ORDER No. R2-2016-0044
NPDES No. CA0005053

The following discharger is subject to waste discharge requirements set forth in this Order:

Table 1. Discharger Information

Discharger	Phillips 66 Company
Facility Name	San Francisco Refinery
Facility Address	1380 San Pablo Avenue Rodeo, CA 94572 Contra Costa County
CIWQS Place Number	255284

Table 2. Discharge Locations

Discharge Point No.	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
002	Refinery process wastewaters, boiler blowdown, cooling tower blowdown, sanitary wastewater, sour water stripper bottoms, groundwater, stormwater runoff from refinery process areas, and remediation wastewater	38.056111	-122.261430	San Pablo Bay
003	Once-through non-contact cooling water, neutralized demineralizer water, guard shack sink water, and stormwater	38.045339	-122.262374	San Pablo Bay
004	Stormwater runoff from the Marine Terminal Complex, including wharf and access road causeway	38.056447	-122.261628	San Pablo Bay

Table 3. Administrative Information

This Order was adopted on:	November 9, 2016
This Order shall become effective on:	January 1, 2017
This Order shall expire on:	December 31, 2021
CIWQS Regulatory Measure Number	410166
The Discharger shall file a Report of Waste Discharge for updated Waste Discharge Requirements in accordance with California Code of Regulations, title 23, and as an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	April 5, 2021
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, San Francisco Bay Region, have classified this discharge as follows:	Major

I, Bruce H. Wolfe, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on the date indicated above.

Digitally signed by Bruce H. Wolfe
Date: 2016.11.15 13:17:41 -08'00'

Bruce H. Wolfe, Executive Officer

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I. FACILITY INFORMATION

Information describing the Phillips 66 Company San Francisco Refinery is summarized in Table 1 and Fact Sheet (Attachment F) sections I and II.

II. FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board), finds:

A. Legal Authorities. This Order serves as Waste Discharge Requirements (WDRs) pursuant to California Water Code article 4, chapter 4, division 7 (commencing with § 13260). This Order is also issued pursuant to federal Clean Water Act (CWA) section 402 and implementing regulations adopted by U.S. EPA and Water Code chapter 5.5, division 7 (commencing with § 13370). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the United States as listed in Table 2 subject to the WDRs in this Order.

B. Background and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information the Discharger submitted as part of its application, information obtained through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F) contains background information and rationale for the requirements in this Order and is hereby incorporated into and constitutes findings for this Order. Attachments A through E and G are also incorporated into this Order.

C. Provisions and Requirements Implementing State Law. No provisions or requirements in this Order implement State law only.

D. Notification of Interested Parties. The Regional Water Board notified the Discharger and interested agencies and persons of its intent to prescribe these WDRs and provided an opportunity to submit written comments and recommendations. The Fact Sheet provides details regarding the notification.

E. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. The Fact Sheet provides details regarding the public hearing.

THEREFORE, IT IS HEREBY ORDERED that Order No. R2-2011-0027 is rescinded upon the effective date of this Order, except for enforcement purposes, and, in order to meet the provisions of Water Code division 7 (commencing with § 13000) and regulations adopted thereunder and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the Regional Water Board from taking enforcement action for past violations of the previous order.

III. DISCHARGE PROHIBITIONS

A. Discharge of treated wastewater, stormwater, or cooling water at a location or in a manner different than described in this Order is prohibited.

B. Discharge at Discharge Point No. 002 is prohibited when treated wastewater does not receive an initial dilution of at least 35:1 as modeled. Compliance shall be achieved by proper operation and maintenance of the discharge outfall to ensure that it (or its replacement, in whole or part) is in good working order and is consistent with or can achieve better mixing than that described in Fact Sheet section IV.C.4.a.

C. The bypass of untreated or partially-treated wastewater to waters of the United States is prohibited, except as provided for in the conditions stated in Attachment D section I.G.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Discharge Point No. 002

1. The Discharger shall comply with the following effluent limitations at Discharge Point No. 002, with compliance measured at Monitoring Location EFF-002 as described in the Monitoring and Reporting Program (MRP) (Attachment E):

Table 4a. Effluent Limitations – Monitoring Location EFF-002

Parameter	Units	Effluent Limitations	
		Maximum Daily	Average Monthly
Biochemical Oxygen Demand, 5-day @ 20°C (BOD_5)	lbs/day	1,600	910
Total Suspended Solids (TSS)	lbs/day	1,100	730
Chemical Oxygen Demand (COD)	lbs/day	12,000	6,300
Oil and Grease	lbs/day	500	260
Phenolic Compounds (4AAP)	lbs/day	12	5.9
Sulfide	lbs/day	11	4.8
Total Ammonia, as N	lbs/day	1,100	500
Total Chromium	lbs/day	22	7.7
Chromium (VI)	lbs/day	1.4	0.63
Cyanide, Total	µg/L	42	21
Copper, Total Recoverable	TUc	120	48
Dioxin-TEQ	µg/L	2.8×10^{-8}	1.4×10^{-8}
Heptachlor	µg/L	0.0039	0.0019
Selenium	kg/day	----	0.47 [1]
Chlorine, Total Residual	mg/L	0.0	
pH	s.u.	6.0 – 9.0 [2, 3]	
Chronic Toxicity	TUc	10 [4]	---

Unit Abbreviations:

TUc = chronic toxicity units
kg/day = kilograms per day
µg/L = micrograms per liter
mg/L = milligrams per liter
lbs/day = pounds per day
s.u. = standard units

Footnotes:

[1] Compliance shall be evaluated by calculating the arithmetic mean of daily selenium mass discharges for each day of the calendar month. Daily mass discharges shall be calculated based on the total daily flow and the corresponding selenium concentration for each day that selenium is measured. The Discharger shall also report its average annual selenium load as required by Provision VI.C.4.d.

[2] pH limits are an instantaneous minimum of 6.0 and an instantaneous maximum of 9.0.

[3] If the Discharger monitors pH continuously, pursuant to 40 C.F.R. § 401.17, the Discharger shall be in compliance with this pH limitation provided that both of the following conditions are satisfied: (i) the total time during which the pH is outside the required range shall not exceed 7 hours and 26 minutes in any calendar month, and (ii) no individual excursion from the required pH range shall exceed 60 minutes.

[4] Bioassays shall be conducted in accordance with MRP section V.B. The maximum daily effluent limitation for chronic toxicity shall be interpreted as the maximum test result for the month.

a. Additional Contaminated Runoff Effluent Limitation Allocations. Additional effluent limitation allocations for contaminated runoff commingled with process wastewater are established in on top of the process wastewater mass-based limitations in Provision IV.A.1 above. When contaminated runoff is discharged through Discharge Point No. 002, an additional effluent limit allocation may be made to the effluent limit in Table 4a for each pollutant in the table below. The additional effluent limit allocation shall be equal to the contaminated runoff flow times the pollutant concentration below:

Table 4b. Additional Contaminated Runoff Effluent Limitation Allocations

Parameter	Units	Effluent Limitations	
		Maximum Daily	Average Monthly
BOD_5	mg/L	48	26
TSS	mg/L	33	21
COD	mg/L	360	180
Oil and Grease	mg/L	15	8.0
Phenolic Compounds (4AAP)	mg/L	0.35	0.17
Total Chromium	mg/L	0.60	0.21
Chromium (VI)	mg/L	0.062	0.028

b. Additional Ballast Water Effluent Limitation Allocations. Additional effluent limitation allocations for ballast water are established on top of the process wastewater mass-based limitations in Provision IV.A.1 above. When ballast water is discharged through Discharge Point No. 002, an additional effluent limit allocation may be made to the effluent limit in Table 4a for each pollutant in the table below. The additional effluent limit allocation shall be equal to the ballast water flow times the pollutant's concentration below:

Table 4c. Additional Ballast Water Effluent Limitation Allocations

Parameter	Units	Effluent Limitations	
		Maximum Daily	Average Monthly
BOD_5	mg/L	48	26
TSS	mg/L	33	21
COD	mg/L	470	240
Oil and Grease	mg/L	15	8.0

c. Recycled Water Use Effluent Limit Adjustments. If the Discharger replaces raw water used in its operations with recycled water and complies with Provision VI.C.4.c, an additional allocation shall be made to mass-based and concentration-based effluent limits by calculating adjustments as described below and adding them to the effluent limits:

i. Concentration-based Effluent Limit Adjustments. The adjustment for a concentration-based effluent limit shall be the difference between its recycled water influent mass and raw water influent mass, divided by the effluent volume for the applicable monitoring interval (e.g., one week for a constituent monitored weekly)

and shall be calculated according to the following example in which constituent B is monitored weekly and the lag time is Y days:

Step 1: Influent mass of B = [(Influent recycled water concentration of B) – (influent raw water concentration of B)] x (Influent recycled water volume)

Step 2: Effluent volume for monitoring period = Effluent volume at Monitoring Location EFF-001 beginning Y days after influent mass determined through one week later

Step 3: Effluent limit adjustment for B = (Influent mass of B) / (Effluent volume for monitoring period)

ii. Mass-based Effluent Limit Adjustments. The adjustment for a mass-based effluent limit shall be the difference between the recycled water influent mass and raw water influent mass divided by the number of days in the monitoring period and shall be calculated according to the following example in which constituent B is monitored weekly (lag time is not used for this calculation):

Step 1: Influent mass of B = [(Influent recycled water concentration of B) – (influent raw water concentration of B)] x (Influent recycled water volume)

Step 2: Effluent limit adjustment for B = (Influent mass of B) / (Monitoring interval in days)

2. Bacteria. The Discharger shall comply with the following effluent limitations at Discharge Point No. 002, with compliance measured at Monitoring Location EFF-002 as described in the attached MRP (Attachment E):

a. Total Coliform Bacteria. Total coliform bacteria shall not exceed the following effluent limits:

i. In a calendar month, a median most probable number of 240 per 100 milliliters (MPN/100 mL).

ii. In any sample, a maximum concentration of 10,000 MPN/100 mL.

b. Enterococcus Bacteria. In any calendar month, the geometric mean enterococci bacteria concentration shall not exceed 130 MPN/100 mL.

3. Acute Toxicity

a. Discharges at Discharge Point No. 002 shall comply with the following limitations, with compliance measured at Monitoring Location EFF-002 as described in the MRP:

i. An 11-sample median value of not less than 90 percent survival.

ii. An 11-sample 90th percentile value of not less than 70 percent survival.

b. These acute toxicity limitations are defined as follows:

i. 11-sample median. A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit if five or more of the past ten or fewer bioassay tests also show less than 90 percent survival.

ii. 11-sample 90th percentile. A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit if one or more of the past ten or fewer bioassay tests also show less than 70 percent survival.

c. If the Discharger can demonstrate to the satisfaction of the Executive Officer that toxicity exceeding the levels cited above is caused by ammonia and that the ammonia in the discharge complies with effluent limitations in Table 4a above, then such toxicity does not constitute a violation of this effluent limitation.

B. Discharge Point No. 003

1. The Discharger shall comply with the following effluent limitations at Discharge Point No. 003, with compliance measured at Monitoring Location EFF-003A as described in the MRP:

Table 5a. Effluent Limitations – Monitoring Location EFF-003A

Parameter	Units	Effluent Limitations		
		Maximum Daily	Average Monthly	Instantaneous Maximum
Chlorine, Total Residual	mg/L	---	---	0.0 [1]
Temperature	°F	---	110	---
pH	s.u.	6.5 – 8.5 [2]		

Footnotes:

[1] Instantaneous maximum, applies only when facility chlorinates once-through cooling water.

[2] pH limits are an instantaneous minimum of 6.5 and an instantaneous maximum of 8.5.

Unit Abbreviations:

°F = degrees Fahrenheit
mg/L = milligrams per liter

2. The Discharger shall comply with the following effluent limitations at Discharge Point No. 003, with compliance measured at Monitoring Location EFF-003B as described in the MRP:

Table 5b. Effluent Limitations – Monitoring Location EFF-003B

Parameter	Units	Effluent Limitations	
		Maximum Daily	Average Monthly
Total Organic Carbon (TOC)	mg/L	---	5.0
Copper, Total Recoverable [1]	µg/L	11	6.1
Nickel, Total Recoverable [1]	µg/L	22	12
Benzo(a)anthracene	µg/L	0.098	0.049
Chrysene	µg/L	0.098	0.049

Unit Abbreviations:

µg/L = micrograms per liter
s.u. = standard units

Footnote:

[1] If the Discharger detects influent copper or nickel (at Monitoring Location INF-001) above the translated water quality objectives of 10 µg/L for copper and 14 µg/L for nickel and effluent copper or nickel exceeding the effluent limits, the Discharger may provide a report to the Regional Water Board demonstrating that it qualifies for intake water credits under *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP) section 1.4.4 with the applicable monthly Self-Monitoring Report.

C. Discharge Point No. 004

1. The Discharger shall comply with the following effluent limitations at Discharge Point No. 004, with compliance measured at Monitoring Location EFF-004 as described in the MRP:

Table 6a. Effluent Limitations – Monitoring Location EFF-004

Parameter	Units	Maximum Daily Effluent Limitations
TOC	mg/L	110
Oil and Grease	mg/L	15
pH	standard units	6.5 – 8.5 (instantaneous)
Visible Oil	---	None observed (instantaneous)
Visible Color	---	None observed (instantaneous)

Unit Abbreviation:

mg/L = milligrams per liter

2. If a total organic carbon (TOC) or oil and grease effluent limitation in Table 6a is exceeded at Monitoring Location EFF-004, the Discharger shall also comply with the following effluent limitations at Monitoring Location EFF-004, as described in the MRP:

Table 6b. Supplemental Effluent Limitations – Monitoring Location EFF-004

Parameter	Units	Effluent Limitations	
		Maximum Daily	Average Monthly [1]
BOD_5	mg/L	48	26
TSS	mg/L	33	21
COD	mg/L	360	180
Oil and Grease	mg/L	15	8.0
Phenolic Compounds	mg/L	0.35	0.17
Total Chromium	mg/L	0.60	0.21
Chromium (VI)	mg/L	0.062	0.028

Unit Abbreviations:

mg/L = milligrams per liter
s.u. = standard units

Footnote:

[1] These limitations shall not apply unless there is sufficient runoff for sampling on at least three days during the month.

V. RECEIVING WATER LIMITATIONS

A. The discharge shall not cause the following conditions to exist in receiving waters at any place:

1. Floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses;

2. Alteration of suspended sediment in such a manner as to cause nuisance or adversely affect beneficial uses, or detrimental increase in the concentrations of toxic pollutants in sediments or aquatic life;

3. Suspended material in concentrations that cause nuisance or adversely affect beneficial uses;

4. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;

5. Alteration of temperature beyond present natural background levels;

6. Changes in turbidity that cause nuisance or adversely affect beneficial uses, or increases from normal background light penetration or turbidity greater than 10 percent in areas where natural turbidity is greater than 50 nephelometric turbidity units;

7. Coloration that causes nuisance or adversely affects beneficial uses;

8. Visible, floating, suspended, or deposited oil or other products of petroleum origin; or

9. Toxic or other deleterious substances in concentrations or quantities that cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

B. The discharge shall not cause the following limitations to be exceeded in receiving waters at any place within one foot of the water surface:

1.	Dissolved Oxygen	5.0 mg/L, minimum The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.
2.	Dissolved Sulfide	Natural background levels.
3.	pH	The pH shall not be depressed below 6.5 or raised above 8.5. The discharge shall not cause changes greater than 0.5 pH units in normal ambient pH levels.
4.	Nutrients	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

C. The discharge shall not cause a violation of any water quality standard for receiving waters adopted by the Regional Water Board or the State Water Resources Control Board (State Water Board) as required by the CWA and regulations adopted thereunder. If more stringent water quality standards are promulgated or approved pursuant to CWA section 303, or amendments thereto, the Regional Water Board may revise or modify this Order in accordance with the more stringent standards.

VI. PROVISIONS

A. Standard Provisions

1. The Discharger shall comply with all "Standard Provisions" in Attachment D.

2. The Discharger shall comply with all applicable provisions of the "Regional Standard Provisions, and Monitoring and Reporting Requirements for NPDES Wastewater Discharge Permits" (Attachment G).

B. Monitoring and Reporting Provisions

The Discharger shall comply with the MRP (Attachment E), and future revisions thereto, and applicable sampling and reporting requirements in Attachments D and G.

C. Special Provisions

1. Reopener Provisions

The Regional Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances as allowed by law:

a. If present or future investigations demonstrate that the discharges governed by this Order have or will have, or will cease to have, a reasonable potential to cause or contribute to adverse impacts on water quality or beneficial uses of the receiving waters.

b. If new or revised water quality objectives or total maximum daily loads (TMDLs) become legally effective for San Francisco Bay and/or its contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order may be modified as necessary to reflect the updated water quality objectives and wasteload allocations in the TMDLs. Adoption of the effluent limitations in this Order is not intended to restrict in any way future modifications based on legally adopted water quality objectives or TMDLs, or as otherwise permitted under federal regulations governing NPDES permit modifications.

c. If translator, dilution, or other water quality studies provide a basis for determining that a permit condition should be modified.

d. If State Water Board precedential decisions, new policies, new laws, or new regulations are adopted.

e. If an administrative or judicial decision on a separate NPDES permit or WDRs addresses requirements similar to this discharge.

f. If new information shows that under-use of the wastewater treatment plant capacity results in treatment bypasses that could cause or contribute to harm to beneficial uses.

g. Or as otherwise authorized by law.

The Discharger may request a permit modification based on any of the circumstances above. With any such request, the Discharger shall include antidegradation and anti-backsliding analyses.

2. Effluent Characterization Study and Report

a. Study Elements. The Discharger shall continue to characterize and evaluate the discharge from the following discharge points to verify that the "no" or "unknown" reasonable potential analysis conclusions of this Order remain valid and to inform the next permit reissuance. The Discharger shall collect representative samples at the monitoring locations set forth below, as described in the MRP, at no less than the frequency specified below:

Discharge Point	Monitoring Location	Minimum Frequency
002	EFF-002	Once per year
003	EFF-003B	Once per year

The samples shall be analyzed for the priority pollutants listed in Attachment G, Table C, except for those priority pollutants with effluent limitations where the MRP already requires more frequent monitoring and except for those priority pollutants for which there are no water quality criteria (see Fact Sheet Tables F-10 and F-11). Compliance with this requirement shall be achieved in accordance with the specifications of Attachment G sections III.A.1 and III.A.2.

The Discharger shall evaluate on an annual basis if concentrations of any of these pollutants significantly increase over past performance. The Discharger shall investigate the cause of any such increase. The investigation may include, but need not be limited to, an increase in monitoring frequency, monitoring of internal process streams, and monitoring of influent sources. The Discharger shall establish remedial measures addressing any increase resulting in reasonable potential to cause or contribute to an excursion above applicable water quality objectives. This requirement may be satisfied through identification of the constituent as a "pollutant of concern" in the Discharger's Pollutant Minimization Program, described in Provision VI.C.3.

b. Reporting Requirements

i. Routine Reporting. The Discharger shall, within 45 days of receipt of analytical results, report the following in the transmittal letter for the appropriate self-monitoring report (SMR):

(a) Indication that a sample for this characterization study was collected; and

(b) Identity of priority pollutants detected at or above applicable water quality criteria (see Fact Sheet Tables F-10 and F-11 for the criteria) and the detected concentrations of those pollutants.

ii. Annual Reporting. The Discharger shall summarize the annual data evaluation and source investigation in the annual SMR.

iii. Final Report. The Discharger shall submit a final report that presents all these data with the application for permit reissuance.

3. Pollutant Minimization Program

a. The Discharger shall continue to improve its existing Pollutant Minimization Program to promote minimization of pollutant loadings to the treatment plant and therefore to the receiving waters.

b. The Discharger shall submit an annual report no later than February 28 each year. Each annual report shall include at least the following information:

i. Brief description of treatment plant. The description shall include the treatment plant processes.

ii. Discussion of current pollutants of concern. Periodically, the Discharger shall analyze its circumstances to determine which pollutants are currently a problem and which pollutants may be potential future problems. This discussion shall include the reasons for choosing the pollutants.

iii. Identification of sources for pollutants of concern. This discussion shall include how the Discharger intends to estimate and identify pollutant sources. The Discharger shall include sources or potential sources not directly within the ability or authority of the Discharger to control, such as pollutants in the raw water supply and air deposition.

iv. Identification of tasks to reduce the sources of pollutants of concern. This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement the tasks by itself or participate in group, regional, or national tasks that address its pollutants of concern. The Discharger is strongly encouraged to participate in group, regional, or national tasks that address its pollutants of concern whenever it is efficient and appropriate to do so. An implementation timeline shall be included for each task.

v. Outreach to employees. The Discharger shall inform employees about the pollutants of concern, potential sources, and how they might be able to help reduce the discharge of these pollutants of concern into the treatment facilities. The Discharger may provide a forum for employees to provide input.

vi. Discussion of criteria used to measure Pollutant Minimization Program and task effectiveness. The Discharger shall establish criteria to evaluate the effectiveness of its Pollutant Minimization Program. This discussion shall identify the specific criteria used to measure the effectiveness of each task in Provisions VI.C.3.b.iii, iv, and v.

vii. Documentation of efforts and progress. This discussion shall detail all of the Discharger's Pollutant Minimization Program activities during the reporting year.

viii. Evaluation of Pollutant Minimization Program and task effectiveness. The Discharger shall use the criteria established in Provision VI.C.3.b.vi to evaluate the program and task effectiveness.

ix. Identification of specific tasks and timelines for future efforts. Based on the evaluation, the Discharger shall explain how it intends to continue or change its tasks to more effectively reduce the amount of pollutants flowing to the treatment plant and, subsequently, in its effluent.

c. The Discharger shall develop and conduct a Pollutant Minimization Program as further described below when there is evidence that a priority pollutant is present in the effluent above an effluent limitation (e.g., sample results reported as detected but not quantified [DNQ] when the effluent limitation is less than the method detection limit [MDL], sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, or results of benthic or aquatic organism tissue sampling) and either:

i. A sample result is reported as DNQ and the effluent limitation is less than the Reporting Level (RL); or

ii. A sample result is reported as not detected (ND) and the effluent limitation is less than the MDL, using definitions in Attachment A and reporting protocols described in the MRP.

d. If triggered by the reasons set forth in Provision VI.C.3.c, above, the Discharger's Pollutant Minimization Program shall include, but not be limited to, the following actions and submittals:

i. Annual review and semi-annual monitoring of potential sources of the reportable priority pollutants, which may include fish tissue monitoring and other bio-uptake sampling or alternative measures when source monitoring is unlikely to produce useful analytical data;

ii. Quarterly monitoring for the reportable priority pollutants in the influent to the wastewater treatment system. The Executive Officer may approve alternative measures when influent monitoring is unlikely to produce useful analytical data;

iii. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutants in the effluent at or below the effluent limitation;

iv. Implementation of appropriate cost-effective control measures for the reportable priority pollutants, consistent with the control strategy; and

v. Inclusion of the following specific items within the annual report required by Provision VI.C.3.b above:

(a) All Pollutant Minimization Program monitoring results for the previous year;
(b) List of potential sources of the reportable priority pollutants;
(c) Summary of all actions undertaken pursuant to the control strategy; and
(d) Description of actions to be taken in the following year.

4. Other Special Provisions

a. Once-Through Cooling Water Intake Structure

i. The Discharger shall properly operate the once-through cooling water intake structure in accordance with its Maintenance Procedure Manual so as to minimize impingement and entrainment of fish, shellfish, and other organisms. The intake structure is designed to maintain a maximum approach velocity no greater than 0.50 feet per second, measured 3 inches from the screenface, as required by 40 C.F.R. 125.94(c)(2).

ii. The Discharger shall prepare and submit an annual report that (a) certifies the proper operation and maintenance of the once-through cooling water intake structure, identifying any operational problems or necessary changes to the Maintenance Procedure Manual and (b) identifies work planned or completed beyond routine maintenance. The Discharger shall submit this status report with its annual SMR.

b. Stormwater Requirements

i. Stormwater Pollution Prevention Plan. The Discharger shall implement a Stormwater Pollution Prevention Plan in accordance with Attachment G section I.J. The Discharger shall submit an updated Stormwater Pollution Prevention Plan, or a letter stating that no revisions are necessary and the last year it updated its Stormwater Pollution Prevention Plan, annually by October 1.

ii. Best Management Practices (BMP) Plan. The Discharger shall maintain a BMPs plan for Discharge Point No. 004 that is consistent with the guidance provided in U.S. EPA *Guidance Manual for Developing Best Management Practices* (October 1993, EPA 833-B-93-004).

(a) The BMPs plan shall be available for reference and use by all applicable personnel. The BMPs plan shall address the periodic discharges from the Marine Terminal causeway area, including fire equipment monitoring and fire hydrant testing water, boom boat wash-off water, steam condensate drips from line at the Marine Terminal causeway, and algae removal water from the boat launch ramp, all of which are discharged directly to San Pablo Bay. The BMPs plan shall be developed and implemented to minimize the potential impact of these periodic discharges on San Pablo Bay, to prevent the accidental release of toxic or hazardous substances into the environment, and to minimize and mitigate the effects of such releases using equipment and techniques available and practical for such use.

(b) The Discharger shall regularly review, revise, or update, as necessary, the BMPs plan to ensure that it remains useful and relevant to current equipment and operation practices. Reviews shall be conducted annually and revisions or updates shall be completed as necessary. Applicable revisions of the BMPs plan shall be completed within 90 days of any significant changes being made in facility equipment or operational practices.

(c) The Discharger shall provide the Executive Officer a report describing the current status of its BMPs plan, including any recommended or planned actions and an estimated time schedule for these actions, upon request.

(d) The Discharger shall include a description of summary of review and evaluation procedures and applicable changes to its BMPs plan in each annual SMR.

iii. Annual Stormwater Report. The Discharger shall submit an annual stormwater report by July 1 each year covering data for the previous wet weather season. The annual stormwater report shall, at a minimum, include the following:

(a) Tabulated summary of sampling results and visual observations for all stormwater discharge points;

(b) Comprehensive discussion of compliance with effluent limits and other requirements of this Order, and corrective actions taken or planned;

(c) Comprehensive discussion of source identification and control programs for constituents that do not have effluent limitations in Table 6a (e.g., TSS); and

(d) Summary of best management practice changes implemented the previous year or planned for the following year.

c. Conditions for Recycled Water Use Adjustments. Prior to any allocation of recycled water use adjustments to mass-based or concentration-based effluent limits (see Provision IV.A.1.c), the Discharger shall satisfy the following conditions:

i. The Discharger shall sample and analyze influent recycled water for any constituents for which it seeks adjustments at Monitoring Location INF-002 at least as frequently as the MRP requires for effluent monitoring at Monitoring Location EFF-002.

ii. The Discharger shall sample and analyze influent raw water for any constituents for which it seeks adjustments at Monitoring Location INF-002 at least once per year. The annual average concentration may be used in the calculations described in Provision IV.A.7.

iii. The Discharger shall determine the interval between the introduction of a limited constituent in recycled water and the appearance of that constituent in the final effluent.

iv. The Discharger shall submit a technical report demonstrating that proposed adjustments will not impair beneficial uses in the vicinity of the discharge (such as by creating a zone acutely toxic to aquatic organisms). At a minimum, the report shall assess whole effluent toxicity testing results and compare the effluent concentrations projected when using recycled water to the proposed adjusted effluent limits.

v. The Discharger shall submit one or more examples of how influent recycled and raw water concentrations, lag time, and effluent limit adjustments will be calculated in accordance with Provision IV.A.7.

vi. The Discharger shall obtain written concurrence from the Executive Officer stating that these conditions have been met.

d. Average Annual Selenium Load. The Discharger shall report the average annual load for selenium over the permit term with its application for permit reissuance. The average annual load shall be the arithmetic mean of the annual mass discharges for the previous five calendar years.

e. Copper Action Plan. The Discharger shall implement pretreatment, source control, and pollution prevention for copper in accordance with the following tasks and time schedule:

Table 7. Copper Action Plan

Task	Compliance Date
1. Implement Copper Control Program Continue implementing existing program described in Discharger's plan dated February 28, 2011, to reduce identified copper sources.	Implementation shall be ongoing.
2. Implement Additional Actions If Regional Water Board notifies Discharger that three-year rolling mean dissolved copper concentration in Central or Lower San Francisco Bay exceeds 3.0 µg/L, then within 90 days of notification, evaluate effluent copper concentration trend and, if it is increasing, develop and begin implementation of additional measures to control copper discharges. Report conclusion of trend analysis and provide schedule for any new actions to be taken within next 12 months.	With next annual pollution prevention report due February 28 (at least 90 days following notification)
3. Report Status Submit annual report documenting copper control program implementation that evaluates effectiveness of actions taken, including any additional actions required by Task 2 above, and provides schedule for actions to be taken within next 12 months.	With annual pollution prevention report due February 28 each year

f. Cyanide Action Plan. The Discharger shall implement monitoring and surveillance, pretreatment, source control, and pollution prevention for cyanide in accordance with the following tasks and time schedule:

Table 8. Cyanide Action Plan

Task	Compliance Date
1. Review Potential Cyanide Sources Submit up-to-date inventory of potential cyanide sources. If no cyanide source is identified, Tasks 2 and 3, below, are not required.	With annual pollution prevention report due February 28, 2018
2. Implement Cyanide Control Program Implement control program to minimize cyanide discharges consisting, at minimum, of following elements: **a.** Inspect each potential source to assess need to include that source in control program. **b.** Prepare emergency monitoring and response plan to be implemented if significant cyanide discharge occurs.	Implementation shall be ongoing.
3. Implement Additional Measures If the Regional Water Board notifies Discharger that ambient monitoring shows cyanide concentrations are 1.0 µg/L or higher in the main body of San Francisco Bay, then within 90 days of notification, commence actions to identify and abate cyanide sources responsible for elevated ambient concentrations, report on progress and effectiveness of actions taken, and provide schedule for actions to be taken within next 12 months.	With next annual pollution prevention report due February 28 (at least 90 days following notification)
4, Report Status of Cyanide Control Program Submit annual report documenting cyanide control program implementation and addressing effectiveness of actions taken, including any additional cyanide controls required by Task 3, above, together with schedule for actions to be taken in next 12 months.	With annual pollution prevention report due February 28 each year

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ)
Also called the average, the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

$$\text{Arithmetic mean} = \mu = \Sigma x / n$$

where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative
Taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic
Known to cause cancer in living organisms.

Coefficient of Variation
Measure of data variability calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Daily Discharge
Either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit) for a constituent with limitations expressed in units of mass; or (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period is considered the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)
Sample result less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit
Amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined by conducting a mixing zone study or modeling the discharge and receiving water.

Effluent Concentration Allowance (ECA)
Value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the CV for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as wasteload allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bay
Indentation along the coast that encloses an area of oceanic water within a distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration
Concentration that results from the confirmed detection of the substance below the ML value by the analytical method.

Estuaries
Waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars are considered estuaries. Estuarine waters are considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters include, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters
All surface waters of the state that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation
Highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation
Lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL)
Highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median
Middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = X(n+1)/2. If n is even, then the median = (Xn/2 + X(n/2)+1)/2 (i.e., the midpoint between n/2 and n/2+1).

Method Detection Limit (MDL)
Minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in in 40 C.F.R. part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)
Concentration at which the entire analytical system gives a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone
Limited volume of receiving water allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND)
Sample results less than the laboratory's MDL.

Persistent Pollutants
Substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program
Program of waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the Pollutant Minimization Program is to reduce all potential sources of a priority pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. Cost effectiveness may be considered when establishing the requirements of a Pollutant Minimization Program. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), is considered to fulfill Pollutant Minimization Program requirements.

Pollution Prevention
Any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Board or Regional Water Board.

Reporting Level (RL)
ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed herein. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from SIP Appendix 4 in accordance with SIP section 2.4.2 or established in accordance with SIP section 2.4.3. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Source of Drinking Water
Any water designated as having a municipal or domestic supply (MUN) beneficial use.

