ATTACHMENT E – MONITORING AND REPORTING PROGRAM

Table of Contents

List of Tables

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (CFR) at 40 CFR §122.48 requires that all National Pollutant Discharge Elimination System (NPDES) permits specify monitoring and reporting requirements. California Water Code (CWC) Sections 13267 and 13383 also authorize the Regional Water Quality Control Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement the federal and State regulations.

I. GENERAL MONITORING PROVISIONS

A. Reporting responsibilities of waste Dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383 and 13387(b) of the CWC and San Francisco Bay Regional Water Quality Control Board (Regional Water Board) Resolution No. 73-16.

B. The principal purposes of a monitoring program by a waste Discharger, also referred to as self-monitoring program, are: (1) to document compliance with waste discharge requirements (WDRs) and prohibitions established by the Regional Water Board, (2) to facilitate self-policing by the waste Discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and wastewater quality inventories.

C. Sampling is required during the entire year when discharging. All analyses shall be conducted using current United States Environmental Protection Agency (USEPA) methods that have been approved by the USEPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5, or equivalent methods that are commercially and reasonably available and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits and to perform reasonable potential analysis. Equivalent methods must be more sensitive than those specified in 40 CFR 136, must be specified in the permit, and must be approved for use by the Executive Officer following consultation with the State Water Resources Control Board's (State Water Board's) Quality Assurance Program.

D. Laboratories analyzing monitoring samples shall be certified by the Department of Health Services, in accordance with the provision of CWC Section 13176, and must include quality assurance/quality control data with their reports.

E. Written reports, strip charts, calibration and maintenance records, and other records shall be maintained by the Discharger and accessible and retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Water Board or Regional Administrator of the USEPA, Region IX. Such records shall show the following for **each** sample:

1. Identity of sampling and observation stations by number.
2. Date and time of sampling and/or observations.
3. Method of sampling.
4. Full report for rainbow trout bioassay test (96-hour static bioassay renewal).

5. Date and time that analyses are started and completed (if applicable), and name of personnel performing the analyses.
6. Complete procedure used, including method of preserving sample and identity and volumes of reagents used. A reference to a specific section of Standard Methods (SM) or the standard USEPA method number is satisfactory.
7. Calculations of results.
8. Results of analyses and/or observations.

F. If the Discharger wishes to invalidate any measurement, the letter of transmittal will include a formal request to invalidate the measurement, the original measurement in question, the reason for invalidating the measurement, all relevant documentation that supports the invalidation (e.g., laboratory sheet, log entry, test results, etc.), and discussion of the corrective actions taken or planned (with a time schedule for completion) to prevent recurrence of the sampling or measurement problem.

G. A tabulation reflecting bypassing and accidental waste spills shall be maintained.

H. A copy of this Order, a complete copy of the Notice of Intent (NOI) filed, documentation of the authorization to discharge received from the Regional Water Board (i.e., the Notice of General Permit Coverage [NGPC]), a full copy of the Operations and Maintenance (O&M) Manual, and any other documents relevant to the operation and maintenance of the treatment facility shall be stored at or near the treatment facility. These documents help the Dischargers' staff responsible for compliance assurance activities and shall be made available to Regional Water Board staff during inspections. The Dischargers' staff responsible for compliance assurance activities shall inspect the Facility as frequent as required by the O&M Manual.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order.

Table E-1: Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
Effluent	M-001 through M-"n" (E-xx[2])	At any point in the outfall between the point of discharge to the receiving water(s) and the point at which all waste tributary to that outfall is present. If the effluent first discharges into a separate storm drain system, the sampling point for compliance purpose shall be the point at which all waste tributary to the outfall and before commingling with the water in the storm drain.
Receiving Waters [1]	R-001(A,B,C,…) (CB-XX[2])	At a point in the receiving water and located upstream of the discharge point where impacts from the discharge would not be expected.[3]
	R-002(A,B,C,…) (C-XX[2])	At a point in the receiving water on the edge of the mixing zone,[3] or if mixing zone cannot be determined, within 50 feet downstream of the discharge outfall.

