# California Regional Water Quality Control Board
## San Francisco Bay Region

**Linda S. Adams**
*Acting Secretary for Environmental Protection*

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**Edmund G. Brown, Jr.**
*Governor*


**ORDER NO. R2-2011-0049**
**NPDES NO. CA0005134**

The following Discharger is subject to waste discharge requirements as set forth in this Order.

**Table 1. Discharger Information**

| | |
|---|---|
| **Discharger** | **Chevron Products Company, a division of Chevron U.S.A. Inc.**<br>**Chevron Chemical Company LLC, and**<br>**General Chemical** |
| **Name of Facility** | Richmond Refinery |
| **Facility Address** | 841 Chevron Way |
| | Richmond, CA 94801 |
| | Contra Costa County |
| The United States Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge. | |

Discharges by the Discharger from the discharge points identified below are subject to waste discharge requirements as set forth in this Order.

**Table 2. Discharge Location**

| Discharge Point | Effluent Description | Discharge Point Latitude | Discharge Point Longitude | Receiving Water |
|---|---|---|---|---|
| 001 | Treated wastewater | 37º 58’ 15” N | 122º 25’ 45” W | San Pablo Bay |
| 002 | Richmond Long Wharf | 37º 55’ 15” N | 122º 24’ 30” W | San Francisco Bay |
| 003 | Stormwater | 37º 57’ 15” N | 122º 23’ 30” W | San Pablo Bay |
| 004 | Stormwater | 37º 57’ 15” N | 122º 24’ 45” W | San Francisco Bay |
| 005 | Stormwater | 37º 57’ 30” N | 122º 25’ 30” W | San Francisco Bay |
| 006 | Stormwater | 37º 57’ 15” N | 122º 25’ 15” W | San Francisco Bay |
| 007 | Stormwater | 37º 57’ 15” N | 122º 25’ 15” W | San Francisco Bay |
| 008 | Stormwater | 37º 57’ 15” N | 122º 23’ 30” W | San Pablo Bay |
| 009 | Stormwater | 37º 56’ 00” N | 122º 24’ 15” W | San Francisco Bay |
| 010 | Stormwater | 37º 57’ 15” N | 122º 22’ 45” W | Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay |
| 011 | Stormwater | 37º 56’ 45” N | 122º 22’ 30” W | Castro Creek to San Pablo Bay |
| 012 | Stormwater | 37º 56’ 45” N | 122º 22’ 30” W | Castro Creek to San Pablo Bay |
| 013 | Stormwater | 37º 57’ 00” N | 122º 22’ 45” W | Castro Creek to San Pablo Bay |
| 014 | Stormwater | 37º 57’ 00” N | 122º 22’ 45” W | Castro Creek to San Pablo Bay |
| 015 | Stormwater | 37º 55’ 60” N | 122º 23’ 30” W | 38’ Channel to San Pablo Bay |

| Discharge Point | Effluent Description | Discharge Point Latitude | Discharge Point Longitude | Receiving Water |
|---|---|---|---|---|
| 016 | Stormwater | 37º 55’ 60” N | 122º 23’ 30” W | 38’ Channel to San Pablo Bay |
| 017 | Stormwater | 37º 55’ 45” N | 122º 24’ 30” W | San Francisco Bay |
| 018 | Stormwater | 37º 55’ 45” N | 122º 24’ 00” W | San Francisco Bay |
| 019 | Stormwater | 37º 57’ 30” N | 122º 25’ 30” W | San Francisco Bay |
| 020 | Stormwater | 37º 57’ 15” N | 122º 23’ 15” W | Castro Creek to San Pablo Bay |
| 021 | Stormwater | 37º 56’ 45” N | 122º 22’ 30” W | Castro Creek to San Pablo Bay |
| 022 | Stormwater | 37º 57’ 15” N | 122º 22’ 45” W | Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay |
| 023 | Stormwater | 37º 57’ 15” N | 122º 22’ 45” W | Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay |

**Table 3. Administrative Information**

| | |
|---|---|
| This Order was adopted by the Regional Water Board on: | **July 13, 2011** |
| This Order shall become effective on: | **September 1, 2011** |
| This Order shall expire on: | **August 31, 2016** |
| The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than: | **180 days prior to the Order expiration date** |

I, Bruce H. Wolfe, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on July 13, 2011.

Digitally signed by Bruce Wolfe
Date: 2011.07.14 14:41:16 -07'00'

Bruce H. Wolfe, Executive Officer

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# I. FACILITY INFORMATION

The following Discharger is subject to the waste discharge requirements as set forth in this Order:

**Table 4. Facility Information**

| | |
|---|---|
| **Discharger** | **Chevron Products Company, a division of Chevron U.S.A. Inc.<br>Chevron Chemical Company LLC, and<br>General Chemical** |
| **Name of Facility** | Richmond Refinery |
| **Facility Address** | 841 Chevron Way<br>Richmond, CA 94801<br>Contra Costa County |
| **Facility Contact, Title, Phone No.** | Michael E. Coyle, General Manager, (510) 242-4400 |
| **Mailing Address** | P.O. Box 1272, Richmond, CA 94802 |
| **Type of Facility** | Petroleum Refinery |
| **Facility Flow** | Discharge Point No. 001: 27.5 million gallons per day (MGD) (maximum reported daily flow); 6.6 MGD (long-term average flow) |

# II. FINDINGS

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

**A. Background.** Chevron Products Company, a division of Chevron U.S.A. Inc., Chevron Chemical Company LLC, and General Chemical Corporation (hereinafter Discharger) are currently discharging under Order No. R2-2006-0035 (hereinafter previous Order) and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0005134. Order No. R2-2006-0035 was amended by Order No. R2-2010-0057 which amended requirements for selenium. The Discharger submitted a Report of Waste Discharge dated December 7, 2010, and applied for a reissuance of its NPDES permit to discharge treated industrial wastewater from its wastewater treatment plant, to San Pablo Bay. Further, stormwater and authorized non-stormwater discharges are discharged through 23 discharge locations throughout the Richmond Refinery (hereinafter, Facility) to San Pablo Bay and San Francisco Bay. The discharge is also currently regulated under Order No. R2-2007-0077 (NPDES Permit CA0038849) amended by Order No. R2-2011-0012, which supersedes all requirements on mercury and PCBs from wastewater discharges in the region. This Order does not affect the mercury and PCBs permit.

For purposes of this Order, references to the "Discharger" or "Permittee" in applicable federal and State laws, regulations, plans, or policies are held to be equivalent to references to the Discharger herein.

**B. Facility Description.** The Discharger owns and operates a petroleum refinery that from May 2007 through April 2008 had a crude-run throughput of approximately 244,000 barrels per day (bbls/day). This Order regulates the discharge of effluent from the Discharger's wastewater treatment system, and the discharges of all stormwater associated with industrial activity from the Facility to San Pablo Bay and San Francisco Bay.

The Discharger owns and operates a wastewater treatment plant. The treatment system includes three oil and water separators that operate in parallel and treat various process wastewaters throughout the Facility. From the three oil and water separators, wastewater is routed to a bioreactor that consists of four quadrants. The first two quadrants provide biological treatment through aeration, while the next two quadrants are used as settling basins. After the settling basins, the Discharger routes a portion of bioreactor effluent to a water enhancement wetland (Wetland). The remaining bioreactor effluent, and typically all Wetland effluent is routed through granular activated carbon (GAC) before discharge through a deepwater diffuser (average depth of 30 to 50 feet) into San Pablo Bay, approximately 2,000 feet offshore north of Point San Pablo (E-001). The Discharger has the option to discharge a portion of Wetland effluent directly to Discharge Point No. 001 (downstream of the GAC facility) provided Wetland effluent discharges do not exceed a daily maximum of 3 MGD, and do not cause acute toxicity. Attachment B provides a topographic map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

1. **Industrial Recycled Water Use:** The Regional Water Board supports the use of recycled water to minimize the use of fresh potable water. The Discharger utilizes recycled water that has received biological treatment to test its firewater lines. In addition to the use of water drawn from the firewater lines in the fire protection and safety systems (including emergency and non-emergency use), the Discharger also uses firewater in its process, storage, and material transfer areas and routes it back into the wastewater treatment system. During storm events, some firewater may commingle with stormwater runoff. Firewater may also be used for dust control and landscape maintenance within the Facility.

2. **Municipal Recycled Water Use:** The East Bay Municipal Utility District (EBMUD) owns and operates the North Richmond Water Reclamation Plant, which provides tertiary treatment of West County Wastewater District's secondary effluent, to provide high quality recycled water to the Discharger. Further, EBMUD owns and operates the Richmond Advanced Recycled Expansion Facility (RARE), which is located at the Discharger's facility. The RARE facility treats secondary treated effluent from West County Wastewater District onsite with microfiltration and reverse osmosis units. The Discharger uses the recycled water for such things as cooling tower make-up water, boiler make-up water, and landscape irrigation. Recycled water that is used for recycled water pipeline maintenance and cooling-water start-up activities may be discharged directly to the Discharger's wastewater treatment system.

**C. Legal Authorities.** This Order is issued pursuant to Clean Water Act (CWA) section 402 and implementing regulations adopted by the USEPA, and California Water Code (CWC) Chapter 5.5, Division 7 (commencing with section 13370). It shall serve as an NPDES permit for the point source discharges identified in Table 2. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to CWC Article 4, Chapter 4, Division 7 (commencing with section 13260).

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

**E. California Environmental Quality Act (CEQA).** Pursuant to CWC section 13389, this action to adopt an NPDES permit is exempt from CEQA provisions.

**F. Technology-Based Effluent Limitations.** CWA section 301(b) and NPDES regulations at Title 40 of the Code of Federal Regulations (CFR) Section 122.44 require permits, at a minimum, to include conditions meeting applicable technology-based requirements and any more stringent effluent limitations necessary to meet applicable water quality standards. Discharges authorized by this Order must meet technology-based requirements USEPA established at 40 CFR 419, *Effluent Limitations Guidelines for the Petroleum Refining Point Source Category*, as well as technology-based requirements established using Best Professional Judgment (BPJ) pursuant to 40 CFR 125.3. A detailed discussion of the development of the technology-based effluent limitations in this Order is included in the Fact Sheet.