Standard Deviation (σ)
Measure of variability calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

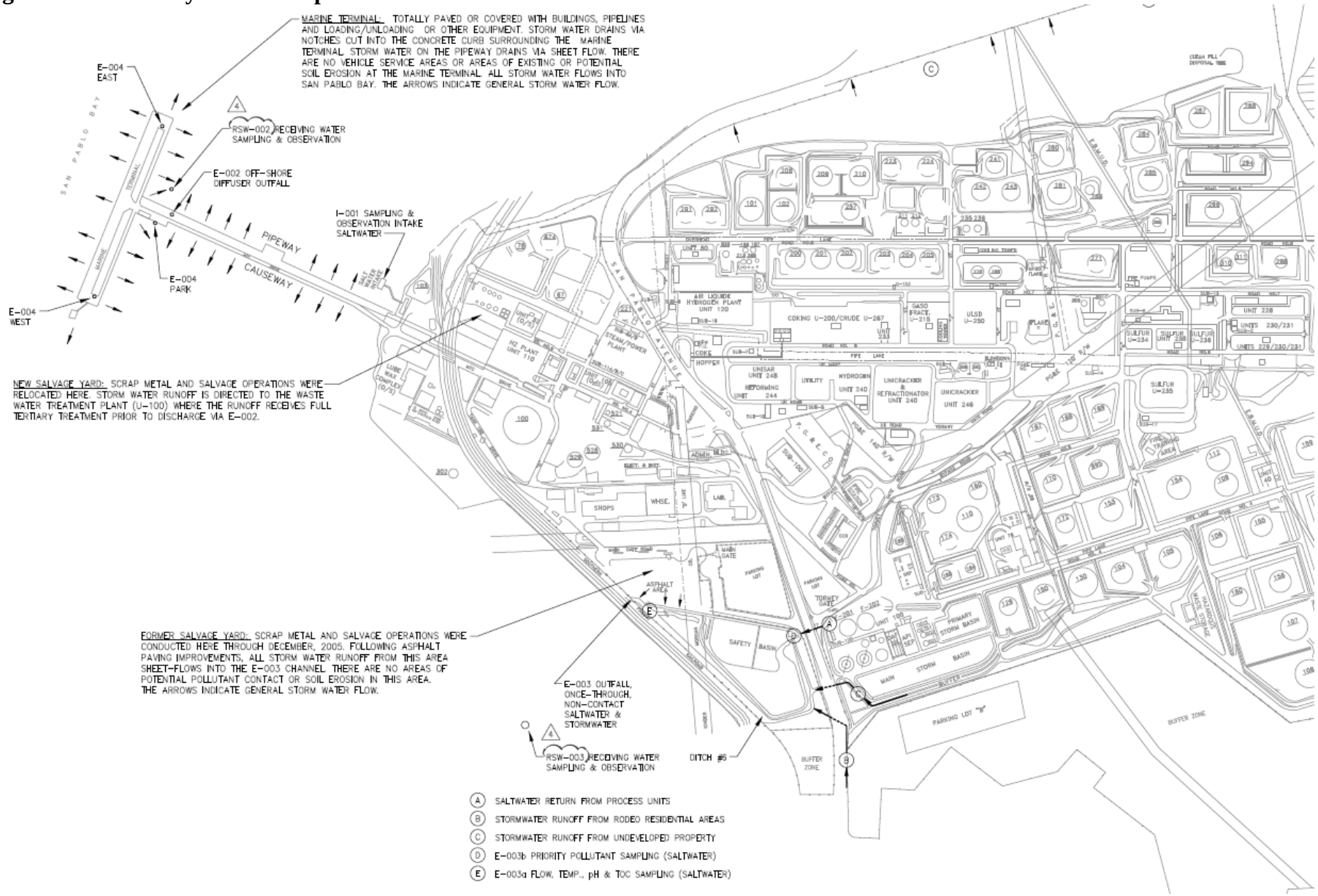
where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

Toxicity Reduction Evaluation (TRE)
Study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. A TIE is a set of procedures to identify the specific chemicals responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.

ATTACHMENT B – LOCATION AND FACILITY MAPS

Figure B-1. Facility Location Map

Figure B-2. Facility Outfall Map



ATTACHMENT C – PROCESS FLOW DIAGRAMS

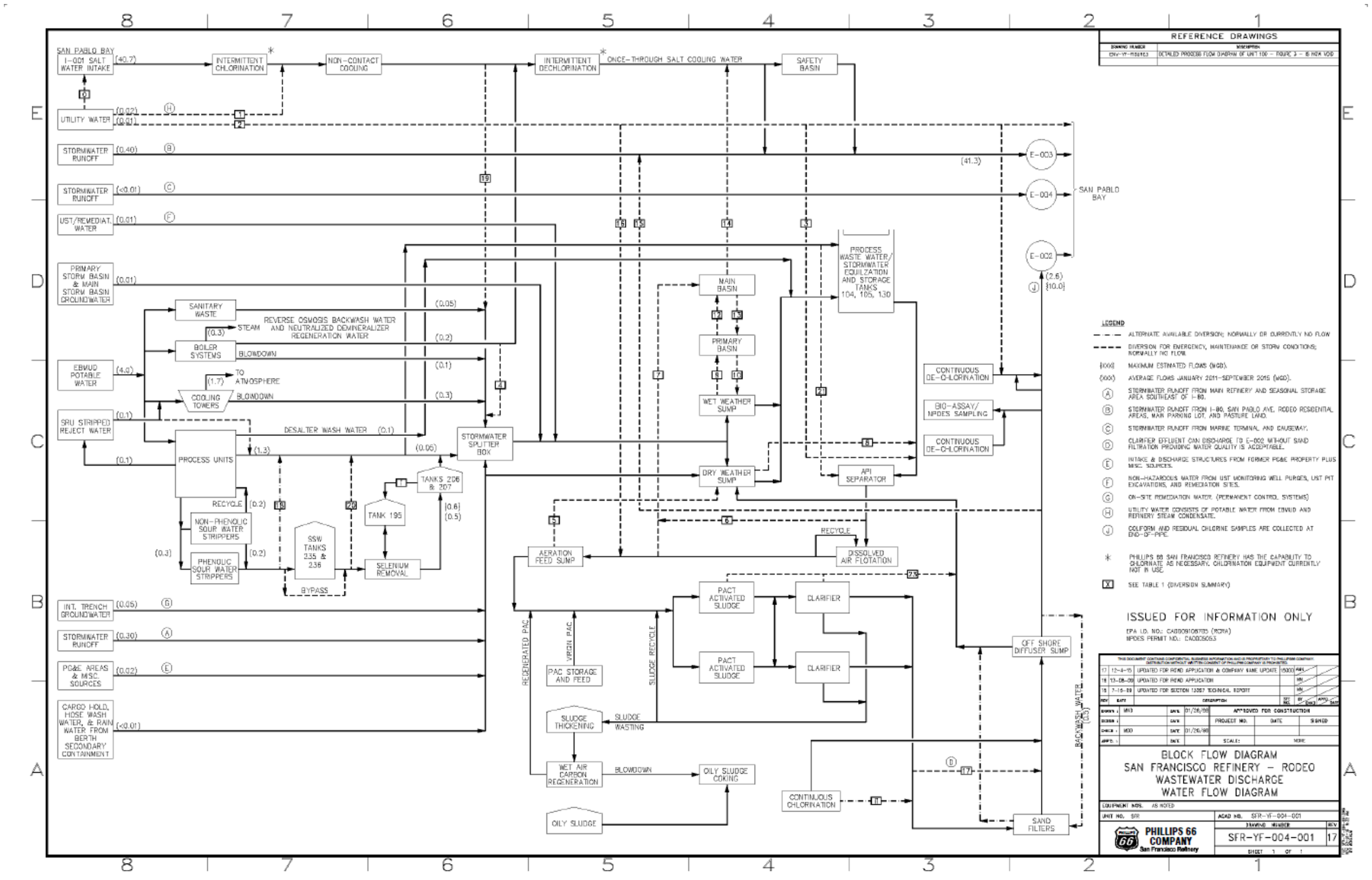


FIGURE 2: FLOW PROCESS DIAGRAM – TABLE 1 (DIVERSION SUMMARY)

Diversion for emergency, maintenance or storm conditions – normally no flow – flow data in gallons per minute (GPM)

	From	Conditions	Annual Freq.	Est. Flow	Design Flow	To
0	Utility Water System	Periodic cleaning of SWIS screens	52	50	none	San Pablo Bay
1		Saltwater pump failure or maintenance (supplemental cooling)	0 - 10	250-750	varies	E-003
NA		Process Area fire monitor / hydrant flow testing (all locations)	240	500	none	DWS
2		MTC fire monitor / hydrant flow testing (10 locations)	40	500	none	San Pablo Bay
2		Wash off boom boat	0 - 50	25	none	
2		Steam condensate drips from lines @ MTC	ongoing	0.005	none	
2		Algae removal from boat launch ramp	0 - 2	10	none	
3	Utility Water	Utility Carrier Water for pH control	Continuous	30-50	none	API inlet
4	Neut. demin. backwash	Line plugged, valve/pump failure @ U240 / SPP, or salt water outage	0 - 1	250 - 270	none	Sewer System
5	Aeration feed sump	AFS pump failure or HC contamination (recirculation)	0 - 4	~2,000	~7,500	DWS
6	API out	DAF Failure	Never used	~2,000	~7,500	Main Basin
7	DAF out	Equalization Tanks full with no discharge to the Bay	Never used	~2,000	~7,500	Main Basin
8	DWS	Line to equalization tanks is not available / out of service	Never used	~2,000	3,600	API In
9	WWS	EQ tanks full, rainfall > pumping capacity, power outage or WWS pump / level control failure	0 - 1	~100,000	~100,000	Primary Basin
10	Primary Basin	Drain Primary Basin after diversion (gravity flow)	0 - 1	15-72,000	72,000	WWS
12		Primary Basin is full – overflow to Main Basin	1/10	~100,000	~100,000	Main Basin
13	Main Basin	Drain Main Basin after diversion (gravity drain)	1/ 10	0-1,600	1,600	Primary Basin
14		Main Basin is full – overflowing to safety Basin	1/25	~100,000	~100,000	Safety Basin
15	OSD Line	OSD Line failure – U100 discharge bypassed to E-003	Never used	~2,000	~7,500	E003
16	Utility Water	Hi-temperature control to prevent Bio-plant failure	0 - 3	500	none	Aeration Sump
17	Clarifier out	Providing water quality is acceptable (locked/closed)	Never used	~5,000	~7500	OSD sump
18	SW Strippers (SRU Reject D-911)	Wastewater does not require treatment @ SRP	Never used	0 - 150	none	Sewer System
19	Saltwater dist. system	Maintenance or equipment failure	0 - 5	0 - 100	none	Sewer System
20	Tanks 235 / 236	Wastewater does not require treatment @ SRP	Never used	0 - 150	none	Sewer System
21	Desalter (BWON)	Equalization tank maintenance - brine to API	Never used	0 - 50	50	API
NA	Utility Water	Mutual Aid Fire Training *	12-15	1,000-5,000	none	Vegetated areas

* Details available in SWPPP

Alternate available diversion - normally or currently no flow

	From	Conditions	Annual Freq.	Est. Flow	Design Flow	To
i	Tanks 206 / 207	Off spec proving tank (Se or Cu)	0 - 2	500	500	Tank 195
ii	Metered hypochlorite	Degrease / clean media	0 - 4	metered	65	Media filters

Updated 12/04/2015

ATTACHMENT D –STANDARD PROVISIONS

I. STANDARD PROVISIONS—PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the terms, requirements, and conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application; or a combination thereof. (40 C.F.R. § 122.41(a); Wat. Code §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)

2. The Discharger shall comply with effluent standards or prohibitions established under CWA section 307(a) for toxic pollutants and with standards for sewage sludge use or disposal established under CWA section 405(d) within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, U.S. EPA, or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i); Wat. Code, §§ 13267, 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(i); 40 C.F.R. § 122.41(i)(1); Wat. Code, §§ 13267, 13383);

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(2); Wat. Code, §§ 13267, 13383);

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(3); Wat. Code, §§ 13267, 13383); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i)(4); Wat. Code, 13267, 13383.)

G. Bypass

1. Definitions

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)

b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of

equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

4. Approval. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions—Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass. The notice shall be sent to the Regional Water Board. As of December 21, 2020, a notice shall also be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). The notice shall be sent to the Regional Water Board. As of December 21, 2020, a notice shall also be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).)

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):

a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));

b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));

c. The Discharger submitted notice of the upset as required in Standard Provisions—Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

d. The Discharger complied with any remedial measures required under Standard Provisions—Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)

3. **Burden of proof.** In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

II. STANDARD PROVISIONS—PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. §§ 122.41(l)(3), 122.61.)

III. STANDARD PROVISIONS—MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

B. Monitoring must be conducted according to test procedures approved under 40 C.F.R. part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. chapter 1, subchapters N or O. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136 for the analysis of pollutants or pollutant parameters or required under 40 C.F.R. chapter 1, subchapter N or O. For the purposes of this paragraph, a method is sufficiently sensitive when:

1. The method minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter, and either (a) the

method ML is at or below the level of the applicable water quality criterion for the measured pollutant or pollutant parameter, or (b) the method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or

2. The method has the lowest ML of the analytical methods approved under 40 C.F.R. part 136 or required under 40 C.F.R. chapter 1, subchapter N or O, for the measured pollutant or pollutant parameter.

In the case of pollutants or pollutant parameters for which there are no approved methods under 40 C.F.R. part 136 or otherwise required under 40 C.F.R. chapter 1, subchapters N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 C.F.R. §§ 122.21(e)(3), 122.41(j)(4), 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS—RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 C.F.R. part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include the following:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));

3. The date(s) the analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and

2. Permit applications and attachments, permits, and effluent data. (40 C.F.R. § 122.7(b)(2).)

V. STANDARD PROVISIONS—REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Regional Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, §§ 13267, 13383.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions—Reporting V.B.2, V.B.3, V.B.4, V.B.5, and V.B.6 below. (40 C.F.R. § 122.41(k).)

2. For a corporation, all permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 C.F.R. § 122.22(a)(1).)

For a partnership or sole proprietorship, all permit applications shall be signed by a general partner or the proprietor, respectively. (40 C.F.R. § 122.22(a)(2).)

For a municipality, State, federal, or other public agency, all permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. § 122.22(a)(3).).

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Standard Provisions—Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and

c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions—Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)

5. Any person signing a document under Standard Provisions—Reporting V.B.2 or V.B.3 above shall make the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate 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 fine and imprisonment for knowing violations." (40 C.F.R. § 122.22(d).)

6. Any person providing the electronic signature for documents described in Standard Provisions – V.B.1, V.B.2, or V.B.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure that all relevant requirements of 40 C.F.R. part 3 (Cross-Media Electronic Reporting) and 40 C.F.R. part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R § 122.22(e).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order. (40 C.F.R. § 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting the results of monitoring, sludge use, or disposal practices. As of December 21, 2016, all reports and forms must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J and comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. chapter 1, subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written report shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

For noncompliance related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (i.e., combined sewer overflow, sanitary sewer overflow, or bypass event), type of overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volume untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the event, and whether the noncompliance was related to wet weather.

As of December 21, 2020, all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted to the Regional Water Board and must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. The Regional Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours:

a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)

b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 C.F.R. section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (Alternatively, for an existing manufacturing, commercial, mining, or silvicultural discharge as referenced in 40 C.F.R. section 122.42(a), this notification applies to pollutants that are subject neither to effluent limitations in this Order nor to notification requirements under 40 C.F.R. section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1).) (40 C.F.R. § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R. § 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions—Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision—Reporting V.E above. For noncompliance related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in Standard Provision – Reporting V.E and the applicable required data in appendix A to 40 C.F.R. part 127. The Regional Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

J. Initial Recipient for Electronic Reporting Data

The owner, operator, or duly authorized representative is required to electronically submit NPDES information specified in appendix A to 40 C.F.R. part 127 to the initial recipient defined in 40 C.F.R. section 127.2(b). U.S. EPA will identify and publish the list of initial recipients on its website and in the Federal Register, by state and by NPDES data group [see 40 C.F.R. § 127.2(c)]. U.S. EPA will update and maintain this list. (40 C.F.R. § 122.41(l)(9).)

VI. STANDARD PROVISIONS—ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this Order under several provisions of the Water Code, including, but not limited to, sections 13268, 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS—NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Regional Water Board as soon as they know or have reason to believe (40 C.F.R. § 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(1)):

a. 100 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(1)(i));

b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(1)(ii));

c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(1)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 C.F.R. § 122.42(a)(2)):

a. 500 micrograms per liter (µg/L) (40 C.F.R. § 122.42(a)(2)(i));

b. 1 milligram per liter (mg/L) for antimony (40 C.F.R. § 122.42(a)(2)(ii));

c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 C.F.R. § 122.42(a)(2)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 C.F.R. § 122.42(a)(2)(iv).)

B. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to CWA sections 301 or 306 if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of this Order. (40 C.F.R. § 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Contents

Tables

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Clean Water Act section 308 and 40 C.F.R. sections 122.41(h), 122.41(j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Regional Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. This MRP establishes monitoring, reporting, and recordkeeping requirements that implement federal and State laws and regulations.

I. GENERAL MONITORING PROVISIONS

A. The Discharger shall comply with this MRP. The Executive Officer may amend this MRP pursuant to 40 C.F.R. sections 122.62, 122.63, and 124.5. If any discrepancies exist between this MRP and the *Regional Standard Provisions, and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits* (Attachment G), this MRP shall prevail.

B. The Discharger shall conduct all monitoring in accordance with Attachment D, section III, as supplemented by Attachment G. Equivalent test methods must be more sensitive than those specified in 40 C.F.R. section 136 and must be specified in this Order.

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 Locations

Sampling Location Type	Monitoring Location Name	Monitoring Location Description
Influent	INF-001	Any point in the Facility's San Pablo Bay intake prior to any treatment or use for cooling or processing.
Influent	INF-002	Any point in the Facility's recycled water supply pipe upstream of any water treatment unit, blending point, or point of use.
Effluent	EFF-002	Any point in the outfall to Discharge Point No. 002 where all wastewaters tributary thereto are present.
Effluent	EFF-003A	Any point in the outfall to Discharge Point No. 003 where all once-through cooling water, neutralized demineralizer water, and stormwater tributary thereto are present.
Effluent	EFF-003B	Any point in the outfall to Discharge Point No. 003 where once-through cooling water and neutralized demineralizer water are present, but stormwater runoff is not (i.e., representative of once-through cooling water and neutralized demineralizer water discharge only).
Effluent	EFF-004	A "location" reflecting three different areas discharging stormwater from the Marine Terminal Complex (collectively Discharge Point No. 004). Samples from the three areas shall be composited. Each sample shall be collected not more than 5 feet from where discharge occurs (to be determined at time of sampling).
Receiving Water	RSW-002	A point in San Pablo Bay within a 200-foot radius of the location defined by projecting the geometric center of Discharge Point No. 002's deepwater diffuser to the surface of San Pablo Bay.
Receiving Water	RSW-003	A point in San Pablo Bay no more than 1,000 feet west of Discharge Point No. 003 that is representative of ambient temperature and receiving water quality.

Sampling Location Type	Monitoring Location Name	Monitoring Location Description
Rainfall	R-1	The nearest official National Weather Service rainfall station, the Discharger's Laboratory rain gauge, or a comparable station acceptable to the Executive Officer.

III. INFLUENT MONITORING REQUIREMENTS

A. Once-Through Cooling Water Intake Monitoring

The Discharger shall monitor the once-through cooling water intake at Monitoring Location INF-001 as follows:

Table E-2. Influent Monitoring Location INF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow [1]	MG/MGD	Continuous	1/Day
Copper, Total Recoverable	µg/L	Grab or C-24	1/Month
Nickel, Total Recoverable	µg/L	Grab or C-24	1/Month

Unit Abbreviations:

µg/L = micrograms per liter
mg/L = milligrams per liter
MG = million gallons
MGD = million gallons per day

Sample Types:

C-24 = 24 hour composite
Continuous = measured continuously
Grab = grab sample

Sampling Frequencies:

1/Day = once per day
1/Month = once per month

Footnote:

[1] The following information shall also be monitored and reported in the monthly self-monitoring reports (SMRs):
a. Daily Total Flow Volume (MG)
b. Average Daily Flow (MGD)

B. Recycled Water Intake Monitoring

The Discharger shall monitor recycled water intake at Monitoring Location INF-002 as follows if the Discharger begins a wastewater recycling program and seeks effluent limit adjustments. The Discharger need monitor only those parameters for which it seeks effluent limit adjustments; monitoring others is optional:

Table E-3. Influent Monitoring—Monitoring Location INF-002

Parameter	Units	Sample Type	Minimum Sampling Frequency
Recycled Water Flow [1]	MG/MGD	Continuous	1/Day
Biochemical Oxygen Demand, 5-day @ 20°C (BOD_5)	mg/L	C-24	1/Month
Total Suspended Solids (TSS)	mg/L	C-24	1/Month
Chemical Oxygen Demand (COD)	mg/L	C-24	1/Month
Oil and Grease [2]	mg/L	C-24	1/Month

Parameter	Units	Sample Type	Minimum Sampling Frequency
Phenolic Compounds, Total	mg/L	Grab	1/Month
Sulfide, Total	mg/L	Grab [3]	1/Month
Ammonia, Total (as N)	mg/L	C-24	1/Month
Chromium, Total Recoverable	µg/L	C-24	1/Month
Chromium (VI)	µg/L	Grab	1/Month
Cyanide	µg/L	Grab	2/Year
Copper, Total Recoverable	µg/L	C-24	1/Week
2,3,7,8-TCDD and congeners	ρg/L	Grab [5]	2/Year
Heptachlor	µg/L	C-24	2/Year
Selenium, Total Recoverable [4]	µg/L	C-24	1/Week

Unit Abbreviations:

µg/L = micrograms per liter
mg/L = milligrams per liter
MG = million gallons
MGD = million gallons per day
ρg/L = picograms per liter

Sample Types:

C-24 = 24 hour composite
Continuous = measured continuously
Grab = grab sample

Sampling Frequencies:

Continuous = measured continuously
1/Day = once per day
1/Week = once per week
1/Month = once per month
2/Year = twice per year

Footnotes:

[1] For influent recycled water flows, the following information shall also be monitored and reported in the monthly SMRs:
a. Daily Total Flow Volume (MG)
b. Average Daily Flow (MGD)

[2] Each oil and grease sampling and analysis event shall be conducted in accordance with U.S. EPA Method 1664A.

[3] Grab samples for total sulfide shall be collected at the same time as composite samples for parameters with effluent limits.

[4] Selenium shall be analyzed using methods described in U.S. EPA Method No. 200.8 or Standard Method No. 3114B or 3114C.

[5] Chlorinated dibenzodioxins and chlorinated dibenzofurans shall be analyzed using the latest version of U.S. EPA Method 1613. The Discharger shall collect 4-liter samples to lower the detection limits to the greatest extent practicable. Alternative methods of analysis must meet the requirements of 40 C.F.R. § 136 and be approved by the Executive Officer.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Discharge Point No. 002

The Discharger shall monitor discharges from Discharge Point No. 002 at Monitoring Location EFF-002 as follows:

Table E-4. Effluent Monitoring—Monitoring Location EFF-002

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow [1]	MG/MGD	Continuous	1/Day
BOD_5	µg/L	C-24	1/Month
TSS	µg/L	C-24	1/Month

Parameter	Units	Sample Type	Minimum Sampling Frequency
COD	µg/L	C-24	1/Month
Oil and Grease [2]	µg/L	C-24	1/Month
Phenolic Compounds, Total	mg/L	Grab	1/Month
Sulfide, Total	mg/L	Grab [3]	1/Month
Ammonia Nitrogen, Total (as N)	mg/L	C-24	1/Month
Chromium, Total Recoverable [4]	µg/L	C-24	1/Month
Chromium (VI)	µg/L	Grab	1/Month
Cyanide	µg/L	Grab	1/Month
Copper, Total Recoverable	µg/L	C-24	1/Week
2,3,7,8-TCDD and congeners	ρg/L	Grab [5]	2/Year
Heptachlor	µg/L	C-24	1/Quarter
Selenium, Total Recoverable	µg/L	C-24 [6]	1/Week
Acute Toxicity	% survival	C-24 [7]	1/Week
Chronic Toxicity	TU_C	C-24 [8]	2/Year
Chlorine, Total Residual	mg/L	Grab	1/Day
pH [9]	s.u.	Continuous	Continuous
Temperature	°F	Continuous	Continuous
Total Coliform Bacteria	MPN/100 mL [3]	Grab	1/Week [10]
Enterococcus Bacteria	MPN/100 mL [3]	Grab	1/Week [10]
Standard Observations [11]	--	--	1/Day

Unit Abbreviations:

TUc = chronic toxicity units, as defined in Attachment E, section V.B.2.a.vi
°F = degrees Fahrenheit
kg/day = kilograms per day
µg/L = micrograms per liter
mg/L = milligrams per liter
MG = million gallons
MGD = million gallons per day
MPN/100 mL = most probable number per 100 milliliters
% survival = percent survival
ρg/L = picograms per liter
lbs/day = pounds per day
s.u. = standard units

Sample Types:

C-24 = 24 hour composite
Continuous = measured continuously
Grab = grab sample

Sampling Frequencies:

Continuous = measured continuously
1/Day = once per day
1/Week = once per week
1/Month = once per month
1/Quarter = once per quarter
2/Year = twice per year

Footnotes:

[1] For effluent flows, the following information shall be monitored and reported in the monthly SMRs:
a. Daily Total Flow Volume (MG)
b. Average Daily Flow (MGD)

[2] Each oil and grease sampling and analysis event shall be conducted in accordance with U.S. EPA Method 1664A.

[3] Grab samples shall be collected on the same day as composite samples for parameters with effluent limits.

[4] The Discharger may, at its option, comply with the limits for hexavalent chromium by using total chromium results. In this case, the Discharger need not monitor hexavalent chromium.

[5] Chlorinated dibenzodioxins and chlorinated dibenzofurans shall be analyzed using the latest version of U.S. EPA Method 1613. The Discharger shall collect 4-liter samples to lower the detection limits to the greatest extent practicable. Alternative methods of analysis must be approved pursuant to 40 C.F.R. § 136.5.

[6] Selenium shall be analyzed using methods described in U.S. EPA Method No. 200.8 or Standard Method No. 3114B or 3114C.

[7] Acute bioassay tests shall be performed in accordance with MRP section V.A.

[8] Critical life stage toxicity tests shall be performed and reported in accordance with MRP section V.B.

[9] If pH is monitored continuously, the minimum and maximum pH values for each day shall be reported in monthly SMRs.

[10] Results may be reported as Colony Forming Units (CFU)/100 mL if the laboratory method used provides results in CFU/100 mL.

[11] Standard observations are described in Attachment G section III.C.2.

B. Discharge Point No. 003

1. The Discharger shall monitor discharges from Discharge Point No. 003 at Monitoring Location EFF-003A as follows:

Table E-5. Effluent Monitoring—Monitoring Location EFF-003A

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow Rate [1]	MG/MGD	Continuous	1/Day
Temperature	°F	Continuous	Continuous
Chlorine, Total Residual	mg/L	Grab	[2]
pH [3]	s.u.	Grab	1/Month
Standard Observations [4]	--	--	1/Month

Unit Abbreviations:

°F = degrees Fahrenheit
mg/L = milligrams per liter
MG = million gallons
MGD = million gallons per day

Sample Types:

Continuous = measured continuously
Grab= grab sample
Daily = daily observation

Sampling Frequencies:

Continuous = measured continuously
1/Day = once per day
1/Month = once per month

Footnotes:

[1] For effluent flows, the Discharger shall monitor and report the following information in the monthly SMRs:
a. Daily Total Flow Volume (MG)
b. Average Daily Flow (MGD)

[2] The Discharger shall monitor for total residual chlorine at Monitoring Location EFF-003A every 2 hours if intake chlorination occurs or if potable water is used as a substitute for once-through cooling water. If potable water is used to supplement once-through cooling water, the Discharger shall monitor for total residual chlorine daily. Total residual chlorine need not be monitored if neither intake chlorination nor potable water use is occurring.

[3] If pH is monitored continuously, the Discharger shall report minimum and maximum pH values for each day in monthly SMRs.

[4] Standard observations are described in Attachment G sections III.C.2.

2. The Discharger shall monitor discharges from Discharge Point No. 003 at Monitoring Location EFF-003B as follows:

Table E-6. Effluent Monitoring—Monitoring Location EFF-003B

Parameter	Units	Sample Type	Minimum Sampling Frequency
TOC	mg/L	Grab or C-24	1/Month
Copper, Total Recoverable	µg/L	Grab or C-24	1/Month
Nickel, Total Recoverable	µg/L	Grab or C-24	1/Month
Selenium, Total Recoverable	µg/L	Grab or C-24	1/Year [1]
Zinc, Total Recoverable	µg/L	Grab or C-24	1/Month
Benzo(a)anthracene	µg/L	Grab or C-24	2/Year
Chrysene	µg/L	Grab or C-24	2/Year

Unit Abbreviations:

µg/L = micrograms per liter
mg/L = milligrams per liter
s.u. = standard units

Sample Types:

C-24 = 24 hour composite
Grab = grab sample

Sampling Frequencies:

1/Month = once per month
1/Year = once per year
2/Year = twice per year

Footnote:

[1] The Discharger shall analyze selenium using methods described in U.S. EPA Method No. 200.8 or Standard Method No. 3114B or 3114C.

C. Discharge Point No. 004

The Discharger shall monitor discharges from Discharge Point No. 004 at Monitoring Location EFF-004 as follows:

Table E-7. Effluent Monitoring—Monitoring Location EFF-004

Parameter	Units	Sample Type	Minimum Sampling Frequency
pH	s.u	Continuous	2/Year [1]
Oil and Grease	mg/L	Grab	2/Year [1,2]
TOC	mg/L	Grab	2/Year [1]
Visible Oil	---	---	2/Year [1]
Visible Color	---	---	2/Year [1]
BOD_5	mg/L	Grab	1/Day during storm [3]
COD	mg/L	Grab	1/Day during storm [3]
TSS	mg/L	Grab	1/Day during storm [3]
Phenolic Compounds	mg/L	Grab	1/Day during storm [3]
Total Chromium	mg/L	Grab	1/Day during storm [3]
Chromium (VI)	mg/L	Grab	1/Day during storm [3]

Unit Abbreviations:

mg/L = milligrams per liter
s.u. = standard units

Sample Types:

Continuous = measured continuously
Grab = grab sample

Sampling Frequencies:

2/Year = twice per year

Footnotes:

[1] As soon as the Discharger becomes aware of a violation of an oil and grease or TOC effluent limitation in Table 6a of this Order, the Discharger shall increase the monitoring frequency for this parameter at the affected outfalls to daily during each daylight storm until two consecutive samples show compliance with oil and grease and TOC effluent limitations. The Discharger shall also monitor the affected outfalls at least once during the first daylight storm of the following wet season (commencing October 1).

[2] The Discharger shall analyze oil and grease using U.S. EPA method 1644A.

[3] Monitoring for this parameter is not required until the Discharger becomes aware of a violation of an oil and grease or TOC effluent limitation in Table 6a of this Order. Then, the Discharger shall begin monitoring for this parameter at the affected outfalls during each daylight storm until two consecutive samples show compliance with oil and grease and TOC effluent limitations in Table 6a.

V. TOXICITY TESTING REQUIREMENTS

A. Acute Toxicity

1. Compliance with the acute toxicity effluent limits at Discharge Point No. 002 shall be evaluated at Monitoring Location EFF-002 by measuring survival of test organisms exposed to 96-hour continuous flow-through bioassays.

2. Test organisms shall be rainbow trout (*Onchorhynchus mykiss*). The Executive Officer may specify a more sensitive organism or, if testing a particular organism proves unworkable, the most sensitive organism available.

3. All bioassays shall be performed according to the most up-to-date protocols in 40 C.F.R. part 136, currently *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms, 5th Edition* (EPA-821-R-02-012).

4. If the Discharger demonstrates that specific identifiable substances in the discharge are rapidly rendered harmless upon discharge to the receiving water, compliance with the acute toxicity limit may be determined after test samples are adjusted to remove the influence of those substances. Written acknowledgement that the Executive Officer concurs with the Discharger's demonstration and that the adjustment will not remove the influence of other substances must be obtained prior to any such adjustment. The Discharger may manually adjust the pH of acute toxicity samples prior to performing bioassays to minimize ammonia toxicity interference.

5. Bioassay water monitoring shall include, on a daily basis, pH, dissolved oxygen, ammonia (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be reported. If final or intermediate results of an acute bioassay test indicate a violation or threatened violation (e.g., the percentage of surviving test organisms is less than 70 percent), the Discharger shall initiate a new test as soon as practical and shall investigate the cause of the mortalities and report its findings in the next self-monitoring report (SMR). The Discharger shall repeat the test until a test fish survival rate of 90 percent or greater is observed. If the control fish survival rate is less than 90 percent, the bioassay test shall be restarted with new fish and shall continue as soon as practical until an acceptable test is completed (i.e., control fish survival rate is 90 percent or greater).

