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

ORDER NO. R4-2014-XXX

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 (Los Angeles County DPW) 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 effective date of this Order.

I. SUBMITTAL OF REPORTS

1. The Project Sponsors shall submit the required reports, outlined in the following paragraphs, to the State Water Resources Control Board (State Water Board)'s Geotracker database and to the California Department of Public Health (CDPH), Drinking Water Field Operations, Los Angeles Region by the dates indicated Effective July 1, 2014, the State Water Board Division of Drinking Water shall be substituted in place of every reference to CDPH in the conditions and requirements of this Order, and in the findings of this Order where appropriate.

    a. Quarterly Monitoring: Quarterly Monitoring Reports shall be received by the 15th day of the second month following the end of each quarterly monitoring period according to Table M-1.

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

The contents of the Geotracker Quarterly Monitoring Report shall include a one page summary of operational concerns that addresses changes in reporting conditions, including influent, recycled water, and groundwater monitoring results, since the last report.

b. Annual Summary: The Annual Summary Report shall be received by April 15 of each year. This Annual Summary Report shall contain a discussion of the previous calendar year's analytical results, as well as graphical and tabular summaries of the monitoring analytical data.

Public water systems, owners of small water systems and other active production wells having downgradient sources potentially affected by the Barrier or within 10 years groundwater travel time from the Barrier shall be notified by direct mail and/or electronic mail of the availability of the annual report.

c. Leo J. Vander Lans Water Treatment Facility (Vander Lans WTF or Facility) Operation Plan: Prior to startup of the expanded Vander Lans WTF, the Project Sponsors shall submit an Operations Plan to CDPH and the Regional Water Board for approval. After six months of operation of the expanded Facility, the Operations Plan shall be updated as necessary and submitted to the Regional Water Board and the CDPH for review and approval.

i. The Operations Plan shall cover critical operational parameters to include routine testing procedures for the microfiltration (MF), reverse osmosis (RO), and ultraviolet (UV)/advanced oxidation process (AOP) systems, optimization of the UV dose for disinfection and reduction of light-sensitive contaminants, and all treatment processes, maintenance and calibration schedules for all monitoring equipment, process alarm set points, and response procedures for all alarms in each treatment process of the Vander Lans WTF, including criteria for diverting recycled water if water quality requirements are not met, start-up, emergency response and contingency plans. During the first year of operation of the expanded Vander Lans WTF, all treatment processes shall be operated in a manner to provide optimal reduction of microbial, regulated and nonregulated contaminants. Based on this experience and anytime operational changes are made, the Operations Plan shall be updated.

ii. The Operations Plan shall include staffing levels with applicable certification levels for Facility operations personnel. Significant changes in the operation of any of the treatment processes shall be reported to the CDPH and Regional Water Board. Significant changes in the approved Operations Plan must be approved by the CDPH and the Regional Water Board prior to instituting changes. The Project Sponsors shall be responsible for ensuring that the Operations Plan is, at all times, representative of the current operations, maintenance, and monitoring of the Vander Lans WTF.

d. Five-Year Engineering Report: Project Sponsors shall update the 2013 Title 22 Engineering Report and submit the updated report to the State Water Board's Geotracker and the CDPH five years after the startup of the expanded Vander Lans WTF, and every five years thereafter.

2. All reports to the State Water Board's Geotracker shall reference the Compliance File No. CI-8956. Compliance monitoring reports shall be submitted separately from other technical reports.

3. All reports shall be submitted as a pdf file and uploaded electronically to the State Water Board's Geotracker and provided via email to the CDPH (if the file exceeds 10 MB, either a CD containing the file shall be mailed to CDPH, or a link for downloading an electronic copy of the file shall be provided). Upon request the data shall be provided in excel format

4. By the reporting due dates specified in Table M-1, groundwater data shall be uploaded electronically to the State Water Board's Geotracker in an electronic deliverable format specified by the State Water Board. Upon request the data shall be provided in excel format

II. MONITORING REQUIREMENTS

1. 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 Vander Lans WTF;

    b. Recycled water from Vander Lans WTF after the injection point for sodium hypochlorite and before injection into the Barrier;

    c. If potable water is used, blend of recycled water and diluent water;

    d. Receiving groundwater (monitoring wells specified in Table M-15); and,

    e. For the production well SB-LEI (State Well No. 05S/12W-01A03) nearest to the barrier, the Project Sponsors shall review and evaluate the publicly available Title 22 monitoring data.

2. Monitoring reports shall include, but not limited to, the following:

    a. Analytical results;

    b. Location of each sampling station where representative samples are obtained, including 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;

    c. Analytical test methods used and the corresponding minimum reporting levels (MRLs);

    d. Name(s) of the laboratory, which conducted the analyses;

    e. Copy of laboratory certifications by the CDPH's Environmental Laboratory

Accreditation Program (ELAP);

f. Quality assurance and control information, including documentation of chain of custody; and,

g. Maximum contaminant level (MCL), notification level, response level, CDPH Condition or Recycled Water Discharge Limit.

3. Though not required to be included in the monitoring reports unless specifically requested by the Regional Water Board or the CDPH, the Project Sponsors shall have in place written sampling protocols. For groundwater monitoring, the sampling protocols shall outline the methods and procedures used for measuring water levels; purging wells; collecting samples; decontaminating equipment; containing, preserving, and shipping samples, and maintaining appropriate documentation. Also, the sampling protocols shall include the procedures for handling, storing, testing, and disposing of purge and decontamination waters generated from the sampling events.

4. Where multiple EPA approved methods are available, drinking water (500 series) or wastewater (600 series) may be used as appropriate to protect water quality and beneficial uses.

