



June 20, 2014

Santa Ana Regional Water Quality Control Board
Email: santaana@waterboards.ca.gov

Subject: City of Irvine Comments on Santa Ana Regional Water Quality Control Board Proposed Order No. R8-2014-0002

Dear Chairman Ruh and Members of the Board:

On behalf of the City of Irvine ("City"), please accept the following comments on Draft Order No R8-2014-0002 dated May 2, 2014 ("Draft Order") and Fact Sheet/Technical Report ("Fact Sheet") that accompanies the Draft Order. These comments are submitted by the City with the intent that they supplement, and where appropriate, expand upon, the comprehensive comment letter developed by the County of Orange ("County") on behalf of the Northern Orange County Municipal Stormwater Co-Permittees (hereinafter "Co-Permittees"), which comments the City joins and herein incorporates by reference.

Like the County, the City of Irvine takes its stormwater responsibilities very seriously. This commitment is evidenced by the City's implementation of a robust stormwater compliance and inspection program, the City's substantial effort in developing a network of regional treatment wetlands in cooperation with Irvine Ranch Water District and property owners that provide significant pollutant removal while also facilitating wildlife habitat in the midst of an urban environment, and the City's development with other Co-Permittee funding partners of the 8.7 million dollar Peters Canyon Wash Channel Capture and Reuse Project that will remove large amounts of selenium from the local ecosystem, notwithstanding that the City's point source contribution to total selenium loadings are very small. Indeed, the City often steps forward to help develop watershed based solutions—even where the source of pollution originates from non-point sources that the City has no authority to regulate. It is part of the City's ethos of being part of the solution when it comes to problem solving on a watershed basis.

However, notwithstanding the progress made to date in addressing sources of pollutant loading to surface waters within the City, there continue to be unique water quality compliance challenges that arise from the reality of the City's hydrogeology. The City is very concerned that some of the prescriptive requirements of the Draft Order, while well intended, may actually cause increased pollutant loading (and loading in more bio-available forms) in the Newport Bay Watershed, while at the same creating a

disincentive for Co-Permittees, and the developers they regulate, to undertake regional projects that produce large scale pollutant removal and improvements in watershed health.

Mandates to Implement Retention LID BMPs

As Regional Board staff is aware, much of the pollutant loading within natural and man-made drainages within the City results from non-point source pollution, selenium and other non-anthropogenic substances that passively discharge into the MS4 from numerous seeps, springs, and weep holes in areas throughout the City with a historical presence of high groundwater. (See Exhibit 1¹). Generally speaking, the higher the water table in the City, the greater the daylighting of shallow groundwater that may contain pollutants such as selenium, a pollutant derived from natural sources—marine sediments, and the more the consequent pollutant loading with the potential to make its way into City drainages through no fault of the City. Because of the diffuse nature of the non-point source loading, conventional stormwater treatment approaches can be difficult or impossible to implement within the City—as is discussed in detail in Exhibit 1 hereto. The best prevention of pollutant loading within the City, therefore, is generally to keep the rising groundwater in the ground, and to utilize natural treatment systems (“NTS”), such as treatment wetlands, on the surface to remove pollutants—an approach that appears to be disfavored in the Draft Order.

Retention/infiltration based BMPs can be valuable tools in addressing pollutant loading.² Some soils do act as a natural filtration media and keep surface waters from receiving the “first flush” that can contain many pollutants associated with the urban environment. That stated, retention based LID should not be treated as an end unto itself—which is what the Draft Order appears to do—in the absence of a showing, based on substantial

¹ Exhibit 1 is a technical memorandum prepared by the City’s Water Quality Administrator, Amanda Carr, describing the severe challenges—from a technical and economic perspective—associated with any requirement to strictly meet the California Toxics Rule (CTR) criteria for selenium in the water column in the Newport Bay Watershed.

