Item No. 12

December 6, 2013

ERRATA SHEET

Change to Item No. 12, Amendment of Time Schedule Order No. R8-2009-0070, as Amended on October 4, 2013, for the City of Irvine, Groundwater Dewatering Facilities, Order No. R8-2005-0079, NPDES No. CA8000406, Irvine, Orange County, Order No. R8-2013-0061

Based on Santa Ana Regional Water Board Executive Officer approval of the BMP Strategic Plan for the Santa Ana-Delhi and San Diego Creek Sub-Watersheds dated September 27, 2013, and submitted by the County of Orange on October 10, 2013, staff recommends the following modification:

(Language deleted is ~~struck through~~)
(Language added is **bold and shaded**)

TENTATIVE ORDER NO. R8-2013-0061, page 2 – Modify Finding 8 as follows:

8. A draft BMP Strategic Plan was submitted on January 1, 2011. A draft Regional Monitoring Program was submitted on January 3, 2011. These proposed plans were subsequently revised based on comments from Regional Board staff and re-submitted. The revised BMP Strategic Plan, dated September 27, 2013, includes a revised Regional Monitoring Program. The revised Plan, including the RMP, was submitted on October 10, 2013. **The revised Plan, including the RMP, was further revised and re-submitted on December 4, 2013.** Both plans were approved by the Regional Board's Executive Officer, pursuant to the authority delegated by the Board, on ~~[date]~~**December 5, 2013**.

California Regional Water Quality Control Board
Santa Ana Region

December 6, 2013

Item: 12

Subject: Issuance of Order No. R8-2013-0061, Amending Time Schedule Order No. R8-2009-0070, as amended on October 4, 2013, for the City of Irvine, Groundwater Dewatering Facilities, Order No. R8-2005-0079, NPDES No. CA8000406, Irvine, Orange County

Summary

Order No. R8-2005-0079, issued to the City of Irvine (City) on November 18, 2005, specifies numeric selenium (and other) effluent limitations for the City's groundwater dewatering discharges in the Newport Bay watershed and requires compliance with these selenium limitations as soon as possible but no later than December 21, 2009. The selenium limitations are based on selenium water quality objectives established by the California Toxics Rule (CTR). Time Schedule Order (TSO) No. 2009-0070, issued on December 10, 2009, extended the selenium compliance schedule for a maximum of five years, or no later than December 10, 2014. The TSO remains in effect for a maximum of five years or until such time as Order No. R8-2005-0079 is re-issued to incorporate revised selenium effluent limitations and other requirements necessary to implement Regional Board approved selenium Total Maximum Daily Loads (TMDLs).

The Regional Board incorporated a selenium compliance schedule in Order No. R8-2005-0079 and issued the TSO in recognition of the extraordinary challenge of selenium control in the Newport Bay watershed, the lack of a practicable, conventional selenium treatment technology that could achieve the effluent limitations, significant commitments by the City and other watershed stakeholders to identify and implement a selenium management program, and the anticipated re-issuance of Order No. R8-2005-0079 based on TMDLs that were expected to be considered by the Regional Board in 2010 and subsequently approved and effective for regulatory purposes in or about 2012.

While significant progress continues to be made by the City, individually and with other watershed stakeholders, to address selenium in the Newport Bay watershed, it is appropriate to extend the TSO for a maximum of five years, or no later than December 10, 2019. This would extend the date for compliance with the selenium effluent limitations in Order No. R8-2005-0079 to no later than December 10, 2019. This compliance schedule extension is appropriate and justified since there remains no practicable selenium treatment technology that can assure compliance with the effluent limitations, the anticipated selenium TMDLs have not been completed or submitted for requisite approvals, and because the City is engaged in ongoing and significant efforts to achieve selenium reductions necessary to comply with the TMDLs in advance of their approval.

Background

Selenium issues in the Newport Bay watershed have a lengthy and complex history, which is summarized in the December 10, 2009 staff report describing the basis for the recommended issuance of TSO No. R8-2009-0070. A copy of that report is attached. Briefly, the salient points include the following:

- In 2002, the U.S. Environmental Protection Agency, Region IX (USEPA) promulgated TMDLs for selenium for the San Diego Creek watershed, including Peters Canyon Wash, and both Upper and Lower Newport Bay, based primarily on evidence of beneficial use impairment due to exceedances of the applicable California Toxics Rule (CTR) selenium criteria for freshwater and the proximity of Newport Bay to San Diego Creek. The USEPA TMDLs relied heavily on selenium TMDLs then under preparation by Regional Board staff.
- In the Newport Bay watershed, approximately 85% of the selenium load in surface waters originates from groundwater, and much of this load (about 78%) results from diffuse rising groundwater that enters surface waters via springs and seeps in the unlined portions of the channels, and cracks and weepholes in storm drains and the concrete-lined portions of the channels. Discrete, groundwater-related discharges (e.g., groundwater dewatering and cleanup and other regulated discharges (e.g., urban runoff)) account for a relatively small part of the total selenium load to surface waters.
- Controlling the sources of selenium in the Newport Bay watershed poses extraordinary challenges given the large scale of the selenium problem, its diffuse origin (largely rising groundwater), the lack of a readily available, conventional treatment technology that can be implemented in a reasonably practicable manner for point source discharges, and, because of extensive urbanization, the limited land available for the placement of potential treatment facilities/BMPs.
- In December 2004, the Regional Board adopted Order No. R8- 2004-0021, NPDES No. CAG998002, General Waste Discharge Requirements for Short-Term Groundwater-Related Discharges and De Minimus Wastewater Discharges to Surface Waters within the San Diego Creek/Newport Bay Watershed. Order No. R8-2004-0021 established selenium effluent limitations for these discharges for the first time. The limitations were based on the CTR selenium criteria.
- Because there was no conventional treatment technology available to point source dischargers and immediate compliance with the selenium effluent limitations in Order No. R8-2004-0021 was thus infeasible for many dischargers, Order No. R8-2004-0021 specified a compliance schedule for the selenium effluent limitations. That schedule required compliance as soon as possible but no later than December 20, 2009.
- Numerous watershed stakeholders remained concerned about the ability to comply with the selenium effluent limitations, even with the five-year compliance schedule, given the lack of practicable selenium treatment technology. The stakeholders also

expressed concern about the validity and effectiveness of the CTR criteria for the protection of biological resources in the watershed. These considerations prompted the formation of a voluntary program known as the Nitrogen and Selenium Management Program (NSMP), sponsored by the NSMP Working Group. The Working Group includes the City of Irvine and many other stakeholders in the watershed. The Working Group proposed to develop and implement upon Regional Board approval a five-year Work Plan designed to: evaluate and recommend refinements to the USEPA selenium TMDLs; evaluate potential selenium treatment technologies; recommend a comprehensive TMDL implementation plan for the management of selenium; and, support development of recommendations for selenium site-specific objectives for the watershed that would supplant the CTR criteria.

- Order No. R8-2004-0021 included requirements based on the NSMP Work Plan approach. The five-year Work Plan was approved and, with significant commitments of NSMP Working Group resources, has been implemented. The tasks completed include the evaluation of potential selenium treatment technologies, including pilot, demonstration-scale testing of selected technologies, the development of recommendations for site-specific objectives for selenium for the Newport Bay watershed, and recommendations for a selenium management strategy that could be incorporated in the revised TMDL implementation plan.
- Order No. R8-2004-0021 made application of the selenium effluent limitation compliance schedule contingent on the implementation of one of two alternatives by each enrolled discharger: participation by discharger as a member of the NSMP Working Group and implementation of the approved Work Plan by the NSMP Working Group; or, alternatively, implementation by the discharger of an approved offset program that would assure no net loading of selenium to surface waters as the result of the discharges.
- As part of a permit streamlining effort, the Regional Board adopted Order No. R8-2007-0041 on November 20, 2007. Order No. R8-2007-0041 replaced Order No. R8-2004-0021, and Order No. R8-2004-0021 has been rescinded. Order No. R8-2007-0041 expired on November 1, 2012 but was administratively extended.
- Like Order No. R8-2004-0021, Order No. R8-2007-0041 regulates groundwater-related discharges and also includes requirements for discharges from groundwater cleanup operations in the Newport Bay watershed. Order No. R8-2007-0041 includes the same requirements for selenium as specified in Order No. R8-2004-0021 and continues to require compliance with selenium limitations as soon as possible but no later than December 20, 2009.
- On November 18, 2005, the Regional Board adopted Order No. R8-2005-0079, NPDES No. CA8000406 for the City of Irvine groundwater dewatering facilities. Order No. R8-2005-0079 authorizes the City to pump/extract and discharge groundwater to surface waters as necessary to lower the groundwater level at two roadway/railroad undercrossings and at a roadway crossing. Order No. R8-2005-0079 includes substantially similar selenium-related requirements as those provided in Order R8-2004-0021 (and in Order No. R8-2007-0041). Order No. R8-2005-0079 specifies numeric water quality based effluent limitations based on the CTR criteria

and requires compliance with those limitations no later than December 21, 2009. Order No. R8-2005-0079 makes application of this compliance schedule contingent on the implementation of one of two alternatives: the City's participation as a member of the NSMP Working Group and implementation of an approved Work Plan by the NSMP Working Group; or, alternatively, implementation by the City of an approved offset program, which program was to be completed no later than December 21, 2009.

