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

ORDER NO. R4-2005-0061

**MONITORING AND REPORTING PROGRAM NO. CI-8956
FOR THE
ALAMITOS BARRIER RECYCLED WATER PROJECT
(File No. 93-076)**

ISSUED TO

**Los Angeles County Department of Public Works
Water Replenishment District of Southern California**

The Los Angeles County Department of Public Works (LACDPW) and the Water Replenishment District of Southern California (WRD) collectively referred to as Project Sponsors, shall implement this Monitoring and Reporting Program (MRP) on the first of the month following the month this Order was adopted.

I. SUBMITTAL OF REPORTS

1. The Project Sponsors shall submit the required reports, outlined in the following paragraphs, 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 at the Regional Board by the 15th day following the end of the second month of the designated monitoring period. The first Monthly Monitoring Report shall be received at the Regional Board and the DHS by October 15, 2005. After one year of the submittals, the reporting frequency will revert to quarterly monitoring.
 - B. **Quarterly Monitoring Reports** shall be received at the Regional Board by the 15th day of the second month following the end of each quarterly monitoring period according to Table M1. The first Quarterly Monitoring Report shall be received at the Regional Board and the DHS by May 15, 2006.

Table M1 – Quarterly Report Periods and Due Dates	
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 at the Regional Board and the DHS by April 15 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. **Advanced Wastewater Treatment Facility (AWTF) Operations, Maintenance, and Monitoring Plan (OMM Plan)** - By August 15, 2006, an updated OMM Plan (after one year of operation) shall be submitted to the Regional Board and the DHS.
 - E. **Five-Year Engineering Report** shall be submitted to the Regional Board and the DHS. The first Five-Year Updated Engineering Report shall be received by August 15, 2010.
- 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-8956 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 and to the DHS on hard copy, and on either a 3 1/2" computer diskette or a CD-ROM disk. The Regional Board and to the DHS may request electronic submittal of data contained in a CD-ROM disk or other appropriate electronic medium at any time. The submittal 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 Project Sponsors to submit the monitoring reports electronically, when it becomes operational. (Note that DHS requires groundwater monitoring to be submitted to DHS by the Electronic Data Transfer, which is available in the DHS' website at <http://www.dhs.ca.gov/ps/ddwem/EDT/default.htm>.) 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 15th day following the end of the second month of the designated monitoring period.
 - B. Analytical results shall be reported to the DHS 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."

The WRD should request PSCodes from the DHS so the data can be entered by the laboratories in the DHS' database.

II. MONITORING REQUIREMENTS

1. The Project Sponsors shall monitor the flow and quality of the following according to the manner and frequency specified in this MRP:
 - A. Influent to the AWTF (from the Long Beach WRP's tertiary treated effluent);
 - B. Recycled water prior to blending with diluent water;
 - C. Blend of recycled water and diluent water, when applicable;
 - D. Nearest production well SB-LEI (State Well No. 05S/12W-01A03) to the barrier; and,
 - E. Receiving groundwater (all monitoring wells).
2. 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 Project Sponsors 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, which conducted the analyses. Include copy or copies of laboratory certifications by the California Health Services Environmental Laboratory Accreditation Program (ELAP).
 - E. Analytical test methods 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 Project Sponsors shall select

- the analytical methods that provide RDLs lower than the limits prescribed in this Order. For those constituents that have drinking water notification levels (NLs) and/or public health goals (PHGs), the RDLs shall be equal to or lower than either the NLs or the PHGs (note this is not always feasible). Every effort should be made to analyze Chemicals of Concern to the Regional Board in Attachment A-7 using the least RDL possible.
4. The Project Sponsors 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) are the lowest calibration standard. At no time shall the Project Sponsors use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
 5. Upon request by the Project Sponsors, the Regional Board, in consultation with the 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 Project Sponsors 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 the 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 Project Sponsors 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 1 to 800. 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 Project Sponsors 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 Project Sponsors 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 Project Sponsors' 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 Project Sponsors' 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 Project Sponsors are required to inform the Regional Board, in event that D, E, F is occurring.