[1] If there is only one discharge outfall, the name R-001 or R-002 should be used. Otherwise, R-001A and R-002A for discharge point 001, R-001B and R-002B for discharge point 002, and so on are used for multiple discharge locations.
[2] The names in the parenthesis are those used in the previous General Permit.

[3] The Discharger can determine the exact receiving water sampling locations if a mixing zone can be determined based on a previous study.

III. REQUIRED EFFLUENT SAMPLING, ANALYSES AND OBSERVATIONS

Effluent monitoring is only required when discharging to the receiving waters. The schedule of effluent sampling, analyses and observation shall be that given in Tables E-2, E-3, and E-4 below.

Routine discharges (Table E-2) can be intermittent or continuous discharges. Routine discharges are normally planned or scheduled discharges. Examples of routine discharges are discharges of filter backwash water, treatment unit dewatering/drainage water, leakage water, treatment system flushing water during hydrotesting with facility start-up after facility shut down, excess raw water release, etc.

Non-routine discharges (Table E-3) are normally unplanned or emergency discharges such as discharges from treatment unit overflows and broken waterlines within the treatment facility, etc.

"Water storage facility" (Table E-5) is a general term that includes, but is not limited to, tanks, ponds, reservoirs or any other water storage unit at a surface water treatment facility.

Table E-2: Schedule of Sampling, Analysis, and Observations for Routine Discharges

Parameter	Units [1]	Sample Type [2]	Minimum Sampling Frequency [3]
Flow Rate and volume [4]	MGD/MG	Continuous or daily	1/day
Total Suspended Solids (TSS)	mg/L	C-24	1/month
Total Chlorine Residual [5]	mg/L	Grab	Continuous or Hourly
pH	s.u.	Grab	2/week
Acute Toxicity [6]	% survival	C-24	1/quarter
Turbidity	NTU	Grab	1/month
Copper	µg/L	C-24	1/quarter
Zinc	µg/L	C-24	1/quarter
Mercury [7]	µg/L	C-24/Grab	Semiannual (summer/winter)
Selenium [8]	µg/L	C-24	Semiannual (summer/winter)
Arsenic, Cadmium, Chromium (VI), Lead, Nickel, Silver.	µg/L	Grab or C-24 as specified by testing method	Semiannual (summer/winter)
Chloroform [5]	µg/L	Grab	1/quarter
Dichlorobromomethane [5]	µg/L	Grab	1/quarter
Chlorodibromomethane [5]	µg/L	Grab	1/quarter
Bromoform [5]	µg/L	Grab	1/quarter

Table E-3: Schedule of Sampling, Analysis, and Observations for Non-Routine Discharges

Parameter	Units [1]	Sample Type [2]	Minimum Sampling Frequency [3]
Flow Rate and volume [4]	MGD/MG	Continuous or daily	Once per occurrence
TSS	mg/L	Grab	Once per occurrence
pH	s.u.	Grab	Once per occurrence
Total Chlorine Residual	mg/L	Grab	Once per occurrence
Turbidity	NTU	Grab	Once per occurrence

Table E-4: Schedule of Sampling, Analysis, and Observations for On-Site Water Storage Facility Dewatering

Parameter	Units [1]	Sample Type[2]	Minimum Sampling Frequency [3]
Flow Rate and Volume[4]	MGD/MG	Continuous or daily	Once per occurrence
Duration of discharge	Hours and minutes	N/A	Once per occurrence
TSS	mg/L	Grab	Three times per occurrence [9]
Total Settleable Matter	mL/L-hr	Grab	Three times per occurrence [9]
pH	s.u.	Grab	Once per occurrence
Total Chlorine Residual	mg/L	Grab	Once per occurrence
Turbidity	NTU	Grab	Three times per occurrence [9]
Total PCBs	µg/L	Grab	Once per occurrence if water storage facilities contain PCB material

