State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. R4-2011-0033 AMENDING ORDER NO. R4-2003-0025
(File No. 02-159)

WATER RECYCLING REQUIREMENTS AND
WASTEWATER DISCHARGE REQUIREMENTS
FOR
CITY OF LOS ANGELES
HARBOR WATER RECYCLING PROJECT – NONPOTABLE REUSE PROJECT

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

1. The City of Los Angeles (City) proposes to produce and distribute reverse osmosis (RO) treated recycled water from its Harbor Water Recycling Project (HWRP) for nonpotable applications - irrigation, industrial, and recreational. This Nonpotable Reuse Program is one of the two programs under the Harbor Water Recycling Project (HWRP). The other is injection of recycled water into the Dominguez Gap Barrier Project (Barrier Project) that will be regulated under separate water recycling requirements. The HWRP programs are being undertaken by the City to comply with Regional Board Resolution No. 94-009 (discussed in Finding 7) to ultimately phase out discharge of wastewater into the Los Angeles Harbor.

   Tertiary treated effluent from TITP will undergo further treatment at the HWRP's an advanced wastewater treatment facility (AWTF) that is reverse osmosis system. In addition, HWRP also includes a pump station at TITP, and a transmission system to convey the recycled water to users in the Los Angeles Harbor area. Currently, the TITP/HWRP facilities and layout, in particular the chlorine disinfection and transmission systems, are such that the City can only distribute recycled water treated through reverse osmosis. Initially, HWRP will produce about 5 mgd of RO-treated recycled water. In the future, if the City would distribute for reuse tertiary treated wastewater, additional disinfection and transmission facilities would have to be constructed.

2. The City of Los Angeles Department of Public Works through its Bureau of Sanitation owns and operates the TITP. The City of Los Angeles Department of Water and Power (LADWP) owns the HWRP, but the Bureau of Sanitation operates the facilities. LADWP is the purveyor of recycled water produced at HWRP's AWTP. Therefore, both the Bureau of Sanitation and LADWP are the Recyclers and are individually and collectively responsible for compliance with the requirements in this Order.

PURPOSE OF ORDER

3. On July 9, 1997, LADWP submitted a report of waste discharge (ROWD) and applied for water recycling requirements, pursuant to California Water Code Section 13522.5, for the nonpotable reuse of RO-treated recycled water. On June 20, 2002, the LADWP, as requested by this Regional Board, filed an updated ROWD.

4. This Order is a master water recycling permit issued to the City of Los Angeles, specifically to LADWP and the Bureau of Sanitation, pursuant to California Water Code Section 13523.1. This Order prescribes the Recyclers responsibilities for the production, distribution and application of recycled water. The Recyclers are also responsible for processing individual end-users' applications, inspecting point-of-use facilities, and ensuring end-users' compliance with the water recycling requirements contained in this Order. The actual delivery of recycled water to end-users is subject to approval by the State Department of Health Services (hereinafter DHS), and/or its delegated local health agency.

TERMINAL ISLAND TREATMENT PLANT

5. TITP is a publicly owned treatment work (POTW) located at 445 Ferry Street, San Pedro, California, approximately 20 miles south of downtown Los Angeles (see Figure 1 for vicinity map). It was built in 1935 with a treatment process comprised of preliminary treatment and primary treatment with the effluent discharged into the Los Angeles Harbor. TITP was upgraded to secondary treatment employing the activated sludge process in 1977, and further upgraded to tertiary treatment in 1996. TITP has an average dry weather design treatment capacity of 30 mgd and peak design flow capacity of 50 mgd. For the last five years (1997 to 2001), sewage flow to the plant averaged approximately 17 mgd. The plant discharge of tertiary treated municipal wastewater to the Los Angeles Outer Harbor averaged approximately 16 mgd for the same period.

6. Discharge to the Harbor has been regulated under the National Pollutant Discharge Elimination System (NPDES) Permit No. CA0053856 issued by this Regional Board. It is also subject to the State Water Resources Control Board's Enclosed Bays and Estuaries Policy established in 1974. The policy requires POTW discharges to enclosed bays and estuaries to cease at the earliest practicable date. In 1977, this Regional Board ordered the City of Los Angeles to phase out the TITP discharge to the Harbor at the earliest practicable date or demonstrate that the discharge enhances the quality of the receiving water. The City of Los Angeles opted for the latter approach but was not successful in demonstrating that the TITP effluent enhances the water quality in the Harbor. Therefore in 1977, this Regional Board issued Order No. 85-77 requiring the City of Los Angeles to cease the TITP discharge to the Harbor at the earliest practicable date.