5. The samples shall be analyzed using analytical methods described in 40 Code of Federal Regulations (CFR) Part 141; or where no methods are specified for a given pollutant, by methods approved by the CDPH, Regional Water Board and/or State Water Board. The Project Sponsors shall select the analytical methods that provide Minimum Reporting Levels (MRLs) lower than the limits prescribed in this Order or as low as possible that will provide reliable data.

6. The Project Sponsors shall instruct its laboratories to establish calibration standards so that the MRLs (or its equivalent if there is a different treatment of samples relative to calibration standards) are the lowest calibration standard. At no time shall analytical data derived from extrapolation beyond the lowest point of the calibration curve be used, except as stated in section III.1.B of this MRP.

7. Upon request by the Project Sponsors, the Regional Water Board, in consultation with the CDPH and the State Water Board Quality Assurance Program, may establish MRLs, in any of the following situations:

a. When the pollutant has no established method under 40 CFR 141;

b. When the method under 40 CFR 141 for the pollutant has an MRL 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 141.

8. For regulated constituents, the laboratory conducting the analyses shall be certified

by ELAP or approved by the CDPH, Regional Water Board, or State Water Board, for a particular pollutant or parameter.

9. Samples shall be analyzed within allowable holding time limits as specified in 40 CFR Part 141. All Quality Assurance/Quality Control (QA/QC) analyses shall be run on the same dates that samples are actually analyzed. The Project Sponsors shall retain the QA/QC documentation in its files for 3 years and make available for inspection and/or submit them when requested by the Regional Water Board or the CDPH. Proper chain of custody procedures shall be followed, and a copy of this documentation shall be submitted with the quarterly report.

10. For all bacterial analyses, sample dilutions shall 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.

11. Quarterly monitoring for recycled water and groundwater shall be performed during the months of February, May, August, and November. Semiannual monitoring for recycled water shall be performed during the months of February and August. Semiannual monitoring for groundwater shall be performed during the months of May and November. Should there be instances when monitoring could not be done during these specified months, the Project Sponsors shall conduct the monitoring as soon as it can and state in the monitoring report the reason monitoring could not be conducted during the specified month. Results of quarterly analyses shall be reported in the quarterly monitoring report following the analysis.

12. For unregulated chemical analyses, the Project Sponsors shall select methods according to the following approach:

    a. Use the drinking water methods or waste water method sufficient to evaluate all water quality objectives and protect all beneficial uses;

    b. Use CDPH-recommended methods for unregulated chemicals, if available;

    c. If there is no CDPH-recommended drinking water method for a chemical, and more than a single United States Environmental Protection Agency (USEPA)-approved method is available, use the most sensitive of the USEPA-approved methods;

    d. If there is no USEPA-approved method for a chemical, and more than one method is available from the scientific literature and commercial laboratory, after consultation with CDPH, 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 CDPH for review. Those methods may be used until CDPH-recommended or USEPA-approved methods are available.

    f. For constituents of emerging concern (CECs) subject to the State Water

Board Recycled Water Policy as amended January 22, 2013, analytical methods for laboratory analysis of CECs shall be selected to achieve the RLs presented in Table 1 of Attachment A of the Recycled Water Policy. The analytical methods shall be based on methods published by the USEPA, methods certified by the CDPH, or peer review reviewed and published methods that have been reviewed by CDPH, including those published by voluntary consensus standards bodies such as the Standards Methods Committee and the American Society for Testing and Materials International. Any modifications to the published or certified methods shall be reviewed by CDPH and subsequently submitted to the Regional Water Board in an updated quality assurance project plan.

III. REPORTING REQUIREMENTS

1. Quarterly Reports

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

      i. The volume of the influent, recycled water injected, and if used, potable water injected into the barrier. If no recycled water was injected, or delivered for blending and injection, into the Alamitos Barrier Recycled Water Project (Barrier) during the quarter/month, the report shall so state.

      ii. The date and time of sampling and analyses.

      iii. All analytical results of samples collected during the monitoring period of the influent, recycled water, groundwater, and if potable water was used, then of the blend of recycled water and potable water injected.

      iv. 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.

      v. Discussion of compliance, noncompliance, or violation of requirements.

      vi. All corrective or preventive action(s) taken or planned with schedule of implementation, if any.

      vii. Certification by the Project Sponsors that no groundwater for drinking purposes has been pumped from wells within the boundary representing the greatest of the horizontal and vertical distances reflecting 6 months.

      viii. A summary of operational concerns describing changes in reporting conditions, including influent, recycled water, and groundwater monitoring results, since the last report.

   b. Monitoring results associated with the evaluation of pathogenic microorganism

removal as described in the Order.

c. For the purpose of reporting compliance with numerical limitations, analytical data shall be reported using the following reporting protocols:

i. Sample results greater than or equal to the MRL must be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample); or

ii. Sample results less than the MRL, but greater than or equal to the laboratory's Minimum Detection Limit (MDL), shall be reported as "Detected, but Not Quantified", "DNQ", or "J". The laboratory shall write the estimated chemical concentration of the sample next to "DNQ" or "J"; or

iii. Sample results less than the laboratory's MDL shall be reported as "Not-Detected", or ND.

d. If the Project Sponsors sample and perform analyses 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 recycled water, receiving water, etc., limitations.