**G. Water Quality-Based Effluent Limitations.** CWA section 301(b) and NPDES regulations at 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements when necessary to achieve applicable water quality standards.

NPDES regulations at 40 CFR 122.44(d)(1)(i) mandate that permits include effluent limitations 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 objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using (1) USEPA 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 the State's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

**H. Water Quality Control Plans.** *The Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan) is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was adopted by the Regional Water Board and approved by the State Water Resources Control Board (State Water Board), USEPA, and the Office of Administrative Law (OAL), as required.

The Basin Plan implements State Water Board Resolution No. 88-63, which establishes State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Because of the marine influence on receiving waters of San Francisco Bay, total dissolved solids levels in San Francisco Bay commonly (and often significantly) exceed 3,000 mg/L and thereby meet an exception to State Water Board Resolution No. 88-63. The designation MUN does not apply to San Pablo Bay. Beneficial uses described by the Basin Plan and applicable to San Pablo Bay and San Francisco Bay are listed in Table 5. Requirements of this Order implement the Basin Plan.

**Table 5. Beneficial Uses of Receiving Waters**

| Discharge Point(s) | Receiving Water Name | Beneficial Uses |
|---|---|---|
| 001, 003, 008, 010 – 014, and 020 – 023 | San Pablo Bay | Industrial Service Supply (IND)<br>Ocean, Commercial and Sport Fishing (COMM)<br>Shellfish Harvesting (SHELL)<br>Estuarine Habitat (EST)<br>Fish Migration (MIGR)<br>Preservation of Rare and Endangered Species (RARE)<br>Fish Spawning (SPWN)<br>Wildlife Habitat (WILD)<br>Water Contact Recreation (REC1)<br>Non-Contact Water Recreation (REC2)<br>Navigation (NAV) |
| 002, 004 – 007, 009, and 017 – 019 | San Francisco Bay | Industrial Service Supply (IND)<br>Industrial Process Supply (PRO)<br>Ocean, Commercial and Sport Fishing (COMM)<br>Shellfish Harvesting (SHELL)<br>Estuarine Habitat (EST)<br>Fish Migration (MIGR)<br>Preservation of Rare and Endangered Species (RARE)<br>Fish Spawning (SPWN)<br>Wildlife Habitat (WILD)<br>Water Contact Recreation (REC1)<br>Non-Contact Water Recreation (REC2)<br>Navigation (NAV) |

The State Water Board's *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* 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.

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

**J. 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 USEPA promulgated for California through the NTR and to 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 the USEPA promulgated through the CTR. On February 24, 2005, the State Water Board adopted amendments to the SIP that became effective on July 13, 2005. The SIP establishes implementation provisions

for priority pollutant objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

**K. Compliance Schedules and Interim Requirements.** The State Water Board adopted Resolution No. 2008-0025 on April 15, 2008, titled *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits*. Under limited circumstances, this policy allows the Regional Water Board to grant a compliance schedule based on a Discharger's request and demonstration that it is infeasible to comply immediately with certain effluent limitations. This policy became effective on August 27, 2008. This Order does not include a compliance schedule or interim effluent limitations.

**L. Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised State and tribal water quality standards become effective for CWA purposes [65 Fed. Reg. 24641 (April 27, 2000) (codified at 40 CFR 131.21)]. Under the revised regulation (also known as the Alaska Rule), USEPA must approve new and revised standards submitted to USEPA after May 30, 2000, before they can be used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

**M. Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. This Order's technology-based pollutant restrictions implement the minimum applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum federal technology-based requirements as necessary to meet water quality standards. These limitations are not more stringent than required by the CWA.

WQBELs have been derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The procedures for calculating the individual WQBELs for priority pollutants are based on the SIP, which was approved by USEPA on May 18, 2000. All beneficial uses and water quality objectives in the Basin Plan were approved under State law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless applicable water quality standards for purposes of the CWA pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement CWA requirements.

**N. Antidegradation Policy.** 40 CFR 131.12 requires 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 No. 68-16, which incorporates the federal antidegradation policy where the federal policy applies under federal law and requires that the existing quality of receiving waters be maintained unless degradation is justified based on specific findings. The Basin Plan incorporates by reference and implements both the State and federal antidegradation policies. As discussed in the Fact Sheet, the permitted

discharges are consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

**O. Anti-Backsliding Requirements.** CWA sections 402(o)(2) and 303(d)(4) and 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be at least as stringent as those in the previous Order, with some exceptions where limitations may be relaxed. Some effluent limitations in this Order are less stringent than those in the previous Order. As discussed in the Fact Sheet, the permitted discharge is consistent with the CWA anti-backsliding requirements and federal regulations.

**P. Monitoring and Reporting.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. CWC sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (Attachment E) establishes monitoring and reporting requirements to implement federal and State requirements.

**Q. Standard and Special Provisions.** Attachment D contains standard provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42. The Discharger must comply with all Standard Provisions and with those additional conditions that apply pursuant to 40 CFR 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. The Fact Sheet provides rationales for the special provisions.

**R. Provisions and Requirements Implementing State Law.** There are no provisions or requirements in this Order that implement State law only.

**S. Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit written comments and recommendations. The Fact Sheet provides details regarding the notification.

**T. Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharges authorized by this Order. Details of the Public Hearing are provided in the Fact Sheet.

IT IS HEREBY ORDERED, that this Order supersedes Order No. R2-2006-0035, as amended, except for enforcement purposes, and, in order to meet the provisions contained in CWC Division 7 (commencing with section 13000) and regulations adopted thereunder, and CWA provisions and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

## III. DISCHARGE PROHIBITIONS

**A**. Discharge of wastewater at a location or in a manner different from that described in this Order is prohibited.

**B.** The discharge of treated wastewater through Discharge Point No. 001 at any point at which the treated wastewater does not receive an initial dilution of at least 34:1 is prohibited. The

Discharger may reuse a portion of its biologically treated wastewater for onsite landscape irrigation or in the Facility's firewater system, including the Richmond Long Wharf Fire Protection System.

**C.** The bypass of untreated or partially-treated process wastewater to waters of the United States is prohibited, except as provided for in sections I.G.2 and I.G.4 of Attachment D to this Order and as noted in Prohibition B and Finding B.

**D.** The discharge of stormwater runoff from the former Chevron Chemical Company Hensley Street Plant site (drainage area for Discharge Point No. 011) to waters of the State is prohibited unless the following conditions occur: during any wet season in which a rainfall event occurs that yields a 24-hour precipitation with a return frequency of 25 years, an amount of stormwater may be discharged equal to that attributable to the precipitation occurring in excess of the 25-year rain fall event.

**E.** The discharge of stormwater from the Integrated Wastewater Pond (drainage area for Discharge Point No. 013) is prohibited except when it has been demonstrated to the satisfaction of the Executive Officer it contains only stormwater that will not cause or contribute to an exceedances of water quality standards. This demonstration must include measures to ensure that any synthetically-lined surface impoundment is adequately decontaminated.

**F.** The direct discharge of Wetland effluent to Discharge Point No. 001 (downstream of the GAC facility) is prohibited, unless the Discharger complies with Provision VI.C.4.d of this Order.

## IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

### A. Effluent Limitations – Discharge Point No. 001

#### 1. Technology-Based Effluent Limitations

**a.** The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location E-001 as described in the attached Monitoring and Reporting Program (MRP) (Attachment E).

**Table 6a. Technology-based Effluent Limitations**

| Parameter | Units | Effluent Limitations | |
|---|---|---|---|
| | | Average Monthly | Maximum Daily |
| Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C) | lbs/day | 5,800 | 11,000 |
| Total Suspended Solids (TSS) | lbs/day | 4,800 | 7,600 |
| Chemical Oxygen Demand (COD) | lbs/day | 40,000 | 78,000 |
| Oil and Grease | lbs/day | 1,800 | 3,400 |
| | mg/L | 8 | 15 |

| Parameter | Units | Effluent Limitations | |
|---|---|---|---|
| | | Average Monthly | Maximum Daily |
| Phenolic Compounds, Total | lbs/day | 22 | 80 |
| Ammonia Nitrogen, Total (as N) | lbs/day | 2,200 | 4,800 |
| Sulfide, Total | lbs/day | 32 | 71 |
| Chromium, Total Recoverable | lbs/day | 25 | 73 |
| Chromium (VI), Total Recoverable | lbs/day | 2.1 | 4.6 |
| pH | s.u. | 6.0 – 9.0[1] | |

[1] If the Discharger employs continuous pH monitoring (with exception to necessary calibration and maintenance checks), it shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied: (a) the total time during which pH values are outside the required range shall not exceed 7 hours and 26 minutes in any calendar month, and (b) no individual excursion from the required range of pH values shall exceed 60 minutes.

**b.** Additional effluent limitation allocations for contaminated runoff commingled with process wastewater are established in addition to the process wastewater mass-based limitations in section IV.A.1.a. When contaminated runoff is discharged through Discharge Point No. 001, a mass of each pollutant in Table 6b below may be added to the limitation for that pollutant in Table 6a. The additional allocation shall be equal to the contaminated runoff flow times the pollutant's concentration in Table 6b.

**Table 6b. Additional Contaminated Runoff Effluent Limitation Allocations**

| Parameter | Units | Average Monthly | Maximum Daily |
|---|---|---|---|
| BOD | mg/L | 26 | 48 |
| TSS | mg/L | 21 | 33 |
| COD | mg/L | 180 | 360 |
| Oil and Grease | mg/L | 8 | 15 |
| Phenolic Compounds, Total | mg/L | 0.17 | 0.35 |
| Chromium, Total Recoverable | mg/L | 0.21 | 0.60 |
| Chromium (VI) Total Recoverable | mg/L | 0.028 | 0.062 |

**c.** Additional effluent limitation allocations for ballast water are established in addition to the process wastewater mass-based limitations in section IV.A.1.a. When ballast water is discharged through Discharge Point No. 001, a mass of each pollutant in Table 6c below may be added to the limitation for that pollutant in Table 6a. The additional allocation shall be equal to the ballast water flow times the pollutant's concentration in Table 6c.

