation occurs at levels of imperviousness as low as 10 – 20%.<sup>41</sup> Stream degradation is a decline in the biological integrity and physical habitat conditions that are necessary to support natural biological diversity. For instance, few urban streams can support diverse benthic communities with imperviousness greater than or equal to

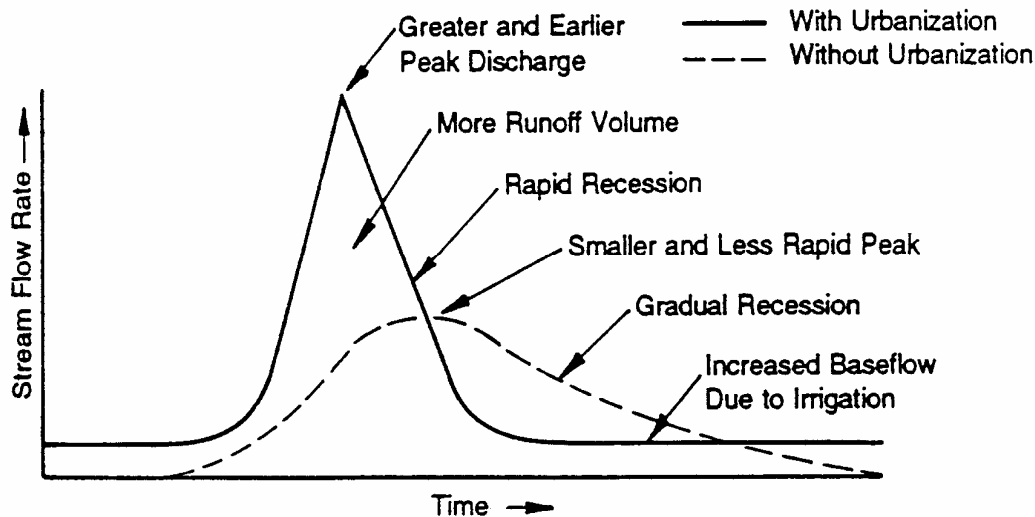
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<sup>40</sup> USEPA, 1999. Part II. 40 CFR Parts 9, 122, 123, and 124. National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. Federal Register.

<sup>41</sup> Ibid.

25%.<sup>42</sup> To provide some perspective, a medium density, single-family home area can be from 25% to 60% impervious (variation due to street and parking design).<sup>43</sup>

To demonstrate the principle of increased volume and velocity of runoff from urbanization, the following figure shows the flow rate of an urban vs. a natural stream. What the figure demonstrates is that urban stream flows have greater peaks and volumes, as well as shorter retention times than natural stream flows. The greater peak flows and volumes result in stream degradation through increased erosion of stream banks and damage to aquatic habitat. The shorter retention times result in less time for sediments and other pollutants to settle before being carried out to the ocean. This sediment, and the associated pollutants it carries, can be a significant cause of water quality degradation.



Source: Adapted from Schueler, 1997<sup>44</sup>

Increased volume and velocity of runoff adversely impacts receiving waters and their beneficial uses in many ways. According to the TAC report,<sup>45</sup> increases in population density and imperviousness result in changes to stream hydrology including:

1. Increased peak discharges compared to pre-development levels;
  2. Increased volume of storm water runoff with each storm compared to pre-development levels;
  3. Decreased travel time to reach receiving water; increased frequency and severity of floods;
  4. Reduced stream flow during prolonged periods of dry weather due to reduced levels of infiltration;
  5. Increased runoff velocity during storms due to a combination of effects of higher discharge peaks, rapid time of concentration, and smoother hydraulic surfaces from channelization;
- and

<sup>42</sup> Ibid.

<sup>43</sup> Schueler, T.R., 1994. The Importance of Imperviousness. Watershed Protection Techniques. As cited in 64 Fed. Reg. 68725.

<sup>44</sup> Schueler, T.R., 1987. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs. Metropolitan Washington Council of Governments.

<sup>45</sup> SWRCB, 1994. Urban Runoff Technical Advisory Committee Report and Recommendations. Nonpoint Source Management Program.

6. Decreased infiltration and diminished ground water recharge.

Even though the rainfall depths in arid watersheds are lower, watershed development can greatly increase peak discharge rates during rare flood events.<sup>46</sup> A study conducted in arid watersheds around Riverside, CA showed that, over two decades, impervious cover increased from 9% to 22%, which resulted in an increase of more than 100% in the peak flow rate for the two-year storm event. The study also showed that the average annual storm water runoff volume had increased by 115% to 130% over the same time span.<sup>47</sup>

Regarding the impact of urban development on urban runoff pollutant loads, the Regional Board's Basin Plan states:

Nonpoint source pollution is primarily the result of man's uses of land such as urbanization, roads and highways, vehicles, agriculture, construction, industry, mineral extraction, physical habitat alteration (dredging/filling), hydromodification (diversion, impoundment, channelization), silviculture (logging), and other activities which disturb land.<sup>48</sup> As a result, when rain falls on and drains through urban freeways, industries, construction sites, and neighborhoods it picks up a multitude of pollutants. The pollutants can be dissolved in the runoff and quickly transported by gravity flow through a vast network of concrete channels and underground pipes referred to as storm water conveyance systems. Such systems ultimately discharge the polluted runoff, without treatment, into the nation's creeks, rivers, estuaries, bays, and oceans.<sup>49</sup>

According to the Center for Watershed Protection, the quality of both surface and ground water in urbanizing areas of arid and semi-arid regions of the southwest is strongly shaped by urbanization. Since rain events are so rare, pollutants have more time to build up on impervious surfaces compared to humid regions. Therefore, the pollutant concentrations of storm water runoff from arid watersheds tends to be higher than that of humid watersheds.<sup>50</sup>

**Finding No. C.10:** Development and urbanization especially threaten environmentally sensitive areas (ESAs), such as water bodies designated as supporting a RARE beneficial use (supporting rare, threatened or endangered species) and CWA 303(d) impaired water bodies. Such areas have a much lower capacity to withstand pollutant shocks than might be acceptable in the general circumstance. In essence, development that is ordinarily insignificant in its impact on the environment may become significant in a particular sensitive environment. Therefore, additional control to reduce pollutants from new and existing development may be necessary for areas adjacent to or discharging directly to an ESA.

**Discussion:** ESAs are defined in the Order as "Areas that include but are not limited to all CWA Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the Basin Plan ; water bodies designated with the RARE beneficial use by the Basin Plan; areas designated as preserves or their equivalent under the Multi Species Conservation Program within the Cities and County of San Diego; and any other equivalent

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<sup>46</sup> Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection. P. 695-706.

<sup>47</sup> Ibid.

<sup>48</sup> Regional Board, 1994. Water Quality Control Plan for the San Diego Basin. P. 4-66.

<sup>49</sup> Ibid. P. 4-69 - 4-70.

<sup>50</sup> Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection. P. 695-706.



environmentally sensitive areas which have been identified by the Copermittees.” Areas that meet this definition are inherently sensitive habitats containing unique, rare, threatened, or endangered species, or are not achieving their designated beneficial uses. As discussed above, urban runoff is known to contain a wide range of pollutants and have demonstrated toxicity to plants and animals. Therefore, it is necessary to apply additional controls for developments within, adjacent to, or directly discharging to ESAs. This need for additional controls is addressed within each component of the Order. USEPA supports the requirement for additional controls, stating “For construction sites that discharge to receiving waters that do not support their designated use or other waters of special concern, additional construction site controls are probably warranted and should be strongly considered.”<sup>51</sup> Further support for requiring additional controls to reduce pollutants in discharges to ESAs can be found in *Mitigation of Storm Water Impacts From New Developments in Environmentally Sensitive Areas*, a technical report written by the LARWQCB.<sup>52</sup>

**Finding No. C.11:** Although dependent on several factors, the risks typically associated with properly managed infiltration of runoff (especially from residential land use areas) are not significant. The risks associated with infiltration can be managed by many techniques, including (1) designing landscape drainage features that promote infiltration of runoff, but do not “inject” runoff (injection bypasses the natural processes of filtering and transformation that occur in the soil); (2) taking reasonable steps to prevent the illegal disposal of wastes; (3) protecting footings and foundations; and (4) ensuring that each drainage feature is adequately maintained in perpetuity.

**Discussion:** Infiltration is an effective means for managing urban runoff. However, measures must be taken to protect groundwater quality when infiltration of urban runoff is implemented. USEPA supports urban runoff infiltration and provides guidance for protection of groundwater: “With a reasonable degree of site-specific design considerations to compensate for soil characteristics, infiltration may be very effective in controlling both urban runoff quality and quantity problems. This strategy encourages infiltration of urban runoff to replace the natural infiltration capacity lost through urbanization and to use the natural filtering and sorption capacity of soils to remove pollutants; however, the potential for some types of urban runoff to contaminate groundwater through infiltration requires some restrictions.”<sup>53</sup> The restrictions placed on urban runoff infiltration in this Order are based on recommendations provided by the USEPA Risk Reduction Engineering Laboratory. The SWRCB found in Order WQ 2000-11 on the appeal of the LARWQCB’s Standard Urban Storm Water Mitigation Plan (SUSMP) requirements that the guidance provided in the above referenced document by the USEPA Risk Reduction Engineering Laboratory is sufficient for the protection of groundwater quality from urban runoff infiltration. To further protect groundwater quality, the Order also includes guidance from the LARWQCB,<sup>54</sup> the State of Washington,<sup>55</sup> and the State of Maryland.<sup>56</sup>

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<sup>51</sup> USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. Washington D.C. EPA/833-B-92-002.

<sup>52</sup> LARWQCB, 2001. *Mitigation of Storm Water Impacts From New Developments In Environmentally Sensitive Areas*.

<sup>53</sup> USEPA, 1994. *Potential Groundwater Contamination from Intentional and Nonintentional Stormwater Infiltration*. EPA 600 SR-94 051.

<sup>54</sup> LARWQCB, 2000. *Standard Urban Storm Water Mitigation Plan for Los Angeles County and Cities in Los Angeles County*.

<sup>55</sup> Washington State Department of Ecology, 1999. *Draft Stormwater Management in Washington State. Volume V – Runoff Treatment BMPs*. Pub. No. 99-15.

<sup>56</sup> Maryland Department of the Environment, 1999. *2000 Maryland Stormwater Design Manual. Volume I*.



#### **D. Urban Runoff Management Programs**

**Finding D.1.a:** This Order specifies requirements necessary for the Copermittees to reduce the discharge of pollutants in urban runoff to the maximum extent practicable (MEP). However, since MEP is a dynamic performance standard which evolves over time as urban runoff management knowledge increases, the Copermittees' urban runoff management programs must continually be assessed and modified to incorporate improved programs, control measures, best management practices, etc. Absent evidence to the contrary, this continual assessment, revision, and improvement of urban runoff management program implementation is expected to ultimately achieve compliance with water quality standards.

**Discussion:** Under CWA section 402(p), municipalities are required to reduce the discharge of pollutants from their MS4s to the maximum extent practicable (MEP). MEP is the critical technology-based performance standard that municipalities must attain. The MEP standard is an ever-evolving, flexible, and advancing concept, which considers technical and economic feasibility. As knowledge about controlling urban runoff continues to evolve, so does that which constitutes MEP. Reducing the discharge of storm water pollutants to the MEP requires Copermittees to assess each program component and revise activities, control measures, best management practices (BMPs), and measurable goals, as necessary to meet MEP.

To achieve the MEP standard, municipalities must employ whatever 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:

1. Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?
2. Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?
3. Public Acceptance: Does the BMP have public support?
4. Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?
5. Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc?

If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive BMPs, 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 is prohibitive, 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 base 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.<sup>57</sup>

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<sup>57</sup> SWRCB, 1993. Memo Entitled Definition of Maximum Extent Practicable.

A definition of MEP is not provided in either the federal statute or in the federal regulations. The final determination regarding whether a municipality has reduced pollutants to the MEP can only be made by the Regional Board or the SWRCB, and not by the municipal discharger. While the Regional Board or the SWRCB ultimately define MEP, it is the responsibility of the Copermittees to initially propose actions that implement BMPs to reduce pollution to the MEP. In other words, the Copermittees' urban runoff management programs to be developed under the Order are the Copermittees' proposals of MEP. Their total collective and individual activities conducted pursuant to their urban runoff management programs become their proposal for MEP as it applies both to their overall effort, as well as to specific activities. The Order provides a minimum framework to guide the Copermittees in meeting the MEP standard.

It is the Regional Board's responsibility to evaluate the proposed programs and specific BMPs to determine what constitutes MEP, using the above guidance and the court's 1994 decision in *NRDC v. California Department of Transportation*, Federal District Court, Central District of California. The federal court stated that a Copermittee must evaluate and implement BMPs except where (1) other effective BMPs will achieve greater or substantially similar pollution control benefits; (2) the BMP is not technically feasible; or (3) the cost of BMP implementation greatly outweighs the pollution control benefits. In the absence of a proposal acceptable to the Regional Board, the Regional Board will define MEP by requiring implementation of additional measures by the Copermittees.

The Copermittees' continual evolution in meeting the MEP standard is expected to achieve compliance with water quality standards. USEPA has consistently supported this expectation. In its Interim Permitting Approach for Water Quality-Based Effluent Limitations (WQBELs) in Storm Water Permits, USEPA states "the interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for attainment of water quality standards."<sup>58</sup> USEPA reiterated its position in 1999, when it stated regarding the Phase II municipal storm water regulations that "successive iterations of the mix of BMPs and measurable goals will be driven by the objective of assuring maintenance of water quality standards" and "EPA anticipates that a permit for a regulated small MS4 operator implementing BMPs to satisfy the six minimum control measures will be sufficiently stringent to protect water quality, including water quality standards [...]."<sup>59</sup>

**Finding D.1.b:** Although the Copermittees have generally been implementing the jurisdictional urban runoff management programs required pursuant to Order No. 2001-01 since February 21, 2002, urban runoff discharges continue to cause or contribute to violations of water quality standards. This Order contains new or modified requirements that are necessary to improve Copermittees' efforts to reduce the discharge of pollutants in urban runoff to the MEP and achieve water quality standards. Some of the new or modified requirements, such as the expanded Watershed Urban Runoff Management Program section, are designed to specifically address these high priority water quality problems. Other new or modified requirements address program deficiencies that have been noted during audits, report reviews, and other Regional Board compliance assessment activities.

**Discussion:** The Copermittees are required to update and expand their urban runoff management programs on jurisdictional, watershed, and regional levels in order to improve their efforts to reduce the contribution of pollutants in urban runoff to the MEP and meet water quality

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<sup>58</sup> Federal Register / Vol. 61, No. 166 / August 26, 1996 / P. 43761.

<sup>59</sup> Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68753-68754.

standards. Changes to Order No. 2001-01's requirements have been made to help ensure these two standards are achieved by the Copermittees.

The jurisdictional requirements of the Order have been changed based on findings by the Regional Board during typical compliance assurance activities. The Regional Board performed full jurisdictional program audits of 20 of the 21 Copermittees during the Order No. 2001-01 permit term; it also performed detailed audits on 10 of the Copermittees' SUSMP programs. Where the audits found common implementation problems, requirements have been altered to better ensure compliance. In addition, the Regional Board conducted detailed reviews of every jurisdictional annual report submitted by the Copermittees, including provision of specific comments to the Copermittees where improvements were found to be needed. Again, where common reporting issues were found, the Order's requirements have been changed to rectify the issues. Other changes to jurisdictional requirements were based on Regional Board inspection findings or receipt of complaints.<sup>60</sup>

To better focus on attainment of water quality standards, the Order's watershed requirements have been improved. Addressing urban runoff management on a watershed scale focuses on water quality results by emphasizing the receiving waters within the watershed. The conditions of the receiving waters drive management actions, which in turn focus on the water quality problems of the receiving waters each watershed. Improvements to watershed requirements were also made to facilitate better understanding of the requirements between the Regional Board and Copermittees.

Finally, many of the required updates to the Copermittees' programs are based on recommendations found in the Copermittees' ROWD.<sup>61</sup>

**Finding D.1.c:** Updated Jurisdictional Urban Runoff Management Plans (JURMPs) and Watershed Urban Runoff Management Plans (WURMPs), and a new Regional Urban Runoff Management Plan (RURMP), which describe the Copermittees' urban runoff management programs in their entirety, are needed to guide the Copermittees' urban runoff management efforts and aid the Copermittees in tracking urban runoff management program implementation. It is practicable for the Copermittees to update the JURMPs and WURMPs, and create the RURMP, within one year, since significant efforts to develop these programs have already occurred.

**Discussion:** While development and submittal of urban runoff management plans are not necessary to ensure compliance of the Copermittees' urban runoff management programs with the Order, the plans do serve as useful correspondence between the Copermittees and the Regional Board. The plans help organize the Copermittees' programs and guide their implementation, while also providing the Regional Board with a means to track Copermittee implementation.

Urban runoff management plans are not necessary for ensuring compliance with the Order because the Order itself contains sufficient detailed requirements to ensure that compliance with discharge prohibitions, receiving water limits, and the narrative standard of MEP are achieved. Implementation by the Copermittees of programs in compliance with the Order's requirements, prohibitions, and receiving water limits is the pertinent compliance standard to be used under the

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<sup>60</sup> Audit reports, report reviews, and inspection reports are available for review at the Regional Board office.

<sup>61</sup> All significant changes made to the Order's requirements are described and explained in detail in Fact Sheet section X.

Order, as opposed to assessing compliance by reviewing the Copermittees' implementation of their plans alone.

Rather than being substantive components of the Order itself, the Copermittees' urban runoff management plans are simply descriptions of their urban runoff management programs required under the Order. These plans serve as procedural correspondence which guides program implementation and aids the Copermittees and Regional Board in tracking implementation of the programs. In this manner, the plans are not functional equivalents of the Order. For these reasons, the Copermittees' urban runoff management plans need not be an enforceable part of the Order.

The Copermittees' plans and programs can be updated within one year because much of their plans and programs are already in existence. In fact, many parts of their plans and programs have been in place for 15 years.<sup>62</sup> Moreover, the adoption of Order No. 2001-01 required a larger scale reorganization of the Copermittees' programs than ~~Tentative~~ Order No. R9-~~2006-001~~+2007-0001, but also allowed one year for program updates. The Copermittees were able to meet the time schedule required under Order No. 2001-01.

**Finding D.1.d:** Pollutants can be effectively reduced in urban 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 flows (e.g., rerouting run-on around pollutant sources or keeping pollutants on-site and out of receiving waters). Treatment control BMPs remove pollutants from urban runoff.

**Discussion:** The SWRCB finds in its Order WQ 98-01 that BMPs are effective in reducing pollutants in urban runoff, stating that "implementation of BMPs [is] generally the most appropriate form of effluent limitations when designed to satisfy technology requirements, including reduction of pollutants to the maximum extent practicable." A SWRCB TAC further supports this finding by recommending "that nonpoint source pollution control can be accomplished most effectively by giving priority to [BMPs] in the following order:

1. Pollution Prevention – implementation of practices that use or promote pollution free alternatives;
2. Source Control – implementation of control measures that focus on preventing or minimizing urban runoff from contacting pollution sources;
3. Treatment Control – implementation of practices that require treatment of polluted runoff either onsite or offsite."<sup>63</sup>

Pollution prevention, the reduction or elimination of pollutant generation at its source, is an essential aspect of BMP implementation. By limiting the generation of pollutants by urban activities, less pollutants are available to be washed from urban areas, resulting in reduced pollutant loads in storm water discharges from these areas. In addition, there is no need to control or treat pollutants that are not initially generated. Furthermore, pollution prevention BMPs are

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<sup>62</sup> Regional Board, 2000. Comparison Between the Requirements of ~~T~~entative Order 2001-01, the Federal NPDES Storm Water Regulations, the Existing San Diego Municipal Storm Water Permit (Order 90-42), and Previous Drafts of the San Diego Municipal Storm Water Permit.

<sup>63</sup> SWRCB, 1994. Urban Runoff Technical Advisory Committee Report and Recommendations. Nonpoint Source Management Program.

generally more cost effective than removal of pollutants by treatment facilities or cleanup of contaminated media.<sup>64</sup>

In the Pollution Prevention Act of 1990, Congress established a national policy that emphasizes pollution prevention over control and treatment. CWC section 13263.3(a) also supports pollution prevention, stating “The Legislature finds and declares that pollution prevention should be the first step in a hierarchy for reducing pollution and managing wastes, and to achieve environmental stewardship for society. The Legislature also finds and declares that pollution prevention is necessary to support the federal goal of zero discharge of pollutants into navigable waters.” Finally, the Basin Plan also supports this finding by stating “To eliminate pollutants in storm water, one can either clean it up by removing pollutants or prevent it from becoming polluted in the first place. Because of the overwhelming volume of storm water and the enormous costs associated with pollutant removal, pollution prevention is the only approach that makes sense.”<sup>65</sup>

USEPA also supports the utilization of a combination of BMPs to address pollutants in urban runoff. For example, USEPA has found there has been success in addressing illicit discharge related problems through BMP initiatives like storm drain stenciling and recycling programs, including household hazardous waste special collection days.<sup>66</sup> Structural BMP performance data has also been compiled and summarized by USEPA.<sup>67</sup> This data indicates that structural BMPs can be effective in reducing pollutants in urban runoff discharges. The summary provides the performance ranges of various types of structural BMPs for removing suspended solids, nutrients, pathogens, and metals from storm water flows. These pollutants are in general pollutants of concern in storm water in the San Diego Region. For suspended solids, the least effective structural BMP type was found to remove 30-65% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load. For nutrients, the least effective structural BMP type was found to remove 15-45% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load. For pathogens, the least effective structural BMP type was found to remove <30% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load. For metals, the least effective structural BMP type was found to remove 15-45% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load.

**Finding D.1.e:** Urban runoff needs to be addressed during the three major phases of development (planning, construction, and use) in order to reduce the discharge of pollutants to the MEP and protect receiving waters. Development which is not guided by water quality planning policies and principles can unnecessarily result in increased pollutant load discharges, flow rates, and flow durations which can impact 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 generates substantial pollutant loads which are discharged in urban runoff to receiving waters.

**Discussion:** MS4 permits are issued to municipalities because of their land use authority. The ultimate responsibility for the pollutant discharges, increased runoff, and inevitable long-term

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<sup>64</sup> Schueler, T.R., 2000. Center for Watershed Protection. Assessing the Potential for Urban Watershed Restoration, Article 142.

<sup>65</sup> Regional Board, 1994. Water Quality Control Plan, San Diego Basin, Region 9.

<sup>66</sup> USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges. 64 FR 68728.

<sup>67</sup> USEPA, 1999. Preliminary Data Summary of Urban Storm Water Best Management Practices. EPA 821-R-99-012.



water quality degradation that results from urbanization lies with local governments. This responsibility is based on the fact that it is the local governments that have authorized the urbanization (i.e., conversion of natural pervious ground cover to impervious urban surfaces) and the land uses that generate the pollutants and runoff. Furthermore, the MS4 through which the pollutants and increased flows are conveyed, and ultimately discharged into natural receiving waters, are owned and operated by the same local governments. In summary, the Copermittees under the Order are responsible for discharges into and out of their MS4s because (1) they own and operate the MS4; and (2) they have the legal authority that authorizes the very development and land uses with generate the pollutants and increased flows in the first place.

For example, since grading cannot commence prior to the issuance of a local grading permit, the Copermittees have a built-in mechanism to ensure that all grading activities are protective of receiving water quality. The Copermittee has the authority to withhold issuance of the grading permit until the project proponent has demonstrated to the satisfaction of the Copermittee that the project will not violate their ordinances or cause the Copermittee to be in violation of its MS4 permit. Since the Copermittee will ultimately be held responsible for any discharges from the grading project by the Regional Board, the Copermittee will want to use its own permitting authority to ensure that whatever measures the Copermittee deems necessary to protect discharges into its MS4 are in fact taken by the project proponent.

The Order holds the local government accountable for this direct link between its land use decisions and water quality degradation. The Order recognizes that each of the three major stages in the urbanization process (development planning, construction, and the use or operational stage) are controlled by and must be authorized by the local government. Accordingly, this permit requires the local government to implement, or require others to implement, appropriate best management practices to reduce pollutant discharges and increased flow during each of the three stages of urbanization.

Including plans for BMP implementation during the design phase of new development and redevelopment offers the most cost effective strategy to reduce urban runoff pollutant loads to surface waters.<sup>68</sup> The Phase II regulations for small municipalities reflect the necessity of addressing urban runoff during the early planning phase. Due to the greater water quality concerns generally experienced by larger municipalities, Phase II requirements for small municipalities are also applicable to larger municipalities such as the Copermittees. The Phase II regulations direct municipalities to develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale. The program must ensure that controls are in place that would prevent or minimize water quality impacts. This includes developing and implementing strategies which include a combination of structural and/or non-structural BMPs appropriate to the locality. The program must also ensure the adequate long-term operation and maintenance of BMPs.<sup>69</sup> USEPA expands on the Phase II regulations for urban development when it recommends that Copermittees:

“Adopt a planning process that identifies the municipality’s program goals (e.g., minimize water quality impacts resulting from post-construction runoff from new development and redevelopment), implementation strategies (e.g., adopt a combination of structural and/or non-structural BMPs), operation and maintenance policies and procedures, and enforcement

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<sup>68</sup> USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

<sup>69</sup> USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. 64 FR 68845.

procedures. In developing your program, you should consider assessing existing ordinances, policies, programs and studies that address storm water runoff quality.”

Management of urban runoff during the construction phase is also essential. USEPA explains in the preamble to the Phase II regulations that storm water discharges generated during construction activities can cause an array of physical, chemical, and biological water quality impacts. Specifically, the biological, chemical and physical integrity of the waters may become severely compromised due to runoff from construction sites. Fine sediment from construction sites can adversely affect aquatic ecosystems by reducing light penetration, impeding sight-feeding, smothering benthic organisms, abrading gills and other sensitive structures, reducing habitat by clogging interstitial spaces within the streambed, and reducing intergravel dissolved oxygen by reducing the permeability of the bed material. Water quality impairment also results, in part, because a number of pollutants are preferentially absorbed onto mineral or organic particles found in fine sediment. The interconnected process of erosion (detachment of the soil particles), sediment transport, and delivery is the primary pathway for introducing key pollutants, such as nutrients, metals, and organic compounds into aquatic systems.<sup>70</sup>

Finally, urban runoff from existing development must be addressed. The Copermittees’ monitoring data exhibits that significant water quality problems exist in receiving waters which receive urban runoff from areas with extensive existing development, such as Chollas Creek.<sup>71</sup> Source identification, BMP requirements, inspections, and enforcement are all important measures which can be implemented to address urban runoff from existing development. USEPA supports inspections and enforcement by municipalities when it states “Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms [...] also must be described.”<sup>72</sup>

**Finding D.1.f:** Annual reporting requirements included in this Order are necessary to meet federal requirements and to evaluate the effectiveness and compliance of the Copermittees’ programs.

**Discussion:** The annual reporting requirements are consistent with federal NPDES regulation 40 CFR 122.41, which states:

“The operator of a large or medium municipal separate storm sewer system of a municipal separate storm sewer system that has been designated by the Director under section 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such a system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition, Such proposed changes shall be consistent with § 122.26(d)(2)iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions,. Inspections, and

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<sup>70</sup> Ibid., 64 FR 68728.

<sup>71</sup> County of San Diego, 2005. San Diego County Municipal Copermittees 2004-2005 Urban Runoff Monitoring. Table 11-7.

<sup>72</sup> USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.



public education programs; and (7) Identification of water quality improvements or degradation.”

CWC section 13267 provides that “the regional board may require that any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

The Regional Board must assess the reports to ensure that the Copermittees’ programs are adequate to assess and address water quality. The reporting requirements can also be useful tools for the Copermittees to review, update, or revise their programs. Areas or issues which have received insufficient efforts can also be identified and improved upon.

**Finding D.2.a:** The SUSMP requirements contained in this Order are consistent with Order WQ-2000-11 adopted by the SWRCB on October 5, 2000. In the precedential order, the SWRCB found that the design standards, which essentially require that urban runoff generated by 85 percent of storm events from specific development categories be infiltrated or treated, reflect the MEP standard. The order also found that the SUSMP requirements are appropriately applied to the majority of the Priority Development Project categories contained in Section D.1 of this Order. The SWRCB also gave Regional Water Quality Control Boards the discretion to include additional categories and locations, such as retail gasoline outlets (RGOs), in future SUSMPs.

**Discussion:** The post-construction requirements and design standards contained in the SUSMP section of Order No. R9-~~2006-0011~~2007-0001 constitute MEP and are consistent SWRCB guidance, court decisions, and Regional Board requirements. The SWRCB and Regional Boards have made several recent decisions in regards to inclusion of SUSMP requirements in MS4 permits. In a precedential decision, SWRCB WQ Order No. 2000-11, the SWRCB found that the SUSMP provisions constitute MEP for addressing pollutant discharges resulting from Priority Development Projects. The provisions of the SUSMP section of the Order are also consistent with those previously issued by the Regional Board for Orange County (Order No. R9-2002-0001) and San Diego County (Order No. 2001-01), as well as requirements in the Los Angeles County MS4 permit (Order No. R4-2001-182). In SWRCB Order WQ 2001-15, the SWRCB reaffirmed that SUSMP requirements constitute MEP. Moreover, the SUSMP requirements of the San Diego County MS4 permit (Order No. 2001-01) were upheld when the California State Supreme Court declined to hear the matter on appeal.

**Finding D.2.b:** Controlling urban runoff pollution before it enters the MS4 through the use of a combination of onsite source control BMPs augmented with treatment control BMPs is important for the following reasons: (1) Many end-of-pipe BMPs (such as diversion to the sanitary sewer) are typically ineffective during significant storm events. Whereas, onsite source control BMPs can be applied during all runoff conditions; (2) End-of-pipe BMPs are often incapable of capturing and treating the wide range of pollutants which can be generated on a sub-watershed scale; (3) End-of-pipe BMPs are more effective when used as polishing BMPs, rather than the sole BMP to be implemented; (4) End-of-pipe BMPs do not protect the quality or beneficial uses of receiving waters between the source and the BMP; and (5) Offsite end-of-pipe BMPs do not aid in the effort to educate the public regarding sources of pollution and their prevention.

**Discussion:** Many end-of-pipe BMPs are designed for low flow conditions because their end-of-pipe location prevents them from being designed for large storm events. This results in the end-of-pipe BMPs being overwhelmed, bypassed, or ineffective during larger storm events more frequently than onsite BMPs designed for larger storms. BMPs are also frequently most effective for a particular type of pollutant (such as sediment). Such BMPs may be appropriate for small

sites with a limited suite of pollutants generated; however, end-of-pipe BMPs must typically be able to address a wide range of pollutants generated by a sub-watershed, limiting their effectiveness. Moreover, the location of some end-of-pipe BMPs allow for untreated pollutants to be discharged to and degrade receiving waters prior to their reaching the BMPs. This fails to protect receiving waters, which is the purpose of BMP implementation. Moreover, opportunities to educate the public regarding urban runoff pollution can be lost when end-of-pipe BMPs are located away from pollutant sources and out of sight. Onsite BMPs can lead to a better understanding of urban runoff issues since they demonstrate urban runoff processes.