7. On October 31, 1994, this Regional Board adopted Resolution No. 94-009, which approved the implementation of water recycling as a means to phase out the TITP discharge to the Los Angeles Harbor. The City of Los Angeles agreed to initiate recycling secondary effluent for delivery of 5 mgd of recycled water to LADWP's Harbor Generating Station and the Barrier Project by December 1999 (Phase I), and adopt the goals of doubling the reuse of effluent 6 years after the start of Phase I (Phase II), and achieve total reuse by the year 2020 (Phase III).

8. TITP is located within the Los Angeles Coastal Plain, and the proposed recycled water use areas are within the West Coast Groundwater Basin, which is a part of the Los Angeles Coastal Groundwater Basin.

HARBOR WATER RECYCLING PROJECT (HWRP)

9. To implement Regional Board Resolution No. 94-009, the City of Los Angeles has been constructing the HWRP in phases with the ultimate goal of producing 22.5 mgd recycled water for reuse in the Barrier Project and other applications, including irrigation, industrial, and recreational. Table 1 presents the proposed quantity of recycled water to be produced for each phase.

Table 1 – Projected Recycled Water Production Capacity	
Phase	Product Recycled Water (mgd)
I	5.0
II	12.0
III	22.5

For the Phase I recycled water, LADWP has identified the following two users:

Table 2 – Usage of Recycled Water (mgd)		
User	Average	Maximum
Dominguez Gap Barrier Project (groundwater Injection)	2.2	4.0
Harbor Generating Station (boiler make-up water)	---	0.4

The use of recycled water will replace imported potable water. The Recyclers are actively pursuing additional users for Phase I. Any additional recycled water produced in future phases may be used for various irrigation, industrial uses, and recreational impoundments.

SOURCE, TREATMENT, AND TRANSMISSION OF RECYCLED WATER

10. TITP treats wastewater from industrial, commercial and residential sources located in Terminal Island, San Pedro, Wilmington, and portions of Harbor City. Approximately 60 percent of wastewater come from industrial/commercial sources, and the remaining 40 percent from residential sources. In compliance with 40 Code of Federal Regulations Part 403 and the NPDES permits for TITP and other POTWs owned and operated by the City of Los Angeles, the City of Los Angeles developed, and has been implementing, a Pretreatment Program. Two of the four primary objectives of the Program are to prevent to pass through of pollutants or to cause interference in the operation of the POTWs by regulating the discharge of toxic pollutants into the POTWs. The program reduces the likelihood of toxic contamination of the effluent and provides reliability in the treatment process.

11. Treatment at TITP consists of preliminary, primary, secondary, and tertiary treatment. Figure 2 depicts the flow diagram of the TITP treatment process. Preliminary treatment at the headworks removes coarse particles and debris from the wastewater. The primary settling tanks remove the majority of the organic and inorganic suspended solids. Secondary treatment uses the activated sludge process and consists of aeration basins where most of the total organic carbon is removed by microorganisms, followed by

clarifiers that remove most of the microorganisms and suspended inorganic solids. Tertiary treatment consists of coagulation and filtration in conventional, deep bed, tri-media (anthracite, sand and gravel) gravity filters. Tertiary treatment reduces settleable solids, suspended solids, turbidity and organic chemicals in the wastewater.

Sludge removed from primary and secondary treatments are pumped to the solids handling facility that includes air flotation, sludge blending, anaerobic digesters, centrifuges and sludge drying beds. Coarse solids and debris removed from preliminary treatment and dried sludge are hauled to a landfill that is permitted to accept such wastes, or the latter is beneficially reused in a manner that does not impact water quality.

12. For HWRP-Phase I, approximately 7.4 mgd of tertiary-treated effluent will be pumped to the AWTF. The remaining tertiary treated effluent will continue to be discharged to the Los Angeles Harbor. Figure 3 depicts the schematic of the tertiary treatment and Phase I AWTF treatment process. The AWTF is comprised of the following:

    A. Microfiltration (MF): MF will be used to pretreat the tertiary effluent prior to RO for increased system reliability and reduced RO membrane fouling. The tertiary treated effluent will be fed into automatic, self-cleaning, 500-micron strainers and then the flow will be split into two parallel trains. Each train contains 5 parallel Memcor MF units. The MF units will be periodically back washed to clean the membranes. The backwash will be sent back to TITP's headworks for reprocessing.

    B. Reverse Osmosis: The MF filtrate will be fed into two separate RO process trains that use thin film membranes. Each RO process train will have two stages in series to achieve a guaranteed recovery rate of 80 percent with a rated operating recovery of 85 percent. The brine from the first stage is used as feed water for the second stage. The RO will remove salts, minerals, metal ions, organic compounds, and microorganisms. The RO brine will be dechlorinated and discharged through TITP's existing outfall in accordance with NPDES permit No. CA0053856, and Resolution No. 94-009.

    C. Lime Stabilization: recycled water from the RO trains will be combined and lime will be added to adjust the pH and reduce the potential for minerals to be leached from the cement lining used in the transmission pipeline, which would affect the integrity of the pipe lining.