**Table 6c. Additional Ballast Water Effluent Limitation Allocations**

| Parameter | Units | Average Monthly | Maximum Daily |
|---|---|---|---|
| BOD | mg/L | 26 | 48 |
| TSS | mg/L | 21 | 33 |

| Parameter | Units | Average Monthly | Maximum Daily |
|---|---|---|---|
| COD | mg/L | 240 | 470 |
| Oil and Grease | mg/L | 8 | 15 |

## 2. Effluent Limitations for Toxics Substances

**a.** The Discharger shall comply with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location E-001, as described in the attached MRP (Attachment E):

**Table 7. Effluent Limitations for Toxic Substances at Discharge Point No. 001**

| Parameter | Units | Final Effluent Limitations[1] | |
|---|---|---|---|
| | | Average Monthly | Maximum Daily |
| Cyanide, Total | µg/L | 19 | 45 |
| Copper, Total Recoverable | µg/L | 84 | 120 |
| Lead, Total Recoverable | µg/L | 7.0 | 16 |
| Selenium, Total Recoverable | µg/L | 33 | 34 |
| Dioxin-TEQ | µg/L | $1.4 \times 10^{-8}$ | $2.8 \times 10^{-8}$ |
| Ammonia Nitrogen, Total (as N) | mg/L | 51 | 150 |

[1] a. Limitations apply to the average concentration of all samples collected during the averaging period (daily = 24-hour period; monthly = calendar month).

b. All metals limitations are expressed as total recoverable metal.

## 3. Mass Emission Limitation for Selenium

**a.** Until implementation of a total maximum daily load (TMDL) is in effect for selenium, the Discharger shall not increase mass loading of selenium to San Pablo Bay through Discharge Point No. 001, with compliance measured at Monitoring Location E-001, as described in the attached MRP (Attachment E).

Selenium mass emissions shall not exceed 0.82 kilograms per day (kg/d) as a running annual average.

The running annual average is the arithmetic average of the current day's mass loads for each of the previous 364 days, as shown in the following example:

$$\text{Annual Mass emission rate (kg/day)} = \frac{3.785}{N}\sum_{i=1}^{N} Q_i C_i$$

where:
N = number of samples analyzed in any calendar year
$Q_i$ = flow rate (MGD) associated with the $I^{th}$ sample
$C_i$ = selenium concentration (mg/L) associated with the $I^{th}$ sample.

**4. Acute Toxicity**

**a.** The Discharger shall comply with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location E-001. Acute bioassays shall be conducted in compliance with MRP section V.A (Attachment E).

The survival of organisms in undiluted effluent shall be:

**i.** an eleven (11) sample median value of not less than 90 percent survival, and

**ii.** an eleven (11) sample 90 percentile value of not less than 70 percent survival.

**b.** These acute toxicity limitations are further defined as follows:

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

**90th percentile**: A bioassay test showing survival of less than 70 percent represents a violation of this effluent limitation, if one or more of the past ten or fewer bioassay tests show less than 70 percent survival.

**c.** Bioassays shall be performed using the most up-to-date USEPA protocol and the most sensitive species as specified in the MRP. Bioassays shall be conducted in compliance with *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms*, currently 5th Edition (EPA-821-R-02-012).

**d.** 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 the ammonia effluent limitations, then such toxicity does not constitute a violation of this effluent limitation.

**5. Chronic Toxicity**

**a.** The Discharger shall comply with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location E-001. Chronic bioassays shall be conducted in compliance with MRP section V.B (Attachment E).

The survival of bioassay test organisms in the discharge at Discharge Point No. 001 shall be:

i. A three sample median value equal to or less than 10 TUc, and

ii. A single sample value equal to or less than 20 TUc.

**b.** These chronic toxicity limits are defined as follows:

i. A test sample showing chronic toxicity greater than 10 TUc is a violation of this limitation if one or more of the past two or fewer tests show toxicity greater than 10 TUc.

ii. A TUc equals 100/NOEL. The No Observable Effect Level (NOEL) shall equal to the $IC_{25}$ or $EC_{25}$ (see Attachment E, Appendix E-1). If the $IC_{25}$ or $EC_{25}$ cannot be statistically determined, the NOEL shall equal 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. The NOEL shall be based on a critical life stage test using the most sensitive test species as specified in MRP section V.B (Attachment E). If two compliance test species are specified, compliance shall be based on the maximum TUc value of the discharge samples based on a comparison of TUc values obtained through concurrent testing of the two species.

iii. A test sample showing chronic toxicity greater than 20 TUc represents a violation of this limitation.

**c. Test Species and Methods**

The Discharger shall conduct routine monitoring with the test species and protocols specified in MRP section V.B (Attachment E). The Discharger shall also perform Chronic Toxicity Screening Phase monitoring as described in the MRP Appendix E-1 (Attachment E). Chronic Toxicity Monitoring Screening Phase Requirements, Critical Life Stage Toxicity Tests and definitions of terms used in the chronic toxicity monitoring are identified in MRP Appendices E-1 and E-2 (Attachment E).

## 6. Effluent Limitation Adjustments for Recycled Water Use

When the Discharger uses recycled water, adjustments for influent concentrations for constituents in this Order with mass or concentration based effluent limitations shall be granted in the discharge according to the following procedure:

a. The Discharger shall sample and analyze for constituents for which effluent limitation adjustment is sought at least as frequently as is required in the attached Monitoring and Reporting Program (MRP) for that constituent. Influent sampling shall occur at influent sampling station I-001 defined in the MRP.

b. The Discharger shall determine the time interval between introduction of a given constituent of concern in the influent recycled water and the first appearance of the constituent in the final effluent. This determination is subject to approval by the Executive Officer, and must precede any calculation of effluent limitation adjustment for the constituent.

c. Adjustment for copper, lead, selenium, and cyanide will be given as follows:

Concentration Adjustment
Influent concentration multiplied by total influent reclaimed water flow volume for that monitoring interval will yield an influent mass for each constituent, which is valid for that monitoring interval. After the appropriate time lag interval described in IV.A.6.b above, this influent mass of the constituent is then divided by the total effluent flow volume for that monitoring period to give a concentration adjustment for the effluent that will apply for the monitoring interval. The monitoring interval is the time between sampling days. For example, weekly sampling yields a one week monitoring interval. A schematic example follows:

ex. Constituent B is monitored weekly. The lag time is Y days.

Step 1: (Influent concentration of recycled water B- influent concentration of potable water B) x (Total Influent Volume of Reclaimed Water for one week) = (Influent mass of B)

Step 2: (Influent mass of B) / (Discharge Point No. 001 discharge volume for one week, Y days after influent week) = (Concentration adjustment to be subtracted from concentration of constituent in the effluent, valid for that one week period)

The potable water concentrations used in Step 1 can be an average of samples (minimum of one sample) collected over the last year.

d. The application of recycled water adjustments shall not result in effluent limitations greater than the following:

**Table 8. Maximum Recycled Water Adjustments**

| Parameter | Units | Maximum Recycled Water Adjusted Effluent Limitations | |
|---|---|---|---|
| | | Average Monthly | Maximum Daily |
| Cyanide | µg/L | 38 | 90 |
| Copper | µg/L | 170 | 240 |
| Lead | µg/L | 13 | 30 |
| Selenium | µg/L | 82 | 130 |

e. Adjustment for selenium and technology-based limits listed in Table 6a will be given as follows:

Mass Adjustment
Influent concentration multiplied by total influent reclaimed water volume for that monitoring interval will yield an influent mass for each constituent, which is valid for that monitoring interval. After the appropriate time lag interval described in IV.A.6.b above, this influent mass of the constituent is then divided by the number of days in that monitoring period to give a mass adjustment for the effluent that will apply for the

monitoring interval. The monitoring interval is the time between sampling days. For example, weekly sampling yields a one week monitoring interval. A schematic example follows:

ex. Constituent B is monitored weekly. The lag time is Y days.

Step 1: (Influent concentration of reclaimed water B – influent concentration of potable water B) x (Total Influent Volume of Reclaimed Water for one week) = (Influent mass of B)

Step 2: (Influent mass of B) / (The Number of Days in that monitoring interval) = (Mass adjustment to be subtracted from mass of constituent in the effluent, valid for that one week period)

## B. Stormwater Effluent Limitations - Discharge Point Nos. 002 – 023

**1.** Stormwater discharged at Discharge Point Nos. 002 -023 shall not exceed the effluent limitations in the table below.

**Table 9. Effluent Limitations for Stormwater Outfalls**

| Parameter | Units | Effluent Limitations | | | |
|---|---|---|---|---|---|
| | | Average Monthly | Maximum Daily | Instantaneous Minimum | Instantaneous Maximum |
| TOC | mg/L | -- | 110 | -- | -- |
| Oil and Grease | mg/L | -- | 15 | -- | -- |
| pH | s.u. | -- | -- | 6.5 | 8.5 |
| Visible Oil | -- | None observed | | | |
| Visible Color | -- | None observed | | | |

**2.** If there is an exceedance of either limitation for TOC or Oil and Grease expressed in Table 9, above, the effluent limitations in Table 10, below, shall become effective for the discharge point where the exceedance occurred and remain in effect until such time the Discharger can demonstrate to the satisfaction of the Executive Officer that the stormwater is not contaminated.

**Table 10. Supplemental Effluent Limitations for Stormwater Outfalls**

| Pollutant | Units | Daily Maximum | 30-Day Average[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 |
| Hexavalent Chromium | mg/L | 0.062 | 0.028 |

[1] Compliance with the 30-day average limitation shall be determined as a rolling 30-day average. The rolling 30-day average shall be calculated as the arithmetic average of the concentrations detected over the current day and previous 29 days. This limitation shall not apply unless there is sufficient runoff for sampling on at least three out of 30 consecutive days.