**Finding D.2.c:** Use of site design BMPs at new development projects can be an effective means for minimizing the impact of urban runoff discharges from the development projects on receiving waters. Site design BMPs help preserve and restore the natural hydrologic cycle of the site, allowing for filtration and infiltration which can greatly reduce the volume, peak flow rate, velocity, and pollutant loads of urban runoff.

**Discussion:** The use of site design BMPs helps reduce the amount of impervious area associated with urbanization and allows storm water to infiltrate into the soil. Natural vegetation and soil filters urban runoff and reduces the volume and pollutant loads of storm water. Studies have revealed that the level of imperviousness resulting from urbanization is strongly correlated with the water quality impairment of nearby receiving waters.<sup>73</sup> In many cases the impacts on receiving waters due to changes in hydrology can be more significant than those attributable to the contaminants found in storm water discharges.<sup>74</sup> These impacts include stream bank erosion (increased sediment load and subsequent deposition), benthic habitat degradation, and decreased diversity of macroinvertebrates.

The Order include requirements for developments to include site design BMPs that mimic or replicate the natural hydrologic cycle. Open space designs which maximize pervious surfaces and retention of “natural” drainages have been found to reduce both the costs of development and pollutant export.<sup>75</sup> Moreover, USEPA finds including plans for a “natural” site design and BMP implementation during the design phase of new development and redevelopment offers the most cost effective strategy to reduce pollutant loads to surface waters.<sup>76</sup> In a review of the Copermittees’ SUSMP programs, Tetra Tech found that many SUSMP projects were not including this effective BMP in their plans.<sup>77</sup>

**Finding D.2.d:** RGOs are significant sources of pollutants in urban runoff. RGOs are points of convergence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up and consequently produce significantly higher loadings of hydrocarbons and trace metals (including copper and zinc) than other urban areas. To meet MEP, source control and treatment control BMPs are needed at 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. These are appropriate thresholds since vehicular development size and volume of traffic are good indicators of potential impacts of urban runoff from RGOs on receiving waters.

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<sup>73</sup> USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule.

<sup>74</sup> Ibid.

<sup>75</sup> Center for Watershed Protection, 2000. “The Benefits of Better Site Design in Residential Subdivisions.” Watershed Protection Techniques. Vol. 3. No. 2.

<sup>76</sup> USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule.

<sup>77</sup> Tetra Tech, 2005. San Diego Urban Storm Water Mitigation Plan Program Evaluation Report. Pages 4-5.

**Discussion:** RGOs are included in the Order as a Priority Development Project category because RGOs are points of confluence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up. RGOs consequently produce significantly greater loadings of hydrocarbons and trace metals (including copper and zinc) than other urban areas. To meet MEP, source control and structural treatment BMPs are needed at RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a ADT of 100 or more vehicles per day. These are appropriate thresholds since vehicular development size and volume of traffic are good indicators of potential impacts of urban runoff from RGOs on receiving waters.

This finding has been added to satisfy SWRCB WQ Order No. 2000-11's requirements for including RGOs as a Priority Development Category. Order No. 2000-11 acknowledged that a threshold (size, average daily traffic, etc.) appropriate to trigger SUSMP requirements should be developed for RGOs and that specific findings regarding RGOs should be included in MS4 permits to justify the requirement.<sup>78</sup> Additional detail to support the inclusion of RGOs can be found in Fact Sheet Section VIII.F.

**Finding D.2.ef:** If not properly designed or maintained, certain BMPs implemented or required by municipalities for urban runoff management may create a habitat for vectors (e.g. mosquitoes and rodents). However, proper BMP design which avoids standing water can prevent the creation of vector habitat. Nuisances and public health impacts resulting from vector breeding can be prevented with close collaboration and cooperative effort between municipalities, local vector control agencies, and the State Department of Health Services during the development and implementation of urban runoff management programs.

**Discussion:** The implementation of certain structural BMPs or other urban runoff treatment systems can result in significant vector problems in the form of increased breeding or harborage habitat for mosquitoes, rodents or other potentially disease transmitting organisms. The implementation of BMPs that retain water may provide breeding habitat for a variety of mosquito species, some of which have the potential to transmit diseases such as Western Equine Encephalitis, St. Louis Encephalomyelitis, and malaria. Recent BMP implementation studies by Caltrans<sup>79</sup> in District 7 and District 11 have demonstrated mosquito breeding associated with some types of BMPs. The Caltrans BMP Retrofit Pilot study cited lack of maintenance and improper design as factors contributing to mosquito production. However, a Watershed Protection Techniques article<sup>80</sup> describes management techniques for selecting, designing, and maintaining structural treatment BMPs to minimize mosquito production. State and local urban runoff management programs that include structural BMPs with the potential to retain water have been implemented in Florida and the Chesapeake Bay region without resulting in significant public health threats from mosquitoes or other vectors.<sup>81</sup>

**Finding D.3.a:** In accordance with federal NPDES regulations, and to ensure the most effective oversight of industrial and construction site discharges, discharges of runoff from industrial and construction sites are subject to dual (state and local) storm water regulation. Under this dual system, the Regional Board is responsible for enforcing the General Construction Activities Storm Water Permit, SWRCB Order 97-03 DWQ, NPDES No. CAS000001 (General Construction Permit) and the General Industrial Activities Storm Water Permit, SWRCB Order

<sup>78</sup> SWRCB, 2000. Order WQ 2000-11.

<sup>79</sup> Caltrans, 2000. BMP Retrofit Pilot Studies: A Preliminary Assessment of Vector Production.

<sup>80</sup> Watershed Protection Techniques, 1995. Mosquitoes in Constructed Wetlands: A Management Bugaboo? 1(4):203-207.

<sup>81</sup> Shaver, E. and R. Baldwin, 1995. Sand Filter Design for Water Quality Treatment in Herricks, E., Ed. Stormwater Runoff and Receiving Systems: Impact, Monitoring, and Assessment, CRC Lewis Publishers, New York, NY.

99-08 DWQ, NPDES No. CAS000002 (General Industrial Permit), and each municipal Copermittee is responsible for enforcing its local permits, plans, and ordinances, which may require the implementation of additional BMPs than required under the statewide general permits.

**Discussion:** USEPA finds the control of pollutant discharges from industry and construction so important to receiving water quality that it has established a double system of regulation over industrial and construction sites. This double system of regulation consists of two parallel regulatory systems with the same common objective: to keep pollutants from industrial and construction sites out of the MS4. In this double system of regulation for runoff from industrial and construction sites, local governments must enforce their legal authorities (i.e., local ordinances and permits) while the Regional Board must enforce its legal authority (i.e., statewide general industrial and construction storm water permits). These two regulatory systems are designed to complement and support each other. Municipalities are not required to enforce Regional Board and SWRCB permits; however, they are required to enforce their ordinances and permits. The Federal regulations are clear that municipalities have responsibility to address runoff from industrial and construction sites which enters their MS4s.

Municipalities have this responsibility because they have the authority to issue land use and development permits. Since municipalities are the lead permitting authority for industrial land use and construction activities, they are also the lead for enforcement regarding runoff discharges from these sites. For sites where the municipality is the lead permitting authority, the Regional Board will work with the municipality and provide support where needed. The Regional Board will assist municipalities in enforcement against non-compliant sites after the municipality has exhibited a good faith effort to bring the site into compliance.

According to USEPA, the storm water regulations envision that NPDES permitting authorities and municipal operators will cooperate to develop programs to monitor and control pollutants in storm water discharges from industrial facilities.<sup>82</sup> USEPA discusses the “dual regulation” of construction sites in its Storm Water Phase II Compliance Assistance Guide,<sup>83</sup> which states “Even though all construction sites that disturb more than one acre are covered nationally by an NPDES storm water permit, the construction site runoff control minimum measure [...] is needed to induce more localized site regulation and enforcement efforts, and to enable operators [...] to more effectively control construction site discharges into their MS4s.” While the Storm Water Phase II Compliance Assistance Guide applies to small municipalities, it is applicable to the Copermittees, because they are similar in size and have the potential to discharge similar pollutant types as Phase II municipalities.

**Finding D.3.b:** Identification of sources of pollutants in urban runoff (such as municipal areas and activities, industrial and commercial sites/sources, construction sites, and residential areas), development and implementation of BMPs to address those sources, and updating ordinances and approval processes are necessary for the Copermittees to ensure that discharges of pollutants into and from its MS4 are reduced to the MEP. Inspections and other compliance verification methods are needed to ensure minimum BMPs are implemented. Inspections are especially important at high risk areas for pollutant discharges.

**Discussion:** Source identification is necessary to characterize the nature and extent of pollutants in discharges and to develop appropriate BMPs. It is the first step in a targeted approach to urban

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<sup>82</sup> USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

<sup>83</sup> USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

runoff management. Source identification helps identify the location of potential sources of pollutants in urban runoff. Pollutants found to be present in receiving waters can then be traced to the sites which frequently generate such pollutants. In this manner an inventories of sources can help in targeting inspections, monitoring, and potential enforcement. This allows for limited inspection, monitoring, and enforcement time to be most effective. USEPA supports source identification as a concept when it recommends construction, municipal, and industrial source identification in guidance and the federal regulations.<sup>8485</sup>

The development of BMPs for identified sources will help ensure that appropriate, consistent controls are implemented at all types of urban development and areas. Copermittees must reduce the discharge of pollutants in urban runoff to the maximum extent practicable. To achieve this level of pollutant reduction, BMPs must be implemented. Designation of minimum BMPs helps ensure that appropriate BMPs are implemented for various sources. These minimum BMPs also serve as guidance as to the level of water quality protection required. USEPA requires development and implementation of BMPs for construction, municipal, commercial, industrial, and residential sources at 40 CFR 122.26(d)(2)(iv)(A-D).

Updating ordinances and approval processes is necessary in order for the Copermittees to control discharges to their MS4s. USEPA supports updating ordinances and approval processes when it states “A crucial requirement of the NPDES storm water regulation is that a municipality must demonstrate that it has adequate legal authority to control the contribution of pollutants in storm water discharged to its MS4. [...] In order to have an effective municipal storm water management program, a municipality must have adequate legal authority to control the contribution of pollutants to the MS4. [...] ‘Control,’ in this context, means not only to require disclosure of information, but also to limit, discourage, or terminate a storm water discharge to the MS4.”<sup>86</sup>

Inspections provide a necessary means for the Copermittees to evaluate compliance of pollutant sources with their municipal ordinances and minimum BMP requirements. USEPA supports inspections when it recommends inspections of construction, municipal, and industrial sources.<sup>87</sup> Inspection of high risk sources are especially important because of the ability of frequent inspections to help ensure compliance, thereby reducing the risk associated with such sources. USEPA suggests that inspections can improve compliance when it states “Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations.”<sup>88</sup>

**Finding D.3.c:** Historic and current development makes use of natural drainage patterns and features as conveyances for urban runoff. Urban streams used in this manner are part of the municipalities MS4 regardless of whether they are natural, man-made, or partially modified features. In these cases, the urban stream is both an MS4 and receiving water.

**Discussion:** A MS4 is defined in the federal regulations as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs,

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<sup>84</sup> USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

<sup>85</sup> 40 CFR 122.26(d)(2)(ii)

<sup>86</sup> USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

<sup>87</sup> Ibid.

<sup>88</sup> USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.



gutters, ditches, man-made channels, or storm drains), owned or operated by a Copermittee, and designed or used for collecting or conveying urban runoff.<sup>89</sup> Natural drainage patterns and urban streams are frequently used by municipalities to collect and convey urban runoff away from development within their jurisdiction. Therefore, the Regional Board considers natural drainages that are used for conveyances of urban runoff, regardless of whether or not they've been altered by the municipality, as both part of the MS4s and as receiving waters. To clarify, an unaltered natural drainage, which receives runoff from a point source (channeled by a Copermittee to drain an area within their jurisdiction), which then conveys the runoff to an altered natural drainage or a man-made MS4, is both an MS4 and a receiving water.<sup>90</sup>

**Finding D.3.d:** 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 control. These discharges may cause or contribute to a condition of contamination or a violation of water quality standards.

**Discussion:** CWA section 402(p) requires operators of MS4s to prohibit non-storm water discharges into their MS4s. This is necessary because pollutants which enter the MS4 generally are conveyed through the MS4 to be eventually discharged into receiving waters. If a municipality does not prohibit non-storm water discharges, it is providing the pathway (its MS4) which enables pollutants to reach receiving waters. Since the municipality's storm water management service can result in pollutant discharges to receiving waters, the municipality must accept responsibility for the water quality consequences resulting from this service. Furthermore, third party discharges can cause a municipality to be out of compliance with its permit. Since pollutants from third parties which enter the MS4 will eventually be discharged from the MS4 to receiving waters, the third party discharges can result in a situation of municipality non-compliance if the discharges lead to an exceedance of water quality standards. For these reasons, each Copermittee must prohibit and/or control discharges from third parties to its MS4. USEPA supports this concept when it states "the operators of regulated small MS4s cannot passively receive and discharge pollutants from third parties" and "the operator of a small MS4 that does not prohibit and/or control discharges into its system essentially accepts 'title' for those discharges. At a minimum, by providing free and open access to the MS4s that convey discharges to the waters of the United States, the municipal storm sewer system enables water quality impairment by third parties."<sup>91</sup>

**Finding D.3.e:** Waste and pollutants which are deposited and accumulate in the MS4 drainage structures will be discharged from these structures to waters of the U.S. unless they are removed or treated. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. For this reason, pollutant discharges into the MS4s must be reduced to the MEP unless treatment within the MS4 occurs.

**Discussion:** When rain falls and drains urban freeways, industries, construction sites, and neighborhoods it picks up a multitude of pollutants. Gravity flow transports the pollutants to the MS4. Illicit discharges and connections also contribute a significant amount of pollutants to MS4s. MS4s are commonly designed to convey their contents as quickly as possible. Due to the

<sup>89</sup> USEPA, 2000. EPA Administered Permit Programs: The National Pollutant Discharge Elimination System. Code of Federal Regulations, Vol. 40, Part 122.

<sup>90</sup> Regional Board, 2001. Response in Opposition to Petitions for Review of California Regional Water Quality Control Board San Diego Region Order No. 2001-01 – NPDES Permit No. CAS0108758 (San Diego Municipal Storm Water Permit).

<sup>91</sup> Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68765-68766.

resulting typically high flow rates within the concrete conveyance systems of MS4s, pollutants which enter or are deposited in the MS4 and not removed are generally flushed unimpeded through the MS4 to waters of the United States. Since treatment generally does not occur within the MS4, in such cases reduction of pollutants to the MEP must occur prior to discharges entering the MS4.

The importance of this concept is supported by the tons of wastes/pollutants that have been removed from the Copermittees' MS4s as reported in their ROWD.<sup>92</sup> Moreover, these pollutants will be discharged into receiving waters unless an effective MS4 and structural treatment BMP maintenance program is implemented by the Copermittees. The requirement for Copermittees to conduct a MS4 maintenance program is specifically directed in both the Phase I and Phase II storm water regulations. Regarding MS4 cleaning, USEPA states "The removal of sediment, decaying debris, and highly polluted water from catch basins has aesthetic and water quality benefits, including reducing foul odors, reducing suspended solids, and reducing the load of oxygen-demanding substances that reach receiving waters."<sup>93</sup> It goes on to say, "Catch basin cleaning is an efficient and cost-effective method for preventing the transport of sediment and pollutants to receiving water bodies." USEPA also finds that "Lack of maintenance often limits the effectiveness of storm water structural controls such as detention/retention basins and infiltration devices. [...] The proposed program should provide for maintenance logs and identify specific maintenance activities for each class of control, such as removing sediment from retention ponds every five years, cleaning catch basins annually, and removing litter from channels twice a year."<sup>94</sup>

**Finding D.3.f:** Enforcement of local urban runoff related ordinances, permits, and plans is an essential component of every urban runoff management program and is specifically required in the federal storm water regulations and this Order. Each Copermittee is individually responsible for adoption and enforcement of ordinances and/or policies, implementation of identified control measures/BMPs needed to prevent or reduce pollutants in storm water runoff, and for the allocation of funds for the capital, operation and maintenance, administrative, and enforcement expenditures necessary to implement and enforce such control measures/BMPs under its jurisdiction.

**Discussion:** The Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A – D) are clear in placing responsibility on municipalities for control of urban runoff from third party activities and land uses to their MS4.<sup>95</sup> In order for municipalities to assume this responsibility, they must implement ordinances, permits, and plans addressing urban runoff from third parties. Assessments for compliance with their ordinances, permits, and plans are essential for a municipality to ensure that third parties are not causing the municipality to be in violation of its municipal storm water permit. When conditions of non-compliance are determined, enforcement is necessary to ensure that violations of municipality ordinances and permits are corrected. When the Copermittees determine a violation of its storm water ordinance, it must pursue correction of the violation. Without enforcement, third parties do not have incentive to correct violations. USEPA supports enforcement by municipalities when it states "Effective inspection and

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<sup>92</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Pages 32-33.

<sup>93</sup> USEPA, 1999. Storm Water O&M Fact Sheet, Catch Basin Cleaning. EPA 832-F-99-011.

<sup>94</sup> USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

<sup>95</sup> USEPA, 2000. EPA Administered Permit Programs: The National Pollutant Discharge Elimination System. Code of Federal Regulations, Vol. 40, Part 122.



enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms [...] also must be described.”<sup>96</sup>

**Finding D.3.g:** Education is an important aspect of every effective urban runoff management program and the basis for changes in behavior at a societal level. Education of municipal planning, inspection, and maintenance department staffs is especially critical to ensure that in-house staffs understand how their activities impact water quality, how to accomplish their jobs while protecting water quality, and their specific roles and responsibilities for compliance with this Order. Public education, designed to target various urban land users and other audiences, is also essential to inform the public of how individual actions impact receiving water quality and how these impacts can be minimized.

**Discussion:** Education is a critical BMP and an important aspect of the urban runoff management programs. USEPA finds that “An informed and knowledgeable community is critical to the success of a storm water management program since it helps ensure the following: Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important [and] greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters.”<sup>97</sup>

Regarding target audiences, USEPA also states “The public education program should use a mix of appropriate local strategies to address the viewpoints and concerns of a variety of audiences and communities, including minority and disadvantaged communities, as well as children.”

**Finding D.3.h:** Public participation during the development of urban runoff management programs is necessary to ensure that all stakeholder interests and a variety of creative solutions are considered.

**Discussion:** This finding is supported by the Phase II Storm Water Regulations, which state “early and frequent public involvement can shorten implementation schedules and broaden public support for a program.” USEPA goes on to explain, “public participation is likely to ensure a more successful storm water program by providing valuable expertise and a conduit to other programs and governments.”<sup>98</sup>

**Finding D.4.a:** Since urban runoff does not recognize political boundaries, watershed-based urban runoff management can greatly enhance the protection of receiving waters within a watershed. Such management provides a means to focus on the most important water quality problems in each watershed. By focusing on the most important water quality problems, watershed efforts can maximize protection of beneficial use in an efficient manner. Watershed management of urban runoff does not require Copermittees to expend resources outside of their jurisdictions. Watershed management requires the Copermittees within a watershed to develop a watershed-based management strategy, which can then be implemented on a jurisdictional basis.

**Discussion:** In recent years, addressing water quality issues from a watershed perspective has increasingly gained attention. Regarding watershed-based permitting, the USEPA *Watershed-Based NPDES Permitting Policy Statement* issued on Jan. 7, 2004 states the following:

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<sup>96</sup> USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA/833-B-92-002.

<sup>97</sup> USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

<sup>98</sup> Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68755.

USEPA continues to support a holistic watershed approach to water quality management. The process for developing and issuing NPDES permits on a watershed basis is an important tool in water quality management. USEPA believes that developing and issuing NPDES permits on a watershed basis can benefit all watershed stakeholders, from the NPDES permitting authority to local community members. A watershed-based approach to point source permitting under the NPDES program may serve as one innovative tool for achieving new efficiencies and environmental results. USEPA believes that watershed-based permitting can:

- lead to more environmentally effective results;
- emphasize measuring the effectiveness of targeted actions on improvements in water quality;
- provide greater opportunities for trading and other market based approaches;
- reduce the cost of improving the quality of the nation's waters;
- foster more effective implementation of watershed plans, including total maximum daily loads (TMDLs); and
- realize other ancillary benefits beyond those that have been achieved under the CWA (e.g., facilitate program integration including integration of Clean Water Act and Safe Drinking Water Act programs).

Watershed-based permitting is a process that ultimately produces NPDES permits that are issued to point sources on a geographic or watershed basis. In establishing point source controls in a watershed-based permit, the permitting authority may focus on watershed goals, and consider multiple pollutant sources and stressors, including the level of nonpoint source control that is practicable. In general, there are numerous permitting mechanisms that may be used to develop and issue permits within a watershed approach.

This USEPA guidance is in line with SWRCB and Regional Board watershed management goals. For example, the SWRCB's TAC recommends watershed-based water quality protection, stating "Municipal permits should have watershed specific components." The TAC further recommends that "All NPDES permits and Waste Discharge Requirements should be considered for reissuance on a watershed basis."

In addition, the Basin Plan states that "public agencies and private organizations concerned with water resources have come to recognize that a comprehensive evaluation of pollutant contributions on a watershed scale is the only way to realistically assess cumulative impacts and formulate workable strategies to truly protect our water resources. Both water pollution and habitat degradation problems can best be solved by following a basin-wide approach."

In light of USEPA's policy statement and the SWRCB's and Regional Board's watershed management goals, the Regional Board seeks to expand watershed management in the regulation of urban runoff. Watershed-based MS4 permits can provide for more effective receiving water quality protection by focusing on specific water quality problems. The entire watershed for the receiving water can be assessed, allowing for critical areas and practices to be targeted for corrective actions. Known sources of pollutants of concern can be investigated for potential water quality impacts. Problem areas can then be addressed, leading to eventual improvements in receiving water quality. Management of urban runoff on a watershed basis allows for specific water quality problems to be targeted so that efforts result in maximized water quality improvements.<sup>99</sup>

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<sup>99</sup> Regional Board, 2004. San Diego County Municipal Storm Water Permit Reissuance Analysis Summary. P. 1.

**Finding D.4.b:** Some urban runoff issues, such as residential education, can be effectively addressed on a regional basis. Regional approaches to urban runoff management can improve program consistency and promote sharing of resources, which can result in implementation of more efficient programs.

**Discussion:** Regional activities are generally directed at developing consistency between watershed and jurisdictional programs (e.g., through standards development), and collaborating on program activities such as education and monitoring to ease implementation and make the most of economies of scale. The Copermittees report having come to an understanding that jurisdictional, watershed, and regional programs cannot be effectively developed and implemented in isolation. In addition, the Copermittees, through WURMP implementation efforts, have learned that many watershed activities can be more effectively implemented (e.g., achieve more water quality benefits) at the regional level due to economies of scale and agree watershed protection should be increasingly emphasized as a focal point of Copermittee efforts under the re-issued Permit.<sup>100</sup>

**Finding D.4.c:** Both regionally and on a watershed basis, it is important for the Copermittees to coordinate their water quality protection and land use planning activities to achieve the greatest protection of receiving water bodies. Copermittee coordination with other watershed stakeholders, especially Caltrans, the Department of Defense, and Native American Tribes, is also important. Establishment of a management structure, within which the Copermittees subject to this Order will fund and coordinate those aspects of their joint obligations, will help promote implementation of urban runoff management programs on a watershed and regional basis in a most cost effective manner.

**Discussion:** Conventional planning and zoning can be limited in their ability to protect the environmental quality of creeks, rivers, and other waterbodies. Watershed-based planning is often ignored, despite the fact that receiving waters unite land by collecting runoff from throughout the watershed. Since watersheds unite land, they can be used as an effective basis for planning. Watershed-based planning enables local and regional areas to realize economic, social, and other benefits associated with growth, while conserving the resources needed to sustain such growth, including water quality. This type of planning can involve four steps: (1) Identify the watersheds shared by the participating jurisdictions; (2) Identify, assess, and prioritize the natural, social, and other resources in the watersheds; (3) Prioritize areas for growth, protection, and conservation, based on prioritized resources; and (4) Develop plans and regulations to guide growth and protect resources. Local governments have started with simple, yet effective, steps toward watershed planning, such as adopting a watershed-based planning approach, articulating the basic strategy in their General Plans, and beginning to pursue the basic strategy in collaboration with neighboring local governments who share the watersheds. Examples of new mechanisms created to facilitate watershed-based planning and zoning include the San Francisquito Creek Watershed Coordinated Resource Management Process and the Santa Clara Basin Watershed Management Initiative.<sup>101</sup>

## **E. Statute and Regulatory Considerations**

**Finding E.1:** The Receiving Water Limitations (RWL) language specified in this Order is consistent with language recommended by USEPA and established in SWRCB Water Quality Order 99-05, adopted by the SWRCB on June 17, 1999. The RWL in this Order require

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<sup>100</sup> San Diego County Copermittees, 2005. Report Of Waste Discharge. P. C.14.

<sup>101</sup> BASMAA, 1999. Start at the Source. Forbes Custom Publishing.

compliance with water quality standards through an iterative approach requiring the implementation of improved and better-tailored BMPs over time. Compliance with receiving water limits based on applicable water quality standards is necessary to ensure that MS4 discharges will not cause or contribute to violations of water quality standards and the creation of conditions of pollution.

**Discussion:** The RWLs in the Order require compliance with water quality standards through an iterative approach for implementing improved and better-tailored BMPs over time. The iterative BMP process requires the implementation of increasingly stringent BMPs until receiving water standards are achieved. This is necessary because implementation of BMPs alone cannot ensure attainment of receiving water quality standards. For example, a BMP that is effective in one situation may not be applicable in another. An iterative process of BMP development, implementation, and assessment is needed to promote consistent compliance with receiving water quality objectives. If assessment of a given BMP confirms that the BMP is ineffective, the iterative process should be restarted, with redevelopment of a new BMP that is anticipated to result in compliance with receiving water quality objectives.

The issue of whether storm water discharges from MS4s must meet water quality standards has been intensely debated in past years. The argument arises because CWA section 402(p) fails to clearly state that municipal dischargers of storm water must meet water quality standards. On the issue of industrial discharges of storm water, the statute clearly indicates that industrial dischargers must meet both (1) the technology-based standard of “best available technology economically achievable (BAT)” and (2) applicable water quality standards. On the issue of municipal discharges however, the statute states that municipal dischargers must meet (1) the technology-based standard of MEP” and (2) “such other provisions that the Administrator or the State determines appropriate for the control of such pollutants.” The statute fails, however, to specifically state that municipal dischargers must meet water quality standards.

As a result, the municipal storm water dischargers have argued that they do not have to meet water quality standards; and that they only are required to meet MEP. Environmental interest groups maintain that not only do MS4 discharges have to meet water quality standards, but that MS4 permits must also comply with numeric effluent limitations for the purpose of meeting water quality standards. On the issue of water quality standards, USEPA, the SWRCB, and the Regional Board have consistently maintained that MS4s must indeed comply with water quality standards. On the issue of whether water quality standards must be met by numeric effluent limits, USEPA, the SWRCB (in Orders WQ 91-03 and WQ 91-04), and the Regional Board have maintained that MS4 permits can, at this time, contain narrative requirements for the implementation of BMPs in place of numeric effluent limits.

In addition to relying on USEPA’s legal opinion concluding that MS4s must meet MEP and water quality standards, the SWRCB also relied on the CWA’s explicit authority for States to require “such other provisions that the Administrator or the State determines appropriate for the control of such pollutants” in addition to the technology-based standard of MEP. To further support its conclusions that MS4 permit dischargers must meet water quality standards, the SWRCB relied on provisions of the CWC that specify that all waste discharge requirements must implement applicable Basin Plans and take into consideration the appropriate water quality objectives for the protection of beneficial uses.

The SWRCB first formally concluded that permits for MS4s must contain effluent limitations based on water quality standards in its Order WQ 91-03. In that Order, the SWRCB also concluded that it was appropriate for Regional Boards to achieve this result by requiring best

management practices, rather than by inserting numeric effluent limitations into MS4 permits. Later, in Order WQ 98-01, the SWRCB prescribed specific precedent setting Receiving Water Limitations language to be included in all future MS4 permits. This language specifically requires that MS4 dischargers meet water quality standards and allows for the use of narrative BMPs (increasing in stringency and implemented in an iterative process) as the mechanism by which water quality standards can be met.

In Order WQ 99-05, the SWRCB modified its receiving water limitations language in Order WQ 98-01 to meet specific objections by USEPA (the modifications resulted in stricter compliance with water quality standards). SWRCB Order WQ 99-05 states:

“In Order WQ 98-01, the SWRCB ordered that certain receiving water limitation language be included in future municipal storm water permits. Following inclusion of that language in permits issued by the San Francisco Bay and San Diego Regional Boards for Vallejo and Riverside respectively, the USEPA objected to the permits. The USEPA objection was based on the receiving water limitation language. The USEPA has now issued those permits itself and has included receiving water limitation language it deems appropriate.

In light of USEPA’s objection to the receiving water limitation language in Order WQ 98-01 and its adoption of alternative language, the SWRCB is revising its instructions regarding receiving water limitation language for municipal storm water permits. It is hereby ordered that Order WQ 98-01 will be amended to remove the receiving water limitation language contained therein and to substitute the USEPA language. Based on the reasons stated here, and as a precedent decision, the following receiving water limitation language shall be included in future municipal storm water permits.”

In 1999 case involving MS4 permits issued by USEPA to several Arizona cities (*Defenders of Wildlife v. Browner*, 1999, 197 F. 3d 1035), the United States Court of Appeals for the Ninth Circuit upheld USEPA’s requirement for MS4 dischargers to meet water quality standards, but it did so on the basis of USEPA’s discretion rather than on the basis of strict compliance with the Clean Water Act. In other words, while holding that the Clean Water Act does not require all MS4 discharges to comply strictly with state water quality standards, the Court also held that USEPA has the authority to determine that ensuring strict compliance with state water quality standards is necessary to control pollutants. On the question of whether MS4 permits must contain numeric effluent limitations, the court upheld USEPA’s use of iterative BMPs in place of numeric effluent limits.

On October 14, 1999, the SWRCB issued a legal opinion on the federal appellate decision and provided advice to the Regional Boards on how to proceed in the future. In the memorandum, the SWRCB concludes that the recent Ninth Circuit opinion upholds the discretion of USEPA and the State to (continue to) issue permits to MS4s that require compliance with water quality standards through iterative BMPs. Moreover, the memorandum states that “[...] because most MS4 discharges enter impaired water bodies, there is a real need for permits to include stringent requirements to protect those water bodies. As TMDLs are developed, it is likely that MS4s will have to participate in pollutant load reductions, and the MS4 permits are the most effective vehicles for those reductions.” In summary, the SWRCB found that the Regional Boards should continue to include the RWL established in SWRCB Order WQ 99-05 in all future permits.

