

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION**

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**ORDER NO. R4-2003-0134-A0X
(FILE NO. 97-208)**

**AMENDING WASTE DISCHARGE REQUIREMENTS (WDRs) AND WATER
RECYCLING REQUIREMENTS (WRRs) FOR HARBOR WATER RECYCLING
PROJECT – DOMINGUEZ GAP BARRIER PROJECT**

ISSUED TO

**CITY OF LOS ANGELES DEPARTMENT OF WATER AND POWER
CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA**

The California Regional Water Quality Control Board, Los Angeles Region (hereinafter Regional Water Board), finds:

1. Three Orders are associated with the Harbor Water Recycling Project (HWRP) – Dominguez Gap Barrier (Barrier) Project, as listed below:
 - A. On October 2, 2003, the Regional Water Board adopted Order No. R4-2003-0134 for the HWRP – Barrier Project, which injects disinfected recycled water and imported diluent water¹ into the Barrier via injection wells.
 - B. On October 7, 2010, the Regional Board adopted Order No. R4-2010-0183 amending the groundwater monitoring program and deleting the tracer monitoring program contained in Order No. R4-2003-0134. All other provisions and requirements of Order No. R4-2003-0134 not in conflict with R4-2010-0183 remain in full force and effect.
 - C. On February 3, 2011, the Regional Board adopted Order No. R4-2011-0034 amending Order No. R4-2003-0134 to remove Section VI.7. All other provisions and requirements of Order No. R4-2003-0134 not in conflict with R4-2011-0034 remain in full force and effect.
2. The City of Los Angeles owns and operates the Terminal Island Water Reclamation Plant (TIWRP), a Publicly-Owned Treatment Works with a design capacity of 30 million gallons per day (mgd) located in San Pedro, CA. Tertiary-treated recycled water produced at the TIWRP is further treated on-site by the Advanced Water Treatment Facility (AWTF), which includes microfiltration and reverse osmosis (MF/RO). This process is part of the HWRP and it produces recycled water that may be used for various purposes throughout the Los

¹ Imported diluent water is water that is not treated wastewater and is used to supplement the recycled water delivered to the Barrier. Imported diluent water is potable water purchased from the West Basin Municipal Water District and meets the criteria in the California Code of Regulations, Title 22, Division 4, Chapter 3.

Angeles Harbor area. Up to 5 mgd of the recycled water from the AWTF is currently permitted to be injected into the Dominguez Gap as part of the Barrier Project. In addition, the amount of recycled water injected into the Barrier may not exceed fifty percent of the total water (recycled and diluent water) injected into the Barrier annually.

3. The Barrier is comprised of a line of 94 injection wells connected by a common header along the south-facing coast of the West Coast Basin in the community of Wilmington, north of Terminal Island and west of the Los Angeles River (Attachment 1). The well alignment extends eastward on E Street from the Palos Verdes Hills to the Dominguez Channel, where it turns towards the northeast along the western bank of the channel. Water is injected into the 200-Foot Sand aquifer in the east-west alignment of the Barrier, and into both the 200-Foot Sand and 400-Foot Gravel aquifers in the north-south alignment of the Barrier. The total span of the injection well alignment is approximately 6.2 miles.
4. On April 29, 2015, the City of Los Angeles, Bureau of Sanitation (LASAN) requested approval from the State Water Resources Control Board, Division of Drinking Water (DDW) to increase recycled water production at the TIWRP's AWTF. In 2012, LASAN installed two additional MF skids and replaced old membranes in the existing 10 microfiltration skids. In addition, all of the RO membranes were replaced with new membranes that have a larger filter surface area. These modifications allow the AWTF to produce 20% more recycled water than with the previous system, an increase in production capacity from 5.0 to 6.0 mgd. The chlorine contact tank was originally built in 2002 to handle up to 6.0 mgd, but the initial tracer study conducted in 2002 only considered a flow rate of 2.5 and 5.0 mgd. In order to demonstrate the actual detention time for 6.0 mgd, tracer tests were conducted in 2014 on 5.0 and 6.0 mgd. The final report titled *Terminal Island Water Reclamation Plant Advanced Water Purification Facility Chlorine Contact Tank Tracer Test* (2015 Tracer Study) was submitted to DDW along with the request for approval to increase recycled water production.
5. On May 11, 2015, DDW responded to LASAN's request to increase recycled water production at the AWTF and stated that the 2014 Tracer Study was acceptable for flows up to 6.0 mgd. DDW also specified that the detention times in Table 2 of the 2014 Tracer Study be used for calculating the disinfection credit.
6. On June 16, 2015, LASAN requested from the Regional Water Board a revision to the current WRRs for the TIWRP to increase production of recycled water at the AWTF from 5.0 to 6.0 mgd.
7. Water Code section 13540 requires that recycled water may only be injected into an aquifer used as a source of domestic water supply if DDW finds the recharge will not degrade the quality of the receiving aquifer. To facilitate determination of whether a recharge project will not degrade the receiving groundwater, DDW has developed groundwater replenishment Water Recycling Criteria for indirect potable reuse, including subsurface application (California Code of Regulations Title 22, Division 4, Chapter 3). The recycled water produced at the AWTF consistently meet these criteria.
8. The groundwater in the Barrier project area has also been monitored extensively since the introduction of recycled water into the Barrier began in 2006. The Water Replenishment