    D. Disinfection: Sodium hypochlorite will be used for disinfection in a chlorine contact basin designed to provide a concentration-time value of 450 mg-minutes per liter with a modal contact time of at least 90 minutes, based on a design flow of 5 mgd.

13. A recycled water pump station, equipped with three pumps with constant speed drivers, has been built for the HWRP-Phase I. The pump station is designed to pump 5 mgd with two pumps operating and the other pump on stand-by. Additional recycled water pumps will be installed for future HWRP Phases II and III.

14. The HWRP-Phase I recycled water transmission pipeline consists of approximately 18,000 linear feet of 36-inch and 24-inch diameter ductile iron and steel pipeline. Figure 4 depicts the pipeline alignment. All HWRP pipelines and valves, except for the portion of the pipeline installed underwater within the Los Angeles Harbor, are installed with purple

identification tapes or purple polyethylene vinyl wraps according to "Guidelines for Distribution of Nonpotable Water - American Water Works Association (AWWA) California-Nevada Section" published in 1992. The transmission system will be expanded to convey 22.5 mgd for future HWRP Phase III.

APPLICABLE PLANS, POLICIES AND REGULATIONS

15. ***Basin Plan -*** The Regional Board adopted a revised *Water Quality Control Plan for the Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) on June 13, 1994, and amended by various Regional Board resolutions. This updated and consolidated plan represents the Board's master quality control planning document and regulations. The Basin Plan (i) designates beneficial uses for surface and groundwater, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated (existing and potential) beneficial uses and conform to the State's antidegradation policy, and (iii) includes implementation provisions, programs, and policies to protect all waters in the Region. In addition, the Basin Plan incorporates (by reference) all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. This Order implements the plans, policies, and provisions of the Board's Basin Plan.

16. The beneficial uses of the West Coast Groundwater Basin are municipal and domestic supply, industrial process supply, industrial service supply, and agricultural supply.

17. Section 13523 of the California Water Code provides that a regional board, after consulting with and receiving recommendations from DHS or its delegated local health agency, and after any necessary hearing, shall, if it determines such action to be necessary to protect the health, safety, or welfare of the public, prescribe water recycling requirements for water that is used or proposed to be used as recycled water. Section 13523 further provides that the recycling requirements shall include, or be in conformance with, the statewide water recycling criteria established by DHS pursuant to Water Code Section 13521.

18. Besides using recycled water for groundwater injection and as boiler make-up water, the Recyclers also proposes to use recycled water for irrigation in parks, golf courses, freeway landscapes, school yards, cemeteries, other landscape or agricultural areas, other industrial uses, and recreational impoundments. All these reuse applications could affect the health, safety, and welfare of the public; therefore requirements are necessary.

19. Pursuant to the California Water Code Section 13523, the Regional Board has consulted with the DHS regarding the proposed recycling project and has incorporated their recommendations in this Order.

20. DHS adopted revised Water Recycling Criteria (Chapter 3, Division 4, Title 22, California Code of Regulations) that became effective on December 2, 2000. Applicable criteria to this recycling project are prescribed in this Order. HWRP's recycled water treated through reverse osmosis and disinfected exceeds the quality of recycled water required for the applications proposed in this Order. HWRP's recycled water treated through reverse osmosis and disinfected exceeds the quality of recycled water required for the applications proposed in this Order. In a letter dated September 30, 2009, California Department of Public Health (formerly DHS) finds that recycled water for street sweeping in the area

covered by Harbor Water Recycling Project – Nonpotable Reuse Project Order No. R4-2003-0025 is an approved use under Water Recycling Criteria, and recommends that the Regional Board approve such use and add this use to the list of approved uses in the Order No. R4-2003-0025. Additionally, in a letter dated August 10, 2010, California Department of Public Health finds that recycled water for dust control at permanent facilities is an appropriate and safe use, and recommends that the Regional Board approve such use.

21. The Recyclers had prepared an engineering report on its proposed production, distribution, and use of recycled water for irrigation in May 1998 as required by Section 60323 of Title 22, California Code of Regulations. On May 14, 2001, the DHS approved the engineering report and provided the Regional Board with comments and recommendations on the Recyclers' recycling project.

22. The requirements contained in this Order are in conformance with the goals and objectives of the Basin Plan and implement the requirements of the California Water Code and Water Recycling Criteria.

23. The Recyclers prepared and certified the following documents in compliance with the California Environmental Quality Act (Public Resources Code Section 21000, et seq.):

    A. "Final Environmental Impact Report and Addendum for Effluent Management Project at Terminal Island Treatment Plant", State Clearinghouse No. 93021016, prepared by Engineering Science for the City of Los Angeles Department of Public Works, September 1993, certified by the City Council on July 19, 1994. The project consists of upgrades to the TITP to achieve water recycling and construction of a backbone recycled water distribution system.