## V. RECEIVING WATER LIMITATIONS

**A.** Receiving water limitations are based on water quality objectives in the Basin Plan and are a required part of this Order. The discharges shall not cause the following in waters of the State at any place:

**1.** Floating, suspended, or deposited macroscopic particulate matter or foams;

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

**3.** Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

**4.** Visible, floating, suspended, or deposited oil and other products of petroleum origin.

**5.** Toxic or other deleterious substances to be present 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; and,

**B.** The discharge of waste shall not cause the following limits to be exceeded in waters of the State within one foot of the water surface:

| | | |
|---|---|---|
| **1.** | Dissolved Oxygen | 5.0 mg/L, minimum<br><br>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 | 6.5 (minimum) to 8.5 (maximum) |
| **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 Board as required by the CWA and regulations adopted thereunder. If more stringent applicable water quality standards are

promulgated or approved, the Regional Water Board may revise and modify this Order in accordance with them.

## VI. PROVISIONS

### A. Standard Provisions

#### 1. Federal Standard Provisions

The Discharger shall comply with Federal Standard Provisions included in Attachment D of this Order.

#### 2. Regional Standard Provisions

The Discharger shall comply with all applicable items of the Regional Standard Provisions and Monitoring and Reporting Requirements (Supplement to Attachment D) for NPDES Wastewater Discharge Permits (Attachment G), including amendments thereto.

### B. MRP Requirements

The Discharger shall comply with the MRP (Attachment E) and future revisions thereto, including applicable sampling and reporting requirements in the two standard provisions listed in section VI.A, above.

### C. Special Provisions

#### 1. Reopener Provisions

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

**a.** If present or future investigations demonstrate that the discharge governed by this Order 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 (WQOs) or TMDLs come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limitations in this Order will be modified as necessary to reflect updated WQOs and wasteload allocations in TMDLs. Adoption of effluent limitations in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs or TMDLs, or as otherwise permitted under federal regulations governing NPDES permit modifications.

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

**d.** If an administrative or judicial decision on a separate NPDES permit or WDR addresses requirements similar to this discharge.

**e.** Or as otherwise authorized by law.

The Discharger may request a permit modification based on the above. The Discharger shall include in any such request an antidegradation and anti-backsliding analysis.

**2. Effluent Characterization Study and Report - Discharge Points 001, 003, 008, 009, 018, and 019**

**a. Study Elements**

The Discharger shall continue to characterize and evaluate discharges from the following discharge points to verify that the "no" or "cannot determine" reasonable potential analysis conclusions of this Order remain valid and to inform the next permit reissuance. The Discharger shall collect representative samples of the discharge at the following monitoring stations, as defined in the MRP (Attachment E), at no less than the frequencies specified below:

| Discharge Point | Monitoring Station | Frequency |
|---|---|---|
| 001 | E-001 | 2/year |
| 003 | E-003 | 2/5 years[1] |
| 008 | E-008 | 2/5 years[1] |
| 009 | E-009 | 2/5 years[1] |
| 018 | E-018 | 2/5 years[1] |
| 019 | E-019 | 2/5 years[1] |

[1] Monitoring is contingent upon the discharge of stormwater at this discharge point. If no discharge occurs, monitoring is not required.

The samples shall be analyzed for the priority pollutants listed in Table C of the Regional Standard Provisions (Attachment G), except for those priority pollutants with effluent limitations where the MRP already requires monitoring. Compliance with this requirement shall be achieved in accordance with the specifications of Regional Standard Provisions (Attachment G) sections III.A.1 and III.A.2.

The Discharger shall evaluate on an annual basis if concentrations of any priority pollutant increase over past performance. The Discharger shall investigate the cause of any 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. 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 30 days of receipt of analytical results, report in the transmittal letter for the appropriate monthly self-monitoring report the following:

a. Indication that a sample or samples for this characterization study was or were collected; and

b. Identity of any and all priority pollutants detected above or within one order of magnitude of their applicable water quality criteria (see Fact Sheet [Attachment F] Table F-19 for the criteria), together with the detected concentrations of those pollutants.

**ii. Annual Reporting**

The Discharger shall provide a summary of the annual data evaluation and source investigation in the annual self-monitoring report.

**iii. Final Report**

The Discharger shall submit a final report that presents all these data to the Regional Water Board no later than 180 days prior to the Order expiration date. The final report shall be submitted with the application for permit reissuance.

**c. Ambient Background Receiving Water Study**

The Discharger shall collect, or participate in collecting, ambient background receiving water priority pollutant monitoring data necessary to perform reasonable potential analyses and to calculate effluent limitations. The data on the conventional water quality parameters (pH, salinity, and hardness) shall also be sufficient to characterize these parameters in the receiving waters at a point after the discharge has mixed with the receiving waters. This provision may be met through the Collaborative Bay Area Clean Water Agencies Study or a similar ambient monitoring program for San Francisco Bay. This Order may be reopened, as appropriate, to incorporate effluent limitations or other requirements based on these data.

**d. Effluent and Receiving Water Selenium Characterization Study**

The Discharger shall comply with the following tasks and schedule set forth in Table 11. The Discharger may complete, or cause to be completed, all or some of the required tasks collaboratively. All submittals shall be acceptable to the Executive Officer. Upon request by the Discharger, the Executive Officer may modify the deadlines for the following tasks by no more than three years if good cause exists, such as delays in data collection, sample collection, analytical turnaround, or receipt of third party reports; laboratory QA/QC problems; other factors outside the Discharger's control; or new information that warrants schedule modification. Good cause does not include delays caused by the Discharger, or that could have been reasonably avoided. Any requests for schedule modification shall be in writing with necessary justification. Any approval shall also be in writing.

**Table 11. Receiving Waters and Effluent Selenium Characterization Study Tasks and Schedule**

| Tasks | Compliance Date |
|---|---|
| 1. Submit a study plan for a minimum two-year study that includes the following elements:<br>(a) effluent and receiving water sampling locations (the effluent sampling location may be the existing effluent compliance sampling point; receiving water sampling locations shall be within a 100-foot radius of the outfall to characterize near-field concentrations and speciation);<br>(b) receiving water sampling along transects from the Pacific Ocean (Golden Gate) to the Sacramento River (Rio Vista) and San Joaquin River (USGS Station 757), including sampling in the freshwater portions of the rivers at Vernalis (San Joaquin River) and Freeport (Sacramento River);<br>(c) sampling and analysis protocols (including means to evaluate seasonal conditions under low and high flows from the Sacramento / San Joaquin River Delta, selenium concentrations in the water column and suspended particles, and speciation and particulate selenium content in the effluent);<br>(d) comparison of the proposed protocols and analytical methods to previous sampling efforts;<br>(e) sampling parameters (including, at a minimum, salinity, carbon, nitrogen, and chlorophyll-a in receiving water, and dissolved and particulate selenate, selenite, organic selenides, and elemental selenium concentrations in both effluent and receiving water);<br>(f) data interpretation models and other methods to be used (representing conservative, reasonable worst case conditions); and<br>(g) implementation schedule. | Completed |
| 2. Begin implementation of the study plan developed for Task (1). | Completed |
| 3. Submit a status report for Tasks 1 and 2 containing, at a minimum, monitoring data collected since the beginning of the study, summary of results to date, and necessary updates to the study plan. | February 1, 2012, with annual self-monitoring report |
| 4. Submit a final study report that includes the following elements:<br>(a) sampling results, data interpretation, and conclusions, such as receiving water and mixing zone characterization, seasonal variability, etc.;<br>(b) effluent characterization;<br>(c) determination if there is reasonable potential for selenium in the discharge to violate the Basin Plan's narrative bioaccumulation objective through the use of pertinent models;<br>(d) comparison of near-field selenium water column concentrations to applicable numeric objectives;<br>(e) demonstration of spatial and temporal extent to which the objectives and other relevant guidelines are being exceeded; and<br>(f) determination of whether selenium levels adversely affect food web or wildlife, or contribute to bioaccumulation. | August 15, 2012 |

**e.** The Discharger shall perform a dilution modeling study for the deep-water diffuser at Discharge Point 001 and report the results no later than 180 days prior to the expiration date of this Order (the Discharger may report the results with its application for permit reissuance). The study shall use a USEPA-approved modeling program such as Visual

PLUMES or CORMIX and estimate the initial dilution at Discharge Point 001 at slack tide for both the maximum wet-weather discharge and the average daily discharge.

**3. Best Management Practices and Pollution Minimization**

**a.** The Discharger shall continue to improve, in a manner acceptable to the Executive Officer, its Pollution 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, acceptable to the Executive Officer, no later than February 28 of each year. Each annual report shall include at least the following information:

**i.** *A brief description of the treatment plant and treatment plant processes.*

**ii.** *A discussion of the current pollutants of concern.* Periodically, the Discharger shall 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 of pollutants of concern.* This discussion shall address how the Discharger intends to estimate and identify sources of pollutants of concern. The Discharger shall also identify sources or potential sources not directly within its ability or authority to control, such as pollutants in the potable 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 tasks themselves or participate in group, regional, or national tasks that will address its pollutants of concern. The Discharger is strongly encouraged to participate in group, regional, or national actions that will address its pollutants of concern whenever it is efficient and appropriate to do so. A time line shall be included for the implementation of each task.

**v.** *Outreach to employees.* The Discharger shall inform its employees regarding pollutants of concern, potential sources, and how they might be able to help reduce discharge of these pollutants 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. The section shall discuss the specific criteria used to measure the effectiveness of each task in sections VI.C.3.b.iv and v.

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

**viii.** *Evaluation of Pollutant Minimization Program and task effectiveness.* The Discharger shall use the criteria established in section VI.C.3.b.vi to evaluate the Program's and tasks' effectiveness.

**ix.** *Identification of specific tasks and time schedules for future efforts.* Based on the evaluation, the Discharger shall describe how it will continue or change its Pollutant Minimization Program tasks to more effectively reduce the loading of pollutants to the treatment plant and subsequently in its effluent.

**c. Pollutant Minimization Program for Pollutants with Effluent Limitations**

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, 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 SIP definitions.