² Several of the retention based LID BMPs appear difficult to implement because of the lack of state health and safety standards that would allow for wide-spread implementation in the City. There is currently no state standard for the harvest and reuse of captured stormwater in domestic applications, and captured stormwater may contain a variety of pathogens and contaminants that would make any type of domestic use a public health risk without treatment. At the same time there is no state plumbing code that would facilitate introduction of captured stormwater into indoor water fixtures, such as for flushing toilets. While such “retained” water can be used for outdoor irrigation—the window to achieve such use is generally fairly short and seasonal storage is a challenge. It is also possible to export captured stormwater out of a watershed entirely, but this raises the issue of whether the exportation of native water from its watershed of origin is likely to cause damage to the existing riparian ecosystem that has come to rely upon the existing hydrologic regime. So, in many cases, the only retention based LID BMP that is implementable is infiltration—and infiltration carries all of the difficulties previously referenced within the City of Irvine. On the positive side, state standards for recycled water under Title 22 are well understood, and Irvine Ranch Water District has extensive experience in managing recycled water safety and distributes large amounts of recycled water within the City—to include indoor applications, such as toilet flushing for non-residential buildings.

evidence in the record, that retention based LID BMPs remove pollutants from stormwater to the maximum extent practicable (“MEP”) within the Newport Bay Watershed. Indeed, it is difficult to see how the Regional Board could make a finding of MEP pollutant removal within the Newport Bay Watershed for retention based LID BMPs given the evidence, summarized in Exhibit 1, and in numerous prior Regional Board documents, that the implementation of retention/infiltration based BMPs in the City is likely to result in a greater discharge of pollutant loading to receiving waters than would occur without retention based LID.

Concerns regarding Groundwater Degradation: The City also shares the concerns raised by Orange County Water District (“OCWD”) at the June 13 Workshop regarding the risk of transforming a surface water quality problem into exacerbated groundwater quality problems within the City via the blanket implementation of retention based LID BMPs. While the North Orange County MS4 Permit is admittedly more focused on removing pollutants from surface water, state law also requires the Regional Board to protect beneficial uses in the groundwater from degradation. (State Water Resources Control Board 68-16 [Anti-Degradation Policy]; *AGUA v. Central Valley Regional Water Quality Control Board* (2012) 210 Cal. App. 4th 1255.) The Draft Order in Section XII appears to gloss over protection of groundwater beneficial uses in favor of mandating a one size fits all policy that penalizes Co-Permittees for not utilizing retention based LID BMPs in new construction and significant redevelopment activities. Ironically, the Draft Order, in Section IV, still mandates stormwater discharges not cause exceedances of groundwater quality objectives, but then gives the Co-Permittees little ability to avoid such exceedances. Section IV and Section XII of the Draft Order should be harmonized to allow for selection of non-retention based BMPs, without penalty or increased BMP sizing, where infiltration can be reasonably anticipated to cause exceedances of groundwater objectives.

Along these same lines, the City relies on pumped groundwater from the basin underlying the City, a basin managed by OCWD, for most of its water supply requirements. Per OCWD’s comment at the June 13 Workshop, the Draft Order should allow the Co-Permittees, after consulting with OCWD and local water suppliers, to consider anticipated impacts to groundwater supply in determining whether to implement retention based LID BMPs. Where retention based LID BMPs would risk mobilizing existing volatile organic compounds (“VOCs”) associated with legacy military operations and industrial activities (a legitimate concern in Northern Orange County), or would otherwise threaten to degrade groundwater quality, the City should have the option to utilize non-retention based LID BMPs without having to obtain special permission.

Specific Revisions Requested:

Section XII of the Draft Order should be revised to provide that retention based LID BMPs are not required to receive primary consideration in any location where there are documented high groundwater levels containing pollutants of concern, or where the use

of retention based LID BMPs is likely to cause interfere with the attainment and maintenance of beneficial uses in the groundwater. Indeed, simply maintaining the current New Development and Significant Redevelopment Program outlined in the existing Model WQMP and Technical Guidance Document would be a simple way of addressing the City's concerns.