e. The Regional Water Board or CDPH 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 obtained during the previous calendar year;

b. A summary of compliance status with all monitoring requirements during the previous calendar year;

c. For any non-compliance during the previous calendar year, a description of:

i. the date, duration, and nature of the violation;

ii. a summary of any corrective actions and/or suspensions of surface application of recycled water resulting from a violation; and

iii. if uncorrected, a schedule for and summary of all remedial actions;

d. Any detections of monitored chemicals or contaminants, and any observed trends in the monitoring wells (and if applicable, in diluent water supplies);

e. Information pertaining to the vertical and horizontal migration of the recharge

water plume;

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

g. A description of any changes in the operation of any unit processes or facilities;

h. The estimated quantity and quality of the recycled water and diluent water to be utilized for the next calendar year;

i. A summary of the measures taken by the County Sanitation Districts of Los Angeles County (County Sanitation Districts) to comply with wastewater source control program and the effectiveness of the implementation of the measures;

j. A list of the analytical methods used for each test and associated laboratory quality assurance/quality control procedures shall be included. The report shall identify the laboratories used by the Project Sponsors to monitor compliance with this Order, their status of certification, and provide a summary of proficiency test;

k. A list of current operating personnel, their responsibilities, and their corresponding grade of certification;

l. The Annual Report shall be prepared by a properly qualified engineer registered and licensed in California and experienced in the field of wastewater treatment; and,

m. A summary on monitoring reports, reporting and trend analysis, to describe the changes in water quality and contrast them to background measurements for all constituents exceeding MCLs or where concentration trends increase after the addition of recycled water. Specifically describe studies or investigations made to identify the source, fate and transport path of constituents which exceed the MCL at the monitoring wells.

3. The existing Operations Plan shall be updated to accurately reflect: the operations of the expanded Vander Lans WTF's, the date the plan was last reviewed, and whether the plan is valid and current.

4. Five-Year Engineering Report: Five years after the startup of the expanded Vander Lans WTF and every five years thereafter, the Project Sponsors shall update the engineering report to address any project changes and submit the report to the Regional Water Board and the CDPH. The Five-Year Engineering Report Update shall include, but not be limited to:

   a. A description of any inconsistencies between previous groundwater model predictions and the observed and/or measured values. For this requirement,

the Project Sponsors shall summarize the groundwater flow and transport including the injection and extraction operations for the Barrier during the previous five calendar years. This summary shall also use the most current data for the evaluation of the transport of recycled water; such evaluations shall include, at a minimum, the following information:

i. Total quantity of water injected into each major aquifer, and the proportions of recycled water and diluent water that comprise the total quantity;

ii. Estimates of the rate and path of flow of the injected water within each major aquifer;

iii. Projections of the arrival time of the recycled water at the closest extraction well (SB-LEI), and the percent of recycled water at the wellhead.

iv. Clear presentation on any assumptions and/or calculations used for determining the rates of flow and for projecting arrival times and dilution levels;

v. A discussion of the underground retention time of recycled water, a numerical model, or other methods used to determine the recycled water contribution to each aquifer;

vi. A revised flow and transport model to match actual flow patterns observed within the aquifer if the flow paths have significantly changed; and,

vii. 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 if applicable potable 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 estimates presented in the 2013 Engineering Report and subsequently 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 subsurface.

b. Evaluation of the ability of Project Sponsors to comply with all regulations and provisions over the following five years.

c. The Five-Year Engineering Report shall be prepared by a properly qualified engineer registered and licensed in California and experienced in the field of

wastewater treatment.

IV. MONITORING PROGRAMS

1. Influent Monitoring

   a. Monitoring is required to determine compliance with water quality conditions and standards; and assess Vander Lans WTF performance.

   b. The influent sampling station is located before tertiary treated water from the Long Beach Water Reclamation Plant (WRP) (and if applicable, from Los Coyotes WRP) enters the MF treatment system of the Vander Lans WTF. Influent samples shall be obtained on the same day that recycled water samples are obtained. The date and time of sampling shall be reported with the analytical values determined. Table M-2 constitutes the influent monitoring program.

Table M-2: Influent Monitoring

Constituents	Units	Type of Sample	Minimum Frequency of Analysis
Total flow	mgd	Recorder	Continuous[1]

2. Recycled Water Discharge Limit Monitoring

   a. Highly treated recycled water monitoring is required to:

      i. Determine compliance with the Permit conditions;

      ii. Identify operational problems and aid in improving facility performance; and,

      iii. Provide information on recycled water characteristics and flows for use in interpreting water quality and biological data.

   Samples shall be collected from the channel downstream of the sodium hypochlorite injection point, with the exception of constituents specified in Tables M-12 and M-13 Should the need for a change in the sampling station(s) arise in the future, the Project Sponsors shall seek approval of the proposed station by the Executive Officer prior to use.

   b. Table M-3 shall constitute the recycled water monitoring program.

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

Table M-3: Recycled Water Discharge Limits Monitoring			
Constituent/Parameters	**Units**	**Type of Sample**	**Minimum Frequency of Analysis[2]**
Total recycled water flow	mgd	Recorder	Continuous
pH	pH units	Recorder	Continuous
Total coliform	MPN/100 ml	Grab	Daily
TOC	mg/L	24-hour comp. or grab	Weekly
Turbidity	NPU	24-hour comp.	Weekly
Total nitrogen[3]	mg/L	24-hour comp or grab	Weekly
Nitrate-N	mg/L	24-hour comp or grab	Weekly
Nitrite-N	mg/L	24-hour comp or grab	Weekly
Nitrate plus Nitrite	mg/L	24-hour comp or grab	Weekly
Inorganics[4] with primary MCLs	µg/L	Grab	Quarterly
Constituents/parameters with secondary MCL	various	Grab	Quarterly
Radioactivity	pCi/L	Grab	Quarterly
Regulated organic chemicals	µg/L	24-hour comp or grab	Quarterly
Disinfection byproducts	µg/L	24-hour comp or grab	Quarterly
General physical	various	Grab	Quarterly
General minerals	µg/L	Grab	Quarterly
Constituents with Notification Levels	µg/L	Grab	Varies
Remaining priority pollutants	µg/L	Grab	Annually
Constituents of Emerging Concern (CECs)	ng/L	Grab	Varies