- The City elected to join the NSMP Working Group, and has funded and participated in the development and implementation of the NSMP Work Plan. In addition, the City has committed significant resources to implement, in conjunction with the Irvine Ranch Water District, an approved offset program, namely, the Cienega Field Demonstration Project. The Cienega Field Demonstration Project utilizes subsurface treatment that removes selenium (and nitrogen, another constituent of TMDL concern in the Newport Bay watershed) from surface water flows diverted into the facility. As described more fully below, the City is also the lead sponsor for the implementation of another project, the Peters Canyon Wash Pipeline Project, which is expected to result in significant selenium (and nitrogen) reductions.
- On December 10, 2009, the Regional Board approved Time Schedule Order (TSO) No. R8-2009-0070 for the City. TSO No. R8-2009-0070 extended the schedule for final compliance with the selenium effluent limitations specified in Order No. R8-2005-0079 for a maximum of five years from the date of issuance of the TSO, or no later than December 10, 2014. As issued on December 10, 2009, the TSO remains in effect for a maximum of five years, i.e., December 10, 2014, or until such time as Order No. R8-2005-0079 is re-issued to incorporate revised selenium effluent limitations and other requirements necessary to implement Regional Board approved selenium Total Maximum Daily Loads (TMDLs).
- TSO No. R8-2009-0070 requires the City to either continue to implement the Cienega Field Demonstration Project as an acceptable selenium offset pursuant to the requirements of Order No. R8-2005-0079, or to continue to participate in the NSMP and the completion of the approved NSMP Work Plan. The City has elected to both continue to participate in the NSMP and to operate the Cienega Project. Further, as stated above, the City is the lead sponsor for the Peters Canyon Wash Pipeline Project, which is expected to result in significant additional selenium (and nitrogen) reductions.
- On October 4, 2013, the Board's Executive Officer amended TSO No. R8-2009-0070 to allow for the City's use of the Peters Canyon Wash Pipeline Project as an additional selenium offset mechanism and compliance alternative, consistent with Order No. R8-2005-0079. This Project is expected to be complete by the end of 2015. The total project cost is approximately $8.7 million dollars, about half of which is expected to be provided by grant funds. Yearly operation and maintenance costs are estimated at $60,000.
- Once operational, the Project is expected to achieve significant selenium (and nitrogen) reductions in the Peters Canyon Wash/San Diego Creek watershed. A total of approximately 229 lbs/year of selenium will be intercepted prior to discharge to Peters Canyon Wash and diverted to the Orange County Sanitation District sewer

system. This includes approximately 100 lbs/year of selenium that are currently discharged on a temporary basis to the Irvine Ranch Water District sewer system from the Caltrans Groundwater Dewatering Facility. The Project will replace this temporary sewering arrangement with a permanent diversion structure. Not including this Caltrans discharge, new selenium reductions are expected to total approximately 129 lbs/year. Of this total, a reduction of ~15 lbs/year will result from the interception and diversion of dewatering discharges by the City, while a reduction of ~ 114 lbs/year will be achieved by the interception and diversion of diffuse rising/seeping groundwater that otherwise enters the surface water system. These diffuse groundwater discharges are not presently regulated. Selenium reductions as the result of the Project are expected to be significantly greater than the sum of all remaining selenium loads from other point source dewatering and groundwater cleanup discharges during dry weather. These selenium load reductions will be in addition to the on-going selenium reductions of ~ 12 lbs/year that result from the Cienega Field Demonstration Project.

- The Project is expected to result in the reduction of approximately 67,700 lbs/year of nitrogen in the Peters Canyon Wash/San Diego Creek watershed. Of this total, ~44,300 lbs/year are currently discharged on a temporary basis to the Irvine Ranch Water District sewer system from the Caltrans Groundwater Dewatering Facility. The Project will replace this temporary sewering arrangement with a permanent diversion structure. New nitrogen reductions in the watershed are expected to total ~23,400 lbs/year.
- TSO No. R8-2009-0070 identified a schedule of specific selenium-related tasks identified by the NSMP Working Group. These tasks included the submittal of a proposed Method of Compliance Workplan/Schedule, or “BMP Strategic Plan”, and a proposed regional monitoring program (RMP). The TSO required that the BMP Strategic Plan and RMP be implemented by the Working Group (including the City, if the City chose to continue to participate in the NSMP) within 90 days of Regional Board approval. Both the BMP Strategic Plan and RMP were approved on [date] and are being implemented, including by the City of Irvine.
- The approved BMP Strategic Plan includes selenium reduction projects, including the Cienega Demonstration Project and the Peters Canyon Wash Pipeline Project, continued evaluation of potential selenium treatment technologies, and adaptive management of selenium control implementation based on the results of monitoring of BMP efficacy and the effects of selenium control implementation on the receiving waters. Implementation of the Cienega, Peters Canyon Wash and other selenium reduction projects is expected to be a central part of the selenium TMDL implementation plan.

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Discussion

The Regional Board found issuance of TSO No. R8-2009-0070 appropriate and necessary in light of the lack of a readily available, conventional selenium treatment technology that could be implemented in a reasonably practicable manner so as to achieve compliance with selenium effluent limitations, the extraordinary complexity of

the selenium problem in the Newport Bay watershed, and the significant commitments by the City of Irvine, individually and with other members of the NSMP Working Group, to assess and achieve selenium standards and effluent limitations.

In issuing the TSO, the Regional Board also recognized that implementation of the tasks specified in the TSO would support ongoing Regional Board staff efforts to develop revised selenium TMDLs and site-specific objectives (SSOs) for the Newport Bay watershed, and that those TMDLs/SSOs would, when approved, serve as the basis for appropriate revisions to the selenium limitations and schedule for compliance with those limitations that are specified in Order No. R8-2005-0079. The Regional Board anticipated that the revised TMDLs/SSOs would be recommended for approval in 2010 and that final approval by all requisite agencies would occur in a subsequent one to two year period. The Regional Board found that issuance of the TSO would provide appropriate compliance schedule relief until such time as the TMDLs/SSOs could be fully approved and appropriate permit revisions could be made, and further, that such an approach would be a prudent use of the Regional Board's permit issuance resources.

While significant effort and progress to address selenium in the Newport Bay watershed has been and continues to be made by Regional Board staff, the City and other stakeholders in the watershed, the TMDL/SSO adoption process has been delayed. In fact, in light of anticipated difficultly in the approval of selenium SSOs, and in the interest of establishing TMDLs that can serve as the basis of permit revisions in a more timely manner, Regional Board staff, in collaboration with the City and other stakeholders, is now pursuing selenium SSOs on a parallel but separate path from the TMDLs. It is now anticipated that selenium TMDLs will be recommended for Regional Board approval by the end of 2014. It is expected that the selenium SSO recommendations will follow shortly thereafter. It should be noted that the recommended TMDLs will take the likely SSO recommendations into account.

Meanwhile, the City, individually and as a member of the NSMP Working Group, and other stakeholders in the Newport watershed continue to conduct technical investigations to support TMDL and SSO development, to evaluate potential selenium treatment technologies, and to identify and implement measures to control selenium inputs to surface waters in the Newport watershed. As stated above, these actions are part of the approved BMP Strategic Plan required by the TSO. As described above, the City continues to implement or is in the process of implementing significant selenium (and nitrogen) reduction projects. These include ongoing operation of the Cienega Demonstration Project and the Peters Canyon Wash Diversion Project. Upon implementation of these diversion projects, dry weather flows containing significant selenium (and nitrogen) loads will be diverted from these channels to the Orange County Sanitation District sewer system.

In light of the unanticipated delay in the development and approval of selenium TMDLs for the Newport Bay watershed, the continuing lack of practicable selenium treatment

technology (despite intensive efforts by NSMP Working Group members, including the City, to identify and evaluate such technology) and the ongoing and very significant commitments by the City and other NSMP Working Group members to implement selenium reduction projects that will result in substantial selenium (and nitrogen) reductions in advance of TMDL approval, Regional Board staff recommends that TSO No. R8-2009-0070 be amended to further extend the date for compliance with the selenium effluent limitations. Specifically, Regional Board staff recommends that the TSO be amended to remain effective for a maximum of five years beyond the date of the amendment, or December 10, 2019, or until Order No. 2005-0079 is re-issued to incorporate revised selenium effluent limitations and other requirements that are consistent with approved selenium TMDLs. As stated above, it is anticipated that selenium TMDLs that would replace those promulgated by USEPA in 2002 will be recommended for Regional Board adoption by the end of 2014. Regional Board staff intends to work closely with State Water Board, USEPA and other agency staff to assure that the recommended TMDLs will be approvable. The requisite approval process subsequent to Regional Board action is expected to take one to two years.

Once the TMDLs have been approved, appropriate revisions to the requirements in Order No. R8-2005-0079, including a compliance schedule based on that identified in the approved TMDL, will be recommended for Regional Board consideration. Extending the TSO would obviate the need for more immediate action on Order No. R8-2005-0079 and thus conserve the Board's limited permit issuance resources until they would be most effectively utilized.