The issue of the RWLs language was also central to BIA’s (and others’) appeal of Order No. 2001-01 (~~Tentative~~ Order No. R9-~~2006-0011~~2007-0001 serves as the reissuance of Order No. 2001-01). BIA contended that the MEP standard was a ceiling on what could be required of the Copermitees in implementing their urban runoff management programs, and that Order No.



2001-01's receiving water limitations requirements exceeded that ceiling. In other words, BIA argued that the Copermittees could not be required to comply with receiving water limitations if they necessitated efforts which went beyond the MEP standard. Again, the courts upheld the Regional Board's discretion to require compliance with water quality standards in municipal storm water permits, without limitation. The Court of Appeal, Fourth Appellate District found that the Regional Board has "the authority to include a permit provision requiring compliance with water quality standards."<sup>102</sup> On further appeal by BIA, the California State Supreme Court declined to hear the matter.

While implementation of the iterative BMP process is a means to achieve compliance with water quality objectives, it does not shield the discharger from enforcement actions for continued non-compliance with water quality standards. Consistent with USEPA guidance,<sup>103</sup> regardless of whether or not an iterative process is being implemented, discharges that cause or contribute to a violation of water quality standards are in violation of Order No. R9-~~2006-001~~+2007-0001.

**Finding E.2:** The Basin Plan identifies the following beneficial uses for water bodies in the Santa Diego County watersheds: 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 beneficial uses are identified for coastal waters of San Diego County: 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).

**Discussion:** The San Diego County watersheds include all of Carlsbad, San Dieguito, Penasquitos, San Diego, Pueblo, Sweetwater, and Otay watersheds, and portions of Santa Margarita, San Luis Rey, and Tijuana watersheds. Major Rivers include the Santa Margarita River, the San Luis Rey River, San Dieguito River, San Diego River, Sweetwater River, Otay River and the Tijuana River. Major coastal waterbodies include Buena Vista Lagoon, Agua Hedionda Lagoon, Batiquitos Lagoon, San Elijo Lagoon, San Dieguito Lagoon, Los Penasquitos Lagoon, Mission Bay, San Diego Bay, Tijuana River estuary, and the Pacific Ocean. Major inland waterbodies include Lake Henshaw, Lake Wohlford, Lake Hodges, Sutherland Reservoir, Miramar Reservoir, San Vicente Reservoir, El Capitan Reservoir, Cuyamaca Reservoir, Sweetwater Reservoir, Loveland Reservoir, Otay Lakes, Barrett Lake and Morena Reservoir.

The San Diego County watersheds are approximately 2820 square miles and includes unincorporated portions of San Diego County, the Cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, Vista, as well as the San Diego Unified Port District and the San Diego County Regional Airport Authority, portions of the Cleveland National Forests, and the several Indian Reservations. Approximately 2.8 million people reside within the permitted area. Approximately 442 thousand people reside in the unincorporated area while the rest reside within the cities.

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<sup>102</sup> Building Industry Association et al., v. State Water Resources Control Board, et al. 2004.

<sup>103</sup> USEPA, 1998. Jan. 21, 1998 correspondence, "SWRCB/OCC File A-1041 for Orange County," from Alexis Strauss to Walt Petit, and March 17, 1998 correspondence from Alexis Strauss to Walt Petit.



**Finding E.3:** This Order is in conformance with SWRCB Resolution No. 68-16 and the federal Antidegradation Policy described in 40 CFR 131.12.

**Discussion:** Urban runoff management programs are required to be designed to reduce pollutants in urban runoff to the maximum extent practicable and achieve compliance with water quality standards. Therefore, implementation of urban runoff management programs, which satisfy the requirements of Order No. R9-~~2006-001~~+2007-0001, will prevent violations of receiving water quality standards. The Basin Plan states that “Water quality objectives must [...] conform to US EPA regulations covering antidegradation (40 CFR 131.12) and State Board Resolution 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California.” As a result, when water quality standards are met through the implementation of urban runoff management programs, USEPA and SWRCB antidegradation policy requirements are also met.

**Finding E.4:** 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 pollution impacting or threatening coastal water quality. CZARA addresses five sources of non-point pollution: agriculture, silviculture, urban, marinas, and hydromodification. This NPDES permit addresses the management measures required for the urban category, with the exception of septic systems. The adoption and implementation of this NPDES permit relieves the Permittee from developing a non-point source plan, for the urban category, under CZARA. The Regional Board addresses septic systems through the administration of other programs.

**Discussion:** Coastal states are required to develop programs to protect coastal waters from nonpoint source pollution, as mandated by the federal CZARA. CZARA Section 6217 identifies polluted runoff as a significant factor in coastal water degradation, and requires implementation of management measures and enforceable policies to restore and protect coastal waters. In lieu of developing a separate NPS program for the coastal zone, California’s NPS Pollution Control Program was updated in 2000 to address the requirements of both the CWA section 319 and the CZARA section 6217 on a statewide basis. The California Coastal Commission (CCC), the SWRCB, and the nine Regional Water Quality Control Boards are the lead State agencies for upgrading the program, although 20 other State agencies also participate. Pursuant to the CZARA (6217(g) Guidance Document the development of urban runoff management programs pursuant to this NPDES permit fulfills the need for coastal cities to develop an urban runoff non-point source plan identified in the State’s Non-point Source Program Strategy and Implementation Plan.<sup>104</sup>

**Finding E.5:** Section 303(d)(1)(A) of the CWA requires that “Each state shall identify those waters within its boundaries for which the effluent limitations...are not stringent enough to implement any water quality standard (WQS) applicable to such waters.” The CWA also requires states to establish a priority ranking of impaired waterbodies known as Water Quality Limited Segments and to establish TMDLs for such waters. This priority list of impaired waterbodies is called the Section 303(d) List. The current Section 303(d) List was approved by the State Water Resources Control Board on February 4, 2003 and on July 25, 2003 by USEPA.

**Discussion:** Section 303(d) of the federal CWA (CWA, 33 USC 1250, et seq., at 1313(d)), requires States to identify waters that do not meet water quality standards after applying certain required technology-based effluent limits (“impaired” water bodies). States are required to compile this information in a list and submit the list to USEPA for review and approval. This list

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<sup>104</sup> SWRCB/CCC, 2000. Nonpoint Source Program Strategy And Implementation Plan, 1998-2013 (PROSIP).

is known as the Section 303(d) list of impaired waters. As part of this listing process, States are required to prioritize waters/watersheds for future development of TMDL. The SWRCB and Regional Boards have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to subsequently develop TMDLs. The 2002 California 303(d) List identifies impaired receiving water bodies and their watersheds within the State of California. Urban runoff that is discharged from the Copermittee's MS4s is a leading cause of receiving water quality impairment in the San Diego Region.

**Finding E.6:** This Order fulfills a component of the TMDL Implementation Plan adopted by this Regional Board on August 14, 2002 for diazinon in Chollas Creek by establishing WQBELs for the Cities of San Diego, Lemon Grove, and La Mesa, the County of San Diego, and the San Diego Unified Port District; and by requiring: 1) legal authority, 2) implementation of a diazinon toxicity control plan and a diazinon public outreach/ education program, 3) achievement of the Compliance Schedule, and 4) a monitoring program. The establishment of WQBELs expressed as iterative BMPs to achieve the WLA compliance schedule is appropriate and is expected to be sufficient to achieve the WLA specified in the TMDL.

**Discussion:** On August 14, 2002, the Regional Board adopted the TMDL Implementation Plan<sup>105</sup> for diazinon in Chollas Creek by establishing WQBELs for the Cities of San Diego, Lemon Grove, and La Mesa, the County of San Diego, and the San Diego Unified Port District. The adopted Implementation Plan states:

“The Regional Board will revise existing waste discharge requirements / NPDES permits to incorporate effluent limitations in conformance with the WLAaste Load Allocations for diazinon as specified above. Modifications to the MS4 Permit can occur when the permit is reopened or during scheduled permit reissuance. Compliance with numeric limitations for diazinon will be required in accordance with a phased schedule of compliance. The compliance schedule will be jointly developed by the Regional Board and the Chollas Creek stakeholders and will be finalized no later than one year following adoption of this TMDL by the Regional Board. The phased compliance schedule will apply only to attainment of numeric limitations for diazinon. All other requirements of this TMDL will be immediately effective upon incorporation into applicable NPDES permits.”

On September 30, 2004, the compliance schedule was developed. The Order incorporates the compliance schedule. The TMDL Implementation Plan requires 1) Legal authority, 2) Implementation of a diazinon toxicity control plan and a diazinon public outreach / education program, 3) Achievement of the Compliance Schedule, and 4) Monitoring program. These requirements have been incorporated in the Order. The Implementation Plan states:

“The municipal Copermittees in the Chollas Creek watershed shall implement the requirements of the MS4 Permit.” And

“The Regional Board will use its enforcement authority as necessary to ensure compliance with applicable waste discharge requirements and Basin Plan waste discharge prohibitions.”

**Finding E.7:** This Order fulfills a component of the TMDL Implementation Plan adopted by this Regional Board on February 9, 2005 for dissolved copper in Shelter Island Yacht Basin (SIYB) by establishing WQBELs expressed as BMPs to achieve the WLA of 30 kg copper / year for the

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<sup>105</sup> Regional Board, 2002. Basin Plan Amendment, Attachment A to Resolution No. R9-2002-0123, Chollas Creek Diazinon Total Maximum Daily Load. P. 6-8.

City of San Diego and the San Diego Unified Port District. The establishment of WQBELs expressed as BMPs is appropriate and is expected to be sufficient to achieve the WLA specified in the TMDL.

**Discussion:** On February 9, 2005, the Regional Board adopted the TMDL Implementation Plan<sup>106</sup> for dissolved copper in the SIYB by establishing WQBELs expressed as BMPs to achieve the WLAs for the San Diego Unified Port District and to a much lesser extent the City of San Diego. The TMDL Implementation Plan states:

“The Regional Board will regulate discharges of copper to SIYB through the issuance of WDRs, Waivers of WDRs (waivers), or adoption of Waste Discharge prohibitions.” And

“The Regional Board will amend Order No. 2001-01, “Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm / Sewer Systems” to require that discharges of copper into SIYB waters via the City’s municipal separate storm sewer system not exceed a 30 mg/kg wasteload for copper.”

The Order is a WDR, therefore the discharge of copper to SIYB is regulated as required in the TMDL Implementation Plan. As stated in Finding A.2, the Order renews Order No. 2001-01, therefore the TMDL Implementation Plan requirements are included in this Order. The establishment of WQBELs expressed as BMPs is appropriate and is expected to be sufficient to achieve the WLAs specified in the TMDL.

**Finding E.8:** This Order establishes WQBELs and conditions consistent with the requirements and assumptions of the WLAs in the TMDLs as required by 40 CFR 122.44(d)(1)(vii)(B).

**Discussion:** The establishment of WQBELs expressed as iterative BMPs to achieve the WLA compliance schedule is appropriate and is expected to be sufficient to achieve the WLAs specified in the TMDL.

**Finding E.9:** Requirements in this Order that are more explicit than the federal storm water regulations in 40 CFR 122.26 are prescribed in accordance with the CWA section 402(p)(3)(iii) and are necessary to meet the MEP standard.

**Discussion:** The CWA explicitly preserves independent state authority to enact and implement its own standards and requirements, provided that such standards and requirements are at least as stringent as those that would be mandated by the CWA and the federal regulations. For example, as one general overriding principle, CWA section 510 states “nothing in this chapter shall (1) preclude or deny the right of any State or political subdivision thereof or interstate agency to adopt or enforce (A) any standard or limitation respecting discharges of pollutants, or (B) any requirement respecting control or abatement of pollution [...]” When relating specifically to storm water, CWA section 402(p)(3)(B)(iii) clearly provides states with wide-ranging discretion, stating that municipal storm water permits “[s]hall 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”

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<sup>106</sup> Regional Board, 2005. Basin Plan Amendment, Attachment A to Resolution No. R9-2005-0019, Amendment to the Water Quality Control Plan for the San Diego Region to Incorporate a Total Maximum Daily Load for Dissolved Copper in Shelter Island Yacht Basin, San Diego Bay. P. 5.

Therefore, where the Order contains requirements more specific than those included in the federal NPDES regulations 40 CFR 122.26(d), it is seeking to meet the above CWA requirements, as well as other particular federal NPDES regulations such as 40 CFR 122.44(d)(1)(i). This federal NPDES regulation requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.” Given the continued impact of urban runoff on receiving waters within the San Diego region, increased specificity in municipal storm water permits is necessary to meet the above CWA and federal regulation requirements.

In a 1992 decision, the U.S. Court of Appeals for the Ninth Circuit (NRDC v. USEPA, 966 F.2d 1292) interpreted the language in Clean Water Act section 402(p)(3)(B)(iii) as providing the State with substantial discretion and authority: “[t]he language in (iii), above, requires the Administrator or the State to design controls. Congress did not mandate a minimum standards approach or specify that USEPA develop minimal performance requirements [...] we must defer to USEPA on matters such as this, where USEPA has supplied a reasoned explanation of its choices.” The decision in essence holds that USEPA and the States are authorized to require implementation of storm water control programs that, upon “reasoned explanation,” accomplish the goals of CWA section 402(p). The Ninth Circuit Court of Appeals further reinforced the State’s authority in this area more recently in 1999. In Defenders of Wildlife v. Browner (1999) Case No. 98-71080, the Court cited the language of CWA section 402(p)(3)(B)(iii) and stated “[t]hat provision gives the USEPA discretion to determine what pollution controls are appropriate. As this court stated in NRDC v. USEPA, ‘Congress gave the administrator discretion to determine what controls are necessary [...].’”

Furthermore, the increased specificity included in the Order is in line with USEPA guidance included in its *Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems*<sup>107</sup> and its *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits*.<sup>108</sup> Where the tentative permit is more specific than the federal regulations, it is frequently based on the recommendations of the Guidance Manual. The Interim Permitting Approach also supports increased specificity in storm water permits, recommending that municipal storm water permits use BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards. In cases where adequate information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations are to be incorporated into storm water permits, as necessary and appropriate.” It is important to note that the SWRCB cited USEPA’s Interim Permitting Approach as support for its decision which upheld the increased specificity of numeric sizing criteria requirements for post-construction BMPs as appropriate requirements in municipal storm water permits.

**Finding E.10:** Urban runoff treatment and/or mitigation must occur prior to the discharge of urban runoff into a receiving water. Federal regulations at 40 CFR 131.10(a) state that in no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the

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<sup>107</sup> USEPA, 1992. *Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems*. EPA 833-B-92-002.

<sup>108</sup> USEPA, 1996. *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits*. 61 FR 43761.

U.S. Authorizing the construction of an urban 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. Furthermore, the 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. This is consistent with USEPA guidance to avoid locating structural controls in natural wetlands.

**Discussion:** Urban runoff treatment and/or mitigation in accordance with any of the requirements in the Order must occur prior to the discharge of storm water or urban runoff into receiving waters. Allowing polluted runoff to enter receiving waters prior to treatment to the MEP will result in degradation of the water body and potential exceedances of water quality standards, from the discharge point to the point of dissipation, infiltration, or treatment. Furthermore, the 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. This requirement is supported by federal regulation 40 CFR 131.10(a) and USEPA guidance. According to USEPA,<sup>109</sup> “To the extent possible, municipalities should avoid locating structural controls in natural wetlands. Before considering siting of controls in a natural wetland, the municipality should demonstrate that it is not possible or practicable to construct them in sites that do not contain natural wetlands... Practices should be used that settle solids, regulate flow, and remove contaminants prior to discharging storm water into a wetland.”

**Finding E.11:** Urban runoff is a significant contributor to the creation and persistence of Toxic Hot Spots in San Diego Bay. CWC section 13395 requires regional boards to reevaluate WDRs associated with toxic hot spots. The SWRCB adopted the Consolidated Toxic Hot Spot Cleanup Plan in June 1999. The Plan states: “The reevaluation [of WDRs associated with toxic hot spots] shall consist of (1) an assessment of the WDRs that may influence the creation or further pollution of the known toxic hot spot, (2) an assessment of which WDRs need to be modified to improve environmental conditions at the known toxic hot spot, and (3) a schedule for completion of any WDR modifications deemed appropriate.”

**Discussion:** Toxic hot spots are those areas in enclosed bays, estuaries, or any adjacent waters in the “contiguous zone” or the “ocean”, where pollution or contamination affects the interests of the state, and where hazardous substances have accumulated to levels which: 1) may pose a substantial present or potential hazard to aquatic life, wildlife, fisheries, or human health, or 2) may adversely affect the beneficial uses of the bay, estuary, or ocean waters, or 3) exceeds adopted water quality or sediment quality objectives. San Diego Bay contains several toxic hot spots. In a National Oceanic and Atmospheric Administration (NOAA) study which compared EMAP-type sediment toxicity data from various bays, San Diego Bay ranked second with 56 percent of the area of the Bay considered toxic. In addition to chemical and physical impacts, urban runoff often contains pollutants that cause toxicity to aquatic organisms (i.e., adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). Toxic pollutants impact the overall quality of aquatic systems and beneficial uses of receiving waters. A study of urban runoff samples from Chollas Creek in San Diego County, revealed toxic concentrations of

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<sup>109</sup> USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.



organophosphate pesticides and metals.<sup>110</sup> In Los Angeles County, storm water samples were found to be toxic to various aquatic organisms in the Los Angeles River, the San Gabriel River, Ballona Creek, and the Santa Monica Bay.<sup>111</sup> Also, a water quality data assessment conducted in Aliso Creek in Orange County showed that storm events caused varying degrees of mortality to test organisms.<sup>112</sup> For these reasons, the Order includes directives to prevent urban runoff from contributing to the further degradation of toxic hot spots.

**Finding E.12:** The issuance of waste discharge requirements and an NPDES permit for the discharge of urban 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 the CWC section 13389.

**Discussion:** CWC Section 13389 exempts the adoption of waste discharge requirements (such as NPDES permits) from CEQA requirements: “Neither the state board nor the regional boards shall be required to comply with the provisions of Chapter 3 (commencing with section 21100) of Division 13 of the Public Resources Code prior to the adoption of any waste discharge requirement, except requirements for new sources as defined in the Federal Water Pollution Control Act or acts amendatory thereof or supplementary thereto.”

This CEQA exemption was challenged during BIA’s (and others’) appeal of Order No. 2001-01 (~~Tentative~~ Order No. R9-~~2006-001~~+2007-0001 serves as the reissuance of Order No. 2001-01). BIA contended that the CEQA exemption did not apply to permit requirements where the Regional Board utilized its discretion to craft permit requirements which were more prescriptive than required by federal law. The Court of Appeal, Fourth Appellate District disagreed with this argument, stating “we also reject Building Industry’s argument to the extent it contends the statutory CEQA exemption in Water Code section 13389 is inapplicable to a particular NPDES permit provision that is discretionary, rather than mandatory, under the CWA.”<sup>113</sup> On further appeal by BIA, the California State Supreme Court declined to hear the matter.

[In a recent decision, the Court of Appeal of the State of California, Second Appellate District, upheld the CEQA exemption for municipal storm water NPDES permits \(County of Los Angeles, et al. v. California State Water Resources Control Board, et al.\).](#)

## **F. Public Process**

**Finding F.1:** The Regional Board has notified the Copermittees, all known interested parties, and the public of its intent to consider adoption of an Order prescribing waste discharge requirements that would serve to renew an NPDES permit for the existing discharge of urban runoff.

**Discussion:** Public notification of development of a draft permit is required under Federal regulation 40 CFR 124.10(a)(1)(ii). This regulation states “(a) Scope. (1) The Director shall give public notice that the following actions have occurred: (ii) A draft permit has been prepared

<sup>110</sup> Bay, et al., 2001. Characterization of Stormwater Toxicants from an Urban Watershed to Freshwater and Marine Organisms. Southern California Coastal Water Research Project. Annual Report 1999-2000.

<sup>111</sup> LARWQCB, 2001. The Role of Municipal Operators In Controlling the Discharge of Pollutants in Storm Water from Industrial/Commercial Facilities: A Case for Inspection Activities in the Large and Medium Municipal Separate Storm Sewer Permits.

<sup>112</sup> Regional Board, 2002. Fact Sheet/Technical Report for Regional Board Order No. R9-2002-0001.

<sup>113</sup> Building Industry Association et al., v. State Water Resources Control Board, et al. 2004.



under Sec. 124.6(d).” Public notifications “shall allow at least 30 days for public comment,” as required under Federal regulation 40 CFR 124.10(b)(1).

**Finding F.2:** The Regional Board has, at public meetings on (date), held public hearings and heard and considered all comments pertaining to the terms and conditions of this Order.

**Discussion:** Public hearings are required under CWC Section 13378, which states “Waste discharge requirements and dredged or fill material permits shall be adopted only after notice and any necessary hearing.” Federal regulation 40 CFR 124.12(a)(1) also requires public hearings for draft permits, stating “The Director shall hold a public hearing whenever he or she finds, on the basis or requests, a significant degree of public interest in a draft permit(s).” Regarding public notice of a public hearing, Federal regulation 40 CFR 124.10(b)(2) states that “Public notice of a public hearing shall be given at least 30 days before the hearing.”

## **X. DIRECTIVES DISCUSSION**

This section discusses significant changes which have been made to the requirements of the Order from the requirements which were previously included in Order No. 2001-01. For each section of the Order than has been changed there is a discussion which describes the change that was made and provides the rationale for the change. In addition, comments on the Copermittees’ ROWD recommendations, as they pertain to each changed requirement of the Order, are provided.

Requirements of the Order that are not discussed in this section have not been significantly changed from those requirements previously included in Order No. 2001-01. For such requirements, discussions and rationale for the requirements can be found in section VII of the Fact Sheet/Technical Report for Regional Board Order No. 2001-01, dated November 6, 2001. Section VII also provides additional background information for those requirements that have undergone significant change which are described in detail in this report. The Fact Sheet/Technical Report is available for download at:

[http://www.waterboards.ca.gov/sandiego/programs/sd\\_stormwater.html](http://www.waterboards.ca.gov/sandiego/programs/sd_stormwater.html)

Legal authority citations are provided for each major section of the Tentative Order. These citations apply to all applicable requirements within the section for which they are provided.

### **A. Prohibitions and Receiving Water Limitations**

The following legal authority applies to section A:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** The Regional Board Water Quality Control Plan for the San Diego Basin (Basin Plan) contains the following waste discharge prohibition: “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.”

California Water Code section 13050(l) states “(1) ‘Pollution’ means an alteration of the quality of waters of the state by waste to a degree which unreasonably affects either of the following: (A) The water for beneficial uses. (B) Facilities which serve beneficial uses. (2) ‘Pollution’ may include “contamination.”

California Water Code section 13050(k) states “‘Contamination’ means an impairment of the quality of waters of the state by waste to a degree which creates a hazard to 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.”

California Water Code section 13050(m) states “‘Nuisance’ means 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.”

California Water Code section 13241 requires each regional board to “establish such water quality objectives in water quality control plans as in its judgement will ensure the reasonable protection of beneficial uses and the prevention of nuisance [...]”

California Water Code Section 13243 provides that “A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.”

California Water Code Section 13263(a) provides that waste discharge requirements prescribed by the Regional Board implement the Basin Plan.

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff from commercial, residential, industrial, and construction land uses or activities.

Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(A - D) require municipalities to have legal authority to control various discharges to their MS4.

Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal storm water permits to include any requirements necessary to “[a]chieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

**Section A** of the Order combines two previously distinct requirement sections – Prohibitions and RWLs. These sections have been combined into one section for organization purposes and to reduce redundancy, since both sections address the same issue. In addition, the prohibition specifically addressing post-development runoff has been removed from the Order since it reiterated other more broad prohibitions, making it redundant. These changes have no net effect on the implementation and enforcement of the Order.

## **B. Non-Storm Water Discharges**

The following legal authority applies to section B:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B) requires MS4 operators “to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermittees shall prevent all types of illicit discharges into the MS4 except for certain non-storm water discharges.

**Section B** of the Order has been reworded to simplify and clarify the requirements for addressing non-storm water discharges that are not prohibited. This rewording has no net effect on the implementation and enforcement of the Order.

In their ROWD, the Copermittees recommend expanding the BMP exemption for emergency fire fighting flows so that it would apply to all emergency water flows. However, the Copermittees provide no information regarding what types of urban runoff are considered “emergency water flows.” In addition, the level of pollutants in such flows is not discussed. Due to the lack of such information, the requirement regarding emergency fire fighting flows has not been changed.

## **C. Legal Authority**

The following legal authority applies to section C:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that the Copermittees shall develop and implement legal authority to “Control through ordinance, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that the Copermittees shall develop and implement legal authority to “Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system.”

Illicit discharge is defined under Federal NPDES regulation 40 CFR 122.26(b)(2) as “any discharge to a municipal separate storm sewer system that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff from commercial, residential, industrial, and construction land uses or activities.

Federal NPDES regulation 40 CFR 122.26(d)(1)(ii) requires from the Copermittee “A description of existing legal authority to control discharges to the municipal separate storm sewer system.”

**Section C.1.j** has been added to the Order to ensure that BMPs implemented by third parties are effective. Since the Copermittees cannot passively receive and discharge pollutants from third parties, the Copermittees must ensure discharges of pollutants to the MS4 are reduced to the MEP. In order to achieve this, the Copermittees must be able to ensure that effective BMPs are being implemented by requiring the third parties to document BMP effectiveness. Regarding the Copermittees’ ability to require documentation and reporting from third parties, USEPA states “municipalities should provide documentation of their authority to enter, sample, inspect, review, and copy records, etc., as well as demonstrate their authority to require regular reports.”<sup>114</sup>

**Section C.2.d** has been added to the Order to ensure that the Copermittees’ enforcement tools are effective enough to ensure compliance with the Order. USEPA supports the need for the adequate Copermittee enforcement when it states that the Copermittees’ general counsels “should state that the applicant has the legal authority to apply and enforce the requirements of 40 CFR 122.26(d)(2)(i)(A-F).”<sup>115</sup>

## **D. Jurisdictional Urban Runoff Management Program**

### **D.1. Development Planning**

The following legal authority applies to section D.1:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWA section 402(a), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F), 40 CFR 131.12, and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) provides that Copermittees develop and implement a proposed management program which is to include “A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plan shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed.”

Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal storm water permits to include any requirements necessary to “[a]cheive water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.”

**Sections D.1.a and D.1.b** (General Plan and Environmental Review Process) require the Copermittees to update and revise their General Plan (or equivalent plan) and environmental review processes to ensure water quality and watershed protection principles are included. The Copermittees are required to detail any changes to the General Plan or environmental review process in their Jurisdictional Urban Runoff Management Program Annual Reports.

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<sup>114</sup> USEPA, 1992. Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

<sup>115</sup> Ibid.

The change made to these sections, which requires updating the General Plan and Environmental Review Process on an as needed basis, is supported by information provided in the Copermittees' ROWD. The ROWD states that all Copermittees have either updated, are in the process of updating, or have assessed their General Plan to ensure the General Plans include the required principles and are in compliance with Order No. 2001-01. The ROWD also states that all the Copermittees have updated their environmental review processes.

**Section D.1.c** (Approval Process Criteria and Requirements) requires that all development projects (regardless of size) implement BMPs to reduce pollutant discharges to the MEP. Source control and site design BMP requirements were not clearly described in this section of Order No. 2001-01. Additional detail has been added to this section to better describe the source control and site design BMPs needed for implementation. This additional detail is consistent with the requirements of the Model SUSMP. However, only source control and site design BMPs that apply to all types of development projects are required (i.e., properly designed trash storage areas).

In addition, Order No. 2001-01's requirement that applicants must provide evidence of coverage under the General Industrial Permit has been removed. This requirement was difficult to implement since industrial tenants for a development project are usually not known during the planning stage.

**Sections D.1.d and D.1.d.(1)** (Standard ~~u~~Urban Storm Water Mitigation Plans) require the Copermittees to review and update their local SUSMPs for compliance with the Order. The sections also require all Priority Development Projects falling under certain categories to meet SUSMP requirements. The update is necessary to ensure that the Copermittees' local SUSMPs are consistent with the changes that have been made to the Order's SUSMP requirements. The requirement for the development/adoption of a Model SUSMP has been removed since a model was completed and adopted in 2002.

**Section D.1.d.(2)** (Priority Development Project Categories) has been changed to simplify and clarify the Priority Development Project categories. The two housing development categories were combined into one category that includes 10 or more housing units. In addition, requirements which specifically apply to restaurants have been combined in this section. The section has been modified to clarify that restaurants with less than 5,000 square feet of development are subject to SUSMP requirements, except for the treatment control BMP and hydromodification control requirements. This is consistent with Order No. 2001-01's approach for applying SUSMP requirements to restaurants.

**Section D.1.d.(2)(i)** includes Retail Gasoline Outlets (RGOs) as a Priority Development Project category because RGOs are points of confluence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up. RGOs consequently produce significantly greater pollutant loadings of hydrocarbons and trace metals (including copper and zinc) than other urban areas. To meet MEP, source control and structural treatment BMPs are needed at RGOs that meet the following criteria: (a) 5,000 square feet or more of developed area, or (b) a projected ADT of 100 or more vehicles per day. These are appropriate thresholds since development size and volume of traffic are good indicators of potential impacts of urban runoff from RGOs on receiving waters.

In SWRCB WQ Order No. 2000-11, the SWRCB removed RGOs as a SUSMP category because the SWRCB found that RGOs were already heavily regulated and limited on their ability to construct infiltration devices or perform treatment. Order No. 2000-11 also acknowledged that a

threshold (size, average daily traffic, etc.) appropriate to trigger SUSMP requirements should be developed, and that specific findings regarding RGOs should be included in MS4 permits to justify the requirement.<sup>116</sup> The SWRCB also removed the RGO category from the San Diego County MS4 permit (Order No. 2001-01) because the Regional Board did not specifically address the issues raised in WQ Order No. 2000-11.

As discussed further below, the LARWQCB and the Regional Board have adequately addressed these issues. RGOs have been included as a SUSMP category in the Los Angeles County MS4 permit (Order No. R4-01-182), the statewide general Phase II MS4 permit (WQ Order No. 2003-0005-DWQ), and the Regional Board Southern Riverside County MS4 permit (Order No. R9-2004-001). The SWRCB also addressed the inclusion of RGOs through the appeals of MS4 permits issued by the Los Angeles and San Francisco Bay Area Regional Boards. The SWRCB held a workshop addressing RGOs and identified RGOs as significant sources of pollutants. The SWRCB then dismissed the petitions for removal of RGOs from the SUSMP requirements in the Los Angeles and San Francisco Bay Area MS4 permits.