**d. Pollutant Minimization Program Submittals for Pollutants with Effluent Limitations**

If triggered by the reasons in section VI.C.3.c., above, the Discharger's Pollutant Minimization Program shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

**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 approved by the Executive Officer when it is demonstrated that 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, or an alternative measure approved by the Executive Officer when it is demonstrated that 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 limitations;

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

**v.** The annual report required by section VI.C.3.b above shall specifically address the following items:

(a) All Pollutant Minimization Program monitoring results for the previous year;

(b) List of potential sources of the reportable priority pollutants;

(c) A summary of all actions undertaken pursuant to the control strategy; and

(d) A description of actions to be taken in the following year.

## 4. Other Special Provisions

### a. 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 12. Cyanide Action Plan**

| Task | Compliance Date |
|---|---|
| **1. Review Potential Cyanide Contributors**<br>The Discharger shall submit an inventory of potential sources of cyanide to Discharge 001. | Completed |
| **2. Implement Cyanide Control Program**<br>The Discharger shall submit a plan for and begin implementation of a program to minimize cyanide discharges. The plan shall include the following elements at a minimum:<br>a. Inspect each potential contributor to assess the need to include that contributing source in the control program.<br>b. Prepare an emergency response and monitoring plan to be implemented if a significant cyanide discharge occurs.<br>c. If ambient monitoring shows cyanide concentrations of 1.0 µg/L or higher in the main body of San Francisco Bay, undertake actions to identify and abate cyanide sources responsible for the elevated ambient concentrations. | With annual PMP report due February 28, 2012 |
| **3. Implement Additional Cyanide Control Measures**<br>If the Regional Water Board notifies the Discharger that ambient monitoring shows cyanide concentrations of 1.0 µg/L or higher in the main body of San Francisco Bay, the Discharger shall commence actions to identify and abate cyanide sources responsible for the elevated ambient concentrations. | Begin implementation within 90-days of notification |
| **4. Report Status of Cyanide Control Program**<br>Submit a report to the Regional Water Board documenting implementation of the cyanide control program. | Annually with annual PMP reports due February 28 |

### b. 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 13. Copper Action Plan**

| Task | Compliance Date |
|---|---|
| **1. Review Potential Copper Sources**<br>The Discharger shall submit an inventory of potential copper sources to the treatment plant | With annual pollution prevention report due on February 28, 2012 |
| **2. Implement Copper Control Program**<br>The Discharger shall submit a plan for and begin implementation of a program to reduce copper discharges identified in Task 1. | July 1, 2012 |
| **3. Implement Additional Measures**<br>If the Regional Water Board notifies the Discharger that the three-year rolling mean dissolved copper concentration of the receiving water exceeds 3.0 µg/L, the Discharger shall evaluate the effluent copper concentration trend, and if it is increasing, develop and begin implementation of additional measures to control copper discharges. | Begin implementation of additional measures within 90 days of the notification |
| **4. Submit Studies to Reduce Copper Pollutant Impact Uncertainties**<br>The Discharger shall submit an updated study plan and schedule to conduct, or cause to be conducted, technical studies to investigate possible copper sediment toxicity and technical studies to investigate sublethal effects on salmonids. Specifically, the Discharger shall include the manner in which the above will be accomplished and describe the studies to be performed with an implementation schedule. To satisfy this requirement, dischargers may collaborate and conduct these studies as a group. | Completed |
| **5. Report Status of Copper Control Program**<br>The Discharger shall submit a report documenting copper control program implementation and addressing the effectiveness of the actions taken, including any additional copper controls required by Task 3, above, together with a schedule for actions to be taken in the next 12 months. Additionally, the Discharger shall report the findings and results of the studies completed, planned, or in progress under Task 4. Regarding the Task 4 studies, dischargers may collaborate and provide this information in a single report to satisfy this requirement for an entire group. | Annually with annual pollution prevention reports due February 28 |

### c. Stormwater Pollution Prevention Plan and Annual Report

The Discharger shall submit an updated Stormwater Pollution Prevention Plan (SWPPP) acceptable to the Executive Officer by October 1 of each year. If the Discharger determines that it does not need to update the SWPPP, it shall submit a letter indicating that no revision is necessary and stating the last year it updated the SWPPP. The SWPPP shall comply with the requirements in the Federal Standard Provisions (Attachment D).

The Discharger shall submit an annual stormwater report acceptable to the Executive Officer by July 1 of each year covering data for the previous wet weather season for the

identified stormwater discharge points. The annual stormwater report shall include, at minimum:

**i.** a tabulated summary of all sampling results and a summary of visual observations taken during inspections;

**ii.** a comprehensive discussion of the compliance record and any corrective actions taken or planned to ensure compliance with WDRs; and

**iii.** a comprehensive discussion of source identification and control programs for total suspended solids.

**d. Wastewater Discharges from the Wetland**

The Discharger may discharge Wetland effluent directly to Discharge Point No. 001 (downstream of the GAC facility) provided Wetland effluent discharges do not exceed a daily maximum of 3 MGD, and Wetland effluent does not cause acute toxicity. To document that Wetland effluent does not cause acute toxicity, the Discharger must show that two consecutive weekly flow-through bioassays demonstrate at least 80% survival. Acute toxicity testing on Wetland effluent shall conform to the requirements in this Order for Discharge Point No. 001 (e.g., test species shall be rainbow trout). Should Wetland toxicity tests show less than 80% survival, the Discharger must route Wetland effluent through its GAC facility before discharging to Discharge Point No. 001. The Discharger may resume discharging Wetland effluent directly to Discharge Point No. 001 after two consecutive Wetland toxicity tests, started at least five days apart, demonstrate at least 80% survival. In case the Discharger decides to route Wetland effluent directly to Discharge Point No. 001, it shall report the daily flow rate of this treated wastewater, and the results of acute toxicity testing.

**e. Construction and Development Requirements for Stormwater**

These requirements apply to development and construction activities that occur in areas where stormwater is not subject to physical treatment. These requirements do not apply to stormwater that drains to Chevron's wastewater treatment plant or stormwater that is treated in earthen basins via physical settling.

In areas where stormwater is not subject to physical treatment, the Discharger shall obtain coverage under *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* Order No. 2009-0009-DWQ.

For potential development in areas within Chevron's refinery that discharge to Discharge Point 020 (City of Richmond's Pump Station), the Discharger must also comply with the City of Richmond's specifications and planning authority so that the City is in compliance with the requirements contained in Provisions C.3 and C.6 of Municipal Regional Storm Water Permit Order No. R2-2009-0074, NPDES No. CAS612008.

## VII. COMPLIANCE DETERMINATION

Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined in Attachment A—Definitions, the MRP (Attachment E), Fact Sheet section VI, and the Regional Standard Provisions (Attachment G). For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL.

## ATTACHMENT A – DEFINITIONS

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

> Arithmetic mean = $\mu = \Sigma x / n$ where: $\Sigma x$ 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** pollutants are those substances 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** pollutants are substances that are known to cause cancer in living organisms.

**Coefficient of Variation (*CV*)** is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

**Daily Discharge:** Daily Discharge is defined as 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 this Order), 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 will be considered as the result for the calendar day in which the 24-hour period ends.

**Detected, but Not Quantified (DNQ)** are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

**Dilution Credit** is the 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 through conducting a mixing zone study or modeling of the discharge and receiving water.

**Effluent Concentration Allowance (ECA)** is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation 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 USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

**Enclosed Bays** means indentations along the coast that enclose an area of oceanic water within 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** is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

**Estuaries** means 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 shall be considered estuaries. Estuarine waters shall be 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 California 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** are all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

**Instantaneous Maximum Effluent Limitation:** the 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:** the 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)** means the 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** is the 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 = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

**Method Detection Limit (MDL)** is the 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 title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

**Minimum Level (ML)** is the concentration at which the entire analytical system must give 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** is a limited volume of receiving water that is 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)** are those sample results less than the laboratory's MDL.

**Ocean Waters** are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

**Persistent** pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

**Pollutant Minimization Program (PMP)** means 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 PMP shall be to reduce all potential sources of a priority pollutant(s) 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. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to California Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

**Pollution Prevention** means 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 California 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 or Regional Water Board.

**Reporting Level (RL)** is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. 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.