Footnotes for Tables E-2, E-3, and E-4

[1] Unit Abbreviations
- µg/L = micrograms per liter
- mg/L = milligrams per liter
- mL/L/hr = milliliters per liter per hour
- MG = million gallons
- MGD = million gallons per day
- NTU = nephelometric turbidity units
- s.u. = standard units

[2] Sample Type
- Continuous = measured continuously, and recorded and reported daily
- C-24 = 24-hour composites may be made up of discrete grabs collected over the course of a day and volumetrically or mathematically flow-weighted. Samples for inorganic pollutants may be combined prior to analysis. At least one sampling day in each week shall reflect one day of peak loading and during major unit operation shutdown or startup.
- Grab = Grab samples of effluent shall be collected during periods of maximum peak flows and shall coincide with effluent composite sample days.

Samples shall be taken on random days.

[3] Minimum sampling frequency. If the discharge lasts less than one day in a 7-day period, the twice per week (2/week) monitoring frequency is once per discharge.

If two consecutive samples of a constituent monitored on a weekly or monthly basis in a 30-day period exceed the monthly average effluent limit for any parameter (or if the required sampling frequency is once per month and the monthly sample exceeds the monthly average limit), the sampling frequency shall be increased to daily until the additional sampling shows that the most recent 30-day moving average is in compliance with the monthly average limit.

If any maximum daily limit is exceeded, the sampling frequency shall be increased to daily until two samples collected on consecutive days show compliance with the maximum daily limit.

[4] Flow Monitoring. Flows shall be monitored at each discharge outfall by flow meters or estimated if no flow meter is in place and the following shall be reported in self-monitoring reports:

a. Daily total flow volume (MG).
b. Discharge duration during a day, in hours.
c. Daily average flow rate (MGD), if not measured directly, then calculated using data from a. and b. above. If duration is not recorded, specify averaging period, i.e., 24 hours vs. estimated discharging hours.
d. Monthly total flow volume (MG).

e. Discharge days during a month.
f. Average daily maximum and average daily minimum flow rates (MGD) of discharge days (i.e., do not report zero) in a month.

All wastewater flows, including commingled storm water, discharged through all outfalls included in the Notice of General Permit Coverage shall be reported.

Some discharge points are not equipped with flow meters; flows can be estimated in this case. The Executive Officer may require the Discharger to install flow meters during the permit term.

[5] The hourly monitoring frequency may be reduced to once every two hours if the first three samples show compliance with the effluent limit for total chlorine residual given in Table 1 of this Order. The total residual chlorine and THMs monitoring requirements are waived for water treatment plants that do not chlorinate.

[6] Acute Toxicity monitoring (96-hour static renewal bioassay test). The test shall be performed according to Section IV below. Acute toxicity monitoring is not required for raw water discharges.

[7] Mercury. The Discharger shall use ultra-clean sampling methods (USEPA 1669) to the maximum extent practicable and ultra-clean analytical methods (USEPA 1631) for mercury monitoring. The Discharger may use alternative methods of analysis (such as USEPA 245) if that alternate method has a method detection limit (MDL) of 0.0002 µg/L or less.

[8] Selenium must be analyzed for by ICP/MS or the atomic absorption gaseous hydride procedure (USEPA 200.8 or standard method 3114B or C).

[9] One sample shall be taken prior to discharge, one just after initiating discharge and one just before terminating discharge. The samples shall be representative of effluent quality.

IV. WHOLE EFFLUENT ACUTE TOXICITY TESTING REQUIREMENTS

Compliance with the whole acute toxicity requirements of this Order shall be achieved in accordance with the following:

1. Acute toxicity of effluent limits shall be evaluated by measuring survival of test organisms exposed to 96-hour static renewal bioassays.

