Public Comment
Draft IGP
Deadline: 4/29/11 by 12 noon

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State Water Resources Control Board
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Re: California Industrial Stormwater Permit Reissuance

Dear Board Members,

StormwateRx LLC appreciates this opportunity to comment on the Draft Industrial Stormwater General Permit (Draft Permit). These comments address some of the substantive and administrative provisions of the Draft Permit, with a focus on technology based effluent limits. In support of our comments, and to assist the Board in developing a revised draft permit, StormwateRx has prepared and included a dataset titled "StormwateRx Treatment BMP Performance – Volume I."

I. Introduction

StormwateRx LLC, headquartered in Portland Oregon, manufactures stormwater treatment Best Management Practices (BMPs) that enable industrial facilities to better comply with their National Pollutant Discharge Elimination System (NPDES) permits for stormwater discharges associated with industrial activity. StormwateRx is a science-based company that has developed a range of stormwater treatment technologies or treatment BMPs designed specifically for use at operating industrial facilities. Due to StormwateRx staff's significant experience with industrial stormwater pollution control, staff have served on advisory committees for the most recent revisions to the industrial general permits in the States of Washington and Oregon.

Industrial facilities use and maintain combinations of BMPs to assure water quality leaving the site meets discharge standards. Facilities may use combinations of treatment BMPs, known as treatment trains, to assist with permit compliance. StormwateRx provides stand-alone treatment BMPs that can also be used in series as treatment trains. StormwateRx treatment BMPs referenced in these comments are:

- Clara® – a patented stormwater plug flow separator system that removes pollutants by settling and floatation. Clara prevents trapped pollutants from washing out by including a high flow bypass structure within the system. Clara removes settleable solids including metals, and floatables such as oil and grease, and trash.

- Aquip® – a patent-pending stormwater filtration system that integrates a pre-treatment chamber and a horizontal bed layered filtration chamber. The system is passive and contains no moving parts nor does it require any chemicals. Aquip is typically installed above ground in a pump-and-treat configuration for retrofit applications. Aquip removes total and dissolved pollutants including particulates, metals, nutrients, organics and hydrocarbons.

- Purus™ – a group of technologies for stormwater polishing that are typically employed downstream of Aquip filtration. StormwateRx manufactures Purus Metals for reduction of dissolved metals, Purus Organics for reduction of toxic organics, and Purus Bacteria for reduction of pathogens such as E. coli and coliform.

II. Substantive Provisions

a. Tiered corrective action responses to benchmark excursions

StormwateRx is in favor of a tiered corrective action response framework. The State of Washington uses a similar approach that appears to be effective at reducing polluted discharges. Oregon began requiring corrective action responses several years ago, and plans to implement a multi-tiered framework in 2012.

i. Corrective Action Levels 1-2

It would be helpful if the permit defined and distinguished operational, structural and treatment BMPs. In our experience, the more explicit the permit is on this issue, the easier it is for facilities to comply with the requirements. While the Draft Permit Fact Sheet includes some descriptions and examples of the different categories of BMPs[1], most permittees will not read the Fact Sheet. The permit's glossary is an appropriate place to provide basic definitions of operational, structural and treatment BMPs. More detailed definitions and examples might be more appropriate for guidance documents and training materials.

ii. Corrective Action Level 3

Sampling every storm event following a Level 3 trigger, as the Draft Permit proposes, will certainly provide helpful data but it will vastly increase the cost of compliance with little immediate environmental benefit. We question whether dischargers' money is best spent on laboratory analysis. Instead of requiring all Level 3 facilities to analyze every storm event, consider requiring only facilities in more arid regions to sample every event, but allow facilities in wetter regions to sample less frequently. Alternately, the permit could require Level 3 facilities to perform a number of rigorous composite samples to improve data quality.

These comments discuss the appropriateness of the using EPA Benchmarks as numeric effluent limits (NELs) in detail *infra*.

iii. Suspension of Numeric Effluent Limitations request

[1] SWRCB, DRAFT Industrial General Permit Fact Sheet, 31-2 (Jan. 28, 2011) (hereinafter "Draft Permit").

There are several inconsistencies in the Suspension of Numeric Effluent Limitations (SNEL) request provisions. First, the requirement that dischargers document *either* that they are not discharging to an impaired water body *or* that they are not discharging to an impaired water body and will not cause or contribute to an exceedance of a water quality standard makes little sense.[2] No discharger would elect to document both water quality issues required by the latter when the former is requires just one. Perhaps the Water Board did not intend for these provisions to be duplicative.