**Satellite Collection System** is the portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

**Source of Drinking Water** is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

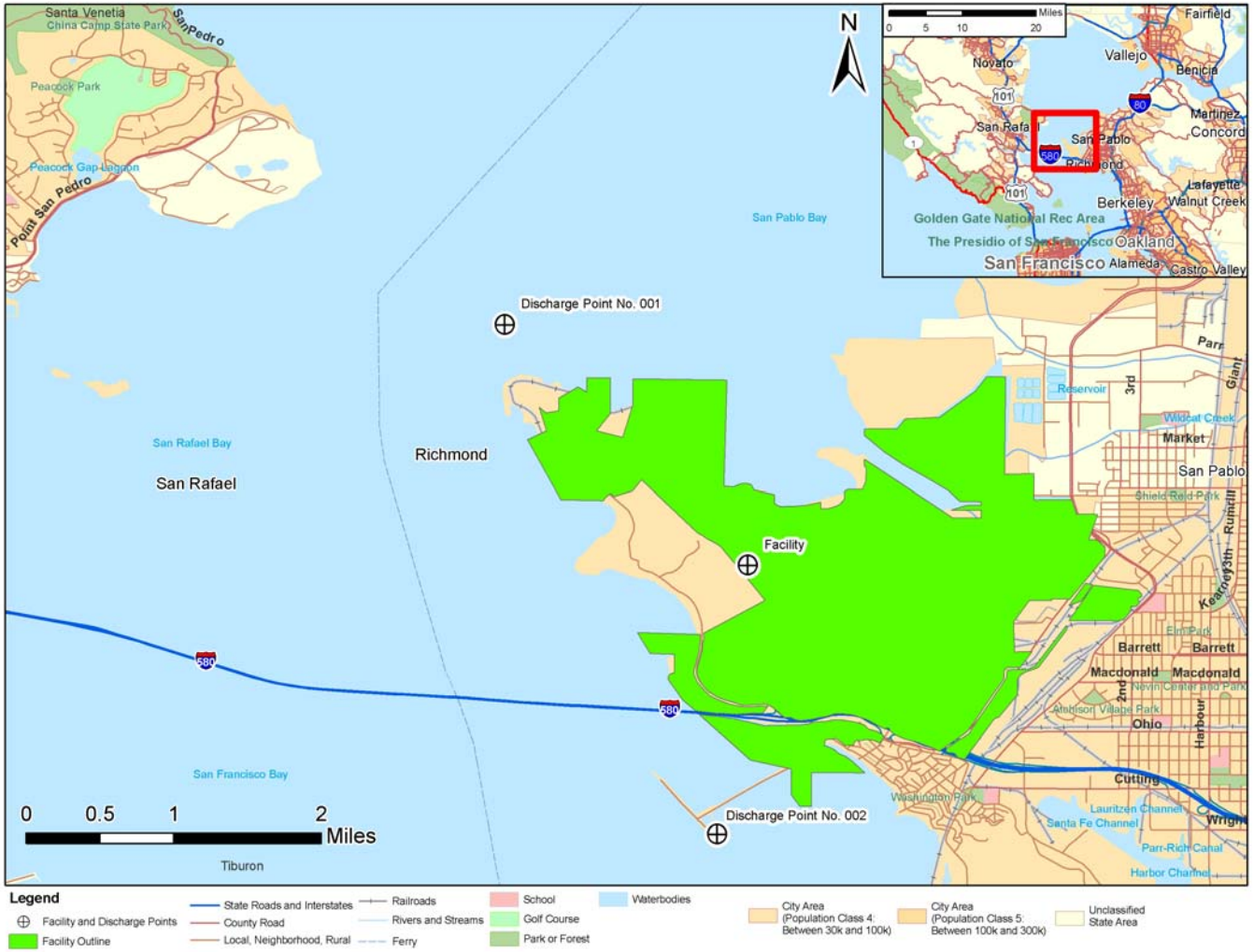
**Standard Deviation (σ)** is a measure of variability that is calculated as follows:

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

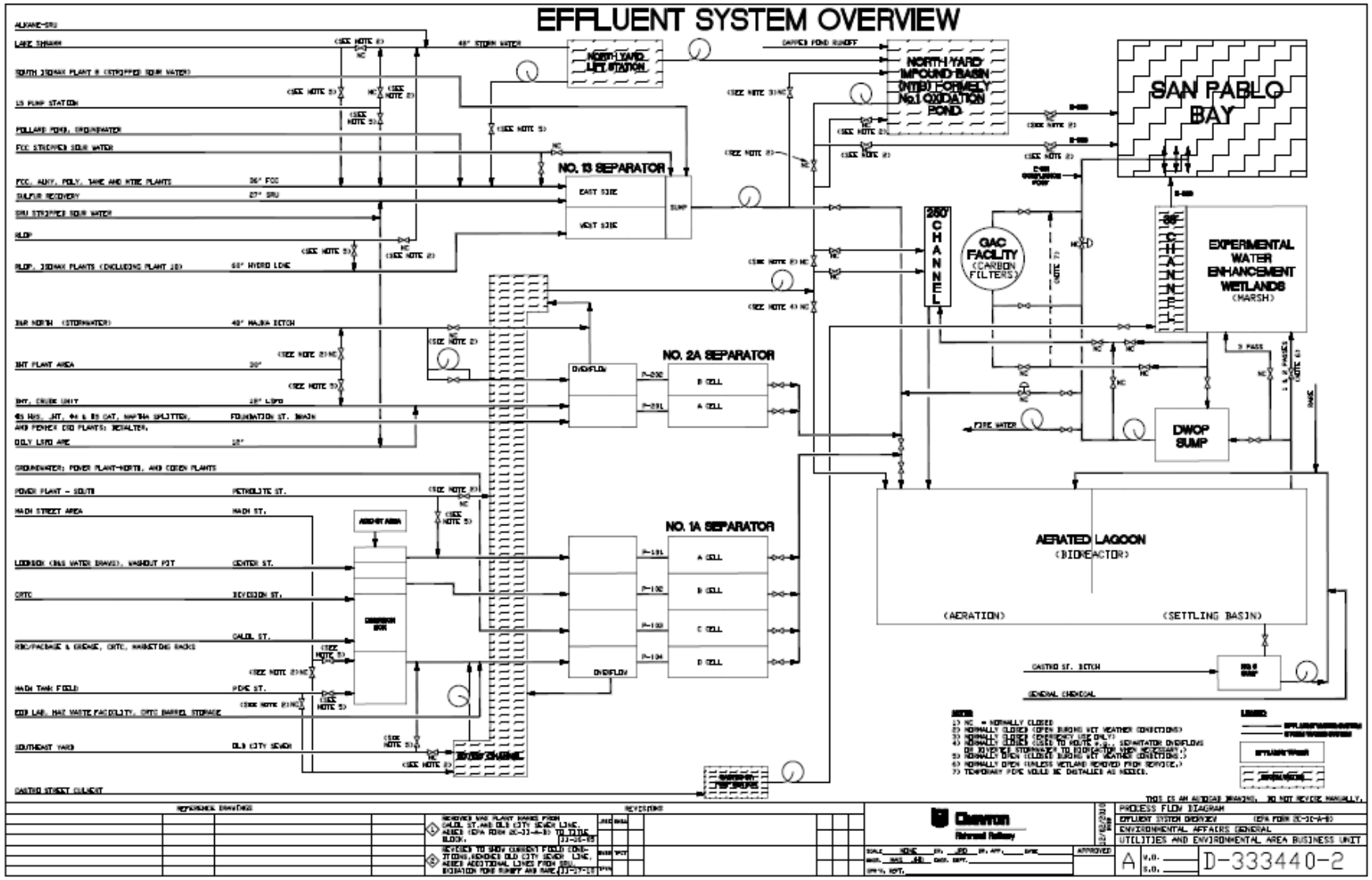
where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

**Toxicity Reduction Evaluation (TRE)** is a 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 chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

## ATTACHMENT B – MAP



## ATTACHMENT C – PROCESS FLOW DIAGRAM



# ATTACHMENT D – FEDERAL STANDARD PROVISIONS

## I. STANDARD PROVISIONS – PERMIT COMPLIANCE

### A. Duty to Comply

1. The Discharger must comply with all of the 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. (40 CFR § 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA 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 CFR § 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 CFR § 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 CFR § 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 CFR § 122.41(e)).

### E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR § 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 CFR § 122.5(c).)

## F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), 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 (40 CFR § 122.41(i); Wat. Code, § 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 (40 CFR § 122.41(i)(1));

**2.** Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR § 122.41(i)(2));

**3.** Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR § 122.41(i)(3)); 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. (40 CFR § 122.41(i)(4).)

## G. Bypass

### 1. Definitions

**a.** "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR § 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 CFR § 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 CFR § 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 CFR § 122.41(m)(4)(i)):

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

**4.** 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 CFR § 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 a notice, if possible at least 10 days before the date of the bypass. (40 CFR § 122.41(m)(3)(i).)

**b.** Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR § 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 CFR § 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 CFR § 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 CFR § 122.41(n)(3)):

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

**b.** The permitted facility was, at the time, being properly operated (40 CFR § 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 CFR § 122.41(n)(3)(iii)); and

**d.** The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR § 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 CFR § 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 CFR § 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 CFR § 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 this 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 CFR § 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 CFR § 122.41(j)(1).)

**B.** Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 CFR § 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 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 CFR § 122.41(j)(2).)

**B.** Records of monitoring information shall include:

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

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

**3.** The date(s) analyses were performed (40 CFR § 122.41(j)(3)(iii));

**4.** The individual(s) who performed the analyses (40 CFR § 122.41(j)(3)(iv));

**5.** The analytical techniques or methods used (40 CFR § 122.41(j)(3)(v)); and

**6.** The results of such analyses. (40 CFR § 122.41(j)(3)(vi).)

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

**1.** The name and address of any permit applicant or Discharger (40 CFR § 122.7(b)(1)); and

**2.** Permit applications and attachments, permits and effluent data. (40 CFR § 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 USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA 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 USEPA copies of records required to be kept by this Order. (40 CFR § 122.41(h); Wat. Code, § 13267.)

### B. Signatory and Certification Requirements

**1.** All applications, reports, or information submitted to the Regional Water Board, State Water Board, or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR § 122.41(k))

**2.** All permit applications shall be signed by a responsible corporate officer. For purposes of this provision, 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 CFR § 122.22(a)(1))

**3.** All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA 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 CFR § 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 CFR § 122.22(b)(2)); and

**c.** The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR § 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 CFR § 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 CFR § 122.22(d).)

## C. Monitoring Reports

**1.** Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR § 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 results of monitoring of sludge use or disposal practices. (40 CFR § 122.41(l)(4)(i).)

**3.** If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this 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 CFR § 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 CFR § 122.41(l)(4)(iii).)

## D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 CFR § 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 submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission 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. (40 CFR § 122.41(l)(6)(i).)

**2.** The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR § 122.41(l)(6)(ii)):

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

**b.** Any upset that exceeds any effluent limitation in this Order. (40 CFR § 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 CFR § 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 CFR § 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 section 122.29(b) (40 CFR § 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. (40 CFR § 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 CFR§ 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 General Order requirements. (40 CFR § 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. (40 CFR § 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 USEPA, the Discharger shall promptly submit such facts or information. (40 CFR § 122.41(l)(8).)

## 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 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 CFR § 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 CFR § 122.42(a)(1)):

**a.** 100 micrograms per liter (µg/L) (40 CFR § 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 CFR § 122.42(a)(1)(ii));

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

**d.** The level established by the Regional Water Board in accordance with section 122.44(f). (40 CFR § 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 CFR § 122.42(a)(2)):

**a.** 500 micrograms per liter (µg/L) (40 CFR § 122.42(a)(2)(i));

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

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

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

# ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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# ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

40 CFR 122.48 requires that all National Pollution Discharge Elimination System (NPDES) permits specify monitoring and reporting requirements. California Water Code (CWC) sections 13267 and 13383 also authorize the Regional Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement federal and California regulations.

