

State of California
Regional Water Quality Control Board
San Diego Region

EXECUTIVE OFFICER SUMMARY REPORT
December 16, 2015

- ITEM: 7
- SUBJECT: Waste Discharge Requirements: City of San Diego, North City Water Reclamation Plant, San Diego County (Tentative Order No. R9-2015-0091) (*Fisayo Osibodu and Alex Cali*).
- PURPOSE: To consider adopting Tentative Order No. R9-2015-0091, *Master Recycling Permit for the City of San Diego, North City Water Reclamation Plant, San Diego County* (Tentative Order).
- RECOMMENDATION: Adoption of the Tentative Order (Supporting Document No. 1) is recommended.
- PRACTICAL VISION: The Tentative Order will encourage increased use of recycled water within San Diego County, and allow recycled water to be used for various non-potable uses in place of imported water. This is consistent with the Chapter of the Practical Vision pertaining to a Sustainable Local Water Supply.
- KEY ISSUES:
1. The Tentative Order requires the City of San Diego (City) to ensure that recycled water is applied at rates that do not exceed plant demand in the use areas. In lieu of establishing a discharge specification for nitrogen, the Tentative Order requires the City to conduct a nitrate study to evaluate potential impacts of nitrogen in recycled water on groundwater quality.
 2. The Tentative Order includes requirements to allow for transport and use of recycled water from commercial and residential recycled water fill stations.
 3. The Tentative Order increases the annual average discharge specification for manganese from 0.05 to 0.1 milligrams per liter (mg/L).

DISCUSSION:

Order No. 97-03 established requirements for the production and purveyance of tertiary treated recycled water from the City of San Diego North City Water Reclamation Plant (NCWRP). The City submitted a Report of Waste Discharge (ROWD), dated January 12, 2015, requesting that the annual average discharge specification for manganese in Order No. 97-03 be increased from 0.05 to 0.1 mg/L. The City requested this change because the average annual effluent manganese concentrations have exceeded the discharge specification of 0.05 mg/L in Order No. 97-03 since 2004. No modifications to the treatment processes, flow capacity, or other facilities at the NCWRP are proposed.

The Tentative Order is a new Master Recycling Permit, including waste discharge requirements and water reclamation requirements, for the discharge of disinfected tertiary treated wastewater from the NCWRP. The San Diego Water Board prepared the new Master Recycling Permit because Order No. 97-03 is outdated and not consistent with some of the requirements contained in the State Water Board *Recycled Water Policy* (2013). The Tentative Order, if adopted, would supersede Order No. 97-03.

The NCWRP is located north of Miramar Road, west of Eastgate Mall, and east of Interstate 805 in the City of San Diego (Supporting Document No. 2). Treatment facilities at the NCWRP are comprised of primary, secondary and tertiary treatment processes - including coagulation, filtration, and chlorine disinfection.

The NCWRP has the capacity to produce up to 32 million gallons per day (mgd) of tertiary treated recycled water. Recycled water produced from the NCWRP is used primarily for landscape irrigation and industrial use in seven hydrologic areas, which include communities such as Mira Mesa, Miramar Ranch North, Scripps Ranch, University City, Torrey Pines, Santa Luz, Black Mountain Ranch, and portions of the City of Poway.

The City plans to establish residential and commercial recycled water fill stations from which customers can haul recycled water for various non-potable uses such as irrigation, construction type uses, street sweeping, and firefighting. As a result, the Tentative Order establishes requirements to ensure that the transport and use of

recycled water from the fill stations is protective of water quality, public health, and the environment.

The Tentative Order establishes a new method for determining compliance with the annual average discharge specifications. The annual average discharge specifications for all constituents are calculated as averages based upon the calendar year rather than calculated as a running average of the previous 12 months. This change is appropriate because short-term fluctuations in recycled water quality may cause a running average discharge specification to be exceeded, but not adversely impact receiving groundwater quality in the long term. Using discharge specifications based upon the annual average concentrations of constituents in recycled water will result in better compliance with the Order while still protecting receiving groundwater quality.