B. Chronic Toxicity

1. Monitoring Requirements

a. Sampling. The Discharger shall collect 24-hour composite effluent samples at Monitoring Location EFF-002 for critical life stage toxicity tests as indicated below. For toxicity tests requiring renewals, the Discharger shall collect 24-hour composite samples on alternating days.

b. Test Species. The test species shall be mysid shrimp (*Americamysis bahia*) unless a more sensitive species is identified.

The Discharger shall conduct a chronic toxicity screening test as described in Appendix E-1, or as described in applicable State Water Board plan provisions that become effective after adoption of this Order, following any significant change in the nature of the effluent. If there is no significant change in the nature of the effluent, the Discharger shall conduct a screening test and submit the results with its application for permit reissuance.

c. Methodology. Sample collection, handling, and preservation shall be in accordance with U.S. EPA protocols. In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, as shown in Appendix E-1. These are *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*, currently third edition (EPA-821-R-02-014). If these protocols prove unworkable, the Executive Officer and the Environmental Laboratory Accreditation Program may grant exceptions in writing upon the Discharger's request with justification. If the Discharger demonstrates that specific identifiable substances in the discharge are rapidly rendered harmless upon discharge to the receiving water, compliance with the chronic toxicity limit may be determined after test samples are adjusted to remove the influence of those substances. Written acknowledgement that the Executive Officer concurs with the Discharger's demonstration and that the adjustment will not remove the influence of other substances must be obtained prior to any such adjustment.

d. Dilution Series. The Discharger shall conduct tests at 40%, 20%, 10%, 5%, and 2.5%. The "%" represents percent effluent as discharged. Test sample pH may be controlled to the level of the effluent sample as received prior to being salted up.

2. Reporting Requirements

a. The Discharger shall provide toxicity test results for the current reporting period in the SMR and shall include the following, at a minimum, for each test:

i. Sample date

ii. Test initiation date

iii. Test species

iv. End point values for each dilution (e.g., number of young, growth rate, percent survival)

v. No Observable Effect Level (NOEL) values in percent effluent. The NOEL shall equal the IC_{25} or EC_{25} (see MRP Appendix E-1). If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall equal to the No Observable Effect Concentration (NOEC) derived using hypothesis testing. The NOEC is the maximum percent effluent concentration that causes no observable effect on test organisms based on a critical life stage toxicity test.

vi. IC_{15}, IC_{25}, IC_{40}, and IC_{50} values (or EC_{15}, EC_{25}, EC_{40}, and EC_{50}) as percent effluent

vii. TUc values (100/NOEL, where NOEL = IC_{25}, EC_{25}, or NOEC)

viii. Mean percent mortality (±s.d.) after 96 hours in 100% effluent (if applicable)

ix. IC_{50} or EC_{50} values for reference toxicant tests

x. Available water quality measurements for each test (e.g., pH, dissolved oxygen, temperature, conductivity, hardness, salinity, and ammonia)

3. Toxicity Reduction Evaluation (TRE)

a. The Discharger shall prepare a generic TRE work plan within 90 days of the effective date of this Order to be ready to respond to toxicity events. The Discharger shall review and update the work plan as necessary so that it remains current and applicable to the discharge and discharge facilities.

b. Within 30 days of exceeding the chronic toxicity limit in Table 4a of the Order, the Discharger shall submit a TRE work plan, which shall be the generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.

c. Within 30 days of completing an accelerated monitoring test observed to exceed the chronic toxicity limit, the Discharger shall initiate a TRE in accordance with a TRE work plan that incorporates any and all comments from the Executive Officer.

d. The TRE shall be specific to the discharge and be in accordance with current technical guidance and reference materials, including U.S. EPA guidance materials. The Discharger shall conduct the TRE as a tiered evaluation as summarized below:

i. Tier 1 shall consist of basic data collection and review (routine and accelerated monitoring).

ii. Tier 2 shall consist of a facility performance evaluation including treatment process optimization, including operational practices and in-plant process chemical uses.

iii. Tier 3 shall consist of a toxicity identification evaluation (TIE).

iv. Tier 4 shall consist of a toxicity source evaluation.

v. Tier 5 shall consist of a toxicity control evaluation, including options for modifications of in-plant treatment processes.

vi. Tier 6 shall consist of implementation of selected toxicity control measures, and followup monitoring and confirmation of implementation success.

e. The Discharger may end the TRE at any stage if monitoring finds there is no longer consistent toxicity (i.e., compliance with the chronic toxicity effluent limit in Table 4a of the Order).

f. The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. The Discharger shall employ all reasonable efforts using currently available TIE methodologies.

g. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the sources and evaluating alternative strategies for reducing or eliminating the toxic substances from the discharge. The Discharger shall take all reasonable steps to reduce toxicity to levels below the chronic toxicity limit.

h. Many recommended TRE elements parallel required or recommended efforts related to source control, pollution prevention, and stormwater control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements or recommended efforts of such programs may be acceptable to demonstrate compliance with TRE requirements.

VI. RECEIVING WATER MONITORING REQUIREMENTS

The Discharger shall monitor receiving water at Monitoring Locations RSW-002 and RSW-003 as follows:

Table E-8. Receiving Water Monitoring—Monitoring Locations RSW-002 and RSW-003

Parameter	Units	Sample Type	Minimum Sampling Frequency
pH	s.u	Grab	1/Quarter
Temperature	°F	Grab	1/Quarter
Dissolved Oxygen	mg/L	Grab	1/Quarter
Sulfides	mg/L	Grab	1/Quarter
Total Ammonia, as N	mg/L	Grab	1/Quarter
Un-ionized Ammonia	mg/L	Grab	1/Quarter
Salinity	ppt	Grab	1/Quarter
Hardness	mg/L	Grab	1/Quarter
Standard Observations [1]	--	--	1/Quarter

Unit Abbreviations:

°F = degrees Fahrenheit
mg/L = milligrams per liter
ppt = parts per trillion
s.u. = standard units

Sample Type:

Grab = grab sample

Sampling Frequency:

1/Quarter = once per quarter

Footnote:

[1] Standard observations are listed in Attachment G section III.C.1.

VII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

The Discharger shall comply with all standard provisions in Attachments D and G related to monitoring, reporting, and recordkeeping, with the modifications shown in MRP section VII.

B. Self-Monitoring Reports (SMRs)

1. **SMR Format.** The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) website (http://www.waterboards.ca.gov/water_issues/programs/ciwqs). The CIWQS website will provide additional information for SMR submittal in the event of a planned service interruption for electronic submittal.

2. **SMR Due Dates and Contents.** The Discharger shall submit SMRs by the due dates, and with the contents, specified below:

   a. **Monthly SMRs —** Monthly SMRs shall be due 30 days after the end of each calendar month, covering that calendar month. The monthly SMR shall contain the applicable items described in sections V.B and V.C of both Attachments D and G. See Provision VI.C.2.a (Effluent Characterization Study and Report) of the Order for information that must also be reported with monthly SMRs.

      Monthly SMRs shall include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the Discharger shall include the results of such monitoring in the calculations and reporting for the SMR.

   b. **Annual SMR —** Annual SMRs shall be due February 1 each year, covering the previous calendar year. The annual SMR shall contain the items described in Attachment G section V.C.1.f. See also Provision VI.C.2.b.ii, Provision VI.C.4.a.ii, and Provision VI.C.4.b.ii(d) of the Order for information that must also be reported with the annual SMR.

3. **Specifications for Submitting SMRs to CIWQS.** The Discharger shall submit analytical results and other information using one of the following methods:

Table E-9. CIWQS Reporting

Parameter	Method of Reporting	
	EDF/CDF data upload or manual entry	**Attached File**
All parameters identified in influent, effluent, and receiving water monitoring tables (except Dissolved Oxygen and Temperature)	Required for all results	
Dissolved Oxygen Temperature	Required for monthly maximum and minimum results only [1]	Discharger may use this method for all results or keep records
Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Cyanide, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Zinc, Dioxins & Furans (by U.S. EPA Method 1613), Other Pollutants (by U.S. EPA methods 601, 602, 608, 610, 614, 624, and 625)	Required for all results [2]	
Analytical Method	Not required (Discharger may select "data unavailable") [1]	
Collection Time Analysis Time	Not required (Discharger may select "0:00") [1]	

Footnotes:

[1] The Discharger shall continue to monitor at the minimum frequency specified in this MRP, keep records of the measurements, and make the records available upon request.

[2] These parameters require EDF/CDF data upload or manual entry regardless of whether monitoring is required by this MRP or other provisions of this Order.

The Discharger shall arrange all reported data in a tabular format and summarize the data to clearly illustrate whether the facility is operating in compliance with effluent limits. The Discharger is not required to duplicate the submittal of data entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format, the Discharger shall electronically submit the data in a tabular format as an attachment.

4. **Monitoring Periods.** Monitoring periods for all required monitoring shall be as set forth below unless otherwise specified:

Table E-10. Monitoring Periods

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
Continuous	Order effective date	All times
1/Day	Order effective date	Daily, 12:00 a.m. through 11:59 p.m.
1/Week	Sunday following (or on) Order effective date	Sunday through Saturday
1/Month	First day of calendar month following (or on) Order effective date	First day of calendar month through last day of calendar month

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period
1/Quarter	Closest January 1, April 1, July 1, or October 1 before or after Order effective date [1]	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31
1/Year	Closest January 1 before or after Order effective date [1]	January 1 through December 31
2/Year	Closest May 1 or November 1 before or after Order effective date [1]	November 1 through April 30 (typical wet season) May 1 through October 31 (typical dry season)

Footnote:

[1] Monitoring conducted during the term of the previous order may be used to satisfy monitoring required by this Order.

5. **RL and MDL Reporting.** The Discharger shall report with each sample result the Reporting Level (RL) and Method Detection Limit (MDL) as determined by the procedure in 40 C.F.R. 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 purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. 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 the laboratory considers appropriate.

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

   d. The Discharger shall instruct laboratories to establish calibration standards so that the minimum level (ML) value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

6. **Compliance Determination.** Compliance with effluent limits for priority pollutants shall be determined using sample reporting protocols defined above and in the Fact Sheet and Attachments A, D, and G. For purposes of reporting and administrative enforcement by the Regional Water Board and State Water Board, the Discharger shall be deemed out of compliance with effluent limits if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limit and greater than or equal to the reporting level RL.

C. Discharge Monitoring Reports (DMRs)

DMRs are U.S. EPA reporting requirements. The Discharger shall electronically certify and submit DMRs together with SMRs using the Electronic Self-Monitoring Reports module eSMR 2.5 or the latest upgraded version. Electronic DMR submittal shall be in addition to electronic SMR submittal. Information about electronic DMR submittal is available at the DMR website at http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring.

VIII. MODIFICATIONS TO ATTACHMENT G

This MRP modifies Attachment G as indicated below:

A. Attachment G section V.C.1.c.2 is revised as follows:

2) When determining compliance with an average monthly or maximum daily effluent limit and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of detected but not quantified (DNQ) or non-detect (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   i. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   ii. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

   If a sample result, or the arithmetic mean or median of multiple sample results, is below the reporting limit, and there is evidence that the priority pollutant is present in the effluent above an effluent limit and the Discharger conducts a Pollutant Minimization Program, the Discharger shall not be deemed out of compliance.

B. Attachment G sections V.C.1.f and V.C.1.g are revised as follows, and section V.C.1.h (Reporting data in electronic format) is deleted:

f. Annual self-monitoring report requirements

   By the date specified in the MRP, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the following:

   1) Annual compliance summary table of treatment plant performance, including documentation of any blending events (this summary table is not required if the Discharger has submitted the year's monitoring results to CIWQS in electronic reporting format by EDF/CDF upload or manual entry);

2) Comprehensive discussion of treatment plant performance and compliance with the permit (This discussion shall include any corrective actions taken or planned, such as changes to facility equipment or operation practices that may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment, or disposal practices.);

3) Both tabular and graphical summaries of the monitoring data for the previous year if parameters are monitored at a frequency of monthly or greater (this item is not required if the Discharger has submitted the year's monitoring results to CIWQS in electronic reporting format by EDF/CDF upload or manual entry);

4) List of approved analyses, including the following:

   (i) List of analyses for which the Discharger is certified;
   (ii) List of analyses performed for the Discharger by a separate certified laboratory (copies of reports signed by the laboratory director of that laboratory shall not be submitted but be retained onsite); and
   (iii) List of "waived" analyses, as approved;

5) Plan view drawing or map showing the Discharger's facility, flow routing, and sampling and observation station locations;

6) Results of annual facility inspection to verify that all elements of the SWPP Plan are accurate and up to date (only required if the Discharger does not route all stormwater to the headworks of its wastewater treatment plant); and

7) Results of facility report reviews. (The Discharger shall regularly review, revise, and update, as necessary, the O&M Manual, the Contingency Plan, the Spill Prevention Plan, and Wastewater Facilities Status Report so that these documents remain useful and relevant to current practices. At a minimum, reviews shall be conducted annually. The Discharger shall include, in each Annual Report, a description or summary of review and evaluation procedures, recommended or planned actions, and an estimated time schedule for implementing these actions. The Discharger shall complete changes to these documents to ensure they are up-to-date.)

g. Report submittal

The Discharger shall submit SMRs addressed as follows, unless the Discharger submits SMRs electronically to CIWQS:

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

h. Reporting data in electronic format – *Deleted*

IX. BYPASS REQUIREMENTS

If the Discharger bypasses any of its treatment units under the conditions stated in section I.G.2 of Attachment D, it shall monitor flows and collect samples daily at affected discharge points for all constituents with effluent limitations (except chronic toxicity, total coliform, and enterococci) for the duration of the bypass (including acute toxicity using static renewals). Because such discharges may result in noncompliance that may endanger human health or the environment, the Discharger shall follow the reporting requirements under of Attachment D, section V.E.1.

APPENDIX E-1
CHRONIC TOXICITY
DEFINITION OF TERMS AND SCREENING PHASE REQUIREMENTS

I. Definition of Terms

A. No observed effect level (NOEL) for compliance determination is equal to IC_{25} or EC_{25}. If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.

B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Karber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25 percent of the test organisms.

C. Inhibition concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a nonlethal, nonquantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25 percent reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as U.S. EPA's Bootstrap Procedure.

D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. Chronic Toxicity Screening Phase Requirements

A. The Discharger shall perform screening phase monitoring:

1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, or

2. Prior to permit reissuance. Screening phase monitoring data shall be included in the NPDES permit application for reissuance. The information shall be as recent as possible but may be based on screening phase monitoring conducted within five years before the permit expiration date.

B. Design of the screening phase shall, at a minimum, consist of the following elements:

1. Use of test species specified in Appendix E-2, attached, and use of the protocols referenced in those tables.

2. Two stages:

a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Appendix E-2 (attached).

b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results.

3. Appropriate controls.

4. Concurrent reference toxicant tests.

5. Dilution series of 100%, 50%, 25%, 10%, 5%, and 0%, where "%" is percent effluent as discharged, or as otherwise approved by the Executive Officer if different dilution ratios are needed to reflect discharge conditions.

C. The Discharger shall submit a screening phase proposal. The proposal shall address each of the elements listed above. If within 30 days, the Executive Officer does not comment, the Discharger shall commence with screening phase monitoring.

APPENDIX E-2
SUMMARY OF TOXICITY TEST SPECIES REQUIREMENTS

Table AE-1. Critical Life Stage Toxicity Tests for Estuarine Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Alga	*(Skeletonema costatum)* *(Thalassiosira pseudonana)*	Growth rate	4 days	1
Red alga	*(Champia parvula)*	Number of cystocarps	7–9 days	3
Giant kelp	*(Macrocystis pyrifera)*	Percent germination; germ tube length	48 hours	2
Abalone	*(Haliotis rufescens)*	Abnormal shell development	48 hours	2
Oyster Mussel	*(Crassostrea gigas)* *(Mytilus edulis)*	Abnormal shell development; percent survival	48 hours	2
Echinoderms - Urchins Sand dollar	*(Strongylocentrotus purpuratus, S. franciscanus)* *(Dendraster excentricus)*	Percent fertilization or larval development	1 hour or 72 hours	2
Shrimp	*(Americamysis bahia)*	Percent survival; growth	7 days	3
Shrimp	*(Holmesimysis costata)*	Percent survival; growth	7 days	2
Topsmelt	*(Atherinops affinis)*	Percent survival; growth	7 days	2
Silversides	*(Menidia beryllina)*	Larval growth rate; percent survival	7 days	3

Toxicity Test References:

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for Conducting Static 96-Hour Toxicity Tests with Microalgae. Procedure E 1218-90. ASTM, Philadelphia, PA.

2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. EPA/600/R-95/136. August 1995.

3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms. EPA/821/R-02/014. October 2002.

Table AE-2. Critical Life Stage Toxicity Tests for Fresh Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
Fathead minnow	*(Pimephales promelas)*	Survival; growth rate	7 days	4
Water flea	*(Ceriodaphnia dubia)*	Survival; number of young	7 days	4
Alga	*(Selenastrum capricornutum)*	Final cell density	4 days	4

Toxicity Test Reference:

1. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, fourth Edition Chronic manual (EPA-821-R-02-013, October 2002).

Table AE-3. Toxicity Test Requirements for Stage One Screening Phase

Requirements	Receiving Water Characteristics		
	Discharges to Coast	Discharges to San Francisco Bay [1]	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic diversity	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater [2] Marine/Estuarine	0 4	1 or 2 3 or 4	3 0
Total number of tests	4	5	3

Footnotes:

[1] (a) Marine refers to receiving water salinities greater than 10 part per thousand (ppt) at least 95 percent of the time during a normal water year.
(b) Freshwater refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.
(c) Estuarine refers to receiving water salinities that fall between those of marine and freshwater, as described above.

[2] The freshwater species may be substituted with marine species if:

(a) The salinity of the effluent is above 1 ppt greater than 95 percent of the time, or

(b) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

ATTACHMENT F - FACT SHEET

Contents

Tables

ATTACHMENT F – FACT SHEET

This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order. As described in section II.B of this Order, the Regional Water Board incorporates this Fact Sheet as its findings supporting the issuance of this Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility:

Table F-1. Facility Information

WDID	2071051001
CIWQS Place ID	255284
Discharger	Phillips 66 Company
Facility Name	San Francisco Refinery
Facility Address	1380 San Pablo Avenue Rodeo, CA 94572 Contra Costa County
Facility Contact, Title, Phone	Donald R. Landeck, P.E., Environmental Engineer (510) 245-4618 Don.R.Landeck@p66.com
Authorized Person to Sign and Submit Reports	Mark E. Evans, Refinery Manager (510) 245-4415 Mark.E.Evans@p66.com
Mailing Address	Same as facility address
Billing Address	Same as mailing address
Facility Type	Petroleum Refinery
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	No
Reclamation Requirements	No
Mercury and PCBs Requirements	NPDES Permit No. CA0038849
Wastewater Treatment Plant Design Flow	10 million gallons per day (MGD)
Permitted Flow	Discharge Point No. 002: 8.8 MGD (maximum reported flow) Discharge Point No. 003: 72 MGD (maximum reported flow)
Average Facility Flow (2015)	Discharge Point No. 002: 2.8 MGD Discharge Point No. 003: 41 MGD
Watershed	San Pablo Basin
Receiving Water	San Pablo Bay
Receiving Water Type	Estuarine

A. Phillips 66 Company (Discharger) owns and operates the San Francisco Refinery (Facility). Attachment B provides a location map. For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and State laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

The Discharger is authorized to discharge subject to WDRs in this Order at the discharge location described in Table 2 of this Order. Regulations at 40 C.F.R. section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years, subject to 23 Cal. Code of Regulations section 2235.4 and 40 C.F.R. sections 122.6(d) and 122.46. Accordingly, Table 3 of this Order limits the effective period for the discharge authorization. Pursuant to California Code of Regulations, title 23, section 2235.4 and 40 C.F.R. sections 122.6(d) and 122.46, the terms and conditions of an expired permit are automatically continued pending reissuance of the permit if the Discharger complies with all federal NPDES regulation requirements for continuation of expired permits.

B. The Discharger is regulated pursuant to NPDES Permit No. CA0005053. It was previously subject to Order No. R2-2011-0027 (previous order).

When applicable, State law requires dischargers to file a petition with the State Water Resources Control Board's (State Water Board's) Division of Water Rights and receive approval for any change in the point of discharge, place of use, or purpose of use of treated wastewater that decreases the flow in any portion of a watercourse. The State Water Board retains separate jurisdictional authority to enforce such requirements under Water Code 1211. This is not an NPDES permit requirement.

C. The Discharger filed a Report of Waste Discharge and submitted an application for reissuance of its WDRs and NPDES permit on December 18, 2015.

D. The discharge is also regulated under NPDES Permit No. CA0038849, which establishes mercury and polychlorinated biphenyls (PCBs) requirements for wastewater discharges to San Francisco Bay. This Order does not affect that permit. The Facility is also regulated by Order Nos. R2-2015-0046 (Updated Waste Discharge Requirements) and R2-2012-0081 (Updated Site Cleanup Requirements). This Order does not affect those orders.

II. FACILITY DESCRIPTION

A. Wastewater Treatment and Control

The Facility processes an average crude oil throughput of approximately 84,000 barrels per day (bbls/day) and produces gasoline, diesel fuel, jet fuel, fuel oil, and other petroleum products. The Discharger sells sulfur and petroleum coke as by-products. The Facility discharges to San Pablo Bay via three outfalls: Discharge Point Nos. 002, 003, and 004.

1. Wastewater Treatment Plant Effluent (Discharge Point No. 002)

Discharge Point No. 002 discharges process wastewater, boiler blowdown, cooling tower blowdown, sanitary wastewater, sour water stripper bottoms, stormwater runoff from refinery process areas, and remediation water following treatment at the wastewater treatment plant. Periodically, water from process area fire equipment monitoring and fire hydrant testing is also directed to the wastewater treatment plant. Attachment C provides a process flow diagram for the Facility and its wastewater treatment plant.

The wastewater collection system transports process wastewater (except wastewater from the lower tank farm), refinery process area stormwater, and sanitary wastewater to a splitter box.

Some process wastewater is treated by non-phenolic and phenolic sour water strippers and the Selenium Reduction Plant before flowing to the splitter box.

Wastewater flows from the splitter box and lower tank farm to dry and wet weather sumps, and is then pumped to equalization and storage tanks, where it flows by gravity to the treatment plant. If wastewater or stormwater volumes exceed the pumping capacity of the wet weather sumps, equalization tanks, or both, excess wastewater overflows to the primary and main basins. When flow volumes return to normal, wastewater in the primary and main basins is drained back to the wet weather sump and pumped to the equalization tanks.

Wastewater flows from the equalization tanks to an American Petroleum Institute oil-water separator that removes most oil and solids. Removed oil is transferred to an oil recovery system, and solids are transferred to a collection tank. Oil-water separator effluent flows to a flash-mixing chamber, where primary and secondary coagulants may be added, then to dissolved air flotation (DAF) units that remove remaining oil and solids. The DAF units treat wastewater through (a) chemical addition and flocculation of wastewater, (b) aeration to float flocculated solids and oil to the surface, and (c) mechanical removal of floated solids and oil. The Discharger sends settled solids from the oil-water separator and DAF units to the collection tank for transport to a delayed coking unit.

DAF unit effluent is treated by powdered activated carbon treatment biological oxidation in two parallel aeration tanks. Biological solids, spent powdered activated carbon, and inert solids are then settled out in two parallel clarifiers. The settled biological solids and powdered activated carbon are recycled based on sludge age and influent wastewater flow. The Discharger may route a portion of the recycled solids to a wet air regeneration system.

Clarifier effluent is normally filtered using sand filters, then routed by gravity to a sump. From there, it is pumped to Discharge Point No. 002, which features a 144-foot-long deepwater outfall and diffuser approximately 1,500 feet offshore along the Marine Terminal causeway. The diffuser has six pairs of opposite-facing 4-inch-diameter ports spaced 24 feet apart, oriented 90 degrees to the direction of flow. Treated wastewater is disinfected using sodium hypochlorite and dechlorinated using sodium bisulfite before discharge. The Facility can redirect treated flows to Discharge Point No. 003 if there is a failure in the deepwater diffuser line (although this has never occurred).

The treatment plant has a design flow of approximately 10 million gallons per day (MGD). During the term of the previous order, the plant treated a maximum flow of 8.8 MGD. The average flow for 2015 was 2.8 MGD.

2. Once-Through Cooling Water (Discharge Point No. 003)

Discharge Point No. 003 primarily discharges once-through non-contact cooling water. In addition, it discharges neutralized demineralizer water and stormwater runoff from non-industrial and undeveloped areas of the refinery, sections of Interstate 80, San Pablo Avenue (Highway 40), adjacent parking lots and paved areas, and residential portions of Rodeo. These additional non-cooling water flows are less than two percent of the Discharge Point No. 003 discharge. The Facility uses potable water as a substitute or supplement for cooling water if necessary due to loss of saltwater pump flow or maintenance work on the saltwater cooling system. Under such circumstances, the Discharger dechlorinates cooling water before

discharge. (The Discharger can also chlorinate cooling water before use if necessary; however, the chlorination equipment is not currently in use.)

The cooling water intake structure is located at the base of the Marine Terminal causeway and consists of four intake bays with 30-inch diameter T-shaped intake pipes covered by 3/32-inch mesh wedgewire screens that reduce impingement and entrainment of aquatic life. Five pumps are capable of withdrawing a maximum combined flow of approximately 70 MGD. Typically, at most four pumps are operated at one time.

Cooling water discharges are conveyed across Refinery property and under San Pablo Avenue through a 36-inch pipe that daylights into an open splitter-box. Cooling water flows from the splitter-box in two streams: one to an open channel and the other to a large, shallow retention basin. The open channel goes around the retention basin. Cooling water in the basin flows across the basin and down a short rock weir before rejoining the open channel flow. This configuration reduces the discharge temperature. Moreover, in case of a spill or another type of release, all flow from the splitter box can be directed to the retention basin for containment. Discharge Point No. 003 is approximately 20 meters beyond the confluence of the retention basin and open channel. It features an open channel outfall on the shoreline, approximately 2,500 feet south of the base of the Marine Terminal causeway.

3. Stormwater (Discharge Point No. 004)

Discharge Point No. 004 discharges stormwater from the Marine Terminal Complex, including the wharf and access road causeway, directly to San Pablo Bay by sheet flow to notches in the surrounding curb. This stormwater does not come into contact with waste, intermediate, or finished materials. Discharge Point No. 004 also discharges fire equipment monitoring and fire hydrant testing water (during annual safety testing). Steam and potentially condensate are discharged from steam traps on insulated pipelines along the Marine Terminal causeway. Infrequent discharges of boom boat wash-off water and algae removal water from the boat launch ramp also occur when necessary. The Discharger has developed and implements a stormwater pollution prevention plan and Best Management Practices as required by Provision VI.C.4.b and described in Fact Sheet section VI.C.4.b.

B. Discharge Points and Receiving Waters

The Facility discharges wastewater treatment plant effluent, once-through cooling water, and stormwater from Discharge Point Nos. 002, 003, and 004 to San Pablo Bay, a water of the United States within the San Pablo Basin watershed.

C. Summary of Previous Requirements and Monitoring Data

Effluent limits and representative monitoring data from the previous order term for Discharge Point Nos. 002, 003, and 004 are presented in the tables below:

Table F-2. Previous Effluent Limits and Monitoring Data – Discharge Point No. 002

Parameter	Units	Effluent Limits		Monitoring Data (7/1/11 – 4/30/16)	
		Average Monthly	Maximum Daily	Highest Monthly Average	Highest Daily Discharge
Biochemical Oxygen Demand, 5-day @ 20°C (BOD_5)	lbs/day	910	1,600	480	480
Chemical Oxygen Demand (COD)	lbs/day	6,300	12,000	2,600	2,600
Total Suspended Solids (TSS)	lbs/day	730	1,100	560	560
Oil and Grease	lbs/day	260	500	210	92
Phenolic Compounds, Total	lbs/day	5.9	12	0.21	0.11
Total Ammonia, as N	lbs/day	500	1,100	3.2	6.8
Sulfide	lbs/day	4.8	11	2.1	0.92
Total Chromium	lbs/day	7.7	22	0.031	0.031
Chromium (VI)	lbs/day	0.63	1.4	0.020	0.020
pH	s.u.	6.0 – 9.0 [1]		5.9 – 8.9 [1]	
Residual Chlorine	mg/L	--	0.0 [2]	--	1.1
Total Coliform	MPN/100 mL	monthly median not to exceed 240	maximum not to exceed 10,000	20	230
Selenium, Total Recoverable	kg/day	0.39 [3]	--	0.26 [3]	--
	µg/L	37	50	61	36
Copper, Total Recoverable	µg/L	48	120	110	550
Dioxin-TEQ	µg/L	1.4×10^{-8}	2.8×10^{-8}	1.3×10^{-11} [4]	1.3×10^{-11} [4]
Benzo(a)Pyrene	µg/L	0.48	0.97	<0.050	<0.050
Benzo(b)Fluoranthene	µg/L	0.47	0.95	<0.020	<0.020
Bis(2-Ethylhexyl)Phthalate	µg/L	53	110	1.0	1.0
Chrysene	µg/L	0.48	0.96	<0.030	<0.030
Dibenzo(a,h)Anthracene	µg/L	0.49	0.98	<0.030	<0.030
Indeno(1,2,3-cd)Pyrene	µg/L	0.48	0.96	<0.030	<0.030
Dichlorobromomethane	µg/L	340	650	25	25
Total PAHs	µg/L	120	250	<0.030	<0.030
Ammonia Nitrogen, Total (as N)	mg/L	61	200	0.28	0.14
Acute Toxicity	% Survival	11-sample median ≥ 90 percent survival; 11-sample 90th percentile ≥ 70 percent survival		Lowest 11-sample median = 100% survival; lowest 11-sample 90th percentile = 85% survival	
Chronic Toxicity	TUc	11-sample median ≤ 10 TUc; 11-sample 90th percentile ≤ 20 TUc		Highest 11-sample median = 1.0 TUc; highest 11-sample 90th percentile = 2.0 TUc	

Unit Abbreviations:

TUc = chronic toxic units
kg/day = kilograms per day
µg/L = micrograms per liter
mg/L = milligrams per liter
MPN/100 mL = most probable number per 100 milliliters

% Survival = percent survival
lbs/day = pounds per day
s.u. = standard units

Footnotes:

[1] Instantaneous minimum and maximum.

[2] Instantaneous maximum.

[3] Running annual average.

[4] This result is calculated from an estimated detection of a single congener: octachlorodibenzo-p-dioxin (OCDD). Because the detection was estimated, the calculation results in a dioxin-TEQ concentration of zero for compliance purposes.

Table F-3. Previous Effluent Limits and Monitoring Data – Discharge Point No. 003

Parameter	Units	Effluent Limitations		Monitoring Data (7/1/11 – 4/30/16)	
		Monthly Average	Daily Maximum	Highest Monthly Average	Highest Daily Discharge
pH	s.u.	6.5 – 8.5 [1]		7.8 – 8.2 [1]	
Temperature	°F	110	--	103	109
Total Organic Carbon (TOC)	mg/L	5.0	--	1.6	2.5
Chlorine, Total Residual	mg/L	--	--	--	0.60
Copper, Total Recoverable	µg/L	6.6	11	11 [2]	14 [2]
Nickel, Total Recoverable	µg/L	12	22	20 [2]	20
Zinc, Total Recoverable	µg/L	56	95	37	37
Dioxin-TEQ	µg/L	1.4×10^{-8}	2.8×10^{-8}	6.9×10^{-9} [3]	6.9×10^{-9} [3]

Unit Abbreviations:

°F = degrees Fahrenheit
µg/L = micrograms per liter
mg/L = milligrams per liter
s.u. = standard units

Footnotes:

[1] Instantaneous minimum and maximum.

[2] These values did not violate the effluent limitations due to intake water credits.

[3] This result is calculated from estimated detections; the calculation results in a dioxin-TEQ concentration of zero for compliance purposes.

Table F-4. Previous Effluent Limits and Monitoring Data – Discharge Point No. 004

Parameter	Units	Effluent Limitations		Monitoring Data (7/1/11 – 9/30/15)	
		Monthly Average	Daily Maximum	Highest Monthly Average	Highest Daily Discharge
pH	s.u.	6.5 – 8.5 [1]		7.3 – 8.8 [1]	
Oil and Grease	mg/L	--	15	--	7.5
TOC	mg/L	--	110	--	99

Unit Abbreviations:

mg/L = milligrams per liter
s.u. = standard units

Footnote:

[1] Instantaneous minimum and maximum.