Second, the SNEL requires the discharger to have implemented best conventional pollutant control technology (BCT) and best available control technology economically achievable (BAT), yet it potentially allows the discharger to continue to exceed NELs.[3] If the NELs are in fact technology-based[4] (i.e. based on BAT/BCT), how could a facility that has implemented BCT/BAT exceed the NELs? If the NELs are appropriately technology-based limits, the Clean Water Act's fundamentally different factors test[5] for relief from technology-based limits should suffice. Cost is not one of the factors considered by this test.[6]

Finally, the Draft Permit does not specify how the regional boards will process the SNELs. Presumably, the Water Board will need to affirmatively approve or deny the SNEL before it has any effect. To make a decision on a SNEL, the Board would need to determine whether the permittee has implemented BCT/BAT.[7] We remind the Water Board that the cost consideration in a BCT/BAT analysis is determined at the *national, industry-wide* level.[8] The determination is not whether a particular facility can afford a given technology, but rather whether most facilities in the industrial sector can afford the technology. How will the water board be able to make a BCT/BAT decision based on individual submissions? Will the water board have access to national cost and performance data, or is the permittee expected to provide this information? If the permittee is to provide national and/or industry-wide BMP information, the permit should state the requirement explicitly.

b. Numeric Effluent Limitations

The draft permit states that "[EPA] Benchmarks serve as an appropriate set of technology based effluent limitations that demonstrate compliance with BAT/BCT."[9] However, EPA benchmarks are largely water quality based.[10] The Water Board may consider classifying certain EPA Benchmarks as water quality based NELs (particularly the metals Benchmarks) and other EPA Benchmarks as technology based NELs, depending on how EPA derived those

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[2] *See* Draft Permit §XVII(D)(5).
[3] *See id.* at §§XVII(D)(4), (6).
[4] *See, e.g.,* Draft Permit §I(E)(42).
[5] 33 U.S.C. § 1311(n). *See also* 40 CFR Part 125.31; *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1034 (D.C. Cir. 1978) ("states can only grant variances that conform to EPA's interpretation of its variance provision").
[6] 33 U.S.C. § 1311(n).
[7] Draft Permit §XVII(D)(6)
[8] *See, e.g.*, Draft Permit Attachment K. *See also* discussion *infra.*
[9] Draft Permit §I(E)(42).
[10] *See* U.S. EPA, Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP) – Fact Sheet, 95-6 (2008).

benchmarks and whether the benchmarks are in fact achievable using best available technology. Many other states, including Oregon and Washington, use at least some water quality based benchmarks, which have driven the development of treatment technologies.

If the Board intends to pursue technology based NALs and/or NELs, it will, as identified in the Draft Permit Fact Sheet, need to provide additional rationale for its numeric levels.[11] These comments provide data and rationale in support of certain technology based numeric levels for specific sectors, derived from StormwateRx treatment BMP performance.

Summary and application of Blue Ribbon Report findings

The expert panel (commonly referred to as the Blue Ribbon Panel) that considered NELs for municipal, construction and industrial stormwater in California determined that it would be feasible to establish NELs for some industrial sectors.[12] The Panel determined that, for discharges to water bodies without TMDLs, NELs should be based upon best currently available technology and be industry sector specific.[13] According to the Panel, to "establish Numeric Limits for industrial sites requires a reliable database, describing current emissions by industry types or categories, and performance of existing BMPs."[14] However, at the time the Blue Ribbon Panel convened, the State's database did not meet this standard.[15] The Panel recommended pursuing additional, higher quality data, with a preference for data from California sites or national data shown to be applicable to California.[16]

The Panel made additional recommendations for particular classes of industrial stormwater that are sensible. With respect to activities and sectors that are similar to municipal land uses, the Panel suggested establishing NELs (or NALs in the absence of sufficient data for NELs) similar to the standards for municipal stormwater.[17][18] For industrial activities involving significant land disturbance, the Panel suggested standards similar to construction stormwater standards, particularly those based on polymer enhanced filtration technologies.[19] StormwateRx is not offering data or recommendations for either category of industrial stormwater.

Instead, StormwateRx is offering data from relatively heavy industry that does not engage in land disturbing activities as a primary industrial activity. The data include several locations in both northern and southern California. Pre-treatment data from sites in other states is generally

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[11] *See* SWRCB, NPDES General Permit Fact Sheet for Storm Water Associated with Industrial Activities, 8 (Jan. 28, 2011) (hereinafter "Fact Sheet")..

[12] Brian Currier, et al., The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities, 19 (June 19, 2006) (hereinafter "Blue Ribbon Report").

