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

ORDER NO. R4-2003-0134

**MONITORING AND REPORTING PROGRAM NO. CI-8654
FOR THE
HARBOR WATER RECYCLING PROJECT - DOMINGUEZ GAP BARRIER PROJECT
(File No. 97-208)**

ISSUED TO

**City of Los Angeles Department of Water & Power
City of Los Angeles Department of Public Works
Los Angeles County Department of Public Works, and
Water Replenishment District of Southern California**

The City of Los Angeles Department of Water and Power (LADWP), the City of Los Angeles Department of Public Works (LAD Public Works), the Los Angeles County Department of Public Works (LA County DPW) and Water Replenishment District of Southern California (Replenishment District), collectively referred to as Dischargers, shall implement this Monitoring and Reporting Program (M&RP) on the first of the month following the month this Order was adopted.

I. SUBMITTAL OF REPORTS

1. The Dischargers shall submit the requested reports shown in the followings to the California Regional Water Quality Control Board, Los Angeles Region (Regional Board), and to the California Department of Health Services, Drinking Water Field Operations, Los Angeles Region (DHS). The reports shall be received at the Regional Board and the DHS on the dates indicated in the followings:
 - A. **Monthly Monitoring Reports** - During the first twelve months of operation, reporting shall be on a monthly basis to effectively determine compliance with the requirements of this Order and demonstrate reliability of the treatment process. Monthly Monitoring Reports shall be received by the Regional Board on the 15th day of the second month following the monitoring period. The first Monthly Monitoring Report shall be received by the Regional Board and the DHS by December 15, 2003. After one year of monthly reports has been received, the reporting frequency will revert to quarterly monitoring as per follows.
 - B. **Quarterly Monitoring Reports** shall be received by the Regional Board on the 15th day of the second month following the end of each quarterly monitoring period according to Table A. The first Quarterly Monitoring Report shall be received by the Regional Board and the DHS by February 15, 2005.

Reporting Period	Report Due
January - March	May 15
April - June	August 15
July - September	November 15
October - December	February 15

- C. **Annual Summary Report** shall be received by the Regional Board and the DHS by March 1 of each year. This Annual Summary Report shall contain a discussion of the previous year's analytical results, as well as graphical and tabular summaries of the monitoring analytical data.
 - D. **Annual Engineering Report** shall be received by the Regional Board and the DHS by March 1 of each year. The Dischargers shall submit annually for the first five years, up to the Year 2008, of operation a complete Annually Engineering Report.
 - E. **Advanced Wastewater Treatment Facility (AWTF) Operations, Maintenance, and Monitoring Plan (OMM Plan)** - By December 1, 2003, the Dischargers shall submit an initial Advanced Wastewater Treatment Facility (AWTF) Operations, Maintenance, and Monitoring Plan (OMM Plan) for operation, maintenance, and monitoring of the AWTF at Terminal Island Wastewater Treatment Plant (TITP). By December 1, 2004, the updated OMM Plan after a year operation shall be submitted. These initial and updated OMM Plans shall be submitted to the Regional Board and the DHS.
 - F. **Five-Year Engineering Report** shall be submitted to the Regional Board and the DHS. The first Five-Year Engineering Report shall be received by December 15, 2008. The following reports shall be received on the same date of every five years.
2. All reports to the Regional Board shall be addressed to the attention of the Information Technology Unit. Reference the reports to Compliance File No. CI-8654 to facilitate routing to the appropriate staff and file. Submit the monitoring reports separately from other technical reports.
 3. The monitoring data shall be submitted to the Regional Board on hard copy and on 3 1/2" computer diskette. The submitted data must be IBM compatible, preferably using Microsoft Excel software.
 4. The Regional Board and the State Water Resources Control Board (State Board) are developing a database compliance monitoring management system that may require the Dischargers to submit the monitoring reports electronically, when it becomes operational. (Note that DHS wants groundwater monitoring to be submitted to DHS by EDT. The draft regulations state: "Analytical results for chemicals shall be reported directly to the Department, as follows:

- A. Analytical results of all analyses completed in a calendar month shall be reported to the Department no later than the tenth day of the following month.
- B. Analytical results shall be reported to the Department electronically using the Electronic Deliverable Format as defined in The Electronic Deliverable Format (EDF) Version 1.2i Guidelines & Restrictions dated April 2001 and Data Dictionary dated April 2001.”