D. Compliance Summary

1. Compliance with Numeric Effluent Limits

a. Discharge Point No. 002. During the previous order term, the Discharger violated the pH, selenium, chlorine, and copper effluent limits at Discharge Point No. 002 as listed below:

Table F-5. Numeric Violations – Discharge Point No. 002

Violation Date	Limitation Violated	Units	Effluent Limit	Reported Value
7/7/2011	pH, Instantaneous Minimum	s.u.	6.0	5.9
7/2/2012	Selenium, Daily Maximum	µg/L	50	61
9/5/2012	Selenium, Daily Maximum	µg/L	50	60
5/9/2014	Chlorine, Instantaneous Maximum	mg/L	0.0	0.60
5/26/2014	Chlorine, Instantaneous Maximum	mg/L	0.0	0.20
11/24/2015	Chlorine, Instantaneous Maximum	mg/L	0.0	1.1
1/12/2016	Copper, Daily Maximum	µg/L	120	550
1/13/2016	Copper, Daily Maximum	µg/L	120	490
1/14/2016	Copper, Daily Maximum	µg/L	120	360
1/15/2016	Copper, Daily Maximum	µg/L	120	200
1/31/2016	Copper, Monthly Average	µg/L	48	109

Unit Abbreviations:

µg/L = micrograms per liter
mg/L = milligrams per liter
s.u. = standard units

The July 2011 pH violation was caused by operator error. The Discharger re-trained the operator to prevent reoccurrence.

The July 2012 selenium violation was primarily caused by an increased ratio of phenolic to non-phenolic stripped sour water influent to the Selenium Removal Plant and consequently inadequate copper sulfate dosage. The Discharger increased the copper sulfate dosage.

The September 2012 selenium violation was caused by a pH spike in the influent non-phenolic stripped sour water to the Selenium Removal Plant that reduced treatment effectiveness. The Discharger replaced the powdered activated carbon in the clarifiers and adjusted the ferric chloride and copper sulfate doses.

The May 9, 2014, chlorine violation occurred when restarting discharge after repairing the dechlorination system. The Discharger ceased discharge early in the morning to repair a dechlorination system leak. The Discharger then discovered that the dechlorination system's sodium bisulfite pump also needed repair. The repairs, therefore, took longer than anticipated. The Discharger completed restarted discharge shortly before midnight and collected the chlorine sample before midnight to comply with the previous order, which required daily monitoring. However, in doing so, the Discharger rushed its standard procedure and failed to remove all residual chlorine from the dechlorination system. The Discharger now keeps spare sodium bisulfite pump parts on hand to prevent such lengthy shutdows.

The May 26, 2014, chlorine violation was caused by an insufficient sodium bisulfite dose. The Discharger subsequently adjusted the dechlorination system.

The November 2015 chlorine violation was caused by a miscommunication among Discharger staff about when a sample should be collected after re-starting discharge. The Discharger revised and clarified its standard procedure.

The January 2016 copper violations were caused by chemicals used to clean hydrocracking units, which caused copper to desorb from powdered activated carbon at the activated sludge units. The Discharger improved its cleaning chemicals screening process by including a jar test to check cleaning chemical impact on powdered activated carbon.

b. Discharge Point No. 003. During the previous order term, the Discharger violated the chlorine effluent limit at Discharge Point No. 003 as listed below:

Table F-6. Numeric Violation – Discharge Point No. 003

Violation Date	Parameter Violated	Units	Effluent Limit	Reported Value
2/24/2015	Chlorine, Instantaneous Maximum	mg/L	0.0	0.60

Unit Abbreviations:

mg/L = milligrams per liter
% Survival = percent survival

The Discharger found no definitive cause for this violation. It was using potable water as supplemental cooling water for the Coker Vacuum Tower at the time. The Discharger has since installed a bisulfite injection dechlorination system just downstream of the Coker Vacuum Tower to prevent future chlorine violations.

c. Discharge Point No. 004. During the previous order term, the Discharger violated the pH effluent limits at Discharge Point No. 004 as listed below:

Table F-7. Numeric Violations – Discharge Point No. 004

Violation Date	Parameter Violated	Units	Effluent Limit	Reported Value
2/2/2014	pH, Instantaneous Maximum	s.u.	8.5	8.8
2/6/2014	pH, Instantaneous Maximum	s.u.	8.5	8.6

Unit Abbreviations:

s.u. = standard units

Because the February 2014 pH violations may have been caused by stormwater running over relatively new concrete (installed in mid-2013) at the Marine Terminal Complex, the Discharger accelerated monitoring to daily during storms until the pH values returned to within permit limits. The Discharger terminated accelerated monitoring after the next two samples complied with the pH limits. No further action was necessary to comply with the pH limits.

2. Enforcement of Numeric Effluent Limit Violations

In response to the violations above, the Executive Officer issued the following enforcement orders:

- Order No. R2-2012-0044 (August 13, 2012) fined the Discharger $3,000 in mandatory minimum penalties for the July 2011 pH violation and other violations that pre-date the previous order;

- Order No. R2-2014-1008 (March 3, 2014) fined the Discharger $6,000 in mandatory minimum penalties for the July 2 and September 5, 2012, selenium violations; and

- Order No. R2-2016-1002 (February 18, 2016) fined the Discharger $9,000 in mandatory minimum penalties for the February 2014 pH violations, May 2015 total residual chlorine violations, and February 2015 total residual chlorine violation.

Enforcement for the November 2015 chlorine and January 2016 copper violations is pending.

3. Reported Spills. On June 14, 2013, the Discharger spilled approximately 8 fluid ounces (5 foot by 5 foot sheen) of diesel from a pinhole leak on a lateral of a diesel line. The spill was observed at Monitoring Location R-1. The Discharger notified the Regional Water Board and investigated the cause of the spill. To prevent recurrence, the Discharger removed all small-bore piping connected to out-of-service lines and replaced the piping connected to in-service lines with thicker-walled (i.e., higher schedule) pipe for better corrosion control.

E. Planned Changes

No Facility changes are planned.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

A. Legal Authorities. This Order serves as WDRs pursuant to California Water Code article 4, chapter 4, division 7 (commencing with § 13260). This Order is also issued pursuant to Clean Water Act (CWA) section 402 and implementing regulations adopted by U.S. EPA and Water Code chapter 5.5, division 7 (commencing with § 13370). It shall serve as an NPDES permit for point source discharges from the Facility to surface waters.

B. California Environmental Quality Act. Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act, Public Resources Code division 13, chapter 3 (commencing with § 21100).

C. State and Federal Regulations, Policies, and Plans

1. Water Quality Control Plan and Sources of Drinking Water Policy. The Regional Water Board adopted the *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan), which designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters in the San Francisco Bay basin. Requirements in this Order implement the Basin Plan. In addition, this Order implements State Water Board Resolution No. 88-63, which established State policy

that all waters, with certain exceptions, are to be considered suitable or potentially suitable for municipal or domestic supply.

Discharge Point Nos. 002, 003, and 004 discharge to San Pablo Bay. Total suspended solids (TSS) levels exceed 3,000 mg/L in San Pablo Bay. Therefore, San Pablo Bay meets an exception to State Water Board Resolution No. 88-63 and does not support the municipal or domestic supply beneficial use. Beneficial uses applicable to San Pablo Bay are as follows:

Table F-8. Beneficial Uses

Discharge Point No.	Receiving Water	Beneficial Uses	
002, 003, and 004	San Pablo Bay	Industrial Service Supply (IND) Ocean, Commercial and Sport Fishing (COMM) Shellfish Harvesting (SHELL) Estuarine Habitat (EST) Fish Migration (MIGR) Preservation of Rare and Endangered Species (RARE)	Fish Spawning (SPWN) Wildlife Habitat (WILD) Water Contact Recreation (REC1) Non-Contact Water Recreation (REC2) Navigation (NAV)

2. **Sediment Quality.** The State Water Board adopted the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* on September 16, 2008, and it became effective on August 25, 2009. This plan supersedes other narrative sediment quality objectives, and establishes new sediment quality objectives and related implementation provisions for specifically defined sediments in most bays and estuaries. This Order implements the sediment quality objectives of this plan.

3. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on December 22, 1992, and amended it on May 4, 1995, and November 9, 1999. About 40 criteria in the NTR apply in California. On May 18, 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and incorporated the previously adopted NTR criteria that applied in the State. U.S. EPA amended the CTR on February 13, 2001. These rules contain water quality criteria for priority pollutants.

4. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria U.S. EPA promulgated for California through the NTR and the priority pollutant objectives the Regional Water Board established in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria U.S. EPA promulgated through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives, and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

5. **Antidegradation Policy.** Federal regulations at 40 C.F.R. section 131.12 require that state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy through State Water Board Resolution 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*, which is deemed to incorporate the federal antidegradation policy where

the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. Permitted discharges must be consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16.

6. **Anti-Backsliding Requirements.** CWA sections 402(o) and 303(d)(4) and 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limits in a reissued permit be as stringent as those in the previous order, with some exceptions in which limits may be relaxed.

D. Impaired Waters. On July 30, 2015, U.S. EPA approved a revised list of impaired waters pursuant to CWA section 303(d), which requires identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limits on point sources. Where it has not done so already, the Regional Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for listed pollutants. TMDLs establish wasteload allocations for point sources and load allocations for non-point sources and are established to achieve water quality standards.

San Pablo Bay is listed as an impaired waterbody for chlordane, DDT, dieldrin, dioxin and furan compounds, invasive species, mercury, PCBs, and selenium. On February 12, 2008, U.S. EPA approved a TMDL for mercury in San Francisco Bay. On March 29, 2010, U.S. EPA approved a TMDL for PCBs in San Francisco Bay. NPDES Permit No. CA0038849 implements the mercury and PCBs TMDLs with respect to discharges covered by this Order. On August 23, 2016, U.S. EPA approved a selenium TMDL for North San Francisco Bay, including San Pablo Bay. This Order implements the TMDL as it applies to the Discharger. As shown in Fact Sheet section IV.C.3, chlordane, DDT, or dieldrin have not been detected in Facility discharges. Facility discharges are also not a source of invasive species.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants discharged into waters of the United States. The control of pollutants discharged is established through effluent limits and other requirements in NPDES permits. There are two principal bases for effluent limits: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limits and standards; and 40 C.F.R. section 122.44(d) requires that permits include water quality-based effluent limits to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of receiving waters.

A. Discharge Prohibitions

1. **Discharge Prohibition III.A (Discharge at a location or in a manner different than described in this Order):** This prohibition is based on 40 C.F.R. section 122.21(a) and Water Code section 13260, which require the Discharger to file an application and Report of Waste Discharge before a discharge can occur. This Order prohibits discharges not described in the application and Report of Waste Discharge and subsequently in this Order.

2. **Discharge Prohibition III.B (Discharge at Discharge Point No. 002 without initial dilution of at least 35:1):** This prohibition is based on Basin Plan Discharge Prohibition 1,

which prohibits discharges that do not receive a minimum initial dilution of at least 10:1. Furthermore, this order allows a 10:1 dilution credit in the calculation of some water quality-based effluent limitations and a 35:1 dilution credit in the calculation of the ammonia water quality-based effluent limits (see Fact Sheet section IV.C.4.a). These water quality-based effluent limits would not be protective of water quality if the discharge did not actually achieve at least a 35:1 minimum initial dilution.

3. **Discharge Prohibition III.C (Bypass of untreated or partially-treated wastewater to waters of the United States):** This prohibition is based on 40 C.F.R. section 122.41(m). Bypass of untreated or partially-treated wastewater from any portion of the Facility is prohibited, except in accordance with 40 C.F.R. section 122.41(m)(2) (see Attachment D sections I.G.2 and I.G.4).

B. Basin Plan Discharge Prohibition 1

This Order allows discharge of once-through cooling water from Discharge Point No. 003 and stormwater from Discharge Point No. 004 without a minimum initial dilution of at least 10:1. Basin Plan Discharge Prohibition 1 (Basin Plan Table 4-1) prohibits the discharge of any wastewater that has particular characteristics of concern to beneficial uses at any point where the discharge does not receive an initial dilution of at least 10:1; however, Discharge Prohibition 1 does not apply to the discharges from Discharge Point Nos 003 and 004 because this prohibition is primarily intended to buffer the effects of continuous discharges and temporary treatment plant upsets or malfunctions. Furthermore, these discharges meet the requirements of Basin Plan section 4.2, which allows exceptions to Discharge Prohibition 1 when an inordinate burden would be placed on the Discharger relative to the beneficial uses protected and an equivalent level of environmental protection can be achieved by alternate means. This Order therefore grants exceptions to Discharge Prohibition 1 for the discharges from Discharge Point Nos. 003 and 004 as explained in more detail below:

1. Discharge Point No. 003

Discharge Prohibition 1 does not apply to the discharge of cooling water from Discharge Point No. 003 because the discharged wastewater is essentially identical to the receiving water and does not have particular characteristics of concern. The Discharger withdraws water from San Pablo Bay and uses it primarily to cool Crude Unit 200 (25 heat exchangers), Debutanizer Unit 215 (12 heat exchangers), and Crude Unit 267 (8 heat exchangers). The Discharger then discharges the cooling water to San Pablo Bay at a higher temperature than when withdrawn but otherwise unaltered. Providing dilution at Discharge Point No. 003 therefore would not dilute any chemical constituents in the cooling water. Occasionally, the Discharger supplements cooling water withdrawn from San Pablo Bay with potable water; however, potable water makes up less than 5 percent of the discharge in such cases. In addition, the effluent is dechlorinated in such cases, as described in Fact Sheet section II.A.2.

The discharge from Discharge Point No. 003 would qualify for an exception to Discharge Prohibition 1 if that prohibition applied. Construction of a deep-water outfall to provide dilution would be inordinately burdensome relative to the beneficial uses protected based on estimates of cost and likely project complexity (November 12, 2010, correspondence). Also, in case of a spill or upset, cooling water would be contained in the cooling water channel and the retention basin described in Fact Sheet section II.A.2, thus providing an equivalent level of environmental protection by preventing discharge.

2. Discharge Point No. 004

Discharge Prohibition 1 does not apply to the discharge of stormwater from Discharge Point No. 004 because stormwater flows are not continuous and are not subject to plant upset or malfunction. Furthermore, this discharge would qualify for an exception to Discharge Prohibition 1 if the prohibition applied. Providing for deep-water discharge to achieve an initial dilution of at least 10:1 would be impractical for a stormwater discharge and thus would constitute an inordinate burden. In addition, Provision VI.C.4.b.ii of this Order requires the Discharger to provide an equivalent level of environmental protection by developing and implementing best management practices reflecting best industry practice considering technological availability and economic practicability to comply with effluent limits and minimize pollutants in stormwater.

C. Technology-Based Effluent Limitations

1. Scope and Authority

CWA section 301(b) and 40 C.F.R. section 122.44 require that permits include conditions meeting technology-based requirements, at a minimum, and any more stringent effluent limits necessary to meet water quality standards. The CWA requires that technology-based effluent limits be established based on several levels of controls:

- Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

- Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants. The BCT standard is established after considering the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result and also the cost effectiveness of additional industrial treatment beyond BPT.

- New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limits that represent state-of-the-art treatment technology for new sources.

Where U.S. EPA has not yet developed technology-based standards for a particular industry or a particular pollutant, CWA section 402(a)(1) and 40 C.F.R. section 125.3 authorize the use of best professional judgment to derive technology-based effluent limits on a case-by-case basis. When best professional judgment is used, the permit must reflect specific factors outlined at 40 C.F.R. section 125.3.

U.S. EPA has established technology-based limits and standards for the petroleum refining industry at 40 C.F.R. section 419, "Effluent Limitations Guidelines for the Petroleum

Refining Point Source Category." Subpart B, "Cracking Subcategory," applies to Facility discharges.

2. Discharge Point No. 002

The effluent limitations guidelines established in 40 C.F.R. section 419 require that technology-based effluent limits for Discharge Point No. 002 be derived based on refinery production (total crude oil throughput) and the treatment processes used. Crude oil throughput is currently 84,000 bbls/d. Attachment F-1 presents the derivation of the production-based effluent limits based on 40 C.F.R. section 419, subpart B.

The table below lists the most stringent of the calculated BPT, BAT, and BCT limits. (NSPS limits do not apply because the Facility was constructed prior to October 18, 1982.) The table also presents the previous order's limits. The new limits are higher (less stringent) than the previous limits, which had been based on a crude oil throughput of 77,360 bbls/day. However, the Discharger can comply with the existing limits, which this Order retains to avoid backsliding.

Table F-9. Technology-Based Effluent Limits

Pollutant	Newly Calculated Effluent Limits (pounds/day)		Previous Effluent Limits (pounds/day)	
	Maximum Daily	Average Monthly	Maximum Daily	Average Monthly
BOD_5	1,800	990	1,600	910
TSS	1,200	790	1,100	730
COD	13,000	6,900	12,000	6,300
Oil and Grease	540	290	500	260
Phenolic Compounds (4AAP)	13	6.0	12	5.9
Total Ammonia, as N	1,200	540	1,100	500
Sulfide	12	5.0	11	4.8
Total Chromium	25	8.0	22	7.7
Chromium (VI)	1.6	0.70	1.4	0.63
pH	6.0 – 9.0 standard units [1]		6.0 – 9.0 standard units [1]	

Footnote:

[1] pH limits are an instantaneous minimum of 6.0 and an instantaneous maximum of 9.0.

This Order also establishes an instantaneous maximum effluent limitation for residual chlorine of 0.0 mg/L based on Basin Plan Table 4-2.

Because ballast water (e.g., cargo hold wash water) and contaminated runoff commingled with process wastewater are also discharged through Discharge Point No. 002, Tables 4b and 4c of this Order provide additional allocations that may be applied to the mass-based effluent limits in Table 4a. These additional contaminated runoff allocations are based on 40 C.F.R. sections 419.22(e)(2), 419.23(f)(2), and 419.24(e)(2). The ballast water allocations are based on 40 C.F.R. sections 419.22(c), 419.23(d), and 419.24(c). Attachment F-1 presents the derivation of the additional allocations (see Attachment F-1, Tables F-1F and F-1G).

3. Discharge Point No. 003

This Order establishes an average monthly effluent limitation for TOC of 5.0 mg/L based on 40 C.F.R. sections 419.22(d) and 419.23(e).

This Order establishes an instantaneous effluent limitation of 0.0 mg/L for total residual chlorine based on Basin Plan Table 4-2.

4. Discharge Point No. 004

The technology-based effluent limits for the stormwater outfalls are also based on 40 C.F.R. section 419, subpart B (see the derivation in Attachment F-1, Table F-1H). However, the pH limits in this Order are based on Basin Plan section 3.3.9 because the water quality-based effluent limitations are more stringent than the technology-based effluent limitations required by 40 C.F.R. section 419, subpart B. Water quality-based effluent limitations for pH, visible oil, and visible color are discussed in Fact Sheet section IV.C.4.e.

D. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

This Order contains WQBELs that implement water quality objectives that protect beneficial uses. CWA section 301(b) and 40 C.F.R. section 122.44(d) require that permits include limits more stringent than federal technology-based requirements where necessary to achieve applicable water quality standards. According to 40 C.F.R. section 122.44(d)(1)(i), permits must include effluent limits for all pollutants that are or may be discharged at levels that have a reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective, WQBELs must be established using (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting a narrative criterion, supplemented with relevant information (40 C.F.R. § 122.44[d][1][vi]). The process for determining reasonable potential and calculating WQBELs is intended to achieve applicable water quality objectives and criteria and to protect designated uses of receiving waters as specified in the Basin Plan. This Order imposes numeric effluent limits for pollutants with reasonable potential to cause or contribute to exceedances of water quality standards.

2. Beneficial Uses and Water Quality Criteria and Objectives

Fact Sheet section III.C.1 (Table F-8) identifies the receiving waters for Facility discharges and their beneficial uses. Water quality criteria and objectives to protect these beneficial uses are described below:

a. Basin Plan Objectives. The Basin Plan specifies numeric water quality objectives for 10 priority pollutants and total polynuclear aromatic hydrocarbons (PAHs), and narrative water quality objectives for toxicity, bioaccumulation, color, and oil and grease. The narrative toxicity objective (Basin Plan § 3.3.18) states, “All waters shall be maintained

free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." This Order translates the narrative toxicity objective to a numeric criterion of 1.0 chronic toxicity unit (TUc). At 1.0 TUc, there is no observable detrimental effect when the indicator organism is exposed to 100 percent effluent; therefore, 1.0 TUc is a direct translation of the narrative objective into a number. Moreover, in the Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001, March 1991) (see section 3.3.3), U.S. EPA recommends that 1.0 TUc be used as a criterion continuous concentration (typically a four-day average). The narrative bioaccumulation objective (Basin Plan§ 3.3.2) states, "Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered." The narrative color objective (Basin Plan § 3.3.4) states, "Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses." The narrative oil and grease water quality objective (Basin Plan § 3.3.7) states, "Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses."

i. Ammonia. For Central San Francisco Bay and upstream waters, Basin Plan section 3.3.20 contains water quality objectives for un-ionized ammonia of 0.025 mg/L as an annual median and 0.16 mg/L as a maximum. For this Order, these un-ionized ammonia objectives were translated to equivalent total ammonia criteria since (1) sampling and laboratory methods are unavailable to analyze for un-ionized ammonia, and (2) the fraction of total ammonia that exists in the toxic un-ionized form depends on the pH, salinity, and temperature of the receiving water. Based on receiving water data at Monitoring Location RSW-003, as described in the Monitoring and Reporting Program (MRP), the un-ionized fraction of total ammonia was calculated as follows:

For salinity > 10 ppt: fraction of $NH_3 = \frac{1}{1+10^{(pK-pH)}}$

where:

$pK = 9.245 + 0.116(I) + 0.0324\,(298 - T) + \frac{0.0415(P)}{(T)}$

I = Molal ionic strength of saltwater = $\frac{19.9273(S)}{(1{,}000 - 1.005109(S))}$

S = Salinity (parts per thousand)

T = Temperature (Kelvin)

P = Pressure (one atmosphere)

The median and 90th percentile un-ionized ammonia fractions were then used to express the daily maximum and annual average un-ionized objectives as chronic and acute total ammonia criteria. This approach is consistent with U.S. EPA guidance on translating dissolved metal water quality objectives to total recoverable metal water quality objectives (U.S. EPA, *The Metals Translator: Guidance for Calculating a Total Recoverable Limit from a Dissolved Criterion*, EPA Publication 823-B-96-007,

1996). The resulting total ammonia chronic and acute criteria are 0.94 mg/L and 4.4 mg/L as nitrogen.

ii. Dioxin-TEQ. The Basin Plan narrative water quality objective for bioaccumulative substances states, "Many pollutants can accumulate on particulates, in sediments, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered."

Because it is the consensus of the scientific community that dioxins and furans associate with particulates, accumulate in sediments, and bioaccumulate in the fatty tissue of fish and other organisms, the Basin Plan's narrative bioaccumulation water quality objective applies to these pollutants. Elevated levels of dioxins and furans in San Francisco Bay fish tissue demonstrate that the narrative bioaccumulation water quality objective is not being met. U.S. EPA has therefore placed San Pablo Bay on its 303(d)-list of receiving waters where water quality objectives are not being met after imposition of applicable technology-based requirements.

When the CTR was promulgated, U.S. EPA stated its support of the regulation of dioxin and dioxin-like compounds through the use of toxicity equivalencies (TEQs). U.S. EPA stated, "For California waters, if the discharge of dioxin or dioxin-like compounds has reasonable potential to cause or contribute to a violation of a narrative criterion, numeric water quality-based effluent limits for dioxin or dioxin-like compounds should be included in NPDES permits and should be expressed using a TEQ scheme" (Fed. Reg. Vol. 65, No. 97, pages 31695-31696, May 18, 2000). This Order uses a TEQ scheme based on a set of toxicity equivalency factors (TEFs) the World Health Organization developed in 1998, and a set of bioaccumulation equivalency factors (BEFs) U.S. EPA developed for the Great Lakes region (40 C.F.R. § 132, Appendix F) to convert the concentration of any congener of dioxin or furan into an equivalent concentration of 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD). Although the 1998 World Health Organization scheme includes TEFs for dioxin-like PCBs, they are not included in this Order's TEQ scheme. The CTR has established a specific water quality criterion for PCBs, and dioxin-like PCBs are included in the analysis of total PCBs.

The CTR establishes a numeric water quality objective for 2,3,7,8-TCDD of 1.4×10^{-8} µg/L for the protection of human health when aquatic organisms are consumed. The CTR criterion is used as a criterion for dioxin-TEQ because dioxin-TEQ represents a toxicity weighted concentration equivalent to 2,3,7,8-TCDD, thus translating the narrative bioaccumulation objective into a numeric criterion.

b. CTR Criteria. The CTR specifies numeric aquatic life and human health criteria for numerous priority pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries. Some human health criteria are for consumption of "water and organisms" and others are for consumption of "organisms only." The criteria applicable to "organisms only" apply to San Pablo Bay because they are not drinking water sources.

c. NTR Criteria. The NTR establishes numeric aquatic life and human health criteria for a number of toxic pollutants for San Francisco Bay waters upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta. The NTR criteria apply to San Pablo Bay.

d. Sediment Quality Objectives. The *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* contains a narrative water quality objective: "Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities in bays and estuaries of California." This objective is to be implemented by integrating three lines of evidence: sediment toxicity, benthic community condition, and sediment chemistry. The policy requires that if the Regional Water Board determines that a discharge has reasonable potential to cause or contribute to an exceedance of this objective, it is to impose the objective as a receiving water limit.

e. Receiving Water Salinity. Basin Plan section 4.6.2 (like the CTR and NTR) states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water are to be considered in determining applicable water quality objectives. Freshwater criteria apply to discharges to waters with salinities equal to or less than one part per thousand (ppt) at least 95 percent of the time. Saltwater criteria apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. San Pablo Bay is an estuarine environment based on salinity data generated through the Regional Monitoring Program (RMP) at the Davis Point Station (BD40) sampling station between April 1994 and August 1997 and receiving water monitoring data at Monitoring Location RSW-003, as defined in the MRP, between September 2011 and August 2015. During that period, the receiving water's minimum salinity was 0.0 ppt, its maximum salinity was 23 ppt, and its average salinity was 17 ppt. The salinity was between 1.0 and 10 ppt in 14 percent of receiving water samples. Therefore, the reasonable potential analysis and WQBELs are based on the lower of the freshwater and saltwater water quality criteria and objectives.

f. Receiving Water Hardness. Ambient hardness data were used to calculate freshwater water quality objectives that are hardness dependent. Receiving water hardness monitoring was conducted at Monitoring Location RSW-003 from September 2011 through August 2015. Hardness ranged from 3,000 to 4,375 mg/L as calcium carbonate ($CaCO_3$). All hardness values exceeded 400 mg/L as $CaCO_3$. U.S. EPA recommends using a maximum hardness of 400 mg/L as $CaCO_3$ for freshwater criteria (Fed. Reg Vol 65, No. 97, page. 31692, May 18, 2000). A hardness of 400 mg/L as $CaCO_3$ was used to calculate the water quality objectives for this Order.

g. Site-Specific Metals Translators. Effluent limits for metals must be expressed as total recoverable metal (40 C.F.R. § 122.45[c]). Since the water quality criteria for metals are typically expressed as dissolved metal, translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. The CTR contains default translators; however, site-specific conditions, such as water temperature, pH, suspended solids, and organic carbon may affect the form of metal (dissolved, non-filterable, or otherwise) present and therefore available to cause toxicity. In general, dissolved metals are more available and more toxic to aquatic life than other forms. Site-specific translators can account for site-specific conditions, thereby preventing

overly stringent or under-protective water quality objectives. This Order uses default CTR translators for all metals except copper and nickel.

For Discharge Point No. 002, this Order uses the site-specific copper translators set forth in Basin Plan Table 7.2.1-2 and the site-specific nickel translators from *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (Clean Estuary Partnership, March 2005). These translators are 0.38 and 0.66 for average monthly and maximum daily copper limits and 0.27 and 0.57 for average monthly and maximum daily nickel limits.

For Discharge Point No. 003, this Order uses site-specific copper and nickel translators from *ConocoPhillips Translator Study Report* (February 24, 2010). These translators are 0.59 and 0.84 for average monthly and maximum daily copper limits and 0.57 and 0.78 for average monthly and maximum daily nickel limits.

3. Need for Water Quality-Based Effluent Limits (Reasonable Potential Analysis)

Assessing whether a pollutant has reasonable potential to exceed a water quality objective is the fundamental step in determining whether a WQBELs is required. The reasonable potential analysis below applies to the discharges at Discharge Point Nos. 002 and 003. Discharge Point No. 004 discharges stormwater and is subject to technology-based limits as described in Fact Sheet section IV.C.4 and narrative WQBELs as set forth in Provision VI.C.4.b.These narrative requirements include implementation of best management practices in accordance with 40 C.F.R. section 122.44(k).

a. Available Data. The reasonable potential analysis for this Order is based on effluent monitoring data the Discharger collected from July 2011 through September 2015. It is also based on RMP data collected at the Yerba Buena Island station (BC10) from 1993 through 2013 and additional Bay Area Clean Water Agencies data from *San Francisco Bay Ambient Water Monitoring Interim Report* (2003) and *Ambient Water Monitoring: Final CTR Sampling Update* (2004). These latter reports contain monitoring results from 2002 and 2003 for priority pollutants the RMP did not monitor at the time. Ammonia data collected at Monitoring Location RSW-003 was used because this monitoring location is adjacent to Discharge Point No. 002 and most representative of actual receiving water conditions. Monitoring Location RSW-003 fits SIP guidance for establishing ammonia background conditions. SIP section 1.4.3 requires that background water quality data be representative of the ambient receiving water that will mix with the discharge. Because the ammonia WQBELs are based on actual dilution at the edge of the initial mixing zone, data from this station best represent the water at the edge of the initial mixing zone.

In some cases, reasonable potential cannot be determined because effluent data are limited or ambient background concentrations are unavailable. Provision VI.C.2.a of this Order requires the Discharger to continue monitoring for these constituents using analytical methods that provide the best feasible detection limits. When additional data become available, further analysis will be conducted to determine whether numeric effluent limitations are necessary.

This Order does not contain WQBELs for constituents that do not demonstrate reasonable

potential; however, Provision VI.C.2.a requires monitoring for those pollutants. If concentrations are found to have increased significantly, Provision VI.C.2.a requires the Discharger to investigate the source of the increase and implement remedial measures if the increase poses a threat to receiving water quality.

b. Methodology. For most pollutants, SIP section 1.3 sets forth the methodology used for this Order to assess whether a pollutant has reasonable potential to exceed a water quality objective. SIP section 1.3 applies to priority pollutants and is used for other pollutants in this Order as guidance. The analysis begins with identifying the maximum effluent concentration (MEC) observed for each pollutant based on available effluent concentration data and the ambient background concentration (B). SIP section 1.4.3 states that ambient background concentrations are either the maximum ambient concentration observed or, for water quality objectives intended to protect human health, the arithmetic mean of observed concentrations. There are three triggers in determining reasonable potential:

i. Trigger 1 is activated if the maximum effluent concentration is greater than or equal to the lowest applicable water quality objective (MEC $\geq$ water quality objective).

ii. Trigger 2 is activated if the ambient background concentration observed in the receiving water is greater than the water quality objective (B > water quality objective) *and* the pollutant is detected in any effluent sample.

iii. Trigger 3 is activated if a review of other information indicates that a water quality-based effluent limit is needed to protect beneficial uses.

c. Discharge Point No. 002

i. Priority Pollutants, Dioxin-TEQ, Total Polycyclic Aromatic Hydrocarbons (PAHs), and Ammonia. The maximum effluent concentrations, most stringent applicable water quality criteria and objectives, and ambient background concentrations used in this analysis are presented in the following table, along with the reasonable potential analysis results (yes or no) for each priority pollutant, dioxin-TEQ, total PAHs, and ammonia. Reasonable potential was not determined for all pollutants because there are not water quality objectives for all pollutants and monitoring data are unavailable for others. The pollutants that exhibit reasonable potential are copper, cyanide, dioxin-TEQ, heptachlor, and selenium.