    B. "Final Mitigated Negative Declaration for Terminal Island Treatment Plant Advanced Wastewater Treatment Facility, Phase 1 (a.k.a. Harbor Water Recycling Project)" certified by the City Council on January 22, 1999. Certification was based on "Initial Study and Mitigated Negative Declaration", W.O. E2001594, prepared by the City of Los Angeles Bureau of Engineering and LADWP, September 1998. The project consists of development of the AWTF, Phase 1 production of 5 mgd RO water, and pipeline network to distribute RO water for direct injection to the Barrier and other consumers.

24. In addition to the CEQA documents outlined in Finding No. 18, the City of Los Angeles Bureau of Engineering prepared the "Final Environmental Assessment for Terminal Island Treatment Plant Advanced Wastewater Treatment Facility, Phase 1 (a.k.a. Harbor Water Recycling Project)", W.O. E2001594, August 9, 1999, for the Bureau of Reclamation, U.S. Department of the Interior. Based on this document, the Bureau of Reclamation issued "Finding of No Significant Impact", FONSI No. LC-99-1, dated September 1, 1999, for the project.

25. This issuance of water recycling requirements by a regulatory agency for the protection of the environment is exempt from the provisions of Chapter 3 [commencing with Section 21100, et seq., Division 13 (California Environmental Quality Act), Public Resources Code] in accordance with Section 15308, Title 14, California Code of Regulations.

26. Pursuant to California Water Code Section 13320, any aggrieved party may seek review of this Order by filing a petition with the State Board. A petition must be sent to the State Water Resources Control Board, 1001 I Street, Sacramento, California, 95814, within 30 days of adoption of the Order.

The Regional Board has notified the City of Los Angeles and interested agencies and persons of its intent to issue Master Water Recycling Requirements for the production, distribution and use of recycled water, and has provided them with an opportunity to submit their written views and recommendations.

The Regional Board, in a public meeting, heard and considered all comments pertaining to these water recycling requirements.

IT IS HEREBY ORDERED that the City of Los Angeles Department of Water and Power shall comply with the following:

I. AWTF INFLUENT SPECIFICATIONS

For purposes of this Order, the AWTF includes microfiltration, reverse osmosis, lime stabilization, and chlorination. The influent to the AWTF is tertiary treated effluent.

The influent shall, at all times, be adequately oxidized. The influent shall be considered adequately oxidized when it meets the following characteristics:

1. The monthly average Biochemical Oxygen Demand value (BOD_5 20^0C) does not exceed 15 mg/L. Compliance shall be determined monthly using the average of the analytical results of all 24-hour composite samples taken at least weekly during the month.

2. The monthly average Total Suspended Solids (TSS) concentration does not exceed 15 mg/L. Compliance shall be determined monthly using the average of the analytical results of all 24-hour composite samples taken daily during the month.

3. The Total Organic Carbon (TOC) concentration does not exceed 16 mg/L for more than two consecutive days, based on 24-hour composite samples taken daily.

II. RECYCLED WATER LIMITATIONS

1. The disinfected RO treated recycled water shall not contain constituents with concentrations in excess of the following limits:

Constituent	Units	Monthly Average	Daily Maximum
Oil and grease	mg/L	10	15
Total dissolved solids	mg/L		800
Chloride	mg/L		250
Sulfate	mg/L		250
Boron	mg/L		1.5
Total nitrogen*	mg/L		10

Total nitrogen is sum of nitrite-N, nitrate-N, NH_3-N, and organic-N.

2. The turbidity of the reverse osmosis product water prior to disinfection shall not exceed 0.2 NTU more than 5 percent of the time within a 24-hour period and 0.5 at NTU at any time. The turbidity shall be continuously measured with at least one reading every 4 hours and recorded. When the turbidity requirements are exceeded, delivery of recycled water shall be suspended until such time the cause of the exceedance has been identified and corrected. The Recyclers shall notify and submit a report according to Provision VII.8. of this Order.

3. Chlorine disinfection shall provide a concentration-time (CT) value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on a design flow of 5 mgd. The CT is the product of total chlorine residual and modal contact time measured at the same period. The modal contact time is the amount of time that elapsed between the time that a tracer, such as salt or dye, is injected into the influent at the entrance of the chlorination chamber and the time that the highest concentration of the tracer is observed in the effluent from the chamber.

   A. For purposes of calculating and demonstrating compliance with the CT requirement, the Recyclers conducted tracer studies under flow rates of 2.5 mgd and 5.0 mgd to determine the respective modal contact time at the chlorine contact basin. The studies followed 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. The Regional Board received a final report on the tracer studies on October 18, 2002. The report indicated modal contact times of 300 and 150 minutes for flows of 2.5 and 5 mgd, respectively.