California Water Code (CWC) Section 13385(j)(3)(C)(ii)(II) provides that following a public hearing, and upon a showing that the discharger is making diligent progress towards bringing the waste discharge into compliance with the effluent limitation, the regional board may extend the time schedule specified in a time schedule order issued to that discharger for an additional period not exceeding five years, if the discharger demonstrates that the additional time is necessary to comply with the effluent limitation.

As described above, the dischargers enrolled in Order No. R8-2005-0079 are making diligent progress toward bringing waste discharges into compliance with selenium effluent limitations and have demonstrated that additional time is necessary to achieve that compliance. Therefore, per CWC section 13385(j)(3)(C)(ii)(II), it is appropriate to extend the TSO by no more than five years. No other changes to the TSO are necessary.

RECOMMENDATION

Adopt Order No. R8-2013-0061, amending Time Schedule Order No. R8-2009-0070, as amended on October 4, 2013, as presented.

Attachment: Staff report for TSO No. 2009-0070 (December 10, 2009)

California Regional Water Quality Control Board
Santa Ana Region

December 10, 2009

Item: 10

Subject: Issuance of Time Schedule Order No. R8-2009-0070 for the City of Irvine Groundwater Dewatering Facilities, Order No. R8-2005-0079, NPDES No. CA8000406

Summary:

The issuance of Time Schedule Order (TSO) No. R8-2009-0070 is appropriate and necessary to provide additional time for the City of Irvine to come into compliance with numeric effluent limitations for selenium that are specified in Order No. Order No. R8-2005-0079, which requires compliance with those limitations no later than December 21, 2009. The numeric selenium limitations are based on the current selenium water quality objectives established by the California Toxics Rule (CTR).

Total Maximum Daily Loads (TMDLs) and site-specific objectives (SSOs) for selenium are being developed by Regional Board staff in collaboration with the Nitrogen and Selenium Management Program Working Group, which includes the City of Irvine. The TMDLs include numeric targets and allocations based on (i) the recommended selenium SSOs for the Newport Bay watershed, and, in the event the SSOs are not adopted, (ii) current CTR selenium objectives. These TMDLs are expected to be presented to the Regional Board for consideration in the spring of 2010.

When approved, the selenium SSOs will replace the existing CTR-based water quality objectives for the Newport Bay watershed. The selenium effluent limitations in Order No. R8-2005-0079 will be revised as necessary in response to the approved TMDLs/SSOs.

The proposed TMDLs include an implementation plan and a schedule of compliance that will serve as the basis for a revised schedule for compliance with the selenium effluent limitations in Order No. 2005-0079. However, the compliance schedule authorization provided by the TMDLs will not become effective for the purposes of revising the Order until the TMDLs are approved by the USEPA. The TMDL approval process is expected to take more than one year. The TSO will extend the schedule for compliance with the numeric selenium effluent limitations in Order No. R8-2005-0079 for a maximum of five years from the date of adoption of the TSO or until such time as Order No. R8-

2005-0079 is re-issued[1]. This compliance schedule extension will allow the TMDL/SSO approval and permit amendment processes to be completed such that an appropriate compliance schedule, effluent limitations and other requirements can be incorporated in waste discharge requirements for the City's discharges. This compliance schedule extension is appropriate because of the very significant commitment of resources by the City of Irvine, toward the Cienega Field Demonstration Project, and as a member of the NSMP Working Group, to assist in the development of the selenium TMDLs/SSOs and the development, early implementation and continued operation of a cutting-edge regional selenium management program (including development of selenium treatment technologies, like the Cienega Project, that are identified in the draft BMP Strategic Plan) for the Newport Bay watershed that will result in the achievement of water quality standards for a very difficult-to-address bioaccumulative pollutant.

Discussion:

In 2002, as part of a number of TMDLs for toxic pollutants, USEPA promulgated TMDLs for selenium for the San Diego Creek subwatershed and both Upper and Lower Newport Bay, based primarily on exceedance of the currently applicable CTR selenium criteria in freshwater, as well as trends in selenium concentrations in freshwater fish tissue and the proximity of Newport Bay to the San Diego Creek subwatershed. Rising groundwater in the San Diego Creek subwatershed is the primary source of selenium to the Bay.

In December 2004, the Regional Board adopted Order No. R8- 2004-0021, NPDES No. CAG998002, General Waste Discharge Requirements for Short-Term Groundwater-Related Discharges and De Minimus Wastewater Discharges to Surface Waters within the San Diego Creek/Newport Bay Watershed. Prior to the issuance of Order No. R8-2004-0021, most dewatering and other types of groundwater discharges in the watershed were considered insignificant, or "de minimus", contributors of pollutants and had been regulated under the Regional Board's general de minimus NPDES permit. The issuance of Order No. R8-2004-0021 was necessitated by the recognition that groundwater-related discharges in the Newport Bay watershed had the potential to contribute selenium to the surface waters in the watershed and that such discharges could no longer be considered insignificant in light of the findings of selenium impairment leading to the USEPA TMDLs. Order No. R8-2004-0021 included final numeric water quality based effluent limitations for selenium discharges based on the applicable CTR selenium criteria.

In adopting Order No. R8-2004-0021, the Regional Board also recognized that there were no conventional selenium treatment technologies that could be applied to achieve the selenium limitations and that, therefore, immediate

[1] Order No. R8-2005-0079 expires on November 1, 2010. When the Order is re-issued, appropriate changes to the TSO to reflect the new Order will be considered.

compliance with the selenium limitations in the Order would likely be infeasible for many dischargers. Accordingly, Order No. R8-2004-0021 includes a schedule for compliance with the final numeric selenium limitations. Pursuant to the compliance schedule provisions of the State Board's policy for implementation of the CTR criteria (the "SIP"[2]), Order No. R8-2004-0021 included a maximum five-year schedule for compliance with the selenium limitations, i.e, compliance with the selenium limitations was to be achieved as soon as possible but no later than December 20, 2009.

Numerous stakeholders within the Newport Bay watershed expressed ongoing concern that ultimate compliance with the selenium limitations, even with the five-year compliance schedule, would be highly problematic, given the lack of available, practicable treatment technology that could achieve the requisite selenium reductions. This concern, coupled with concerns about the validity and effectiveness of the CTR criteria for protecting biological resources in the watershed, prompted the formation of a voluntary program known as the Nitrogen and Selenium Management Program (NSMP), sponsored by the NSMP Working Group. The Working Group is comprised of many stakeholders in the Newport Bay watershed, including the County of Orange, the City of Irvine and other municipalities within the watershed, other dischargers, and several environmental organizations. The Regional Board is a non-funding member of the Working Group. The Working Group proposed to develop and implement a five-year Work Plan designed to evaluate and recommend refinements to the USEPA selenium TMDLs, to develop treatment technologies and an appropriate implementation plan for the refined TMDLs, and to consider recommendations for a site-specific selenium objective for the Newport Bay watershed that would supplant the CTR selenium criteria[3].

Order No. R8-2004-0021 included requirements that reflected the proposed NSMP Working Group approach and required the development, Regional Board approval, and thence implementation of a Work Plan to accomplish those specific tasks. Order No. R8-2004-0021 provided that participation by dischargers in the NSMP Working Group and effective and timely implementation of the approved Work Plan would constitute interim, performance-based limitations. The Order also allowed dischargers who did not wish to participate in the NSMP Working Group to implement a program approved by the Executive Officer to offset selenium discharges in excess of the final numeric effluent limitations. Steps to implement that offset program were considered interim, performance-based limitations. The intent of the offset program was to assure that there would be no net loading of selenium to surface waters in the Newport Bay watershed as the

[2] "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California"
[3] The Working Group also committed to perform work to support the review of the Nutrient TMDL established for the Newport Bay watershed in 1998 and to formulate a nutrient management plan.

result of the discharges prior to full compliance with the final numeric effluent limitations.

In 2007, the Regional Board adopted Order No. R8-2007-0041 as part of a permit streamlining effort. Like Order No. R8-2004-0021, Order No. R8-2007-0041 regulates groundwater-related discharges but also includes requirements for discharges from groundwater cleanup operations within the Newport Bay watershed.. Order No. R8-2007-0041 includes the same NSMP/offset interim performance-based limitations as Order No. R8-2004-0021. Consistent with the SIP, Order No. R8-2007-0041 maintains the same compliance schedule for achieving compliance with final numeric water quality based effluent limitations for selenium as Order No. R8-2004-0021, i.e., compliance with the final numeric effluent limitations must be achieved no later than December 20, 2009.[4] Discharge authorization for enrollees under Order No. R8-2004-0021 has been transferred to Order No. R8-2007-0041 and Order No. R8-2004-0021 now has been rescinded.

In November 2005, the Regional Board adopted Order No. R8-2005-0079, NPDES No. CA8000406 for the City of Irvine dewatering facilities. Order No. R8-2005-0079 authorizes the City to pump/extract and discharge groundwater to surface waters as necessary to lower the groundwater level at two roadway/railroad undercrossings and at a roadway crossing. Order No. R8-2005-0079 includes substantially similar selenium-related requirements as those provided in Order R8-2004-0021 (and in Order No. R8-2007-0041). Order No. R8-2005-0079 specifies numeric water quality based effluent limitations based on the CTR criteria and requires compliance with those limitations no later than December 21, 2009. Order No. R8-2005-0079 makes application of this compliance schedule contingent on the implementation of one of two alternatives: the City's participation as a member of the NSMP Working Group and implementation of an approved Work Plan by the NSMP Working Group; or, alternatively, implementation by the City of an approved offset program, which program was to be completed no later than December 21, 2009.