Table F-10. Reasonable Potential Analysis – Discharge Point No. 002

CTR No.	Priority Pollutant	Lowest Criterion or Objective (µg/L)	MEC or Minimum DL (µg/L) [1][2]	B or Minimum DL (µg/L) [1][2]	Result [3]
1	Antimony	4,300	2.0	1.8	No
2	Arsenic	36	7.5	2.8	No
3	Beryllium	No Criteria	<0.060	0.22	U
4	Cadmium	7.3	0.72	0.13	No
5a	Chromium (III)	644	0.34	4.4	No
5b	Chromium (VI)	11	0.70	4.4	No
6	**Copper**	**10**	**45**	**2.5**	**Yes [4]**

CTR No.	Priority Pollutant	Lowest Criterion or Objective (µg/L)	MEC or Minimum DL (µg/L) [1][2]	B or Minimum DL (µg/L) [1][2]	Result [3]
7	Lead	8.5	0.11	0.80	No
8	Mercury	---	---	---	[5]
9	Nickel	14	3.8	3.7	No
10	**Selenium**	**---**	**---**	**---**	**Yes [5]**
11	Silver	2.2	<0.020	0.052	No
12	Thallium	6.3	<0.050	0.21	No
13	Zinc	86	12	5.1	No
14	**Cyanide**	**2.9**	**6.7**	**<0.40**	**Yes [4]**
15	Asbestos	No Criteria	Unavailable	Unavailable	U
16	2,3,7,8-TCDD	1.4E-08	<5.4E-08	8.2E-09	No
	Dioxin TEQ	**1.4E-08**	**1.3E-11**	**5.3E-08**	**Yes**
17	Acrolein	780	<1.7	<0.50	No
18	Acrylonitrile	0.66	<0.69	0.030	No
19	Benzene	71	<0.18	<0.050	No
20	Bromoform	360	12	<0.50	No
21	Carbon Tetrachloride	4.4	<0.16	0.060	No
22	Chlorobenzene	21,000	<0.18	<0.50	No
23	Chlorodibromomethane	34	22	<0.050	No
24	Chloroethane	No Criteria	<0.38	<0.50	U
25	2-Chloroethylvinyl Ether	No Criteria	<0.28	<0.50	U
26	Chloroform	No Criteria	18	<0.50	U
27	Dichlorobromomethane	46	25	<0.050	No
28	1,1-Dichloroethane	No Criteria	<0.19	<0.050	U
29	1,2-Dichloroethane	99	<0.18	0.040	No
30	1,1-Dichloroethylene	3.2	<0.21	<0.50	No
31	1,2-Dichloropropane	39	<0.18	<0.050	No
32	1,3-Dichloropropylene	1,700	<0.16	<0.50	No
33	Ethylbenzene	29,000	<0.26	<0.50	No
34	Methyl Bromide	4,000	<0.17	<0.50	No
35	Methyl Chloride	No Criteria	<0.23	<0.50	U
36	Methylene Chloride (Dichloromethane)	1,600	<0.20	22	No
37	1,1,2,2-Tetrachloroethane	11	<0.10	<0.050	No
38	Tetrachloroethylene	8.85	<0.19	<0.050	No
39	Toluene	200,000	<0.19	<0.30	No
40	1,2-Trans-Dichloroethylene	140,000	<0.22	<0.50	No
41	1,1,1-Trichloroethane	No Criteria	<0.19	<0.50	U
42	1,1,2-Trichloroethane	42	<0.16	<0.050	No
43	Trichloroethylene	81	<0.20	<0.50	No
44	Vinyl Chloride	525	<0.25	<0.50	No
45	Chlorophenol	400	<0.20	<1.2	No
46	2,4-Dichlorophenol	790	<0.90	<1.3	No

CTR No.	Priority Pollutant	Lowest Criterion or Objective (µg/L)	MEC or Minimum DL (µg/L) [1][2]	B or Minimum DL (µg/L) [1][2]	Result [3]
47	2,4-Dimethylphenol	2,300	<0.80	<1.3	No
48	2-Methyl-4,6-Dinitrophenol	765	<0.29	<1.2	No
49	2,4-Dinitrophenol	14,000	<0.83	<0.70	No
50	2-Nitrophenol	No Criteria	<0.80	<1.3	U
51	4-Nitrophenol	No Criteria	<0.50	<1.6	U
52	3-Methyl-4-Chlorophenol	No Criteria	<0.20	<1.1	U
53	Pentachlorophenol	5.8	<0.60	<1.0	No
54	Phenol	4,600,000	<0.49	<1.3	No
55	2,4,6-Trichlorophenol	6.5	<0.49	<1.3	No
56	Acenaphthene	2,700	<0.010	0.0019	No
57	Acenaphthylene	No Criteria	<0.020	0.0013	U
58	Anthracene	110,000	<0.010	0.00059	No
59	Benzidine	0.00054	<0.98	<0.0015	No
60	Benzo(a)Anthracene	0.049	<0.020	0.0053	No
61	Benzo(a)Pyrene	0.049	<0.010	0.0033	No
62	Benzo(b)Fluoranthene	0.049	<0.010	0.0046	No
63	Benzo(ghi)Perylene	No Criteria	<0.020	0.0045	U
64	Benzo(k)Fluoranthene	0.049	<0.010	0.0018	No
65	Bis(2-Chloroethoxy)Methane	No Criteria	<0.20	<0.30	U
66	Bis(2-Chloroethyl)Ether	1.4	<0.20	<0.00015	No
67	Bis(2-Chloroisopropyl)Ether	170,000	<0.20	Unavailable	No
68	Bis(2-Ethylhexyl)Phthalate	5.9	1.0	<0.70	No
69	4-Bromophenyl Phenyl Ether	No Criteria	<0.49	<0.23	U
70	Butylbenzyl Phthalate	5,200	<0.70	0.0056	No
71	2-Chloronaphthalene	4,300	<0.20	<0.30	No
72	4-Chlorophenyl Phenyl Ether	No Criteria	<0.20	<0.30	U
73	Chrysene	0.049	<0.010	0.0028	No
74	Dibenzo(a,h)Anthracene	0.049	<0.020	0.00064	No
75	1,2-Dichlorobenzene	17,000	<0.27	<0.30	No
76	1,3-Dichlorobenzene	2,600	<0.18	<0.30	No
77	1,4-Dichlorobenzene	2,600	<0.18	<0.30	No
78	3,3-Dichlorobenzidine	0.077	<2.0	<0.0010	No
79	Diethyl Phthalate	120,000	<0.49	<0.21	No
80	Dimethyl Phthalate	2,900,000	<0.24	<0.21	No
81	Di-n-Butyl Phthalate	12,000	<0.60	0.016	No
82	2,4-Dinitrotoluene	9.1	<0.70	<0.27	No
83	2,6-Dinitrotoluene	No Criteria	<0.80	<0.29	U
84	Di-n-Octyl Phthalate	No Criteria	<0.50	<0.38	U
85	1,2-Diphenylhydrazine	0.54	<0.20	0.0037	No
86	Fluoranthene	370	<0.030	0.011	No
87	Fluorene	14,000	0.010	0.0021	No
88	Hexachlorobenzene	0.00077	<0.49	0.000022	No

CTR No.	Priority Pollutant	Lowest Criterion or Objective (µg/L)	MEC or Minimum DL (µg/L) [1][2]	B or Minimum DL (µg/L) [1][2]	Result [3]
89	Hexachlorobutadiene	50	<0.49	<0.30	No
90	Hexachlorocyclopentadiene	17,000	<0.70	<0.30	No
91	Hexachloroethane	8.9	<0.49	<0.20	No
92	Indeno(1,2,3-cd) Pyrene	0.049	<0.020	0.0040	No
93	Isophorone	600	<0.49	<0.30	No
94	Naphthalene	No Criteria	0.18	0.013	U
95	Nitrobenzene	1,900	<0.49	<0.25	No
96	N-Nitrosodimethylamine	8.1	<0.098	<0.30	No
97	N-Nitrosodi-n-Propylamine	1.4	<0.80	<0.0010	No
98	N-Nitrosodiphenylamine	16	<0.49	<0.0010	No
99	Phenanthrene	No Criteria	<0.010	0.0095	U
100	Pyrene	11,000	<0.020	0.019	No
101	1,2,4-Trichlorobenzene	No Criteria	<0.49	<0.30	U
102	Aldrin	0.00014	<0.0014	0.0000028	No
103	alpha-BHC	0.013	<0.0024	0.00050	No
104	beta-BHC	0.046	0.038	0.00041	No
105	gamma-BHC (Lindane)	0.063	<0.0029	0.00070	No
106	delta-BHC	No Criteria	<0.0034	0.000053	U
107	Chlordane	0.00059	<0.0050	0.00018	No
108	4,4-DDT	0.00059	<0.0038	0.00017	No
109	4,4-DDE	0.00059	<0.0029	0.00069	No
110	4,4-DDD	0.00084	<0.0038	0.00031	No
111	Dieldrin	0.00014	<0.0019	0.00026	No
112	alpha-Endosulfan	0.0087	<0.0029	0.000031	No
113	beta-Endosulfan	0.0087	<0.0019	0.000069	No
114	Endosulfan Sulfate	240	<0.0029	0.000082	No
115	Endrin	0.0023	<0.0019	0.000040	No
116	Endrin Aldehyde	0.81	0.0086	Unavailable	No
117	**Heptachlor**	**0.00021**	**0.0018**	**0.000019**	**Yes**
118	Heptachlor Epoxide	0.00011	<0.0024	0.000094	No
119-125	PCBs sum	---	---	---	[5]
126	Toxaphene	0.00020	<0.20	Unavailable	No
	Total PAHs	15	<0.020	0.027	No
	Ammonia	0.94 mg/L [6]	0.28 mg/L [6]	0.19 mg/L [6]	No

Unit Abbreviations:

mg/L = milligrams per liter
µg/L = micrograms per liter

Footnotes:

[1] The maximum effluent concentration (MEC) and ambient background concentration (B) are the actual detected concentrations unless preceded by a "<" sign, in which case the value shown is the minimum detection level (DL).

[2] The maximum effluent concentration or ambient background concentration is "unavailable" when there are no monitoring data for the constituent.

[3] RPA Results = Yes, if MEC ≥ WQC, B > WQC and MEC is detected, or Trigger 3
= No, if MEC and B are < WQC or all effluent data are undetected
= U, unknown

[4] Basin Plan section 7.2.1.2 requires copper WQBELs, and Basin Plan section 4.7.2.2 requires cyanide WQBELs.

[5] SIP section 1.3 excludes from its reasonable potential analysis procedure priority pollutants for which a TMDL has been developed. TMDLs have been developed for mercury and PCBs in San Francisco Bay and selenium in North San Francisco Bay. Mercury and PCBs from wastewater discharges are regulated under NPDES Permit No. CA0038849, which implements the San Francisco Bay Mercury and PCBs TMDLs. This Order implements the North San Francisco Bay selenium TMDL by establishing mass-based selenium limits. See Fact Sheet section IV.C.4a.iii.

[6] Total ammonia units are milligrams per liter as nitrogen.

ii. Acute and Chronic Toxicity. Due to the complexity of the discharge, there is reasonable potential for it to cause or contribute to exceedance of the narrative toxicity objectives in Basin Plan section 3.3.18, which states, "There shall be no acute toxicity in ambient waters…." and "There shall be no chronic toxicity in ambient waters." Refinery discharges can contain many different combinations of potentially toxic pollutants in addition to those for which numeric water quality objectives have been established. Acute and chronic toxicity WQBELs are needed to ensure that the toxicity objective is met in San Pablo Bay. In addition, Basin Plan Table 4-3 requires acute toxicity effluent limits.

iii. Bacteria. Because this discharge includes some sanitary wastewater, there is reasonable potential for it to cause or contribute to exceedance of the Basin Plan Table 3-1 water quality objectives for total coliform and enterococcus bacteria. The total coliform objective applies because the receiving water for this discharge, San Pablo Bay, includes the SHELL beneficial use (Table F-8). The enterococcus objective applies because San Pablo Bay is an estuarine receiving water with the water contact recreation beneficial use.

iv. pH. Due to the complexity of the discharge at Discharge Point No. 002, there is a reasonable potential for this discharge to exceed the water quality objective for pH (Basin Plan § 3.3.9). However, this Order does not establish a water-quality based pH limit at Discharge Point No. 002 because the technology-based pH limit of 6.0 to 9.0 standard units (see Fact Sheet section IV.C.2) is just as stringent as the pH effluent limit established by Basin Plan Table 4-2 for deep-water discharges from all treatment facilities.

d. Discharge Point No. 003

i. Priority Pollutants, Dioxin-TEQ, total PAHs, and Ammonia. The maximum effluent concentrations, most stringent applicable water quality criteria and objectives, and ambient background concentrations used in the analysis are presented in the following tables, along with the reasonable potential analysis results (yes or no) for each priority pollutant, dioxin-TEQ, PAHs, and ammonia. Reasonable potential was not determined for all pollutants because there are not water quality objectives for all pollutants, and monitoring data are unavailable for others. The pollutants that exhibit reasonable potential at Discharge Point No. 003 are benzo(a)anthracene, chrysene, copper, cyanide, and nickel.

Table F-11. Reasonable Potential Analysis – Discharge Point No. 003

CTR No.	Priority Pollutant	Lowest Criterion or Objective (µg/L)	MEC or Minimum DL (µg/L) [1][2]	B or Minimum DL (µg/L) [1][2]	Result [3]
1	Antimony	4,300	0.26	1.8	No
2	Arsenic	36	3.5	2.8	No
3	Beryllium	No Criteria	<0.18	0.22	U
4	Cadmium	7.3	0.26	0.13	No
5a	Chromium (III)	644	4.2	4.4	No
5b	Chromium (VI)	11	4.2	4.4	No
6	**Copper**	**10**	**14**	**2.5**	**Yes [4]**
7	Lead	8.5	1.3	0.80	No
8	Mercury	---	---	---	[5]
9	**Nickel**	**14**	**20**	**3.7**	**Yes**
10	Selenium	---	---	---	[5]
11	Silver	2.2	<0.040	0.052	No
12	Thallium	6.3	<0.10	0.21	No
13	Zinc	86	37	5.1	No
14	Cyanide	2.9	<0.0020	<0.40	No [6]
15	Asbestos	No Criteria	Unavailable	Unavailable	U
16	2,3,7,8-TCDD	1.4E-08	<5.4E-02	8.2E-09	No
	Dioxin TEQ	1.4E-08	6.9E-09	5.3E-08	No [7]
17	Acrolein	780	<1.7	<0.50	No
18	Acrylonitrile	0.66	<0.69	0.030	No
19	Benzene	71	<0.18	<0.050	No
20	Bromoform	360	<0.15	<0.50	No
21	Carbon Tetrachloride	4.4	<0.16	0.060	No
22	Chlorobenzene	21,000	<0.18	<0.50	No
23	Chlorodibromomethane	34	<0.17	<0.050	No
24	Chloroethane	No Criteria	<0.38	<0.50	U
25	2-Chloroethylvinyl Ether	No Criteria	<0.28	<0.50	U
26	Chloroform	No Criteria	<0.19	<0.50	U
27	Dichlorobromomethane	46	<0.16	<0.050	No
28	1,1-Dichloroethane	No Criteria	<0.19	<0.050	U
29	1,2-Dichloroethane	99	<0.18	0.040	No
30	1,1-Dichloroethylene	3.2	<0.21	<0.50	No
31	1,2-Dichloropropane	39	<0.18	<0.050	No
32	1,3-Dichloropropylene	1,700	<0.16	<0.50	No
33	Ethylbenzene	29,000	<0.26	<0.50	No
34	Methyl Bromide	4,000	<0.17	<0.50	No
35	Methyl Chloride	No Criteria	<0.23	<0.50	U
36	Methylene Chloride (Dichloromethane)	1,600	<0.20	22	No
37	1,1,2,2-Tetrachloroethane	11	<0.10	<0.050	No

CTR No.	Priority Pollutant	Lowest Criterion or Objective (µg/L)	MEC or Minimum DL (µg/L) [1][2]	B or Minimum DL (µg/L) [1][2]	Result [3]
38	Tetrachloroethylene	8.85	<0.19	<0.050	No
39	Toluene	200,000	<0.19	<0.30	No
40	1,2-Trans-Dichloroethylene	140,000	<0.22	<0.50	No
41	1,1,1-Trichloroethane	No Criteria	<0.19	<0.50	U
42	1,1,2-Trichloroethane	42	<0.16	<0.050	No
43	Trichloroethylene	81	<0.20	<0.50	No
44	Vinyl Chloride	525	<0.25	<0.50	No
45	Chlorophenol	400	<0.19	<1.2	No
46	2,4-Dichlorophenol	790	<0.95	<1.3	No
47	2,4-Dimethylphenol	2,300	<0.87	<1.3	No
48	2-Methyl-4,6-Dinitrophenol	765	<0.28	<1.2	No
49	2,4-Dinitrophenol	14,000	<0.83	<0.70	No
50	2-Nitrophenol	No Criteria	<0.89	<1.3	U
51	4-Nitrophenol	No Criteria	<0.83	<1.6	U
52	3-Methyl-4-Chlorophenol	No Criteria	1.1	<1.1	U
53	Pentachlorophenol	5.8	<0.81	<1.0	No
54	Phenol	4,600,000	<0.47	<1.3	No
55	2,4,6-Trichlorophenol	6.5	<0.47	<1.3	No
56	Acenaphthene	2,700	<0.030	0.0019	No
57	Acenaphthylene	No Criteria	<0.030	0.0013	U
58	Anthracene	110,000	<0.030	0.00059	No
59	Benzidine	0.00054	<0.95	<0.0015	No
60	**Benzo(a)Anthracene**	**0.049**	**0.080**	**0.0053**	**Yes**
61	Benzo(a)Pyrene	0.049	<0.030	0.0033	No
62	Benzo(b)Fluoranthene	0.049	<0.030	0.0046	No
63	Benzo(ghi)Perylene	No Criteria	<0.030	0.0045	U
64	Benzo(k)Fluoranthene	0.049	<0.030	0.0018	No
65	Bis(2-Chloroethoxy)Methane	No Criteria	<0.19	<0.30	U
66	Bis(2-Chloroethyl)Ether	1.4	<0.19	<0.00015	No
67	Bis(2-Chloroisopropyl)Ether	170,000	<0.19	Unavailable	No
68	Bis(2-Ethylhexyl)Phthalate	5.9	<0.95	<0.70	No
69	4-Bromophenyl Phenyl Ether	No Criteria	<0.47	<0.23	U
70	Butylbenzyl Phthalate	5,200	<0.98	0.0056	No
71	2-Chloronaphthalene	4,300	<0.19	<0.30	No
72	4-Chlorophenyl Phenyl Ether	No Criteria	<0.19	<0.30	U
73	**Chrysene**	**0.049**	**0.10**	**0.0028**	**Yes**
74	Dibenzo(a,h)Anthracene	0.049	<0.030	0.00064	No
75	1,2-Dichlorobenzene	17,000	<0.27	<0.30	No
76	1,3-Dichlorobenzene	2,600	<0.18	<0.30	No
77	1,4-Dichlorobenzene	2,600	<0.18	<0.30	No
78	3,3-Dichlorobenzidine	0.077	<1.9	<0.0010	No

CTR No.	Priority Pollutant	Lowest Criterion or Objective (µg/L)	MEC or Minimum DL (µg/L) [1][2]	B or Minimum DL (µg/L) [1][2]	Result [3]
79	Diethyl Phthalate	120,000	<0.47	<0.21	No
80	Dimethyl Phthalate	2,900,000	<0.24	<0.21	No
81	Di-n-Butyl Phthalate	12,000	<0.91	0.016	No
82	2,4-Dinitrotoluene	9.1	<0.96	<0.27	No
83	2,6-Dinitrotoluene	No Criteria	<0.95	<0.29	U
84	Di-n-Octyl Phthalate	No Criteria	<0.92	<0.38	U
85	1,2-Diphenylhydrazine	0.54	<0.20	0.0037	No
86	Fluoranthene	370	<0.030	0.011	No
87	Fluorene	14,000	<0.030	0.0021	No
88	Hexachlorobenzene	0.00077	<0.47	0.000022	No
89	Hexachlorobutadiene	50	<0.47	<0.30	No
90	Hexachlorocyclopentadiene	17,000	<0.90	<0.30	No
91	Hexachloroethane	8.9	<0.47	<0.20	No
92	Indeno(1,2,3-cd) Pyrene	0.049	<0.030	0.0040	No
93	Isophorone	600	<0.47	<0.30	No
94	Naphthalene	No Criteria	<0.030	0.013	U
95	Nitrobenzene	1,900	<0.47	<0.25	No
96	N-Nitrosodimethylamine	8.1	<0.095	<0.30	No
97	N-Nitrosodi-n-Propylamine	1.4	<0.95	<0.0010	No
98	N-Nitrosodiphenylamine	16	<0.47	<0.0010	No
99	Phenanthrene	No Criteria	0.030	0.0095	U
100	Pyrene	11,000	<0.030	0.019	No
101	1,2,4-Trichlorobenzene	No Criteria	<0.47	<0.30	U
102	Aldrin	0.00014	<0.0014	0.0000028	No
103	alpha-BHC	0.013	<0.0024	0.00050	No
104	beta-BHC	0.046	<0.0038	0.00041	No
105	gamma-BHC (Lindane)	0.063	<0.0028	0.00070	No
106	delta-BHC	No Criteria	<0.0033	0.000053	U
107	Chlordane	0.00059	<0.0050	0.00018	No
108	4,4-DDT	0.00059	<0.0038	0.00017	No
109	4,4-DDE	0.00059	<0.0028	0.00069	No
110	4,4-DDD	0.00084	<0.0038	0.00031	No
111	Dieldrin	0.00014	<0.0019	0.00026	No
112	alpha-Endosulfan	0.0087	<0.0028	0.000031	No
113	beta-Endosulfan	0.0087	<0.0019	0.000069	No
114	Endosulfan Sulfate	240	<0.0028	0.000082	No
115	Endrin	0.0023	<0.0019	0.000040	No
116	Endrin Aldehyde	0.81	<0.0019	Unavailable	No
117	Heptachlor	0.00021	<0.0028	0.000019	No
118	Heptachlor Epoxide	0.00011	<0.0024	0.000094	No

CTR No.	Priority Pollutant	Lowest Criterion or Objective (µg/L)	MEC or Minimum DL (µg/L) [1][2]	B or Minimum DL (µg/L) [1][2]	Result [3]
119-125	PCBs sum	---	---	---	[5]
126	Toxaphene	0.00020	<0.20	Unavailable	No
	Total PAHs	15	Unavailable	0.027	No
	Ammonia	0.94 mg/L [8]	Unavailable	0.19 mg/L [8]	U

Unit Abbreviations:

mg/L = milligrams per liter
µg/L = micrograms per liter
WQC = water quality criterion

Footnotes:

[1] The maximum effluent concentration (MEC) and ambient background concentration (B) are the actual detected concentrations unless preceded by a "<" sign, in which case the value shown is the minimum detection level (DL).

[2] The maximum effluent concentration or ambient background concentration is "unavailable" when there are no monitoring data for the constituent.

[3] RPA Results = Yes, if MEC ≥ WQC, B > WQC and MEC is detected, or Trigger 3
= No, if MEC and B are < WQC or all effluent data are undetected
= U, unknown

[4] Basin Plan section 7.2.1.2 requires copper WQBELs.

[5] SIP section 1.3 excludes from its reasonable potential analysis procedure priority pollutants for which a TMDL has been developed. TMDLs have been developed for mercury and PCBs in San Francisco Bay and selenium in north San Francisco Bay. Mercury and PCBs from wastewater discharges are regulated under NPDES Permit No. CA0038849, which implements the San Francisco Bay Mercury and PCBs TMDLs. The North San Francisco Bay selenium TMDL does not apply to once-through cooling water discharges because they do not contribute a net load to North San Francisco Bay.

[6] Basin Plan section 4.7.2.2 does not require cyanide effluent limits when cyanide is not detected in an industrial discharger's effluent, using a method detection limit of 1.0 µg/L; the discharger does not disinfect any portion of its effluent; and does not use cyanide in its industrial process. The Discharger did not detect cyanide in its once-through cooling process at a detection limit less than 1.0 µg/L; does not disinfect once-through cooling effluent; and does not use cyanide in its once-through cooling process.

[7] Effluent from Discharge Point No. 003 does not have reasonable potential to cause or contribute to an exceedance of the narrative bioaccumulation water quality objective with respect to dioxins and furans, and thus an effluent limitation for Dioxin-TEQ is not required. Effluent discharged through Discharge Point No. 003 is comprised almost entirely of once-through non-contact cooling water. Less than two percent of the flow is comprised of small volume waste streams consisting of neutralized demineralizer water and non-process area stormwater. The contributing small volume waste streams are not anticipated to be sources of dioxins and furans, and the non-contact cooling water operations are not anticipated to be sources of dioxins and furans to the intake water.

[8] Total ammonia units are milligrams per liter as nitrogen.

ii. Acute and Chronic Toxicity. There is no reasonable potential for the discharge from Discharge Point No. 003 to cause or contribute to an exceedance of the narrative acute and chronic toxicity water quality objectives (Basin Plan § 3.3.18). The Discharger does not alter once-through cooling water in a way that could make it more acutely or chronically toxic than when taken in from San Pablo Bay.

iii. Bacteria. There is no reasonable potential for the discharge from Discharge Point No. 003 to cause or contribute to an exceedance of the Basin Plan Table 3-1 water quality objectives for total coliform or enterococcus bacteria because there is no sanitary wastewater component to this discharge.

iv. pH. Because the discharge from Discharge Point No. 003 includes stormwater from areas described in Fact Sheet section II.A.2 during storm events and a small amount of demineralizer water, there is a reasonable potential for it to cause or contribute to

an exceedance of the pH water quality objective established by Basin Plan section 3.3.9 of a range from 6.5 to 8.5 standard units.

v. Temperature. The State's Thermal Plan requires existing dischargers to enclosed bays to comply with limitations necessary to ensure protection of beneficial uses. This discharge of elevated temperature wastewater is subject to Thermal Plan requirements and thus has a reasonable potential to cause or contribute to an impact on beneficial uses.

e. Discharge Point No. 004. Discharge Point No. 004 discharges stormwater from the Marine Terminal complex, an area of refinery operations including transfer of crude oil and refined products. As such, stormwater discharged at Discharge Point No. 004 has a reasonable potential to cause or contribute to an exceedance of the narrative water quality objectives for color (Basin Plan § 3.3.4) and oil and grease (Basin Plan § 3.3.6), and the pH water quality objective of a range from 6.5 to 8.5 standard units (Basin Plan § 3.3.9). However, the discharge has no reasonable potential to cause or contribute to an exceedance of the water quality objectives for total coliform or enterococcus bacteria (Basin Plan Table 3-1) because there is no sanitary wastewater component to this discharge. Stormwater discharges could contain pollutants that may cause or contribute to exceedances of other narrative and numeric water quality objectives; therefore Provision VI.C.4.b requires a Stormwater Pollution Prevention Plan and Best Management Practices as described in Fact Sheet section VI.C.4.b.

f. Sediment Quality. Pollutants in some receiving water sediments may be present in quantities that alone or in combination are toxic to benthic communities. Efforts are underway to identify stressors causing such conditions. However, to date there is no evidence directly linking compromised sediment conditions to the discharges subject to this Order; therefore, the Regional Water Board cannot draw a conclusion about reasonable potential for these discharges to cause or contribute to exceedances of the sediment quality objectives. Nevertheless, the Discharger continues to participate in the RMP, which monitors San Francisco Bay sediment and seeks to identify stressors responsible for degraded sediment quality. Thus far, the monitoring has provided only limited information about potential stressors and sediment transport. The Regional Water Board is exploring options for obtaining additional information that may inform future analyses.

4. Water Quality-Based Effluent Limitations

WQBELs were developed for the pollutants determined to have reasonable potential to cause or contribute to exceedances of water quality objectives. The WQBELs are based on the procedures specified in SIP section 1.4 and 40 C.F.R. section 122.44(k).

a. Discharge Point No. 002

i. Dilution Credits. SIP section 1.4.2 allows dilution credits under certain circumstances. The outfall at Discharge Point No. 002 is designed to achieve a minimum initial dilution ratio of at least 10:1. In compliance with Provision VI.C.2.g of the previous order, the Discharger submitted a dilution study titled *Diffuser Dilution Study in Support of NPDES Permit Renewal* (Exponent, December 11, 2015)

that evaluated dilution using U.S. EPA's modeling software, *Visual Plumes UM3*. The diffuser characteristics include a diffuser length of 144 feet, a mean low low water depth of 20 feet, 6 pairs of opposing ports (12 ports) 24 feet apart, and a port diameter of 4 inches. The Discharger evaluated various effluent discharge flow rates, including mean, design maximum, and actual maximum effluent flows. The most conservative effluent flow (i.e., resulting in the lowest dilution) was a mean flow of 2.6 MGD. The study evaluated the average receiving water characteristics for each calendar season and assumed slack tide conditions. Fall receiving water conditions appear to be the most conservative based on the modeling results. The study concluded that the actual minimum initial dilution at Discharge Point No. 002 is at least 35:1.

(a) Bioaccumulative Pollutants. For certain bioaccumulative pollutants, dilution credit is denied. Specifically, these pollutants include dioxin and furan compounds, which appear on the CWA section 303(d) list for San Pablo Bay because, based on available data on the concentrations of these pollutants in aquatic organisms, sediment, and the water column, they impair San Pablo Bay's beneficial uses. Tissue samples taken from San Francisco Bay fish show the presence of these pollutants at concentrations greater than screening levels (*Contaminant Concentrations in Fish from San Francisco Bay*, May 1997). The results of a 1994 San Francisco Bay pilot study, presented in *Contaminated Levels in Fish Tissue from San Francisco Bay* (Regional Water Board, 1994) also show elevated levels of contaminants in fish tissues. The Office of Environmental Health and Hazard Assessment completed a preliminary review of the data in the 1994 report and, in December 1994, issued an interim consumption advisory covering certain fish species in San Francisco Bay due to the levels of these pollutants. The Office of Environmental Health and Hazard Assessment updated this advisory in a May 2011 report, *Health Advisory and Safe Eating Guidelines for San Francisco Bay Fish and Shellfish*, which still suggests insufficient assimilative capacity in San Francisco Bay for dioxins and furans.

(b) Ammonia For ammonia, a conservative estimate of actual initial dilution of 35:1 (D = 34) was used to calculate effluent limitations. This is justified because ammonia, a non-persistent pollutant, quickly disperses and degrades to a non-toxic state, and cumulative toxicity is unlikely.

(c) Other Non-Bioaccumulative Pollutants. This Order grants a conservative dilution credit of 10:1 (D = 9) for other non-bioaccumulative pollutants, including chronic toxicity. This dilution credit is based, in part, on Basin Plan Prohibition 1 (Table 4-1), which prohibits discharges with less than 10:1 dilution. SIP section 1.4.2 allows for limiting the dilution credit. The dilution credit is limited for the following reasons:

(1) San Francisco Bay is a complex estuarine system with highly variable and seasonal upstream freshwater inflows and diurnal tidal saltwater inputs. SIP section 1.4.3 allows background conditions to be determined on a discharge-by-discharge or water body-by-water body basis. A water body-by-water body approach is taken here due to inherent uncertainties in characterizing ambient

background conditions in a complex estuarine system on a discharge-by-discharge basis.