The following issues regarding RGOs have been addressed:

**Heavily Regulated** - The heavily regulated distinction does not remove RGOs as significant source of pollutants in urban runoff and therefore should not be a basis for exempting them from SUSMP requirements. Other regulation of RGOs is separate from regulation under the CWA and does not necessarily relate to water quality and urban runoff. Moreover, other municipalities already require that RGOs implement structural BMPs, even though RGOs are regulated under other programs.

**Treatment Limitations** - Inexpensive and effective structural treatment BMPs which reduce pollutants and control peak flow rates and velocities are available for use at RGOs. Studies have shown that some catch basin inserts can remove hydrocarbons and heavy metals, which are typical pollutants of concern at RGOs. Sand or media filters have also been found to be effective and available for use at RGOs. Cisterns are examples of established BMPs to control flow, but RGOs could also use site design measures such as small weirs, baffles, and redirecting roof runoff to pervious areas.

**Safety** - No evidence has been provided to indicate that use of these structural BMPs at RGOs will pose a safety risk. In fact, filter BMPs have been installed at RGOs in other municipalities without apparent adverse safety effects. In addition, similar BMPs such as oil/water separators have been used for years by RGOs without safety problems.

**Threshold** - Studies indicate that runoff from RGOs contains similar pollutants to runoff from commercial parking lots. In precedential WQ Order 2000-11, the SWRCB determined that parking lots with a size threshold of 5,000 square feet or more is an appropriate SUSMP category. Based in part on the similarity of pollutants, the 5,000 square feet size threshold was also included for RGOs in the Order. In addition, other municipalities currently use similar size thresholds for RGOs when requiring design standards to mitigate storm water runoff. To provide additional flexibility for the Copermittees, another threshold of 100 or more motor vehicles ADT has been added to the Order. This threshold is based on requirements used in Washington and Oregon for what are considered "high use" sites. This is an appropriate threshold since vehicular traffic is a good indicator of the amount of pollutants generated at a site.

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<sup>116</sup> SWRCB, 2000. Order WQ 2000-11.



The Regional Board followed the SWRCB's direction regarding RGOs by including the above discussion in this Fact Sheet, as well as a specific finding that justifies the regulation of urban runoff from RGOs that meet certain criteria. Considering all of the supporting documentation discussed above, it is appropriate to include RGOs as a Priority Development Project category.

Additional detailed supporting information can be found in the 2001 technical report titled *Retail Gasoline Outlets: New Development Design Standards for Mitigation of Storm Water Impacts* by the LARWQCB and the Regional Board.

**Section D.1.d.(4)** (Site Design BMP Requirements) requires the Copermittees to place site design requirements on new development within their jurisdictions. The site design BMP options listed in these sections are consistent with the site design BMPs currently required by the Copermittees in the Model SUSMP. However, the Model SUSMP employs an open-ended approach to requirements for site design BMPs, requiring implementation of site design BMPs "where determined applicable and feasible by the Copermittee." Unfortunately, this approach has proven to be ineffective in integrating site design BMPs in project designs. Audits of ten of the Copermittees' SUSMP programs exhibited that "many of the SUSMP plans reviewed for this program evaluation did not adequately address site design."<sup>117</sup> Moreover, the auditor identified site design as one of three principal areas where further program oversight was necessary.<sup>118</sup>

For these reasons, the Order directs the Copermittees to require new development projects to employ at least one site design BMP from each of the two lists of site design BMP options provided in this section of the Order. Two lists of site design BMP options are provided to represent different categories of site design BMPs available for implementation. The first list includes site design BMPs that are less frequently utilized, though they are effective and achievable. The second list includes site design BMPs which are commonly cited in project proponents' SUSMP reports as the site design BMPs that have been incorporated into Priority Development Projects. Implementation of one site design BMP from each list is required to improve site design implementation at Priority Development Projects, while providing a reasonable and achievable minimum measure for site design BMP implementation. Through its process of conditioning development projects under the CWA section 401 Water Quality Certification program, the Regional Board finds that this level of site design BMP implementation is feasible for all projects. This site design BMP requirement will help ensure that site design BMPs are implemented for new development projects. Site design BMPs are a critical component of urban runoff management at new development projects, since the BMPs provide multiple benefits including preservation of hydrologic conditions, reduction of pollutant discharges, cost effectiveness, and green space.

The Order continues to provide the Copermittees with flexibility in implementing site design BMP requirements by providing lists from which site design BMP approaches can be chosen. Moreover, flexibility is inherently included in the site design options listed - each option provides the opportunity for numerous implementation approaches that can be used to achieve compliance.

In its October 29, 2004 letter to the Copermittees, as well as in subsequent meetings, the Regional Board notified Copermittees of the need for improvement in site design BMP implementation at development projects. In addition, at its May 5, 2005 meeting with the Copermittees, the

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<sup>117</sup> Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 4.

<sup>118</sup> Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 3.

Regional Board suggested that the Copermittees propose specific methods in their ROWD that would improve site design BMP implementation. In response, the Copermittees recommended that the Order “include an option for Copermittees to develop a low-impact design credit program.” However, such a requirement would be unenforceable, due to its vague nature. Moreover, if such a credit program were to take years to develop, lack of implementation of site design BMPs would continue unabated. To address this issue, the Order includes minimum requirements for site design BMP implementation, while also providing the Copermittees with their requested option to develop a site design credit program.<sup>119</sup> This provides assurance that site design BMPs will be implemented in a timely manner, while also providing the Copermittees with flexibility for site design credit program development.

The site design BMP options listed do not need to be costly. Some design options, such as concave vegetated surfaces or routing rooftop or walkway runoff to landscaped areas, are cost neutral.<sup>120</sup> Other site design BMPs, such as minimizing parking stall widths or use of efficient irrigation devices, are oftentimes already required. In addition, use of these site design BMPs reduces runoff quantity, allowing for treatment control BMPs on site to be smaller, therefore savings costs. Routing runoff through landscaped areas can also reduce the cost of irrigation.

**Section D.1.d.(5)** (Source Control BMP Requirements) requires that Priority Development Projects implement minimum source control BMPs. This section has been added to provide more detail and clarify the Order’s requirements for source control BMPs. The minimum source control BMPs listed in the section are consistent with the Model SUSMP.

**Section D.1.d.(6)** (Treatment Control BMP Requirements) clarifies that treatment control BMPs are not required to be designed to treat runoff from preservation areas, or other areas not being disturbed at a priority development project. This is a clarification of the requirements of Order No. 2001-01.

**Section D.1.d.(6)(c)(i)** ensures that priority development project proponents utilize the most accurate information to determine the volume or flow of runoff which must be treated. Using detailed local rainfall data, the County of San Diego has developed the 85<sup>th</sup> Percentile Precipitation Isopluvial Map, which exhibits the size of the 85<sup>th</sup> percentile storm event throughout San Diego County. Since this map uses detailed local rainfall data, it is more accurate for calculating the 85<sup>th</sup> percentile storm event than other methods which were included in Order No. 2001-01. The other methods found in Order No. 2001-01 were included as options to be used in the event that detailed accurate rainfall data did not exist for various locations within San Diego County. The County of San Diego’s development of the 85<sup>th</sup> Percentile Precipitation Isopluvial Map makes these other less accurate methods superfluous. Therefore, these other methods for calculating the 85<sup>th</sup> percentile storm event have been removed from the current Order.

**Section D.1.d.(6)(d)(i)** (Treatment Control BMPs) requires that treatment control BMPs selected for implementation at Priority Development Projects have a removal efficiency rating that is higher than the “low removal efficiency,” as presented in the Model SUSMP. The requirement allows exceptions for those projects that, with a feasibility analysis, can justify the use of a treatment control BMP with a low removal efficiency for a Priority Development Project. This requirement is needed because to date, the Copermittees have generally approved low removal efficiency treatment control BMPs without justification or evidence that use of higher efficiency treatment BMPs was considered and found to be infeasible. Specifically, it has been found

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<sup>119</sup> See section discussion for section D.1.d.(7) on the site design BMP credit program.

<sup>120</sup> BASMAA, 1999. Start at the Source. P. 149.

during audits of the Copermittees' SUSMP programs that many SUSMP reports do not adequately describe the selection of treatment control BMPs. Moreover, USEPA's contractor Tetra Tech, Inc. recommends that "project proponents should begin with the treatment control that is most effective at removing the pollutants of concern [...] and provide justification if that treatment control BMP is not selected."<sup>121</sup>

In the ROWD, the Copermittees acknowledge the need for further attention to the selection and implementation of effective treatment BMPs. They propose to work with the Regional Board to come to a "common understanding" without a fixed permit requirement. However, due to this widespread deficiency regarding treatment control BMP selection in the Copermittees' SUSMP programs, the treatment control BMP feasibility requirement is needed in the Order. The requirement is needed to provide clarification that selection of low efficiency treatment control BMPs over high efficiency BMPs without justification does not meet permit requirements and is not in compliance with the MEP standard.

**Section D.1.d.(7)** (Site Design BMP Substitution Program) has provisions for the site design BMP credit program which largely mirror components of the program suggested by the Copermittees in their ROWD. In their ROWD, the Copermittees requested the option to develop a site design BMP credit program, under which projects that implement a high level of site design BMPs could receive credit towards compliance with treatment control BMP requirements. The program would provide the opportunity for development projects to avoid partial or full treatment control BMP implementation in exchange for implementation of a high level of site design BMPs. The Regional Board agrees that such a program could be beneficial. As the ROWD notes, the program could achieve equal or greater water quality benefits while also (1) providing greater assurance of adequate operation and maintenance; (2) improved review processes of site design BMP proposals; (3) increased acceptance of site design BMPs; and (4) greater usage of site design BMPs. For this reason, the Regional Board has added to the Order an option for the Copermittees to develop such a program.

In addition to the Copermittees' proposals, the provisions require (1) that runoff originating from pollutant generating exposed impervious areas must be routed through pervious areas prior to entering the MS4, and (2) that development project categories, such as automotive repair shops or streets, roads, highways, or freeways, which have a high potential to generate high levels of pollutants, not be covered under the program. Runoff from pollutant generating impervious areas must be routed through pervious areas in order to ensure that some level of treatment is provided for the protection of water quality. Without such a provision, the program could result in the direct discharge of significant levels of pollutants to the MS4 without treatment. In addition, development projects which frequently generate high levels of pollutants, such as automotive repair shops and streets, roads, highways, and freeways, should not be included in the program due to the need for treatment control BMPs at such development projects. When high levels of pollutants are present at a development project, site design BMPs alone are unlikely to adequately reduce pollutant discharges; treatment BMPs are also needed to polish urban runoff and serve as a last line of defense.

In precedent setting Order No. 2000-11, the State Board determined that implementation of treatment control BMPs is appropriate for development projects falling under the priority development project categories. Therefore, any program which allows development projects to forgo treatment control BMP implementation must include provisions which will achieve similar

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<sup>121</sup> Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 5.

water quality benefits. To ensure that this is the case for the site design BMP credit program, minimum provisions for the program have been added to the Order. Due to the addition of the minimum provisions in the Order, the program will not need to undergo a lengthy Regional Board approval process at a later date.

**Section D. 1.d.(8)** (Treatment Control BMP Design Standards) addresses a need for the Copermittees to develop and apply consistent criteria for the design and maintenance of structural treatment BMPs. Correct BMP design is critical to ensure that BMPs are effective and perform as intended. Without design criteria, there is no assurance that this will occur, since there is no standard for design or review. This issue was noted during audits of the Copermittees' SUSMP programs, where it was found that "some SUSMP reports did not clearly describe how treatment control BMPs were designed."<sup>122</sup> Based upon these findings, it was recommended that the Copermittees "require developers to use standard forms to document the design of treatment control BMPs. As an example, Ventura County has developed a BMP manual that includes standard design procedure forms for BMPs. Ventura County's *Technical Guidance Manual for Storm Water Quality Control Measures* is available at <http://www.vcstormwater.org/publications.htm>."<sup>123</sup> California Stormwater Quality Association (CASQA) also confirms the necessity of design criteria when it includes such criteria in its New Development and Redevelopment BMP Handbook.<sup>124</sup>

**Section D.1.d.(11)** (Waiver Provision) allows Copermittees to waive treatment BMPs when all available BMPs have been considered and rejected as infeasible. The requirement also allows the Copermittees to develop a program to require projects that receive waivers, to transfer the cost savings to a fund. The intent of the requirements is to allow Copermittees the necessary flexibility to waive treatment BMPs when it can be established that the implementation of treatment BMPs that meet numeric sizing criteria is not feasible at a given site. This provision also allows Copermittees discretion to transfer the cost savings from such a waiver to a fund for water quality projects within the watershed.

**Section D.1.e** (Treatment Control BMP Maintenance Tracking) requires steps to be taken by the Copermittees to ensure that approved treatment control BMPs are correctly constructed and maintained, including development of a database. This is critical to ensure that the treatment control BMPs are effective in removing pollutants from urban runoff leaving new development and significant redevelopment projects. Treatment control BMP maintenance has been identified as a critical aspect of addressing urban runoff from new development and significant redevelopment by many prominent urban runoff authorities, including the CASQA which states that "long-term performance of BMPs hinges on ongoing and proper maintenance."<sup>125</sup> USEPA also stresses the importance of BMP maintenance, stating: "Lack of maintenance often limits the effectiveness of storm water structural controls such as detention/retention basins and infiltration devices."<sup>126</sup>

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<sup>122</sup> Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 5.

<sup>123</sup> Ibid.

<sup>124</sup> California Stormwater Quality Association, 2003. Stormwater Best Management Practice Handbook – New Development and Redevelopment.

<sup>125</sup> California Stormwater Quality Association, 2003. Stormwater Best Management Practice Handbook – New Development and Redevelopment. P. 6-1.

<sup>126</sup> USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

This permit section is needed due to findings that treatment control BMPs and treatment control BMP maintenance have predominantly not been tracked by the Copermittees. Following audits of SUSMP implementation of ten Copermittees, each of the Copermittees were recommended to develop a tracking system for treatment control BMPs and treatment control BMP maintenance. It has been found that “source and treatment control BMPs should be tracked in order to assess the number of BMPs installed, for reporting purposes, and to create an inventory for verifying maintenance in the future.”<sup>127</sup> Moreover, during the SUSMP audits, two of the ten Copermittees audited were found to have inadequately maintained treatment BMPs within their jurisdiction.<sup>128</sup> Again, it was recommended that Copermittees “should periodically inspect selected SUSMP projects to verify if BMPs are being properly maintained.”<sup>129</sup> USEPA also recommends “post-construction inspection and maintenance of BMPs” in the Phase II storm water regulations.<sup>130</sup>

At its May 5, 2005 meeting with the Copermittees, the Regional Board requested that the Copermittees propose a program for addressing treatment control BMP tracking and inspection in their ROWD. In response, the Copermittees’ ROWD did not propose a program but instead recommended that the Order include “an option for the Copermittees to develop a Model Program for Permanent BMP Operation and Maintenance Verification.”<sup>131</sup> This proposal lacks sufficient detail to be included in the Order, since it would result in an unenforceable permit requirement. As a result, the Order has been crafted to allow the Copermittees to develop their proposed program, but with minimum measurable outcomes to ensure that the program is adequate and effective.

These minimum measurable outcomes largely incorporate suggestions from the Copermittees’ ROWD, though some contain more detailed requirements than what was proposed by the Copermittees. In particular, while the Copermittees are free to prioritize most projects with treatment control BMPs, those projects with drainage insert treatment control BMPs must be categorized as at least a medium priority. This will ensure that such projects will be inspected every other year. Tracking of these projects in this manner is necessary because of the frequent maintenance that drainage inserts require, as well as the sensitivity of drainage insert performance to adequate maintenance. Drainage inserts fill relatively rapidly, causing plugging and bypass, rendering them ineffective. For example, CASQA recommends “frequent maintenance, on the order of several times per year.”<sup>132</sup>

Another significant measurable outcome requirement is that all projects with treatment control BMPs must be inspected for operation and maintenance at least once during the permit cycle. This is reasonable, since treatment control BMPs are typically recommended to be maintained semi-annually or annually. An activity which needs to be conducted semi-annually or annually should be spot-checked at least once every five years. Twenty percent of the projects within a jurisdiction with approved treatment BMPs are required to be inspected annually in order to ensure that treatment control BMP operation and maintenance oversight is consistent during the permit cycle.

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<sup>127</sup> Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 6.

<sup>128</sup> Ibid. P. 25, 38.

<sup>129</sup> Ibid.

<sup>130</sup> Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68845.

<sup>131</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-16.

<sup>132</sup> California Stormwater Quality Association, 2003. Stormwater Best Management Practice Handbook – New Development and Redevelopment. P. M-52.



**Section D.1.f** (BMP Verification) helps ensure that BMPs constructed at new development sites are consistent with proposed and approved design plans. Correct construction of BMPs is necessary to ensure that the BMPs are effective and that pollutants discharged from new development projects are reduced to the maximum extent practicable and do not cause or contribute to violations of water quality standards. This permit section is needed because it has been found that BMPs frequently are not constructed in the field as they were proposed by applicants and/or approved by Copermittees. Four of the ten Copermittees audited during the SUSMP audits were found to have projects within their jurisdictions with incorrectly constructed BMPs. It was recommended that Copermittees ensure “that the SUSMP BMPs are properly installed in the field. This includes verifying factors such as the location, sizing, and type of BMPs installed.”<sup>133</sup> Also recommended is that “Copermittees should ensure that the BMP design details in SUSMP reports are translated to the engineering plan sheets used in the field.”<sup>134</sup> In addition, USEPA recommends such practices in the Phase II storm water regulations, promoting “inspections during construction to verify BMPs are built as designed.”<sup>135</sup>

**Section D.1.g** (Hydromodification) addresses the changes in a watershed’s runoff characteristics resulting from development, together with associated morphological changes to channels receiving the runoff. These changes are termed hydromodification. As the total area of impervious surfaces increases in previously undeveloped areas, infiltration of rainfall decreases, causing more water to run off the surface at a higher rate. Runoff from developed areas can produce erosive flows in channels under rainfall conditions where previously they did not exist. Moreover, runoff from developed areas increases the duration of time that channels are exposed to erosive flows. The increase in the volume of runoff and the length of time that erosive flows occur ultimately intensify sediment transport, causing changes in sediment transport characteristics and the hydraulic geometry (width, depth, slope) of channels.<sup>136</sup>

These types of changes have been documented in southern California. It has been reported that researchers studying flood frequencies in Riverside County have found that increases in watershed imperviousness of only 9-22% can result in increases in peak flow rates for the two-year storm event of up to 100%.<sup>137</sup> Such changes in runoff have significant impacts on channel morphology. It has recently been found that ephemeral/intermittent channels in southern California appear to be more sensitive to changes in imperviousness than channels in other areas. Morphology of small channels in southern California was found to change with only 2-3% watershed imperviousness, as opposed to 7-10% watershed imperviousness in other parts of the nation.<sup>138</sup>

Stream channels typically respond to increased runoff rates and durations by increasing their cross-sectional area to accommodate the higher flows. This is done through widening of the channel banks, down-cutting of the channel bed, or both. This channel instability results in streambank erosion and habitat degradation, which is a significant impact to beneficial uses. Channel instability causes impacts to beneficial uses through sedimentation, loss of overhead

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<sup>133</sup> Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 6.

<sup>134</sup> Ibid.

<sup>135</sup> Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68845.

<sup>136</sup> Santa Clara Valley Urban Runoff Pollution Prevention Program, 2005. Hydromodification Management Plan. P. 1-1.

<sup>137</sup> Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection.

<sup>138</sup> Coleman, et. al., 2005. Effect of Increases in Peak Flows and Imperviousness on the Morphology of Southern California Streams. P. iv.



cover, and loss of instream habitat structures, such as the loss of pool and riffle sequences.<sup>139</sup> Numerous studies have exhibited the link between urbanization, poor habitat quality, and impaired beneficial uses such as reduced insect and fish diversity.<sup>140</sup> These findings are also supported by the Copermittees' bioassessment data, which typically exhibits Poor to Very Poor Index of Biotic Integrity ratings for San Diego County channels, even though toxicity is frequently not found to be persistent.<sup>141</sup>

This section of the Order expands the requirements for control of hydromodification caused by changes in runoff resulting from development and urbanization. Expansion of these requirements is needed due to the current lack of a clear standard for controlling hydromodification resulting from development. While the Model SUSMP developed by the Copermittees requires project proponents to control hydromodification, it provides no standard or performance criteria for how this is to be achieved. Without any kind of clear standard or criteria, what must be done to prevent hydromodification is not known by project proponents and plan reviewers. As a result, project proponents do not know what to propose (if anything) and Copermittee review staff do not know what to require. Ultimately, Priority Development Projects implement few measures which can be expected to adequately control hydromodification. In any event, it is clear that Priority Development Projects in San Diego County are not implementing the type of measures which have been identified and required in other parts of California as necessary to prevent hydromodification.

To address this situation, this section of the Order requires the development and implementation of a Hydromodification Management Plan and outlines a process for the development and implementation of a standard and criteria to limit hydromodification of downstream channels. The required process is based on processes currently being developed and/or used in the San Francisco Bay Area and Los Angeles and Ventura Counties.<sup>142</sup> It also corresponds with the planned second phase of the Southern California Stormwater Monitoring Coalition's Hydromodification Control Study, which is expected to develop a regional stream classification system, a numerical model to predict the hydrological changes resulting from development, and to identify effective mitigation strategies.

A detailed example of a process that can be used to develop a standard and criteria for control of hydromodification resulting from new development can be found in the Santa Clara Valley Urban Runoff Pollution Prevention Hydromodification Management Plan.<sup>143</sup> It involves developing ratios of work done on representative channel segments by runoff, where work done to a channel segment under pre-urban conditions is compared to work done under existing conditions. The calculated ratio is called the Erosion Potential (Ep) of the channel segment.<sup>144</sup> The Ep ratios for particular channel segments are then compared to field classified erosion conditions (such as stable/low or medium/high level of erosion). This comparison is used to identify an Ep ratio that has a low risk of resulting in an unstable channel or a channel with a medium/high level of

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<sup>139</sup> Schueler and Holland, 2000. The Importance of Imperviousness (Article 1). The Practice of Watershed Protection.

<sup>140</sup> Ibid.

<sup>141</sup> County of San Diego, 2005. San Diego County Municipal Copermittees 2003-2004 Urban Runoff Monitoring Final Report. By MEC Analytical Systems – Weston Solutions, Inc. Index of Biotic Integrity ratings give an absolute value to the benthic community quality based on the range of reference conditions in the region. The Index of Biotic Integrity ratings can be used to evaluate community conditions over time to monitor the effects of habitat degradation or the success of restoration efforts.

<sup>142</sup> See <http://www.cccleanwater.org/construction/nd.php> or <http://www.scvurppp.org/> under "C.3 Submittals" for examples of a Hydromodification Management Plans.

<sup>143</sup> Santa Clara Valley Urban Runoff Pollution Prevention Program, 2005. Hydromodification Management Plan. P. 3-1 – 3-20.

<sup>144</sup> Ep is discussed in detail in the definitions section of the Permit.

erosion. Generally, an Ep of approximately 1, where work done hydraulically on a channel matches a baseline condition, will have a low risk of causing stream instability.

Once an Ep ratio that will result in stable channels is determined, it is used as a standard upon which to base development of runoff flow rate and duration criteria. Stream channel erosion is caused by increases in runoff flow rates and durations for the small and moderate magnitude runoff flows above the threshold for sediment transport and channel bank erosion.<sup>145</sup> Runoff flow rate and duration criteria identify the range of storms for which flow rates and durations must be controlled to pre-project conditions in order to meet the Ep standard. This involves identifying the critical flow that produces the critical shear stress that initiates bed movement or that erodes the toe of channel banks, and then relating the critical flow to a percentage of the 2-year peak flow, which serves as the lower bound of the range of storm events which must be controlled. The upper bound of the range of storm events is based on the storm event where significant post-project increases in the total work done on the channel do not occur.

Due to the ongoing high level of development in San Diego County, this section of the Order also contains an interim hydromodification standard for large Priority Development Projects. Without an interim hydromodification standard, major Priority Development Projects will be developed without hydromodification controls, resulting in impacts to relatively stable streams with good habitat quality. Examples of areas that can be expected to be developed in the near future include the Otay Valley Hydrologic Area and the Bonsall Hydrologic Subarea.

Priority Development Projects over 50 acres in size are required to meet the interim criteria because large projects have a greater potential to impact streams through hydromodification. Larger projects create more impervious surface, increasing runoff flow rates and durations to a greater extent, resulting in greater potential for hydromodification of receiving channels. The 50 acre size limit was chosen based on high priority status placed on construction sites larger than 50 acres. Applying an interim criteria to projects over 50 acres in size is manageable for Copermittees because of the relative infrequency of development projects larger than 50 acres. Approximately 88% of the construction sites with coverage under the statewide General Construction Storm Water Permit are smaller than 50 acres in size. Moreover, since larger Priority Development Projects typically have greater resources, they have the capability to conduct the necessary analyses and implement measures to maintain the morphology of receiving channels. For example, such analysis (together with proposed implementation of flow rate and duration controls) has been conducted for the Rancho Mission Viejo project in southern Orange County.<sup>146</sup>

The Copermittees' ROWD essentially proposes a continuation of the current process for addressing hydromodification. As with the existing process, it is proposed that the project proponent will somehow demonstrate that the Priority Development Project will not impact downstream erosion or stream habitat. However, as discussed above, without a standard or specific criteria for how this will be done, neither the project proponent or a Copermittee's project review staff will know what needs to be implemented. Without specific standards or criteria, effective measures cannot be expected to be implemented to control hydromodification. For this reason, this section contains requirements that specific standards and criteria to control hydromodification be developed.

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<sup>145</sup> Santa Clara Valley Urban Runoff Pollution Prevention Program, 2005. Hydromodification Management Plan. P. 5-1.

<sup>146</sup> County of Orange, 2004. The Ranch Plan Draft Environmental Impact No. 589. Section 4.5.

**Section D.1.h** (Enforcement of Development Sites) ensures that the Copermittees will use enforcement to pursue corrections of noted violations at development sites. The section is being added to the Development Planning to complement the requirements for inspections of post-construction BMPs and BMP maintenance. Where ineffective BMP implementation or inadequate BMP maintenance is noted during inspections, Copermittees must take effective enforcement actions that ensure violations are corrected and pollutants are reduced to the maximum extent practicable. USEPA recommends the development of ordinances and the use of enforcement procedures to address post-construction storm water management issues in the Phase II storm water regulations.<sup>147</sup>

## **D. 2. Construction**

The following legal authority applies to section D.2:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) provides that the proposed management program include “A description of a program to implement and maintain structural and non-structural best management practices to reduce pollutants in storm water runoff from construction sites to the municipal storm sewer system.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(1) provides that the proposed management program include “A description of procedures for site planning which incorporate consideration of potential water quality impacts.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(2) provides that the proposed management program include “A description of requirements for nonstructural and structural best management practices.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(3) provides that the proposed management program include “A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(4) provides that the proposed management program include “A description of appropriate educational and training measures for construction site operators.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermittee must demonstrate that it can control “through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(b)(14) provides that “The following categories of facilities are considered to be engaging in ‘industrial activity’ for the purposes of this subsection: [...] (x) Construction activity including cleaning, grading and excavation activities [...].”

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<sup>147</sup> Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68845.

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

**Section D.2.a** (Ordinance Update and Approval Process) requires each Copermittee to review and update its grading and storm water ordinances as necessary to comply with the MS4 permit. By updating the grading and storm water ordinances, the Copermittees will have the necessary legal authority to require construction sites to implement effective BMPs that will reduce pollutant discharges to the maximum extent practicable. The Order allows the Copermittees 365 days to review and update their ordinances. The 365 days should be more than adequate to allow for the relatively minor changes that might be needed since their ordinances were last updated under Order No. 2001-01.

This section now requires the Copermittees to review project proponents’ storm water management plans for compliance with local regulations, policies, and procedures. USEPA recommends that it is often easier and more effective to incorporate storm water quality controls during the site plan review process or earlier.<sup>148</sup> In the Phase I storm water regulations, USEPA states that a primary control technique is good site planning.<sup>149</sup> USEPA goes on to say that the most efficient controls result when a comprehensive storm water management system is in place.<sup>150</sup> To determine if a construction site is in compliance with construction and grading ordinances and permits, USEPA states that the “MS4 operator should review the site plans submitted by the construction site operator before ground is broken.”<sup>151</sup> Site plan review aids in compliance and enforcement efforts since it alerts the “MS4 operator early in the process to the planned use or non-use of proper BMPs and provides a way to track new construction activities.”<sup>152</sup> During audits of San Diego Copermittee storm water programs, it was found on two separate occasions that site plan and SWPPP review were inadequate and inconsistent.<sup>153</sup>

**Section D.2.b** (Source Identification) requires the Copermittees to develop and update a watershed based inventory of all construction sites regardless of size or ownership. This section has been modified to require at least monthly updates of construction site inventories to ensure the Copermittees have a more accurate inventory of construction sites within their jurisdiction. A regularly updated inventory of active construction sites will assist the Copermittees in ensuring that all sites are inspected per Order requirements. In the ROWD, the Copermittees provide support for more regular updates by stating “Any inventory...is likely to change significantly within weeks or even days.”<sup>154</sup> Reporting of the inventory to the Regional Board would remain on an annual basis in the Jurisdictional Urban Runoff Management Program Annual Report.

**Section D.2.c** (BMP Implementation) includes modifications to the requirements for each Copermittee to designate and ensure implementation of a set of minimum BMPs at construction sites. These modifications are based on Regional Board findings and experience during implementation of Order No. 2001-01. During audits of the Copermittees’ storm water programs,

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<sup>148</sup> USEPA, 1992. Guidance 833-8-92-002. Section 6.3.2.1.

<sup>149</sup> Federal Register / Vol. 55, No. 222 / Friday, November 16, 1990 / Rules and Regulations. P. 48034.

<sup>150</sup> Ibid.

<sup>151</sup> USEPA, 2000. Guidance 833-R-00-002. Section 4.6.2.4, P. 4-30.

<sup>152</sup> Ibid., P. 4-31.

<sup>153</sup> Tetra Tech, Inc., 2002. Program Evaluation Report – San Diego Area Storm Water Programs – El Cajon. P. 15; and Tetra Tech, 2005. Program Evaluation Report – San Diego Area Storm Water Programs – Port of San Diego. P. 15.

<sup>154</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-23.

BMP implementation at construction sites was found to be second only to education in the number of deficiencies and potential permit violations. Eleven cities had deficiencies or potential permit violations, with the most common being that BMPs were not adequately implemented at construction sites and that the Copermittees' standards were not up to date. Both private and public construction sites were found to have inadequately implemented BMPs.<sup>155</sup> In addition, the only civil liability assessed on a municipality for violations of an MS4 permit under the previous municipal permit, Order No. 2001-01, was based in part on a Copermittee's failure to adequately implement or require implementation of BMPs at a construction site.<sup>156</sup>

This section describes the types of BMPs that are required to be implemented at construction sites. Many of these BMPs are found in Order No. 2001-01.<sup>157</sup> Differences in the BMP requirements from Order No. 2001-01 include: Removal of site priority specific BMP designations; removal of seasonal restrictions on grading; more specificity on slope stabilization; more specificity on phased grading; and the addition of advanced treatment requirements. Since pollution prevention methods are considered a BMP, the pollution prevention requirements have been moved to the BMP implementation section.