[13] *Id.*

[14] *Id.*

[15] *Id.* at 21.

[16] *Id.*

[17] *Id.* at 19.

[18] The Panel also recommended that indoor industrial operations be treated differently than the same operations taking place outdoors. *Id.* at 21. This seems unnecessary, as indoor operations will have less polluted discharges or even qualify for a No Exposure certification, and should thus have no problem complying with limits based on the industry sector as a whole. Conversely, if indoor operations do not have less polluted discharges, there is no reason to treat them differently.

[19] *Id.* at 19-20.

representative of that sector's average emissions nationwide[20] and thus applicable to the State of California. The dataset meets the Panel's goals of reliability, sector-specific emissions and performance of existing BMPs. The sectors represented include boatyards, galvanizing, metal fabrication, plastics manufacturing, steam electric power, scrap recycling, shipyards and trucking. Heavy metals (especially copper, lead and zinc) are the primary pollutants of concern from these activities. Focusing on heavy industry (land disturbing and non-land disturbing) will help meet the Panel's goal of prioritizing the greatest reduction of pollutants.

The Blue Ribbon Panel decided that Action Levels are appropriate for sectors where there is not enough data to establish NELs.[21] According to the Panel, NALs for industrial facilities that discharge to MS4 systems should not exceed NELs for municipal stormwater.[22] The Panel proposed alternative methods for setting numeric levels for municipal stormwater, based on an "upset value" that is "clearly above normal observed variability" from BMPs.[23] Although the Panel did not directly suggest using the same methods for industrial stormwater, the Panel's framework provides a reasonable starting point.

Two of the methods suggested by the Panel are not useful for evaluating StormwateRx's dataset. The consensus based approach requires a stakeholder process and is thus not feasible here.[24] Ranked percentile distributions are appropriate for a very large dataset that includes dischargers that have implemented appropriate BMPs and those that have not.[25] StormwateRx's dataset is limited to sites that have implemented StormwateRx treatment BMPs.

The third method uses statistically based population parameters and is most appropriate here.[26] This method entails identifying the central tendency of a dataset and a variance from that central tendency. Using statistically based population parameters is consistent with the EPA NPDES Permit Writers' Manual's discussion of statistical concerns for setting technology based effluent limits using best professional judgment.[27]

c. Defining Best Technology

Before one can begin setting technology-based NALs or NELs, one must define BCT and BAT. Of course, BCT/BAT for industrial stormwater is highly sector specific and site specific. For just one site there may be several different combinations of BMPs that constitute BCT/BAT. Some degree of operational and structural source control BMPs are always a necessary component of BCT/BAT. The Draft Permit mandates several appropriate operational and structural BMPs through narrative effluent limits.[28] However, treatment BMPs are often necessary to meet BAT/BCT at heavy industry sites. This is particularly true where extensive structural BMPs, such

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[20] *Compare* StormwateRx LLC, StormwateRx Treatment BMP Performance – Volume I (April 2011) *and* Jon Harcum and John Kosco, TetraTech, Inc. to Jack Faulk, U.S. EPA, Technical Memorandum: Review of Discharge Monitoring Report data from the 2000 NPDES Industrial Storm Water Program (May 18, 2006) *available at* www.regulations.gov (seach Docket ID EPA-HQ-OW-2005-0007).
[21] Blue Ribbon Report, 20.
[22] *Id.*
[23] *Id.* at 8.
[24] *Id.*
[25] *See id.* at 9.
[26] *See id.*
[27] U.S. EPA, NPDES Permit Writers' Manual p. 5-47 (2010) *available at* http://www.epa.gov/npdes/pubs/pwm_2010.pdf.
[28] *See* Draft Permit §VII(H)

as keeping all activities covered, is not technically or economically feasible for facilities in a particular sector.

As detailed *infra,* combinations of BMPs including StormwateRx treatment BMPs, are among the options that meet the federal BCT/BAT criteria for the specified sectors. Accordingly, NELs or NALs based on StormwateRx performance data would constitute valid technology based effluent limits for those sectors.

As the Water Board is exercising its best professional judgment (BPJ) in this permit, it will apply federal criteria to define BCT/BAT. Ideally, technology-based effluent limitations are to be set through regulation according to category and class and pursuant to effluent limitation guidelines.[29] Where, as is the case for some pollutants and activities regulated under the Draft Permit, EPA has not promulgated effluent limitations guidelines, the NPDES permit issuer exercises its best professional judgment and on a case-by-case basis consider the factors in Section 304(b) to establish technology based effluent limitations in the specific permit.[30] In essence, the state "stand[s] in the shoes of the agency, and thus must similarly pay heed to §[301(b)]'s technology based standards when exercising [its] BPJ."[31] Accordingly, here, the Water Board must decide what BCT/BAT would be were EPA to promulgate national effluent limitation guidelines. Thus, the Water Board must apply the same standards that EPA would use to determine BCT/BAT when it exercises its best professional judgment. EPA's implementing regulations for this task are set forth in 40 CFR §125.3(d).