(2) Because of the complex hydrology of San Francisco Bay, there are uncertainties in accurately determining an appropriate mixing zone. The models used to predict dilution do not consider the three dimensional nature of San Francisco Bay currents resulting from the interaction of tidal flushes and seasonal fresh water outflows. Being heavier and colder than fresh water, ocean salt water enters San Francisco Bay on a twice-daily tidal cycle, generally beneath the warmer fresh water that flows seaward. When these waters mix and interact, complex circulation patterns occur due to the varying densities of the fresh and ocean waters. The complex patterns occur throughout San Francisco Bay but are most prevalent in San Pablo Bay, Carquinez Strait, and Suisun Bay. The locations of this mixing and interaction change, depending on the strength of each tide. Additionally, sediment loads from the Central Valley change on a long-term basis, affecting the depth of different parts of San Francisco Bay, resulting in alteration of flow patterns, mixing, and dilution at the outfall.

ii. Calculations. Average monthly effluent limits (AMELs) and maximum daily effluent limits (MDELs) were calculated for pollutants with reasonable potential as shown below. The table below includes calculations for chromium (VI) and total ammonia effluent limits, but this Order does not impose these limits because the technology-based effluent limits for these pollutants, discussed in Fact Sheet section IV.C.2, are more stringent:

Table F-12. Water Quality-Based Effluent Limit Calculations – Discharge Point No. 002

POLLUTANTS	Cyanide	Copper	Chromium (VI)	Dioxin TEQ	Heptachlor	Total Ammonia (acute)	Total Ammonia (chronic)
Units	**µg/L**	**µg/L**	**µg/L**	**mg/L N**	**µg/L**	**mg/L N**	**µg/L**
Basis and Criteria type	Basin Plan SSO	Basin Plan SSO	CTR Freshwater Criteria	CTR HH	CTR HH	Basin Plan Aquatic Life	Basin Plan Narrative
Criteria –Acute	-----	-----	16	-----	0.053	4.4	-----
Criteria -Chronic	-----	-----	11	-----	0.0036	-----	0.94
SSO Criteria-Acute	9.4	9.4	-----	-----	-----	-----	-----
SSO Criteria -Chronic	2.9	6.0	-----	-----	-----	-----	-----
Water Effects ratio (WER)	1	1	1	1	1	1	1
Lowest WQO	2.9	6.0	11	1.4E-08	0.00021	4.4	0.94
Site Specific Translator – MDEL	-----	0.66	-----	-----	-----	-----	-----
Site Specific Translator – AMEL	-----	0.38	-----	-----	-----	-----	-----
Dilution Factor (D) (if applicable)	9	9	9	0	9	34	34
No. of samples per month	4	4	4	4	4	4	30 [1]

POLLUTANTS	Cyanide	Copper	Chromium (VI)	Dioxin TEQ	Heptachlor	Total Ammonia (acute)	Total Ammonia (chronic)
Units	**µg/L**	**µg/L**	**µg/L**	**mg/L N**	**µg/L**	**mg/L N**	**µg/L**
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	N	Y	Y	Y
HH criteria analysis required? (Y/N)	Y	N	N	Y	Y	N	N
Applicable Acute WQO	9.4	14	16	-----	0.053	4.4	-----
Applicable Chronic WQO	2.9	16	11	-----	0.0036	-----	0.94
HH criteria	2.2E+05	-----	-----	1.4E-08	0.00021	-----	-----
Background (Maximum Conc for Aquatic Life calc)	0.40	2.6	4.4	-----	0.000019	0.19	0.073
Background (Average Conc for Human Health calc)	0.40	-----	-----	5.3E-08	0.000019	-----	-----
Is the pollutant on the 303d list and/or bioaccumulative (Y/N)?	N	N	N	Y	N	N	N
ECA acute	90	120	123	-----	0.50	148	-----
ECA chronic	25	135	75	-----	0.0036	-----	31
ECA HH	2.2E+06	-----	-----	1.4E-08	0.0019	-----	-----
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	Y	N	N	Y	Y	N	N
Average of effluent data points	2.2	12	0.33	1.9E-12	0.0056	0.049	0.049
Std. Dev. Of effluent data points	3.0	8.5	0.15	4.5E-12	0.0069	0.051	0.051
CV calculated	N/A	0.70	0.45	N/A	N/A	1.0	1.0
CV selected	0.60	0.70	0.45	0.60	0.60	1.0	1.0
ECA acute mult99	0.32	0.28	0.41	-----	0.32	0.20	0.20
ECA chronic mult99	0.53	0.48	0.61	-----	0.53	0.37	0.88
LTA acute	29	34	50	-----	0.02	30	-----
LTA chronic	13	65	46	-----	0.019	-----	27
Minimum of LTAs	13.4	34	46	-----	0.019	31	27
AMEL mult95	1.6	1.7	1.4	1.6E+00	1.6	2.0	1.3
MDEL mult99	3.1	3.6	2.5	3.1E+00	3.1	5.0	5.0
AMEL (aquatic life)	21	55	64	-----	0.030	58	36
MDEL (aquatic life)	42	119	113	-----	0.060	148	135
MDEL/AMEL Multiplier	2.0	2.2	1.8	2.0	2.0	2.5	3.8

POLLUTANTS	Cyanide	Copper	Chromium (VI)	Dioxin TEQ	Heptachlor	Total Ammonia (acute)	Total Ammonia (chronic)
Units	**µg/L**	**µg/L**	**µg/L**	**mg/L N**	**µg/L**	**mg/L N**	**µg/L**
AMEL (human health)	2.2.E+06	-----	-----	1.4.E-08	0.0019	-----	-----
MDEL (human health)	4.4.E+06	-----	-----	2.8.E-08	0.0039	-----	-----
Min. of AMEL for Aq. life vs HH	21	55	64	1.4E-08	0.0019	58	36
Min. of MDEL for Aq. Life vs HH	42	119	113	2.8E-08	0.0039	148	135
Previous order AMEL	-----	48	-----	1.4E-08	-----	61	61
Previous order MDEL	-----	120	-----	2.8E-08	-----	200	200
Final limit - AMEL	21	48	64	1.4E-08	0.0019	58	36
Final limit - MDEL	42	120	110	2.8E-08	0.0039	150	140

Footnote:

[1] The chronic un-ionized ammonia objective is expressed as a 365-day median. Therefore, the total ammonia water quality-based effluent limit is calculated assuming a sampling frequency of 30 times per month, rather than the typical four times per month. This statistical adjustment is supported by U.S. EPA's *Water Quality Criteria; Notice of Availability; 1999 Update of Ambient Water Quality Criteria for Ammonia*, published December 22, 1999, in the Federal Register.

iii. Selenium Mass Discharge Limit. The selenium mass discharge limit (monthly average of 0.47 kg/day) is based on Basin Plan section 7.2.4.5. The selenium mass discharge limit was calculated as the 95th percentile of the daily selenium loads based on representative effluent data from 2000 through 2012.

iv. Bacteria. The total coliform and enterococcus bacteria effluent limits are based on Basin Plan Table 4-2A, which requires total coliform effluent limits for discharges of treated sewage to receiving waters with the shellfish harvesting (SHELL) beneficial use and an enterococcus limit for discharges of treated sewage to receiving waters with the water contact recreation beneficial use (REC-1). San Pablo Bay has both the SHELL and REC-1 beneficial uses (Table F-8).

Basin Plan Table 4-2A lists the 30-day geometric mean enterococcus bacteria limit of 35 most probable number per 100 milliliters (MPN/100 mL) based on Basin Plan Table 3-1 and the U.S. EPA criterion established at 40 C.F.R. section 131.41. Basin Plan section 4.5.5.1 states that this effluent limitation may be adjusted to account for dilution in a manner consistent with SIP procedures. This Order grants a conservative initial dilution of 10:1 (D = 9) to calculate the enterococcus effluent limit (see Fact Sheet section IV.D.4.a.i[c]). To establish background conditions, the Discharger collected 12 receiving water samples for enterococcus at Monitoring Location RSW-002 from September 2015 through February 2016. The geometric mean of these samples was 25 MPN/100 mL (with three non-detect results estimated as the method detection limit of 1.0 MPN/100 mL).

The enterococcus effluent limitations were calculated, as specified in SIP section 1.4, using the following equation:

ECA = C + D (C – B)

where:

ECA = Effluent Concentration Allowance, or the effluent limit
C = water quality objective (35 MPN/100 mL)
D = dilution factor (D = 9)
B = background concentration (25 MPN/100 mL).

This calculation results in a five-sample geometric mean enterococcus effluent limitation of 130 MPN/100 mL.

v. Acute Toxicity. This Order includes whole effluent acute toxicity limits based on Basin Plan Table 4-3. All bioassays are to be performed according to the U.S. EPA approved method in 40 C.F.R. part 136, currently *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 5th Edition (EPA-821-R-02-012). The test species specified in the MRP is rainbow trout (*Onchorhynchus mykiss*).

Based on Basin Plan section 3.3.20, if the Discharger can demonstrate that ammonia causes acute toxicity in excess of the acute toxicity limitations in this Order, and that the ammonia in the discharge complies with the ammonia effluent limits, then such toxicity does not constitute a violation of the effluent limitations for acute toxicity.

vi. Chronic Toxicity. Based on the chronic toxicity criterion of 1.0 TUc and a dilution credit of 10:1 (D = 9), this Order establishes a single-sample WQBEL of 10 TUc, which is more stringent than the WQBELs in the previous order (an 11-sample median of 10 TUc and an 11-sample 90th percentile of 20 TUc). Therefore, the new toxicity limit is consistent with anti-backsliding requirements.

vii. Effluent Limitation Adjustments for Recycled Water Use. Provision IV.A.7 provides a process for the Discharger to obtain effluent limit credits for recycled water use in its processes (this provision does not apply to treated wastewater used onsite for landscape irrigation). This Provision is included to encourage wastewater recycling, consistent with Basin Plan section 4.16 and State Water Board Resolution Nos. 77-1 and 2009-0011, by accounting for increased pollutant concentrations that may result from recycled water use.

b. Discharge Point No. 003

i. Dilution Credit. Pursuant to SIP section 1.4.2.1, "Dilution credit may be limited or denied on a pollutant-by-pollutant basis…." Due to the near-shore location of Discharge Point No. 003 and it being a surface discharge rather than a deep-water discharge, no dilution credit is provided.

ii. Calculations. AMELs and MDELs were calculated for pollutants with reasonable potential as shown below:

Table F-13. Water Quality-Based Effluent Limit Calculations – Discharge Point No. 003

POLLUTANTS	Benzo(a) anthracene	Chrysene	Copper	Nickel
Units	**µg/L**	**µg/L**	**µg/L**	**µg/L**
Basis and Criteria type	CTR Aquatic Criteria	CTR HH	CTR Aquatic Criteria	CTR Aquatic Criteria
Criteria – Acute	-----	-----	-----	74
Criteria – Chronic	-----	-----	-----	8.2
SSO Criteria – Acute	-----	-----	3.9	-----
SSO Criteria – Chronic	-----	-----	2.5	-----
Water Effects ratio (WER)	1	1	2.4	1
Lowest WQO	0.049	0.049	2.5	8.2
Site Specific Translator – MDEL	-----	-----	0.84	0.78
Site Specific Translator – AMEL	-----	-----	0.59	0.57
Dilution Factor (D) (if applicable)	0	0	0	0
No. of samples per month	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	N	N	Y	Y
HH criteria analysis required? (Y/N)	Y	Y	N	Y
Applicable Acute WQO	-----	-----	11	95
Applicable Chronic WQO	-----	-----	10	14
HH criteria	4.9E-02	4.9E-02	-----	4.6E+03
Background (Maximum Conc for Aquatic Life calc)	-----	-----	2.5	3.7
Background (Average Conc for Human Health calc)	0.0050	0.0028	-----	3.7
Is the pollutant on the 303d list and/or bioaccumulative (Y/N)?	N	N	N	N
ECA acute	-----	-----	11	95
ECA chronic	-----	-----	10	14
ECA HH	4.9E-02	4.9E-02	-----	4.6E+03
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	Y	Y	N	N
Average of effluent data points	0.50	0.076	4.4	5.4
Std. Dev. of effluent data points	0.52	0.041	2.1	3.0
CV calculated	N/A	N/A	0.49	0.56
CV selected – Final	0.60	0.60	0.49	0.56
ECA acute mult99	-----	-----	0.38	0.34
ECA chronic mult99	-----	-----	0.59	0.55
LTA acute	-----	-----	4.2	32
LTA chronic	-----	-----	6.0	7.9
Minimum of LTAs	-----	-----	4.2	7.9

POLLUTANTS	Benzo(a) anthracene	Chrysene	Copper	Nickel
Units	µg/L	µg/L	µg/L	µg/L
AMEL mult95	1.6	1.6	1.4	1.5
MDEL mult99	3.1	3.1	2.6	2.9
AMEL (aquatic life)	-----	-----	6.1	12
MDEL (aquatic life)	-----	-----	11	23
MDEL/AMEL Multiplier	2.0	2.0	1.8	1.9
AMEL (human health)	4.9E-02	4.9E-02	-----	4.6E+03
MDEL (human health)	9.8E-02	9.8E-02	-----	8.9E+03
Min. of AMEL for Aq. life vs HH	4.9E-02	0.049	6.1	12
Min. of MDEL for Aq. Life vs HH	9.8E-02	0.098	11	23
Previous order AMEL	-----	-----	6.6	12
Previous order MDEL	-----	-----	11	22
Final limit – AMEL	0.049	0.049	6.1	12
Final limit – MDEL	0.098	0.098	11	22

The previous order allowed intake water credits for copper and nickel under SIP section 1.4.4. This Order denies them because intake water concentrations of copper and nickel do not meet all of the SIP criteria. Specifically, intake water copper and nickel concentrations (Monitoring Location INF-001) over the term of the previous order did not exceed the translated copper and nickel water quality objectives:

Table F-14. Intake Water Concentrations (Monitoring Location INF-001)

Pollutant	Lowest Applicable Water Quality Objective (µg/L)	Maximum Intake Water Concentration (µg/L)
Copper	**10**	**8.8**
Nickel	**14**	**11**

However, if intake water concentrations of copper or nickel are detected above the copper and nickel water quality objectives, the Discharger may qualify for intake water credits. Table 5b, Footnote 1, allows the Discharger to demonstrate that it qualifies for intake water credits under SIP section 1.4.4 if influent copper or nickel exceed the water quality objectives and effluent copper or nickel exceed the effluent limits.

iii. pH. This Order includes pH effluent limitations (minimum 6.5 and maximum 8.5) based on Basin Plan section 3.3.9. These pH limits are more stringent than the technology-based effluent limitations required by 40 C.F.R. section 419, subpart B.

iv. **Temperature.** Based on the findings of the studies discussed below, this Order retains the temperature limitation from the previous order (a monthly average of 110 degrees Fahrenheit [°F]) to maintain existing performance, which appears to protect beneficial uses. The State's Thermal Plan requires existing dischargers to enclosed bays to comply with limitations necessary to ensure protection of beneficial uses. The Discharger's *Thermal Plume Studies Final Report* (EA Engineering, Science, and Technology, February 1, 2001) concluded that its elevated-temperature discharge from Discharge Point No. 003, as permitted, did not adversely affect the beneficial uses of San Pablo Bay. A followup study required by the previous order (*Phase II Thermal Plume Study 2012 – 2013*, Tenera Environmental, September 24, 2013) evaluated the impact of the discharge, subject to the 110°F effluent limit, on Chinook salmon and steelhead at known resting sites. That study concluded that temperature differences between control sites and resting sites were slight, on average only 0.28 F, and that the discharge is unlikely to negatively affect resting habitat for salmonids if the Discharger complies with the existing effluent limit.

c. **Discharge Point No. 004.** In accordance with 40 C.F.R. section 122.44(k), implementation of best management practices serves as narrative WQBELs for Discharge Point No. 004. Provision VI.C.4.b requires best management practices through the preparation and implementation of a Stormwater Pollution Prevention Plan. This Order also retains the previous order's narrative stormwater limits (no visible color or oil) based on Basin Plan sections 3.3.4 and 3.3.7 and numeric pH limits of 6.5 (minimum) to 8.5 (maximum) based on Basin Plan section 3.3.9. The Basin Plan's pH limits are more stringent than the technology-based effluent limitations required by 40 C.F.R. section 419, subpart B.

E. Discharge Requirement Considerations

1. **Anti-backsliding.** This Order complies with the anti-backsliding provisions of CWA sections 402(o) and 303(d)(4) and 40 C.F.R. section 122.44(l), which generally require effluent limits in a reissued permit to be as stringent as those in the previous order. The requirements of this Order are at least as stringent as those in the previous order. However, this Order does not retain the previous order's WQBELs at Discharge Point No. 002 for benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, dichlorobromomethane, and total PAHs because these pollutants do not demonstrate reasonable potential to cause or contribute to an exceedance of the water quality objectives at Discharge Point No. 002. Additionally, this Order does not retain the previous order's WQBELs at Discharge Point No. 003 for zinc and dioxin-TEQ because these pollutants do not demonstrate reasonable potential to cause or contribute to an exceedance of the water quality objectives at Discharge Point No. 003. Eliminating those limits is consistent with State Water Board Order No. WQ 2001-16.

   This Order does not retain the previous order's water quality-based effluent limits for selenium at Discharge Point No. 002 because it implements a new limit based on the recently established North San Francisco Bay Selenium TMDL (Basin Plan § 7.2.4). The wasteload allocation for Phillips 66 caps the refinery's discharge at its current load. Therefore, this Order does not authorize backsliding.

2. **Antidegradation.** This Order complies with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16. It continues the status quo with respect to the level of discharge authorized in the previous order, which is the baseline by which to measure whether degradation will occur. This Order does not allow for a flow increase, a reduced level of treatment, or higher effluent limits relative to those in the previous order. The new selenium limits are based on the recently established North San Francisco Bay Selenium TMDL (Basin Plan § 7.2.4), which was adopted in accordance with antidegradation policies.

3. **Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based and WQBELs for individual pollutants. This Order's technology-based requirements implement minimum, applicable federal technology-based requirements. In addition, this Order contains more stringent effluent limits as necessary to meet water quality standards. Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement CWA requirements.

   This Order's WQBELs implement water quality objectives that protect beneficial uses. The beneficial uses and water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 C.F.R. section 131.38. The procedures for calculating these WQBELs are based on the CTR, as implemented in accordance with the SIP, which U.S. EPA approved on May 18, 2000. U.S. EPA approved most Basin Plan beneficial uses and water quality objectives prior to May 30, 2000. Beneficial uses and water quality objectives submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 C.F.R. section 131.21(c)(1). U.S. EPA approved the remaining beneficial uses and water quality objectives so they are applicable water quality standards pursuant to 40 C.F.R. section 131.21(c)(2).

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

The receiving water limits in sections V.A and V.B of this Order are based on Basin Plan narrative and numeric water quality objectives. The receiving water limit in section V.C of this Order requires compliance with federal and State water quality standards in accordance with the CWA and regulations adopted thereunder.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Attachment D contains standard provisions that apply to all NPDES permits in accordance with 40 C.F.R. section 122.41 and additional conditions applicable to specific categories of permits in accordance with 40 C.F.R. section 122.42. The Discharger must comply with these provisions. The conditions set forth in 40 C.F.R. sections 122.41(a)(1) and (b) through (n) apply to all state-issued NPDES permits and must be incorporated into the permits either expressly or by reference.

In accordance with 40 C.F.R. section 123.25(a)(12), states may omit or modify conditions to impose more stringent requirements. Attachment G contains standard provisions that supplement

the federal standard provisions in Attachment D. This Order omits federal conditions that address enforcement authority specified in 40 C.F.R. sections 122.41(j)(5) and (k)(2) because the State's enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates Water Code section 13387(e) by reference.

B. Monitoring and Reporting Provisions

CWA section 308 and 40 C.F.R. sections 122.41(h), 122.41(j) - (l), 122.44(i), and 122.48 require that NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the Regional Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The MRP (Attachment E) establishes monitoring, reporting, and recordkeeping requirements that implement federal and State requirements.

C. Special Provisions

1. Reopener Provisions

These provisions are based on 40 C.F.R. sections 122.62 and 122.63 and allow modification of this Order and its effluent limits as necessary in response to updated water quality objectives, regulations, or other new and relevant information that may become available in the future, and other circumstances as allowed by law.

2. Effluent Characterization Study and Report

This Order does not include effluent limits for priority pollutants that do not demonstrate reasonable potential, but this provision requires the Discharger to continue monitoring for these pollutants as described in the MRP and Attachment G. Monitoring data are necessary to verify that the "no" and "unknown" reasonable potential analysis conclusions of this Order remain valid. This requirement is authorized pursuant to Water Code section 13267 and is necessary to inform the next permit reissuance and to ensure that the Discharger takes timely steps in response to any unanticipated change in effluent quality during the term of this Order.

3. Pollutant Minimization Program

This provision is based on Basin Plan section 4.13.2 and SIP section 2.4.5.

4. Other Special Provisions

a. Once-Through Cooling Water Intake Structure. To demonstrate that the submerged cylindrical wedgewire screens installed on the once-through cooling water intake structure comply with Clean Water Act section 316(b) requirements, the Discharger submitted a *Technology Installation and Operation Plan* (Tenera Environmental, February 2006) documenting the wedgewire screens' effectiveness, compliance with U.S. EPA performance standards, and installation in accordance with the manufacturer's requirements. The configuration of the wedgewire screens is estimated to virtually eliminate impingement of adult and juvenile fishes (and macroinvertebrates) and significantly reduce the entrainment of larval fishes. The screens were installed with an orientation that maximizes their performance with respect to tidal and Delta outflow as

well as local current patterns at the intake structure. The location of the intake structure provides effective sweeping flow velocities that, combined with the low through-screen velocities at maximum pumping rates, minimize entrainment of larval fishes and invertebrates.

The Discharger maintains and uses a Maintenance Procedure Manual for the intake structure consisting of:

- Supervisor's, Maintenance, and Operator's Logs for direction, record-keeping, and trouble-shooting purposes;
- Standard Operating Procedures; and
- Electronic recordkeeping (SAP) of scheduled maintenance activities at the intake structure that are updated as needed.

This Order requires the Discharger to continue to operate, maintain, and inspect the intake structure in accordance with its Maintenance Procedure Manual. Further, this Order requires an annual report certifying proper operating and maintenance of the once-through cooling water intake structure, identifying any operational problems or necessary changes to the Maintenance Procedure Manual, and identifying work planned or completed that is beyond routine maintenance. The Discharger is to submit this annual status report annually with its annual self-monitoring report. This requirement is to ensure compliance with Clean Water Act section 316(b) and 40 C.F.R. section 125.94, subsections (a) and (c)(2).

b. Stormwater Requirements

i. Stormwater Pollution Prevention Plan. This provision is based on Basin Plan section 4.8 and is consistent with the requirements of *General Permit for Storm Water Discharges Associated with Industrial Activities* (State Water Board Order No. 2014-0057-DWQ) and U.S. EPA's NPDES *Stormwater Multi-Sector General Permit for Industrial Activities* (Federal Register Volume 65, Number 210, October 30, 2000).

ii. Best Management Practices Plan. This provision is based on U.S. EPA regulations at 40 C.F.R. section 122.44(k), which refer to U.S. EPA's *Guidance Manual for Developing Best Management Practices (BMPs)* (October 1993, EPA 833-B-93-004). The Discharger bases its BMPs on its *Best Management Practices Manual*, which it incorporates by reference into its Stormwater Pollution Prevention Plan.

iii. Annual Stormwater Report. This provision is necessary to evaluate the Discharger's compliance with the above stormwater requirements.

c. Conditions for Recycled Water Use Adjustments. This provision protects beneficial uses identified in the Basin Plan by requiring the Discharger to ensure that recycled water use adjustments, if any are applied, will not cause toxicity. This provision does not authorize any increase in pollutant mass to the receiving water. It authorizes recycling of treated wastewater that could otherwise be discharged to the receiving water without further treatment.

d. Average Annual Selenium Load. This provision is based on Basin Plan section 7.2.4.5. The information will be used to confirm whether selenium loads are consistent with wasteload allocations.

e. Copper Action Plan. This provision is based on Basin Plan section 7.2.1.2 and is necessary to ensure that use of copper site-specific objectives is consistent with antidegradation policies. The Basin Plan requires a copper action plan to ensure compliance with State and federal antidegradation policies when copper limits are based on the site-specific objectives. Data compiled by the San Francisco Estuary Institute for 2010-2013 indicate no degradation of San Francisco Bay water quality with respect to copper (http://www.sfei.org/content/copper-site-specific-objective-3-year-rolling-averages).

g. Cyanide Action Plan. This provision is based on Basin Plan section 4.7.2.2 and is necessary to ensure that use of cyanide site-specific objectives is consistent with antidegradation policies. The Basin Plan requires a cyanide action plan to ensure compliance with State and federal antidegradation policies when cyanide limits are based on the site-specific objectives.

VII. RATIONALE FOR MONITORING AND REPORTING PROGRAM

Attachment E contains the MRP for this Order. It specifies sampling stations, pollutants to be monitored (including all parameters for which effluent limits are specified), monitoring frequencies, and reporting requirements. The following provides the rationale for the MRP requirements:

A. Monitoring and Reporting Program Requirements Rationale

1. Influent Monitoring

a. Monitoring Location INF-001. Monitoring these parameters at the once-through cooling water intake structure will provide data necessary to derive future intake water credits if appropriate. Flow monitoring is required to determine whether the once-through cooling water system is operating as designed.

b. Monitoring Location INF-002. This Order allows adjustments for recycled water use. Monitoring at the recycled water intake will provide data necessary to calculate such adjustments.

2. **Effluent Monitoring.** Effluent monitoring is necessary to evaluate compliance with this Order's effluent limitations and to support future reasonable potential analyses. Flow monitoring at Monitoring Locations EFF-002 and EFF-003 is necessary to evaluate compliance with Prohibition III.A and the permitted flow described in Table F-1 and to calculate mass discharges. Standard observations at Monitoring Locations EFF-002 and EFF-003 are necessary to confirm that the Facility is properly operated and maintained.
3. **Whole Effluent Toxicity Testing.** Acute and chronic toxicity tests of samples collected at Monitoring Location EFF-002 are necessary to evaluate compliance with the acute and chronic toxicity effluent limitations and to support future reasonable potential analyses. Chronic toxicity tests of samples collected at Monitoring Location EFF-002 are also

necessary to evaluate whether chronic toxicity triggers the need for a Toxicity Reduction Evaluation.

4. **Receiving Water Monitoring.** Receiving water monitoring is necessary to evaluate the impacts of the discharge on the receiving water and to calculate appropriate ammonia water quality objectives. Receiving water monitoring is also necessary to support future reasonable potential analyses.

B. Monitoring Requirements Summary

The table below summarizes routine monitoring requirements. This table is for informational purposes only. The actual requirements are specified in the MRP and elsewhere in this Order.

Table F-15. Monitoring Requirements Summary

Parameter	Influent INF-001	Influent INF-002 [1]	Effluent EFF-002	Effluent EFF-003	Effluent EFF-004	Receiving Waters RSW-002 through RSW-003
Flow Rate	Continuous/D	Continuous/D	Continuous/D	Continuous/D	---	---
pH	---	---	Continuous	1/Month	2/Year	1/Quarter
Temperature	---	---	Continuous	Continuous	---	1/Quarter
Dissolved Oxygen	---	---	---	---	---	1/Quarter
Total Coliform Bacteria	---	---	1/Week	---	---	---
Enterococcus Bacteria	---	---	1/Week	---	---	---
Chlorine, Total Residual	---	---	1/Day	[2]	---	---
BOD_5	---	1/Month	1/Month	---	[3, 4]	---
TSS	---	1/Month	1/Month	---	[3, 4]	---
COD	---	1/Month	1/Month	---	[3, 4]	---
Oil and Grease	---	1/Month	1/Month	---	2/Year	---
Phenolic Compounds (4AP)	---	1/Month	1/Month	---	[3, 4]	---
Sulfide, Total	---	1/Month	1/Month	---	---	1/Quarter
Total Ammonia, as N	---	1/Month	1/Month	---	---	1/Quarter
Un-ionized Ammonia	---	---	---	---	---	1/Quarter
Total Chromium	---	1/Month	1/Month	---	[3, 4]	---
Chromium (VI)	---	1/Month	1/Month	---	[3, 4]	---
Cyanide	---	2/Year	1/Month	---	---	---
Acute Toxicity	---	---	1/Week	---	---	---
Chronic Toxicity	---	---	2/Year	---	---	---
Copper, Total Recoverable	1/Month	1/Week	1/Week	1/Month	---	---
Nickel, Total Recoverable	1/Month	---	---	1/Month	---	---
Selenium, Total Recoverable	---	1/Week	1/Week	1/Year	---	---
Zinc, Total Recoverable	---	---	---	1/Month	---	---
Benzo(a)anthracene	---	---	---	2/Year	---	---
Chrysene	---	---	---	2/Year	---	---
2,3,7,8-TCDD and	---	2/Year	2/Year	---	---	---

Parameter	Influent INF-001	Influent INF-002 [1]	Effluent EFF-002	Effluent EFF-003	Effluent EFF-004	Receiving Waters RSW-002 through RSW-003
congeners						
Heptachlor	---	2/Year	1/Quarter	---	---	---
TOC	---	---	---	1/Month	2/Year	---
Salinity	---	---	---	---	---	1/Quarter
Hardness	---	---	---	---	---	1/Quarter
Specific Conductance	---	---	---	---	---	---
Remaining Priority Pollutants	---	---	1/Year	1/Year	---	---
Standard Observations	---	---	1/Day	1/Month	1/Month	1/Quarter

Footnotes:

[1] Sampling at INF-002 is required when the Discharger is using recycled water in place of raw water and for those constituents for which the Discharger wants to receive recycled water use credits.

[2] Monitoring for total residual chlorine at Monitoring Location EFF-003 is required every 2 hours if intake chlorination occurs or if potable water is used as a substitute for once-through cooling water. If potable water is used to supplement once-through cooling water, monitoring for total residual chlorine is required daily.

[3] As soon as the Discharger becomes aware of a violation of an oil and grease or TOC effluent limitation in Table 6a of this Order, daily monitoring for this parameter at the affected outfalls is required during each daylight storm until two consecutive samples show compliance with oil and grease and TOC effluent limitations.

[4] Monitoring for this parameter is not required until the Discharger becomes aware of a violation of an oil and grease or TOC effluent limitation in Table 6a of this Order. Then monitoring for this parameter is required during each daylight storm at the affected outfalls until two consecutive samples show compliance with oil and grease and TOC effluent limitations in Table 6a.

VIII. PUBLIC PARTICIPATION

The Regional Water Board considered the issuance of WDRs that will serve as an NPDES permit for the Facility. As a step in the WDR adoption process, Regional Water Board staff developed tentative WDRs and encouraged public participation in the WDR adoption process.

A. Notification of Interested Parties. The Regional Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided through the *West County Times*. The public had access to the agenda and any changes in dates and locations through the Regional Water Board's website at http://www.waterboards.ca.gov/sanfranciscobay.

B. Written Comments. Interested persons were invited to submit written comments concerning the tentative WDRs as explained through the notification process. Comments were due either in person or by mail at the Regional Water Board office at 1515 Clay Street, Suite 1400, Oakland, California 94612, to the attention of John H. Madigan.

For full staff response and Regional Water Board consideration, the written comments were due at the Regional Water Board office by 5:00 p.m. on October 3, 2016.

C. Public Hearing. The Regional Water Board held a public hearing on the tentative WDRs during its regular meeting at the following date and time, and at the following location:

Date: November 9, 2016
Time: 9:00 a.m.
Location: Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612

Contact: John Madigan, (510) 622-2460, John.Madigan@waterboards.ca.gov

Interested persons were invited to attend. At the public hearing, the Regional Water Board heard testimony pertinent to the discharge, WDRs, and permit. For accuracy of the record, important testimony was requested to be in writing.

D. Reconsideration of Waste Discharge Requirements. Any aggrieved person may petition the State Water Board to review the Regional Water Board decision regarding the final WDRs. The State Water Board must receive the petition at the following address within 30 calendar days of the Regional Water Board action:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

For instructions on how to file a petition for review, see http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml.

E. Information and Copying. The Report of Waste Discharge, related supporting documents, and comments received are on file and may be inspected at the address above at any time between 9:00 a.m. and 5:00 p.m., Monday through Friday. Copying of documents may be arranged by calling (510) 622-2300.

F. Register of Interested Persons. Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference the facility, and provide a name, address, and phone number.

G. Additional Information. Requests for additional information or questions regarding this Order should be directed to John Madigan at (510) 622-2460 or John.Madigan@waterboards.ca.gov.

ATTACHMENT F-1

Derivation of Technology-Based Effluent Limits
Phillips 66 Company, San Francisco Refinery

References

1. 40 C.F.R. section 419, subpart B – Cracking Subcategory, *Effluent Limitation Guidelines and New Source Performance Standards for the Petroleum Refining Point Source Category* (2006)

2. *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Petroleum Refining Point Source Category,* EPA/4401-82/014 (1982)

3. *Guide for the Application of Effluent Limitations Guidelines for the Petroleum Refining Industry,* U.S. EPA Office of Water Regulations and Standards (1985)

4. Phillips 66 Company, San Francisco, *Application for Renewal, NPDES Permit No. CA0005053* (December 2015)

5. Refinery Production Data, January 2011-Septebmer 2015, from *Application for Renewal, NPDES Permit No. CA0005053*. Attachment 2C-IIIC – Basis for Reporting Production Rates

Definitions

Process Wastewater means any water, which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product (40 C.F.R. § 401.11[q]).

Runoff means the flow of stormwater resulting from precipitation coming into contact with petroleum refinery property (40 C.F.R. § 419.11[b]).

Ballast means the flow of waters, from a ship, that is treated along with refinery wastewaters in the main treatment system(40 C.F.R. § 419.11[c]).

Once-through Cooling Water means those waters discharged that are used for the purpose of heat removal and that do not come into direct contact with any raw material, intermediate, or finished product (40 C.F.R. § 419.11[e]).

Contaminated Runoff means runoff that comes into contact with any raw material, intermediate product, finished product, by-product, or waste product located on petroleum refinery property (40 C.F.R. § 419.11[g]).