Table M-4: Inorganics with Primary MCLs		
Constituents		
Aluminum	Cadmium	Nitrate (as nitrogen)
Antimony	Chromium (Total)	Nitrite (as nitrogen)
Arsenic	Cyanide	Nitrate + Nitrite
Asbestos	Fluoride	Perchlorate

[2] For those constituents that are continuously monitored, the Project Sponsors shall report the daily minimum maximum and average values.
[3] Total Nitrogen includes nitrate-N, nitrite-N, ammonia-N, and organic-N.
[4] For specific constituents to be monitored and their monitoring frequency, refer to Tables M-3 through M-16.

Table M-4: Inorganics with Primary MCLs		
Barium	Mercury	Selenium
Beryllium	Nickel	Thallium

Table M-5: Constituents/parameters with Secondary MCLs		
Constituents		
Aluminum	Manganese	Thiobencarb
Chloride	Methyl-tert-butyl-ether (MTBE)	Total Dissolved Solids
Color	Odor – Threshold	Turbidity
Copper	Silver	Zinc
Foam Agents (MBAS)	Specific Conductance	
Iron	Sulfate	

Table M-6: Radioactivity		
Constituents		
Gross Alpha Particle Activity (Including Radium-226 but Excluding Radon and Uranium)	Combined Radium-226 and Radium-228	Tritium
Gross Beta Particle Activity	Strontium-90	Uranium

Table M-7: Regulated Organics		
Constituents		
(a) Volatile Organic Chemicals	1,1,1-Trichloroethane	Endothal
Benzene	1,1,2-Trichloroethane	Endrin
Carbon Tetrachloride (CTC)	Trichloroethylene (TCE)	Ethylene Dibromide (EDB)
1,2-Dichlorobenzene	Trichlorofluoromethane	Glyphosate
1,4-Dichlorobenzene	1,1,2-Trichloro-1,2,2-Trifluoroethane	Heptachlor
1,1-Dichloroethane	Vinyl Chloride	Heptachlor Epoxide
1,2-Dichloroethane (1,2-DCA)	Xylenes (m,p)	Hexachlorobenzene
1,1-Dichloroethene (1,1-	**(b) Non-Volatile synthetic**	Hexachlorocyclopentadiene

Table M-7: Regulated Organics		
DCE)	**Organic Constituents**	
Cis-1,2-Dichloroethylene	Alachlor	Lindane
Trans-1,2-Dichloroethylene	Atrazine	Methoxychlor
Dichloromethane	Bentazon	Molinate
1,2-Dichloropropane	Benzo(a)pyrene	Oxamyl
1,3-Dichloropropene	Carbofuran	Pentachlorophenol
Ethylbenzene	Chlordane	Picloram
Methyl-tert-butyl-ether (MTBE)	Dalapon	Polychlorinated Biphenyls
Monochlorobenzene	1,2-Dibromo-3-chloropropane (DBCP)	Simazine
Styrene	2,4-Dichlorophenoxyacetic acid (2,4-D)	Thiobencarb
1,1,2,2-Tetrachloroethane	Di(2-ethylhexyl)adipate	Toxaphene
Tetrachloroethylene (PCE)	Di(2-ethylhexyl)phthalate	2,3,7,8-TCDD (Dioxin)
Toluene	Dinoseb	2,4,5-TP (Silvex)
1,2,4-Trichlorobenzene	Diquat	

Table M-8: Disinfection Byproducts		
Constituents		
Total Trihalomethanes (TTHM)	Haloacetic Acid (five) (HAA5)	Bromate
Bromodichloromethane	Monochloroacetic acid	Chlorite
Bromoform	Dichloroacetic acid	
Chloroform	Trichloroacetic acid	
Dibromochloromethane	Monobromoacetic acid	
	Dibromoacetic acid	

Table M-9: General Physical and General Minerals		
Constituents		
Asbestos	Potassium	Foaming Agents
Calcium	Sodium	Odor
Chloride	Sulfate	Specific Conductance
Copper	Zinc	Total Dissolved Solids
Iron	Color	Total Hardness
Manganese	Corrosivity	

Table M-10: Constituents with Notification Levels			
Constituents	**Units**	**Type of Sample**	**Minimum Frequency of Analysis**
Boron	µg/L	Grab	Quarterly
n-Butylbenzene	µg/L	Grab	Annually
sec-Butylbenzene	µg/L	Grab	Annually
tert-Butylbenzene	µg/L	Grab	Annually
Carbon disulfide	µg/L	Grab	Quarterly
Chlorate	µg/L	Grab	Quarterly
2-Chlorotoluene	µg/L	Grab	Annually
4-Chlorotoluene	µg/L	Grab	Annually
Diazinon	µg/L	Grab	Annually
Dichlorodifluoromethane (Freon 12)	µg/L	Grab	Annually
1,4-Dioxane	µg/L	Grab	Annually
Ethylene glycol	µg/L	Grab	Annually
Formaldehyde	µg/L	Grab	Annually
HMX	µg/L	Grab	Annually
Isopropylbenzene	µg/L	Grab	Annually
Manganese	µg/L	Grab	Quarterly
Methyl isobutyl ketone (MIBK)	µg/L	Grab	Annually
Naphthalene	µg/L	Grab	Annually
n-Nitrosodiethyamine (NDEA)	µg/L	Grab	Annually
n-Nitrosodimethylamine (NDMA)	µg/L	Grab	Quarterly
n-Nitrosodi-n-propylamine (NDPA)	µg/L	Grab	Annually
Propachlor	µg/L	Grab	Annually
n-Propylbenzene	µg/L	Grab	Annually
RDX	µg/L	Grab	Annually
Tertiary butyl alcohol (TBA)	µg/L	Grab	Quarterly
1,2,3-Trichloropropane (1,2,3-TCP)	µg/L	Grab	Annually
1,2,4-Trimethylbenzene	µg/L	Grab	Annually
1,3,5-Trimethylbenzene	µg/L	Grab	Annually
2,4,6-Trinitrotoluene (TNT)	µg/L	Grab	Annually
Vanadium	µg/L	Grab	Annually