Best Conventional Pollutant Control Technology (BCT)

The Draft Permit glossary provides that "[a]s defined by US EPA, BCT is a technology-based standard for the discharge from existing industrial point sources of conventional pollutants including biochemical oxygen demand (BOD), total suspended sediment (TSS), fecal coliform, pH, oil and grease."[32] Three StormwateRx BMPs are particularly appropriate for removing conventional pollutants: Clara (oil and grease), Aquip (BOD, TSS and pH) and Purus Bacteria (fecal coliform). Because the Draft Permit does not propose NALs or NELs for coliform, Purus Bacteria is not addressed further.[33] Accordingly, the following discusses how StormwateRx's Clara and Aquip, in combination with generic operational and structural BMPs, meet the federal BCT criteria.

i. "The reasonableness of the relationship between the costs of attaining a reduction in effluent and the effluent reduction benefits derived"[34]

The conventional pollutant effluent reduction benefits derived from a combination of operational and structural BMPs, and StormwateRx treatment BMPs are immense. Across all sites analyzed, the mean TSS concentration after installing StormwateRx BMPs is 64% lower than the mean TSS concentration before installation. Higher influent concentrations result in even greater effluent reduction benefits. When influent concentrations to Aquip exceed 100 mg/L

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[29] *See* CWA §304(b).
[30] 40 CFR §125.3(d); *NRDC v. EPA*, 859 F.2d 156,183 n.86 (D.C. Cir. 1989).
[31] *NRDC v. EPA,* at 183.
[32] Draft Permit Attachment K. *See also* 40 CFR § 401.16.
[33] Purus Bacteria treatment may still be necessary for discharges to waters impaired by pathogens.
[34] 40 CFR §125.3(d)(2)(i).

TSS, Aquip removal efficiencies routinely exceed 90%. Aquip oil and grease removal rates range from 52% (at an influent concentration of 5.4 mg/L oil and grease) to 96% removal (54 mg/L influent). The mean BOD concentration after Aquip installation is 41% lower than BOD concentrations before installation.[35] All available Aquip influent and effluent pH data fall within the 6.0-9.0 standard unit range, as do the mean pre- and post-treatment BMP installation pH data in the StormwateRx dataset.

The cost of operational and structural BMPs, and StormwateRx treatment BMPs will of course vary with each site and the extent of existing BMPs. StormwateRx obtained cost information from seven boatyards in western Washington that installed StormwateRx's Aquip and made other site improvements in 2008 and 2009.[36] The cost of the Aquip for these sites ranged from $19,800 for a 0.80 acre facility to $56,610 for a 2.13 acre facility.[37][38] The average cost per acre for the treatment system, engineering, an engineer-stamped report, freight, pump, vault, re-paving, conveyance and electrical engineering and installation for these sites is estimated to be $45,700.[39] In our experience, facilities in the relevant sectors typical need to treat only the most polluted areas of their sites, or about one half to three acres.

Attaining over 90% reduction of TSS and oil and grease for approximately $45,700 per acre is well within reason. Moreover, the same Aquip technology that reduces conventional pollutants also removes metals and other toxic and non-conventional pollutants.

ii. "The comparison of the cost and level of reduction of such pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources"[40]

The POTW cost comparison test is inappropriate for industrial stormwater for several reasons. First, industrial stormwater from the industries addressed in these comments typically contains much lower concentrations of BOD, TSS and grease than municipal wastewater. This makes the cost of treating industrial stormwater in a POTW appear low.[41] However, large volumes of relatively dilute stormwater could overwhelm many overstressed POTW conveyance and

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[35] BOD is likely not a pollutant of concern for most facilities in the sectors analyzed in these comments. All of the influent and effluent data analyzed is below the Draft Permit NAL of 30 mg/L and the Draft Permit does not require any of the relevant sectors to monitor BOD concentrations.

[36] Calvin Noling, StormwateRx LLC to Gary Bailey, Washington Dept. of Ecology (July 31, 2009) (included as Attachment B).