Specific Recommendations if the program in the current MS4 Permit is not maintained:

- Section XII.G. Secondary Consideration of Biotreatment Control BMPs in WQMPs. As currently drafted in this section, the use of biotreatment is only able to be considered by the City when infiltration is shown to be infeasible, and then penalizes the City and future developers by requiring non retention based LID BMPs to treat 1.5 times the volume of stormwater that is required to be captured by retention. In the current permit, new development program biotreatment BMPs, and retention based BMPs, have the same volume treatment requirements. As most priority projects within the City of Irvine will, by necessity, have to rely on Biotreatment Control BMPs due to the infeasibility of onsite retention and infiltration, this new requirement places an undue burden on Irvine projects without sufficient technical justification and is, the City asserts, mandated in contravention of the MEP standard.

Requested Revision:

This requirement should be removed and Biotreatment controls sizing requirements should be revised to match the design capture volume equivalent to retention LID BMPs.

- Section XII.K. Off-site Structural Treatment Control BMPs: Regional and Sub-Regional Facilities: As proposed, the use of regional treatment options is only available if those regional treatment BMPs infiltrate a portion of the design capture volume. This requirement essentially makes regional treatment infeasible within the City due the reasons discussed above, and also appears to make the existing NTS regional treatment locations, which were the subject of large capital investment by multiple parties, and which were designed to accept additional volume and treatment capacity, ineligible to provide treatment for redevelopment sites within their drainage boundaries. The requirement to forego use of this existing NTS facilities, which were intentionally designed to address the impacts of future new development and redevelopment within the City, may ultimately discourage willingness of the Co-Permittees and development interests to invest in future large-scale regional treatment BMPs for fear that the rules will change every five years—rendering regional investments obsolete. If regional treatment BMPs become obsolete with every permit renewal, stakeholders will be reluctant to fund future projects, and ironically, these significant problems arise because of the preference unilaterally afforded retention based LID BMPs under circumstances where such BMPs will cause more pollutant loading to surface waters than the continued use of NTS.

Requested Revision:

(a) Section XII.K should be revised to allow for off-site regional and sub-regional treatment facilities to utilize biotreatment and NTS when infiltration is shown to be infeasible or detrimental to ground or surface water quality.

The Requirement to Meet Numeric Water Quality Objectives

Section IV of the Draft Order prohibits Co-Permittees from causing or contributing to a violation of a water quality objective or beneficial uses through their stormwater discharges. With the Prohibition, the Board also spells out a proposed iterative process whereby the Co-Permittees would be deemed in compliance, notwithstanding an exceedance of a numeric water quality objective, where: 1) the Co-Permittee is removing pollutants to the Maximum Extent Practicable (“MEP”) through its program; 2) the Co-Permittee submits a draft plan, within 6 months, specifying how it intends to achieve future compliance with water quality objectives—numeric or otherwise.

While this process is a step in the right direction, no amount of planning is going to change the fundamental challenge for the Co-Permittees in the Newport Bay Watershed—the fact that the most difficult pollutant to control, selenium, is primarily the result of non-point source loading and therefore outside of the City’s control. As a result, as Exhibit 1 aptly illustrates, no matter how rigorous a program the City implements, and no matter how much money it spends, it is unlikely that the Co-Permittees will ever be able to guarantee compliance—throughout the Newport Bay Watershed—at least with the current CTR criteria for selenium.³ (See Exhibit 1 and references cited therein.)

And the law does not require the Regional Board to mandate the impossible—only that the Co-Permittees comply with the MEP standard—as Section 402 (p) of the Clean Water Act⁴ prescribes. (See *Hughey v. JMS Development Corp.* (11th Cir. 1996) 78 F.3d 1523, 1527, 1530; see also *In re State Water Quality Order No. 2001-15* at page 8 [confirming iterative approach via MEP BMP implementation, and stating “we will generally not require ‘strict adherence’ with water quality standards through numeric effluent limitations.”].) Indeed, the Ninth Circuit Court of Appeals explicitly held that the CWA does not require MS4s to strictly comply with water quality standards under Section 301 of the CWA where the MS4 is otherwise controlling pollutants to the MEP. (*Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159, 1165; see also *BIA of San Diego County v. State Board* (2004) 124 Cal.App.4th 866, 874.) *Defenders of Wildlife*, which was not overruled by the Ninth Circuit’s recent *NRDC* decision, held that