Table M-11: Remaining Priority Pollutants		
Constituents		
Pesticides	**Metals**	Di-n-butyl phthalate
Aldrin	Chromium III	Di-n-octyl phthalate

Table M-11: Remaining Priority Pollutants		
Constituents		
Dieldrin	Chromium VI	Diethyl phthalate
4,4'-DDT	**Base/Neutral Extractables**	Dimethyl phthalate
4,4'-DDE	Acenaphthene	Benzo(a)anthracene
4,4'-DDD	Benzidine	Benzo(a)fluoranthene
Alpha-endosulfan	Hexachloroethane	Benzo(k)fluoranthene
Beta-endosulfan	Bis(2-chloroethyl)ether	Chrysene
Endosulfan sulfate	2-chloronaphthalene	Acenaphthylene
Endrin aldehyde	1,3-dichlorobenzene	Anthracene
Alpha-BHC	3,3'-dichlorobenzidine	1,12-benzoperylene
Beta-BHC	2,4-dinitrotoluene	Fluorene
Delta-BHC	2,6-dinitrotoluene	Phenanthrene
Acid Extractables	1,2-diphenylhydrazine	1,2,5,6-dibenzanthracene
2,4,6-trichlorophenol	Fluoranthene	Indeno(1,2,3-cd)pyrene
P-chloro-m-cresol	4-chlorophenyl phenyl ether	Pyrene
2-chlorophenol	4-bromophenyl phenyl ether	**Volatile Organics**
2,4-dichlorophenol	Bis(2-chloroisopropyl)ether	Acrolein
2,4-dimethylphenol	Bis(2-chloroethoxyl)methane	Acrylonitrile
2-nitrophenol	Hexachlorobutadiene	Chlorobenzene
4-nitrophenol	Isophorone	Chloroethane
2,4-dinitrophenol	Nitrobenzene	1,1-dichloroethylene
4,6-dinitro-o-cresol	N-nitrosodiphenylamine	Methyl chloride
Phenol	Bis(2-ethylhexyl)phthalate	Methyl bromide
	Butyl benzyl phthalate	2-chloroethyl vinyl ether

Table M-12: Constituents of Emerging Concern

Constituent	Relevance/ Indicator Type	Type of Sample	Minimum Frequency of Analysis	Reporting Limit (µg/L)	Monitoring Locations[5]	
					Prior to RO	Following treatment prior to well injection
17β-estradiol	Health	grab	Annually	0.001		X
Caffeine	Health & Performance	grab	Annually	0.05	X	X
NDMA	Health & Performance	grab	Quarterly	0.002	X	X
Triclosan	Health	grab	Annually	0.05		X
DEET	Performance	grab	Annually	0.05	X	X
Sucralose	Performance	grab	Annually	0.1	X	X

Table M-13: Surrogates

Constituent	Type of Sample	Minimum Frequency	Monitoring Locations	
			Prior to RO Treatment	Following Treatment prior to Well Injection
Electrical Conductivity	Online	Continuous[6]	X	X
TOC	24-hour composite	Weekly	X	X

c. Consistent with the January 22, 2013 amended Recycled Water Policy, the Project Sponsor may request the removal of specific CECs from the monitoring program if supported by the data.

[5] The January 22, 2013 Recycled Water Policy Attachment A makes a distinction between health-based and performance-based CEC indicators for purposes of monitoring locations. For subsurface applications, the health-based CECs are 17β-estradiol, caffeine, NDMA, and triclosan, with monitoring required for final recycled water only. The health-based and performance-based CECs are caffeine, NDMA, DEET, and sucralose, with monitoring required prior to Reverse Osmosis and post- treatment prior to release to the aquifer. Caffeine and NDMA serve both as health-based and performance based indicators

[6] Since monitoring will be continuous using online analyzers, monthly averages for each monitoring location shall be reported in the quarterly compliance monitoring reports.

i. Analytical methods for CECs shall be selected to achieve the reporting limits presented in Table M-12 in accordance with the Recycled Water Policy. The analytical methods shall be based on methods published by the USEPA, methods certified by CDPH, or peer reviewed and published methods that have been reviewed by CDPH. Any modifications to the published or certified methods shall be reviewed and approved by the Regional Water Board and CDPH.

ii. For performance indicator CECs and surrogates, removal percentages shall be reported in addition to the measured concentrations.

[1] The removal percentage shall be calculated based on the following formula:

Removal Percentage = $([X_{in} – X_{out}]/X_{in})*100$
X_{in} = Concentration in recycled water prior to a treatment process
X_{out} = Concentration in recycled water after a treatment process

[2] The removal percentages for the surrogates shall be determined based on the daily averages for electrical conductivity and weekly values for TOC and included in the quarterly compliance monitoring reports.