   B. In the event the RO operation is changed to produce recycled water at flow rates other than 2.5 and 5 mgd, tracer studies shall be conducted to develop a curve for use in estimating the contact times at various flow rates.

4. Recycled water shall be, at all times, adequately disinfected such that the number of total coliform bacteria shall not exceed any of the following, based on daily grab samples:

   A. A 7-day median of 2.2 most probable number (MPN) per 100 milliliters. In the event of failure to meet the 7-day median coliform requirement for two consecutive days, the Recyclers shall suspend delivery of recycled water until such time the cause of the failure has been identified and corrected.

   B. 23 MPN per 100 milliliters in any sample prior to delivery of recycled water. In the event of failure to meet this requirement, the Recyclers shall suspend delivery of recycled water until such time the cause of the failure has been identified and corrected.

5. The pH of the recycled water shall be, at all times, within the range of 6.5 to 8.5 pH units. Excursions from this range shall not be considered a violation provided the duration is not more than 10 minutes in a 24-hour period, and the pH shall at all times be within 6 to 9.

6. The recycled water shall not contain trace, toxic and other constituents in concentrations exceeding the applicable maximum contaminant or action levels for drinking water established by the DHS in Sections 64431 and 64444, Chapter 15, Section 64533, Chapter 15.5 of Title 22 of the California Code of Regulations, or at levels that adversely affect the beneficial uses of receiving groundwater.

7. The radioactivity of the recycled water shall not exceed the limits specified in Sections 64441 and 64443, Article 5, Chapter 15, Title 22 of the California Code of Regulations, or subsequent revisions.

8. The recycled water shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect the beneficial uses of the receiving groundwater.

9. The recycled water shall not cause a measurable increase in organic chemical contaminants in the groundwater.

III. SPECIFICATIONS FOR USE OF RECYCLED WATER

1. The disinfected RO treated recycled water may be used for the following:

   A. Surface irrigation in the following areas:

      a. Food crops, including all edible root crops, where the recycled water comes into contact with the edible portion of the crop;

      b. Parks and playgrounds;

      c. School yards;

      d. Residential and freeway landscaping;

      e. Unrestricted access golf courses; and

      f. Other allowable irrigation applications specified in the Water Recycling Criteria, Chapter 3, Title 22, CCR, provided approval from DHS and Regional Board Executive Officer are obtained prior to delivery.

   B. Industrial or commercial cooling tower;

   C. Street sweeping;

   D. Dust control;

      Recycled water for dust control may be used at permanent facilities, which include but are not limited to horse ranches, open fields, and fairgrounds.

   E. Industrial boiler feed, and;

   F. Recreational Impoundments.

2. The recycled water shall not be used other than those specified in section III.1 unless an engineering report has been submitted to and approved by the DHS for such other uses and/or requirements for these uses have been prescribed by this Regional Board, in accordance with Section 13523 of the California Water Code. Any additionally approved recycled water applications to this permit can be approved by the Executive Officer of this Regional Board.

3. Recycled water shall not be used for direct human consumption or for the processing of food or drink intended for human consumption.

4. The delivery of recycled water to end-users shall be subject to DHS approval and/or its delegated local agency.

IV. USE AREA REQUIREMENTS

Use area is an area of recycled water use with defined boundaries, which may contain one or more facilities where recycled water is used.

The Recyclers shall be responsible to ensure that all users of recycled water comply with the following:

1. All use areas where recycled water is used that are accessible to the public shall be posted with signs that are visible to the public, in a size no less than 4 inches high by 8 inches wide, that include the following wording: “RECYCLED WATER – DO NOT DRINK”. Each sign shall display an international symbol similar to that shown in Figure 5 to alert people who do not read English.

2. No physical connection shall be made or allowed to exist between any recycled water piping and any piping conveying potable water, except as allowed under Section 7604 of Title 17, California Code of Regulations.

3. The portions of the recycled water piping system that are in areas subject to access by the general public shall not include any hose bibbs. Only quick couplers that differ from those used on the potable water system shall be used on the portions of the recycled water piping system in areas subject to public access.

4. Recycled water use shall not result in earth movement in geologically unstable areas.

5. No impoundment of disinfected recycled water shall occur within 100 feet of any domestic water wells, potable water reservoirs, and streams used as sources of water supply.

6. Whenever a cooling system, using recycled water in conjunction with an air conditioning facility, utilizes a cooling tower or otherwise creates a mist that could come into contact with employees or members of the public, the cooling system shall comply with the following:

   A. A drift eliminator shall be used whenever the cooling system is in operation.

B. A chlorine, or other, biocide shall be used to treat the cooling system recirculating water to minimize the growth of *Legionella* and other microorganisms.