³ As previously noted, the City has participated for years, at substantial cost, in efforts to remove selenium from the Newport Bay Watershed. It intends to continue doing so as part of the collaborative watershed based management approaches, heartily endorsed by the Regional Board in the last iteration of the permit, see Order No. R8-2009-0030, Section XVIII. B.8., that have resulted in significant pollutant loading reduction in the Newport Bay Watershed. However, fundamentally, loading derived from rising groundwater is not a source that the City can control, nor one that it should be asked to control—since the City is not the cause of the non-point source derived impairment.

⁴ 33 U.S.C. § 1342(p)(3)(B)

the proper statutory requirements for a municipal MS4 Permit are set forth in CWA section 402(p), the source of the MEP standard, and that CWA section 301(b)(1)(C) should not be strictly applied in the municipal stormwater context—since municipal stormwater purveyors cannot go out of business (as an industrial discharger could), cannot control when it rains, and have limited ability to control private activities on private property. (*Id.*) Regional Boards can choose to require compliance with water quality requirements above and beyond the requirements of federal law, *City of Burbank v. State Water Resources Control Board* (2005) 35 Ca1.4th 613, but where they do so, they must do so in accordance with other provisions of the Water Code and state law, to include consideration of the factors enumerated in Water Codes Section 13241 and state prohibitions against unfunded mandates.

Requested Revision:

In this regard, the City asks the Regional Board to consider, as part of showing compliance with the “iterative process” described in Section IV, amending the Draft Order to allow Co-Permittees to demonstrate compliance with the CWA and Porter Cologne where the Co-Permittee shows that: 1) meeting a numeric standard would be technically or economically infeasible (see, e.g., Exhibit 1); or 2) the discharges of the Co-Permittee are now, or will otherwise be within the permit term, in full compliance with the requirements of a TMDL; or 3) the source of pollution causing the exceedance is non-anthropogenic or resulting from activities not within the jurisdiction or control of the Co-Permittee; or 4) it is in full compliance with BMP Strategic Plan for the Santa Ana Delhi and San Diego Creek sub-watersheds in the Newport Bay watershed.⁵

Changes Regarding Regulation of Non-Priority Projects:

Finally, the City wants to echo comments made by the County regarding proposed changes on Non-Priority Projects. Rapid expansion of the Non-priority Project category will create a significant administrative and applicant burden, yet produce negligible water quality benefits within the City. Currently, Non-priority projects are limited to projects that do not meet Priority Project thresholds, and require either a non-residential plumbing permit or a discretionary permit from the City. In the last three years, the City has had only a very small number of projects that triggered the requirement for preparation of a non-priority project plan. Under the newly revised non-priority project category in the Draft Order, based on permit applications from 2013, the City anticipates it will need to process over 1900 applications beyond what it processed last year for projects such as:

⁵ The current MS4 Permit, Order No. R8-2009-0030, Section XVIII. B.8, provides: “[a]s long as the stakeholders are participating in and implementing the approved Cooperative Watershed Program, they will not be in violation of this order with respect to the nitrogen and selenium TMDLs for San Diego Creek and Newport Bay.” The addition of similar language in the Draft Order would go a long way towards alleviating some of the City’s concerns vis-a-vis selenium and would incentivize robust participation in future regional project development.

- Residential and commercial solar permits,
- Residential and commercial re-roof permits,
- Residential Patio Covers, Remodels and Additions, including Walls/Fences and Retaining Walls,
- Small residential exterior projects such as fire pits and fireplaces, fountains, sinks and underground electrical conduits,
- All residential and commercial swimming pools, and
- Miscellaneous commercial projects like platforms for rooftop HVAC units, walls/fences, retaining walls, high piled storage racks, and commercial trellises.