[3] The removal percentages for the performance indicator CECs shall be included in the Annual Summary Report.

d. Evaluation of Pathogenic Microorganism Removal

For the purposes of evaluating the performance of the following treatment facilities/units with regards to pathogenic microorganism removal, the Project Sponsors shall include the results of the monitoring specified below in its quarterly compliance monitoring reports:

i. Long Beach WRP (and Los Coyotes WRP, if the tertiary effluent is used as a source water): For the purpose of demonstrating that the necessary log reductions are achieved at the WRP(s), Project Sponsors shall report the daily average and maximum turbidity, percent of time more than 5 nephelometric turbidity units (NTU), and daily coliform results associated with the WRP(s);

ii. AOP (UV and hydrogen peroxide at Vander Lans WTF): For each day of operation, Project Sponsors shall report the calculated daily peroxide dose (based on the peroxide pump speed and bulk feed concentration), percent reduction based on daily average of chloramine (via total residual chlorine) measured upstream and downstream of AOP, and the applied UV power shall be reported. For UV, Project Sponsors shall report the UV system dose (expressed as greater than a certain threshold such as 300 milli-joules/cm^2), UV transmittance (daily minimum, maximum, and

average), UV intensity for each reactor (daily minimum, maximum, and average) and the total UV power applied; and

iii. Based on the calculation of log reduction achieved each day by the entire treatment system, Project Sponsors shall report the value and "Yes" or "No" for each day as to whether the necessary log reductions (i.e. 10-logs for *Giardia*, 10-logs for *Cryptosporidium*, and 12-logs for virus) have been attained. An overall log reduction calculation shall be provided only for those days when a portion of the treatment system does not achieve the credits proposed in Table 5-1 of the engineering report.

e. Diluent Water Monitoring

i. The Project Sponsors propose to use 100 percent recycled water for injection at the Barrier. However, if this becomes infeasible due to unforeseen circumstances (e.g., insufficient supply of recycled water, treatment issues, etc.), injection of diluent water (i.e., Metropolitan Water District of Southern California's (MWD) potable water) will become necessary in order to prevent seawater intrusion. Pursuant to section 60320.214 of the GWRR, the Project Sponsors are exempted from nitrate and nitrite monitoring in diluent water when using a CDPH-approved drinking water source for diluent water. This exemption is applicable to Project Sponsors since MWD's potable water is a CDPH-approved drinking water source.

ii. Section 60320.214 of the GWRR requires ensuring diluent water does not exceed primary MCLs or NLs and is produced implementing a CDPH-approved water quality monitoring plan for CDPH-specified contaminants to demonstrate compliance with the primary MCLs and NLs.

iii. MWD currently delivers an average of 1.7 billion gallons of water per day to a 5,200-square-mile service area covering parts of Los Angeles, Orange, San Diego, Riverside, San Bernardino and Ventura counties. As part of its operation, MWD performs rigorous monitoring to comply with all necessary drinking water standards. Regular updates of water quality monitoring data are provided to its customers throughout the year to assure delivery of high quality water and to demonstrate regulatory compliance. During the circumstance when diluent water use becomes necessary, the Project Sponsors shall diligently review and track the quality of MWD potable water for compliance with primary MCLs and NLs based on the information provided by MWD's Water Quality Compliance Team.

f. Blended Recycled Water Monitoring

The Project Sponsors propose to use 100 percent recycled water for injection at the Barrier. Should the use of potable water become necessary to supplement the recycled water, monitoring for blended recycled water shall be

implemented consistent with the current MRP, as follows:

Table M-14: 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	mg/L	Grab	Weekly

3. Treatment Conditions

If a sample of the advanced treated recycled water is greater than 10 ng/L for NDMA, within 72 hours of knowledge of the result, the Project Sponsors shall collect another sample as confirmation. If the average of the initial and confirmation sample is greater than 10 ng/L, or a confirmation sample is not collected and analyzed, the Project Sponsors shall initiate weekly monitoring for NDMA until the running four-week average is less than 10 ng/L. If the running four-week average is greater than 10 ng/L, the Project Sponsors shall describe the reasons for the results and provide a schedule for completion of corrective actions in the next quarterly report submitted to the Regional Water Board, with a copy provided to CDPH. If the running four-week average is greater than 10 ng/L for sixteen consecutive weeks, the Project Sponsors shall notify CDPH and the Regional Water Board within 48 hours of knowledge of the exceedance and, if directed by CDPH or the Regional Water Board, suspend injection of the advanced treated recycled water.

4. Groundwater Monitoring

The Project Sponsors shall monitor the quality of groundwater to assess any impact(s) from the recharge of recycled water. Representative samples of groundwater shall be collected from major aquifers, from the shallowest to the deepest, including the Recent Zone, Zone C, Zone B, Zone A, Zone I, and the Main Aquifer. Table M-16 and M-19 sets forth the minimum constituents and parameters for monitoring groundwater quality in Los Angeles County Flood Control District monitoring wells (LACFCD Well Nos. 503BF, 503BE, 502BW, 502BX, 502AK, 502AL, 502AM, and 502AN).

The Project Sponsors shall implement the following groundwater monitoring program as described in Tables M-17. Some constituents may be eligible for reduced monitoring due to the consistent historic lack of detection, upon approval by the Executive Officer.

If any of the monitoring results indicate that an MCL has been exceeded or coliforms are present in the monitoring wells at the Alamitos Barrier as a result of the use of the recycled water, the Project Sponsors shall notify the CDPH and Regional Water Board within 72 hours of receiving the results and make note of any positive finding in the next monitoring report submitted to the Regional Water Board.