Unlike Order No. 2001-01, this Order does not require the Copermittee to designate a set of minimum BMPs for high, medium, and low threat to water quality construction sites. This change was made in recognition of most Copermittees' application of one consistent set of BMPs throughout their jurisdictions.

The Order's requirements for seasonal restrictions on grading have been changed. Seasonal restrictions on grading for storm water are difficult to implement due to the conflict between seasonal grading restrictions and endangered bird's breeding seasons; therefore the seasonal grading restrictions have not been included with the other BMPs in the Order. Found in southern California, the Least Bell's Vireo and the Coastal California Gnatcatcher are listed as federally endangered and threatened, respectively.<sup>158</sup> Permits issued by the California Department of Fish and Game (CDFG) restrict grading during these birds' breeding seasons, which is from April 10 to August 31 for the Least Bell's Vireo<sup>159</sup> and from February 15 to August 31 for the Coastal California Gnatcatcher.<sup>160</sup> Ideally storm water restrictions on grading would be during the wet season from October 1 through April 30.<sup>161</sup> Combined these restrictions would limit construction grading to be during the month of September, which is infeasible. Section D.2.c of the Order still requires "project proponents to minimize grading during the wet season and coincide grading with seasonal dry weather periods to the extent feasible. If grading does occur during the wet season, require project proponent to implement additional BMPs for any rain events which may occur."

**Sections D.2.c.(1)(e-f)** of the Order require slope stabilization on all active and inactive slopes during rain events regardless of the season, except in areas implementing advanced treatment. Slope stabilization is also required on inactive slopes throughout the rainy season. These

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<sup>155</sup> Tetra Tech, Inc., various. Program Evaluation Reports San Diego Area Storm Water Programs.

<sup>156</sup> Regional Board, 2005. Order No. R9-2005-0237. Administrative Assessment of Civil Liability against JRMC Realty, Inc. and the City of Escondido. P. 3.

<sup>157</sup> Regional Board, 2001. Order No. 2001-01, San Diego County MS4 Permit. P. 22.

<sup>158</sup> State of California, Department of Fish and Game, 2005. State and Federally Listed Endangered and Threatened Animals of California.

<sup>159</sup> United States Department of the Interior, Fish and Wildlife Service, 2001. Least Bell's Vireo Survey Guidelines.

<sup>160</sup> United States Department of the Interior, Fish and Wildlife Service, 1997. Coastal California Gnatcatcher (*Poliptila californica californica*) Presence/Absence Survey Guidelines.

<sup>161</sup> Regional Board, 2001. Order No. 2001-01, San Diego County MS4 Permit. Directive F.2.g.(2).



requirements are needed because un-stabilized slopes at construction sites are significant sources of erosion and sediment discharges during rainstorms. “Steep slopes are the most highly erodible surface of a construction site, and require special attention.”<sup>162</sup> USEPA exhibits the importance of slope stabilization when it states that “slope length and steepness are key influences on both the volume and velocity of surface runoff. Long slopes deliver more runoff to the base of slopes and steep slopes increase runoff velocity; both conditions enhance the potential for erosion to occur.”<sup>163</sup> In lieu of vegetation preservation or replanting, soil stabilization is the most effective measure in preventing erosion on slopes. Research has shown that effective soil stabilization can reduce sediment discharge concentrations up to six times, as compared to soils without stabilization.<sup>164</sup> In their ROWD,<sup>165</sup> the Copermittees propose that standardized requirements for slope stabilization be developed after Permit adoption, due to the unique differences between the Copermittees’ programs and the “need to develop consensus.” However, slope stabilization at construction sites is already the consensus among the regulatory community and is found throughout construction BMP manuals and permits. For these reasons, slope stabilization requirements have been added to the Order, while providing sufficient flexibility for each Copermittee’s unique storm water program.

**Sections D.2.c.(1)(g-j)** of the Order provide more specificity regarding phased grading requirements, prescribing that phased grading be implemented utilizing a maximum disturbed area, as determined by the Copermittees. This specificity has been added to the Order because of the importance of phased grading in controlling sediment from leaving construction sites. Phased grading minimizes the disturbed area and the time that the soil is exposed to erosive conditions.<sup>166</sup> USEPA provides guidance stating “construction should be planned to occur in phases in order to minimize the amount of disturbed land exposed at any one time, thus limiting the overall erosion potential of the site.”<sup>167</sup> It is important to note that phased grading does not limit the overall development of a project. Moreover, phased grading should not be confused with seasonal restrictions on grading that were addressed above.

The Copermittees are required to designate a maximum disturbed area to be open at any one time. The Order prescribes that construction projects within the Copermittees’ jurisdiction are not allowed to expose more soil than the maximum disturbed area, unless authorized to do so in writing by the Copermittee. Prior to the Copermittee’s authorization to exceed the maximum disturbed area, the construction site must be in compliance with applicable storm water regulations and have adequate control practices implemented to prevent storm water pollution. The Copermittee’s authorization gives the construction industry the flexibility needed to conduct business while continuing to protect water quality. This permit requirement is not unprecedented. The Caltrans construction standard specifications states that no more than 17 acres be exposed unless otherwise approved by their engineer in writing.<sup>168</sup> If needed, local Caltrans districts can

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<sup>162</sup> Schueler, T. and Holland, H., 2000. “Muddy Water In – Muddy Water Out?” The Practice of Watershed Protection. P. 6.

<sup>163</sup> USEPA, 1990. “Sediment and Erosion Control: An Inventory of Current Practices.” P. II-1.

<sup>164</sup> Schueler, T. and Holland, H., 2000. “Muddy Water In – Muddy Water Out?” The Practice of Watershed Protection. P. 5.

<sup>165</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-27.

<sup>166</sup> Schueler, T. and Holland, H., 2000. “Muddy Water In – Muddy Water Out?” The Practice of Watershed Protection. P. 5.

<sup>167</sup> USEPA, 1990. “Sediment and Erosion Control: An Inventory of Current Practices.” P. III-1.

<sup>168</sup> State of California, Department of Transportation, 2002. “Standard Specifications for Construction of Local Streets and Roads.” Section 7-1.01G; P. 52.

decrease the maximum disturbed soil area to 5 acres during the rainy season.<sup>169</sup> In the Order, the Copermittee determines the maximum disturbed acreage size.

In the ROWD,<sup>170</sup> the Copermittees report that because their programs are unique, more time is needed on phased grading to develop consensus and to further dialogue. They speculate that the phased grading requirements will need consultation with the construction community, California Department of Fish and Game, United States Fish and Wildlife Service, and the Army Corps of Engineers. The Copermittees propose that they develop phased grading requirements after adoption of the Order. However, phased grading was a requirement in Order No. 2001-01.<sup>171</sup> In the five years since the adoption of Order No. 2001-01, the Copermittees did not develop a consensus on phased grading requirements. Even though previously required, the Regional Board inspectors have never observed phased grading implemented within the jurisdictions of the Copermittees. The lack of Copermittee action on phased grading during the past Permit cycles has necessitated the adoption of more specific enforceable requirements on phased grading. Caltrans and its private contractors from the construction community have implemented phased grading on construction projects since 2000 with no issues raised by the construction community or resource agencies. The ability of the Copermittee to increase the size of the maximum disturbed area for a given site will enable the construction site to feasibly grade while maintaining compliance with other environmental permits.

**Section D.2.c.(1)(k)** of the Order requires the implementation of advanced treatment for sediment at construction sites that the Copermittees or the Regional Board determines to be a significant threat to water quality. In evaluating the threat to water quality, the following factors shall be considered: (1) soil erosion potential; (2) the site's slopes; (3) project size and type; (4) sensitivity of receiving water bodies; (5) proximity to receiving water bodies; (6) non-storm water discharges; and (7) any other relevant factors. Advanced treatment is defined in the Order as "using mechanical or chemical means to flocculate and remove suspended sediment from runoff from construction sites prior to discharge." Advanced treatment consists of a three part treatment train of coagulation, sedimentation, and polishing filtration.

Advanced treatment has been effectively implemented extensively in the other states and in the Central Valley Region of California.<sup>172</sup> In addition, the Regional Board's inspectors have observed advanced treatment being effectively implemented at large sites greater than 100 acres and at small, 5 acre, infill sites. Advanced treatment is often necessary for Copermittees to ensure that discharges from construction sites are not causing or contributing to a violation of water quality standards. For example, the Basin Plan lists the water quality objective for turbidity as 20 NTU for all hydrologic areas and subareas except for the Coronado HA (10.10) and the Tijuana Valley (11.10). For certain construction sites with large slopes and exposed areas, the only technology that is likely to meet 20 NTU is advanced treatment combined with erosion and sediment controls. To ensure the MEP standard and water quality standards are met, the requirement for implementation of advanced treatment at high threat construction sites has been added to the Order, while still providing sufficient flexibility for each Copermittee's unique program.

**Sections D.2.c.(1)(l-m)** of the Order require the revegetation of a construction site as early as feasible. The Order includes revegetation requirements in the BMP implementation section,

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<sup>169</sup> Caltrans Storm Water Quality Handbooks, 2000. "Construction Site Best Management Practices Manual." Section 2.2.4.1.

<sup>170</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-27.

<sup>171</sup> Regional Board, 2001. Order No. 2001-01, San Diego County MS4 Permit. Directive F.2.b.(4); P. 22.

<sup>172</sup> SWRCB, 2004. Conference on Advanced Treatment at Construction Sites.

while Order No. 2001-01 required revegetation as part of the grading ordinance update. Implementation of revegetation reduces the threat of polluted storm water discharges from construction sites. For example, it has been found that construction sites should permanently stabilize disturbed soils with vegetation at the conclusion of each phase of construction.<sup>173</sup> A survey of grading and clearing programs found one-third of the programs without a time limit for permanent revegetation, “thereby increasing the chances for soil erosion to occur.”<sup>174</sup> USEPA states “the establishment and maintenance of vegetation are the most important factors to minimizing erosion during development.”<sup>175</sup> With the construction site being responsible for revegetation, the Copermittee will be more likely to enforce revegetation requirements during oversight of construction site requirements.

**Section D.2.c.(2)** of the Order requires that dry season BMP implementation must include planning for and addressing rain events that may occur during the dry season. This requirements was added to the Order to emphasize that, although rare, thunderstorms do occur in inland areas of the San Diego Region during the dry season.

**Section D.2.d** (Inspection of Construction Sites) prescribes a minimum inspection frequency for construction sites. Where Order No. 2001-01 required weekly inspections of high priority sites and monthly inspections of medium and low priority sites during the wet season, this Order prescribes biweekly inspections during the wet season of high priority sites, monthly inspections for medium priority sites, and as needed inspections for low priority sites. High priority sites are identified as all sites greater than 50 acres, or greater than 1 acre and tributary to a CWA Section 303(d) water body impaired for sediment or discharging directly to a ESA. Medium priority sites are all sites causing soil disturbance of one acre or more that are not a high priority. The proposed changes to the Order allow the Copermittees to concentrate more effort on sites that are less than 50 acres, but still have significant disturbed areas. The reduction in inspection frequency for sites greater than 50 acres is justified because the sites have generally improved their erosion and sediment control measures since adoption of Order No. 2001-01. Biweekly inspections of these sites in the future should be sufficient to ensure compliance at these sites.

The Order omits Order No. 2001-01’s provision allowing a Copermittee to decrease the inspection frequency for high priority sites if the Copermittee certifies in writing to the Regional Board that they have recorded the site’s Waste Discharge Identification Number, reviewed the site’s Storm Water Pollution Prevention Plan (SWPPP), assured the site’s SWPPP is in compliance, and assured the SWPPP is properly implemented at the site. Under Order No. 2001-01, the Regional Board never received from any of the Copermittees a certification to decrease the inspection frequency at high priority sites. Since the certification process was never used, the language has been deleted from the Order.

In their ROWD,<sup>176</sup> the Copermittees recommend that the use of weather triggered action plans be used in place of minimum inspection frequencies at construction sites during the month of October. The Copermittees’ proposal is not to be confused with using weather triggered action plans to implement BMPs; rather the plan would be used during October by Copermittees to conduct inspections. The Order does not include this measure because historical rainfall data shows that San Diego received significant rainfall during October in 2005, 2004, and 2000.<sup>177</sup>

<sup>173</sup> Schueler, T. and Holland, H., 2000. “Muddy Water In – Muddy Water Out?” The Practice of Watershed Protection. P. 5.

<sup>174</sup> Ibid.; P.11.

<sup>175</sup> USEPA, 1990. “Sediment and Erosion Control: An Inventory of Current Practices”, P. II-1

<sup>176</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-27.

<sup>177</sup> National Weather Service, Surface Observations at Lindbergh field; [www.wrh.noaa.gov/sgx/obs/rtp/linber.html](http://www.wrh.noaa.gov/sgx/obs/rtp/linber.html)

Moreover, based upon Regional Board inspections, construction sites rarely have been found to have fully implemented their SWPPP by October 1 in anticipation of the rainy season. During those years that rainfall does not occur during October, Copermittees' biweekly inspections during October can ensure that construction sites are implementing and preparing for the eventual rains. Like dry weather inspections, these inspections can also identify sources of non-storm water pollution and discharges.

This section also requires the Copermittees to track the number of inspections for each inventoried construction site. This requirement has been added to ensure that the Copermittees can demonstrate that construction sites are inspected at the minimum frequencies.

**Section D.2.e** (Enforcement of Construction Sites) requires each Copermittee to develop and implement an escalating enforcement process that achieves prompt and effective corrective actions at all construction sites for violations of the Copermittee's requirements and ordinances. Each Copermittee develops their own unique enforcement procedure tailored for their specific jurisdiction. This requirement is similar to Order No. 2001-01, except that enforcement procedures are required to be escalating and enforcement sanctions are required to be implemented in a prompt and effective manner.

Under Order No. 2001-01, inspections conducted by the Regional Board noted deficiencies in the Copermittees' enforcement procedures and implementation. The most common issues found were that enforcement was not firm and appropriate to correct the violation, and that repeat violations did not result in escalated enforcement procedures. Moreover, in the municipal audit reports, deficiencies and potential permit violations were found in Copermittee's enforcement programs.<sup>178</sup> USEPA supports enforcement of ordinances and permits at construction sites stating "Effective inspection and enforcement requires [...] penalties to deter infractions and intervention by the municipal authority to correct violations."<sup>179</sup> In addition, USEPA expects permits issued to municipalities to address "weak inspection and enforcement."<sup>180</sup> For these reasons, the enforcement requirements in this section have been modified, while providing sufficient flexibility for each Copermittee's unique storm water program.

In their ROWD, the Copermittees strongly oppose "the revision of Permit requirements for the purpose of standardizing processes that are necessarily unique to individual jurisdictions."<sup>181</sup> However, the Order does not require that Copermittees standardize enforcement procedures to be the same among all the Copermittees, but requires that each Copermittee will consistently implement their unique enforcement procedures at construction sites within their jurisdiction.

The Order requires that inspectors have the authority to conduct immediate enforcement actions when appropriate. Inspectors conducting immediate enforcement will quickly implement corrections to violations, thereby minimizing and preventing threats to water quality. When inspectors are unable to conduct immediate enforcement actions, the threat to water quality continues until an enforcement incentive is issued to correct the violation. In the municipal audits, storm water inspectors for several municipalities were found to lack the necessary

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<sup>178</sup> Tetra Tech, Inc., 2002-05, Program Evaluation Reports – San Diego Area Storm Water Programs – July 23, 2002, Chula Vista P. 11, El Cajon P. 15; April 8, 2003, Oceanside P. 16; December 17, 2003, San Marcos P.20, Vista P.26; June 11, 2004, Poway P. 12, Santee, P. 15; January 31, 2005, Del Mar P.9, Solana Beach, P.12.

<sup>179</sup> USEPA, 1992. Guidance 833-8-92-002. Section 6.3.2.3.

<sup>180</sup> Federal Register / Vol. 55, No. 222 / Friday, November 16, 1990 / Rules and Regulations. P. 48058

<sup>181</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-28.

enforcement authority.<sup>182</sup> In its Phase II Compliance Assistance Guidance, USEPA says that “Inspections give the MS4 operator an opportunity to provide additional guidance and education, issue warnings, or assess penalties.”<sup>183</sup> In order to issue warnings and assess penalties during inspections, inspectors need to have the legal authority to conduct enforcement.

### **D.3. Existing Development**

#### **D.3.a Municipal**

The following legal authority applies to section D.3.a:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(1) provides that the proposed management program include “A description of maintenance activities and a maintenance schedule for structural controls to reduce pollutants (including floatables) in discharges from municipal separate storm sewers.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(3) provides that the proposed management program include “A description for operating and maintaining public streets, roads and highways and procedures for reducing the impact on receiving waters of discharges from municipal storm sewer systems, including pollutants discharged as a result of deicing activities.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(4) provides that the proposed management program include “A description of procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(5) provides that the proposed management program include “A description of a program to monitor pollutants in runoff from operating or closed municipal landfills or other treatment, storage or disposal facilities for municipal waste, which shall identify priorities and procedures for inspections and establishing and implementing control measures for such discharges.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(6) provides that the proposed management program include “A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides, and fertilizer which will include, as appropriate, controls such as educational activities, permits, certifications, and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a

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<sup>182</sup> Tetra Tech, Inc., 2003-05. Program Evaluation Reports – San Diego Area Storm Water Programs –April 8, 2003, Oceanside P. 16; June 11, 2004, Poway P. 12, Santee, P. 15; January 31, 2005, Solana Beach, P.12.

<sup>183</sup> USEPA, 2000. 833-R-00-002, Storm Water Phase II Compliance Assistance Guide, P.4-31



level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

**Section D.3.a.(2)** (BMP Implementation) requires the Copermittees to designate minimum BMPs for all municipal areas and activities, regardless of their threat to water quality. The requirement that different types of BMPs be designated for different threat to water quality categories of municipal areas and activities has been removed from the Order to help simplify and clarify the Order’s requirements. BMPs required to be implemented at a site can now be based on the sources or activities present at the site. This more closely matches the approach taken by the Copermittees in their JURMPs. Threat to water quality is used to determine inspection frequencies in section D.3.a.(7).

**Section D.3.a.(3)** (Operation and Maintenance of MS4 and Structural Controls) requires the Copermittees to inspect and remove waste from their MS4s prior to the rainy season. Additional wording has been added to clarify the intent of the requirements. The Copermittees will be required to inspect all storm drain inlets and catch basins. This change will assist the Copermittees in determining which basins/inlets need to be cleaned and at what priority. Removal of trash has been identified by the Copermittees as a priority issue in their long-term effectiveness assessment. To address this issue, wording has been added to require the Copermittees, at a minimum, inspect and remove trash from all their open channels at least once a year.

**Section D.3.a.(5)** (Sweeping of Municipal Areas) requires the Copermittees to implement a program to sweep all municipal roads, streets, highways, and parking facilities. This section has been added to ensure that the Copermittees are implementing this effective BMP at all appropriate areas. The reporting requirements of the Order have also be modified to ensure that the Copermittees consistently report their sweeping and pollutant removal activities.

**Section D.3.a.(6)** (Limit Infiltration From Sanitary Sewer to MS4/Provide Preventive Maintenance of Both) requires the Copermittees to implement controls and measures to limit infiltration of seepage from municipal sanitary sewers to MS4s through thorough, routine preventive maintenance of the MS4. In their ROWD, the Copermittees requested this section be removed form the Illicit Discharge Detection and Elimination Component and added to the Municipal Component since it is a municipal activity. We agree and have moved the section to the municipal component of the Order.

**Section D.3.a.(7)** (Inspection of Municipal Areas and Activities) establishes a minimum set of municipal areas and activities for oversight and inspection by the Copermittees. In their ROWD, the Copermittees stated that some high priority areas on the list are not present in San Diego County. In response to this comment, incinerators, uncontrolled sanitary landfills, sites for disposing and treating sewage sludge, and hazardous waste treatment, disposal, and recovery facilities have been removed as high priority municipal areas. Household hazardous waste collection facilities and parks/recreation facilities have been identified by the Copermittees as municipal areas in their JURMPs and therefore have been added to the high priority list.

### **D.3.b. Industrial and Commercial**

The following legal authority applies to section D.3.b:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C) provides that the proposed management program include “A description of a program to monitor and control pollutants in storm water discharges to municipal systems from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the municipal storm sewer system.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C)(1) provides that the Copermittee must “identify priorities and procedures for inspections and establishing and implementing control measures for such discharges.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C)(2) provides that the proposed management program shall “Describe a monitoring program for storm water discharges associated with the industrial facilities identified in paragraph (d)(2)(iv)(C) of this section, to be implemented during the term of the permit, including the submission of quantitative data on the following constituents: any pollutants limited in effluent guidelines subcategories, where applicable; any pollutant listed in an existing NPDES permit for a facility; oil and grease, COD, pH, BOD5 , TSS, total phosphorus, total Kjeldhal nitrogen, nitrate plus nitrite nitrogen, and any information on discharges required under 40 CFR 122.21(g)(7)(iii) and (iv).”

Federal NPDES regulation 40 CFR 122.26(d)(2)(ii) provides that the Copermittee “Provide an inventory, organized by watershed of the name and address, and a description (such as SIC codes) which best reflects the principal products or services provided by each facility which may discharge, to the municipal separate storm sewer, storm water associated with industrial activity.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermittee must demonstrate that it can control “through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) provides that the Copermittee develop a proposed management program which includes “A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls.”

**Section D.3.b** requires the Copermittees to implement an industrial and commercial program to reduce pollutants in runoff from all industrial and commercial sites/sources. The industrial and commercial sections of Order No. 2001-01 have been combined into one section in this Order. This change will streamline and simplify the Order, without negatively impacting water quality. This change is not unprecedented because industrial and commercial facilities are commonly

addressed together. For example, the Southern Riverside County MS4 Permit<sup>184</sup> combined industrial and commercial programs into one section. In addition, in their ROWD,<sup>185</sup> the Copermittees jointly addressed industrial and commercial components. USEPA contractor Tetra Tech also evaluated and reported on the industrial and commercial programs jointly during their program evaluations.<sup>186</sup>

**Section D.3.b.(1)(a)** (Commercial Sites/Sources) requires that building material retailers and storage, animal facilities, and power washing services be included in the Copermittee's inventory of commercial sites/sources. In their ROWD, the Copermittees state "Two sources that were not identified in the Permit [Order No. 2001-01] as high priorities (animal facilities and pressure washers) were determined to justify close attention due their significant number and their potential to discharge pollutants." The Regional Board agrees with the Copermittees statement in the ROWD; therefore, animal facilities and pressure washers are included in the source identification section. Building material retailers and storage facilities are included because they are potential sources of pollutants to urban runoff. These facilities typically store and vend building materials in the outdoors exposed to storm water without implementing BMPs.

The Order has revised requirements for identifying industrial sites/sources. The revised requirements are identical to those found in the Southern Riverside County MS4 permit.<sup>187</sup> USEPA requires the same identification: "Measures to reduce pollutants in storm water discharges to municipal separate storm sewers from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA)."<sup>188</sup> USEPA "also requires the municipal storm sewer permittee to describe a program to address industrial dischargers that are covered under the municipal storm sewer permit."<sup>189</sup> In order to more closely follow USEPA's guidance, this Order also includes operating and closed landfills, and hazardous waste treatment, disposal, storage and recovery facilities.

The Order continues to require the Copermittees to identify industrial sites and sources subject to the General Industrial Permit or other individual NPDES permit. This requirement is despite the Copermittees' recommendation, "The Permit should be amended to eliminate the requirement to include sites with coverage under the General Industrial Permit, or other permits with storm water requirements, on the list of minimum high priority industrial facilities."<sup>190</sup> USEPA supports the municipalities regulating industrial sites and sources that are already covered by a NPDES permit:

"Municipal operators of large and medium municipal separate storm sewer systems are responsible for obtaining system-wide or area permits for their system's discharges. These permits are expected to require that controls be placed on storm water discharges associated with industrial activity which discharge through the municipal system. It is anticipated that general or individual permits covering industrial storm water discharges to these municipal

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<sup>184</sup> Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2; P. 24.

<sup>185</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Section D.5.1, P. D-37.

<sup>186</sup> Tetra Tech, Inc., 2002-05. Program Evaluation Reports – San Diego Area Storm Water Programs; July 23, 2002; December 13, 2002; December 26, 2002; April 8, 2003; December 17, 2003; June 11, 2004; January 31, 2005.

<sup>187</sup> Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2.b)(2); P. 25.

<sup>188</sup> Federal Register / Vol. 55, No. 222 / Friday, November 16, 1990 / Rules and Regulations. P. 48056.

<sup>189</sup> Ibid.

<sup>190</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Section D.5.6, P. D-43

separate storm sewer systems will require industries to comply with the terms of the permit issued to the municipality, as well as other terms specific to the permittee.”<sup>191</sup>

And:

“Although today’s rule will require industrial discharges through municipal storm sewers to be covered by separate permit, USEPA still believes that municipal operators of large and medium municipal systems have an important role in source identification and the development of pollutant controls for industries that discharge storm water through municipal separate storm sewer systems is appropriate. Under the CWA, large and medium municipalities are responsible for reducing pollutants in discharges from municipal separate storm sewers to the maximum extent practicable. Because storm water from industrial facilities may be a major contributor of pollutants to municipal separate storm sewer systems, municipalities are obligated to develop controls for storm water discharges associated with industrial activity through their system in their storm water management program.”<sup>192</sup>

The Order’s requirement to inventory those sites subject to the General Industrial Permit is identical to the requirements found in the Southern Riverside County MS4 Permit, Order No. R9-2004-001.<sup>193</sup> USEPA supports the list of industrial facilities in the Order when it states the following:

“The issue of industrial inspections also arose for the Los Angeles County MS4 permit. The State Board, in a memo dated November 9, 2001, from Michael Lauffer of the State board to Dennis Dickerson, Executive Officer of the Los Angeles Regional Board, noted that under Section 402 (p)(3)(B)(iii) of the CWA, the Board has broad authority to require ‘such other provisions...as the State determines appropriate...’ and that this would provide a basis for requirements that go beyond specific provisions of the EPA regulations. We would agree with the State Board on this matter, and that the Regional Board would have the authority to require inspections of all the industrial facilities listed in the permit [Order], notwithstanding the specific provisions of the EPA regulations.”<sup>194</sup>

**Section D.3.b.(2)** (BMP Implementation) adds a pollution prevention requirement, since pollution prevention methods are considered a BMP. Moving this requirement will streamline the Order, without causing a detrimental effect on water quality.

**Section D.3.b.(3)** (Inspection of Industrial and Commercial Sites/Sources) includes requirements for inspections of industrial and commercial sites/sources. The Order is similar to the Southern Riverside County MS4 permit<sup>195</sup> in requiring that inspections check for coverage under the General Industrial Permit; assessment of compliance with Copermittee ordinances and permits related to urban runoff; assessment of BMP implementation, maintenance, and effectiveness; visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff; and education and outreach on storm water pollution prevention. The Order also requires that inspections include review of BMP implementation plans if the site uses or is required to use such a plan, and the review of facility monitoring data if the site monitors its runoff. These changes are necessitated by the results of

<sup>191</sup> Federal Register / Vol. 55, No. 222 / Friday, November 16, 1990 / Rules and Regulations. P. 48006.

<sup>192</sup> Ibid. P. 48000

<sup>193</sup> Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2.b)(2); P. 25.

<sup>194</sup> Letter dated March 5, 2004 from Doug Eberhardt, EPA Manager to John Robertus, Executive Officer of Regional Board containing comments on Order No. R9-2004-001.

<sup>195</sup> Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2.d)(3); P. 26.

storm water program evaluations.<sup>196</sup> It was observed that 12 Copermittees had deficiencies or potential permit violations in their industrial and commercial component. The inspection section received twice as many comments than any other requirement in the industrial/commercial program evaluation reports section. These changes in the Order mimic USEPA's guidance: "Site inspections should include (1) an evaluation of the pollution prevention plan and any other pertinent documents, and (2) an onsite visual inspection of the facility to evaluate the potential for discharges of contaminated storm water from the site and to assess the effectiveness of the pollution prevention plan."<sup>197</sup> In 1999, USEPA "recognized visual inspection as a baseline BMP for over 10 years," and "visual inspections are an effective way to identify a variety of problems. Correcting these problems can improve the water quality of the receiving water."<sup>198</sup>

**Section D.3.b.(3)(c)** of the Order requires that at a minimum, 40% of the sites inventoried shall be inspected each year, including all sites determined to pose a high threat to water quality. This requirement maintains inspection frequencies and rates while allowing more flexibility for the Copermittees to decide where to conduct inspections. In the ROWD,<sup>199</sup> the Copermittees reported 18,017 industrial and commercial sources. In fiscal year 2002-2003, the Copermittees conducted 10,133 inspections, giving an inspection rate of 56%. In fiscal year 2003-2004, the Copermittees conducted 8,546 inspections giving an inspection rate of 47%. USEPA guidance<sup>200</sup> says, "management programs should address minimum frequency for routine inspections." The USEPA Fact Sheet – Visual Inspection<sup>201</sup> says, "To be effective, inspections must be carried out routinely. This requires a corporate commitment to implementing them."

In their ROWD,<sup>202</sup> the Copermittees recommend, "The Permit should allow revision of mandated inspection requirements in accordance with demonstrated needs." The Copermittees "strongly discourage Permit requirements that seek to establish minimum levels of inspection activity." The Order includes the minimum level of inspection activity because without minimum levels, the Regional Board has no assurance that inspections of commercial and industrial sites will be conducted. Without inspections, the Copermittees would be unable to adequately verify that industrial and commercial sites are in compliance with their local storm water ordinances and regulations. Even though minimum inspection levels have been included, the Order allows enough flexibility to maximize the effectiveness of inspections by concentrating resources on industrial and commercial sites that are higher threats to water quality without neglecting other industrial and commercial sites. Further flexibility is provided in prioritizing inspections, as discussed next.

The Order no longer includes a section titled "Threat to Water Quality Prioritization." Rather, threat to water quality prioritization is incorporated within the inspection section. The Order requires several criteria to determine if a site is a high threat to water quality that needs an annual inspection. This change is identical to the requirements in the Southern Riverside County MS4 permit,<sup>203</sup> except for the addition of a few criteria recommended in the Copermittees' ROWD.<sup>204</sup> The Copermittees recommended criteria that are included in the Order are No Exposure

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<sup>196</sup> Tetra Tech, Inc., 2002-05. Program Evaluation Reports – San Diego Area Storm Water Programs; July 23, 2002; December 13, 2002; December 26, 2002; April 8, 2003; December 17, 2003; June 11, 2004; January 31, 2005.