7. No irrigation areas with recycled water shall be located within 50 feet of any domestic water supply well unless all of the following conditions have been met:

   A. A geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from and the ground surface;

   B. The well contains an annular seal that extends from the surface into the aquitard;

   C. The well is housed to prevent any recycled water spray from coming into contact with the wellhead facilities;

   D. The ground surface immediately around the wellhead is contoured to allow surface water to drain away from the well; and,

   E. The owner of the well approves of the elimination of the buffer zone requirement.

8. No irrigation shall take place within 50 feet of any reservoir or stream used as a source of domestic water.

9. Use of recycled water shall comply with the following:

   A. Recycled water shall be applied at such a rate and volume as not to exceed vegetative demand and soil moisture conditions. Special precautions must be taken to: prevent clogging of spray nozzles, prevent over-watering, and minimize the production of run-off. Pipelines shall be maintained so as to prevent leakage;

   B. Any irrigation runoff shall be confined to the recycled water use area and shall not be allowed to escape as surface flow, unless the runoff does not pose a public health threat and is authorized under a National Pollutant Discharge Elimination System (NPDES) permit issued by this Regional Board. For the purpose of this requirement, however, minor amounts of irrigation return water from peripheral areas shall not be considered a violation of this Order;

   C. Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities, and shall not contact any drinking water fountain; and,

   D. Recycled water shall not be used for irrigation during periods of rainfall and/or run-off.

   E. Recycled water used for irrigation shall not be allowed to run off into recreational lakes unless it meets the criteria for such lakes.

   F. Recycled water used for street sweeping and dust control shall employ the Best Management Practices as described in Attachment 1. The vehicles to be

used for transporting recycled water for street sweeping shall be equipped with an air gap filling port for receiving potable or recycled water, or shall be equipped with two separate hoses, one for potable and one for recycled water, which shall be of different sizes to prevent cross connection of sources. In addition the spray heads and nozzles shall be configured and maintained to minimize runoff, ponding, and drift.

V. REQUIREMENTS FOR DUAL PLUMBED SYSTEM

1. The public water supply shall not be used as a backup or supplemental source of water for a dual-plumbed recycled water system unless the connection between the two systems is protected by an air gap separation that complies with the requirements of Section 7602 (a) and 7603 (a) of Title 17, California Code of Regulations.

2. The Recyclers shall not deliver recycled water for any internal use to any individually-owned residential units including free-standing structure, multiplexes, or condominiums.

3. The Recyclers shall not deliver recycled water for internal use, except for fire suppression system, to any facility that produces or processes food products or beverages.

4. The Recyclers shall not deliver recycled water to a facility using a dual plumbed system unless the report required under Section 13522.5 of the Water Code, which meets the requirements set forth in section IV.8 and/or IV.9., has been submitted to, and approved by, the Regional Board and DHS.

5. The Recyclers that shall submit to the DHS pursuant to Section 13522.5 of the Water Code shall contain the following information for dual plumbed systems, in addition to the information required by Section 60323 of Title 22 of the California Code of Regulations:

   A. A detailed description of the intended use site identifying the following:

      a. The number, location, and type of facilities within the use area proposing to use dual plumbed systems;

      b. The average number of persons estimated to be served by each facility on a daily basis;

      c. The specific boundaries of the proposed use site including a map showing the location of each facility to be served;

      d. The person or persons responsible for operation of the dual plumbed system at each facility; and

      e. The specific use to be made of the recycled water at each facility.

   B. Plans and specifications describing the following:

a. Proposed piping system to be used;

b. Pipe locations of both recycled and potable systems;

c. Type and location of the outlets and plumbing fixtures that will be accessible to the public; and

d. The methods and devices to be used to prevent backflow of recycled water into the public water system.

C. The methods to be used by the Recyclers to assure that the installation and operation of the dual plumbed system will not result in cross connections between the recycled water piping system and the potable water piping system. These shall include a description of pressure, dye or other test methods to be used to test the system every four years.

6. Prior to the initial operation of the dual-plumbed recycled water system and annually thereafter, the dual plumbed system within each facility and use site shall be inspected for possible cross connections with the potable water system. The recycled water system shall also be tested for possible cross connections at least once every four years. The testing shall be conducted in accordance with the method described in section III.5.c. above. The inspections and the testing shall be performed by a cross connection control specialist certified by the California-Nevada section of the American Water Works Association or an organization with equivalent certification requirements. A written report documenting the result of the inspection and testing for the prior year shall be submitted to the DHS within 30 days following completion of the inspection or testing.

7. The Recyclers shall notify the DHS of any incidence of backflow from the dual-plumbed recycled water system into the potable water system within 24 hours of discovery the incident.

8. Any backflow prevention device installed to protect the public water system serving the dual-plumbed recycled water system shall be inspected and maintained in accordance with Section 7605 of Title 17, California Code of Regulations.