Upon an exceedance of 10 ng/L for NDMA in monitoring samples in groundwater wells 502BW, 502BX, 503BF or 503 BE, and within 30 days, the Project Sponsors shall notify CDPH and the Regional Water Board and begin monthly sampling of groundwater for NDMA from the well with the exceedance. Groundwater sampling may return to the frequency stated in this MRP if the average of three consecutive monthly samples is 10 ng/L or below.

Upon the approval of the SNMP, the Executive Officer may require additional confirmation monitoring to confirm the water quality changes predicted by the model and documented in the first annual report.

For some constituents, CDPH allowed a reduction in groundwater monitoring frequency from quarterly to semi-annual or annual based upon performance between 2007 and 2012, when the recycled water injection volume was 50% or less.

Table M-15 Groundwater Monitoring Wells

Project No.	Well No.	Monitoring Well ID	Top of Well Casing (TOWC) Elevation (ft. above mean sea level)	Perforated Interval (ft. below TOWC)	Aquifer	Well Use
34L'1	503P	100254	10.2	15 – 25	Recent	Background
34L'1	503M	100253	10.5	610 – 620	Main	Background
34LS	503BF	100258	7	136 – 181	C-Zone	3-Month
34LS	503BE	100257	7	191 – 216	B-Zone	3-Month
34HJ	502BX	100242	9.4	314 – 344	A-Zone	3-Month
34HJ	502BW	100243	9.5	400 – 440	I-Zone	3-Month
34L10	502AK	100252	5.6	165 – 185	C-Zone	¼ Distance
34L10	502AL	100251	5.6	225 – 260	B-Zone	¼ Distance
34L10	502AM	100250	5.6	311 – 365	A-Zone	¼ Distance
34L10	502AN	100249	5.6	405 – 450	I-Zone	¼ Distance

Table M-16: Groundwater Monitoring

Constituents/Parameters	Units	Type of Sample	Minimum Frequency of Analysis
Water level elevation[7]	feet	---	Quarterly
Chlorine residual	mg/L	Grab	Quarterly
TOC	mg/L	Grab	Quarterly
Total coliform	MPN/100ml	Grab	Quarterly
BOD_5 20°C	mg/L	Grab	Semiannually
Oil and grease	mg/L	Grab	Quarterly
Total nitrogen	mg/L	Grab	Quarterly
Total Suspended Solids	mg/L	Grab	Semiannually
Turbidity	NTU	Grab	Quarterly
Inorganics with primary MCLs	µg/L	Grab	Quarterly
Constituents/parameters with secondary MCLs	---	Grab	Quarterly
Fluoride	µg/L	Grab	Quarterly
Radioactivity	pci/L	Grab	Quarterly or Semiannually
Regulated organics	µg/L	Grab	Quarterly or Semiannually
Disinfection byproducts (DBPs)	µg/L	Grab	Quarterly
General physical		Grab	Quarterly
General minerals	µg/L	Grab	Quarterly
Chemicals with NLs	µg/L	Grab	Quarterly or Annually
N-Nitrosopyrrolidine	µg/L	Grab	Annually
Remaining priority pollutants	µg/L	Grab	Annually

[7] Water level elevations shall be measured to the nearest 0.01 feet, and referenced to mean sea level.

Table M-17: Monitoring Frequency

Constituent	Well 100242	Well 100243	Well 100249	Well 100250	Well 100251	Well 100252	Well 100253	Well 100254	Well 100257	Well 100258
Total Suspended Solids (TSS)	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly
Turbidity	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly
Radioactivity										
Gross Alpha Particle Activity (including Radium-226 but excluding radon and uranium)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Gross Beta Particle Activity	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Qtrly	Semi Annual
Radium-226	Semi Annual	Semi Annual	Qtrly	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Radium-226 & Radium-228 (Combined)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Qtrly
Radium-228	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Strontium-90	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Tritium	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual*	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Uranium	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Organic Chemicals										
(a) Volatile Organic Chemicals										
1,1,1-Trichloroethane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
1,1,2,2-Tetrachloroethane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
1,1,2-Trichloro-1,2,2-Trifluoroethane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
1,1,2-Trichloroethane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
1,1-Dichloroethane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
1,1-Dichloroethene (1,1 DCE)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
1,2,4-Trichlorobenzene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual

Table M-17: Monitoring Frequency										
1,2-Dichlorobenzene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
1,2-Dichloroethane (1,2 DCA)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
1,2-Dichloropropane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
1,3-Dichloropropene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
1,4-Dichlorobenzene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Benzene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Carbon Tetrachloride (CTC)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
cis-1,2-Dichloroethylene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Dichloromethane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Ethylbenzene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Methyl-tert-butyl-ether (MTBE)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Monochlorobenzene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Styrene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Tetrachloroethylene (PCE)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Toluene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
trans-1,2-Dichloroethylene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Trichloroethylene (TCE)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Trichlorofluoro-methane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Vinyl Chloride	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Qtrly	Qtrly	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Xylenes (m, p)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
(b) non-volatile synthetic organic chemical										
1,2-Dibromo-3-Chloropropane (DBCP)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual

Table M-17: Monitoring Frequency

2,3,7,8-TCDD (Dioxin)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
2,4,5-TP (Silvex)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
2,4-Dichlorophenoxyacetic acid (2,4-D)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Alachlor	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Atrazine	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Bentazon	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Benzo (a) pyrene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Carbofuran	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Chlordane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Dalapon	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Di (2-ethylhexyl) adipate	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Di (2-ethylhexyl) phthalate	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Annual	Semi Annual	Semi Annual	Semi Annual
Dinoseb	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Diquat	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Endothal	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Endrin	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Ethylene Dibromide (EDB)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Glyphosate	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Heptachlor	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Heptachlor Epoxide	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Hexachlorobenzene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Hexachlorocyclo-pentadiene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Lindane (Gamma BHC)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual

Table M-17: Monitoring Frequency										
Methoxychlor	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Molinate	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Oxamyl	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1016	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1221	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1232	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1242	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1248	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1254	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1260	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Pentachlorophenol	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Annual	Semi Annual	Semi Annual	Semi Annual
Picloram	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Simazine	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Thiobencarb	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Toxaphene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Disinfection Byproducts										
Bromate	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Bromodichloro-methane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Bromoform	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Chlorite	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Quarterly	Semi Annual	Semi Annual
Chloroform	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Dibromoacetic Acid	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Dibromochloro-methane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Dichloroacetic Acid	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual

Table M-17: Monitoring Frequency										
Haloacetic Acid (Five) (HAA5)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Monobromoacetic Acid	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Monochloroacetic Acid	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Total Trihalomethanes	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Trichloroacetic Acid	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Chemicals with Notification Levels										
1,2,3-Trichloropropane (1,2,3 TCP)	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
1,2,4-Trimethylbenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
1,3,5-Trimethylbenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
1,4-Dioxane	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2-Chlorotoluene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2,4,6-Trinitrotoluene (TNT)	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4-Chlorotoluene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Boron	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly
Carbon Disulfide	Annual	Annual	Annual	Annual	Annual	Semi Annual	Annual	Annual	Annual	Annual
Chlorate	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Diazinon	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Dichlorodifluoro-methane (Freon 12)	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Ethylene Glycol	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Formaldehyde	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
HMX	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Isopropylbenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Manganese	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Methyl-isobutyl-keytone (MIBK)	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Naphthalene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
n-Butylbenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual

Table M-17: Monitoring Frequency										
n-Nitrosodiethyl-amine (NDEA)	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
n-Nitrosodimethylamine (NDMA)	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly
n-Nitrosodi-n-propylamine (NDPA)	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
n-Propylbenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Propachlor	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
RDX	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
sec-Butlybenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
tert-Butylbenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Tertiary-butyl-alcohol (TBA)	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Vanadium	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Remaining Priority Pollutants										
Pesticides										
4,4,4'-DDD	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4,4,4'-DDE	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4,4,4-DDT	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Aldrin	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Alpha BHC	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Alpha Endosulfan	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Beta BHC	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Beta Endosulfan	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Chromium III	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Chromium VI	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Delta BHC	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Dieldrin	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Endosulfan Sulfate	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Endrin Aldehyde	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Acid Extractables										
2,4,6-Trichlorophenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2,4-Dichlorophenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2,4-Dimethylphenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2,4-Dinitrophenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual

Table M-17: Monitoring Frequency										
2-Chlorophenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2-Nitrophenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4,6-Dinitro-o-Cresol (2-Methly-4,6-Dinitrophenol)	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4-Nitrophenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
p-Chloro-m-Cresol (3-Methyl-4-Chlorophenol)	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Phenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Base/Neutral Extractables										
1,12-Benzoperylene ((Benzo(g,h,i)-perylene))	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
1,2,5,6-Dibenzanthracene ((Dibenzo(a,h) anthracene))	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
1,2-Diphenylhydrazine	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
1,3-Dichlorobenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2,4-Dinitrotoluene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2,6-Dinitrotoluene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2-Chloronaphthalene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
3,3'-Dichlorobenzidine	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4-Bromophenyl phenyl ether	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4-Chlorophenyl phenyl ether	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Acenaphthene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Acenaphthylene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Anthracene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Benzidine	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Benzo(a)anthracene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Benzo(b)fluoranthene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Benzo(k)fluoranthene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual

Table M-17: Monitoring Frequency										
Bis(2-chloroethoxyl)-methane	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Bis(2-chloroethyl)ether	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Bis(2-chloroisopropyl)ether	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Butyl benzyl phthalate	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Chrysene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Di(2-ethylhexyl) phthlate	Annual	Annual	Annual	Annual	Annual	Annual	Semi-annual	Annual	Annual	Annual
Dimethyl phthalate	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Di-n-butyl phthalate	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Di-n-octyl phthalate	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Fluoranthene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Fluorene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Hexachlorobutadiene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Hexachloroethane	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Indeno(1,2,3-cd) pyrene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Isophorone	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Nitrobenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
n-Nitrosodi-n-propylamine	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
n-Nitrosodiphenylamine	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Phenanthrene	Annual	Annual	Annual	Annual	Annual	Annual	Semi-Annual	Annual	Annual	Annual
Pyrene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Volatile Organics										
1,1-Dichloroethylene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2-Chloroethyl vinyl ether	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Acrolein	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Acrylonitrile	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Chlorobenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Chloroethane	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual

Table M-17: Monitoring Frequency										
Methyl bromide	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Methyl chloride	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual

VI. CERTIFICATION STATEMENT

Each report shall contain the following declaration[8]:

"I certify under penalty of law that this document, including all attachments and supplemental information, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a find and imprisonment.

Executed on the _____day of _____at _____

_____ (Signature)

_____ (Title)"

VII. OTHER MONITORING REQUIREMENTS

The list of parameters and monitoring frequencies may be adjusted by the Executive Officer if the Project Sponsor makes a request and the Executive Officer determines that the modification is adequately supported by statistical trends of monitoring data submitted.

[8] The Project Sponsors shall submit written documentation identifying the responsible party who certifies the perjury document.