II. MONITORING REQUIREMENTS

- 1. The Dischargers shall monitor the flow and quality of the following according to the manner and frequency specified in this M&RP:
 - A. Influent to the AWTF (TITP’s tertiary treated effluent) from the TITP;
 - B. Recycled water prior to blending with diluent water;
 - C. Blend of recycled water and diluent water, when applicable;
 - D. Nearest production well (CWS Well No. 75A) to the barrier; and
 - E. Receiving groundwater (presumably this means all monitoring wells).
- 2. The monitoring shall be used to determine compliance with the requirements of this Order and shall include, but not limited to, the following:
 - A. Location of each sampling station where representative samples can be obtained and the rationale for the selection. The Dischargers must include a map, at a scale of 1 inch equals 1,200 feet or less, that clearly identifies the locations of all injection wells, monitoring wells, and production wells.
 - B. Sampling protocols and chain of custody procedures.
 - C. For groundwater monitoring, outline the methods and procedures to be used for measuring water levels; purging wells; collecting samples; decontaminating equipment; containing, preserving, and shipping samples, and maintaining appropriate documentation. Also include the procedures for handling, storing, testing, and disposing of purge and decontamination waters generated from the sampling events.
 - D. Laboratory or laboratories to conduct the analyses. Include copy or copies of laboratory certifications by the California Health Services Environmental Laboratory Accreditation Program (ELAP).
 - E. Analytical test methods to be used and the corresponding reporting detection limits (RDLs).
 - F. Quality assurance and control measures.

3. The samples shall be analyzed using analytical methods described in 40 CFR Part 136; or where no methods are specified for a given pollutant, by methods approved by the DHS, Regional Board and/or State Board. The Dischargers shall select the analytical methods that provide reporting detection limits (RDLs) lower than the limits prescribed in this Order. For those constituents that have drinking water advisory levels (ALs) and/or public health goals (PHGs), the reporting detection limits shall be lower than either the ALs or the PHGs (note this is not always feasible).
4. The Dischargers shall instruct its laboratories to establish calibration standards so that the RDLs (or its equivalent if there is a different treatment of samples relative to calibration standards) is the lowest calibration standard. At no time shall the Dischargers use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. Upon request by the Dischargers, the Regional Board, in consultation with DHS and the State Board Quality Assurance Program, may establish RDLs, in any of the following situations:
 - A. When the pollutant has no established method under 40 CFR 136 (revised May 14, 1999, or subsequent revision);
 - B. When the method under 40 CFR 136 for the pollutant has a RDL higher than the limit specified in this Order; or
 - C. When the Dischargers agree to use a test method that is more sensitive than those specified in 40 CFR Part 136.
6. The laboratory conducting the analyses shall be certified by ELAP or approved by the DHS, Regional Board, or State Board for a particular pollutant or parameter.
7. Water samples must be analyzed within allowable holding time limits as specified in 40 CFR Part 136.3. All QA/QC analyses must be run on the same dates that samples are actually analyzed. The Dischargers shall retain the QA/QC documentation in its files and make available for inspection and/or submit them when requested by the Regional Board. Proper chain of custody procedures must be followed and a copy of this documentation shall be submitted with the quarterly report.
8. For all bacterial analyses, sample dilutions should be performed so the range of values extends from 2 to 160,000. The detection methods used for each analysis shall be reported with the results of the analyses.
9. Quarterly effluent analyses shall be performed during the months of February, May, August, and November. Semiannual effluent analyses shall be performed during the months of February and August. Should there be instances when monitoring could not be done during these specified months, the Dischargers shall notify the Regional Board, state the reason why the monitoring could not be conducted, and obtain approval from the Executive Officer for an alternate schedule. Results of quarterly analyses shall be reported in the quarterly/monthly monitoring report following the analysis.