District of Southern California conducted a groundwater monitoring program between April 1998 to February 1999 to establish a baseline groundwater quality database along the injection Barrier, and for adjacent groundwater production wells (*Baseline Groundwater Quality Monitoring Report – Dominguez Gap Barrier Recycled Water Project*, April 2001). Both historical and current evidence and data demonstrate that water quality in monitoring wells located between the Barrier and production wells vary considerably between aquifers and that many constituents in the groundwater exceed primary and secondary Maximum Contaminant Levels (MCLs). Groundwater is negatively impacted by salt concentrations due to seawater intrusion. Groundwater monitoring data; however, indicates that the groundwater quality in the vicinity of the injection wells has improved since injection began in 2006. Since the recycled and diluent water (1) comply with the criteria in Title 22 of the California Code of Regulations, (2) do not exceed the primary and secondary MCLs, and (3) the quality of the recycled water being discharged to the groundwater will not change as a result of the permitted increase in flow, the continued injection of recycled water at the increased permitted flow rate is projected to further decrease the levels of those constituents that are currently monitored per Order R4-2003-0134 and improve groundwater quality in the aquifer. Consequently, the Regional Water Board finds that this activity will not produce waste that will discharge into existing high quality waters.

9. The increased permitted flow to the Barrier will also allow the City to more reliably inject 50% recycled water and further decrease the City's reliance on imported water for the Barrier and to improve the performance of the Barrier to combat seawater intrusion.

The Regional Water Board, in a public hearing, heard and considered all testimony pertinent to this matter. All Orders referred to above, Regional Water Board files on this matter, and records of hearings and testimony therein are included in the administrative record for this matter.

IT IS HEREBY ORDERED that Order No. R4-2003-0134, adopted by this Regional Water Board on October 02, 2003, is hereby amended as follows (additions are underlined, deletions are lined through):

1. **Revise section 16 on page 5:**

The City of Los Angeles' Bureau of Sanitation (LASAN) conducted a tracer study in 2002 to determine the minimum modal contact time in the chlorine contact tank at nominal flow rates of 2.5 mgd and 5.0 mgd. In 2014, LASAN conducted an additional tracer study to determine the minimum modal contact time in the chlorine contact tank at nominal flow rates 5.0 and 6.0 mgd. These flow rates are proposed for the operation of the AWTF. LASAN DWP submitted the report for the 2002 and 2014 tracer studies in October 16, 2002, to the Regional Board and DHS the State Water Resources Control Board, Division of Drinking Water, on October 16, 2002, and April 29, 2015, respectively. Table 2 summarizes the flows and corresponding chlorine contact tank detention times from these studies. shows the results.

Table 2 – Results of Tracer Study			
Nominal Flow Rate (mgd)	Actual Average Flow Rate (gallons per minute-mgd)	Detention Time (minutes)	Test Date
2.5	2.42 1,736	305 300	06/06/02
5.0	4.96 3,472	155 150	07/31/02

Table 2 – Results of Tracer Study			
Nominal Flow Rate (mgd)	Actual Average Flow Rate (gallons per minute-mgd)	Detention Time (minutes)	Test Date
5.0	3,472	148	05/20/14
6.0	4,167	112	05/22/14

2. **Revise section III.6.A. on page 16:**

For purposes of calculating and demonstrating compliance with the CT requirement, the Discharger shall use modal contact time of 300-296 minutes, and 150-157 minutes, and 101 minutes, for flow rates of 2.5 mgd, and 5.0 mgd, and 6.0 mgd, respectively.

3. **Revise section III.6.B on page 16:**

In case the RO operation is changed to produce recycled water at flow rates other than 2.5, and 5, and 6.0 mgd, tracer studies shall be conducted to develop a curve ~~for~~ to estimate the contact times at various flow rates. The studies shall follow the protocol outlined in *Tracer Studies in Water Treatment Facilities: A Protocol and Case Studies* published by the American Water Works Association Research Foundation, 1996. A final report on the tracer studies shall be submitted to the DHS and the Regional Board within 30 days of completing the studies.

4. **Revise section IV.1. on page 18:**

The total volume of recycled water recharged by injection shall not exceed 56.0 mgd based upon a daily average.

5. This Order shall be attached to the Order it modifies and will be provided to the Permittee.

6. The expiration date, and all other limitations, Requirements, and Provisions of Order No. R4-2003-0134 not in conflict with this amendment remain in full force and effect.

I, Samuel Unger, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on October 08, 2015.

Samuel Unger, P.E. Executive Officer

Dominguez Gap Barrier Project Overview Map