11. For endocrine disrupting and pharmaceutical chemical analyses
 - A. These chemicals (see MRP Section IV, Item 2, Footnotes [15] and [16] 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 the Regional Board or the 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, the 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 Project Sponsors and the 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 Project Sponsors shall submit all reports, shown on Section I SUBMITTAL OF REPORTS to the Regional Board and the DHS by the dates indicated. All monthly, quarterly, and annual 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 Alamitos Gap Seawater Intrusion Barrier (Alamitos 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 Project Sponsors 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 Lower San Pedro Aquifer in the area between 2,000 feet from the Alamitos Barrier and domestic well SB-LEI.
 - 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 Project Sponsors 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 Project Sponsors sample and perform analyses (other than for process/operational control, startup, research, or equipment testing) on any sample more frequently than required in this MRP 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 includes:
 - a. A demonstration of a mass balance to determine the portion of recycled water in the groundwater;
 - b. Injection recycled water flow paths determined annually from groundwater elevation contours;
 - c. A flow and transport model that shall be developed/revised to match as closely as possible the actual flow patterns observed within the aquifer;

- d. Title 22 drinking water quality data for the nearest domestic water supply well SB-LEI.

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. The description of any changes and anticipated changes including any impacts in operation of any unit processes or facilities shall be provided.
 - E. A list of the analytical methods employed for each test and associated laboratory quality assurance/quality control procedures shall be included. The report shall restate, for the record, the laboratories used by the Project Sponsors to monitor compliance with this Order, their status of certification, and provide a summary of performance.
 - F. The report shall confirm operator certification and provide a list of current operating personnel, their responsibilities, and their corresponding grade of certification.
 - G. The annual report shall be prepared under the direction of an engineer registered in the State of California, or a certified hydrogeologist in California, and experienced in the field of advanced wastewater treatment for groundwater recharge regarding the operation of the ABRWP facilities.
3. An **OMM Plan** shall discuss conformance with the AWTF 's Operations, Maintenance, and Monitoring Plan for operations, maintenance, and monitoring of the AWTF, including Long Beach WRP, 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.
4. A **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 accompanying 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 this 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 Alamitos 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 (SB-LEI), 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 Project Sponsors 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 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 M2 shall constitute the influent monitoring program:

Table M2 – 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.	Twice a week ^[2]
BOD ₅ 20°C	mg/L	24-hour comp.	Weekly
Nitrosodimethylamine (NDMA) ^[3]	µg/L	Grab	Monthly

Footnote:

- [1]. For those constituents that are continuously monitored, the Project Sponsors shall report the monthly minimum and maximum, and daily average values.
- [2]. For one year after initial startup, the WRD shall collect and analyze a 24-hour composite sample twice a week; and, subsequently, the DHS may allow the WRD to collect and analyze weekly 24-hour composite samples, based on its review of the first year of data.
- [3]. The sampling for NDMA may be incorporated into the NDMA sampling of the Long Beach WRP conducted by CSDLAC, provided that the sampling is performed using the same analytical method and laboratory.

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 sodium hydroxide injection point. Should there be any changes in the sampling station, the proposed station shall be approved by the Executive Officer prior to its use. Table M3 shall constitute the effluent monitoring program:

Table M3 – Recycled Water Monitoring			
Constituent/Parameters	Units	Type of Sample	Minimum Frequency of Analysis
Total recycled water flow	mgd	Recorder	Continuous ^[1]
pH	pH units	Recorder	Continuous ^[1]
Conductivity	µS/cm	Recorder	Continuous ^[1]
Total residual chlorine	mg/L	Recorder	Continuous ^[1,2]
Total coliform	MPN/100 ml	Grab	Daily
Total organic carbon (TOC)	mg/L	24-hour comp.	Weekly
Temperature	°F	Grab	Weekly
BOD ₅ 20°C	mg/L	24-hour comp.	Weekly
Total nitrogen ^[3]	mg/L	24-hour comp./Grab	Twice a week
Inorganic ^[4, 5] with primary MCL	µg/L	Grab	Quarterly
Constituents/parameters ^[6] with secondary MCL	---	Grab	Quarterly
Fluoride ^[4, 5]	µg/L	Grab	Quarterly
Radioactivity ^[5, 7]	PCi/L	Grab	Quarterly
Regulated organic chemicals ^[5,8]	µg/L	24-hour comp./Grab	Quarterly
Disinfection byproduct ^[5,9]	µg/L	24-hour comp./Grab	Quarterly
General physical ^[10]	---	Grab	Quarterly
General minerals ^[10]	µg/L	Grab	Quarterly
Lead ^[6]	µg/L	Grab	Quarterly
N-Nitrosopyrrolidine ^[11]	µg/L	Grab	Quarterly ^[12]
Chemicals of Concern ^[13]	µg/L	Grab	Quarterly ^[12]
Endocrine disrupting chemicals ^[14]	µg/L	Grab	Annually
Pharmaceuticals and other chemical ^[16]	µg/L	Grab	Annually
TIC ^[17]	µg/L	Grab	Annually

Table M3 – Recycled Water Monitoring			
Constituent/Parameters	Units	Type of Sample	Minimum Frequency of Analysis
Remaining priority pollutants ^[18]	µg/L	Grab	Quarterly ^[13]

Footnote:

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

[3]-[2]. Chlorine residual shall be recorded at a point after the recycled water has passed the sodium hydroxide injection point.

[4]-[3]. Nitrogen species include Nitrate-N, Nitrite-N, Ammonia-N, and Organic-N. Twice weekly samples shall be taken at least 3 days apart.

[5]-[4]. See Attachment A-1 for specific constituents to be monitored.

[6]-[5]. 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, optimal fluoride levels, 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.

[7]-[6]. Prior to the commencement of recharge via injection of recycled water, at least one grab sample of recycled water shall be collected and analyzed to determine compliance with secondary maximum contaminant levels listed in Attachment A-6 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.

[8]-[7]. See Attachment A-2 for specific constituents to be monitored.

[9]-[8]. See Attachment A-3 for specific constituents to be monitored.

[10]-[9]. See Attachment A-4 for specific constituents to be monitored.

[11]-[10]. See Attachment A-5 for specific constituents to be monitored.

[12]-[11]. N-Nitrosopyrrolidine is being analyzed for information purpose only. There is no numeric limit for this constituent, no numeric limit is anticipated at this time, and analytical methods may not be widely available.

Monitoring for this constituent 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 Regional Board and the DHS can give the result

due consideration as to whether it is of concern or not. Just what such consideration might entail would depend on the knowns and unknowns of this constituent, 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.

~~[13]~~[12]. After the first year of operation/injection, the DHS may allow the monitoring frequency to be reduced to annually, based on the initial sample results.

~~[14]~~[13]. Prior to the commencement of recharge via injection of recycled water, at least one grab sample of recycled water shall be collected and analyzed to determine compliance with concentrations for Chemicals of Concern to the Regional Board listed in Attachment A-7 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.

~~[15]~~[14]. 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.

~~[16]~~[15]. 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.

~~[17]~~[16]. See Finding No. 23.C. of this accompanying Order and Section IV.2.C. of M&RP.

~~[18]~~[17]. See Attachment A-8 for specific constituents to be monitored.

C. Evaluation of Tentatively Identified Chemical (TIC) Analysis

The results of the TIC analysis 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 shall be monitored quarterly for nitrate and nitrite. Within 48 hours of being informed by the laboratory of the nitrite plus nitrate nitrogen result or the nitrate nitrogen result greater than 10 mg/L or the nitrite nitrogen result is greater than 1 mg/L, a confirmation sample shall be collected and analyzed. If the average of the initial and confirmation samples exceeds 10 mg/L as nitrate nitrogen or as nitrite and nitrate nitrogen, or exceeds 1 mg/L as nitrite nitrogen, Project Sponsors shall notify the DHS and Regional Board within 48 hours of receiving the confirmation sample result and:

- A. Investigate the causes of the exceedance and make appropriate corrections;
- B. Collect weekly and analyze two grab or 24-hour composite samples at least three days apart; and,
- C. Suspend injection until appropriate corrections are made, if the average of all samples collected over the ensuing two-week period exceeds the applicable criteria.