VI. GENERAL REQUIREMENTS

1. Bypass, discharge, or delivery to the use area of inadequately treated wastewater, at any time, is prohibited.

2. The recycling facility shall be adequately protected from inundation and damage by storm flows and run-off.

3. Adequate freeboard and/or protection shall be maintained in the recycled water storage tanks and process tanks to ensure that direct rainfall will not cause overtopping.

4. The wastewater treatment and use of recycled water shall not cause pollution or nuisance.

5. The wastewater treatment and use of recycled water shall not result in problems caused by breeding of mosquitoes, gnats, midges, or other pests.

6. The use of recycled water shall not impart tastes, odors, color, foaming, or other objectionable characteristics to the receiving groundwater.

7. The use of recycled water, which could affect the receiving ground water, shall not contain any substance in concentration toxic to human, animal, or plant life.

8. Odors of sewage origin shall not be perceivable beyond the limits of the property owned or controlled by the Recyclers and/or recycled water user.

VII. PROVISIONS

1. This Order includes the attached "Standard Provisions Applicable to Waste Discharge Requirements". If there is any conflict between provisions stated hereinbefore and said "Standard Provisions", those provisions stated hereinbefore prevail.

2. This Order includes the attached Monitoring and Reporting Program. If there is any conflict between provisions stated in the Monitoring and Reporting Program and the Standard Provisions, those provisions stated in the Monitoring and Reporting Program prevail.

3. A copy of these requirements shall be maintained at the water recycling facility so as to be available at all times to operating personnel.

4. The Recyclers shall furnish each purveyor and user of recycled water a copy of these requirements and ensure that the requirements are maintained at the purveyor and user's facilities so as to be available at all times to operating personnel.

5. The Recyclers shall be responsible to ensure that all users of recycled water comply with the specifications and requirements for such use.

6. The Recyclers shall, at all times, properly operate and maintain all treatment facilities and control systems (and related appurtenances) that are installed or used by the Recyclers to achieve compliance with the conditions of this Order. Proper operation and maintenance includes: effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls (including appropriate quality assurance procedures).

7. The Recyclers shall submit to the Regional Board, for approval of the Executive Officer, within 90 days of adoption of this Order an operating and maintenance management plan, including a preventive (fail-safe) procedure and contingency plan for controlling accidental discharge and/or delivery to users of inadequately treated wastewater.

8. For any violation of requirements in this Order, the Recyclers shall notify DHS and the Regional Board within 24 hours of knowledge of the violation either by telephone or electronic mail. This notification shall be followed by a written report within 5

working days of notification, unless otherwise specified in this Order. The report shall include, but not limited to, the following information, as appropriate:

A. Nature and extent of the violation;

B. Date and time: when the violation started, when compliance was achieved; and, when delivery was suspended and restored, as applicable.

C. Duration of violation;

D. Cause/s of violation;

E. Corrective and/or remedial actions taken and/or will be taken with time schedule for implementation; and

F. Impact of the violation.

9. Supervisors and operators of the wastewater recycling facility shall possess a certificate of appropriate grade as specified in Title 23, California Code of Regulations, Section 3680 or subsequent revisions.

10. In accordance with Section 13522.5 of the California Water Code, and Title 22, Division 4, Chapter 3, Article 7, Section 60323 of the California Code of Regulations, the Recyclers shall file an engineering report, prepared by a properly qualified engineer registered in California, of any material change or proposed change in character, location or volume of the recycled water or its uses to the Regional Board and to the DHS.

11. For any extension or expansion of the recycled water system or use areas, the Recyclers shall submit a report detailing the extension or expansion plan for approval of the DHS. Following construction, as-built drawings shall be submitted to the DHS for approval prior to delivery of recycled water. The Executive Officer shall be furnished with as-built drawings and a copy of the DHS approval.

12. The Recyclers shall notify the Executive Officer, in writing, at least 30 days in advance of any proposed transfer of ownership and/or operation of the recycling facility and responsibility for complying with this Order. The notice shall include a written agreement between the existing and new recycled water producer indicating the specific date for the transfer of responsibility for compliance with this Order. The agreement shall include an acknowledgement that the Recyclers is liable for any violations that occurred up to the transfer date and the new recycled water producer is liable from the transfer date on.

13. The Recyclers shall allow the Regional Board, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:

A. Enter upon the Recyclers' premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;

B. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;

C. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and

D. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order, or as otherwise authorized by the California Water Code, any substances or parameters at any location.

14. The Recyclers must comply with all conditions of these water recycling requirements. Violations may result in enforcement actions, including Regional Board orders or court orders, requiring corrective action or imposing civil monetary liability, or in modification or revocation of these requirements.