2. Test species shall be the current species or a species approved by the Executive Officer.

3. All bioassays shall be performed according to 40 CFR 136, currently the "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms," 5th Edition. Exceptions may be granted by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

4. If specific identifiable substances in the discharge can be demonstrated by the Discharger as being rapidly rendered harmless upon discharge to the receiving water, compliance with the acute toxicity limit may be determined after the test samples are adjusted to remove the influence of those substances. Written approval from the Executive Officer must be obtained to authorize such an adjustment.

5. Effluent used for fish bioassays must be dechlorinated prior to testing. Monitoring of the bioassay water shall include, on a daily basis, the following parameters: pH, dissolved oxygen, ammonia (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be

reported. If the fish survival rate in the effluent is less than 70 percent or if the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new batches of fish and shall continue back to back until compliance is demonstrated.

6. The Discharger may indicate in the NOI the previous approvals by the Executive Officer and request for re-confirmation, e.g., testing species, renewal interval, etc. The Discharger may continue its current practice as long as a new method (currently the 5th edition method) allows such a variation.

V. RECEIVING WATER MONITORING REQUIREMENTS

The Discharger shall monitor both upstream and downstream of discharge outfall at R-001 (A, B, C, ...) through R-"n" according to Table E-5 below:

Table E-5: Receiving Water Monitoring Requirements [6]

Parameter	Units [2]	Sample Type [4]	Minimum Sampling Frequency [1]
Stream Flow Rate	GPD	N/A	[3]
Dissolved Oxygen	mg/L and % saturation	Grab	[3]
Turbidity	NTU	Grab	[3]
pH	s.u.	Grab	[3]
TSS	mg/L	Grab	[3]
Temperature	°C	N/A	[3]
Hardness	mg/L as $CaCO_3$	Grab	[3]
Salinity [5]	ppt	Grab	[3]
Copper	ug/L	Grab	[3]
Zinc	ug/L	Grab	[3]
Arsenic	ug/L	Grab	[3]
Cadmium	ug/L	Grab	[3]
Chromium VI	ug/L	Grab	[3]
Lead	ug/L	Grab	[3]
Mercury	ug/L	Grab	[3]
Nickel	ug/L	Grab	[3]
Selenium	ug/L	Grab	[3]
Silver	ug/L	Grab	[3]
Chloroform	ug/L	Grab	[3]
Dichlorobromomethane	ug/L	Grab	[3]
Chlorodibromomethane	ug/L	Grab	[3]
Bromoform	ug/L	Grab	[3]

Footnotes for Table E-5

[1] a. Dischargers to tidally influenced receiving waters shall collect samples at each station on each sampling day during the period within 1 hour following lower slack water. Where sampling during the lower slack water period is not practical, sampling shall be performed during a higher slack water period.

b. Samples shall be collected within one foot below the surface of the receiving water body, unless otherwise stipulated.

[2] Unit Abbreviations
$CaCO_3$ = calcium carbonate

°C = degrees Celsius
GPD = gallons per day
ug/L = micrograms per liter
mg/L = milligrams per liter
NTU = Nephelometric turbidity units
ppt = parts per thousand
s.u. = pH standard unit

[3] Dischargers shall determine the receiving water monitoring frequency based on site-specific conditions. The data must be sufficient to characterize the concentration of each toxic pollutant in the ambient receiving water. The data on the conventional water quality parameters (pH, salinity, and hardness) should also be sufficient to characterize these parameters in the ambient receiving water at the point after the discharge has mixed with the receiving waters. The receiving water shall be monitored at least annually.

[4] Pollutants and pollutant parameters shall be analyzed using the analytical methods described in 40 CFR 136. For priority pollutants, the methods must meet the lowest MLs specified in SIP Attachment 4. Where no methods are specified for a given pollutant, the methods must be approved by this Regional Water Board or the State Water Board.