10. For unregulated chemical analyses, the Dischargers should select methods according to the following approach:
 - A. Use drinking water methods, if available;
 - B. Use DHS-recommended methods for unregulated chemicals, if available;
 - C. If there is no DHS-recommended drinking water method for a chemical, and more than a single EPA-approved method is available, use the most sensitive of the EPA-approved methods;
 - D. If there is no EPA-approved method for a chemical, and more than one method is available from the scientific literature and commercial laboratory, after consultation with DHS, use the most sensitive method;
 - E. If no approved method is available for a specific chemical, the Dischargers' laboratory may develop or use its own methods and should provide the analytical methods to DHS for review. Those methods may be used until DHS-recommended or EPA-approved methods are available.
 - F. If the only method available for a chemical is for wastewater analysis (e.g., a chemical listed as a priority pollutant only), sample and analyze for that chemical in the treated wastewater immediately prior to reverse osmosis treatment to increase the likelihood of detection. Use this approach until the Dischargers' laboratory develops a method for the chemical in drinking water, or until a DHS-recommended or EPA-approved drinking water method is available.
 - G. The Dischargers need to inform the Regional Board, in case of Items D, E, F is happening.

11. For endocrine disrupting and pharmaceutical chemical analyses
 - A. These chemicals (see MRP Section IV, Item 2, Footnotes [9] and [10] are being collected for information purposes; there are no standards for the contaminants listed below and no standards are anticipated at this time and analytical methods may not be widely available. Should Regional Board or DHS acceptable analytical methods be available, these methods may be used.
 - B. Some interested parties have asked for some clarification of what would happen if any of these contaminants are found. In response, DHS offers this: Monitoring for these chemicals is viewed as a diligent way of assessing and verifying recycled water quality characteristics, which can be useful in addressing issues of public perception about the safety of recharge projects. Further, should there be a positive finding, the dischargers and DHS can give the results due to consideration as to whether it is of concern or not. Just what such consideration might entail would depend on the knowns and unknowns of the particular chemical, including its potential health effects at the given concentration, the source of the chemical, as well as possible means of better

control to limit its presence, treatment strategies if necessary, and other appropriate actions.

III. REPORTING REQUIREMENTS

The Dischargers shall submit the all reports, shown on Section I SUBMITTAL OF REPORTS, which shall be received at the Regional Board and the DHS by the dates indicated. All monthly, quarterly, and annually monitoring reports should contain a separate section titled "Summary of Non-Compliance", which discusses the compliance records and corrective actions taken or planned that may be needed to bring the discharge into full compliance with water recycling requirements. This section shall clearly list all non-compliance with water recycling requirements, as well as all excursions of effluent limitations.

1. Monthly/Quarterly Reports

A. These reports shall include, at a minimum, the following information:

- a. The volume of the influent, recycled water injected, and potable water injected into the barrier. If no recycled water was injected, or delivered for blending and injection, into the Dominguez Gap Barrier during the quarter/month, the report shall so state.
- b. The date and time of sampling and analyses.
- c. All analytical results of samples collected during the monitoring period of the influent, recycled water, blend of recycled water and potable water injected (blend), and groundwater.
- d. Records of any operational problems, plant upset and equipment breakdowns or malfunctions, and any diversion (s) of off-specification recycled water and the location(s) of final disposal.
- e. Discussion of compliance, noncompliance, or violation of requirements.
- f. All corrective or preventive action(s) taken or planned with schedule of implementation, if any.
- g. Certification by the Dischargers that no groundwater for drinking purposes has been pumped from wells within 2,000 feet from the injection wells in the barrier and from the 200-Foot Sand Aquifer in the area between 2,000 feet from the Barrier and CWS Well # 75A.
- h. The name and address of the hauler(s), along with quantities hauled during the quarter and the location of the final point of disposal, of the waste which would ordinarily have been discharged under this permit, but was hauled off-site, shall be submitted. If no wastes are hauled during the reporting period, the Dischargers shall make a statement to that effect.