As noted above, the City is a member of the NSMP Working Group and has funded and participated in the development and implementation of the Work Plan. In addition, the City has committed significant resources to implement, in conjunction with the Irvine Ranch Water District (IRWD), an approved offset program, namely, the Cienega Field Demonstration Project. The Cienega Field Demonstration Project entails subsurface treatment to remove selenium from surface water flows diverted to the facility. The Cienega Project is included in the draft BMP Strategic Plan developed by the NSMP Working Group and will be considered for full-scale implementation if its selenium removal efficacy and cost-effectiveness are demonstrated. Implementation of an approved BMP Strategic

[4]The first time that the selenium-related discharges were subject to CTR-based effluent limitations was in Order No. R8-2004-0021, and discharges were required to meet CTR-based effluent limits no later than December 20, 2009.

Plan is central to the implementation plan for the proposed Regional Board TMDLs. The City has indicated its interest in continuing to support the Cienega Project, both as a means to provide ongoing selenium offsets and as part of the comprehensive strategy, developed by the Regional Water Board in collaboration with the NSMP Working Group, to accomplish selenium reductions needed to meet the TMDLs and, thereby, water quality standards.

The approved NSMP Work Plan has now been essentially completed and has resulted in recommended, revised TMDLs, including an implementation plan. The TMDLs, including the implementation plan, are continuing to be refined further and are expected to be presented as a Basin Plan amendment for the Regional Board's consideration in the spring of 2010. Further, the NSMP Working Group effort has resulted in specific recommendations for site-specific objectives (SSOs) for selenium for the Newport Bay watershed. When fully approved, these SSOs will replace the CTR-based objectives for selenium in the Newport Bay watershed. These SSOs are reflected in the TMDLs to be recommended to the Regional Board and will be included in the Basin Plan amendment package to be considered by the Regional Board in the spring of 2010. In the event the SSOs are not adopted, the TMDLs also include alternative CTR-based numeric targets and allocations

The proposed TMDLs currently include a recommended compliance schedule of a maximum of 15 years from the date the TMDLs become effective. The TMDLs become effective for NPDES and other Clean Water Act purposes once they are approved by USEPA. Once the TMDLs are fully approved, including by USEPA, the compliance schedule authorization provided in the TMDLs can be used as the basis for including compliance schedules for selenium limitations in NPDES permits. Once the TMDLs are finally approved, Regional Board staff will recommend specific revisions to Order No. R8-2005-0079 (and/or the issuance of a new permit, as appropriate) to incorporate requirements consistent with the TMDLs, including revised schedules for compliance and selenium effluent limitations ((including, potentially, narrative or performance-based limitations). However, until the TMDL approval process is completed, the effective compliance dates for those limits are those established in the existing Order. The TSO will provide for compliance with the existing Order. .

While significant progress has been made to identify potential selenium treatment technologies (including regional treatment), compliance with the final numeric selenium limitations in Order 2005-0079 on December 21, 2009 remains infeasible for the City. A significant amount of work remains to be done to further evaluate potential treatment technologies to assure their efficacy before costly, full-scale implementation is considered. The Working Group has prepared a draft BMP Strategic Plan that outlines the steps proposed to further address selenium BMP evaluation and implementation over the fifteen year period currently proposed by the draft TMDLs. As previously noted, the draft BMP Strategic Plan includes the Cienega Field Demonstration Project, which may implemented on a

full-scale basis if its efficacy and cost-effectiveness are demonstrated. Implementation of the BMP Strategic Plan is expected to result in compliance with the draft TMDLs and, thereby, water quality standards (as they may or may not be amended by the SSOs). The development and implementation of such a BMP plan is a requirement of the draft TMDLs for dischargers who elect to comply with applicable allocations through the NSMP process.

Absent additional compliance schedule relief, after December 21, 2009, dewatering discharges by the City of Irvine pursuant to Order No. R8-2005-0079 may result in violations of the final selenium effluent limitation in that Order. . Such violations would likely result in the imposition of mandatory minimum penalties pursuant to section 13385 of the California Water Code.

Controlling sources of selenium inputs to surface waters in the Newport Bay watershed poses extraordinary challenges. As stated above, there is currently no readily available, conventional treatment technology that can be implemented in a reasonably practicable manner for point source or non-point source discharges of selenium. Further, in the Newport Bay watershed, approximately 85% of the existing selenium loads in surface waters originates from groundwater, and much of this load (about 78%) results from diffuse rising groundwater, which enters surface waters via springs and seeps in the unlined portions of the channels, and cracks and weepholes in storm drains and the concrete-lined portions of the channels. Discrete, groundwater-related discharges (e.g., groundwater dewatering and cleanup) and other regulated discharges (e.g., urban runoff) account for a relatively small part of the selenium load to surface waters. It is evident that selenium reductions needed to protect beneficial uses would be best achieved on a regional, watershed-wide scale, addressing both non-point and point sources.

The City of Irvine, individually and as a member of the NSMP Working Group, has made, and continues to make significant commitments of resources to develop and implement a proposed watershed-wide selenium management strategy and the Cienega Project, a regional BMP identified in the draft BMP Strategic Plan, to address rising groundwater, as well as dewatering and other types of discharges. The TMDLs that will be recommended to the Regional Board in early spring 2010 rely to a significant degree on that management strategy and its implementation. In light of those significant commitments by the Working Group, that a management strategy has been identified that is believed will achieve water quality standards but requires additional time to be approved and implemented, and in view of the recognized need to provide more time to evaluate and implement effective selenium treatment BMPs, it is appropriate to provide additional schedule relief for compliance with the numeric selenium limitations in Order R8-2005-0079. Additional compliance schedule relief will allow for full approval of the TMDLs/SSOs and revision of the Order to incorporate revised compliance schedules and effluent limitations consistent with the TMDLs. The issuance of the TSO will not delay ultimate compliance with the

TMDLs, Rather, the TSOs will merely provide additional time for approval of the TMDLs/SSOs while protecting the City, which has committed and will commit significant resources to their development and implementation from enforcement for violations of Order No. R8-2005-0079.

California Water Code section 13300 states: "Whenever a regional board finds that a discharge of waste is taking place or threatening to take place that violates or will violate requirements prescribed by the regional board, or the state board, or that the waste collection, treatment, or disposal facilities of a discharger are approaching capacity, the board may require the discharger to submit for approval of the board, with such modifications as it may deem necessary, a detailed time schedule of specific actions the discharger shall take in order to correct or prevent a violation of requirements." Tentative TSO R8-2009-0070 requires the discharger to continue to participate in the operation of the Cienega Field Demonstration Project and to demonstrate that the operation of that facility provides selenium removal necessary to offset ongoing selenium discharges by the City that exceed the final selenium effluent limitations specified in Order No. R8-2005-0079., or, alternatively, to continue participation in the NSMP Working Group. If the latter alternative is selected, the City is required to provide to the Executive Officer a copy of the Memorandum of Procedure, as amended, or Cooperative Watershed Program Funding Agreement, as applicable, showing the Discharger's membership in the Working Group. A detailed time schedule of actions proposed to address final selenium limitation compliance by participants in the NSMP Working Group has been submitted and is reflected in Tentative TSO No. R8-2009-0070. The City is required to demonstrate, to the satisfaction of the Executive Officer, that the NSMP Working Group is implementing these tasks in accordance with the schedule identified in the TSO, in the event that the City elects to comply through participation in the NSMP Working Group.

Once the TMDLs/SSOs are approved and Order R8-2005-0079 is revised accordingly, including a revised schedule for compliance and selenium effluent limitations, this TSO will be rescinded.

Recommendation: Adopt Time Schedule Order No. R8-2009-0070, as presented.

+CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

ORDER NO. R8-2013-0061
AMENDING TIME SCHEDULE ORDER NO. R8-2009-0070
(As Amended on October 4, 2013)

For

CITY OF IRVINE, GROUNDWATER DEWATERING FACILITIES, ORDER NO. R8-2005-0079, NPDES NO. CA8000406, IRVINE, ORANGE COUNTY

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The California Regional Water Quality Control Board, Santa Ana Region (hereinafter Board) finds that:

1. On December 10, 2009, the Board adopted Time Schedule Order (TSO) No. R8-2009-0070 for the City of Irvine groundwater dewatering facilities, discharges from which are regulated under Order No. R8-2005-0079, NPDES No. CA800406. Order No. R8-2005-0079 expired on November 1, 2010 but was administratively extended.

2. TSO No. R8-2009-0070 (the TSO) extended the schedule for final compliance with the effluent limitations for selenium specified in Order No. R8-2005-0079 for a maximum of five years from the date of issuance of the TSO, or no later than December 10, 2014. The compliance date specified in Order No. R8-2005-0079 for these effluent limitations was no later than December 21, 2009. The TSO established interim requirements, including the requirement that the City of Irvine ("City", or "Discharger") either continue to implement the Cienega Field Demonstration Project as an acceptable selenium offset pursuant to the requirements of Order No. R8-2005-0079, or to continue to participate in the Nitrogen and Selenium Management Program (NSMP).