Process Wastewater

Process wastewater is discharged through Discharge Point No. 002. Effluent Limitations Guidelines (ELGs) for the Cracking Subcategory of the Petroleum Refining Point Source Category at 40 C.F.R. section 419, subpart B, include BPT, BAT, and BCT limits. The BPT limits cover 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), chemical oxygen demand (COD), oil and grease, phenolic compounds, ammonia, sulfide, total chromium, hexavalent chromium, and pH. The BAT and BCT limits are the same as the BPT limits, with three exceptions: the BAT limits for phenolic compounds, total chromium, and hexavalent chromium must be calculated separately to determine which limits are more stringent.

The technology-based effluent limits are based, in part, on Discharger production rate, which is currently 84,020 barrels per day (bbls/d). Process wastewater BPT, BAT, and BCT limitations are further based on the size factor and process factor described below:

- Size Factor. Pursuant to the ELGs at 40 C.F.R. section 419.22(b)(1) for BPT, 40 C.F.R. section 419.23(b)(1) for BAT, and 40 C.F.R. section 419.24(b)(1) for BCT, the size factor for deriving technology-based effluent limitations is 1.13 based on the crude processing rate of 84,020 bbls/day.

- Process Factor. Pursuant to 40 C.F.R. section 419.22(b)(2) for BPT, 40 C.F.R. section 419.23(b)(2) for BAT, and 40 C.F.R. section 419.24(b)(2) for BCT, the process factor is 1.89 based on the total refinery process configuration calculated below.

The process configuration for each process is determined by summing the process feedstock rates for each crude, cracking and coking, lube, and asphalt process at the refinery. These processes correspond to the process groups listed in the *Guide for the Application of Effluent Limitations Guidelines for the Petroleum Refining Industry* (page 19). The Discharger only employs the crude and cracking and coking processes. It does not employ lube and asphalt processes. Each individual feedstock rate is multiplied by the capacity relative to the throughput, and a weight factor specific for each process, to derive a "process configuration," which in turn is used to determine the "process factor" above. Derivation of the process configuration for a production rate of 84,020 bbls/day is shown in the following table:

Table F-1A. Process Configurations

Production at 84,020 bbls/day				
Process	**Process Feedstock Rate (x 1,000 bbls/day)**	**Process/Feedstock Ratio**	**Weight Factor**	**Process Configuration**
Crude				
Atmospheric Distillation	96.74	1.15		
Vacuum Distillation	52.67	0.63		
Desalting	29.92	0.36		
Total	179.73	2.13	1	2.13
Cracking & Coking				
Delayed Coking	26.42	0.31		
Hydrocracking	63.88	0.76		
Hydrotreating	68.65	0.82		
Total	158.95	1.89	6	11.35
Lube	0	0	13	0
Asphalt	0	0	12	0
Reforming and Alkylation				
Catalytic Reforming	33.59	0.40	0	0
Total Refinery Process Configuration				**13.49**

BPT Limits. The following table shows the derivation of process wastewater BPT limitations at a production rate of 84,020 bbls/day:

Table F-1B. Process Wastewater BPT Limitations

	Preliminary Effluent Limitation Factor [1]		Size Factor	Process Factor	Feed Stock Rate	Effluent Limitation (pounds/day)	
	Max Daily	Avg Monthly				Max Daily	Avg Monthly
Production at 84,020 bbls/day							
BOD_5	9.9	5.5	1.13	1.89	84.02	1,800	990
TSS	6.9	4.4	1.13	1.89	84.02	1,200	790
COD [2]	74.0	38.4	1.13	1.89	84.02	13,000	6,900
Oil & Grease	3.0	1.6	1.13	1.89	84.02	540	290
Phenolic Compounds (4AAP)	0.074	0.036	1.13	1.89	84.02	13	6.5
Total Ammonia, as N	6.6	3.0	1.13	1.89	84.02	1,200	540
Sulfide	0.065	0.029	1.13	1.89	84.02	12	5.2
Total Chromium	0.15	0.088	1.13	1.89	84.02	27	16
Chromium (VI)	0.012	0.0056	1.13	1.89	84.02	2.0	1.0
pH	--	--	--	--	--	6.0-9.0 [3]	

[1] From 40 C.F.R. § 419.22(a) (pounds per 1000 bbls of feedstock)
[2] If the effluent chloride concentration exceeds 1,000 mg/L (1,000 ppm), TOC may be substituted in lieu of COD. TOC effluent limitations are to be based on effluent data from the plant correlating TOC to BOD_5.
[3] pH limits are an instantaneous minimum of 6.0 and an instantaneous maximum of 9.0.

BAT Limits. The BAT limits are the same as the BPT limits for COD, total ammonia, and sulfide. Because the BAT limits for phenolic compounds, total chromium, and hexavalent chromium differ from the BPT limits, they are calculated separately below.

To determine the BAT limits for total and hexavalent chromium and phenolic compounds, the ELGs require consideration of effluent factors and refinery processes. Effluent factors are found in 40 C.F.R. section 419.23(c)(1). The refinery processes are the crude, cracking and coking, and reforming and alkylation processes, These processes correspond to the process groups listed in the *Guide for the Application of Effluent Limitations Guidelines for the Petroleum Refining Industry* (page 20). Figures used to calculate the BAT limits are shown in the following table:

Table F-1C. Feedstock Rates (insert units)

Production at 84,020 bbls/day	
Crude	
Atmospheric Distillation	96.7
Vacuum Distillation	52.7
Desalter	29.9
Total	**179.3**
Cracking and Coking	
Delayed Cracking	26.4
Hydrocracking	63.88
Hydrotreating	68.65
Total	**158.95**

Production at 84,020 bbls/day	
Asphalt	**0**
Reforming and Alkylation [1]	**33.59**

[1] This feedstock rate only reflects reforming. Although the Discharger reported dimersol as a "Reforming and Alkylation" process, it was not considered to be such a process for purposes of these calculations.

Based on the total feedstock rates above, the BAT limitations are derived as shown in the following table:

Table F-1D. Process Wastewater BAT Limitations

Pollutant	Preliminary Effluent Limitations Factor [1]		Feedstock Rate	Effluent Limitations (pounds/day)	
	Max Daily	Avg Monthly		Max Daily	Avg Monthly
Production at 84,020 bbls/day					
Phenolic Compounds					
Crude	0.013	0.003	179.33	2.3	0.54
Cracking and Coking	0.147	0.036	158.95	23	5.7
Reforming and Alkylation	0.132	0.032	33.59	4.4	1.1
Limit (Sum)	---	---	---	**30**	**7.3**
Total Chromium					
Crude	0.011	0.004	179.33	2.0	0.72
Cracking and Coking	0.119	0.041	158.95	19	6.5
Reforming and Alkylation	0.107	0.037	33.59	3.6	1.2
Limit (Sum)	---	---	---	**24**	**8.5**
Hexavalent Chromium					
Crude	0.0007	0.0003	179.33	0.13	0.050
Cracking and Coking	0.0076	0.0034	158.95	1.2	0.54
Reforming and Alkylation	0.0069	0.0031	33.59	0.23	0.10
Limit (Sum)	---	---	---	**1.6**	**0.70**

[1] From 40 C.F.R. § 419.22(a) (pounds per 1,000 bbls of feedstock)

BCT Limits. The BCT limits are the same as the BPT limits for BOD_5, TSS, oil and grease, and pH.

Summary. The following table presents the technology-based process wastewater effluent limitations. These limitations are the most stringent of the BPT, BAT, and BCT limitations:

Table F-1E. Summary of Process Wastewater Limitations

Pollutant	Maximum Daily (pounds/day)	Average Monthly (pounds/day)
BOD_5	1,800	990
TSS	1,200	790
COD	13,000	6,900
Oil and Grease	540	290
Phenolic Compounds (4AAP)	13	6.0
Total Ammonia, as N	1,200	540

Pollutant	Maximum Daily (pounds/day)	Average Monthly (pounds/day)
Sulfide	12	5.0
Total Chromium	24	8.0
Chromium (VI)	1.6	0.70
pH	6.0 – 9.0 pH units [1]	
[1] pH limits are an instantaneous minimum of 6.0 and an instantaneous maximum of 9.0.		

Ballast Water

Ballast water is discharged through Discharge Point No. 002. The ELGs include BPT, BAT, and BCT limits for ballast water at 40 C.F.R. sections 419.22(c), 419.23(d), and 419.24(c). These ELGs refer to those at 40 C.F.R. sections 419.12(c), 419.13(d), and 419.14(c). The BPT limits cover BOD_5, TSS, COD, oil and grease, and pH. The BAT and BCT limits are the same as the BPT limits.

Because ballast water is discharged through the same outfall as process wastewater, these limits provide an additional allocation that may be applied to the process wastewater limits when ballast water is treated with process wastewater. The process wastewater limits are mass-based, and the additional allocation is the mass equal to the ballast water flow times the concentration in the table below:

Table F-1F. Additional Ballast Water Allocations

Pollutant	Maximum Daily (mg/L)	Average Monthly (mg/L)
BOD_5	48	26
TSS	33	21
COD	470	240
Oil and Grease	15	8

Contaminated Runoff Commingled with Process Wastewater

Contaminated runoff is discharged through Discharge Point No. 002 along with process wastewater. The ELGs include BPT, BAT, and BCT limits for contaminated runoff commingled with process wastewater at 40 C.F.R. sections 419.22(e)(2), 419.23(f)(2), and 419.24(e)(2). The BPT limits cover BOD_5, TSS, COD, oil and grease, phenolic compounds, total chromium, hexavalent chromium, and pH. The BAT and BCT limits are the same as the BPT limits, with the exception of total chromium. The BAT limits for total chromium are more stringent.

Because contaminated runoff is discharged through the same outfall as process wastewater, these limits provide an additional allocation that may be applied to the process wastewater limits when contaminated runoff is treated with process wastewater. The process wastewater limits are mass-based, and the additional allocation is the mass equal to the contaminated runoff water flow times the concentrations in the table below:

Table F-1G Additional Contaminated Runoff (Commingled with Process Wastewater) Allocations

Pollutant	Maximum Daily (mg/L) [1]	Average Monthly (mg/L) [1]
BOD_5	48	26
TSS	33	21

Pollutant	Maximum Daily (mg/L) [1]	Average Monthly (mg/L) [1]
COD	360	180
Oil and Grease	15	8.0
Phenolic Compounds	0.35	0.17
Total Chromium	0.60	0.21
Chromium (VI)	0.062	0.028

Contaminated Runoff NOT Commingled with Process Wastewater

Contaminated runoff not commingled with process wastewater is discharged through Discharge Point No. 004 (contaminated runoff commingled with process wastewater is discharged through Discharge Point No. 002). The BPT, BAT, and BCT ELGs are at 40 C.F.R. section 419.22(e)(1), 419.23(f)(1) and 419.24(e)(1). The BPT limits cover total organic carbon and oil and grease. The BAT and BCT limits are the same as the BPT limits.

If the oil and grease or TOC limitations are exceeded, additional limitations for BOD_5, COD, TSS, phenolic compounds, pH, and hexavalent and total chromium found at 40 C.F.R. section 419.22(e)(2) and 419.23(f)(2) become effective. With respect to most of these pollutants, the BPT limitations at 40 C.F.R. section 419.22(e)(1) are the most comprehensive and stringent. The total chromium limits below are based on BAT as set forth at 40 C.F.R. section 419.23(f)(1):

Table F-1H. Contaminated Runoff (Not Commingled with Process Wastewater) Limitations

Pollutant	Maximum Daily (mg/L)	Monthly Average (mg/L) [1]
Oil & Grease	15 mg/L	---
TOC	110 mg/L	---
If either limitation for oil and grease or TOC, above, is exceeded then the following limitations shall become effective		
BOD_5	48	26
TSS	33	21
COD	360	180
Oil & Grease	15	8.0
Phenolic Compounds (4AAP)	0.35	0.17
Total Chromium	0.60	0.21
Chromium (VI)	0.062	0.028
pH	6.0-9.0 [2]	

[1] 40 C.F.R. part 419 specifies an average concentration over 30 consecutive days, which roughly equates to a monthly average.
[2] pH limits are an instantaneous minimum of 6.0 and an instantaneous maximum of 9.0.

Once-Through Cooling Water

Once-through cooling water is discharged through Discharge Point No. 003. The ELGs found at 40 C.F.R. sections 419.22(d) and 419.23(e) include limits for once-through cooling water based on BPT and BAT. Total organic carbon is not to exceed a monthly average of 5 mg/L.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT G

REGIONAL STANDARD PROVISIONS, AND MONITORING AND REPORTING REQUIREMENTS
(SUPPLEMENT TO ATTACHMENT D)

For

NPDES WASTEWATER DISCHARGE PERMITS

March 2010

Contents

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

REGIONAL STANDARD PROVISIONS, AND MONITORING AND REPORTING REQUIREMENTS (SUPPLEMENT TO ATTACHMENT D)

FOR

NPDES WASTEWATER DISCHARGE PERMITS

APPLICABILITY

This document applies to dischargers covered by a National Pollutant Discharge Elimination System (NPDES) permit. This document does not apply to Municipal Separate Storm Sewer System (MS4) NPDES permits.

The purpose of this document is to supplement the requirements of Attachment D, Standard Provisions. The requirements in this supplemental document are designed to ensure permit compliance through preventative planning, monitoring, recordkeeping, and reporting. In addition, this document requires proper characterization of issues as they arise, and timely and full responses to problems encountered. To provide clarity on which sections of Attachment D this document supplements, this document is arranged in the same format as Attachment D.

I. STANDARD PROVISIONS - PERMIT COMPLIANCE

A. Duty to Comply – Not Supplemented

B. Need to Halt or Reduce Activity Not a Defense – Not Supplemented

C. Duty to Mitigate – This supplements I.C. of Standard Provisions (Attachment D)

1. Contingency Plan - The Discharger shall maintain a Contingency Plan as originally required by Regional Water Board Resolution 74-10 and as prudent in accordance with current municipal facility emergency planning. The Contingency Plan shall describe procedures to ensure that existing facilities remain in, or are rapidly returned to, operation in the event of a process failure or emergency incident, such as employee strike, strike by suppliers of chemicals or maintenance services, power outage, vandalism, earthquake, or fire. The Discharger may combine the Contingency Plan and Spill Prevention Plan into one document. Discharge in violation of the permit where the Discharger has failed to develop and implement a Contingency Plan as described below will be the basis for considering the discharge a willful and negligent violation of the permit pursuant to California Water Code Section 13387. The Contingency Plan shall, at a minimum, contain the provisions of a. through g. below.

a. Provision of personnel for continued operation and maintenance of sewerage facilities during employee strikes or strikes against contractors providing services.

b. Maintenance of adequate chemicals or other supplies and spare parts necessary for continued operations of sewerage facilities.

c. Provisions of emergency standby power.

d. Protection against vandalism.

e. Expeditious action to repair failures of, or damage to, equipment and sewer lines.

f. Report of spills and discharges of untreated or inadequately treated wastes, including measures taken to clean up the effects of such discharges.

g. Programs for maintenance, replacement, and surveillance of physical condition of equipment, facilities, and sewer lines.

2. Spill Prevention Plan - The Discharger shall maintain a Spill Prevention Plan to prevent accidental discharges and minimize the effects of such events. The Spill Prevention Plan shall:

a. Identify the possible sources of accidental discharge, untreated or partially-treated waste bypass, and polluted drainage;

b. Evaluate the effectiveness of present facilities and procedures, and state when they became operational; and

c. Predict the effectiveness of the proposed facilities and procedures, and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

This Regional Water Board, after review of the Contingency and Spill Prevention Plans or their updated revisions, may establish conditions it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions may be incorporated as part of the permit upon notice to the Discharger.

D. Proper Operation & Maintenance – This supplements I.D of Standard Provisions (Attachment D)

1. Operation and Maintenance (O&M) Manual - The Discharger shall maintain an O&M Manual to provide the plant and regulatory personnel with a source of information describing all equipment, recommended operational strategies, process control monitoring, and maintenance activities. To remain a useful and relevant document, the O&M Manual shall be kept updated to reflect significant changes in treatment facility equipment and operational practices. The O&M Manual shall be maintained in usable condition and be available for reference and use by all relevant personnel and Regional Water Board staff.

2. Wastewater Facilities Status Report - The Discharger shall regularly review, revise, or update, as necessary, its Wastewater Facilities Status Report. This report shall document how the Discharger operates and maintains its wastewater collection, treatment, and disposal facilities to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities.

3. Proper Supervision and Operation of Publicly Owned Treatment Works (POTWs) - POTWs shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Division 4, Chapter 14, Title 23 of the California Code of Regulations.

E. Property Rights – Not Supplemented

F. Inspection and Entry – Not Supplemented

G. Bypass – Not Supplemented

H. Upset – Not Supplemented

I. Other – This section is an addition to Standard Provisions (Attachment D)

1. Neither the treatment nor the discharge of pollutants shall create pollution, contamination, or nuisance as defined by California Water Code Section 13050.

2. Collection, treatment, storage, and disposal systems shall be operated in a manner that precludes public contact with wastewater, except in cases where excluding the public is infeasible, such as private property. If public contact with wastewater could reasonably occur on public property, warning signs shall be posted.

3. If the Discharger submits a timely and complete Report of Waste Discharge for permit reissuance, this permit continues in force and effect until a new permit is issued or the Regional Water Board rescinds the permit.

J. Stormwater – This section is an addition to Standard Provisions (Attachment D)

These provisions apply to facilities that do not direct all stormwater flows from the facility to the wastewater treatment plant headworks.

1. Stormwater Pollution Prevention Plan (SWPP Plan)

The SWPP Plan shall be designed in accordance with good engineering practices and shall address the following objectives:

a. To identify pollutant sources that may affect the quality of stormwater discharges; and

b. To identify, assign, and implement control measures and management practices to reduce pollutants in stormwater discharges.

The SWPP Plan may be combined with the existing Spill Prevention Plan as required in accordance with Section C.2. The SWPP Plan shall be retained on-site and made available upon request of a representative of the Regional Water Board.

2. Source Identification

The SWPP Plan shall provide a description of potential sources that may be expected to add significant quantities of pollutants to stormwater discharges, or may result in non-stormwater discharges from the facility. The SWPP Plan shall include, at a minimum, the following items:

a. A topographical map (or other acceptable map if a topographical map is unavailable), extending one-quarter mile beyond the property boundaries of the facility, showing the wastewater treatment facility process areas, surface water bodies (including springs and wells), and discharge point(s) where the facility's stormwater discharges to a municipal storm drain system or other points of discharge to waters of the State. The requirements of this paragraph may be included in the site map required under the following paragraph if appropriate.

b. A site map showing the following:

   1) Stormwater conveyance, drainage, and discharge structures;

   2) An outline of the stormwater drainage areas for each stormwater discharge point;

   3) Paved areas and buildings;

   4) Areas of actual or potential pollutant contact with stormwater or release to stormwater, including but not limited to outdoor storage and process areas; material loading, unloading, and access areas; and waste treatment, storage, and disposal areas;

   5) Location of existing stormwater structural control measures (i.e., berms, coverings, etc.);

   6) Surface water locations, including springs and wetlands; and

   7) Vehicle service areas.

c. A narrative description of the following:

   1) Wastewater treatment process activity areas;

   2) Materials, equipment, and vehicle management practices employed to minimize contact of significant materials of concern with stormwater discharges;

   3) Material storage, loading, unloading, and access areas;

   4) Existing structural and non-structural control measures (if any) to reduce pollutants in stormwater discharges; and

   5) Methods of on-site storage and disposal of significant materials.

d. A list of pollutants that have a reasonable potential to be present in stormwater discharges in significant quantities.

3. Stormwater Management Controls

The SWPP Plan shall describe the stormwater management controls appropriate for the facility and a time schedule for fully implementing such controls. The appropriateness and priorities of controls in the SWPP Plan shall reflect identified potential sources of pollutants. The description of stormwater management controls to be implemented shall include, as appropriate:

a. Stormwater pollution prevention personnel

Identify specific individuals (and job titles) that are responsible for developing, implementing, and reviewing the SWPP Plan.

b. Good housekeeping

Good housekeeping requires the maintenance of clean, Orderly facility areas that discharge stormwater. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm drain conveyance system.

c. Spill prevention and response

Identify areas where significant materials can spill into or otherwise enter stormwater conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, and cleanup equipment and procedures shall be identified, as appropriate. The necessary equipment to implement a cleanup shall be available, and personnel shall be trained in proper response, containment, and cleanup of spills. Internal reporting procedures for spills of significant materials shall be established.

d. Source control

Source controls include, for example, elimination or reduction of the use of toxic pollutants, covering of pollutant source areas, sweeping of paved areas, containment of potential pollutants, labeling of all storm drain inlets with “No Dumping” signs, isolation or separation of industrial and non-industrial pollutant sources so that runoff from these areas does not mix, etc.

e. Stormwater management practices

Stormwater management practices are practices other than those that control the sources of pollutants. Such practices include treatment or conveyance structures, such as drop inlets, channels, retention and detention basins, treatment vaults, infiltration galleries, filters, oil/water separators, etc. Based on assessment of the potential of various sources to contribute pollutants to stormwater discharges in significant quantities, additional stormwater management practices to remove pollutants from stormwater discharges shall be implemented and design criteria shall be described.

f. Sediment and erosion control

Measures to minimize erosion around the stormwater drainage and discharge points, such as riprap, revegetation, slope stabilization, etc., shall be described.

g. Employee training

Employee training programs shall inform all personnel responsible for implementing the SWPP Plan. Training shall address spill response, good housekeeping, and material management practices. New employee and refresher training schedules shall be identified.

h. Inspections

All inspections shall be done by trained personnel. Material handling areas shall be inspected for evidence of, or the potential for, pollutants entering stormwater discharges. A tracking or followup procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded. Inspection records shall be retained for five years.

i. Records

A tracking and followup procedure shall be described to ensure that adequate response and corrective actions have been taken in response to inspections.

4. Annual Verification of SWPP Plan

An annual facility inspection shall be conducted to verify that all elements of the SWPP Plan are accurate and up-to-date. The results of this review shall be reported in the Annual Report to the Regional Water Board described in Section V.C.f.

K. Biosolids Management – This section is an addition to Standard Provisions (Attachment D)

Biosolids must meet the following requirements prior to land application. The Discharger must either demonstrate compliance or, if it sends the biosolids to another party for further treatment or distribution, must give the recipient the information necessary to ensure compliance.

1. Exceptional quality biosolids meet the pollutant concentration limitations in Table III of 40 CFR Part 503.13, Class A pathogen limitations, and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8). Such biosolids do not have to be tracked further for compliance with general requirements (503.12) and management practices (503.14).

2. Biosolids used for agricultural land, forest, or reclamation shall meet the pollutant limitations in Table I (ceiling concentrations) and Table II or Table III (cumulative loadings or pollutant concentration limitations) of 503.13. They shall also meet the general requirements (503.12) and management practices (503.14) (if not exceptional quality biosolids) for Class A or Class B pathogen levels with associated access restrictions (503.32) and one of the 10 vector attraction reduction requirements in 503.33(b)(1)-(b)(10).

3. Biosolids used for lawn or home gardens must meet exceptional quality biosolids limitations.

4. Biosolids sold or given away in a bag or other container must meet the pollutant limitations in either Table III or Table IV (pollutant concentration limitations or annual pollutant loading rate limitations) of 503.13. If Table IV is used, a label or information sheet must be attached to the biosolids packing that explains Table IV (see 503.14). The biosolids must also meet the Class A pathogen limitations and one of the vector attraction reduction requirements in 503.33(b)(1)-(b)(8).

II. STANDARD PROVISIONS – PERMIT ACTION – Not Supplemented

III. STANDARD PROVISIONS – MONITORING

A. Sampling and Analyses – This section is a supplement to III.A and III.B of Standard Provisions (Attachment D)

1. Use of Certified Laboratories

Water and waste analyses shall be performed by a laboratory certified for these analyses in accordance with California Water Code Section 13176.

2. Use of Appropriate Minimum Levels

Table C lists the suggested analytical methods for the 126 priority pollutants and other toxic pollutants that should be used, unless a particular method or minimum level (ML) is required in the MRP.

For priority pollutant monitoring, when there is more than one ML value for a given substance, the Discharger may select any one of the analytical methods cited in Table C for compliance determination, or any other method described in 40 CFR part 136 or approved by U.S. EPA (such as the 1600 series) if authorized by the Regional Water Board. However, the ML must be below the effluent limitation and water quality objective. If no ML value is below the effluent limitation and water quality objective, then the method must achieve an ML no greater than the lowest ML value indicated in Table C. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

3. Frequency of Monitoring

The minimum schedule of sampling analysis is specified in the MRP portion of the permit.

a. Timing of Sample Collection

1) The Discharger shall collect samples of influent on varying days selected at random and shall not include any plant recirculation or other sidestream wastes, unless otherwise stipulated by the MRP.

2) The Discharger shall collect samples of effluent on days coincident with influent sampling unless otherwise stipulated by the MRP or the Executive Officer. The Executive Officer may approve an alternative sampling plan if it is demonstrated to be representative of plant discharge flow and in compliance with all other permit requirements.

3) The Discharger shall collect grab samples of effluent during periods of day-time maximum peak effluent flows (or peak flows through secondary treatment units for facilities that recycle effluent flows).

4) Effluent sampling for conventional pollutants shall occur on at least one day of any multiple-day bioassay test the MRP requires. During the course of the test, on at least one day, the Discharger shall collect and retain samples of the discharge. In the event a bioassay test does

not comply with permit limitations, the Discharger shall analyze these retained samples for pollutants that could be toxic to aquatic life and for which it has effluent limitations.

i. The Discharger shall perform bioassay tests on final effluent samples; when chlorine is used for disinfection, bioassay tests shall be performed on effluent after chlorination-dechlorination; and

ii. The Discharger shall analyze for total ammonia nitrogen and calculate the amount of un-ionized ammonia whenever test results fail to meet the percent survival specified in the permit.

b. Conditions Triggering Accelerated Monitoring

1) If the results from two consecutive samples of a constituent monitored in a 30-day period exceed the monthly average limit for any parameter (or if the required sampling frequency is once per month and the monthly sample exceeds the monthly average limit), the Discharger shall, within 24 hours after the results are received, increase its sampling frequency to daily until the results from the additional sampling show that the parameter is in compliance with the monthly average limit.

2) If any maximum daily limit is exceeded, the Discharger shall increase its sampling frequency to daily within 24 hours after the results are received that indicate the exceedance of the maximum daily limit until two samples collected on consecutive days show compliance with the maximum daily limit.

3) If final or intermediate results of an acute bioassay test indicate a violation or threatened violation (e.g., the percentage of surviving test organisms of any single acute bioassay test is less than 70 percent), the Discharger shall initiate a new test as soon as practical, and the Discharger shall investigate the cause of the mortalities and report its findings in the next self monitoring report (SMR).

4) The Discharger shall calibrate chlorine residual analyzers against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, the Discharger shall collect grab samples at least every 30 minutes until compliance with the limit is achieved, unless the Discharger monitors chlorine residual continuously. In such cases, the Discharger shall continue to conduct continuous monitoring as required by its permit.

5) When a bypass occurs (except one subject to provision III.A.3.b.6 below), the Discharger shall monitor flows and collect samples on a daily basis for all constituents at affected discharge points that have effluent limitations for the duration of the bypass (including acute toxicity using static renewals), except chronic toxicity, unless otherwise stipulated by the MRP.

6) Unless otherwise stipulated by the MRP, when a bypass approved pursuant to Attachment D, Standard Provisions, Sections I.G.2 or I.G.4, occurs, the Discharger shall monitor flows and, using appropriate procedures as specified in the MRP, collect and retain samples for affected discharge points on a daily basis for the duration of the bypass. The Discharger shall analyze for total suspended solids (TSS) using 24-hour composites (or more frequent increments) and for bacteria indicators with effluent limitations using grab samples. If TSS exceeds 45 mg/L in any composite sample, the Discharger shall also analyze the retained samples for that discharge for all other constituents that have effluent limitations, except oil and grease,

mercury, dioxin-TEQ, and acute and chronic toxicity. Additionally, at least once each year, the Discharger shall analyze the retained samples for one approved bypass discharge event for all other constituents that have effluent limitations, except oil and grease, mercury, dioxin-TEQ, and acute and chronic toxicity. This monitoring shall be in addition to the minimum monitoring specified in the MRP.

c. Stormwater Monitoring

The requirements of this section only apply to facilities that are not covered by an NPDES permit for stormwater discharges and where not all site storm drainage from process areas (i.e., areas of the treatment facility where chemicals or wastewater could come in contact with stormwater) is directed to the headworks. For stormwater not directed to the headworks during the wet season (October 1 to April 30), the Discharger shall:

1) Conduct visual observations of the stormwater discharge locations during daylight hours at least once per month during a storm event that produces significant stormwater discharge to observe the presence of floating and suspended materials, oil and grease, discoloration, turbidity, and odor, etc.

2) Measure (or estimate) the total volume of stormwater discharge, collect grab samples of stormwater discharge from at least two storm events that produce significant stormwater discharge, and analyze the samples for oil and grease, pH, TSS, and specific conductance.

   The grab samples shall be taken during the first 30 minutes of the discharge. If collection of the grab samples during the first 30 minutes is impracticable, grab samples may be taken during the first hour of the discharge, and the Discharger shall explain in the Annual Report why the grab sample(s) could not be taken in the first 30 minutes.

3) Testing for the presence of non-stormwater discharges shall be conducted no less than twice during the dry season (May 1 to September 30) at all stormwater discharge locations. Tests may include visual observations of flows, stains, sludges, odors, and other abnormal conditions; dye tests; TV line surveys; or analysis and validation of accurate piping schematics. Records shall be maintained describing the method used, date of testing, locations observed, and test results.

4) Samples shall be collected from all locations where stormwater is discharged. Samples shall represent the quality and quantity of stormwater discharged from the facility. If a facility discharges stormwater at multiple locations, the Discharger may sample a reduced number of locations if it establishes and documents through the monitoring program that stormwater discharges from different locations are substantially identical.

5) Records of all stormwater monitoring information and copies of all reports required by the permit shall be retained for a period of at least three years from the date of sample, observation, or report.

d. Receiving Water Monitoring

The requirements of this section only apply when the MRP requires receiving water sampling.

1) Receiving water samples shall be collected on days coincident with effluent sampling for conventional pollutants.

2) Receiving water samples shall be collected at each station on each sampling day during the period within one hour following low slack water. Where sampling during lower slack water is impractical, sampling shall be performed during higher slack water. Samples shall be collected within the discharge plume and down current of the discharge point so as to be representative, unless otherwise stipulated in the MRP.

3) Samples shall be collected within one foot of the surface of the receiving water, unless otherwise stipulated in the MRP.

B. Biosolids Monitoring – This section supplements III.B of Standard Provisions (Attachment D)

When biosolids are sent to a landfill, sent to a surface disposal site, or applied to land as a soil amendment, they must be monitored as follows:

1. Biosolids Monitoring Frequency

Biosolids disposal must be monitored at the following frequency:

Metric tons biosolids/365 days	**Frequency**
0-290	Once per year
290-1500	Quarterly
1500-15,000	Six times per year
Over 15,000	Once per month

(Metric tons are on a dry weight basis)

2. Biosolids Pollutants to Monitor

Biosolids shall be monitored for the following constituents:

- Land Application: Arsenic, cadmium, copper, mercury, molybdenum, nickel, lead, selenium, and zinc
- Municipal Landfill: Paint filter test (pursuant to 40 CFR 258)
- Biosolids-only Landfill or Surface Disposal Site (if no liner and leachate system): arsenic, chromium, and nickel

C. Standard Observations – This section is an addition to III of Standard Provisions (AttachmentD)

1. Receiving Water Observations

The requirements of this section only apply when the MRP requires standard observations of the receiving water. Standard observations shall include the following:

a. *Floating and suspended materials* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.

b. *Discoloration and turbidity*: description of color, source, and size of affected area.

c. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.

d. *Beneficial water use*: presence of water-associated waterfowl or wildlife, fisherpeople, and other recreational activities in the vicinity of each sampling station.

e. *Hydrographic condition*: time and height of corrected high and low tides (corrected to nearest National Oceanic and Atmospheric Administration location for the sampling date and time of sample collection).

f. *Weather conditions*:

1) Air temperature; and

2) Total precipitation during the five days prior to observation.

2. Wastewater Effluent Observations

The requirements of this section only apply when the MRP requires wastewater effluent standard observations. Standard observations shall include the following:

a. *Floating and suspended material of wastewater origin* (e.g., oil, grease, algae, and other macroscopic particulate matter): presence or absence.

b. *Odor*: presence or absence, characterization, source, distance of travel, and wind direction.