- B. For the purpose of reporting compliance with numerical limitations, analytical data shall be reported using the following reporting protocols:
 - a. Sample results greater than or equal to the RDL must be reported “as measured” by the laboratory (i.e., the measured chemical concentration in the sample); or
 - b. Sample results less than the RDL, but greater than or equal to the laboratory’s method detection limit (MDL), must be reported as “Detected, but Not Quantified”, or DNQ. The laboratory must write the estimated chemical concentration of the sample next to DNQ as well as the words “Estimated Concentration” (may be shortened to Est. Conc.); or
 - c. Sample results less than the laboratory’s MDL must be reported as “Not-Detected”, or ND.
 - C. If the Dischargers sample and perform analyses (other than for process/operational control, startup, research, or equipment testing) on any sample more frequently than required in this Program using approved analytical methods, the results of those analyses shall be included in the report. These results shall be reflected in the calculation of the average used in demonstrating compliance with average effluent, receiving water, etc., limitations.
 - D. The Regional Board may request supporting documentation, such as daily logs of operations.
2. **Annual Summary Reports** shall include, at a minimum, the following information:
- A. Tabular and graphical summaries of the monitoring data (tertiary treated effluent, recycled water, blend, and groundwater) obtained during the previous calendar year.
 - B. Discussion of the compliance record and corrective or preventive action(s) taken or planned that may be needed to bring the recycled water into full compliance with the requirements in this Order.
 - C. An in-depth discussion of the results of the groundwater monitoring programs conducted during the previous year. Temporal and spatial trends in the data shall be analyzed, with particular reference to comparisons between stations with respect to distances from the monitoring wells and comparisons to data collected during previous years. Appropriate statistical tests and indices, subject to approval by the Executive Officer, shall be calculated and included in the annual report.
 - D. A list of the analytical methods employed for each test and associated laboratory quality assurance/quality control procedures. The report shall restate, for the record, the laboratories used by the Dischargers to monitor compliance with this Order, their status of certification, and provide a summary of performance.

- E. The report shall confirm operator certification and provide a list of current operating personnel, their responsibilities, and their corresponding grade of certification.
 - F. The annual report shall be prepared under the direction of an engineer registered in the State of California and experienced in the field of wastewater treatment and public water supply and a geologist registered in the State of California and experienced in the field of hydrogeology.
3. **Annual Engineering Reports** cover the evaluations of the compliance with the minimum retention time underground, blending, and the maximum recycled water contribution requirements for each of the first five years (**Note** this should include assessment that CWS #75A will not exceed 50% recycled water contribution based on information gathered from nearby monitoring wells). Since blending will occur prior to injection after five years, the Dischargers shall provided an updated Engineering Report every year thereafter to document and demonstrate that the criteria for treatment provided, effluent quality and quantity of recycled water injected, retention time underground, and distance to the point of extraction are being met. This report also covers barrier water flow paths that will be determined from groundwater elevation contours, and compared to the flow and transport model's flow paths. Assumptions for the model shall be revised if there are any significant changes to the basin's injection and extraction activities. The flow and transport model shall be updated to match actual flow patterns observed within the aquifer if the flow paths have significantly changed. Any significant differences, and the reasons for such differences, between the original estimates presented in the Engineering Report, May 1998 and the detected measurements, shall be clearly presented.
- Note:** Annual summary and annual engineering reports do not specifically require all requirements for the annual report called for in draft Groundwater Recharge Reuse regulations.
4. **OMM Plan** shall discuss conformance with the AWTF ' s Operations, Maintenance, and Monitoring Plan for operations, maintenance, and monitoring of the AWTF at TITP, including TITP, which is currently being updated, the date the plan was last reviewed, and whether the plan is valid for the current facilities. See Permit Section VI, Item 6 for the more detailed information.
5. **Five-Year Engineering Report** covers compliance and groundwater flow and transport reports.
- A. Compliance report shall include the following information:
 - a. Compliance with all specifications, requirements, and provisions of this Order, including the 12-month retention time provision (set forth in Section IV, Item 5), the 2,000-foot horizontal separation provision (set forth in Section IV, Item 6), as well as any new regulations pertaining to groundwater recharge with recycled water that become effective after the effective date of this Order.

- b. Evaluation of the ability of the project to comply with all regulations and provisions over the following five years.
- B. This report shall summarize the groundwater flow and transport including the injection and extraction operations for the Dominguez Gap Barrier during the previous five calendar years. This Report shall also use the most current data for the evaluation of the transport of recycled water; such evaluations must include, at a minimum, the following information:
 - a. Total quantity of water injected into each major aquifer, and the proportions of recycled water and diluent water that comprise the total quantity;
 - b. Estimates of the rate and path of flow of the injected water within each major aquifer;
 - c. Projections of the arrival time of the recycled water at the closest extraction well (CWS Well # 75A), and the percent of recycled water at the wellheads.
 - d. Clear presentation on any assumptions and/or calculations used for determining the rates of flow and for projecting arrival times and dilution levels.
 - e. A discussion of the underground retention time of recycled water, a numerical model, tracer or other methods used to determine the recycled water contribution to each aquifer.
 - f. A revised flow and transport model to match actual flow patterns observed within the aquifer if the flow paths have significant changed.
 - g. This report shall also include revised estimates, if applicable, on hydrogeologic conditions including the retention time and the amount of the recycled water in the aquifers and at the production well field at the end of that calendar year. The revised estimates shall be based upon actual data collected during that year on recharge rates (including recycled water, native water, and portable water), hydrostatic head values, groundwater production rates, basin storage changes, and any other data needed to revise the estimates of the retention time and the amount of the recycled water in the aquifers and at the production well field. Significant differences, and the reasons for such differences, between the original estimates presented in the Engineering Report, May 1998 and the revised estimates, shall be clearly presented. Additionally, the Dischargers shall use the most recently available data to predict the retention time of recycled water in the substance.
- C. This Five-Year Engineering report shall be prepared under the direction of a properly qualified engineer and geologist registered in California and experienced in the field of hydrogeology.