15. These requirements do not exempt the Recyclers from compliance with any other laws, regulations, or ordinances that may be applicable; they do not legalize the recycling and use facilities; and they leave unaffected any further constraint on the use of recycled water at certain site/s that may be contained in other statutes or required by other agencies.

16. This Order does not alleviate the responsibility of the Recyclers to obtain other necessary local, state, and federal permits to construct facilities necessary for compliance with this Order; nor does this Order prevent imposition of additional standards, requirements, or conditions by any other regulatory agency. Expansion of the recycling facility shall be contingent upon issuance of all necessary requirements and permits, including a conditional use permit.

17. The provisions of these water recycling requirements are severable. If any provision of these requirements is found invalid, the remainder of these requirements shall not be affected.

18. In an enforcement action, it shall not be a defense by the Recyclers that it would have been necessary to halt or to reduce the permitted activity in order to maintain compliance with this Order. Upon reduction, loss, or failure of the treatment facility, the Recyclers shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies, for example, when the primary source of power of the treatment facility fails, is reduced, or is lost.

19. After notice and opportunity for a hearing, this Order may be modified, revoked and reissued, or terminated for cause, which include but is not limited to: failure to comply with any condition of in this Order; endangerment of human health or environment resulting from the permitted activities in this Order; obtaining this Order by misrepresentation or failure to disclose all relevant facts; acquisition of new information that could have justified the application of different conditions if known at the time of Order adoption.

The filing of a request by the Recyclers for modification, revocation and reissuance, or termination of the Order; or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

20. The Recyclers shall furnish, within a reasonable time, any information the Regional Board or the DHS may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The Recyclers shall also furnish the Regional Board, upon request, with copies of records required to be kept under this Order.

VIII. EFFECTIVE DATE OF ORDER

This Order takes effect upon adoption.

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 February 3, 2011.

Samuel Unger

Samuel Unger, P.E.
Executive Officer

/DTSAI

Attachment 1

Other Uses of Recycled Water

Street Cleaning

Type of Reuse Proposed:	Street Cleaning Approved in Title 22 Section 60307 (b)(7)
Surrounding Land Uses:	Street sweeping on public streets and roadways Residential, Commercial, and Industrial
Entity Responsible for Distribution System:	Los Angeles Department of Water and Power
Other Entities with Regulatory Jurisdiction:	Los Angeles Water Quality Control Board California Department of Public Health (DPH) County Department of Public Health
Use Area Containment Measures:	Containment measures will be determined on a case by case basis in collaboration with the County DPH.
Street Cleaning User:	Los Angeles Harbor Department
Address:	500 Pier A St, Wilmington, CA
Recycled Water Usage:	0.86 acre-feet per year

Street Cleaning Operations:

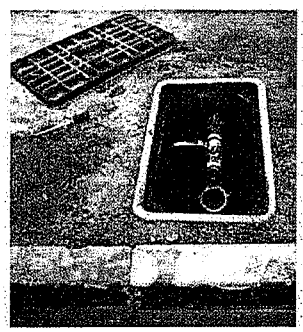

Figure 1 – Typical Filling Station

The City of Los Angeles Harbor Department has established a street cleaning program that will utilize recycled water in place of potable water. Street sweeping trucks will be retrofitted for use with recycled water in order to perform these operations. The Harbor Department will utilize a recycled water filling station located at the Terminal Island Treatment Plant to fill the sweepers with recycled water for the cleaning operations. This filling station will be installed with fittings of a size unique to the recycled water lines and that differ in size from standard potable fittings for sweeper trucks. The street sweeper trucks will be fitted with two sets of filler pipes that will be color coded, purple for recycled water and blue for potable water. Air gaps will be present to prevent cross contamination of the two systems. See Figure 1 for a typical example of the new filling stations that will be utilized for the street cleaning operations. A listing of the new recycled water filling stations is contained in Table 1.

Table 1 Filling Station Identification and Location	
Filling Station Identification	Filling Station Location
Terminal Island Treatment Plant	445 Ferry Street, Los Angeles

Additional filling stations will be installed in the future as the Los Angeles Department of Water and Power extends the recycled water distribution system in the Harbor area. This expanded distribution system will include recycled water fire hydrants which will eventually be used for refilling the sweeper trucks in the field.

Figure 2 – Typical Street Sweeper

Water use in the street cleaning operations will be minimized to the extent practicable to affect the street cleaning, but minimize any residual water that will be left on the street surfaces. Street sweepers utilize a system of nozzles to apply the water to the street surface in order to control dust in conjunction with a rotating brush for cleaning. The rotating brushes then push the accumulated material into a holding tank for disposal. This process of spray application and subsequent sweeping of the material and water leaves behind only a minimal amount of water on the street surface. This water is quickly evaporated from the street surface leaving no opportunity for large pools of recycled water to form on the street surface or pose a threat to the general public.

Figure 3 – The results of Street Sweeping