<sup>197</sup> USEPA, 1992. Guidance 833-8-92-002, section 6.3.3.4 "Inspection and Monitoring".

<sup>198</sup> USEPA, 1999. 832-F-99-046, "Storm Water Management Fact Sheet – Visual Inspection".

<sup>199</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Section D.5.

<sup>200</sup> USEPA, 1992. Guidance 833-8-92-002, section 6.3.3.4 "Inspection and Monitoring".

<sup>201</sup> USEPA, 1999. 832-F-99-046, "Storm Water Management Fact Sheet – Visual Inspection".

<sup>202</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Section D.5.3.

<sup>203</sup> Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2.d)(1); P. 26.

<sup>204</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Section D.5.1.



Certification / Notice of Non-Applicability, Compliance History, and Facility Design. “Existing Regulatory Oversight” is already included as a criterion in the Order as “Whether the site is subject to the Statewide Industrial Permit.” Self-certification status and Green Business Certification are not included in the Order because these certifications do not ensure that storm water is addressed. In the ROWD,<sup>205</sup> the Copermittees recommend, “The Permit should allow re-prioritization of currently mandated minimum high priority industrial and commercial sources.” The Order has been modified to increase flexibility and allow the Copermittees to reprioritize sites as more information is learned about the sites’ potential threat to water quality.

In their ROWD<sup>206</sup>, the Copermittees recommend, “The Permit should allow and encourage alternatives to current inspection requirements.” They suggest utilizing non-inspection methods including self-certification, certified submission of monitoring results demonstrating that benchmarks have been met, third-party inspections, facility- or industry-specific surveys, and/or phone interviews. The proposed alternatives do not provide the same level of compliance oversight as inspections provide; therefore the Order includes such a section not as an alternative to inspections but in addition to inspections. The Order allows the use of these alternatives if they are determined to be necessary by the Copermittee.

**Section D.3.b.(4)** (Regulation of Mobile Businesses) is a new section. Mobile businesses are service industries that travel to the customer to perform the service rather than the customer traveling to the business to receive the service. Examples of mobile businesses are power washing, mobile vehicle washers, carpet cleaners, port-a-potty servicing, pool and fountain cleaning, mobile pet groomers, and landscapers. These mobile services produce waste streams that could potentially impact water quality if appropriate BMPs are not implemented. Mobile businesses present a unique difficulty in storm water regulation. Due to the transient nature of the business, the regular, effective practice of unannounced inspections is difficult to implement. Also, tracking these mobile businesses is difficult because they are often not permitted or licensed and their services cross Copermittee jurisdictions. The Order takes into account the difficulties in regulating mobile businesses. Only those mobile businesses that are known to operate within their jurisdiction are required to be inventoried and notified. The inventory shall be updated as additional mobile businesses are identified.

The Order requires that mobile businesses shall be inspected as needed. Inspections can be accomplished in response to complaints. Inspections can be scheduled through contacting the business. Impromptu inspections can be conducted if a Copermittee’s inspector observes a mobile business operating in the course of the inspector’s normal travels throughout their jurisdiction. In their ROWD,<sup>207</sup> the Copermittees recommend, “Copermittees should increase their collaboration on the regulation of mobile businesses”. The Order allows but does not require collaboration among the Copermittees. Due to the Copermittee’s differences in watersheds, culture, ethnicity, ordinances, regulations, policies and procedures, Copermittee collaboration on regulating mobile businesses is left up to the Copermittees as they see fit.

**Section D.3.b.(5)** (Enforcement of Industrial and Commercial Sites/Sources) requires that inspectors have authority to conduct immediate enforcement actions when appropriate. Inspectors conducting immediate enforcement will quickly correct violations, thereby minimizing and preventing threats to water quality. When inspectors are unable to conduct immediate enforcement actions, the threat to water quality continues until an enforcement incentive is issued

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<sup>205</sup> Ibid. Section D.5.2.

<sup>206</sup> Ibid. Section D.5.4

<sup>207</sup> Ibid. Section D.5.5.

to correct the violation. In the municipal audits, Tetra Tech reported deficiencies where several Copermittees needed to ensure that their storm water inspectors have enforcement authority.<sup>208</sup> In its Phase II Compliance Assistance Guidance, USEPA says that “Inspections give the MS4 operator an opportunity to additional guidance and education, issue warnings, or assess penalties.”<sup>209</sup> In order to issue warnings and assess penalties during inspections, inspectors need to have the legal authority to conduct enforcement.

### **D.3.c. Residential**

The following legal authority applies to section D.3.c:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) provides that the Copermittee develop a proposed management program which includes “A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

**Section D.3.c.(2)(b)** of the Order moves the residential pollution prevention requirements together with the other BMP requirements in order to improve the organization of the Order. This change has no net effect on the implementation and enforcement of the Order.

**Section D.3.c.(2)(c)** of the Order moves the requirement for proper management of used oil, toxic materials, and other household hazardous wastes to the residential section of the Order, since this requirement generally applies to residents. This change improves the organization of the Order, and has no net effect on its implementation and enforcement.

**Section D.3.c.(4)** (Regional Residential Education Program) of the Order requires each Copermittee to participate in a Regional Residential Education Program. An education program specifically targeting residential sources is needed due to the fact that residential housing units encompass the largest category of specific sources in San Diego County and have been identified by the Copermittees as a regional priority source. Moreover, the Copermittees recommend in their ROWD that such a program be developed. Section F.7 of the Order, which is referenced in section D.3.c.(4), expands on the Regional Residential Education Program requirements by requiring that the program focus on bacteria, nutrients, sediment, pesticides, and trash. This is appropriate for a regional education program, since the Copermittees have identified these constituents as regional priorities.

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<sup>208</sup> Tetra Tech, Inc., 2002-05. Program Evaluation Reports – San Diego Area Storm Water Programs.

<sup>209</sup> USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. 833-R-00-002. P. 4-31.

#### **D.4. Illicit Discharge Detection and Elimination**

The following legal authority applies to section D.4:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) provides that the proposed management program “shall be based on a description of a program, including a schedule, to detect and remove (or require the discharger to the municipal storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermittee include in its proposed management program “a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal storm sewer system.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(2) provides that the Copermittee include in its proposed management program “a description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(3) provides that the Copermittee include in its proposed management program “procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(4) provides that the Copermittee include in its proposed management program “a description of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(5) provides that the Copermittee include in its proposed management program “a description of a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality impacts associated with discharges from municipal separate storm sewers.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(6) provides that the Copermittee include in its proposed management program “a description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials.”

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(7) provides that the Copermittee include in its proposed management program “a description of controls to limit infiltration of seepage from municipal sanitary sewers to municipal separate storm sewer systems where necessary.”

**Section D.4.a** (Illicit Discharges and Connections) requires the Copermittees to implement a program to actively seek and eliminate illicit connections and discharges (IC/ID). Additional wording has been added to this section to clarify and ensure that all appropriate (i.e., field personnel) municipal personnel are utilized in the program to observe and report these illicit discharges and connections.

**Section D.4.b** (Develop/Maintain MS4 Map) requires the Copermittees to develop or obtain a map of their entire MS4 system and drainages within their jurisdictions. To provide clarification to the Order, this requirement has been moved to the IC/ID component of the Order from the Dry Weather Field Screening and Analytical Monitoring Specifications (Attachment E in previous Order No. 2001-01).

**Section D.4.d** (Investigation/Inspection and Follow-Up) requires the Copermittees to conduct follow up investigations and inspect portions of the MS4 for illicit discharges and connections, based on dry weather field screening and analytical monitoring results. The section also requires the Copermittees to establish criteria for triggering follow up investigations. Additional language has been added to this section to clarify the minimum level of effort and timeframes for follow up investigations when dry weather action levels (developed by the Copermittees) are exceeded. Timely investigation and follow up when action levels are exceeded is necessary to identify sources of illicit discharges, especially since many of the discharges are transitory. The requirements for a 48-hour minimum response time when action levels are exceeded and for immediate response to obvious illicit discharges is necessary to ensure timely response by the Copermittees.

In its October 29, 2004 letter to the Copermittees, as well as in subsequent meetings, the Regional Board notified Copermittees that standardized procedures were necessary to ensure timely IC/ID investigations. In the ROWD, the Copermittees state that procedures for dry weather programs should not be standardized and that a minimum response timeframe would hamper their efforts to prioritize and respond to IC/IDs. However, the purpose of the dry weather action levels is to help the Copermittees prioritize and investigate the most likely IC/IDs. Sampling locations that exceed these action levels warrant timely investigation/response, and the minimum time frames in the requirements are reasonable. The Copermittees may also determine that the exceedances do not pose a threat to water quality and therefore do not warrant further investigation. The rationale for no further action for dry weather sampling stations that exceed action levels would be reported in the Jurisdictional Urban Runoff Management Program Annual Report.

#### **D.5. Education Component**

The following legal authority applies to section D.5:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(6) provides that the proposed management program include “A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides, and fertilizer which will include, as appropriate, controls such as educational activities, permits, certifications, and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(6) provides that the proposed management program include “A description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(4) provides that the proposed management program include “A description of appropriate educational and training measures for construction site operators.”

**Section D.5** includes an introductory paragraph that is the same as in Order No. 2001-01, except for the removal of Quasi-Governmental Agencies/ Districts. The Copermittees’ ROWD recommends elimination of the requirement to educate quasi-governmental entities.<sup>210</sup>

**Section D.5.a** (General Requirements) includes education topics from the existing permit with some minor wording and formatting changes. The Copermittees’ ROWD recommends that the Copermittees should focus educational efforts on the most important constituents and not on a list of topics.<sup>211</sup> The Regional Board agrees with the focused efforts, but a list of topics is needed to provide a goal of basic storm water knowledge. The Copermittees can choose how and to what degree to address these topics. Copermittees may decide to focus on some topics and not on others. Some topics may be more important for certain target communities or watersheds.

The Regional Board has incorporated the following recommendation from the Copermittees’ ROWD into the permit: “Copermittee educational programs should emphasize underserved target audiences, high-risk behaviors, and “allowable” behaviors and discharges.”<sup>212</sup> In conducting audits of the Copermittees’ storm water program, Tetra Tech found that several of the Copermittees could improve education of specific target audiences with pollutant-specific educational campaigns, messages, or technical guidance.<sup>213</sup>

**Section D.5.b** (Specific Requirements) requires the Copermittees to educate their own departments and personnel. The new development and redevelopment as well as the municipal construction education requirements were taken from Order No. 2001-01 with some minor wording changes. Additional clarification was added regarding storm water management plans and SUSMP requirements due to deficiencies found during the SUSMP audits. The Regional Board considers it vital for the Copermittees’ planning and development staff, who have a broad authority and influence over new and redevelopment projects, to thoroughly understand storm water management plan development and SUSMP requirements. Municipal construction staff also need a thorough understanding of SUSMP requirements to adequately oversee active construction projects which are implementing SUSMPs.

A new requirement has also been added for education of activity specific BMPs for municipal personnel and contractors performing activities that generate pollutants. Education is required at all levels of municipal staff and contractors. Education is especially important for the staff in the field performing activities which might result in discharges of pollutants if proper BMPs are not used. The CASQA Municipal Handbook states that successful implementation of BMPs is dependent on “Effective training of municipal and contract employees working in both fixed facilities and field programs.”<sup>214</sup> This training can be conducted in either a formal or an informal tail-gate format.

**Section D.5.b.(2)** (New Development and Construction Education) requires the Copermittees to educate all project applicants, developers, contractors, property owners, community planning

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<sup>210</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-57.

<sup>211</sup> Ibid. P. D-52.

<sup>212</sup> Ibid. P. D-53.

<sup>213</sup> Tetra Tech, Inc., 2002-03. Program Evaluation Reports -- San Diego Area Stormwater Program.

<sup>214</sup> California Stormwater Quality Association, 2003. Stormwater Best Management Practices Handbook, Municipal. P. 5-1



groups, and other responsible parties about stormwater issues and BMPs, including annual training before the rainy season. The first requirement is taken from the existing permit sections on new development and construction, with some minor wording changes and an additional topic at the end to recognize the importance of training for field level construction workers. Different levels of training will be needed for planning groups, owners, developers, contractors, and construction workers, but everyone should get a general education of stormwater requirements. Education of all construction workers can prevent unintentional discharges, such as discharges by workers who are not aware that they are not allowed to wash things down the storm drains. Training for BMP installation workers is imperative because the BMPs will fail if not properly installed and maintained.<sup>215</sup> Training for field level workers can be formal or informal tail-gate format.

**Section D.5.b.(3)** (Residential, General Public, and School Children Education) requires the Copermittees to collaboratively develop and implement a plan to educate residential, general public, and school children through use of mass media, mailers, door hangers, booths at public events, classroom education, field trips, hands-on experiences, or other educational methods. USEPA supports education of the general community when it states: “An informed and knowledgeable community is critical to the success of a storm water management program since it helps ensure the following:

Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important. [...]

Greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters.”<sup>216</sup>

Regarding target audiences, USEPA also finds that “The public education program should use a mix of appropriate local strategies to address the viewpoints and concerns of a variety of audiences and communities, including minority and disadvantaged communities, as well as children.”<sup>217</sup> The SWRCB TAC also supports education of schoolchildren, stating:

“Target Audiences should include:

1. Government: Educate government agencies and officials to achieve better communication, consistency, collaboration, and coordination at the federal, state and local levels.
2. K-12/Youth Groups: Establish statewide education programs, including curricula, on watershed awareness and nonpoint source pollution problems and solutions, based on a state lead role building upon and coordinating with existing local programs.
3. Development Community: Educate the development community, including developers, contractors, architects, and local government planners, engineers, and inspectors, on nonpoint source pollution problems associated with development and redevelopment and construction activities and involve them in problem definitions and solutions.
4. Business and Industrial Groups.”<sup>218</sup>

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<sup>215</sup> Ibid P.2-6.

<sup>216</sup> USEPA, 2000. Storm Water Phase II Compliance Assistance guide. EPA 833-R-00-002.

<sup>217</sup> Ibid.

<sup>218</sup> SWRCB, 1994. Urban ~~R~~unoff Technical Advisory Committee Report and Recommendations. Nonpoint Source Management Program.

## D.6 Public Participation

The following legal authority applies to section D.6:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

No significant changes have been made to this section of the Order.

## E. Watershed Urban Runoff Management Program

The following legal authority applies to section E:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(a)(3)(ii) states: “The Director may [...] issue distinct permits for appropriate categories of discharges [...] including, but not limited to [...] all discharges within a system that discharge to the same watershed [...]”

Federal NPDES regulations 40 CFR 122.26(a)(3)(v) states: “Permits for all or a portion of all discharges from large or medium municipal separate storm sewer systems that are issued on a system-wide, jurisdiction-wide, watershed, or other basis may specify different conditions relating to different discharges covered by the permit, including different management programs for different drainage areas [watersheds] which contribute storm water to the system.”

Federal NPDES regulation 40 CFR 122.26(a)(5) states: “The Director may issue permits for municipal separate storm sewers that are designated under paragraph (a)91(v) of this section on a system-wide basis, a jurisdiction-wide basis, watershed basis, or other appropriate basis.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) states: “Proposed programs may impose controls on a systemwide basis, a watershed basis, a jurisdiction basis, or on individual outfalls.”

**Section E.2.b** of the Order requires the Copermittees to develop a watershed map. The section has been slightly modified from Order No. 2001-01 in that it no longer requires mapping of inventoried construction sites. The reason for this change is the temporary nature of construction sites. The location of construction sites is constantly changing, making the mapping of construction sites not useful.

**Section E.2.c** of the Order requires identification and description of available water quality data for each watershed. The minimum types of water quality data the Copermittees must consider are listed. For the most part, the listed types of water quality data match the types of data already used by the Copermittees for watershed management. Additional types of monitoring to be considered have been added, such as toxic hot spot and TMDL monitoring, because of their potential to provide useful information during identification and prioritization of watershed water quality problems. The listing of data types is necessary because the Copermittees have previously not used all available watershed water quality data while assessing watershed conditions. For example, in a March 10, 2003 letter, the Regional Board directed the Copermittees to utilize additional available data during WURMP implementation because initial Copermittee data use was limited.

**Sections E.2.d and E.2.e** of the Order require assessment and analysis of water quality data to prioritize each watershed's water quality problems, together with identification of the sources of the high priority water quality problems. These requirements are essentially the same as the requirements of Order No. 2001-01; they have simply been reorganized to more clearly convey the process required.

**Section E.2.f** of the Order requires the Copermittees to develop a list of Watershed Water Quality Activities for potential implementation. This requirement developed over time while working with the Copermittees on their WURMP implementation under Order No. 2001-01. In October 2004 letters, the Regional Board recommended the Copermittees develop a list of Watershed Water Quality Activities for potential implementation. Following receipt of the Regional Board letters, the Copermittees created Watershed Water Quality Activity lists. Although the Copermittees' lists needed improvement, the Regional Board found the lists to be useful planning tools that can be evaluated to identify effective and efficient Watershed Water Quality Activities. Because the lists are useful and have become a part of the WURMP implementation process, a requirement for their development has been written into the Order.

The goal of the WURMPs is to abate sources and reduce pollutant discharges causing the high priority water quality problems within a watershed. For this reason, it is required that the Watershed Water Quality Activity list describes how each Watershed Water Quality Activity will meet this goal.

**Section E.2.g** of the Order requires the Copermittees within a watershed to develop a strategy for implementation of Watershed Water Quality Activities and Watershed Education activities. The requirement for development of an implementation strategy is necessary because it should guide effective implementation of watershed activities. Moreover, it has been found that many of the Copermittees' current Watershed Water Quality Activities have no clear connection to the high priority water quality problems within the watersheds where they are being implemented. For example, when reviewing the 2003-2004 Watershed Urban Runoff Management Program Annual Report for the San Diego River, the Regional Board found that for several of the Watershed Water Quality Activities being implemented, it is "unclear what the connection is between this project and the identified high priority water quality problems in the watershed."<sup>219</sup> Similar findings were also noted during Regional Board review of the 2002-2003 Watershed Urban Runoff Management Program Annual Reports and issuance of corresponding comment letters.

**Section E.2.h** of the Order requires the Copermittees to evaluate the effectiveness of proposed activities. This will help the Copermittees choose the most effective activities for implementation. Implementation of effective activities is critical to ensure an effective Watershed Urban Runoff Management Program.

**Section E.2.i** of the Order requires each Copermittee to implement a certain number of Watershed Water Quality Activities annually. In crafting this section of the Order and the Watershed Water Quality Activity definition, the Regional Board sought to obtain a balance between the enforceability of the Order and Copermittee flexibility in implementing the Order.

So that the section is enforceable, it requires each Copermittee to implement a minimum number of Watershed Water Quality Activities which will directly and significantly abate sources and reduce pollutant discharges causing the high priority water quality problems within a watershed.

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<sup>219</sup> Regional Board, 2005. Review of Notices of Violation Issued to the San Diego County Copermittees for Watershed Urban Runoff Management Program Implementation.

This requirement provides measurable outcomes for WURMP implementation. WURMP measurable outcomes are needed in the Order because the Regional Board previously found that Copermittee implementation of Watershed Water Quality Activities was inadequate over the course of several years, despite several Regional Board efforts to precipitate improvement. The Regional Board issued comment letters in March 2003, California Water Code section 13267 information request letters in October 2004, and Notices of Violation in June 2005, all in an attempt to improve the Copermittees' implementation of Watershed Water Quality Activities that would effectively reduce discharges of pollutants causing the watersheds' high priority water quality problems. In addition, in a detailed review of the Copermittees' 2003-2004 Watershed Urban Runoff Management Program Annual Reports, the Regional Board found that for most watersheds, the Copermittees' reported "water quality activities" would not result in any significant reduction of pollutant discharges.<sup>220</sup>

Despite these efforts and findings by the Regional Board, the majority of the Copermittees contended as a group that their WURMP implementation was adequate and that they were in compliance with Order No. 2001-01's WURMP requirements. The Copermittees' position exhibits the lack of clarity and unenforceability of Order No. 2001-01's language regarding implementation of Watershed Water Quality Activities. To rectify this situation and ensure that WURMP implementation actually results in pollutant discharge reductions, a requirement for measurable outcomes has been added to the Order in the form of a minimum number of Watershed Water Quality Activities to be implemented which must reduce the discharge of pollutants and abate pollutant sources.

While section J.1.h specifically requires implementation of a measurable number of Watershed Water Quality Activities, the section and the Watershed Water Quality Activity definition also provide significant flexibility to the Copermittees regarding what constitutes a Watershed Water Quality Activity. The bottom line requirements for Watershed Water Quality Activity is that they reduce pollutant discharges causing high priority water quality problems within a watershed and exceed the baseline jurisdictional requirements. Beyond these bottom line requirements, the Copermittees have ample implementation flexibility. For example, both jurisdictional and regional activities in some circumstances can be considered Watershed Water Quality Activities. The same is true for TMDL activities. In addition, Copermittees can implement Watershed Water Quality Activities within their jurisdictions or outside of their jurisdictions; whichever they prefer. Moreover, Copermittees within a watershed can implement different Watershed Water Quality Activities, provided they are part of the watershed Copermittees' larger watershed strategy.

Details regarding what constitutes a Watershed Water Quality Activity are included in the definition section of the Order. The definition was written to clarify the following points:

- A Watershed Water Quality Activity must abate the sources and/or reduce the discharge of pollutants causing high priority water quality problems in the watershed. Activities that do not specifically abate sources and/or reduce pollutant discharges causing high priority water quality problems in a watershed are not Watershed Water Quality Activities.
- Watershed Water Quality Activities must implement an overall watershed strategy collaboratively developed by the Copermittees within a watershed.

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<sup>220</sup> Regional Board, 2005. Supplemental Report for Review of Notices of Violation Issued to the San Diego County Copermittees for Watershed Urban Runoff Management Program Implementation. P. 5-14.

- Jurisdictional activities which exceed the baseline jurisdictional requirements may constitute Watershed Water Quality Activities, if they are more protective of water quality than baseline jurisdictional activities. Such activities must specifically abate sources and/or reduce the discharge of pollutants causing high priority water quality problems within a watershed. The jurisdictional activities must be organized and implemented as part of a larger watershed strategy.
- Specific Watershed Water Quality Activities do not need to be implemented watershed-wide, but all Copermittees within a watershed must implement well-coordinated Watershed Water Quality Activities.
- Watershed Water Quality Activities must be new activities; activities that have been conducted for many years without regard for watershed concerns are not Watershed Water Quality Activities. Moreover, as high priority water quality problems within watersheds continue, efforts to implement new and more effective activities are needed.
- Education, public participation, and planning efforts are not Watershed Water Quality Activities.
- Activities that only consist of monitoring are not Watershed Water Quality Activities. There must also be an element of the monitoring program that directly results in the abatement of sources and/or reduction of pollutant discharges causing high priority water quality problems.

This section of the Order also splits the implementation of Watershed Water Quality Activities into two categories. The first category requires implementation on an annual basis. This helps ensure meaningful and consistent implementation and allows for the use of measurable outcomes. The second category recognizes that not all Watershed Water Quality Activities lend themselves to annual implementation. The Copermittees are provided significant flexibility in taking the steps necessary to implement long-term Watershed Water Quality Activities, since no time frame for implementation is dictated.

**Sections E.2.j and E.2.k** of the Order require development of a list of potential Watershed Education Activities and implementation of a portion of those activities. Specific implementation of Watershed Education Activities in each jurisdiction within a watershed is being required due to the Regional Board's findings that previous Copermittee reporting often has not exhibited implementation of watershed and pollutant specific education activities. Moreover, the Regional Board has found from the Copermittees' reporting that regional education efforts are not always implemented in all watersheds. These findings have been documented in the Regional Board's Watershed Urban Runoff Management Program Annual Report review letters, which were issued in March 2003 and October 2004.

Implementation of Watershed Education Activities has been split into two categories, in order to represent two types of education pertaining to watershed management of urban runoff. During the previous permit cycle, the Copermittees primarily focused on watershed concept-based education activities. These efforts should proceed, but as high priority water quality problems and impairments within watersheds continue, source and pollutant discharge-based education efforts are also needed. The two categories of Watershed Education Activities provided in the Order ensure that both types of watershed education are conducted.



**Section E.2.l** of the Order includes minor alterations from Order No. 2001-01 which encourage the Copermittees to seek participation in the WURMP process from other potential interested parties. Increased participation in the WURMP process by interested parties can improve support for WURMP implementation, increasing the probability of implementation of effective programs.

**Section E.2.m** of the Order requires Copermittee collaboration, including frequent regularly scheduled meetings. The requirement for regularly scheduled meetings has been added based on Regional Board findings that watershed groups which hold regularly scheduled meetings (such as for San Diego Bay) typically produced better programs and work products than watershed groups that went for extended periods of time without scheduled meetings (such as San Dieguito and Los Penasquitos). For example, in their 2002-2003 Annual Reports, the San Dieguito and Los Penasquitos watersheds listed implementation of the same watershed activities, despite the fact that the two watersheds have different high priority water quality problems.

#### **F. Regional Urban Runoff Management Program**

The following legal authority applies to section F:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that “[The Copermittee must demonstrate that it can control] through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system.”

Federal NPDES regulations 40 CFR 122.26(a)(3)(v) states: “Permits for all or a portion of all discharges from large or medium municipal separate storm sewer systems that are issued on a system-wide, jurisdiction-wide, watershed, or other basis may specify different conditions relating to different discharges covered by the permit, including different management programs for different drainage areas [watersheds] which contribute storm water to the system.”

Federal NPDES regulation 40 CFR 122.26(a)(5) states: “The Director may issue permits for municipal separate storm sewers that are designated under paragraph (a)91)(v) of this section on a system-wide basis, a jurisdiction-wide basis, watershed basis, or other appropriate basis.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) states: “Proposed programs may impose controls on a systemwide basis, a watershed basis, a jurisdiction basis, or on individual outfalls.”

**Section F** of the Order requires the Copermittees to develop a Regional Urban Runoff Management Program to facilitate Copermittee implementation of urban runoff management activities on a regional level. The requirement has been included in the Order because of the recognition that some aspects of urban runoff management can be effectively addressed at a regional level. Residential education and implementation of TMDLs covering multiple watersheds are examples of urban runoff issues which can be addressed regionally, since the scope of these issues are not limited to particular jurisdictions or watersheds. Such regional implementation provides opportunities for improved efficiency and utilization of economies of scale.

The Copermittees' ROWD identifies regional urban runoff management as an important aspect of their programs.<sup>221</sup> This requirement for the development of a regional urban runoff management program provides organization and structure for both the Copermittees and Regional Board to track regional efforts. The requirements include continuation of existing regional efforts and identify additional areas for regional implementation. However, significant flexibility has been provided to the Copermittees for new regional requirements. Typically, implementation of such regional requirements is required only where it is determined to be necessary by the Copermittees.

## **G. Fiscal Analysis**

The following legal authority applies to section G:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(d)(2)(vi) provides that “[The Copermittee must submit] for each fiscal year to be covered by the permit, a fiscal analysis of the necessary capital and operation and maintenance expenditures necessary to accomplish the activities of the programs under paragraphs (d)(2)(iii) and (iv) of this section. Such analysis shall include a description of the source of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.”

**Section G** has been expanded to achieve better consistency between the Copermittees in reporting budget and expenditure information. The section also requires clarification regarding which expenditures are solely attributable to the urban runoff program, as opposed to those expenditures which are also partially attributable to other programs (such as trash collection and street sweeping). Consistency and clarification of fiscal information are valuable for assessing program effectiveness and adapting programs to help ensure that they are efficient and effective, which is one important purpose of the fiscal analysis.

This section also requires the Copermittees to develop and use a metric for fiscal analysis reporting. This provides standardization of reporting so that figures between Copermittees are comparable, which is one of many types of information which can be used by the Regional Board to better understand Copermittee program implementation. Standardization and comparison of fiscal analysis reporting is supported by the State Board funded NPDES Stormwater Cost Survey, which finds that “standards for reporting costs and stormwater activities are needed to allow accurate cost comparisons to be made between stormwater activities.”<sup>222</sup> This document also provides guidance regarding categorization of expenditures for tracking and reporting.

## **H. Total Maximum Daily Loads**

The following legal authority applies to section H:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

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<sup>221</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. C-12.

<sup>222</sup> Currier, et al., 2005. NPDES Storm Water Cost Survey Final Report. Prepared for California State Water Resources Control Board by Office of Water Programs, California State University, Sacramento. P. 63.

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal storm water permits to include any requirements necessary to “[a]chieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.”

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.”

**Section H** of the Order incorporates the two TMDLs that have been fully approved and are effective for the Copermittees. These TMDLs are for diazinon in Chollas Creek and for dissolved copper in SIYB.

Where a TMDL has been approved, NPDES permits must contain effluent limitations and conditions consistent with the requirements and assumptions in the TMDL.<sup>223</sup> Effluent limitations are generally expressed in numerical form. However, USEPA recommends that for NPDES-regulated municipal and small construction storm water discharges, effluent limitations should be expressed as best management practices or other similar requirements rather than as numeric effluent limitations.<sup>224</sup> Consistent with USEPA’s recommendation, this section implements WQBELs expressed as an iterative BMP approach capable of meeting the WLAs in accordance with the associated compliance schedule. The Order’s WQBELs include the numeric WLA as a performance standard and not as an effluent limitation. The WLA can be used to assess if additional BMPs are needed to achieve the TMDL Numeric Target in the waterbody.

**Section H.1.a** requires the Copermittees to implement BMPs capable of achieving the WLAs for diazinon in the storm drains in accordance with the Compliance Schedule. This requirement is consistent with the USEPA memorandum dated November 22, 2002, which states that NPDES permit conditions must be consistent with the assumptions and requirements of available WLAs.<sup>225</sup>

**Section H.1.b** requires that the Copermittees not cause or contribute to violations of the Interim TMDL Numeric Targets for diazinon in Chollas Creek. This requirement is necessary to ensure the effectiveness of the BMPs. The BMPs for diazinon control consist primarily of a phase out of the legal uses of diazinon and education and public outreach. Due to the difficulty in measuring the effectiveness of these BMPs directly, an indirect assessment method is necessary in the form of a receiving water limit.

**Section H.1.c** requires the Copermittees to 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*, August 14, 2002, to achieve the WLA. These BMPs are expected to be effective based on the current monitoring in Chollas Creek which shows dramatically decreasing levels of diazinon in the water column.<sup>226</sup>

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<sup>223</sup> 40 CFR 122.44(d)(1)(vii)(B)

<sup>224</sup> USEPA, 2002. Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs. P. 4.

<sup>225</sup> Ibid.