IV. MONITORING PROGRAMS

1. Influent Monitoring

- A. Influent monitoring is required to:
 - a. Determine compliance with water quality conditions and standards.
 - b. Assess AWTF performance.

- B. The influent sampling station is located at the effluent of the tertiary treatment facility of the TITP and before tertiary treated water entering the microfiltration system of the AWTF. Influent samples shall be obtained on the same day that effluent samples from the reverse osmosis are obtained. The date and time of sampling shall be reported with the analytical values determined. Table B shall constitute the influent monitoring program:

Table B – Influent Monitoring			
Constituents	Units	Type of Sample	Minimum Frequency of Analysis
Total waste flow	mgd	Recorder	Continuous ^[1]
PH	pH	Recorder	Continuous ^[1]
Turbidity	NTU	Recorder	Continuous ^[1]
Total suspended solids	mg/L	24-hour comp.	Daily
Total organic carbon (TOC)	mg/L	24-hour comp.	Daily
BOD ₅ 20°C	mg/L	24-hour comp.	Weekly

Footnote:

[1]. For those constituents that are continuously monitored, the Dischargers shall report the monthly minimum and maximum, and daily average values.

2. Recycled Water Monitoring

- A. Effluent monitoring is required to:
 - a. Determine compliance with the Permit conditions;
 - b. Identify operational problems and aid in improving plant performance; and,
 - c. Provide information on wastewater characteristics and flows for use in interpreting water quality and biological data.

- B. An effluent sampling station shall be established where representative samples of recycled water can be obtained. For this recycled project, recycled water samples shall be obtained from the effluent channel downstream of the chlorine contact basin. Should there be any changes in the sampling station, the proposed station shall be approved by the Executive Officer prior to its use. Table C shall constitute the effluent monitoring program:

Table C – Recycled Water Monitoring			
Constituent/Parameters	Units	Type of Sample	Minimum Frequency of Analysis
Total recycled water flow	mgd	Recorder	Continuous ^[1]
Turbidity	NTU	Recorder	Continuous ^[1,2]
Total residual chlorine	mg/L	Recorder	Continuous ^[1,3]
Total coliform	MPN/100 ml	Grab	Daily
Total organic carbon (TOC)	mg/L	24-hour comp.	Weekly
Temperature	°F	Grab	Weekly
pH	pH units	Grab	Weekly
Total nitrogen ^[4]	mg/L	24-hour comp./Grab	Twice a week
Methyl-tert-butyl ether (MTBE)	µg/L	Grab	Monthly
Tert-butyl alcohol (TBA)	µg/L	Grab	Monthly
Nitrosodimethylamine (NDMA) ^[5]	µg/L	Grab	Monthly ^[6]
Boron	mg/L	Grab	Quarterly
1,4-dioxane ^[5]	µg/L	Grab	Quarterly
Perchlorate ^[5]	µg/L	Grab	Quarterly
Dichlorodifluoromethane ^[5]	µg/L	Grab	Quarterly
Ethyl-tert-butyl ether ^[5]	µg/L	Grab	Quarterly
Tert-amyl-methyl ether ^[5]	µg/L	Grab	Quarterly
1,2,3-trichloropropane ^[5]	µg/L	Grab	Quarterly
Vanadium ^[5]	µg/L	Grab	Quarterly
BOD ₅ 20°C	mg/L	24-hour comp.	Quarterly
General physical ^[7,8]	---	Grab	Quarterly
General minerals ^[7,8]	mg/L	Grab	Quarterly
Inorganic ^[7,8]	µg/L	Grab	Quarterly
Regulated organic chemicals ^[8,9]	µg/L	Grab	Quarterly
Radioactivity ^[10]	PCi/L	Grab	Quarterly
Endocrine disrupting chemicals ^[11]	µg/L	Grab	Annually
Pharmaceuticals and other chemical ^[12]	µg/L	Grab	Annually
TIC ^[13]		Grab	Annually
Remaining chemicals ^[14]	µg/L	Grab	Quarterly ^[15]
Remaining priority pollutants	µg/L	Grab	Quarterly ^[15]