The Tentative Order increases the annual average effluent discharge specification for manganese from 0.05 to 0.1 mg/L, as requested by the City. The average effluent manganese concentration is approximately 0.071 mg/L, while the maximum manganese concentration since 2007 is 0.125 mg/L. The annual average discharge specification for manganese of 0.1 mg/L exceeds the manganese groundwater quality objective of 0.05 mg/L¹ in some of the HAs where the City provides recycled water for landscape irrigation. Manganese uptake by vegetation in the use areas and adsorption of manganese onto soil particles is expected to reduce manganese levels and prevent the discharge of recycled water from causing the concentration of manganese in groundwater to exceed the water quality objective for manganese. The ROWD estimates that at an annual irrigation rate of three feet /year, the annual manganese loading rate will be about 0.57 pounds per acre (lbs/ac). Based on an expected annual uptake of manganese for grass of about 0.4 to 0.6 lbs/ac, the majority of the manganese contained in the recycled water will be taken up by vegetation in the use areas.

The Tentative Order does not establish a discharge specification for nitrogen. Nitrogen is a nutrient utilized by vegetation for plant growth. The *Rules and Regulations for Recycled Water Use* (Supporting Document No. 1,

¹ This concentration is based upon the secondary Maximum Contaminant Level for drinking water from section 64449 (Table 644490-A) in title 22 of the California Code of Regulations.

Attachment B) in the Tentative Order require the end users to ensure that recycled water and fertilizer are appropriately applied at rates that meet nutrient demand and prevent excess nitrogen from leaching beyond the plant root zone to groundwater. The Tentative Order requires the City to provide end users with the nitrogen content of recycled water, and to train site supervisors on how to minimize runoff or over-irrigation and take into account the nutrient value of the recycled water. The Tentative Order also requires the City to submit results of a nitrate study by December 16, 2016 which evaluates impacts of the discharge on groundwater quality. The intent of the nitrate study is to verify if the processes of nitrogen uptake by plants in the end use areas, and nitrogen losses due to volatilization and denitrification are sufficiently protective mechanisms to prevent adverse effects upon groundwater quality or beneficial uses of groundwater.

The City is the major producer of recycled water within the Poway groundwater basin. The City of San Diego and the City of Poway are responsible for distributing recycled water within the groundwater basin. Consequently, the Tentative Order requires the City to participate in the effort to develop a salt and nutrient management plan for the Poway groundwater basin.

Written comments on the Tentative Order and the Information Sheet were received from the City and the San Diego County Water Authority (Supporting Document No. 3), and San Diego Water Board responses to these comments are included in the agenda package (Supporting Document No. 4). Changes made to the Tentative Order (Supporting Document No. 5) as a result of the City's comments are shown in underline/strikeout format. A clean copy of the Tentative Order is included as Supporting Document No. 1.

LEGAL CONCERNS: None.

SUPPORTING DOCUMENTS:

1. Tentative Order No. R9-2015-0091
2. Location Map
3. Comment Letters
4. Responses to Comments
5. Underline/Strikeout version of Tentative Order No. R9-2015-0091
6. Notification Letter

**SIGNIFICANT
CHANGES:**

The Tentative Order makes the following significant changes from Order No. 97-03:

1. Changes the annual average discharge specification for manganese from 0.05 to 0.1 mg/L.
2. Establishes annual average discharge specifications for all constituents as averages based upon the calendar year rather than the running average of the previous 12 months.
3. Requires the City to conduct a nitrate study to evaluate potential impacts of nitrogen in recycled water on groundwater quality.
4. Requires the City to participate in the development of a salt and nutrient management plan for the Poway groundwater basin.

**COMPLIANCE
RECORD:**

The City has consistently violated the annual average discharge specification for manganese since 2004.

PUBLIC NOTICE:

Notification of this action was sent to known interested parties by mail on October 6, 2015 (Supporting Document No. 6). The Tentative Order was also posted on the San Diego Water Board website on October 7, 2015. These actions satisfy the requirements of California Water Code, Division 7, and section 13167.5 for providing public notification and a 30-day period for public comment prior to the adoption of the Tentative Order.