<sup>226</sup> Chollas Creek Copermittees, 2006. Response to Monitoring in Chollas Creek, Investigation Order No. R9-2004-0277, Proposition 13, PRISM Grant Agreement No. 04-17-559-0, San Diego Region, Integrated Pest Management

Compliance with Section H.1.a and c will be assessed with the WURMP annual reports, which will include a description of all TMDL activities implemented in the watershed and an effectiveness assessment of those activities. Compliance with Section H.1.b will be assessed using the monitoring data collected pursuant to the existing 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 in the Chollas Creek Watershed, San Diego, California* (Investigation Order). This Investigation Order requires water column samples to be collected at two locations and analyzed for diazinon during three storms annually. Water column samples will also be analyzed for total and dissolved copper, lead, and zinc, and hardness. Acute and chronic toxicity tests will be conducted using the water flea for samples from each of these storm events at these two locations. Concentrations of diazinon in sediment at three locations will also be evaluated.

The diazinon water column values obtained from the Investigation Order R9-2004-0277 sampling will be compared with the Interim TMDL Numeric Target adjusted for the time schedule as shown below:

Calendar Year	Year	Waste Load Allocation	Interim TMDL Numeric Target	% Reduction
2004	1	0.460 µg/L	0.5 µg/L	0
2005	2	0.460 µg/L	0.5 µg/L	0
2006	3	0.460 µg/L	0.5 µg/L	0
2007	4	0.414 µg/L	0.45 µg/L	10
2008	5	0.322 µg/L	0.35 µg/L	20
2009	6	0.184 µg/L	0.20 µg/L	30
2010	7	0.045 µg/L	0.05 µg/L	30

Chollas Creek Diazinon TMDL - Background

Chollas Creek was placed on the CWA section 303(d) List of Water Quality Limited Segments (303(d) List) in 1996 for toxicity. The pesticide diazinon was found to be causing the toxicity. The Regional Board has established a TMDL for diazinon to address the toxicity as required by the CWA for water quality limited segments at the August 14, 2002 Regional Board meeting. The State Water Resources Control Board approved the TMDL on July 16, 2003. The Office of Administrative Law approved the TMDL on September 11, 2003. USEPA approved the TMDL on November 3, 2003. Documentation for the Chollas Creek Diazinon TMDL is in the report titled, “Technical Report for Total Maximum Daily Load for Diazinon in Chollas Creek Watershed, San Diego County, August 14, 2002.”

The Chollas Creek diazinon TMDL is a concentration based TMDL determined from the CDFG’s Water Quality Criteria (WQC) for the protection of freshwater aquatic organisms from diazinon. Using a margin of safety (MOS) of 10%, the TMDL is equal the WLA plus the MOS. The TMDL Numeric Targets and WLA derived from the CDFG WQC are shown in the table below.

TMDL Numeric Targets and Waste Load Allocation for Diazinon Acute and Chronic Conditions

Exposure Duration	TMDL Numeric Targets	Margin of Safety	Waste Load and Load Allocations
Acute	0.08 µg/L	0.008 µg/L	0.072 µg/L
Chronic	0.05 µg/L	0.005 µg/L	0.045 µg/L

A compliance schedule for achieving the WLAs was established by the Regional Board Executive Officer on September 30, 2004. This compliance schedule uses an exponential approach to reduction that involves an increasing percent reduction over a 7-year period to meet the objectives. This percent reduction established for WLA in the September 2004 compliance schedule was used to calculate the Interim TMDL Numeric Targets shown in the table below:

Compliance Schedule for Diazinon TMDL Implementation

Calendar Year	Year	Waste Load Allocation	Interim TMDL Numeric Target	% Reduction
2004	1	0.460 µg/L	0.5 µg/L	0
2005	2	0.460 µg/L	0.5 µg/L	0
2006	3	0.460 µg/L	0.5 µg/L	0
2007	4	0.414 µg/L	0.45 µg/L	10
2008	5	0.322 µg/L	0.35 µg/L	20
2009	6	0.184 µg/L	0.20 µg/L	30
2010	7	0.045 µg/L	0.05 µg/L	30

The WLAs shall not be exceeded more than 1 time in any 3-year period. Season and flow conditions will not be a consideration.

**Section H.2.a** requires the Copermittees in the SIYB watershed to implement BMPs to maintain a total annual copper load of less than or equal to 30 kg copper/year.

**Section H.2.b** requires the Copermittees in the SIYB watershed to implement, at a minimum, the BMPs contained in the Copermittees' JURMP which address the discharge of copper to achieve the total annual copper load in Section H.2.a above. The WLA was established to maintain the current discharge level of 30 kg copper/year which leads to the conclusion that the current BMPs being implemented in the Copermittees' JURMP will be effective in maintaining this discharge level. Compliance with these requirements will be assessed by re-evaluating the data and assumptions used to estimate the WLA to SIYB of 30 kg copper/year. The Copermittees will be required to evaluate if any changes have occurred in the watershed which could cause or contribute to a higher copper urban runoff discharge and any actions necessary to address these changes. Because the original WLA for municipalities in SIYB was calculated using land use data, drainage area size, event mean concentration and modeling with no actual water quality samples, it is appropriate to use the same or similar method to assess compliance.

SIYB Copper TMDL - Background

SIYB is a popular recreational marina located at the north end of San Diego Bay. It is a semi-enclosed marina that supports a high density of recreational vessels in an area of low tidal flushing. The SIYB watershed is within the City of San Diego. SIYB was placed on the CWA Section 303(d) List of Water Quality Limited Segments (303(d) List) in 1996 due to high concentrations of dissolved copper. The Regional Board has established a TMDL for dissolved copper in SIYB as required by the CWA at the February 9, 2005 Regional Board meeting. The SWRCB approved resolution R9-2005-0019 on September 22, 2005. The Office of Administrative Law approved the TMDL on December 2, 2006 and Resolution R9-2005-0019



has been forwarded to USEPA for final review and approval. Documentation for the SIYB Copper TMDL is included in the report titled, "Total Maximum Daily Load for Dissolved Copper in Shelter Island Yacht Basin, San Diego Bay, Technical Report, February 9, 2005."

The existing dissolved copper load from urban runoff to SIYB was estimated to be roughly 30 kg copper/year or 1% of total loading. Due to the relatively insignificant magnitude of the contribution of dissolved copper from urban runoff, no reductions were assigned to urban runoff and the WLA was assigned the existing 30 kg copper/year. The Basin Plan has been amended to include the following "The Regional Board will amend Order No. 2001-01, *Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm /Sewer Systems* to require that discharges of copper into Shelter Island Yacht Basin waters via the City of San Diego's MS4 not exceed a 30 kg/year wasteload for copper."<sup>227</sup>

The WLA for urban runoff was estimated using land use data, drainage area size, event mean concentration for copper in residential areas. This information and assumptions such as wet weather copper concentrations equal dry weather concentrations were used to estimate the WLA of 30 kg copper/year. Once during the permit cycle, the Copermittees will evaluate the data and assumptions used in estimating the WLA to ensure that nothing has changed which could result in a higher copper discharge.

## **I. Program Effectiveness Assessment**

The following legal authority applies to section I:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(d)(2)(v) provides that the Copermittees must include "Estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of the municipal storm water quality management program. The assessment shall also identify known impacts of storm water controls on ground water." Under Federal NPDES regulation 40 CFR 122.42(c) applicants must provide annual reports on the progress of their storm water management programs.

**Section I.1.a** of the Order requires the Copermittees to assess the effectiveness of the implementation of their jurisdictional programs and activities. The section requires both specific activities and broader programs to be assessed since the effectiveness of jurisdictional efforts may be evident only when considered at different scales. The effectiveness assessment requirements incorporate the approaches developed by the Copermittees in their October 16, 2003 "Framework for Assessing the Effectiveness of Jurisdictional Urban Runoff Management Programs," including use of "outcome levels" and "major effectiveness assessment elements."

In their ROWD, the Copermittees request that use of particular outcome levels not be required for assessing the effectiveness of specific activities implemented by the Copermittees. Because many of the techniques for using the various outcome levels are still in development, the conditions under which each outcome level must be used is not specified in the Order. However,

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<sup>227</sup>Regional Board, 2005. Attachment A to Resolution No. R9-2005-0019, Amendment to the Water Quality Control Plan for the San Diego Region to Incorporate a Total Maximum Daily Load for Dissolved Copper in Shelter Island Yacht Basin, San Diego Bay. P. 5.

during review of the Copermittees' annual reports, the Regional Board has frequently needed to request that the Copermittees improve their effectiveness assessments and utilize the various assessment methods that are available. Moreover, half of the Copermittees audited were found to have inadequate effectiveness assessments which frequently lacked use of measurable goals. For these reasons, the Order contains language requiring the Copermittees to utilize the various outcome levels "where applicable and feasible." This will help ensure that the Copermittees vigorously use outcome levels, while also providing the Copermittees with flexibility to develop techniques to use outcome levels where such techniques do not currently exist.

The Copermittees also request in their ROWD that they not be responsible for assessment of the impact of their jurisdictional programs on pollutant load reductions, urban runoff water quality, and receiving water quality (outcome levels 4-6). This request slights the overall goal of the Copermittees' jurisdictional programs, which is to reduce discharged pollutants loads and improve water quality. A link between the Copermittees' jurisdictional programs and improved urban runoff and receiving water conditions must be made whenever adequate information exists. This can help validate current efforts, which is essential for maintaining program support, while also guiding future efforts.

Assessments of jurisdictional programs on water quality have been conducted by Copermittees in the past and have been useful. For example, the City of Encinitas reports decreasing bacteria levels in commercial areas following increased inspections of commercial facilities. The City also reports similar results in residential areas following increased residential education efforts.<sup>228</sup> Such information provides very useful feedback to the Copermittees, since the results are specific and localized. The results provide direct evidence of program impact which may otherwise be missed by assessments conducted at a watershed level. Program assessment capable of linking jurisdictional programs and water quality improvements is an important tool that can exhibit to program managers, decision makers, and the public that jurisdictional urban runoff management program efforts are worthwhile and should continue. For these reasons, the Order requires the Copermittees to assess the impact of their jurisdictional program on pollutant load reductions and water quality, where applicable and feasible.

**Section I.1.b** of the Order requires the Copermittees improve jurisdictional activities or BMPs when they are found to be ineffective or when water quality impairments are continuing. This requirement fulfills the purpose of conducting effectiveness assessments – to improve and refine the Copermittees' programs. The requirement is consistent with USEPA's Phase II regulations, which state: "If the permittee determines that its original combination of BMPs are not adequate to achieve the objectives of the municipal program, the MS4 should revise its program to implement BMPs that are adequate [...]."<sup>229</sup>

**Section I.2.a** of the Order requires the Copermittees to assess the effectiveness of the implementation of their watershed programs and activities. The section requires both specific activities and broader programs to be assessed since the effectiveness of watershed efforts may be evident only when considered at different scales. The effectiveness assessment requirements incorporate the approaches developed by the Copermittees in their October 16, 2003 "Framework for Assessing the Effectiveness of Jurisdictional Urban Runoff Management Programs," including use of "outcome levels" and major effectiveness assessment elements.

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<sup>228</sup> City of Encinitas, 2006. Jurisdictional Urban Runoff Management Program Annual Report FY 2004-2005. P. 11-9.

<sup>229</sup> Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68762.

As with the jurisdictional assessments discussed for section I.1.a, the Order contains language requiring the Copermittees to utilize outcome levels 1-4 for assessment “where applicable and feasible.” This will help ensure that the Copermittees vigorously use the outcome levels, while also providing the Copermittees with flexibility to develop techniques to use outcome levels where such techniques do not currently exist. The section also places particular focus on the Copermittees’ utilization of outcome levels 5 and 6, which address urban runoff and receiving water quality. Since the entire thrust of the watershed urban runoff management programs is to improve the high priority water quality problems within the various watersheds, use of outcome levels 5 and 6 is needed to assess the effectiveness of the watershed urban runoff management programs. After 15 years of implementation of the storm water program in San Diego County, impact of the program on water quality must be assessed. Without such assessments, it will not be known whether the watershed urban runoff management programs are achieving their purpose. The Copermittees’ receiving waters monitoring program, which is watershed-based, is expected to provide the Copermittees with information to conduct these assessments.

**Section I.2.b** of the Order includes requirements for modification of watershed activities similar to those for modification of jurisdictional activities discussed in section I.1.b. Please see the section I.1.b discussion for further information.

**Section I.3.a** of the Order requires the Copermittees to assess the effectiveness of their regional activities and programs in a manner similar to the assessment requirements discussed for section I.1.a and I.2.a. Please see the discussions for these sections for further information. Section I.3.a also requires the Copermittees to evaluate their progress in implementing measures on a regional basis. These evaluations are needed to track the Copermittees’ progress towards meeting their goals and objectives for regional urban runoff management.

**Section I.4** (TMDL BMP Implementation Plan) requires the Copermittees to assess the effectiveness of their TMDL BMP Implementation Plans or equivalent plans in a manner similar to the assessment of the effectiveness of the watershed urban runoff management programs. This is appropriate, since implementation of TMDL BMP Implementation Plans is similar to implementation of watershed urban runoff management programs.

**Section I.5** (Long-Term Effectiveness Assessment) requires the Copermittees to conduct a Long-Term Effectiveness Assessment prior to their submittal of an application for reissuance of the Order. The Long-Term Effectiveness Assessment is necessary to provide support for the Copermittees’ proposed changes to their programs in their ROWD. It can also serve as the basis for changes to the Order’s requirements. The Copermittees recommend that the Order include a requirement for development of a Long-Term Effectiveness Assessment in their ROWD.<sup>230</sup>

## **J. Reporting**

The following legal authority applies to section J:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.42(c) requires that “The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part

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<sup>230</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-82.

must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation.”

California Water Code section 13267 provides that “the regional board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

**Section J.1** (Jurisdictional Urban Runoff Management Plans) outlines the information to be included in the Copermittees’ JURMPs. It utilizes an approach similar to the approach used in Order No. 2001-01. The information to be included in the JURMP is listed in detail in Attachment D. Significant detail is included in the Order regarding what information should be in the JURMPs in order to provide certainty to the Copermittees when they develop and submit their JURMPs. By providing detail for what information should be included in the JURMP, time spent by the Copermittees and Regional Board on JURMP reporting, review, comment, and response is expected to be reduced.

It is important to note that in many cases, the requirements of the Order should not necessitate a complete rewrite of the JURMPs. Only sections of the Order which are new or have been significantly changed should warrant rewriting of JURMP sections. The Regional Board plans to work with the Copermittees and provide guidance regarding where JURMPs must be updated in accordance with the Order. This will help ensure that rewriting, reporting, and review efforts are minimized.

**Sections J.2 and J.3** (Watershed and Regional Urban Runoff Management Plans) include requirements for information to be included in the WURMPs and RURMP that are similar in scope to the requirements for information to be included in the JURMPs (section J.1). Please see the discussion for section J.1 for further information.

**Section J.4** (Hydromodification Plan) requires various submittals during the development of the HMP. These submittals are necessary to provide both the Copermittees and the Regional Board the opportunity to review progress being made on the HMP. Frequent review of the HMP as it develops is needed due to the complex nature of the issues the HMP will address. The HMP submittal process included in the Order is based on a successful HMP submittal process previously implemented in the San Francisco Bay Area.

The final HMP requires approval by the Regional Board. Final approval by the Regional Board is necessary because the HMP requirements are new and relatively complex. Full vetting of the HMP before the Regional Board will provide all interested parties the opportunity to participate on HMP development and help ensure a workable end product for the interested parties.

**Section J.6** (Report of Waste Discharge) requires submittal of a ROWD prior to the expiration of the Order. The section identifies the minimum information to be included in the ROWD, based

on USEPA's May 17, 1996 guidance "Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems."

#### **K. Modifications of Programs**

The following legal authority applies to section K:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Section K** of the Order provides a process for the Copermittees to modify their urban runoff management programs. This process will be useful so that the Copermittees can continue to refine and improve their programs based on the findings of their annual program effectiveness assessments. The process allows for minor modifications to the Copermittees' programs where the Copermittees can exhibit that the modifications meet or exceed existing legal requirements under the Order. Such a process avoids lengthy and time consuming formal approvals of proposed modifications before the Regional Board, while still ensuring compliance with applicable legal standards and the Order. The Copermittees requested inclusion of a process in the Order to allow for minor modifications to their urban runoff management programs in their ROWD.<sup>231</sup> The process included in the Order is based on a process utilized by the San Francisco Bay Area Regional Water Quality Control Board in their MS4 permit for Alameda County.<sup>232</sup>

#### **L. All Copermittee Collaboration**

The following legal authority applies to section L:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that "[The Copermittee must demonstrate that it can control] through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system."

No significant changes were made to this section.

#### **M. Principal Permittee Responsibilities**

The following legal authority applies to section M:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.26(a)(3)(iii)(C) provides that "A regional authority may be responsible for submitting a permit application."

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that "[The Copermittee must demonstrate that it can control] through interagency agreements among coapplicants the

<sup>231</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. C-10.

<sup>232</sup> San Francisco Bay Area Regional Water Quality Control Board, 2003. Order No. R2-2003-0021. P. 45.



contribution of pollutants from one portion of the municipal system to another portion of the municipal system."

No significant changes were made to this section.

**N. Receiving Waters Monitoring and Reporting Program**

The following legal authority applies to section N:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Copermittees must conduct a comprehensive monitoring program as required under Federal NPDES regulations 40 CFR 122.26(d)(2)(iii).

See section V of this Fact Sheet/Technical Report for a discussion of changes to the Receiving Waters Monitoring and Reporting Program.

**O. Standard Provisions, Reporting Requirements, and Notifications**

The following legal authority applies to section O:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Standard provisions, reporting requirements, and notifications are consistent to all NPDES permits and are generally found in Federal NPDES regulation 40 CFR 122.41.

**Section O.2** of the Order has been changed to remove the statement that all plans and reports submitted in compliance with the Order are an enforceable part of the Order. This statement has been removed because it is unnecessary. The Order itself contains sufficient detailed requirements to ensure that compliance with discharge prohibitions, receiving water limits, and the narrative standard of MEP are achieved. Implementation by the Copermittees of programs in compliance with the Order's requirements, prohibitions, and receiving water limits is the pertinent compliance standard to be used under the Order, as opposed to assessing compliance by reviewing the Copermittees' implementation of their plans alone.

Rather than being substantive components of the Order itself, the Copermittees' urban runoff management plans are simply descriptions of their urban runoff management programs required under the Order. These plans serve as procedural correspondence which guides program implementation and aids the Copermittees and Regional Board in tracking implementation of the programs. In this manner, the plans are not functional equivalents of the Order. For these reasons, the Copermittees' urban runoff management plans need not be an enforceable part of the Order.

**P. Attachment A**

The following legal authority applies to Attachment A:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** California Water Code Section 13243 provides that “A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted.”

California Water Code Section 13263(a) provides that waste discharge requirements prescribed by the SDRWQCB implement the Basin Plan.

No significant changes were made to this attachment.

#### **Q. Attachment B**

The following legal authority applies to Attachment B:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Standard provisions, reporting requirements, and notifications are consistent to all NPDES permits and are generally found in Federal NPDES regulation 40 CFR 122.41.

**Attachment B** includes Standard Provisions which have been developed by the SWRCB. These Standard Provisions ensure that NPDES permits are consistent and compatible with USEPA’s federal regulations. Some Standard Provisions sections specific to publicly owned sewage treatment works are not included in Attachment B.

#### **R. Attachment C**

The following legal authority applies to Attachment C:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Attachment C contains definitions for new terms found in the Order. In addition, definitions for terms previously defined in Order No. 2001-01 Attachment D, but which are not found in the current Order, have been deleted.

#### **S. Attachment D**

The following legal authority applies to Attachment D:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** California Water Code section 13267 provides that “the regional board may require that any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

Please see the discussion for section J.1 for further information.

**T. Attachment E**

The following legal authority applies to Attachment E:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.42(c) requires that “The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation.”

California Water Code section 13267 provides that “the regional board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

**Attachment E** to the Order outlines the information to be included in the Copermittees’ Jurisdictional Urban Runoff Management Program Annual Reports. Significant detail is included in the attachment regarding what information should be in the annual reports in order to provide certainty to the Copermittees when they develop and submit their annual reports. By providing detail for what information should be included in the annual reports, time spent by the Copermittees and Regional Board to generate, review, and comment on annual reports should be reduced.

**U. Attachment F**

The following legal authority applies to Attachment F:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Federal NPDES regulation 40 CFR 122.42(c) requires that “The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under §

122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation.”

California Water Code section 13267 provides that “the regional board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

**Attachment F** to the Order provides a table summary of scheduled submittals required by the Order. Unscheduled submittals are no longer added to the table, since there is no proper due date for such submittals. A task summary has not been created for the Order, since the previous task summary was found to be redundant, repeating information found in the submittal summary and elsewhere in the Order.

## **V. Receiving Waters Monitoring and Reporting Program**

The following legal authority applies to the Receiving Waters Monitoring and Reporting Program:

**Broad Legal Authority:** CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

**Specific Legal Authority:** Copermittees must conduct a comprehensive monitoring program as required under Federal NPDES regulations 40 CFR 122.26(d)(2)(iii).

Federal NPDES regulation 40 CFR 122.42(c) requires that “The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation.”

California Water Code section 13267 provides that “the regional board may require than any person who has discharged [...] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires.”

### **1. Purpose**

According to USEPA, the benefits of sampling data include, but are not limited to:

1. Providing a means for evaluating the environmental risk of storm water discharges by identifying types and amounts of pollutants present;

2. Determining the relative potential for storm water discharges to contribute to water quality impacts or water quality standard violations;
3. Identifying potential sources of pollutants; and
4. Eliminating or controlling identified sources more specifically through permit conditions.<sup>233</sup>

Equally important, monitoring programs are an essential link in the improvement of urban runoff management efforts. Data collected from monitoring programs can be assessed to determine the effectiveness of management programs and practices, which is vital for the success of the iterative approach used to meet the MEP standard. Specifically, when data indicates that a particular BMP or program component is not effective, improved efforts can be selected and implemented. Also, when water quality data indicate that water quality standards or objectives are being exceeded, particular pollutants, sources, and drainage areas can be identified and targeted for specific urban runoff management efforts.

Considering the benefits described above, the Receiving Waters Monitoring and Reporting Program (MRP) has been designed to determine impacts to receiving water quality and beneficial uses from urban runoff and to use the results to refine the Copermittees' urban runoff management programs for the reduction of pollutant loadings to the MEP. The primary goals of the MRP include:

1. Assess compliance with Order No. R9-~~2006-001~~2007-0001;
2. Measure and improve the effectiveness of the Copermittees' urban runoff management programs;
3. Assess the chemical, physical, and biological impacts of receiving waters from urban runoff;
4. Characterize urban runoff discharges;
5. Identify sources of specific pollutants;
6. Prioritize drainage and sub-drainage areas that need management actions;
7. Detect and eliminate illicit discharges and illicit connections to the MS4; and
8. Assess the overall health of receiving waters.

Each of the components of the MRP is necessary to meet the objectives listed above. In addition, the MRP has been designed in accordance with the guidance provided by the Southern California Stormwater Monitoring Coalition's Model Monitoring Technical Committee in its August 2004 "Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California." This guidance document was developed in response to Senate Bill 72 (Kuehl), which addressed the standardization of sampling and analysis protocols in municipal stormwater monitoring programs. The technical committee which developed the guidance included representatives from Southern California Regional Water Quality Control Boards (including San Diego), municipal storm water permittees (including the County of San Diego), Heal the Bay, and the Southern California Coastal Water Research Project.

As its title suggests, the guidance essentially developed a model municipal storm water monitoring program for use in Southern California. The model program is structured around five fundamental management questions, outlined below. The MRP is designed as an iterative step towards ensuring that the Copermittees' monitoring program can fully answer each of the five management questions.

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<sup>233</sup> USEPA, 1992. NPDES Storm Water Sampling Guidance Document. EPA/833-B-92-001.

1. Are conditions in receiving waters protective, or likely to be protective, of beneficial uses?
2. What is the extent and magnitude of the current or potential receiving water problems?
3. What is the relative urban runoff contribution to the receiving water problem(s)?
4. What are the sources of urban runoff that contribute to receiving water problem(s)?
5. Are conditions in receiving waters getting better or worse?

The justifications for each component of the monitoring program are discussed below.

## 2. Monitoring Program

### Summary of Order No. 2001-01 Monitoring Program and Results

The Copermittees' monitoring under Order No. 2001-01 includes several components: (a) wet weather mass loading station monitoring (including toxicity monitoring); (b) bioassessment monitoring; (c) dry weather field screening and analytical monitoring; (d) coastal storm drain monitoring; and (e) ambient bay and lagoon monitoring. Each of these is briefly summarized below with recent results briefly discussed. The Copermittees' most recent monitoring report is available at:

[http://www.projectcleanwater.org/html/wg\\_monitoring\\_04-05report.html](http://www.projectcleanwater.org/html/wg_monitoring_04-05report.html).

#### *Wet Weather Mass Loading Station Monitoring*

The Copermittees' wet weather mass loading station monitoring consists of water quality monitoring during three storm events annually within the main drainage at the base of each major watershed in San Diego County. There are currently 11 wet weather mass loading stations throughout San Diego County, where various constituents of concern, bacterial indicators, and toxicological impacts are measured. Using data collected from the wet weather mass loading stations, persistent wet weather constituents of concern have been identified by the Copermittees in their Baseline Long-Term Effectiveness Assessment document. Persistent wet weather constituents of concern are generally those constituents which have concentrations which persistently exceed water quality objectives. Increasing and decreasing trends in constituent concentrations have also been identified by the Copermittees.

#### Mass Loading Station Persistent Wet Weather Constituents and Trends<sup>234</sup>

Mass Loading Stations	Persistent Wet Weather Constituents of Concern	Significant Trends Observed
Santa Margarita	Fecal Coliform Total Suspended Solids Turbidity	
San Luis Rey	Total Dissolved Solids	
Agua Hedionda	Fecal Coliform Total Dissolved Solids Total Suspended Solids Turbidity	Increasing chemical oxygen demand Increasing total kjeldahl nitrogen Increasing total phosphorus Increasing total suspended solids Increasing turbidity
Escondido Creek	Fecal Coliform Total Dissolved Solids Turbidity	

<sup>234</sup> San Diego County Copermittees, 2005. Baseline Long-Term Effectiveness Assessment.



San Dieguito River	Total Dissolved Solids	
Penasquitos River	Total Dissolved Solids	
Tecolote Creek	Fecal Coliform Turbidity Diazinon	Increasing arsenic (still below water quality objective) Decreasing total suspended solids Decreasing total zinc
San Diego River	Fecal Coliform	
Chollas Creek	Fecal Coliform Total Suspended Solids Turbidity Diazinon Copper Zinc Toxicity (Ceriodaphnia and Hyalella)	Increasing nitrate Increasing lead Decreasing total suspended solids Decreasing total dissolved solids Decreasing nickel
Sweetwater River	Total Dissolved Solids Fecal Coliform Diazinon	
Tijuana River	Fecal Coliform Ammonia Biochemical Oxygen Demand Chemical Oxygen Demand Total Phosphorus Total Suspended Solids Turbidity Chlorpyrifos Diazinon Malathion Toxicity (Ceriodaphnia)	

### *Bioassessment Monitoring*

Bioassessment monitoring is conducted to provide site-specific information about the health and diversity of freshwater benthic communities within a specific reach of a creek. It consists of collecting samples of the benthic communities during dry weather and conducting a taxonomic identification to measure community abundance and diversity. Benthic community abundance and diversity is then compared to a reference creek to assess benthic community health. Under Order No. 2001-01, the Copermittees are required to conduct bioassessment monitoring on 23 stream reaches. The results from the Copermittees' bioassessment monitoring demonstrate that the beneficial uses of urban streams are being adversely impacted by urban runoff. The San Luis Rey, Carlsbad, San Dieguito, Penasquitos, Mission Bay, San Diego River, San Diego Bay, and Tijuana River watersheds all had Poor to Very Poor Index of Biotic Integrity ratings.<sup>235</sup>

### *Dry Weather Field Screening and Analytical Monitoring*

The Copermittees conduct dry weather field screening and analytical monitoring throughout their jurisdictions at various locations within their MS4s. While a principal purpose of the dry weather field screening and analytical monitoring is to identify illicit discharges and/or connections to the MS4, the data gathered also provides useful information regarding water quality within the Copermittees' MS4s during dry weather conditions. Data from dry weather field screening and

<sup>235</sup> San Diego County Municipal Copermittees, 2005. 2004-2005 Urban Runoff Monitoring Final Report. Executive Summary.

analytical monitoring is often used effectively to identify and abate illicit discharges, but it also indicates high levels of pollutants in the Copermittees' MS4s. The number of exceedances of water quality criteria for various constituents at dry weather field screening and analytical monitoring sites frequently exceeds the number monitoring site visits conducted.<sup>236</sup>

### *Coastal Storm Drain Monitoring*

Coastal storm drain monitoring involves monitoring discharges from coastal storm drains and nearby receiving waters for bacterial indicators. Approximately 59 coastal storm drains are monitored year round on a weekly or monthly basis, depending on the season. For samples collected in receiving waters, total coliform, fecal coliform, and Enterococcus water quality standards were exceeded at a rate of 2.0%, 1.7%, and 4.4% respectively in 2003-2004. Counts of bacterial indicators in samples collected from coastal storm drain discharges greatly exceeded those of samples collected in receiving waters, but were not reported in relation to water quality standards.<sup>237</sup>

### *Ambient Bay and Lagoon Monitoring*

To monitor ambient bay and lagoon conditions, the Copermittees focus on assessing bay and lagoon sediments where contaminants are most likely to be found. Monitoring is conducted in twelve coastal embayments for various constituents, toxicity, and benthic infauna. Most of the embayments monitored were found to contain toxic elements in their sediment. However, this monitoring did occur in embayment areas targeted because of their likelihood to contain contaminated sediment, essentially representing worst-case scenarios.<sup>238</sup>

### Mass Loading Station Monitoring

**Section II.A.1** of the MRP requires mass loading and toxicity monitoring at monitoring stations located at the bottom of major watersheds within San Diego County. The mass loading monitoring will provide data representing event mean concentrations of pollutants, total pollutant loadings, and toxicity conditions from specific drainage areas. Mass loading monitoring stations are recommended by the Model Monitoring Technical Committee in order to answer management questions 1, 2, and 5.<sup>239</sup> The stations are also expected to contribute towards meeting MRP goals 1, 2, 3, 4, 6, and 8. The mass loading station monitoring included in the MRP is the same as the mass loading station monitoring proposed by the Copermittees in their ROWD.<sup>240</sup>

**Sections II.A.1.a and II.A.1.b** of the MRP identify the location of the mass loading stations and the frequency of the monitoring to be conducted at the mass loading stations. The locations of the stations are identical to the locations utilized under Order No. 2001-01, and match the locations proposed by the Copermittees in their ROWD.<sup>241</sup> These locations provide substantial coverage of the major watersheds within the San Diego Region portion of San Diego County.

The frequency of monitoring at the mass loading stations has been changed from monitoring each station for three wet weather events every year to monitoring each station for two wet weather

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<sup>236</sup> Ibid. Sections 4-12.

<sup>237</sup> Ibid. Attachment A.

<sup>238</sup> Ibid. Executive Summary.