Footnote:

- [1]. For those constituents that are continuously monitored, the Dischargers shall report the monthly minimum and maximum, and daily average values.
- [2]. The turbidity of the reverse osmosis product water shall be continuously measured with at least one reading every 1.2 hours and recorded.
- [3]. Chlorine residual shall be recorded at a point after the recycled water has passed through the final chlorine contact basin.
- [4]. Nitrogen species include Nitrate-N, Nitrite-N, Ammonia-N, and Organic-N. Twice weekly samples shall be taken at least 3 days apart.
- [5]. The State Action Levels are applied on these chemicals. After the first year of operation, the DHS may allow the monitoring frequency to be reduced to annually for these chemicals based on the initial sample results.
- [6]. For the first year of operation/injection, NDMA will be monitored monthly and then quarterly if everything is OK.
- [7]. See Attachment A-8 for specific constituents.
- [8]. Prior to the commencement of recharge via injection of recycled water, at least one 24-hour composite or grab sample of recycled water shall be collected and analyzed to determine compliance with primary maximum contaminant levels referenced above for inorganic chemicals, radionuclides, organic chemicals, and disinfection byproducts, and with action levels for lead and copper referenced above and to demonstrate the effectiveness of the treatment process. The results for the initial recycled water quality analysis shall be submitted to the DHS and Regional Board.
- [9]. See Attachment A-3 for specific constituents.
- [10]. See Attachment A-2 for specific constituents.
- [11]. Endocrine disrupting chemicals include ethinyl estradiol, 17-B estradiol, estrone, bisphenol A, nonylphenol and nonylphenol polyethoxylate, octylphenol and octylphenol polyethoxylate, and polybrominated diphenyl ethers. The analytical methods for these chemicals shall be approved by the DHS.
- [12]. Pharmaceuticals and other chemicals include acetaminopen, amoxicillin, azithromycin, caffeine, carbamazepine, ciprofloxacin, ethylenediamine tetra-acetic acid (EDTA), gemfibrozil, ibuprofen, iodinated contrast media, lipitor, methadone, morphine, salicylic acid, and triclosan. The analytical methods for these chemicals shall be approved by the DHS.
- [13]. A TIC analysis will be performed annually on the recycled water for the first four quarters and annually thereafter.
- [14]. See Attachments, A-4, A-5, and A-6 for specific constituents.

- [15]. After the first year of operation/injection, the monitoring frequency of the secondary MCLs and priority pollutants is allowed to be reduced to annually, based on the initial sample results.
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C. Evaluation of TIC

The results of the TIC shall be evaluated in the following manner:

- a. The recycled water TIC peak(s) not detected – If the recycled water does not appear to detect any TIC peak(s), the TIC evaluation is complete, and monitoring will continue at regular intervals. In this manner, the use of the most current commercially available standardized analytical method will have demonstrated that the hypothesized risks associated with injection of 100% recycled water are no greater than those based on the currently approved criteria, which includes 50% dilution with the alternative potable water supply.
- b. The recycled water TIC peak(s) detected
 - i. The recycled water shall be re-analyzed (using the broad screening TIC analysis technique) within 30 days. If the previous result is confirmed, and the Regional Board and the DHS shall be notified.
 - ii. Re-analyzing of the recycled water using more sensitive (detecting targeted compounds) and standardized techniques shall be conducted within 30 days.
 - iii. Re-analyzing of recycled water and alternative supply (detecting targeted compounds) shall be sampled within 30 days.
 - iv. The recycled water shall be re-analyzing along with alternative supply. If the previous results are confirmed, the Regional Board and the DHS shall be notified and groundwater sampling shall be arranged within 30 days.
 - v. Groundwater (nearest "indicator well") shall be analyzed, only if there is a reasonable amount of certainty that recycled water has reached this well.
 - vi. If constituent(s) are detected in the nearest "indicator well", the Regional Board and the DHS shall be notified, and a health effects literature review shall be conducted to attempt to determine whether there is any health significance for any constituents tentatively identified in the TIC analysis or, if justified, appropriate action plan shall be evaluated in consultation with the Regional Board and the DHS.