## I. GENERAL MONITORING PROVISIONS

**A.** The Discharger shall comply with this MRP. The Executive Officer may amend this MRP pursuant to 40 CFR 122.62, 122.63, and 124.5. If any discrepancies exist between the MRP and the Regional Standard Provisions, the MRP prevails.

**B.** The Discharger shall conduct all monitoring in accordance with Attachment D, section III, as supplemented by Attachment G of this Order. Equivalent test methods must be more sensitive than those specified in 40 CFR 136, must be specified in the permit, and must be approved for use by the Executive Officer, following consultation with the State Water Board Quality Assurance Program.

## II. MONITORING LOCATIONS

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

**Table E-1. Monitoring Station Locations**

| Type of Sampling Location | Monitoring Location Name | Monitoring Location Description |
|---|---|---|
| Recycled Water | I-001 | Located at any point in the pipe which delivers only recycled water to the facility, but upstream of any wastewater treatment unit, blending point, or point of use. |
| Treated Wastewater | E-001 | At any point in the discharge line from the deep water discharge pump sump such that the sample is representative of treated wastewater. |
| Richmond Long Wharf (firewater) | E-002 | At any point where a representative sample of stormwater and authorized non-stormwater discharges for the drainage area for Discharge Point No. 002 can be obtained prior to discharge. |
| Stormwater | E-003 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 003 can be obtained prior to discharge. |
| Stormwater | E-004 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 004 can be obtained prior to discharge. |
| Stormwater | E-005 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 005 can be obtained prior to discharge. |
| Stormwater | E-006 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 006 can be obtained prior to discharge. |
| Stormwater | E-007 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 007 can be obtained prior to discharge. |

| Type of Sampling Location | Monitoring Location Name | Monitoring Location Description |
|---|---|---|
| Stormwater | E-008 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 008 can be obtained prior to discharge. |
| Stormwater | E-009 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 009 can be obtained prior to discharge. |
| Stormwater | E-010 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 010 can be obtained prior to discharge. |
| Stormwater | E-011 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 011 can be obtained prior to discharge. |
| Stormwater | E-012 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 012 can be obtained prior to discharge. |
| Stormwater | E-013 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 013 can be obtained prior to discharge. |
| Stormwater | E-014 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 014 can be obtained prior to discharge. |
| Stormwater | E-015 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 015 can be obtained prior to discharge. |
| Stormwater | E-016 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 016 can be obtained prior to discharge. |
| Stormwater | E-017 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 017 can be obtained prior to discharge. |
| Stormwater | E-018 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 018 can be obtained prior to discharge. |
| Stormwater | E-019 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 019 can be obtained prior to discharge. |
| Stormwater | E-020 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 020 can be obtained prior to discharge. |
| Stormwater | E-021 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 021 can be obtained prior to discharge. |
| Stormwater | E-022 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 022 can be obtained prior to discharge. |
| Stormwater | E-023 | At any point where a representative sample of the stormwater discharge for the drainage area for Discharge Point No. 023 can be obtained prior to discharge. |
| Receiving Water | C-001 | At any point that is representative of salinity and hardness near Discharge Point 001. The Discharger may also satisfy this requirement by ensuring such samples are collected by the RMP. |

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

## III. INFLUENT MONITORING REQUIREMENTS

### A. Monitoring Location I-001

1. Monitoring at I-001 is only required if the Discharger chooses to apply for recycled water adjustments, as allowed for by Section IV.A.6 Effluent Limitation Adjustment for Recycled Water Use.

**Table E-2. Influent Monitoring at I-001**

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Recycled Water Flow Rate [1] | MGD | Continuous | Continuous | [2] |
| Cyanide, Total | µg/L | Grab | 1/Month | [2] |
| Copper, Total Recoverable | µg/L | Grab | 1/Month | [2] |
| Lead, Total Recoverable | µg/L | Grab | 1/Month | [2] |
| Selenium, Total Recoverable | µg/L | Grab | 1/Week | [2] |
| Biochemical Oxygen Demand (BOD) (5-day @ 20 Deg. C) | mg/L | Grab | 1/Month | [2] |
| Total Suspended Solids (TSS) | mg/L | Grab | 1/Month | [2] |
| Chemical Oxygen Demand (COD) | mg/L | Grab | 1/Month | [2] |
| Oil and Grease | mg/L | Grab | 1/Month | [2] |
| Phenolic Compounds, Total | mg/L | Grab | 1/Month | [2] |
| Chromium, Total Recoverable | mg/L | Grab | 1/Month | [2] |
| Chromium (VI), Total Recoverable | mg/L | Grab | 1/Month | [2] |
| Sulfide, Total | mg/L | Grab | 1/Month | [2] |
| Ammonia Nitrogen, Total (as N) | mg/L | Grab | 1/Month | [2] |

[1] For influent flows, the following information shall also be monitored and reported in the monthly SMRs:

a. Average Monthly Flow (million gallons per day, MGD)
b. Maximum Monthly Flow (MGD)
c. Minimum Monthly Flow (MGD)

[2] Pollutants and pollutant parameters shall be analyzed using the analytical methods described in 40 CFR 136.

## IV. EFFLUENT MONITORING REQUIREMENTS

### A. Monitoring Location E-001 (Discharge Point No. 001)

1. The Discharger shall monitor Discharge Point No. 001 (treated effluent) from Monitoring Location E-001 as follows:

**Table E-3. Effluent Monitoring at E-001**

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|---|---|---|---|
| Flow Rate [1] | MGD | Continuous | Continuous | [2] |
| pH [3] | s.u. | Continuous | Continuous | [2] |
| Temperature | $^{o}$F | Continuous | Continuous | [2] |
| BOD | mg/L | C-24 | 1/Month | [2] |
| | lbs/day | C-24 | 1/Month | [2] |
| TSS | mg/L | C-24 | 1/Month | [2] |
| | lbs/day | C-24 | 1/Month | [2] |
| COD | mg/L | C-24 | 1/Month | [2] |
| | lbs/day | C-24 | 1/Month | [2] |
| Oil and Grease | mg/L | Grab | 1/Month | [2] |
| | lbs/day | Grab | 1/Month | [2] |
| Phenolic Compounds, Total | mg/l | C-24 | 1/Month | [2] |
| | lbs/day | C-24 | 1/Month | [2] |
| Chromium, Total Recoverable[5] | µg/L | C-24 | 1/Month | [2] |
| | lbs/day | C-24 | 1/Month | [2] |
| Chromium (VI), Total Recoverable | µg/L | Grab | 1/Month | [2] |
| | lbs/day | Grab | 1/Month | [2] |
| Sulfide, Total | mg/L | Grab | 1/Month | [2],[6] |
| | lbs/day | Grab | 1/Month | [2],[6] |
| Ammonia Nitrogen, Total (as N) | mg/L | C-24 | 1/Month | [2] |
| | lbs/day | C-24 | 1/Month | [2] |
| Acute Toxicity | % Survival | C-24 | 1/Week | [7] |
| Chronic Toxicity | $TU_c$ | C-24 | 1/Quarter | [8] |
| Copper, Total Recoverable | µg/L | C-24 | 1/Month | [2] |
| Lead, Total Recoverable | µg/L | C-24 | 1/Month | [2] |
| Selenium, Total Recoverable | µg/L | C-24 | 1/Week | [9] |
| | kg/day | C-24 | 1/Week | [9] |
| Cyanide, Total | µg/L | Grab | 1/Month | [2] |
| 2,3,7,8-TCDD and congeners | ρg/L | C-24 | 2/Year | [2] |
| Standard Observations | -- | Daily | 1/Day | -- |

[1] For effluent flows, the following information shall also be monitored and reported in the monthly SMRs:

a. Average Monthly Flow (million gallons per day, MGD)
b. Maximum Monthly Flow (MGD)
c. Minimum Monthly Flow (MGD)

[2] Pollutants and pollutant parameters shall be analyzed using the analytical methods described in 40 CFR 136.

[3] If pH is monitored continuously, the minimum and maximum pH values for the month shall be reported in monthly Self-Monitoring Reports (SMRs).

[4] Each oil and grease sample shall consist of a composite sample comprised of three grab samples taken at equal intervals during the sampling date, with each grab sample being collected in a glass container. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsing as soon as possible after use, and the solvent rinsing shall be added to the composite sample for extraction and analysis.

[5] The Discharger may, at its option, comply with the limits for hexavalent chromium by using total chromium results. In this case, analysis for hexavalent chromium is waived.

[6] Grab samples shall be collected coincident with composite samples collected for the analysis of regulated parameters.

[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 the Chronic Toxicity Requirements specified in section V.B of this MRP.

[9] Selenium must be analyzed using methods described in USEPA Method No. 200.8, or Standard Method No. 3114B or 3114C.

## B. Discharge Point Nos. 002 – 023

**1.** The Discharger shall monitor E-002, E-003, E-008 through E-010, E-012, E-014, and E-017 through E-023 as follows:

### Table E-4. Schedule of Sampling, Analyses, and Observations for Stormwater

| Parameter | Units | Sample Type | Minimum Sampling Frequency | Outfalls |
|---|---|---|---|---|
| Oil and Grease | mg/L | Grab[1] | At least 2/Year | All[2] |
| pH | s.u. | Grab[1] | At least 2/Year | All [2] |
| TOC | mg/L | Grab[1] | At least 2/Year | All [2] |
| TSS | mg/L | Grab[1] | At least 2/Year | All [2] |
| Specific Conductance | µmhos/cm | Grab[1] | At least 2/Year | All [2] |
| Standard Observations | -- | Visual | At least 2/Year | All [2] |
| $BOD_5$ | mg/L | Grab[1] | Daily during storm event | [2] |
| COD | mg/L | Grab[1] | Daily during storm event | [2] |
| Phenolic Compounds | mg/L | Grab[1] | Daily during storm event | [2] |
| Total Chromium | mg/L | Grab[1] | Daily during storm event | [2] |
| Hexavalent Chromium | mg/L | Grab[1] | Daily during storm event | [2] |

[1] At least one grab sample shall be collected within the first 30 minutes of significant flow during a storm event.