[37] *Id.*

[38] These cost figures are for StormwateRx BMPs sized according to prevailing design standards. As discussed *infra*, the Draft Permit's 10-year, 24-hour design storm standard would drastically increase the cost of treatment without a commensurate increase in effluent reduction benefits.

[39] *Id.* Attachment B also provides cost data estimated by the firm Arcadis. The actual cost data from StormwateRx customers demonstrated that Arcadis's cost estimates were significantly inflated and reflected massive repaving and conveyance retrofits that are not necessary at most sites.

[40] 40 CFR §125.3(d)(2)(ii).

[41] Washington Department of Ecology estimates that treating stormwater from a two acre boatyard in the Seattle area would cost $19,000 per year in user fees (not including pretreatment costs). Washington Dept. Of Ecology, Economic Impact Analysis Draft, NPDES Wastewater Discharge Permit – Draft General Permit for Boatyards, 34 (Sept. 2009) *available at* http://www.ecy.wa.gov/programs/wq/permits/boatyard/permitdocuments/boatyardsEIAdraftsept09.pdf.

treatment systems.[42] The cost of treating industrial stormwater pollutants in a POTW ignores the more significant cost of handling industrial stormwater volumes.

Second, the intermittent nature of stormwater discharges means that any investment in POTW infrastructure to accommodate stormwater would often sit idle, thereby increasing the fixed cost and cost per pound of pollutant removed. A standardized POTW treatment cost figure would not take this into account.

The cost of treatment via a POTW is also not meaningful in practice for the industries addressed in these comments because of the high levels of metals in the typical discharge. Due to the metal content, discharges from these industries would need to be treated using BAT. The BAT proposed here would treat conventional pollutants as well, thereby achieving BCT. Moreover, POTWs are not generally engineered to treat metals, and pretreatment is often a condition to discharge to the POTW.[43] Oil and grease of mineral origin, common in industrial runoff, can be similarly problematic for POTWs and wastewater collection systems.

iii. "The age of equipment and facilities involved"[44]

StormwateRx BMPs are all designed for retrofit application at existing industrial sites. The age of the equipment and facilities at industrial sites in California varies widely. Overall, the most significant difference at older facilities stems from rough, aging pavement. Rough pavement can cause many small pollutant releases as vehicles and materials move across the surface. However, StormwateRx does not have any information to suggest that certain industries have a disproportionate number of older facilities with rough pavement. Therefore, the age of equipment and facilities is not a factor that needs special consideration.

iv. "The process employed"[45]

Generally, processes are relatively similar within each industrial sector addressed here. The processes that take place outside are the most important to stormwater quality. Outdoor processes common to the sectors addressed in these comments include: material handling, material storage, vehicle operation, heavy equipment operation, material shredding (scrap recycling), vehicle and equipment cleaning, power washing, sanding and painting (boatyards). Like stormwater discharges themselves, these activities are typically intermittent. Fugitive emissions from indoor processes that generate fumes or airborne particulate matter, such as galvanizing or metal grinding, may also impact stormwater quality, as the particulates settle on surfaces exposed to stormwater. Fugitive emissions may be intermittent or continuous, depending on the activity.

v. "The engineering aspects of the application of various types of control techniques"[46]

StormwateRx BMPs are relatively simple to integrate to a site, as compared to other treatment BMPs. Clara is usually installed below ground, requiring excavation and simple plumbing. Clara

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[42] *See* Calvin Noling & Claire Tonry, *Responsible Stormwater Handling,* POLLUTION ENGINEERING (July 2010) *available at* http://www.stormwaterx.com/Portals/0/docs/PR/Stormwater-Final.pdf.
[43] SWRCB, NPDES Pretreatment Program, http://www.swrcb.ca.gov/water_issues/programs/npdes/pretreat.shtml (last visited April 25, 2011).
[44] 40 CFR §125.3(d)(2)(iii).
[45] 40 CFR §125.3(d)(2)(iv).
[46] 40 CFR §125.3(d)(2)(v).

can also be installed above ground, much like Aquip. Aquip is skid mounted above ground and connected to a pump that is usually placed in an existing collection area (catch basin, e.g.).[47] Power supply for the pump requires minor engineering at the typical site.