3. The City has complied with the TSO to date through the continued operation of the Cienega Field Demonstration Project, which results in reductions of selenium and nitrogen discharges to surface waters, and as a continuing member of the NSMP. Further, the City, with other dischargers, is pursuing the implementation of a second selenium structural Best Management Practice (BMP) to reduce selenium (and nitrogen) sources and offset selenium discharges, namely, the Peters Canyon Wash Pipeline Project.

4. On October 4, 2013, the Board's Executive Officer amended the TSO to allow for the use of the Peters Canyon Wash Pipeline Project as an additional selenium offset mechanism and compliance alternative, consistent with Order No. R8-2005-0079.

5. On December 10, 2009, the Board also adopted TSO No. R8-2009-0069 for Order No. R8-2007-0041, NPDES No. CAG918002, 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. TSO R8-2009-0069 also extended the final date for compliance with selenium effluent limitations specified in Order No. 2007-0041, by a maximum of five years from the date of issuance of the TSO, or no later than December 10, 2014.

6. Issuance of both of these TSOs was appropriate and necessary given the extraordinary challenge of controlling sources of selenium in the Newport Bay watershed and the lack of a readily available conventional treatment technology that could be implemented in a reasonably practicable manner so as to achieve immediate compliance with selenium effluent limitations.

7. The NSMP Working Group, of which the City of Irvine is a member, identified a schedule of tasks to be completed pursuant to TSO No. R8-2009-0069 for Order No. R8-2007-0041. The tasks included the submittal of a proposed Method of Compliance Workplan/Schedule, or "BMP Strategic Plan"[1], and a proposed regional monitoring program (RMP) for selenium. TSO No. R8-2009-0069 requires that both the BMP Strategic Plan and the Regional Monitoring Program be implemented by the NSMP Working Group within 90 days of their approval by the Regional Board.

8. A draft BMP Strategic Plan was submitted on January 1, 2011. A draft Regional Monitoring Program was submitted on January 3, 2011. These proposed plans were subsequently revised based on comments from Regional Board staff and re-submitted. The revised BMP Strategic Plan, dated September 27, 2013, includes a revised Regional Monitoring Program. The revised Plan, including the RMP, was submitted on October 10, 2013. Both plans were approved by the Regional Board's Executive Officer, pursuant to the authority delegated by the Board, on [date].

9. The approved BMP Strategic Plan identifies a three-phase approach to achieve compliance with selenium effluent limitations specified for both the City in Order No. R8-2005-0079 and for the groundwater-related discharges regulated under Order

[1] The NSMP was formed in response to the adoption of Order No. R8-2004-0021, NPDES No. CAG998002, General Waste Discharge Requirements for Short-Term Groundwater-Related Discharge and De Minimus Wastewater Discharges to Surface Waters within the San Diego Creek/Newport Bay Watershed. Order No. R8-2004-0021 specified selenium limitations for these discharges for the first time. Because no conventional treatment technology was available to achieve immediate compliance with these limitations, Order No. R8-2004-0021 specified a schedule of compliance for these limitations. Responsible parties formed the NSMP Working Group to develop and implement a 5-year workplan designed, in part, to evaluate, develop and make recommendations for the implementation of selenium treatment technologies and other control measures that would enable compliance and achieve applicable water quality standards. As part of the implementation of this 5-year workplan, the NSMP Working Group developed and proposed a BMP Strategic Plan. This proposed Plan is distinct from the BMP Strategic Plan required under the TSO, although it formed the substantive basis for and includes many of the same elements as the Plan required and later submitted under the TSO.

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No. R8-2007-0041. The Strategic Plan includes selenium reduction projects, including the Cienega Field Demonstration Project, the Peters Canyon Wash Pipeline Project and the Santa Ana-Delhi Channel Diversion Project, continued evaluation of potential selenium treatment technologies, and adaptive management of selenium control implementation based on the results of monitoring of BMP efficacy and the effects of selenium control implementation on the receiving waters. The Strategic Plan also includes commitments to participate with the Regional Board in the development of selenium site-specific objectives and revised selenium Total Maximum Daily Loads (TMDLs) for the Newport Bay watershed that would supplant the selenium TMDLs promulgated by the U.S. Environmental Protection Agency (USEPA) in 2002.

10. The City is the lead sponsor of the Peters Canyon Wash Pipeline Project (Project), which is expected to be complete by the end of 2015. The total project cost is approximately $8.7 million dollars, about half of which is expected to be provided by grant funds. Yearly operation and maintenance costs are estimated at $60,000.

11. Once operational, the Project is expected to achieve significant selenium (and nitrogen) reductions in the Peters Canyon Wash/San Diego Creek watershed. A total of approximately 229 lbs/year of selenium will be intercepted prior to discharge to Peters Canyon Wash and diverted to the Orange County Sanitation District sewer system. This includes approximately 100 lbs/year of selenium that are currently discharged on a temporary basis to the Irvine Ranch Water District sewer system from the Caltrans Groundwater Dewatering Facility. The Project will replace this temporary sewering arrangement with a permanent diversion structure. Not including this Caltrans discharge, new selenium reductions are expected to total approximately 129 lbs/year. Of this total, a reduction of ~15 lbs/year will result from the interception and diversion of dewatering discharges by the City, while a reduction of ~ 114 lbs/year will be achieved by the interception and diversion of diffuse rising/seeping groundwater that otherwise enters the surface water system. These diffuse groundwater discharges are not presently regulated. Selenium reductions as the result of the Project are expected to be significantly greater than the sum of all remaining selenium loads from other point source dewatering and groundwater cleanup discharges during dry weather. These selenium load reductions will be in addition to the on-going selenium reductions of ~ 12 lbs/year that result from the Cienega Field Demonstration Project.

12. The Project is expected to result in the reduction of approximately 67,700 lbs/year of nitrogen in the Peters Canyon Wash/San Diego Creek watershed. Of this total, ~44,300 lbs/year are currently discharged on a temporary basis to the Irvine Ranch Water District sewer system from the Caltrans Groundwater Dewatering Facility. The Project will replace this temporary sewering arrangement with a permanent diversion structure. New nitrogen reductions in the watershed are expected to total ~23,400 lbs/year.

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13. In addition to the development of the draft BMP Strategic Plans and RMPs and significant, costly and complicated multi-agency efforts to implement the Peters Canyon Wash Pipeline Project and other selenium reduction projects, the City, as a member of the NSMP, has been actively engaged in selenium-related technical and scientific investigations in the Newport Bay watershed. The intent of these investigations is to support Regional Board staff work to develop revised selenium TMDLs for the Newport Bay watershed. In addition, the investigations are intended to support recommendations for site-specific objectives for selenium for this watershed.

14. When the TSO was adopted on December 10, 2009, the Board anticipated that revised selenium TMDLs would be considered by the Regional Board in early 2010 and that subsequent, requisite approval of the TMDLs by the State Water Board, Office of Administrative Law and USEPA would follow thereafter in a timely manner. The approval process by these other agencies was anticipated to require at least one and more likely two years. It was recognized that upon final approval, the new TMDLs would be used as the basis for modifications to Order No. R8-2005-0079, including revised selenium effluent limitations and schedules for compliance with these limitations. Order No. R8-2005-0079 was administratively extended, rather than revised and re-issued upon its expiration, given these circumstances and to conserve Regional Board staff resources.

15. Pursuant to the terms of the TSO, the TSO remains in effect for a maximum of five years from its effective date, or December 10, 2014, or until such time as Order No. R8-2005-0079 is re-issued or amended to incorporate revised selenium effluent limitations and/or receiving water limitations that are consistent with the assumptions and requirements of the wasteload allocations contained in Board-approved TMDLs.

16. While, as described in the preceding findings, significant efforts have been and continue to be made by the City of Irvine and other members of the NSMP Working Group to develop revised TMDLs and to identify and implement selenium reductions to achieve compliance with selenium effluent limitations, it is recognized that substantive additional work is necessary to achieve these goals. It is anticipated that revised TMDLs will be recommended for adoption by the Regional Board by the end of 2014. A one to two year period thereafter is expected to be necessary to obtain all requisite agency approvals, whereupon the TMDLs would become effective and serve as the basis for revisions to Order No. R8-2005-0079.

17. Concurrent with work to develop and pursue approval of the revised TMDLs, the City, with other members of the NSMP Working Group, is required to implement the approved BMP Strategic Plan (dated September 27, 2013). This is expected to result in significant reductions in selenium discharges in the Newport Bay watershed, even though specific wasteload and load allocations applicable to these discharges

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will not become effective for regulatory purposes until the TMDLs receive all requisite approvals.

18. California Water Code (CWC) Section 13385(j)(3)(C)(ii)(II) provides that following a public hearing, and upon a showing that the discharger is making diligent progress towards bringing the waste discharge into compliance with the effluent limitation, the regional board may extend the time schedule specified in a time schedule order issued to that discharger for an additional period not exceeding five years, if the discharger demonstrates that the additional time is necessary to comply with the effluent limitation.