<sup>239</sup> Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. Chapter 5.

<sup>240</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, p. 9.

<sup>241</sup> Ibid. Attachment 3, p. 9.

and two dry weather monitoring events every other year. While this is an overall reduced frequency of monitoring at the mass loading stations, it is replaced by the addition of new monitoring stations to be located in the upper watersheds (called temporary watershed assessment stations). The new information generated from the temporary watershed assessment stations, as well as from new monitoring of dry weather events, offsets the reduced amount of information gathered at mass loading stations resulting from the monitoring of fewer wet weather events.

In their ROWD, the Copermittees statistically compared the Order No. 2001-01 monitoring program with the proposed program in order to determine any loss in the ability to observe trends resulting from the reduced wet weather monitoring frequency. The Copermittees' statistical assessments utilized empirical data from the existing monitoring program and used existing trends to predict or model the future data sets to estimate when water quality objectives would be reached assuming that current trends continue. The Copermittees found that "depending upon the current rate of decrease in observed concentration and variability of constituents, the ability to observe trends will not change significantly with the recommended program."<sup>242</sup> Using an example worst case scenario of a data exhibiting a non-significant downward trend (copper in Tecolote Creek), it was estimated that the frequency of monitoring conducted under Order No. 2001-01 would not exhibit concentrations below the water quality objective with 95% confidence for 18 years. Using the frequency of monitoring included in the MRP, however, it would take 22 years to see the same results - a relatively modest increase. The Copermittees further considered the ability to identify statistically significant differences between watersheds or between years when data from only two wet weather events is collected, as opposed to three events. Again, the Copermittees found that results are similar whether two wet weather events or three are monitored.<sup>243</sup>

While the reduction in the frequency of monitoring of wet weather events will certainly impact the ability to observe statistically significant trends and differences to some extent, the new MRP will advance the understanding of conditions in San Diego County watersheds. Segmenting the watershed and adding new temporary watershed assessment stations will provide additional watershed information relative to magnitude and extent, as well as increased spatial coverage to focus management efforts. Moreover, the MRP provides a more comprehensive temporal view of the watershed with the addition of dry weather monitoring, which will improve the Copermittees' ability to complete the pollutant loading picture.<sup>244</sup>

**Sections II.A.1.c-f** of the MRP include requirements that standard sampling and analysis protocols are followed by the Copermittees during monitoring. These are generally the same requirements included in Order No. 2001-01.

**Section II.A.1.g** of the MRP lists the constituents to be monitored at mass loading stations and temporary watershed assessment stations. These constituents have not changed from the constituents monitored under Order No. 2001-01.

**Section II.A.1.h** of the MRP requires the analysis of several additional constituents at stations in the Chollas Creek watershed. These constituents are required for analysis to assess the contribution of urban runoff to the Toxic Hot Spot at the mouth of Chollas Creek. The requirement for this analysis is consistent with the SWRCB's June 1999 Consolidated Toxic Hot Spot Cleanup Plan.

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<sup>242</sup> Ibid. Attachment 3, p. 14.

<sup>243</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, Appendix A, p. 2-5.

<sup>244</sup> Ibid. Attachment 3, p. 18.

**Sections II.A.1.i-j** of the MRP identify the toxicity testing to be implemented and require that standard toxicity testing procedures be followed during the testing. These toxicity testing requirements have not changed for the toxicity testing requirements of Order No. 2001-01.

#### Temporary Watershed Assessment Station Monitoring

**Section II.A.2.a** of the MRP identifies the number of temporary watershed assessment stations to be monitored in a given year for each watershed. Temporary watershed assessment stations will serve to segment watersheds, providing information on sub-watersheds which have previously not been monitored extensively. This will aid in the identification of water quality problem areas and help identify sources. Temporary watershed assessment stations are recommended by the Model Monitoring Technical Committee in order to answer management questions 1, 2, 3, and 5.<sup>245</sup> The stations are also expected to contribute towards meeting MRP goals 1, 2, 3, 4, 5, 6, and 8.

The section allows for the number of stations within a watershed to change, as long as the total number of stations monitored is not reduced. The number and watershed location of the stations and the frequency that they are to be monitored matches the Copermittees' proposal in their ROWD.<sup>246</sup> However, the location of the stations within each watershed is critical in terms of determining the monitoring program's effectiveness. If correctly sited, the stations are expected to be very useful in answering the program's management questions and meeting the program's goals. For this reason, the MRP includes requirements to guide where the stations are located. This will help maximize the utility of the stations, while also providing the Copermittees with adequate flexibility to ultimately choose the locations of the stations. The requirements for locating the stations is based on recommendations made by USEPA's contractor Tetra Tech during its review of the Copermittees' monitoring program proposal.<sup>247</sup>

**Section II.A.2.b** of the MRP identifies the required frequency of monitoring of temporary watershed assessment stations in a given year. The stations will be monitored with the same frequency as the mass loading stations. This frequency was proposed by the Copermittees in their ROWD.<sup>248</sup> The frequency of monitoring is appropriate for the same reasons it is appropriate at the mass loading stations (see the discussion for sections II.A.1.a and II.A.1.b).

**Section II.A.2.c** of the MRP requires temporary watershed assessment stations to be monitored in the same manner as mass loading stations, in terms of procedures, protocols, analysis, etc.

#### Bioassessment Monitoring

**Section II.A.3** of the MRP requires the Copermittees to conduct bioassessment monitoring. Bioassessment monitoring is a cost-effective tool that measures the effects of water quality over time.<sup>249</sup> It is an important indicator of stream health and impacts from urban runoff. It can detect impacts that chemical and toxicity monitoring cannot. USEPA encourages permitting authorities to consider requiring biological monitoring methods to fully characterize the nature and extent of

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<sup>245</sup> Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. Chapter 5.

<sup>246</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, p. 12.

<sup>247</sup> Tetra Tech, Inc., 2006. Review of San Diego County MS4 Monitoring Program. P. 13.

<sup>248</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, p. 12.

<sup>249</sup> California Department of Fish and Game, 2002. California Regional Water Quality Control Board, San Diego Region 2002 Biological Assessment Report: Results of May 2001 Reference Site Study and Preliminary Index of Biotic Integrity.

impacts from urban runoff.<sup>250</sup> Therefore, the Regional Board commonly requires bioassessment monitoring in MS4 and other types of discharge permits.

Bioassessment is the direct measurement of the biological condition, physical condition, and attainment of beneficial uses of receiving waters (typically using benthic macroinvertebrates, periphyton, and fish). Bioassessment monitoring integrates the effects of both water chemistry and physical habitat impacts (e.g., sedimentation or erosion) of various discharges on the biological community native to the receiving waters. Moreover, bioassessment is a direct measurement of the impact of cumulative, sub-lethal doses of pollutants that may be below reasonable water chemistry detection limits, but that still have biological affects.

Because bioassessment focuses on communities of living organisms as integrators of cumulative impacts resulting from water quality or habitat degradation, it defines the ecological risks resulting from urban runoff. Bioassessment not only identifies that an impact has occurred, but also measures the effect of the impact and tracks recovery when control or restoration measures have been taken. These features make bioassessment a powerful tool to assess compliance, evaluate the effectiveness of BMPs, and to track both short and long-term trends (MRP goals 1,2,3, and 8). Bioassessment can also help answer management questions 1, 2, and 5.

**Section II.A.3.a** of the MRP specifies the number of bioassessment stations to be monitored and their watershed location. This specification is consistent with Order No. 2001-01's bioassessment requirements and the Copermittees' ROWD.<sup>251</sup> This section also identifies the most current established protocol to be used in identifying bioassessment reference stations. The protocol referenced in the Order is specified because it provides a qualitative and repeatable method for identifying reference sites. Moreover, the protocol is well established, since it has been peer reviewed and published.

**Section II.A.3.b** of the MRP requires bioassessment stations to be collocated with mass loading and temporary watershed assessment stations. This improves the accuracy of the conclusions of the triad approach for a particular area, since all data will be collected from one location within a watershed, instead of several areas. This approach is recommended by the Copermittees in their ROWD.<sup>252</sup>

**Section II.A.3.c** of the MRP requires bioassessment monitoring to be conducted in May and October, which is a continuation of the standard practice conducted under Order No. 2001-01. Timing of bioassessment monitoring is also required to coincide with dry weather monitoring at mass loading and temporary watershed assessment stations. This improves the accuracy of the conclusions of the triad approach for particular time periods, since all data will be collected at specific times within a watershed, instead of at different times. This approach is recommended by the Copermittees in their ROWD.<sup>253</sup>

**Section II.A.3.d** of the MRP requires bioassessment monitoring to utilize the targeted riffle composite approach, which is consistent with the SWRCB's Surface Water Ambient Monitoring Program (SWAMP) Quality Assurance Management Plan (QAMP), as amended. Through SWAMP, various bioassessment methods were evaluated and it was found that the targeted riffle

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<sup>250</sup> USEPA, 1999. Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers. EPA 841-B-99-002. P. 2-5.

<sup>251</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, p. 12.

<sup>252</sup> Ibid. Attachment 3, p. 10.

<sup>253</sup> Ibid. Attachment 3, p. 10.

composite approach was a particularly efficient method, providing accurate data in a cost efficient manner.

**Section II.A.3.e** of the MRP requires bioassessment monitoring to include assessment of periphyton (algae). Advantages of bioassessment using periphyton include: (1) they have rapid reproduction rates and very short life cycles, making them valuable indicators of short-term impacts; (2) as primary producers, they are most directly affected by physical and chemical factors; (3) sampling is easy and inexpensive; and (4) algal assemblages are sensitive to some pollutants which may not visibly affect other aquatic assemblages.<sup>254</sup>

**Section II.A.3.f** of the MRP specifies an approach for calculation of an Index of Biotic Integrity for all bioassessment stations. The specified approach is consistent with USEPA's procedures for developing an Index of Biotic Integrity. The approach is also specified because it is highly repeatable and robust. In addition, the specified approach has previously been utilized by the Copermittees under Order No. 2001-01's requirements.

**Section II.A.3.g** of the MRP includes a standard requirement for a professional laboratory to perform the bioassessment procedures.

#### Follow-Up Analysis and Actions

**Section II.A.4** of the MRP requires the Copermittees to use the results of the chemistry, toxicity, and bioassessment monitoring to determine if impacts from urban runoff are occurring and when follow-up actions are necessary. The triad approach allows a wide range of measurements to be combined to more efficiently identify pollutants, their sources, and appropriate follow-up actions. Results from the three types of monitoring shall be assessed to evaluate the extent and causes of pollution in receiving waters and to prioritize management actions to eliminate or reduce the sources. The framework provided in Table 3 is to be used to determine conclusions from the data and appropriate follow-up actions. The framework in Table 3 was derived from the Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California.<sup>255</sup> These follow-up actions are expected to primarily help answer management questions 2 and 4, as well as address MRP goals 2, 4, 5, 6 and 7.

When, based on the framework in Table 3, data indicates the presence of toxic pollutants in runoff, the Copermittees are required to conduct a Toxicity Identification Evaluation (TIE). A TIE is a set of procedures used to identify the specific chemical(s) responsible for toxicity to aquatic organisms. When discharges are toxic to a test organism, a TIE must be conducted to confirm potential constituents of concern and rule out others, therefore allowing Copermittees to determine and prioritize appropriate management actions. If a sample is toxic to more than one species, it is necessary to determine the toxicant(s) affecting each species. If the type and source of pollutants can be identified based on the data alone and an analysis of potential sources in the drainage area, a TIE is not necessary.

When a TIE identifies a pollutant associated with urban runoff as a cause of toxicity, it is then necessary to conduct follow-up actions to identify the causative agents of toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. Follow-up actions should analyze all potential source(s) causing toxicity,

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<sup>254</sup> USEPA, 1999. Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers. EPA 841-B-99-002. P. 3-3.

<sup>255</sup> Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. P. 5-61.



potential BMPs to eliminate or reduce the pollutants causing toxicity, and suggested monitoring to demonstrate that toxicity has been removed.

### Ambient Bay and Lagoon Monitoring

**Sections II.A.5.a-c** of the MRP requires the Copermittees to conduct monitoring of the ambient conditions of bays, lagoons, and similar waters. Focused monitoring on these resources is needed because of their uniqueness and the high value of their beneficial uses. Such monitoring is recommended by the Stormwater Monitoring Coalition's Model Monitoring Technical Committee.<sup>256</sup>

The MRP requires the Copermittees to assess the data collected for the bays and lagoons over the last three years and refocus the monitoring program based on the assessment conducted. If links between bay and lagoon conditions and mass loading stations are observed, monitoring is to be conducted in all bays and lagoons in order to gain a better understanding of this relationship. If such a linkage is not observed, special studies shall be conducted specific to the various bays and lagoons and the issues they face. The approach outlined in the MRP for the ambient bay and lagoon monitoring program is based on the proposal found in the Copermittees' ROWD.<sup>257</sup> It is expected to help answer management questions 1, 2, and 5, as well as address MRP goals 1, 2, 3, 6, and 8, with regards to bays and lagoons.

**Section II.A.5.d** of the MRP requires that ambient bay and lagoon monitoring utilize the triad approach for assessment of data. The triad approach links chemistry, toxicity, and bioassessment data to better identify and understand the causes of impacts to beneficial uses. This approach has previously been used by the Copermittees in their ambient bay and lagoon monitoring.<sup>258</sup>

**Section II.A.5.e** of the MRP requires monitoring of the water column in bays and lagoons as necessary to supply information needed for TMDLs. This requirement has been added to the MRP to better ensure that storm water and TMDL monitoring complement each other where possible. This is expected to improve the efficiency with which monitoring resources are used. The Copermittees support complementary storm water and TMDL efforts in their ROWD.<sup>259</sup>

### Coastal Storm Drain Monitoring

**Section II.A.6** of the MRP continues the Copermittees' coastal storm drain monitoring program in the same manner as it was conducted under Order No. 2001-01's receiving waters monitoring program. The coastal storm drain monitoring program outlined in the MRP is consistent with the Copermittees' proposal in their ROWD.<sup>260</sup> Coastal storm drain monitoring is critical because one of the primary impacts to coastal receiving waters is the loss of recreational beneficial uses resulting from high levels of bacteria in urban runoff. The coastal storm drain monitoring program is expected to help answer management questions 1, 2, 3, 4 and 5, as well as address MRP goals 1, 2, 3, 4, 5, 6, 7, and 8.

**Sections II.A.6.a and II.A.6.b.(1)** of the MRP require the Copermittees to identify all coastal storm drains and sample those that are flowing on a monthly basis. All coastal storm drains are

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<sup>256</sup> Ibid. P. 5-38.

<sup>257</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, p. 10-12.

<sup>258</sup> San Diego County Copermittees, 2005. San Diego County Copermittees 2004-2005 Urban Runoff Monitoring Final Report. P. ES-2.

<sup>259</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-10.

<sup>260</sup> Ibid. Attachment 4.

required to be part of the program; skipping certain storm drains simply because they are near other storm drains is inappropriate, since each storm drain can have significantly different conditions within its drainage area. One purpose of coastal storm drain monitoring is to identify and abate sources of bacterial contamination. Since the sources of bacterial contamination at a storm drain are generally not known, the potential for a flowing coastal storm drain to be discharging urban runoff with high levels of bacteria cannot be known unless the storm drain is monitored.

The requirement that all coastal storm drains be part of the program is offset by the reduction in sampling frequency to a monthly basis year round, instead of weekly in the summer and monthly in the winter. Moreover, the MRP allows sampling frequency to be further reduced when monitoring results indicate bacteria levels are consistently below an identified criteria. These reductions in sampling frequency are allowed because the Copermittees have found monthly monitoring to typically be representative of storm drain conditions. Also, the Copermittees have identified some storm drains which consistently have low levels of bacteria and do not cause exceedances of standards in receiving waters. Reduction in monitoring frequency provides the Copermittees with more time and resources to investigate problem storm drains, as required in MRP sections II.A.6.b.3-5. The monitoring frequencies in the MRP are recommended by the Copermittees in their ROWD.<sup>261</sup>

**Section II.A.6.b.(2)** of the MRP requires the Copermittees to notify the Regional Board if they are going to reduce the monitoring frequency of a coastal storm drain. This will allow the Regional Board the opportunity to review the proposed reduction prior to the reduction being enacted by the Copermittee.

**Sections II.A.6.b.(3-5)** of the MRP identifies when follow-up investigations must be conducted based on results of coastal storm drain monitoring. Criteria to trigger investigations is needed to ensure that problem storm drains are investigated. Without criteria triggering investigations, there is the potential that sources causing high bacteria levels in storms drains and coastal receiving waters could go uninvestigated.

**Section II.A.6.b.(6)** of the MRP requires the Copermittees to provide notification of exceedances of public health standards so that proper action can be taken by public health agencies.

#### Toxic Hot Spot Monitoring

**Section II.A.7** of the MRP requires the Copermittees to develop and implement a monitoring program for Toxic Hot Spots in San Diego Bay. This requirement is identical to the requirement included in the receiving waters monitoring and reporting program for Order No. 2001-01, and is necessary to ensure the Order is consistent with the SWRCB's June 1999 Consolidated Toxic Hot Spot Cleanup Plan.

#### Pyrethroids Monitoring

**Section II.A.8** of the MRP requires the Copermittees to develop and implement a monitoring program which addresses pyrethroids. A program to monitor pyrethroids is needed because they are the leading insecticides sold to homeowners and have been found at toxic levels in suburban

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<sup>261</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 4.

stream sediments in California when investigated.<sup>262</sup> Moreover, their use is likely to increase as diazinon use decreases. Monitoring of pyrethroids will help guide efforts to ensure that the gains achieved by the phasing out of diazinon are not nullified by increased use of pyrethroids.

Since a monitoring program for pyrethroids is new, the Copermittees are provided significant leeway in the development and implementation of the program. The Copermittees can utilize the flexibility incorporated into the MRP to develop a program that is workable for them while providing the necessary information. Moreover, the MRP provides the Copermittees with over a year to develop the program.

### Trash Monitoring

**Section II.A.9** of the MRP requires the Copermittees to develop and implement a monitoring program which addresses trash. A program to monitor trash is needed because trash conditions impacting beneficial uses have frequently been observed within the Copermittees' jurisdictions. For example, the Regional Board directed the Copermittees within the watersheds of Chollas and Paleta Creeks to implement the "iterative process" to address violations of water quality standards due to trash conditions within the creeks.<sup>263</sup> The Regional Board also issued a Notice of Violation to the City of Escondido for trash conditions in Escondido Creek.<sup>264</sup> Moreover, the Copermittees have identified trash as a regional priority.<sup>265</sup>

Since a monitoring program for trash is new, the Copermittees are provided significant leeway in the development and implementation of the program. The Copermittees can utilize the flexibility incorporated into the MRP to develop program that is workable for them while providing the necessary information. Moreover, the MRP provides the Copermittees with over a year to develop the program.

### MS4 Discharge Monitoring

**Section II.A.10** of the MRP requires the Copermittees to develop and implement a program to monitor and characterize pollutant discharges from MS4 outfalls. After over 15 years of program implementation, most Copermittees have not monitored their MS4 discharges significantly and still do not know the quality of those discharges during various conditions. Such monitoring is critical, since it will provide for prioritization of areas for increased management efforts. It will also provide the Copermittees the ability to better assess and improve their jurisdictional programs and BMPs. For example, the Copermittees' assessment framework calls for assessing changes in load reductions and MS4 discharge quality.<sup>266</sup> Monitoring of MS4 discharges will enable the Copermittees to meet these program assessment goals. Without monitoring of MS4 discharges, it is unclear how these program assessment goals will be met. This type of monitoring is recommended for high priority outfalls by the Stormwater Monitoring Coalitions' Model Monitoring Technical Committee.<sup>267</sup> It is expected to help answer management questions

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<sup>262</sup> Science News Online, 2006. A Little Less Green? Studies Challenge the Benign Image of Pyrethroid Insecticides. [www.sciencenews.org/articles/20060204/bob9/asp](http://www.sciencenews.org/articles/20060204/bob9/asp).

<sup>263</sup> Regional Board, 2001. California Water Code Section 13267 Directives Issued to the City of San Diego, City of La Mesa, City of Lemon Grove, and City of National City.

<sup>264</sup> Regional Board, 2000. Notice of Violation No. 2000-181.

<sup>265</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. C-3.

<sup>266</sup> San Diego Municipal Stormwater Copermittees, 2003. A Framework for Assessing the Effectiveness of Jurisdictional Urban Runoff Management Programs. P. 14.

<sup>267</sup> Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. P. 5-55.

3 and 4, which is consistent with Tetra Tech's review of the Copermittees' monitoring proposal, which stated "give substantially more attention of questions 3 and 4."<sup>268</sup> It will also address MRP goals 1, 2, 4, 5, 6, and 7.

Since a monitoring program for MS4 discharges is new, the Copermittees are provided significant leeway in the development and implementation of the program. The Copermittees can utilize the flexibility incorporated into the MRP to develop program that is workable for them while providing the necessary information. Moreover, the MRP provides the Copermittees with over a year to develop the program.

#### Source Identification Studies

**Section II.A.11** of the MRP requires the Copermittees to develop and implement a program to identify sources of discharges of pollutants causing the high priority water quality problems within each watershed. Identification of sources causing high priority water quality problems is a central purpose of urban runoff management programs. Monitoring which enables the Copermittees to identify sources of water quality problems aids the Copermittees in focusing their management efforts and improving their programs. In turn, the Copermittees' programs can abate identified sources, which will improve the quality of urban runoff discharges and receiving waters. This monitoring is needed to address management question 4 (What are the sources to urban runoff that contribute to receiving water problems?). Source identification monitoring is a key component of the Model Monitoring Program, which states "once it has been determined [...] that urban runoff is, or is likely to be, a significant source of one or more receiving water problems, then more intensive source identification efforts are called for."<sup>269</sup> Moreover, in its review of the Copermittees' monitoring proposal, Tetra Tech finds that "after some years of assessment monitoring, it is time to look more systematically at determining the relative urban contributions and the sources of urban runoff that contribute to identified receiving water problems."<sup>270</sup>

Since a monitoring program for source identification is mostly new, the Copermittees are provided significant leeway in the development and implementation of the program. The Copermittees can utilize the flexibility incorporated into the MRP to develop program that is workable for them while providing the necessary information. Moreover, the MRP provides the Copermittees with over a year to develop the program.

#### TMDL Monitoring

**Section II.A.12** of the MRP requires the Copermittees to continue to monitor for TMDLs in Chollas Creek as required in the Regional Board's Investigation Order No. R9-2004-0277.

#### Regional Monitoring Program

**Section II.B.1** of the MRP requires the Copermittees to conduct regional monitoring if directed by the Executive Officer. Such investigations may be required under CWC sections 13267 and 13383.

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<sup>268</sup> Tetra Tech Inc., 2006. Review of San Diego County MS4 Monitoring Program. P. 15.

<sup>269</sup> Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. P. 4-17.

<sup>270</sup> Tetra Tech Inc., 2006. Review of San Diego County MS4 Monitoring Program. P. 15.

**Section II.B.2** of the MRP allows the Copermittees to participate in Bight '08. This will provide the Copermittees and Regional Board with insight on the impact of urban runoff on a regional level in the Southern California Bight. Participation in Bight '08 was recommended by the Copermittees in their ROWD.<sup>271</sup> Since participation in Bight '08 is optional for the Copermittees, this section outlines the monitoring which must be conducted if the Copermittees do not participate in the study. The monitoring the Copermittees are to conduct if they do not participate in Bight '08 is consistent with the monitoring they are required to conduct in other years.

### Special Studies

**Section II.C** of the MRP requires the Copermittees to conduct special investigations if directed by the Executive Officer. Such investigations may be required under California Water Code sections 13267 and 13383.

### Dry Weather Field Screening and Analytical Monitoring

**Section II.D** of the MRP requires the Copermittees to conduct dry weather field screening and analytical monitoring. In general, the Order's requirements are the same as the dry weather monitoring requirements of Order No. 2001-01. Significant changes in the requirements are discussed below.

**Section II.D.1** of the MRP requires the Copermittees to select dry weather monitoring stations to cover the entire MS4 system, as well as be in compliance with minimum guidelines/criteria. These criteria require a minimum number of stations per square mile. Additional language has been added to provide the Copermittees flexibility in providing equivalent coverage of the MS4 with fewer stations.

In its October 29, 2004 letter to the Copermittees, as well as in subsequent meetings, the Regional Board notified the Copermittees that a process should be developed for determining the minimum number of dry weather sampling stations that should be required in each jurisdiction. The process was needed due to the apparent disparity in the number of sampling stations among the Copermittees. The Copermittees formed a subcommittee to address this issue, but were unable to develop a consensus process. As a result, the Copermittees have requested that a standardized method for determining number of dry monitoring stations not be included in the Order. In response, the Regional Board has relied on Order No. 2001-01's requirements and some additional clarifying language. This continues Order No. 2001-01's process for identifying the number of stations, while allowing the Regional Board to evaluate the adequacy of the each Copermittee's number of dry weather stations.

Order No. 2001-01's requirement for a monitoring map (Task 5) has been moved to the Illicit Discharge Detection and Elimination Component of Order No. R9-~~2006-0011~~2007-0001. This has been done for clarification purposes, since map development is not expressly a monitoring effort.

**Section II.D.3** of the MRP requires the Copermittees to collect and analyze dry weather samples using laboratory or field screening methods. Language to has been added to this section to reflect that the Copermittees must collect samples for analytical laboratory analysis for at least 25% of dry weather monitoring stations.

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<sup>271</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, p. 12.

In the ROWD, the Copermittees requested field screening be allowed for surfactants and dissolved copper constituents. The Copermittees also requested that Colilert and Enterolert methods should be allowed for bacteria sampling. The Regional Board agrees with the Copermittees' proposed changes since they will expedite the turnaround time for sampling results for these constituents and assist the Copermittees in their IC/ID investigations. In response the Copermittees' request, surfactants and dissolved copper have been added to the list of field screening constituents. A footnote has also been added allowing for use of Colilert and Enterolert methods for bacteria.

### Monitoring Provisions

**Section II.E** of the MRP includes monitoring provisions which are standard requirements for all municipal storm water permits.

## **3. Reporting Program**

**Section III.1** of the MRP discusses submittal of the Jurisdictional Urban Runoff Management Program Annual Reports. The section continues the approach utilized under the requirements of Order No. 2001-01, where Copermittees submit their reports to the Principal Permittee to be unified into one document. The section moves forward the due date for these annual reports from January 31 to September 30. This requires jurisdictional annual reports to be submitted closer to the end of the reporting period they address, which will result in earlier review by the Regional Board. Submittal will also be staggered with submittal of the watershed and regional annual reports, spreading out Regional Board review of annual reports, leading to faster review. Earlier and faster review is useful, because Regional Board comments can be received and responded to quicker by the Copermittees. In this manner, Copermittee programs can be modified and benefit from the jurisdictional annual report review, comment, response process at an earlier date, leading to more effective program over the long-term. In their ROWD, the Copermittees agree that separating due dates for jurisdictional and watershed annual reports would be helpful in spreading out the workload associated with their preparation.<sup>272</sup>

**Sections III.2.a and III.2.c** of the MRP continues the reporting approach utilized under the requirements of Order No. 2001-01, where Lead Permittees for each watershed submit their annual reports to the Principal Permittee to be unified into one document.

**Section III.2.b** of the MRP outlines the information to be included in the Copermittees' Watershed Urban Runoff Management Program Annual Reports. Significant detail is included regarding what information should be in the annual reports in order to provide certainty to the Copermittees when they develop and submit their annual reports. By providing detail for what information should be included in the annual reports, time spent by the Copermittees and Regional Board to generate, review, and comment on annual reports should be reduced.

**Section III.3** of the MRP outlines the information to be included in the Copermittees' RURMP Annual Reports. Significant detail is included regarding what information should be in the annual reports in order to provide certainty to the Copermittees when they develop and submit their annual reports. By providing detail for what information should be included in the annual reports, time spent by the Copermittees and Regional Board to generate, review, and comment on annual reports should be reduced.

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<sup>272</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-81.



**Section III.4.a** of the MRP requires the Copermittees to annually submit a description of the monitoring that will be conducted prior to the start of each monitoring year. This is needed because of the changes the monitoring program frequently undergoes each year. For example, as monitoring programs develop, some monitoring components of the programs are added or dropped. In addition, requirements for conducting monitoring efforts such as TIEs may be applicable. A description of the monitoring to be conducted each year will aid the Regional Board and Copermittees in tracking monitoring activities and compliance with the MRP.

**Section III.4.b of the MRP** outlines the information to be included in the Copermittees' Receiving Waters Monitoring Annual Reports. The information required to be included in the reports is needed to meet the goals of the MRP and answer the MRP's management questions. The reporting requirements emphasize identifying and assessing the impact of urban runoff on receiving water quality, as well as the impact of the Copermittees' programs on urban runoff quality. Significant detail is included regarding what information should be in the annual reports in order to provide certainty to the Copermittees when they develop and submit their annual reports. By providing detail for what information should be included in the annual reports, time spent by the Copermittees and Regional Board to generate, review, and comment on annual reports should be reduced.

**Section III.4.c** of the MRP requires the Copermittees to submit a description of the new monitoring programs to be developed under the MRP. Submittal of such a document is necessary in order to identify the monitoring that will be conducted and provide the Regional Board the opportunity to review the monitoring programs.

**Section III.4.d** of the MRP requires the City of San Diego to report on the Shelter Island Yacht Basin TMDL in order to exhibit that the WLA can be expected to continue to be met. This report is necessary, since MS4 discharge monitoring is not required by the TMDL.

**Section III.4.e** of the MRP requires that monitoring programs comply with standard provisions, notifications, and reporting requirements.

**Section III.4.f** of the MRP requires that the Copermittees make data available to the Regional Board during report preparation, if requested. This is a necessary option since monitoring annual reports are not submitted for many months after much of the monitoring data is collected.

**Section III.5** of the MRP allows for the Copermittees to develop and submit a reporting format for annual report integration. In their ROWD, the Copermittees requested a requirement that annual reporting ultimately be integrated.<sup>273</sup> Rather than including annual report integration as a requirement in the Order, it is included as an option for the Copermittees to utilize. Annual report integration is left as an option because information addressing what such integration would encompass is largely unknown. Annual reporting is an important tool for the Regional Board for compliance assessment. Where the outcomes regarding compliance assessment are uncertain, it is more appropriate to incorporate such concepts into the Order as options, instead of requirements. However, nothing in the Order prevents the Copermittees from developing an annual report integration format for Regional Board review and approval. To clarify Regional Board expectations for an annual report integration format, minimum standards for the format are provided in the Order.

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<sup>273</sup> San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-77.

**Section III.6** of the MRP includes universal reporting requirements, which have not changed from the requirements of Order No. 2001-01.

**Section III.7** of the MRP clarifies that reporting should continue as it is conducted under Order No. 2001-01 until reporting requirements under Order No. R9-~~2006-001~~2007-0001 begin.