3. Beach and Shoreline Observations

The requirements of this section only apply when the MRP requires beach and shoreline standard observations. Standard observations shall include the following:

a. *Material of wastewater origin*: presence or absence, description of material, estimated size of affected area, and source.

b. *Beneficial use*: estimate number of people participating in recreational water contact, non-water contact, or fishing activities.

4. Land Retention or Disposal Area Observations

The requirements of this section only apply to facilities with on-site surface impoundments or disposal areas that are in use. This section applies to both liquid and solid wastes, whether confined or unconfined. The Discharger shall conduct the following for each impoundment:

a. Determine the amount of freeboard at the lowest point of dikes confining liquid wastes.

b. Report evidence of leaching liquid from area of confinement and estimated size of affected area. Show affected area on a sketch and volume of flow (e.g., gallons per minute [gpm]).

c. Regarding odor, describe presence or absence, characterization, source, distance of travel, and wind direction.

d. Estimate number of waterfowl and other water-associated birds in the disposal area and vicinity.

5. Periphery of Waste Treatment and/or Disposal Facilities Observations

The requirements of this section only apply when the MRP specifies periphery standard observations. Standard observations shall include the following:

a. *Odor*: presence or absence, characterization, source, and distance of travel.

b. *Weather conditions*: wind direction and estimated velocity.

IV. STANDARD PROVISIONS – RECORDS

A. Records to be Maintained – This supplements IV.A of Standard Provisions (Attachment D)

The Discharger shall maintain records in a manner and at a location (e.g., wastewater treatment plant or Discharger offices) such that the records are accessible to Regional Water Board staff. The minimum period of retention specified in Section IV, Records, of the Federal Standard Provisions shall be extended during the course of any unresolved litigation regarding the subject discharge, or when requested by the Regional Water Board or Regional Administrator of U.S. EPA, Region IX.

A copy of the permit shall be maintained at the discharge facility and be available at all times to operating personnel.

B. Records of monitoring information shall include – This supplements IV.B of Standard Provision (Attachment D)

1. Analytical Information

Records shall include analytical method detection limitations, minimum levels, reporting levels, and related quantification parameters.

2. Flow Monitoring Data

For all required flow monitoring (e.g., influent and effluent flows), the additional records shall include the following, unless otherwise stipulated by the MRP:

a. Total volume for each day; and

b. Maximum, minimum, and average daily flows for each calendar month.

3. Wastewater Treatment Process Solids

a. For each treatment unit process that involves solids removal from the wastewater stream, records shall include the following:

1) Total volume or mass of solids removed from each collection unit (e.g., grit, skimmings, undigested biosolids, or combination) for each calendar month or other time period as appropriate, but not to exceed annually; and

2) Final disposition of such solids (e.g., landfill, other subsequent treatment unit).

b. For final dewatered biosolids from the treatment plant as a whole, records shall include the following:

1) Total volume or mass of dewatered biosolids for each calendar month;

2) Solids content of the dewatered biosolids; and

3) Final disposition of dewatered biosolids (disposal location and disposal method).

4. Disinfection Process

For the disinfection process, these additional records shall be maintained documenting process operation and performance:

a. For bacteriological analyses:

1) Wastewater flow rate at the time of sample collection; and

2) Required statistical parameters for cumulative bacterial values (e.g., moving median or geometric mean for the number of samples or sampling period identified in this Order).

b. For the chlorination process, when chlorine is used for disinfection, at least daily average values for the following:

1) Chlorine residual of treated wastewater as it enters the contact basin (mg/L);

2) Chlorine dosage (kg/day); and

3) Dechlorination chemical dosage (kg/day).

5. Treatment Process Bypasses

A chronological log of all treatment process bypasses, including wet weather blending, shall include the following:

a. Identification of the treatment process bypassed;

b. Dates and times of bypass beginning and end;

c. Total bypass duration;

d. Estimated total bypass volume; and

e. Description of, or reference to other reports describing, the bypass event, the cause, the corrective actions taken (except for wet weather blending that is in compliance with permit conditions), and any additional monitoring conducted.

6. Treatment Facility Overflows

This section applies to records for overflows at the treatment facility. This includes the headworks and all units and appurtenances downstream. The Discharger shall retain a chronological log of overflows at the treatment facility and records supporting the information provided in section V.E.2.

C. Claims of Confidentiality – Not Supplemented

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information – Not Supplemented

B. Signatory and Certification Requirements – Not Supplemented

C. Monitoring Reports – This section supplements V.C of Standard Provisions (Attachment D)

1. Self Monitoring Reports

For each reporting period established in the MRP, the Discharger shall submit an SMR to the Regional Water Board in accordance with the requirements listed in this document and at the frequency the MRP specifies. The purpose of the SMR is to document treatment performance, effluent quality, and compliance with the waste discharge requirements of this Order.

a. Transmittal letter

Each SMR shall be submitted with a transmittal letter. This letter shall include the following:

1) Identification of all violations of effluent limitations or other waste discharge requirements found during the reporting period;

2) Details regarding violations: parameters, magnitude, test results, frequency, and dates;

3) Causes of violations;

4) Discussion of corrective actions taken or planned to resolve violations and prevent recurrences, and dates or time schedule of action implementation (if previous reports have been submitted that address corrective actions, reference to the earlier reports is satisfactory);

5) Data invalidation (Data should not be submitted in an SMR if it does not meet quality assurance/quality control standards. However, if the Discharger wishes to invalidate any measurement after it was submitted in an SMR, a letter shall identify the measurement suspected to be invalid and state the Discharger's intent to submit, within 60 days, a formal request to invalidate the measurement. This request shall include the original measurement in question, the reason for invalidating the measurement, all relevant documentation that supports 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.);

6) If the Discharger blends, the letter shall describe the duration of blending events and certify whether blended effluent was in compliance with the conditions for blending; and

7) Signature (The transmittal letter shall be signed according to Section V.B of this Order, Attachment D – Standard Provisions.).

b. Compliance evaluation summary

Each report shall include a compliance evaluation summary. This summary shall include each parameter for which the permit specifies effluent limitations, the number of samples taken during the monitoring period, and the number of samples that exceed applicable effluent limitations.

c. Results of analyses and observations

1) Tabulations of all required analyses and observations, including parameter, date, time, sample station, type of sample, test result, method detection limit, method minimum level, and method reporting level, if applicable, signed by the laboratory director or other responsible official.

2) When determining compliance with an average monthly effluent limitation and more than one sample result is available in a month, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of detected but not quantified (DNQ) or nondetect (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

i. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

ii. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

If a sample result, or the arithmetic mean or median of multiple sample results, is below the reporting limit, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the Discharger conducts a Pollutant Minimization Program, the Discharger shall not be deemed out of compliance.

3) Dioxin-TEQ Reporting: The Discharger shall report for each dioxin and furan congener the analytical results of effluent monitoring, including the quantifiable limit (reporting level), the method detection limit, and the measured concentration. The Discharger shall report all measured values of individual congeners, including data qualifiers. When calculating dioxin-TEQ, the Discharger shall set congener concentrations below the minimum levels (ML) to zero. The Discharger shall calculate and report dioxin-TEQs using the following formula, where the MLs, toxicity equivalency factors (TEFs), and bioaccumulation equivalency factors (BEFs) are as provided in Table A:

$$\text{Dioxin-TEQ} = \Sigma\ (C_x \times TEF_x \times BEF_x)$$

where: C_x = measured or estimated concentration of congener *x*
TEF_x = toxicity equivalency factor for congener x
BEFx = bioaccumulation equivalency factor for congener *x*

Table A

Minimum Levels, Toxicity Equivalency Factors,
and Bioaccumulation Equivalency Factors

Dioxin or Furan Congener	Minimum Level (pg/L)	1998 Toxicity Equivalency Factor (TEF)	Bioaccumulation Equivalency Factor (BEF)
2,3,7,8-TCDD	10	1.0	1.0
1,2,3,7,8-PeCDD	50	1.0	0.9
1,2,3,4,7,8-HxCDD	50	0.1	0.3
1,2,3,6,7,8-HxCDD	50	0.1	0.1
1,2,3,7,8,9-HxCDD	50	0.1	0.1
1,2,3,4,6,7,8-HpCDD	50	0.01	0.05
OCDD	100	0.0001	0.01
2,3,7,8-TCDF	10	0.1	0.8
1,2,3,7,8-PeCDF	50	0.05	0.2
2,3,4,7,8-PeCDF	50	0.5	1.6
1,2,3,4,7,8-HxCDF	50	0.1	0.08
1,2,3,6,7,8-HxCDF	50	0.1	0.2
1,2,3,7,8,9-HxCDF	50	0.1	0.6
2,3,4,6,7,8-HxCDF	50	0.1	0.7
1,2,3,4,6,7,8-HpCDF	50	0.01	0.01
1,2,3,4,7,8,9-HpCDF	50	0.01	0.4
OCDF	100	0.0001	0.02

d. Data reporting for results not yet available

The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in a timely manner. Certain analyses require additional time to complete analytical processes and report results. For cases where required monitoring parameters require additional time to complete analytical processes and reports, and results are not available in time to be included in the SMR for the subject monitoring period, the Discharger shall describe such circumstances in the SMR and include the data for these parameters and relevant discussions of any observed exceedances in the next SMR due after the results are available.

e. Flow data

The Discharger shall provide flow data tabulation pursuant to Section IV.B.2.

f. Annual self monitoring report requirements

By the date specified in the MRP, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the following:

1) Annual compliance summary table of treatment plant performance, including documentation of any blending events;

2) Comprehensive discussion of treatment plant performance and compliance with the permit (This discussion shall include any corrective actions taken or planned, such as changes to facility equipment or operation practices that may be needed to achieve compliance, and any other actions taken or planned that are intended to improve performance and reliability of the Discharger's wastewater collection, treatment, or disposal practices.);

3) Both tabular and graphical summaries of the monitoring data for the previous year if parameters are monitored at a frequency of monthly or greater;

4) List of approved analyses, including the following:

(i) List of analyses for which the Discharger is certified;

(ii) List of analyses performed for the Discharger by a separate certified laboratory (copies of reports signed by the laboratory director of that laboratory shall not be submitted but be retained onsite); and

(iii) List of "waived" analyses, as approved;

5) Plan view drawing or map showing the Discharger's facility, flow routing, and sampling and observation station locations;

6) Results of annual facility inspection to verify that all elements of the SWPP Plan are accurate and up to date (only required if the Discharger does not route all stormwater to the headworks of its wastewater treatment plant); and

7) Results of facility report reviews (The Discharger shall regularly review, revise, and update, as necessary, the O&M Manual, the Contingency Plan, the Spill Prevention Plan, and Wastewater Facilities Status Report so that these documents remain useful and relevant to current practices. At a minimum, reviews shall be conducted annually. The Discharger shall include, in each Annual Report, a description or summary of review and evaluation procedures, recommended or planned actions, and an estimated time schedule for implementing these actions. The Discharger shall complete changes to these documents to ensure they are up-to-date.).

g. Report submittal

The Discharger shall submit SMRs to:

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

h. Reporting data in electronic format

The Discharger has the option to submit all monitoring results in an electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit SMRs electronically, the following shall apply:

1) *Reporting Method*: The Discharger shall submit SMRs electronically via a process approved by the Executive Officer (see, for example, the letter dated December 17, 1999, *Official Implementation of Electronic Reporting System [ERS]* and the progress report letter dated December 17, 2000).

2) *Monthly or Quarterly Reporting Requirements*: For each reporting period (monthly or quarterly as specified in the MRP), the Discharger shall submit an electronic SMR to the Regional Water Board in accordance with the provisions of Section V.C.1.a-e, except for requirements under Section V.C.1.c(1) where ERS does not have fields for dischargers to input certain information (e.g., sample time). However, until U.S. EPA approves the electronic signature or other signature technologies, Dischargers that use ERS shall submit a hard copy of the original transmittal letter, an ERS printout of the data sheet, and a violation report (a receipt of the electronic transmittal shall be retained by the Discharger). This electronic SMR submittal suffices for the signed tabulations specified under Section V.C.1.c(1).

3) *Annual Reporting Requirements*: Dischargers who have submitted data using the ERS for at least one calendar year are exempt from submitting the portion of the annual report required under Section V.C.1.f(1) and (3).

D. Compliance Schedules – Not supplemented

E. Twenty-Four Hour Reporting – This section supplements V.E of Standard Provision (Attachment D)

1. Spill of Oil or Other Hazardous Material Reports

a. Within 24 hours of becoming aware of a spill of oil or other hazardous material that is not contained onsite and completely cleaned up, the Discharger shall report by telephone to the Regional Water Board at (510) 622-2369.

b. The Discharger shall also report such spills to the State Office of Emergency Services [telephone (800) 852-7550] only when the spills are in accordance with applicable reporting quantities for hazardous materials.

c. The Discharger shall submit a written report to the Regional Water Board within five working days following telephone notification unless directed otherwise by Regional Water Board staff. A report submitted electronically is acceptable. The written report shall include the following:

1) Date and time of spill, and duration if known;

2) Location of spill (street address or description of location);

3) Nature of material spilled;

4) Quantity of material involved;

5) Receiving water body affected, if any;

6) Cause of spill;

7) Estimated size of affected area;

8) Observed impacts to receiving waters (e.g., oil sheen, fish kill, water discoloration);

9) Corrective actions taken to contain, minimize, or clean up the spill;

10) Future corrective actions planned to be taken to prevent recurrence, and schedule of implementation; and

11) Persons or agencies notified.

2. Unauthorized Discharges from Municipal Wastewater Treatment Plants[1]

The following requirements apply to municipal wastewater treatment plants that experience an unauthorized discharge at their treatment facilities and are consistent with and supercede requirements imposed on the Discharger by the Executive Officer by letter of May 1, 2008, issued pursuant to California Water Code Section 13383.

a. Two (2)-Hour Notification

For any unauthorized discharges that result in a discharge to a drainage channel or a surface water, the Discharger shall, as soon as possible, but not later than two (2) hours after becoming aware of the discharge, notify the State Office of Emergency Services (telephone 800-852-7550), the local health officers or directors of environmental health with jurisdiction over the affected water bodies, and the Regional Water Board. The notification to the Regional Water Board shall be via the Regional Water Board's online reporting system at www.wbers.net, and shall include the following:

1) Incident description and cause;

2) Location of threatened or involved waterway(s) or storm drains;

3) Date and time the unauthorized discharge started;

4) Estimated quantity and duration of the unauthorized discharge (to the extent known), and the estimated amount recovered;

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially-treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

5) Level of treatment prior to discharge (e.g., raw wastewater, primary treated, undisinfected secondary treated, and so on); and

6) Identity of the person reporting the unauthorized discharge.

b. 24-hour Certification

Within 24 hours, the Discharger shall certify to the Regional Water Board, at www.wbers.net, that the State Office of Emergency Services and the local health officers or directors of environmental health with jurisdiction over the affected water bodies have been notified of the unauthorized discharge.

c. 5-Day Written Report

Within five business days, the Discharger shall submit a written report, via the Regional Water Board's online reporting system at www.wbers.net, that includes, in addition to the information required above, the following:

1) Methods used to delineate the geographical extent of the unauthorized discharge within receiving waters;

2) Efforts implemented to minimize public exposure to the unauthorized discharge;

3) Visual observations of the impacts (if any) noted in the receiving waters (e.g., fish kill, discoloration of water) and the extent of sampling if conducted;

4) Corrective measures taken to minimize the impact of the unauthorized discharge;

5) Measures to be taken to minimize the chances of a similar unauthorized discharge occurring in the future;

6) Summary of Spill Prevention Plan or O&M Manual modifications to be made, if necessary, to minimize the chances of future unauthorized discharges; and

7) Quantity and duration of the unauthorized discharge, and the amount recovered.

d. Communication Protocol

To clarify the multiple levels of notification, certification, and reporting, the current communication requirements for unauthorized discharges from municipal wastewater treatment plants are summarized in Table B that follows.

Table B

Summary of Communication Requirements for Unauthorized Discharges[1] from Municipal Wastewater Treatment Plants

Discharger is required to:	Agency Receiving Information	Time frame	Method for Contact
1. Notify	California Emergency Management Agency (Cal EMA)	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Telephone – (800) 852-7550 (obtain a control number from Cal EMA)
	Local health department	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Depends on local health department
	Regional Water Board	As soon as possible, but not later than **2 hours** after becoming aware of the unauthorized discharge.	Electronic[2] www.wbers.net
2. Certify	Regional Water Board	As soon as possible, but not later than **24 hours** after becoming aware of the unauthorized discharge.	Electronic[3] www.wbers.net
3. Report	Regional Water Board	Within **5 business days** of becoming aware of the unauthorized discharge.	Electronic[4] www.wbers.net

[1] California Code of Regulations, Title 23, Section 2250(b), defines an unauthorized discharge to be a discharge, not regulated by waste discharge requirements, of treated, partially-treated, or untreated wastewater resulting from the intentional or unintentional diversion of wastewater from a collection, treatment or disposal system.

[2] In the event that the Discharger is unable to provide online notification within 2 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board's spill hotline at (510) 622-2369 and convey the same information contained in the notification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the notification information into the Regional Water Board's online system in electronic format.

[3] In most instances, the 2-hour notification will also satisfy 24-hour certification requirements. This is because the notification form includes fields for documenting that OES and the local health department have been contacted. In other words, if the Discharger is able to complete all the fields in the notification form within 2 hours, certification requirements are also satisfied. In the event that the Discharger is unable to provide online certification within 24 hours of becoming aware of an unauthorized discharge, it shall phone the Regional Water Board's spill hotline at (510) 622-2369 and convey the same information contained in the certification form. In addition, within 3 business days of becoming aware of the unauthorized discharge, the Discharger shall enter the certification information into the Regional Water Board's online system in electronic format.

[4] If the Discharger cannot satisfy the 5-day reporting requirements via the Regional Water Board's online reporting system, it shall submit a written report (preferably electronically in pdf) to the appropriate Regional Water Board case manager. In cases where the Discharger cannot satisfy the 5-day reporting requirements via the online reporting system, it must still complete the Regional Water Board's online reporting requirements within 15 calendar days of becoming aware of the unauthorized discharge.

F. Planned Changes – Not supplemented

G. Anticipated Noncompliance – Not supplemented

H. Other Noncompliance – Not supplemented

I. Other Information – Not supplemented

VI. STANDARD PROVISION – ENFORCEMENT – Not Supplemented

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS – Not Supplemented

VIII. DEFINITIONS – This section is an addition to Standard Provisions (Attachment D)

More definitions can be found in Attachment A of this NPDES Permit.

1. Arithmetic Calculations

   a. Geometric mean is the antilog of the log mean or the back-transformed mean of the logarithmically transformed variables, which is equivalent to the multiplication of the antilogarithms. The geometric mean can be calculated with either of the following equations:

   $$\text{Geometric Mean} = Anti\log\left(\frac{1}{N}\sum_{i=1}^{N} Log(C_i)\right)$$

   or

   $$\text{Geometric Mean} = (C_1 * C_2 * \ldots * C_N)^{1/N}$$

   Where "N" is the number of data points for the period analyzed and "C" is the concentration for each of the "N" data points.

   b. Mass emission rate is obtained from the following calculation for any calendar day:

   $$\text{Mass emission rate (lb/day)} = \frac{8.345}{N}\sum_{i=1}^{N} Q_i C_i$$

   $$\text{Mass emission rate (kg/day)} = \frac{3.785}{N}\sum_{i=1}^{N} Q_i C_i$$

   In which "N" is the number of samples analyzed in any calendar day and "Q_i" and "C_i" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" grab samples that may be taken in any calendar day. If a composite sample is taken, "C_i" is the concentration measured in the composite sample and "Q_i" is the average flow rate occurring during the period over which the samples are composited. The daily concentration of a constituent measured over any calendar day shall be determined from the flow-weighted average of the same constituent in the combined waste streams as follows:

$$\text{Cd = Average daily concentration} = \frac{1}{Q_t}\sum_{i=1}^{N} Q_i C_i$$

In which "N" is the number of component waste streams and "Q" and "C" are the flow rate (MGD) and the constituent concentration (mg/L) associated with each of the "N" waste streams. "Q_t" is the total flow rate of the combined waste streams.

c. Maximum allowable mass emission rate, whether for a 24-hour, weekly 7-day, monthly 30-day, or 6-month period, is a limitation expressed as a daily rate determined with the formulas in the paragraph above, using the effluent concentration limit specified in the permit for the period and the specified allowable flow.

d. POTW removal efficiency is the ratio of pollutants removed by the treatment facilities to pollutants entering the treatment facilities (expressed as a percentage). The Discharger shall determine removal efficiencies using monthly averages (by calendar month unless otherwise specified) of pollutant concentration of influent and effluent samples collected at about the same time and using the following equation (or its equivalent):

Removal Efficiency (%) = 100 × [1-(Effluent Concentration/Influent Concentration)]

2. Biosolids means the solids, semi-liquid suspensions of solids, residues, screenings, grit, scum, and precipitates separated from or created in wastewater by the unit processes of a treatment system. It also includes, but is not limited to, all supernatant, filtrate, centrate, decantate, and thickener overflow and underflow in the solids handling parts of the wastewater treatment system.

3. Blending is the practice of recombining wastewater that has been biologically treated with wastewater that has bypassed around biological treatment units.

4. Bottom sediment sample is (1) a separate grab sample taken at each sampling station for the determination of selected physical-chemical parameters, or (2) four grab samples collected from different locations in the immediate vicinity of a sampling station while the boat is anchored and analyzed separately for macroinvertebrates.

5. Composite sample is a sample composed of individual grab samples collected manually or by an automatic sampling device on the basis of time or flow as specified in the MRP. For flow-based composites, the proportion of each grab sample included in the composite sample shall be within plus or minus five percent (+/-5%) of the representative flow rate of the waste stream being measured at the time of grab sample collection. Alternatively, equal volume grab samples may be individually analyzed with the flow-weighted average calculated by averaging flow-weighted ratios of each grab sample analytical result. Grab samples comprising time-based composite samples shall be collected at intervals not greater than those specified in the MRP. The quantity of each grab sample comprising a time-based composite sample shall be a set of flow proportional volumes as specified in the MRP. If a particular time-based or flow-based composite sampling protocol is not specified in the MRP, the Discharger shall determine and implement the most representative sampling protocol for the given parameter subject to Executive Officer approval.

6. Depth-integrated sample is defined as a water or waste sample collected by allowing a sampling device to fill during a vertical traverse in the waste or receiving water body being sampled. The Discharger shall collect depth-integrated samples in such a manner that the collected sample will be representative of the waste or water body at that sampling point.

7. Flow sample is an accurate measurement of the average daily flow volume using a properly calibrated and maintained flow measuring device.

8. Grab sample is an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples represent only the condition that exists at the time the wastewater is collected.

9. Initial dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with receiving water around the point of discharge.

10. Overflow is the intentional or unintentional spilling or forcing out of untreated or partially-treated wastes from a transport system (e.g., through manholes, at pump stations, and at collection points) upstream from the treatment plant headworks or from any part of a treatment plant facility.

11. Priority pollutants are those constituents referred to in 40 CFR Part 122 as promulgated in the Federal Register, Vol. 65, No. 97, Thursday, May 18, 2000, also known as the California Toxics Rule, the presence or discharge of which could reasonably be expected to interfere with maintaining designated uses.

12. Stormwater means stormwater runoff, snow melt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

13. Toxic pollutant means any pollutant listed as toxic under federal Clean Water Act section 307(a)(1) or under 40 CFR 401.15.

14. Untreated waste is raw wastewater.

15. Waste, waste discharge, discharge of waste, and discharge are used interchangeably in the permit. The requirements of the permit apply to the entire volume of water, and the material therein, that is disposed of to surface and ground waters of the State of California.

Table C

List of Monitoring Parameters and Analytical Methods

CTR No.	Pollutant/Parameter	Analytical Method[5]	Minimum Levels[6] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
1.	Antimony	204.2					10	5	50	0.5	5	0.5		1,000
2.	Arsenic	206.3				20		2	10	2	2	1		1,000
3.	Beryllium						20	0.5	2	0.5	1			1,000
4.	Cadmium	200 or 213					10	0.5	10	0.25	0.5			1,000
5a.	Chromium (III)	SM 3500												
5b.	Chromium (VI)	SM 3500				10	5							1,000
	Chromium (total)[7]	SM 3500					50	2	10	0.5	1			1,000
6.	Copper	200.9					25	5	10	0.5	2			1,000
7.	Lead	200.9					20	5	5	0.5	2			10,000
8.	Mercury	1631 (note)[8]												
9.	Nickel	249.2					50	5	20	1	5			1,000
10.	Selenium	200.8 or SM 3114B or C						5	10	2	5	1		1,000
11.	Silver	272.2					10	1	10	0.25	2			1,000
12.	Thallium	279.2					10	2	10	1	5			1,000
13.	Zinc	200 or 289					20		20	1	10			
14.	Cyanide	SM 4500 CN^- C or I				5								
15.	Asbestos (only required for dischargers to MUN waters)[9]	0100.2 [10]												
16.	2,3,7,8-TCDD and 17 congeners (Dioxin)	1613												
17.	Acrolein	603	2.0	5										
18.	Acrylonitrile	603	2.0	2										
19.	Benzene	602	0.5	2										
33.	Ethylbenzene	602	0.5	2										
39.	Toluene	602	0.5	2										
20.	Bromoform	601	0.5	2										
21.	Carbon Tetrachloride	601	0.5	2										
22.	Chlorobenzene	601	0.5	2										
23.	Chlorodibromomethane	601	0.5	2										
24.	Chloroethane	601	0.5	2										

[5] The suggested method is the U.S. EPA Method unless otherwise specified (SM = Standard Methods). The Discharger may use another U.S. EPA-approved or recognized method if that method has a level of quantification below the applicable water quality objective. Where no method is suggested, the Discharger has the discretion to use any standard method.

[6] Minimum levels are from the *State Implementation Policy*. They are the concentration of the lowest calibration standard for that technique based on a survey of contract laboratories. Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., U.S. EPA 200.9); Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; DCP = Direct Current Plasma.

[7] Analysis for total chromium may be substituted for analysis of chromium (III) and chromium (VI) if the concentration measured is below the lowest hexavalent chromium criterion (11 µg/L).

[8] The Discharger shall use ultra-clean sampling (U.S. EPA Method 1669) and ultra-clean analytical methods (U.S. EPA Method 1631) for mercury monitoring. The minimum level for mercury is 2 ng/l (or 0.002 µg/L).

[9] MUN = Municipal and Domestic Supply. This designation, if applicable, is in the Findings of the permit.

[10] Determination of Asbestos Structures over 10 [micrometers] in Length in Drinking Water Using MCE Filters, U.S. EPA 600/R-94-134, June 1994.

CTR No.	Pollutant/Parameter	Analytical Method[5]	Minimum Levels[6] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
25.	2-Chloroethylvinyl Ether	601	1	1										
26.	Chloroform	601	0.5	2										
75.	1,2-Dichlorobenzene	601	0.5	2										
76.	1,3-Dichlorobenzene	601	0.5	2										
77.	1,4-Dichlorobenzene	601	0.5	2										
27.	Dichlorobromomethane	601	0.5	2										
28.	1,1-Dichloroethane	601	0.5	1										
29.	1,2-Dichloroethane	601	0.5	2										
30.	1,1-Dichloroethylene or 1,1-Dichloroethene	601	0.5	2										
31.	1,2-Dichloropropane	601	0.5	1										
32.	1,3-Dichloropropylene or 1,3-Dichloropropene	601	0.5	2										
34.	Methyl Bromide or Bromomethane	601	1.0	2										
35.	Methyl Chloride or Chloromethane	601	0.5	2										
36.	Methylene Chloride or Dichlorormethane	601	0.5	2										
37.	1,1,2,2-Tetrachloroethane	601	0.5	1										
38.	Tetrachloroethylene	601	0.5	2										
40.	1,2-Trans-Dichloroethylene	601	0.5	1										
41.	1,1,1-Trichloroethane	601	0.5	2										
42.	1,1,2-Trichloroethane	601	0.5	2										
43.	Trichloroethene	601	0.5	2										
44.	Vinyl Chloride	601	0.5	2										
45.	2-Chlorophenol	604	2	5										
46.	2,4-Dichlorophenol	604	1	5										
47.	2,4-Dimethylphenol	604	1	2										
48.	2-Methyl-4,6-Dinitrophenol or Dinitro-2-methylphenol	604	10	5										
49.	2,4-Dinitrophenol	604	5	5										
50.	2-Nitrophenol	604		10										
51.	4-Nitrophenol	604	5	10										
52.	3-Methyl-4-Chlorophenol	604	5	1										
53.	Pentachlorophenol	604	1	5										
54.	Phenol	604	1	1		50								
55.	2,4,6-Trichlorophenol	604	10	10										
56.	Acenaphthene	610 HPLC	1	1	0.5									
57.	Acenaphthylene	610 HPLC		10	0.2									
58.	Anthracene	610 HPLC		10	2									
60.	Benzo(a)Anthracene or 1,2 Benzanthracene	610 HPLC	10	5										
61.	Benzo(a)Pyrene	610 HPLC		10	2									
62.	Benzo(b)Fluoranthene or 3,4 Benzofluoranthene	610 HPLC		10	10									
63.	Benzo(ghi)Perylene	610 HPLC		5	0.1									
64.	Benzo(k)Fluoranthene	610 HPLC		10	2									
74.	Dibenzo(a,h)Anthracene	610 HPLC		10	0.1									
86.	Fluoranthene	610 HPLC	10	1	0.05									
87.	Fluorene	610 HPLC		10	0.1									
92.	Indeno(1,2,3-cd) Pyrene	610 HPLC		10	0.05									
100.	Pyrene	610 HPLC		10	0.05									

CTR No.	Pollutant/Parameter	Analytical Method[5]	Minimum Levels[6] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
68.	Bis(2-Ethylhexyl)Phthalate	606 or 625	10	5										
70.	Butylbenzyl Phthalate	606 or 625	10	10										
79.	Diethyl Phthalate	606 or 625	10	2										
80.	Dimethyl Phthalate	606 or 625	10	2										
81.	Di-n-Butyl Phthalate	606 or 625		10										
84.	Di-n-Octyl Phthalate	606 or 625		10										
59.	Benzidine	625		5										
65.	Bis(2-Chloroethoxy)Methane	625		5										
66.	Bis(2-Chloroethyl)Ether	625	10	1										
67.	Bis(2-Chloroisopropyl)Ether	625	10	2										
69.	4-Bromophenyl Phenyl Ether	625	10	5										
71.	2-Chloronaphthalene	625		10										
72.	4-Chlorophenyl Phenyl Ether	625		5										
73.	Chrysene	625		10	5									
78.	3,3'-Dichlorobenzidine	625		5										
82.	2,4-Dinitrotoluene	625	10	5										
83.	2,6-Dinitrotoluene	625		5										
85.	1,2-Diphenylhydrazine (note)[11]	625		1										
88.	Hexachlorobenzene	625	5	1										
89.	Hexachlorobutadiene	625	5	1										
90.	Hexachlorocyclopentadiene	625	5	5										
91.	Hexachloroethane	625	5	1										
93.	Isophorone	625	10	1										
94.	Naphthalene	625	10	1	0.2									
95.	Nitrobenzene	625	10	1										
96.	N-Nitrosodimethylamine	625	10	5										
97.	N-Nitrosodi-n-Propylamine	625	10	5										
98.	N-Nitrosodiphenylamine	625	10	1										
99.	Phenanthrene	625		5	0.05									
101.	1,2,4-Trichlorobenzene	625	1	5										
102.	Aldrin	608	0.005											
103.	α-BHC	608	0.01											
104.	β-BHC	608	0.005											
105.	γ-BHC (Lindane)	608	0.02											
106.	δ-BHC	608	0.005											
107.	Chlordane	608	0.1											
108.	4,4'-DDT	608	0.01											
109.	4,4'-DDE	608	0.05											
110.	4,4'-DDD	608	0.05											
111.	Dieldrin	608	0.01											
112.	Endosulfan (alpha)	608	0.02											
113.	Endosulfan (beta)	608	0.01											
114.	Endosulfan Sulfate	608	0.05											
115.	Endrin	608	0.01											
116.	Endrin Aldehyde	608	0.01											
117.	Heptachlor	608	0.01											

[11] Measurement for 1,2-Diphenylhydrazine may use azobenzene as a screen: if azobenzene is measured at >1 µg/L, then the Discharger shall analyze for 1,2-Diphenylhydrazine.

CTR No.	Pollutant/Parameter	Analytical Method[5]	Minimum Levels[6] (µg/l)											
			GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
118.	Heptachlor Epoxide	608	0.01											
119-125	PCBs: Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260	608	0.5											
126.	Toxaphene	608	0.5											