19. As described in the preceding findings, the City of Irvine is making diligent progress toward bringing waste discharges into compliance with selenium effluent limitations and has demonstrated that additional time is necessary to achieve that compliance. Per CWC section 13385(j)(3)(C)(ii)(II), it is appropriate to extend the TSO by no more than five years, i.e., to no later than December 10, 2019. The extension will allow the completion of work necessary to complete revised selenium TMDLs and to re-issue Order No. R8-2005-0079 to incorporate revised effluent limitations and other requirements necessary to implement the new TMDLs. No other changes to the TSO are necessary.

20. Issuance of this amendment to the TSO is exempt from the provision of the California Environmental Quality Act (Public Resources Code, Section 21000, *et seq.)*, in accordance with Section 15321(a)(2), Title 14, California Code of Regulations.

21. Any person adversely affected by this action of the Regional Water Board may petition the State Water Board to review the action. The petition must be received by the State Water Board Office of the Chief Counsel, P.O. Box 100, Sacramento, CA, 95812-0100, within 30 days of the date on which the action was taken. Copies of the law and regulations applicable to filing petitions will be provided on request. Copies of the law and regulations applicable to filing petitions will be provided on request. Information regarding the petition process may also be found at the State Water Board website: http://www.waterboards.ca.gov/public_notices/petitions/water_quality/index.shtml.

IT IS HEREBY ORDERED THAT:

1. Time Schedule Order No. R8-2009-0070 shall be extended for up to an additional five years, as set forth in Attachment 1, which includes the following amendment:

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"7. This Order, as amended on October 4, 2013, and further amended by Order No. R8-2013-0061 on December 6, 2013, shall remain in effect for a maximum of five years from its current expiration date, or until December 10, 2019, or until such time as Order No. R8-2005-0079 is re-issued to incorporate revised selenium effluent limitations and other requirements necessary to implement Board approved selenium TMDLs. "

2. All other terms and conditions of Time Schedule Order No. R8-2009-0070, as amended, remain in full force and effect.

This Order is effective upon the date of signature.

_____
Kurt V. Berchtold, Executive Officer

_____
December 6, 2013

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

TIME SCHEDULE ORDER NO. R8-2009-0070
(As Amended on October 4, 2013 and As Amended by Order No. R8-2013-0061 on December 6, 2013)

For

CITY OF IRVINE, GROUNDWATER DEWATERING FACILITIES, ORDER NO. R8-2005-0079, NPDES NO. CA8000406, IRVINE, ORANGE COUNTY

The California Regional Water Quality Control Board, Santa Ana Region (Regional Water Board), finds that:

1. In May 2000, the United States Environmental Protection Agency (USEPA) promulgated what is known as the California Toxics Rule (CTR), which consists of numeric water quality criteria for priority toxic pollutants and other water quality standards provisions to be applied to waters in the State of California (State) (See 40 C.F.R. 131.38). USEPA promulgated the CTR based on a determination that the numeric criteria are necessary to protect human health and the environment. The CTR contains a numeric chronic aquatic life criterion for selenium in freshwater of 5 micrograms per liter (5 µg/L), as total recoverable selenium, and in saltwater of 71 µg/L, as total dissolved selenium (40 C.F.R. 131.38(b)(1).)

2. The CTR provides the State with discretion in how to implement the relevant criteria. Accordingly, in March 2000, the State Water Resources Control Board ("State Water Board") adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). The State Water Board amended the SIP in February 2005 with Resolution No. 2005-0019. USEPA has approved the SIP for use as the State's implementation plan for CTR constituents.

3. On June 14, 2002, USEPA promulgated Total Maximum Daily Loads (TMDLs) for Toxic Pollutants in San Diego Creek and Newport Bay. TMDLs were established for organochlorine compounds, organophosphate pesticides, metals (chromium, cadmium, mercury, copper, lead and zinc) and selenium.

4. The USEPA TMDLs established waste load allocations (WLAs) for discharges of groundwater to surface water for selenium based on the CTR chronic criteria for selenium in freshwater and saltwater. However, USEPA's TMDLs are not self-executing, contain no implementation plan, and have not been incorporated into the Basin Plan for the Santa Ana Region. Neither the State nor Regional Water Board has developed an implementation plan for the USEPA TMDLs.

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5. On November 18, 2005, the Regional Water Board adopted Order No. R8-2005-0079, NPDES No. CA8000406 for groundwater dewatering discharges by the City of Irvine ("City" or "Discharger"). Pursuant to the SIP, the Regional Water Board incorporated numeric selenium effluent limits based on the CTR chronic freshwater and saltwater aquatic life criteria into Order No. R8-2005-0079, with a compliance schedule requiring compliance with the final effluent limits to be achieved no later than December 21, 2009. As interim compliance measures, Order No. R8-2005-0079 allowed for compliance with the selenium effluent limitations through either an approved offset program, which offset was to be completed no later than December 21, 2009, or by participation in the Nitrogen and Selenium Management Program [NSMP] prior to the December 21, 2009 date.

6. Section IV.A.1.a of Order No. R8-2005-0079 contains final effluent limitations based on CTR criteria for total recoverable selenium for discharges to San Diego Creek and its tributaries at the following levels: (1) the maximum daily concentration limit (µg/L) is 8.4; and (2) the average monthly concentration limit (µg/L) is 4.0.

7. Section IV.A.1.b of Order No. R8-2005-0079 provides that compliance with the selenium effluent limitations specified in Section IV.A.1.a shall be achieved as soon as possible but no later than December 21, 2009.

8. On December 20, 2004, the Regional Water Board adopted Order No. R8-2004-0021, NPDES No. CAG998002, General Waste Discharge Requirements for Short-Term Groundwater-Related Discharges and De Minimus Wastewater Discharges to Surface Waters within the San Diego Creek/Newport Bay Watershed. Order No. R8-2004-0021 specified selenium effluent limitations and other requirements substantially similar to those specified in Order No. R8-2005-0079. In response to the issuance of Order No. R8-2004-0021, many of the San Diego Creek/Newport Bay watershed stakeholders/dischargers established a voluntary Nitrogen and Selenium Management Program (NSMP) Working Group. The NSMP Working Group includes representatives from local governments and agencies, developers and other private entities, water districts, State agencies including the Regional Water Board, and environmental groups. The City of Irvine is a member of the NSMP Working Group.

9. Order No. R8-2004-0021 permitted, among other things, the dischargers thereunder to achieve interim compliance with the selenium limits set forth in such Order by the efforts of the NSMP Working Group in developing and implementing a work plan to assist in identifying a comprehensive management plan for selenium and nitrogen and, in particular, to identify an approach to address rising groundwater, the largest source of selenium in the watershed. The NSMP Work Plan and Compliance Strategy (Work Plan) was approved by the Executive Officer of the Regional Water Board in July 2005. The Working Group, including the City of Irvine, has been implementing the approved Work Plan since July 2005.

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10. On November 30, 2007, the Regional Water Board adopted Order No. R8-2007-0041, NPDES No. CAG918002. Order No. R8-2007-0041 is a general permit that regulates discharges of treated wastewater from groundwater dewatering and/or groundwater remediation activities at sites polluted by petroleum hydrocarbons, solvents, metals and/or salts within the San Diego Creek/Newport Bay watershed. Consistent with Order No. R8-2004-0021, Order No. R8-2007-0041 required compliance with final effluent limits based on the CTR chronic criteria for selenium by no later than December 20, 2009. Order No. R8-2007-0041 has replaced Order No. R8-2004-0021, and Order No. R8-2004-0021 has now been rescinded. Order No. R8-2007-0041 was later amended by Order No. R8-2009-0045, which was adopted by the Regional Water Board on July 20, 2009. Order No. R8-2009-0045 amended Order No. R8-2007-0041 by expanding and clarifying the nature of the discharges allowed under Order No. R8-2007-0041.

11. The NSMP Work Plan included a number of selenium-related tasks for the Newport Bay watershed that were designed to inform review and refinement of the USEPA selenium TMDLs and adoption of selenium TMDLs, including an implementation plan, by the Regional Water Board. These tasks included the development of a conceptual model for selenium, an evaluation of selenium sources and loads, an assessment of the bioavailability and impacts of selenium on beneficial uses in the watershed, an evaluation of selenium speciation analytical methods, an evaluation and selection of potentially viable Best Management Practices (BMPs) and treatment technologies for selenium, pilot testing of the most promising BMPs/treatment technologies, and, if necessary and/or appropriate, the development of site-specific objectives (SSOs) for selenium. The results of these efforts provide the basis for a comprehensive selenium management strategy for the Newport Bay watershed that is identified in the implementation plan for the Regional Water Board's proposed selenium TMDLs. The Working Group efforts include the development of a draft BMP Strategic Plan that is a central part of the recommended TMDL implementation plan.