Structural source control BMPs are also considered part of BCT. The engineering aspects of structural source controls vary widely.

vi. "Process changes"[48]

Process changes may be among the combinations of BMPs that constitute BCT, but are separate from treatment BMPs. Several operational and source control BMPs proposed in the Draft Permit address process changes. Moving pollutant-generating activities indoor is one example. These comments presume that the appropriate process changes will accompany treatment BMPs, and that most sites have already implemented some process changes to comply with the current permit. The StormwateRx performance data distinguishes between facilities that have implemented an adequate suite of BMPs, including process changes, from those facilities that "need improvement."

vii. "Non-water quality environmental impact (including energy requirements)"[49]

StormwateRx's Clara and Aquip have negligible non-water quality environmental impacts. Clara and Aquip are passive treatment systems that do not require energy inputs to drive stormwater through them. Clara is generally installed as a gravity flow system, which does not require electrical input. Aquip is often installed above ground, as a more economical alternative to reconfiguring buried stormwater conveyance piping to provide gravity flow. Therefore, Aquip typically requires pumped influent. The typical, 100 gallon per minute submersible pump uses a small amount of electrical energy and only operates during storm events that produce a discharge. Other environmental impacts are limited to the production of the concrete for the Clara vault, and the steel and filtration media that make up Aquip. These impacts are similar to other treatment BMPs, and smaller than structural source control BMPs that require larger volumes of concrete and steel. Unused Aquip filter media is non-hazardous. The characteristics of spent Aquip filter media vary with each site's stormwater and maintenance interval.

Best Available Technology Economically Achievable (BAT)

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[47] "Head-loss" is a fluid dynamics concept that defines the amount of energy required to flow water through a structure. In the context of stormwater treatment BMPs, a head-loss occurs through all stormwater treatment BMPs. Gravity separators have several inches to a foot or more of head-loss associated with them. Passive filtration BMPs have one to several feet of head-loss associated with them. Active treatment BMPs have much more head-loss associated with them. Retrofit BMPs must be integrated to existing stormwater conveyance. While several inches to a foot of head may be available in an existing stormwater conveyance system to accommodate a gravity separator, several feet is usually not available without causing flooding upstream. As such, most retrofit filtration treatment BMPs require the use of a pump to lift the water into the BMP. The outlet from the retrofit BMPs are then designed to integrate back to the existing downstream conveyance system.

[48] 40 CFR §125.3(d)(2)(vi).
[49] 40 CFR §125.3(d)(2)(vii).

With respect to Best Available Technology Economically Achievable (BAT), the Draft Permit states:

> As defined by US EPA, BAT is a technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. The BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.[50]

The toxic and non-conventional pollutants addressed in these comments include metals, chemical oxygen demand (COD) and phosphorus.

As the Draft Permit definition recognizes, the BAT standard does consider economic achievability, but only at the nationwide, industry category or class scale.[51] Individual facility economics are not relevant to a BAT determination.[52]

To the extent that economics are relevant to a BAT determination, StormwateRx BMPs meet the economic criteria. The number of facilities in the sectors addressed by these comments that have installed StormwateRx BMPs is a testament to their affordability. Furthermore, the Washington Department of Ecology recently conducted a BAT analysis, including a pilot study of three treatment BMPs, for removal of metals from industrial stormwater. The Department of Ecology concluded "The multimedia filtration unit (StormwateRx®) demonstrated the best performance at the lowest cost"[53] and that StormwateRx's Aquip constituted one component of BAT for boatyards. Nationwide, average annual sales per "small" facility in the boatyard and shipyard sector are roughly equal to or less than sales for other "small" facilities in the sectors addressed in these comments.[54] Therefore, StormwateRx BMPs are economically achievable on the nationwide, industry category scale.

The remainder of the BAT analysis considers the factors iii-vi[55], discussed *supra* with respect to Clara and Aquip. Two additional StormwateRx BMPs, Purus Metals and Purus Organics, also treat toxic and non-conventional pollutants, and are thus relevant to the BAT analysis. Purus technologies are used as part of a treatment train and installed downstream of Aquip. Purus Metals and Purus Organics are installed above ground and require a small amount of electricity. Aside from the pump there are no moving parts. Thus, Purus technologies do not significantly increase the engineering aspects (factor "iii") discussed for the Aquip. Similarly, the non-water quality environmental impacts (factor "v") associated with Purus are limited to its energy requirements and raw material production (steel and filter media) for the small Purus tanks.

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[50] Draft Permit, Attachment K.
[51] *See,* 33 U.S.C. §1311(2)(A); *E.I. du Pont de Nemours & Co. v. Train,* 430 U.S. 112, 126 (1977).
[52] *See, id.*
[53] Washington Dept. Of Ecology, Economic Impact Analysis Draft, NPDES Wastewater Discharge Permit – Draft General Permit for Boatyards, 32 (Sept. 2009) *available at* http://www.ecy.wa.gov/programs/wq/permits/boatyard/permitdocuments/boatyardsEIAdraftsept09.pdf.
[54] *See* U.S. EPA, Cost Impact Analysis for the Multi-Sector General Permit (MSGP), Table 3 (Aug. 2008) *available at* www.regulations.gov (seach Docket ID EPA-HQ-OW-2005-0007).
[55] *See* 40 CFR §125.3(d)(3)(i)-(v).