3. Diluent Water Monitoring

Diluent water, which is purchased from the Metropolitan Water District of Southern California shall be monitored quarterly for nitrate and nitrite. Within 48 hours of being informed by the laboratory of the nitrite plus nitrate nitrogen result greater than 10 mg/L, a confirmation sample shall be collected and analyzed. If the average of the initial and confirmation samples exceeds 10 mg/L, use of the potable water shall be suspended and Dischargers shall notify the DHS and Regional Board within 48 hours of receiving the confirmation sample result. The causes of the exceedance shall be investigated and appropriate corrections shall be made before use of the potable water may be resumed.

4. Blended Recycled Water Monitoring

Unless otherwise specified herein, sampling stations shall be established where representative samples of blended recycled water can be obtained. Samples may be obtained at a single station, provided that the station is representative of blended recycled water after blending at the Barrier Blend Facility. Each sampling station shall be identified and approved by the Executive Officer prior to its use. Table D sets forth the minimum required constituents to be monitored in the blended recycled water at the Barrier Blend Facility.

Table D – Blended Recycled Water Monitoring			
Constituent	Units	Type of Sample	Minimum Frequency of Analysis
Total Blended Flow	mgd	---	Total monthly
Chlorine residual	mg/L	Grab	Weekly
TDS	mg/L	Grab	Weekly
Sulfate	mg/L	Grab	Weekly
Chloride	mg/L	Grab	Weekly
Boron	mg/L	Grab	Weekly
Total nitrogen ^[1]	mg/L	Grab	Twice a week

Footnote:

[1]. Total nitrogen shall be defined as the sum of ammonia, nitrite, nitrate, and organic nitrogen concentrations, expressed as nitrogen. Each week, samples shall be collected at least three days apart.

5. Groundwater Monitoring

The Dischargers shall monitor the quality of groundwater to assess any impact(s) from the recharge of blended recycled water. Representative samples of groundwater shall be collected from major aquifers, including the Gaspar, 200-Foot Sand, 400-Foot Gravel, Silverado (Upper Silverado), and Lower San Pedro (Lower Silverado)

aquifers. The Lower San Pedro aquifer's representative groundwater samples semiannually collected by WRD can be used and reported to this Regional Board and DHS. Table E sets forth the minimum constituents and parameters for monitoring groundwater quality in monitoring wells designated in Table F. If any of the monitoring results indicates that a maximum contaminant level has been exceeded or that coliforms are present, LADWP shall notify the DHS within 48 hours of receiving the results and make note of any positive finding in the monthly report submitted to the Regional Board.

Monitoring of wells should not occur until a year before the recycled water approaches the wells.

A. Groundwater Monitoring

Table E – Groundwater Monitoring			
Constituents/parameters	Units	Type of Sample	Minimum Frequency of Analysis
Water level elevation ^[1]	feet	---	Quarterly
Chlorine residual	mg/L	Grab	Quarterly
Total Organic Carbon (TOC)	mg/L	Grab	Quarterly
Total coliform	MPN/100ml	Grab	Quarterly
BOD ₅ 20°C	mg/L	Grab	Quarterly ^[3]
Oil and grease	mg/L	Grab	Quarterly
Total nitrogen	mg/L	Grab	Quarterly
Boron	mg/L	Grab	Quarterly
Suspended solid	mg/L	Grab	Quarterly ^[3]
Turbidity	NTU	Grab	Quarterly ^[3]
General physical ^[2]		Grab	Quarterly
General minerals ^[2]	µg/L	Grab	Quarterly
Inorganic	µg/L	Grab	Quarterly
Regulated organics chemicals ^[4]	µg/L	Grab	Quarterly ^[3]
Radioactivity ^[5]	PCi/L	Grab	Quarterly ^[3]
Nitrosodimethylamine (NDMA)	µg/L	Grab	Quarterly ^[6]
1,4-Dioxane	mg/L	Grab	Quarterly
Remaining chemicals ^[7]	µg/L	Grab	Quarterly ^[3]
Remaining priority pollutants	µg/L	Grab	Quarterly ^[3]
Dichlorodifluoromethane ^[8]	µg/L	Grab	Semiannually
Ethyl-tert-butyl ether ^[8]	µg/L	Grab	Semiannually
Perchlorate ^[8]	µg/L	Grab	Semiannually
Tert-amyl-methyl ether ^[8]	µg/L	Grab	Semiannually
Tert-butyl alcohol ^[8]	µg/L	Grab	Semiannually
1,2,3-trichloropropane ^[8]	µg/L	Grab	Semiannually
Vanadium ^[8]	µg/L	Grab	Semiannually