12. Controlling sources of selenium in the Newport Bay watershed poses extraordinary challenges given the watershed-wide scale of the selenium problem, its diffuse origin (largely rising groundwater) and the limited land available for placement of treatment facilities and BMPs because of the high degree of urbanization in the watershed. In addition, there is currently no readily available, conventional treatment technology that can be implemented in a reasonably practicable manner for point source discharges. In the Newport Bay watershed, approximately 85% of the existing selenium loads in surface waters originates from groundwater, and much of this load (about 78%) results from diffuse rising groundwater, which enters surface waters via springs and seeps in the unlined portions of the channels, and cracks and weepholes in storm drains and the concrete-lined portions of the channels. Discrete, groundwater-related discharges (e.g., groundwater dewatering and cleanup) and other regulated discharges (e.g., urban runoff) account for a

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relatively small part of the selenium load to surface waters. Therefore, selenium reductions needed to protect beneficial uses are best achieved on a regional, watershed-wide scale, addressing both non-point and point sources.

13. At this time, Regional Water Board staff, in collaboration with the NSMP Working Group, including the City of Irvine, is developing TMDLs and SSOs for selenium in the Newport Bay watershed[1] to be presented for consideration by the Regional Water Board in the spring of 2010 (the "Board TMDLs/SSOs"). Once approved, the SSOs will replace the CTR criteria for the relevant water bodies. As currently designed, implementation of the Board TMDLs/SSOs will involve, in large part, a collaborative watershed-based approach coordinated by and through the NSMP Working Group, as well as individual compliance plans to allow individual dischargers the ability to meet their assigned waste load allocations through separate compliance plans.

14. Through development of the Board TMDLs/SSOs and the NSMP, considerable new information has been, and continues to be, developed, including scientific and technical information related to the sources of selenium and its potential adverse impacts on beneficial uses in the Newport Bay watershed. This information was not available at the time Order No. R8-2004-0021 was issued, and much of it has been developed since Order No. R8-2005-0079 was issued. This new information indicates that the final CTR-based effluent limitations may not adequately protect beneficial uses within the Newport Bay watershed. Upon final approval of the Board TMDLs/SSOs, Order No. R8-2005-0079 will be revised to incorporate revised selenium effluent limitations and/or receiving water limitations consistent with the assumptions and requirements of the WLAs contained in the Board TMDLs/SSOs, and this Order will be rescinded. These revised limitations will be (and the interim limitations in this Order are) consistent with anti-backsliding requirements of the Clean Water Act.

15. As noted in Findings 8 and 9, the City is a member of the NSMP Working Group and has been working with other members to implement the approved Work Plan. In addition, the City has implemented, in conjunction with the Irvine Ranch Water District (IRWD), an approved offset program, namely, the Cienega Field Demonstration Project. The Cienega Field Demonstration Project entails

[1] The Newport Bay watershed encompasses both upper and lower Newport Bay and its tributaries, San Diego Creek, Santa Ana Delhi, and Big Canyon subwatersheds, and the Costa Mesa and Santa Isabel channels. To date, NPDES permits, TMDLs and amendments to the Basin Plan for the Santa Ana Region have referred to the watershed as the "San Diego Creek/Newport Bay" watershed. However, the County of Orange recently performed a comprehensive evaluation of all the watersheds located within their boundaries with the intent of verifying watershed divisions and nomenclature. The County decided that the San Diego Creek/Newport Bay watershed would simply be referred to as the Newport Bay watershed. All of the County programs, including the NPDES program, and all County documents now refer to the Newport Bay watershed. For consistency with the new nomenclature, these TMDLs/SSOs will also refer to the watershed as the Newport Bay watershed. Similarly, future NPDES permits will employ this nomenclature.

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subsurface treatment to remove selenium from surface water flows diverted to the facility. The Cienega Project is included in the NSMP Working Group draft Strategic Plan and will be considered for full-scale implementation if its selenium removal efficacy and cost-effectiveness are demonstrated. The City has indicated its interest in continuing to support the Cienega Project, both as a means to provide ongoing selenium offsets and as part of the comprehensive strategy, developed by the Regional Water Board in collaboration with the NSMP Working Group, to accomplish selenium reductions needed to meet water quality standards.

16. On October 4, 2013, the Regional Board's Executive Officer approved a second offset program, the Peters Canyon Wash ("PCW") Pipeline Project pursuant to the terms and conditions of Order No. R8-2005-0079. The PCW Pipeline Project will intercept and divert to the Orange County Sanitation District ("OCSD") flows including discharges from the California Department of Transportation ("Caltrans") Caltrans Groundwater Treatment Facility, and flows from Como Channel, Edinger Circular Drain, and Valencia Drain. The PCW Pipeline Project is expected to result in approximately 229 lbs/year of selenium reductions and 67,800 lbs/yr of nitrogen reductions, including Caltrans' discharge of 100 lbs of selenium/year and 44,300 lbs/yr of nitrogen, which are currently being sewered by the Irvine Ranch Water District on a temporary basis, and the City's discharge of approximately 15 lbs/year of selenium and 6,000 lbs/year of nitrogen. Operation of the PCW Pipeline Project is anticipated to more than offset the selenium and nitrogen loads from the City's dewatering discharges, and is expected to provide a general benefit to the greater watershed by further reducing selenium and nitrogen loads.

17. Given the complexity of the selenium problem and the limited practicable treatment technologies, a collaborative watershed-based approach to reducing selenium provides the best opportunity to achieve water quality objectives for selenium and to assure the protection of beneficial uses. Accordingly, this Order provides the option for the City to continue to participate in the NSMP Working Group to ensure that waste discharges containing selenium are brought into compliance with the CTR-based selenium effluent limitations in Order No. R8-2005-0079 in as short of a time period as possible. Alternatively, this Order provides the option for the City to continue to rely on selenium reductions provided by the City's (and IRWD's) operation of the Cienega Field Demonstration Project and/or the PCW Pipeline Project to offset selenium discharges during the pendency of this Order. As stated in Finding 14, once the Regional Water Board TMDLs/SSOs are approved, including the implementation plan, Order No. R8-2005-0079 will be revised to include limitations and other requirements necessary to implement the TMDLs/SSOs. This will include requirements consistent with the collaborative, watershed-wide approach that is anticipated in the proposed TMDL implementation plan.

18. The following is a schedule of tasks submitted by the NSMP Working Group, which will be completed within the next five years under Time Schedule Order No. R8-

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2009-0069 for Order No. R8-2007-0041. (For the purposes of this table, references to "Discharger" are to dischargers authorized under Order No. R8-2007-0041 and who elect to continue to participate in the NSMP Working Group through the execution of a Cooperative Watershed Program Funding Agreement).

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Task No.	Description of Activity	Compliance Date
1.	Discharger to elect to participate in the Nitrogen and Selenium Management Program (NSMP). (The Discharger's participation in the NSMP will be deemed to fulfill the general requirements outlined below that are not particular discharger tasks, so long as the discharger remains in material compliance with the terms of an executed NSMP Cooperative Watershed Program Funding Agreement.)	By the later of December 20, 2009 or the commencement of any discharge under Order No. R8-2007-0041.
2.	NSMP Working Group to develop and submit a Funding Agreement, including funding for offset, mitigation or trading provisions, to provide a consistent source of funding to address point source and nonpoint source discharges of selenium and nitrogen within the watershed.	
	a. Submit Funding Agreement and then current list of Dischargers participating therein to Regional Water Board	a. July 1, 2010
	b. Execute Funding Agreement	b. Participating dischargers seeking coverage under TSO R8-2009-0069 to execute Funding Agreement within 180 days of the Discharger's approval of the terms of the submitted Funding Agreement
3.	All dischargers are required to submit documentation with their notice of intent (NOI) to discharge that the feasibility of eliminating or reducing the volume of the discharge has been evaluated. The feasibility evaluation options will consist of (1) discharge to land; (2) discharge to sewer; and (3) offsite transport and disposal. Specifications and limitations of the three methods were listed in the NSMP report *Volume Reducing Best Management Practices for Short-Term Groundwater Related Discharges within Orange County – August 2005*	Ongoing
4.	NSMP Working Group to develop Method of Compliance Workplan/Schedule (BMP Strategic Plan)	

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Task No.	Description of Activity	Compliance Date
	a. A proposed BMP Strategic Plan and BMP Effectiveness Monitoring Plan will be developed by the NSMP Working Group for submittal to the Regional Water Board. The BMP Strategic Plan is to include the following elements: 1. A description of an approach to implement pollution prevention, source control and treatment control BMPs to meet TMDL targets for selenium; 2. Identification of BMP implementation priority areas that consider the level of biological significance and selenium concerns; 3. Identification of candidate source and/or treatment controls believed important to meet operative TMDL targets, including: a. type and approximate locations of controls; b. timing for implementation; c. treatment capacity; d. cost of implementation; and e. anticipated removal rates and/or load reductions 4. Early Action Tasks anticipated to be completed within 5 years from the date of this Order may include: a. type and approximate locations of controls; b. timing for implementation; c. treatment capacity; d. anticipated removal rates and/or load reductions; and e. study goals and relevance to future projects 5. A BMP Effectiveness Monitoring Program; 6. Milestones for Plan review, progress assessment and final selection of source and/or technology controls; 7. Final Control Technology Implementation Outline (Phase II)	a. January 1, 2011
	b. NSMP Working Group to commence implementation of BMP Strategic Plan	b. Within 90 days of Regional Water Board approval.
	c. NSMP Working Group to submit Annual BMP Strategic Plan implementation progress reports with corresponding decision tree schedule dependent on implementation success and subsequent development of selenium reduction technologies with the goal of implementing BMPs which are reasonably feasible to implement and which have been proven to be effective.	c. Annually after Regional Water Board Approval of BMP Strategic Plan
5.	Irrigation Reduction and Control Program Municipal dischargers seeking coverage under this TSO shall adopt an updated Model Water Efficient Landscape Ordinance (A.B. 1881) or one that is "at least as effective as" that Ordinance.	By the later of January 1, 2010 or as required by A.B 1881.
6.	NSMP Working Group to submit and implement Regional Monitoring Program as follows:	

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Task No.	Description of Activity	Compliance Date
	a. Regional monitoring program (RMP) for selenium to be submitted to Regional Water Board for approval	a. January 1, 2011
	b. Commence implementation of monitoring program	b. Within 90 days of Regional Water Board approval of RMP
	c. Submit annual monitoring reports	c. Annually after Regional Water Board Approval of RMP

The NSMP Working Group, which may continue to include the City of Irvine, will submit to the Regional Water Board on/or before each compliance date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, the reasons for such noncompliance will be stated, and will include an estimate of the date when the NSMP will be in compliance. The NSMP will notify the Regional Water Board by letter when it returns to compliance with the time schedule.