Some of Purus's filter media can be recycled or regenerated, thereby lessening its environmental impact.

Technology-Based Numeric Action Levels/Effluent Limits

Based on the foregoing analysis, we suggest that a combination of operational and structural BMPs and StormwateRx treatment BMPs meet the federal BCT/BAT standard for the boatyard, galvanizing, metal fabrication, plastics manufacturing, steam electric power, scrap recycling, shipyard, and trucking sectors. Accordingly, valid technology-based numeric action levels for these sectors can be derived from the effluent data from facilities that have implemented this combination of BMPs. Using the statistical methods suggested by the Blue Ribbon Panel report and the EPA NPDES Permit Writers' Manual, StormwateRx calculated possible sector-specific technology based NALs/NELs, set forth in Attachment C.

d. Water Quality Based Requirements

StormwateRx recognizes that, in addition to technology-based NALs or NELs, water quality based controls may be necessary to protect beneficial uses of the State's waters.[56] While we do not offer substantive comments on issues related to ambient water quality, there are two areas in the Draft Permit that merit clarification:

First, the Water Board should clarify how the California Toxics Rule (CTR) will apply to industrial stormwater discharges. The Draft Permit states "discharges do not contain pollutants that cause or contribute to an exceedance of any applicable water quality. . .standards contained in . . . the California Toxics Rule."[57] According to EPA, CTR "criteria will need to be attained at the end of the discharge pipe, unless the State authorizes a mixing zone."[58] The permit does not seem to authorize relevant mixing zones or otherwise alter the CTR from applying at the end of the pipe. Is it the Water Board's intention that the CTR criteria apply at the point of discharge and supplant any less-stringent effluent limits outlined in the Draft Permit?

Second, it is difficult to understand how the Draft Permit provisions on impaired waters with TMDLs will apply in practice. The Draft Permit states that, if a TMDL identifies "industrial activity" or industrial-related activities as a source of the pollution, permittees must comply with the TMDL. As a threshold matter, permittees will likely need guidance on what constitutes identification of industrial-related activities. Once that is determined, it is not clear what "comply" will mean in this context. Does it mean that discharges of impairment pollutants must meet acute water quality criteria at the end of the pipe? The final permit should address these issues in a manner that permittees can understand without expert assistance.

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[56] For example, StormwateRx's Purus Metals has been particularly effective at reducing metals concentrations to the water quality based benchmarks in EPA's Muli-Sector General Permit. At this time, StormwateRx does not have access to enough full-scale, sector-specific data for Purus Metals to propose StormwateRx does not have access to enough full-scale, sector-specific data for Purus Metals to propose NALs/NELs that fully reflect Purus performance capabilities. The available Purus Metals performance data is provided with these comments and included in the database used to calculate the proposed NALs/NELs.

[57] Draft Permit §VI(A).

[58] Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California, 65 Fed. Reg. 31682, 31701 (May 18, 2000). *See also, Santa Monica Baykeeper v. Kramer Metals,* 619 F. Supp. 2d 914, 926-7 (C.D. Cal. 2009).

III. Monitoring and Reporting Requirements

StormwateRx expects electronic filing and DMR submittals via SMARTS to be helpful for dischargers, regulators, consultants and BMP manufacturers, and applauds the Water Board for taking this step. Please clarify how annual reports and DMRs will be made available to the public online.

We have concerns over the Draft Permit provisions on "qualified combined samples."[59] Allowing facilities (or their labs) to combine samples from up to four distinct drainage areas based merely on the facility's own certification that the areas are similar provides opportunities for manipulation and mistakes. The permit should require the permittee to submit separate samples at least once to support a QSD's certification that the drainage areas are substantially similar before allowing lab to combine samples.