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 M4 sets forth the minimum required constituents to be monitored in the blended recycled water at the Barrier Blend Facility.

Table M4 – 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, two samples shall be collected at least three days apart.

5. Groundwater Monitoring

- A. The Project Sponsors 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, from the shallowest to the deepest, including the Recent Zone, C Zone, B Zone, A Zone, I Zone, Main Aquifer, and the Lower San Pedro Aquifer. 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 M5 sets forth the minimum constituents and parameters for monitoring groundwater quality in monitoring wells (LACFCD Well Nos. 503BF, 503BE, 502BW, 502BX, 502AK, 502AL, 502AM, and 502AN).

Table M5 – Groundwater Monitoring			
Constituents/parameters	Units	Type of Sample	Minimum Frequency of Analysis
Water level elevation ^[1]	feet	---	Quarterly
Chlorine residual	mg/L	Grab	Quarterly

Table M5 – Groundwater Monitoring			
Constituents/parameters	Units	Type of Sample	Minimum Frequency of Analysis
Total Organic Carbon (TOC)	mg/L	Grab	Quarterly
Total coliform	MPN/100ml	Grab	Quarterly
BOD ₅ 20°C	mg/L	Grab	Quarterly ^[2]
Oil and grease	mg/L	Grab	Quarterly
Total nitrogen	mg/L	Grab	Quarterly
Boron	mg/L	Grab	Quarterly
Suspended solid	mg/L	Grab	Quarterly ^[2]
Turbidity	NTU	Grab	Quarterly ^[2]
Inorganic with primary MCL ^[3]	µg/L	Grab	Quarterly
Constituents/parameters with secondary MCL ^[4]	---	Grab	Quarterly
Fluoride ^[3]	µg/L	Grab	Quarterly
Radioactivity ^[5]	PCi/L	Grab	Quarterly ^[2]
Regulated organics chemicals ^[6]	µg/L	Grab	Quarterly ^[2]
Disinfection byproducts ^[7]	µg/L	Grab	Quarterly ^[2]
General physical ^[8]		Grab	Quarterly
General minerals ^[8]	µg/L	Grab	Quarterly
Chemicals of Concern ^[9]	µg/L	Grab	Semiannually ^[10]
N-Nitrosopyrrolidine ^[11]	µg/L	Grab	Semiannually ^[10]
Remaining priority pollutants ^[12]	µg/L	Grab	Semiannually ^[10]

Footnote:

- [1]. Water level elevations must be measured to the nearest 0.01 feet, and referenced to mean sea level.
- [2]. 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.
- [3]. See Attachment A-1 for specific constituents to be monitored.
- [4]. See Attachment A-6 for specific constituents to be monitored.
- [5]. See Attachment A-2 for specific constituents to be monitored.
- [6]. See Attachment A-3 for specific constituents to be monitored.

- [7]. See Attachment A-4 for specific constituents to be monitored.
 - [8]. See Attachment A-5 for specific constituents to be monitored.
 - [9]. See Attachment A-7 for specific constituents to be monitored.
 - [10]. These chemicals shall be sampled semiannually, five to seven months apart. After the first year of operation/injection, the DHS may allow the monitoring frequency to be reduced to annually, based on the initial sample results.
 - [11]. N-Nitrosopyrrolidine is being analyzed for information purpose only. There is no numeric limit for this constituent, no numeric limit is anticipated at this time, and analytical methods may not be widely available.
 - [12]. See Attachment A-8 for specific constituents to be monitored.
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- B. If any of the monitoring results indicates that a maximum contaminant level has been exceeded or that coliforms are present, WRD 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.
- C. Monitoring of wells shall begin one year prior to recycled water reaching the wells.

V. STORM WATER MONITORING AND REPORTING

The Project Sponsors 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 Project Sponsors, and if backed by statistical trends of the monitoring data.

Ordered by:

ORIGINAL SIGNED BY

Jonathan S. Bishop
Executive Officer
Date: September 1, 2005

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