19. This Order provides interim selenium effluent limitations in lieu of the effluent limitations set forth in Order No. R8-2005-0079. Without these interim limitations, the Discharger's waste discharges after December 21, 2009 threaten to exceed the effluent limitations set forth in Finding 6 of this Order and, thus, threaten to violate Order No. R8-2005-0079.

20. California Water Code (CWC) Section 13300 states: "Whenever a regional board finds that a discharge of waste is taking place or threatening to take place that violates or will violate requirements prescribed by the regional board, or the state board, or that the waste collection, treatment, or disposal facilities of a discharger are approaching capacity, the board may require the discharger to submit for approval of the board, with such modifications as it may deem necessary, a detailed time schedule of specific actions the discharger shall take in order to correct or prevent a violation of requirements."

21. This Order is issued in accordance with CWC Section 13300 and establishes a time schedule for compliance.

22. In accordance with CWC Section 13385(j)(3), the Regional Water Board further finds that the Discharger may not be able to consistently comply with the final effluent limitations for selenium set forth in Order No. R8-2005-0079. These

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limitations are new requirements that became applicable to Order No. R8-2005-0079 after the effective date of adoption of the waste discharge requirements, and after July 1, 2000, for which new or modified control measures are necessary in order to comply with the limitations, and the new or modified control measures cannot be designed, tested, installed, and put into operation within 30 calendar days.

23. CWC Section 13385(h) and (i) require the Regional Water Board to impose mandatory minimum penalties upon dischargers that violate certain effluent limitations. However, CWC Section 13385(j) exempts certain violations from the mandatory minimum penalties. CWC Section 13385(j)(3) exempts a discharge from mandatory minimum penalties "where the waste discharge is in compliance with either a cease and desist order issued pursuant to CWC Section 13301 or a time schedule order issued pursuant to CWC Section 13300, if all the [specified] requirements are met."

24. Compliance with this Order exempts the Discharger from mandatory penalties for violations of the effluent limitation for Total Recoverable Selenium, as set forth in section IV.A.1.a of Order No. R8-2005-0079 in accordance with CWC Section 13385(j)(3).

25. CWC Section 13385(j)(3)(A) requires this Order to specify the actions that the Discharger is required to take in order to address the potential violations that may otherwise be subject to mandatory minimum penalties. This Order requires the Discharger to develop and implement new or modified control measures designed to achieve compliance with the effluent limitations as set forth in Finding 6 of this Order.

26. CWC Section 13385(j)(3)(D) requires the preparation and implementation of a pollution prevention plan pursuant to CWC Section 13263.3. The Discharger was required to demonstrate and has demonstrated that they have documented and made all practicable attempts to avoid, reduce or eliminate the discharge of selenium. The reduction/elimination of selenium discharges may be accomplished through volume reduction, including sewering. Potential volume reduction measures were evaluated by the NSMP Working Group and three volume reduction BMPs, including sewering, were deemed feasible. Selenium occurs in the groundwater-related discharges regulated under Order No. 2005-0079 as the result of additions from natural processes not subject to the control of the Discharger. Therefore, with respect to the selenium discharges addressed by Order No. 2005-0079, the evaluation and implementation of reasonably feasible discharge volume reduction measures, and the evaluation of and adherence to project design features or other practices that result in discharge avoidance fulfill the requirements of a Pollution Prevention Plan.

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27. The interim effluent limitations established by this Order for the Discharger shall be performance-based and set at the lowest reasonably feasible historical discharge levels, taking into account precipitation-driven and other sources of variation in selenium concentrations.

28. Issuance of this Order is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, section 21000, et seq.), in accordance with Section 1532(a)(2), Title 14, California Code of Regulations.

29. Any person adversely affected by this action of the Regional Water Board may petition the State Water Board to review the action. The petition must be received by the State Water Board Office of the Chief Counsel, P.O. Box 100, Sacramento, CA, 95812-0100, within 30 days of the date on which the action was taken. Copies of the law and regulations applicable to filing petitions will be provided on request.

30. The Regional Board recognizes that the City disagrees with the rationale behind and need for this Order. The City maintains that it is and will continue to be in compliance with the final effluent limitations set forth in Section IV.A.1.a of Order No. R8-2005-0079 after December 21, 2009 through the continued operation of an approved offset (the Cienega Field Demonstration Project and/or the PCW Pipeline Project) pursuant to Section IV.A.1.c or Order No. R8-2005-0079. Accordingly, the City accepts this Order without conceding this argument.

IT IS HEREBY ORDERED THAT pursuant to CWC Section 13300 and 13385, the Discharger shall comply with the following time schedule to ensure compliance with the final effluent limitations for selenium contained in Order No. R8-2005-0079, and as set forth in Finding 6 herein.

1. Throughout the term of this Order, the Discharger shall either (a) continue to implement the Cienega Field Demonstration Project, as approved by the Executive Officer on April 26, 2007, and/or the PCW Pipeline Project, as approved by the Executive Officer on October 4, 2013, and in accordance with the conditions of those approvals set forth by the Executive Officer therein, or (b) continue to participate in the Nitrogen and Selenium Management Program (NSMP). The Discharger shall notify the Executive Officer of its election in this regard within thirty (30) days of the effective date of this Order, and within thirty (30) days of any decision of the Discharger to change its election hereunder. If the Discharger, at any time, elects compliance with this Order through participation with the NSMP, then the Discharger shall provide to the Executive Officer of the Regional Water Board a copy of the Memorandum of Procedure, as amended, or Cooperative Watershed Program Funding Agreement, as applicable, showing the Discharger's membership in the Working Group.

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2. The Discharger shall re-certify that they have documented and made all practicable attempts to avoid, reduce or eliminate the discharge of selenium within 60 days from the date of this Order, or prior to any discharge under Order No. R8-2005-0079, whichever date is later.

3. If the Discharger elects compliance with this Order through its continued participation with the NSMP, then the Discharger shall comply with the following interim effluent limitation for Total Recoverable Selenium during the pendency of this Order and if so, the Discharger shall be deemed to be in compliance with this Order, provided the Discharger, as a member of the NSMP Working Group, is complying with the tasks and process described in Finding 17 during the period of discharge (as established by the Discharger to the satisfaction of the Executive Officer):

    a. The Discharger shall submit to the Executive Officer for approval, no later than 60 days following the adoption of this Order, a performance-based effluent limitation for selenium that is based on historical selenium discharge concentrations (e.g., the lowest reasonably feasible concentration based on their historical selenium discharges). Upon approval by the Executive Officer, the Discharger must not exceed this interim effluent limitation during the pendency of this Order.

4. If the Discharger elects compliance with this Order by providing selenium offsets through its continued operation of the Cienega Field Demonstration Project and/or the PCW Pipeline Project, then the Discharger shall continue to comply with the offset monitoring and reporting requirements included in Order No. R8-2005-0079 to demonstrate that requisite selenium offsets have been achieved.

5. If, in the opinion of the Regional Water Board Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may apply to the State Attorney General for judicial enforcement or issue a complaint for Administrative Civil Liability. If compliance with this Order is not achieved, the Discharger would not be exempt from the mandatory minimum penalties for violation of certain effluent limitations, and may be subject to the issuance of a Cease and Desist Order in accordance with CWC Section 13301.

6. Any person signing a document submitted under this Order shall make the following certification:

    "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are

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significant penalties for submitting false information, including the possibility of fine and imprisonment."

7. This Order, as amended on October 4, 2013, and further amended by Order No. R8-2013-0061 on December 6, 2013, shall remain in effect for a maximum of five years, or until December 10, 2019, or until such time as Order No. R8-2005-0079 is re-issued to incorporate revised selenium effluent limitations and other requirements necessary to implement Board approved selenium TMDLs. "

This Order is effective upon the date of signature.

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KURT V. BERCHTOLD, Executive Officer

Originally issued on December 10, 2009
Amended on October 4, 2013
Amended on December 6, 2013 (Order No. R8-2013-0061)

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