IV. Miscellaneous Provisions

a. Design Storm

The Draft Permit requires all treatment BMPs to be designed for at least the 10-year, 24-hour storm. This design storm is unnecessarily large. StormwateRx and many other stormwater professionals in California currently use the design standard two times the 85 percentile storm. In our experience, treating twice the 85 percentile storm captures most pollutant mass at a minimum treatment cost. Designing for the 10-year, 24-hour storm would result in BMPs that treat about two percent more runoff for a ten-fold increase in cost.

b. Green Stormwater Impact Reduction

Without more details on the Green Stormwater Impact Reduction (G-SIRT) provisions the Water Board is considering, it is not possible to provide significant comments. StormwateRx requests the Water Board provide an opportunity to comment on the G-SIRT program once it has drafted possible standards. At this point, it is not clear that the benefits of green infrastructure for industrial sites are commensurate with the risks from a near-total exemption from SWPPP and monitoring requirements. Further, we caution against standards that encourage industrial facilities to infiltrate contaminated stormwater or use BMPs (e.g., bioswales) that are not well suited for industrial pollutant loads and will not provide year-round pollutant removal in the State's colder climates.

c. Industrial General Permit Training Team

StormwateRx generally supports the Draft Permit's proposed training requirements for qualified SWPPP developers (QSD) and practitioners (QSP). In response to the current need for similar trainings, StormwateRx developed and hosted half-day intensive workshops for facility operator in Northern and Southern California. The curriculum included basic permit provisions, SWPPP components, permit enforcement, BMPs and monitoring. Both workshops were well-received, and many participants recommended more, similar training sessions. StormwateRx has also

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[59] Draft Permit §XII(B)

presented on various industrial stormwater issues at countless workshops and conferences in California and across the nation.

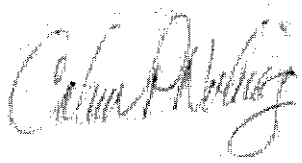
The Draft Permit indicates that the training program for QSDs and QSPs will be developed by the regional boards and "key stakeholders." StormwateRx requests that the Water Board consider including StormwateRx among the stakeholders that help develop the training curriculum.

V. Conclusion

We believe that a combination of operational and structural BMPs and StormwateRx treatment BMPs meet the technology requirements of the Clean Water Act for the selected industry sectors. Accordingly, we believe that the proposed technology based effluent levels derived from facilities that have implemented this combination of BMPs constitute valid action levels or effluent limits for those sectors.

Thank you for the opportunity to comment. We hope these comments are helpful and we invite Water Board staff to contact StormwateRx with any questions. We look forward to working with the Board and other stakeholders to further develop the State's industrial stormwater program and the revised draft permit.

Sincerely,



Calvin Noling, PE
President
StormwateRx LLC

Attachments:

A. StormwateRx Treatment BMP Performance – Volume I
B. Washington Boatyard BMP Cost Analysis
C. Sector Specific Technology Based NALs/NELs

stormwateRx®
Reclaiming the world's water.™

StormwateRx Treatment BMP Performance

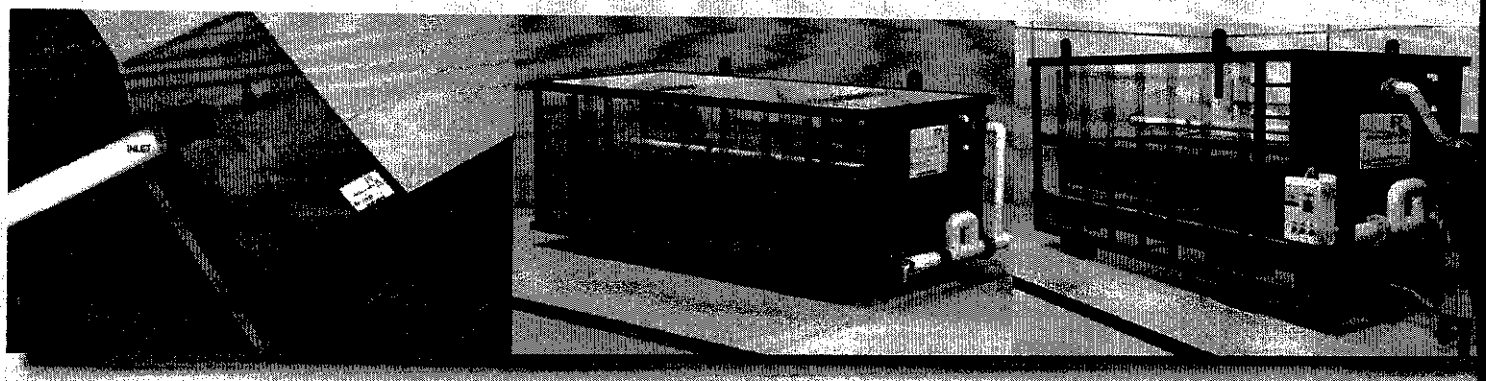
Volume I: Summary Data

April 2011

clara® An industrial settling system from StormwateRx®

aquip® An industrial filtration system from StormwateRx®

purus™ An industrial polishing syste from StormwateRx®



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