[5] Salinity measurements are not required in fresh receiving waters such as streams, lakes, and reservoirs. Salinity measurements are required for salt, brackish, or estuarine receiving waters.

[6] The Discharger shall note in its annual report any monitoring locations that were dry or that could not be sampled, and explain why they could not be sampled.

VI. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with all Standard Provisions (**Attachment D and G**) related to monitoring, reporting, and recordkeeping.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs. Until such notification is given, the Discharger shall submit SMRs in accordance with the requirements described below.

2. The Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year according to the schedule provided below. The report shall contain the items described in Standard Provisions and Reporting Requirements, and SMP Part A, August 1993 (**Attachment G**).

Facilities in County of	Reporting year	Annual report submission date
Marin, Napa, Sonoma Counties	January 1 to December 31	February 15
Contra Costa, Solano Counties	April 1 to March 31	May 15
Alameda, San Francisco Counties	July 1 to June 30	August 15
San Mateo, Santa Clara Counties	October 1 to September 31	November 15

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-6: Monitoring Periods

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
Continuous	Effective date of permit	All
1/day	Effective date of permit	Daily
2/week	Effective date of permit	Twice per week
1/week	Effective date of permit	Once per week
1/month	Effective date of permit	Once per calendar month
1/quarter	Effective date of permit	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31
2/year	Effective date of permit	Once during wet season (normally during November 1 through April 30), once during dry season (normally during May 1 through October 31)
1/year	Effective date of permit	January 1 through December 31, alternate between once during dry season (normally May 1—October 31), once during wet season (normally November 1—April 30)
1/5 years	Effective date of permit	Once during the permit term

4. The Discharger shall report with each sample result the applicable Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

      For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (±a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

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

d. The Dischargers shall instruct laboratories to establish calibration standards so that the RL value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. The Discharger shall not use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.

5. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations.

6. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

7. SMRs must be submitted to the Regional Water Board, signed and certified as required by the standard provisions (**Attachment D** and **G**), to the address listed below:

   Executive Officer
   California Regional Water Quality Control Board
   San Francisco Bay Region
   1515 Clay Street, Suite 1400
   Oakland, CA 94612
   ATTN: NPDES Wastewater Division

8. The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. The Electronic Reporting System (ERS) format includes, but is not limited to, a transmittal letter, summary of violation details and corrective actions, and transmittal receipt. If there are any discrepancies between the ERS requirements and the "hard copy" requirements listed in the MRP, then the approved ERS requirements supersede.

C. Discharge Monitoring Reports (DMRs)

1. As described in Section IX.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of DMRs. Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (**Attachment D**). The Discharger shall submit the original DMR and one copy of the DMR to one of these addresses listed below:

STANDARD MAIL	FEDEX/UPS/ OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format as EPA Form 3320-1.

D. 24-Hour Reporting

1. Non-chlorinated water discharge

The Discharger shall report by telephone to Regional Water Board staff any non-routine discharge of 50,000 gallons or more non-chlorinated water (total chlorine residual is 0.0 mg/L) within 24-hours of becoming aware of the discharge. The Discharger shall provide the Regional Water Board with a written report within 5 days after the 24-hour telephone report. All discharges shall be summarized and reported in the quarterly self-monitoring report as required under Section IX.B.2 of this MRP.

2. Chlorinated water discharge

The Discharger shall report any discharge that has a total chlorine residual greater than 0.0 mg/L to Regional Water Board staff by telephone within 24-hours of becoming aware of the discharge if (1) the discharge volume is 1,000 gallons or more, or (2) the discharge may endanger health or environment. The Discharger shall provide the Regional Water Board with a written report within 5 days after the 24-hour telephone report. Dischargers shall summarize all other chlorinated water discharges and report them to the Regional Water Board no later with the quarterly self-monitoring report as required under Section IX.B.2 of this MRP. All discharges shall also be summarized and reported in the quarterly self-monitoring report.

E. Other Reports

Not applicable.