Footnote:

- [1]. Water level elevations must be measured to the nearest 0.01 feet, and referenced to mean sea level.
- [2]. See Attachment A-8 for specific constituents.
- [3]. Before one year of recycled water approaching the monitoring wells, the sampling frequency is quarterly. After one year to monitor groundwater, the sampling frequency will be lengthened to a semi-annual basis for selected compounds that were not detected during the first year monitoring. However, should any monitored compound exceed the maximum contaminant levels (and is not a preexisting condition) at the advanced treatment facility or in the groundwater during any sampling period, the frequency of sampling will be increased to a quarterly basis. Semiannual sampling of the monitored compound will resume when the compound again becomes compliant with the water quality standards.
- [4]. See Attachment A-3 for specific constituents.
- [5]. See Attachment A-2 for specific constituents.
- [6]. NDMA starts to be sampled at the first quarter of the beginning of the fifth year of the recycled water injection.
- [7]. See Attachments A-4, A-5, and A-6 for specific constituents.
- [8]. These chemicals shall be sampled semiannually, five to seven months apart.

B. Specifications of Monitoring Wells

Table F – Dominguez Gap Barrier Project Monitoring Wells			
Well No.	Perforation Zone and Interval (feet)	Aquifer	Location
Wilmington1			
4S/13W-28A01	Zone 1 (915-935)	Lower Silverado	1500 block of Lomita Blvd., west of Alameda avenue (1/4 distance to nearest domestic well from northern portion of barrier)
4S/13W-28A02	Zone 2 (780-800)	Lower Silverado	
4S/13W-28A03	Zone 3 (550-570)	Upper Silverado	
4S/13W-28A04	Zone 4 (225-245)	400- FT Gravel	
4S/13W-28A05	Zone 5 (120-140)	200-FT Sand	
26E69			
4S/13W-29H05	Zone 1 (121-156)	200-FT Sand	42 ft N of Lomita Blvd., 215f east of Wilmington avenue (1/2 distance to nearest domestic well from northern portion of barrier)
4S/13W-29H06	Zone 2 (201-381)	400- FT Gravel	
4S/13W-29H07	Zone 3 (424-724)	Upper Silverado	

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Table F – Dominguez Gap Barrier Project Monitoring Wells			
Well No.	Perforation Zone and Interval (feet)	Aquifer	Location
Wilmington2			
4S/13W-32F01	Zone 1 (950-970)	Lower Silverado	943 Lagoon Avenue, south of Opp Street (1/4 distance to nearest domestic well from southern portion of barrier)
4S/13W-32F02	Zone 2 (775-755)	Lower Silverado	
4S/13W-32F03	Zone 3 (540-560)	Upper Silverado	
4S/13W-32F04	Zone 4 (390-410)	400- FT Gravel	
4S/13W-32F05	Zone 5 (120-140)	200-FT Sand	
25A48			
4S/13W-32B01	Zone 1 (275-365)	400- FT Gravel	16 ft north of "M" street, 75 ft west of Marine avenue (1/2 distance to nearest domestic well from southern portion of barrier)
4S/13W-32B02	Zone 2 (95-235)	200-FT Sand	

V. STORM WATER MONITORING AND REPORTING

The Dischargers shall implement the Storm Water Monitoring Program and Reporting Requirements of the State Water Resources Control Board' s General NPDES Permit No. CAS000001 and Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities (Order No. 97-03-DWQ).

VI. MONITORING FREQUENCIES

Monitoring frequencies may be adjusted by the Executive Officer to a less frequent basis if requested by the Discharger, and if backed by statistical trends of the monitoring data.

Ordered by:

Dennis A. Dickerson
Executive Officer
Date: October 2, 2003

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