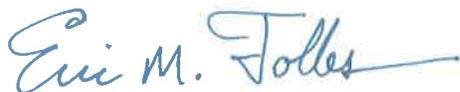
The impact of having to process a large influx of new applications would be felt at our permit counter, and also by city residents who would now have to prepare a complex plan, approved by an engineer knowledgeable in water quality, for what would otherwise be a simple ministerial approval of minor renovations. It would also place a large burden on the City's Building and Safety staff with a new requirement to review 1,900 individual plans, and inspect 1,900 sites to ensure that plans are implemented at each site. For most, if not all, of the projects that would fall into this category, it is not clear what site design or source control BMPs could actually be incorporated into these projects that would improve stormwater quality. Thus, as currently drafted, the new requirements for non-priority projects would create significant burdens and costs for the Co-Permittees and the public they serve, while providing little to no benefit in terms of reduced pollutant loading.

Requested Revision:

The City requests that the definition of Non-priority Project remain consistent with the current New Development and Significant Redevelopment Program outlined in the Model WQMP and Technical Guidance Document—as this approach has reduced pollutant loadings for projects where additional City review can make a big difference.

In closing, I thank you for considering our comments, and the City looks forward to working with Board staff in addressing the concerns raised herein.

Sincerely,



Eric M. Tolles, S.E.
Director of Community Development

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Technical Justification of Infeasibility of California Toxic Rule Selenium Standard in the Newport Bay Watershed

By: Amanda Carr, Water Quality Administrator
June 17, 2014

In my role as the Water Quality Administrator for the City of Irvine for the last three years, and my previous role as the Chief of Water Quality Planning for the County of Orange from 2004 through 2011, I have been involved in the development of many of the technical documents produced by the Nitrogen and Selenium Management Program cited below and have gained a thorough understanding of selenium water quality as it pertains to the Newport Bay Watershed and the City of Irvine. In this capacity, I believe meeting the California Toxics Rule selenium standard of 5 µg/l is not technically nor economically feasible in the Newport Bay Watershed.

The City of Irvine and its partners in the Nitrogen and Selenium Management Program (NSMP) have been investigating and pilot testing potential technologies to remove selenium since 2004. The work plan required by Santa Ana Regional Water Quality Control Board (Regional Board) Order No. R8-2004-0021 to detail work needed to address issues related to groundwater-related discharges of nitrates and selenium in the Newport Bay Watershed included Task 2: Develop and Evaluate BMPs and Treatment Technologies, to ensure a thorough investigation of possible treatment technologies. Task 2 included the following sub-tasks to develop and evaluate effective treatment approaches, emphasizing the use of pilot and demonstration projects:

- Task 2.2 Survey Current Selenium and Nitrogen Treatment Methods
- Task 2.3 Develop Simple Treatment-Related Model
- Task 2.4 Select and Pilot Test Candidate BMPs and Treatment Technologies
- Task 2.5 Develop BMP and Treatment Technology Implementation Plan
 - Task 2.5.1 Determine optimal selection of BMPs and treatment technologies
 - Task 2.5.2 Develop BMP and treatment technology implementation plan

This research effort resulted in the following reports which were submitted to the Regional Board in accordance with Order No. R8-2004-0021:

- Task 2.2 - Identification/Assessment of Selenium and Nitrogen BMPs/Treatment Technologies, March 31, 2006.
- Task 2.2: Identification and Assessment of Selenium and Nitrogen Treatment Technologies and Best Management Practices, March 30, 2007
- Quick Start BMP Evaluation, September 20, 2005
- Volume Reducing BMP Fact Sheets
- Task 2.3: Simple Treatment-Related Model Final Report, June 8, 2007

Exhibit 1

- Task 2.4: BMP Selection and Pilot-Scale Testing Considerations Interim Report, November 28, 2006
- Task 2.4: Pilot Test Report for Nitrogen and Selenium Removal Technologies Newport Bay Watershed FINAL REPORT, March 21, 2008
- Task 2.5: BMP Strategic Plan Framework, November 6, 2008

In January 2011, the County of Orange and cities of Costa Mesa, Irvine, Laguna Hills, Laguna Woods, Lake Forest, Newport Beach, Orange, Santa Ana and Tustin, and the Irvine Ranch Water District, Irvine Company and Lennar submitted the Time Schedule Order R8-2009-0069 BMP Strategic Plan to the Regional Board. The plan included a cost estimate of watershed-wide BMP implementation to achieve compliance with the CTR 5 µg/l selenium standard based on output from the Simple Treatment Model. The Simple Treatment Model is a pollutant mass balance calculator that divides the Newport Bay Watershed into concentration points and predicts seasonal pollutant concentrations as flow weighted averages of sources that contribute to selenium. Model predictions of total selenium concentrations at several locations throughout the watershed were within an acceptable level of accuracy for this type of simple model, and were typically within five to 15 percent of observed seasonal values. However, the groundwater exfiltration flow rates used in the model had not been quantified with the same level of accuracy as surface flows throughout the watershed and it is likely that this data gap contributes to errors in water quality predictions, particularly in the Peter's Canyon Wash subwatershed. Using this best available data, depending on the suite of potential BMPs implemented, the total estimated cost to meet the California Toxic Rule (CTR) standard ranged from \$52,092,000 to \$84,797,000 and this expenditure would not guarantee attainment of CTR criteria because of the diffuse nature of exfiltrating groundwater in the watershed. In any event, this level of investment is economically infeasible for the municipalities and dischargers within the watershed, particularly where this expenditure will not assure compliance throughout the watershed.

Subsequently, in October 2013, work to characterize the hydrogeology of the central watershed and evaluate water sources and sinks over representative water years 2005 to 2011 was completed by Daniel B. Stephens and Associates and submitted to the Regional Board. This report found that groundwater flows from upgradient areas of the Newport Bay Watershed and recharges the shallow aquifer within the central watershed. Additionally, the historical presence of the Swamp of Frogs and regional topography depicts a regional convergence of groundwater in this area. Groundwater flows into surface water channels in the central watershed through direct discharge from dewatering projects, and diffuse, passive discharge through weeps, seeps, springs, and channel/creek bottoms. The final estimated passive groundwater discharge to surface channels, taken from a calibrated groundwater balance approach, range from 9,027 to 20,780 ac-ft/yr, with an average of 12,157 ac-ft/yr. Given the diffuse nature of groundwater inputs to surface waters and the high volume of groundwater discharged annually, it is infeasible to construct treatment technologies sufficient to ensure

achievement of selenium water quality standards consistently throughout the watershed.

Based on the findings of the NSMP Work Plan and subsequent reports, at the time the General Discharge Permit for Discharges to Surface Waters of Groundwater Resulting from Groundwater Dewatering Operations and/or Groundwater Cleanup Activities at Sites Within the San Diego Creek/Newport Bay Watershed Polluted by Petroleum Hydrocarbons, Solvents, Metals and/or Salts (R8-2007-0041) was adopted, the Regional Board acknowledged the lack of a readily available, practicable treatment technology that could assure compliance with the selenium discharge limitations in the Permit (R8-2007-0041 fact sheet §IV-F at pg. F-18-19). This finding was reaffirmed when Time Schedule Order R8-2009-0069 for Dischargers Enrolled in Order No. R8-2007-0041 was adopted in December 2009, "...there is currently no readily available, conventional treatment technology that can be implemented in a reasonably practicable manner for point source discharges." (R8-2009-0069 at Finding 16 page 4 of 12), and therefore, "...compliance with the final numeric selenium limitations in Order No. R8-2007-0041 remains infeasible for many dischargers." (Staff Report for R8-2009-0069, December 10, 2009 at page 5 of 6).

Based on the findings of the reports and plans referenced above and on the Regional Board staff reports and findings for the Order Numbers R8-2007-0041 and R8-2009-0069 meeting the California Toxics Rule selenium standard of 5 µg/l is not technically, nor economically feasible in the Newport Bay Watershed.