[2] If and when the supplemental effluent limitations in Table 10 of this Order become effective in accordance with section IV.B.2 of this Order, the monitoring frequency at the outfalls where the limitations are in effect shall be increased to daily during each storm event.

[3] If and when limits for pollutants in Table 10 of this Order become effective in accordance with Section IV.B.2 of this Order, monitoring shall begin at the outfalls where the limitations are in effect.

[4] Sampling at least twice during the storm season for storm runoff discharges that do not drain to basins shall be during periods when the laboratory is normally staffed.

**2.** The Discharger shall monitor E-011 and E-013 as follows:

**Table E-5. Schedule of Sampling, Analyses, and Observations for Stormwater**

| Parameter | Units | Sample Type | Minimum Sampling Frequency |
|---|---|---|---|
| Oil and Grease | mg/L | Grab | Each discharge event |
| pH | s.u. | Grab | Each discharge event |
| TOC | mg/L | Grab | Each discharge event |
| TSS | mg/L | Grab | Each discharge event |
| Specific Conductance | µmhos/cm | Grab | Each discharge event |
| Remaining Priority Pollutants[1] | µg/L | Grab | First discharge of wet season |
| Standard Observations | -- | Visual | Each discharge event |

[1] Priority pollutant sampling shall be conducted as specified in the Regional Standard Provisions (Attachment G). Priority pollutant sampling shall be done at least once, for each wet season, if there is a discharge.

**3.** The Discharger shall monitor E-004 through E-007 as follows:

**Table E-6. Schedule of Sampling, Analyses, and Observations for Stormwater**

| Parameter | Units | Sample Type | Minimum Sampling Frequency |
|---|---|---|---|
| Oil and Grease | mg/L | Grab | 1/5 Years |
| pH | s.u. | Grab | 1/5 Years |
| TOC | mg/L | Grab | 1/5 Years |
| TSS | mg/L | Grab | 1/5 Years |
| Specific Conductance | µmhos/cm | Grab | 1/5 Years |
| Standard Observations | -- | Visual | 1/5 Years |

## V. WHOLE EFFLUENT TOXICITY TESTING

The Discharger shall monitor acute and chronic toxicity at Monitoring Location E-001 as described below.

### A. Whole Effluent Acute Toxicity

**1.** Compliance with the acute toxicity effluent limitations of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour continuous flow-through bioassays.

**2.** Test species shall be rainbow trout unless the Executive Officer specifies otherwise in writing.

**3.** All bioassays shall be performed according to the most up-to-date protocols in 40 CFR 136, currently in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms*, 5th Edition.

**4.** Monitoring of the bioassay water as specified by the *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms*, 5th Edition shall include, on a daily basis, the following parameters: pH, dissolved oxygen, ammonia (if toxicity is observed), temperature, hardness, and alkalinity. These results shall be reported. If the fish survival rate in effluent is less than 70 percent or if the control fish survival rate is

less than 90 percent, the bioassay test shall be restarted as soon as practical with new fish and shall continue back to back until compliance is demonstrated.

## B. Whole Effluent Chronic Toxicity

### 1. Monitoring Requirements

**a.** *Sampling*. The Discharger shall collect 24-hour composite samples of the effluent at E-001 for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.

**b.** *Test Species*. Chronic toxicity shall be monitored using critical life stage tests(s) and the most sensitive test species identified by screening phase testing. The approved test species is a water flea (*Ceriodaphnia dubia).*

**c.** *Methodology*. Sample collection, handling and preservation shall be in accordance with USEPA 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), and *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, currently fourth Edition (EPA-821-R-02-013), with exceptions granted the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

**d.** *Dilution Series.* The Discharger shall conduct tests at 100%, 50%, 25%, 10%, 5%, and 2.5%. The "%" represents percent effluent as discharged.

**e.** *Accelerated Monitoring*. The Discharger shall accelerate monitoring to occur monthly when either of the following conditions is exceeded:

**i.** Three sample median value of 10 chronic toxicity units (TUc), or

**ii.** Single sample maximum value of 20 TUc.

### 2. Reporting Requirements

**a.** *Routine Reporting*. Toxicity test results for the current reporting period shall include, at a minimum, for each test:

**i.** Sample dates

**ii.** Test initiation date

**iii.** Test species

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

**v.** NOEC values in percent effluent

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

**vii.** TUc values (100/NOEC, $100/IC_{25}$, or $100/EC_{25}$)

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

**ix.** NOEC and LOEC values for reference toxicant tests

**x.** IC50 or EC50 values for reference toxicant tests

**xi.** Available water quality measurements for each test (pH, dissolved oxygen, temperature, conductivity, hardness, salinity, ammonia)

**b.** *Compliance Summary*. The results of the chronic toxicity testing shall be provided in the self-monitoring report and shall include a summary table of chronic toxicity data from at least three of the most recent samples. The information in the table shall include items listed above under section V.B.2.a of this MRP, specifically item numbers i, ii, iii, vi ($IC_{25}$ or $EC_{25}$), vii, and viii.

**3. Toxicity Reduction Evaluation (TRE)**

**a.** To be ready to respond to toxicity events, the Discharger shall prepare a generic TRE work plan by December 1, 2011. The Discharger shall review and update the work plan as necessary to remain current and applicable to the discharge and discharge facilities.

**b.** Within 30 days of exceeding either trigger for accelerated monitoring, the Discharger shall submit to the Regional Water Board a specific TRE work plan, which should be the generic work plan revised as appropriate for this toxicity event after consideration of available discharge data.

**c.** Within 30 days of the date of completion of the accelerated monitoring tests observed to exceed either trigger, 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 prepared in accordance with current technical guidance and reference materials, including USEPA guidance materials. The TRE shall be conducted as a tiered evaluation process, as summarized below:

**i.** Tier 1 consists of basic data collection (routine and accelerated monitoring).

**ii.** Tier 2 consists of evaluation of optimization of the treatment process, including operation practices and in-plant process chemicals.

**iii.** Tier 3 consists of a toxicity identification evaluation (TIE).

**iv.** Tier 4 consists of evaluation of options for additional effluent treatment processes.

**v.** Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.

**vi.** Tier 6 consists of implementation of selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.

**e.** The TIE or TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity (complying with requirements of section IV.A.5 of this Order).

**f.** The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methods shall be employed.

**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 substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.

**h.** Many recommended TRE elements parallel required or recommended efforts of 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 comply with TRE requirements.

**i.** The Regional Water Board recognizes that chronic toxicity may be episodic and identification of causes of, and reduction of, sources of chronic toxicity may not be successful in all cases. Consideration of enforcement by the Regional Water Board will be based, in part, on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

## VI. RECEIVING WATER MONITORING REQUIREMENTS

The Discharger shall conduct receiving water monitoring at C-001 as summarized in the following table.

**Table E-7. Receiving Water Monitoring at C-001**

| Parameter | Units | Sample Type | Minimum Sampling Frequency |
|---|---|---|---|
| Salinity | ppt | Grab | 1/Quarter |
| Hardness | mg/L | Grab | 1/Quarter |

## VII. LEGEND FOR MRP TABLES

Types of Samples
C-24 = composite sample, 24 hours (includes continuous sampling, such as for flows)

Frequency of Sampling
1/Week = once each week
1/Month = once each month
1/Quarter = once each calendar quarter (at about three month intervals)
2/Year = twice each calendar year (at about 6 months intervals, once during dry season, once during wet season)

Parameter and Unit Abbreviations

| | | |
|---|---|---|
| $BOD_5$ | = | 5-day biochemical oxygen demand |
| COD | = | chemical oxygen demand |
| TUc | = | chronic toxicity units |
| °F | = | degrees Fahrenheit |
| DO | = | dissolved oxygen |
| µg/L | = | micrograms per liter |
| µmhos/cm | = | micromhos/centimeter |
| MG | = | million gallons |
| MGD | = | million gallons per day |
| mg/L | = | milligrams per liter |
| % survival | = | percent survival |
| PAHs | = | polycyclic aromatic hydrocarbons |
| lbs/day | = | pounds per day |
| TSS | = | total suspended solids |
| s.u. | = | standard pH units |

## VIII. REPORTING REQUIREMENTS

### A. General Monitoring and Reporting Requirements

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

### B. Self Monitoring Reports (SMRs)

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

**2. SMR Due Dates and Contents.** The Discharger shall submit SMRs by the due dates 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 of this Order. See Provision C.2 (Effluent Characterization Study and Report) of this Order for information that must also be reported with the monthly 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 section V.C.1.f of the Regional Standard Provisions (Attachment G), and those specified in the Provisions section of this Order. See also Provision C.2d (Effluent and Receiving Water Selenium Characterization Study) of the Order for requirements to submit reports with the annual SMR.

c. ***Additional Specifications for Submitting SMRs to CIWQS —*** If the Discharger submits SMRs to CIWQS, it shall submit analytical results and other information using one of the following methods:

**Table E-8. SMR Reporting for CIWQS**

| 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<br>Temperature | Required for Monthly Maximum and Minimum Results Only (1) | Discharger may use this method for all results or keep records |
| Cyanide<br>Arsenic<br>Cadmium<br>Chromium<br>Copper<br>Lead<br>Mercury<br>Nickel<br>Selenium<br>Silver<br>Zinc<br>Dioxins and Furans (by U.S. EPA Method 1613) | Required for All Results (2) | |
| Antimony<br>Berylium<br>Thallium<br>Pollutants by U.S. EPA Methods 601, 602, 608, 610, 614, 624, and 625 | Not Required (unless identified in influent, effluent, or receiving water monitoring tables), But Encouraged (1) | Discharger may use this method and submit results with application for permit reissuance, unless data submitted by CDF/EDF upload |
| Analytical Method | Not Required (Discharger may select "data unavailable") (1) | |
| Collection Time<br>Analysis Time | Not Required (Discharger may select "0:00") (1) | |

Footnotes for Table E-8:

(1) The Discharger shall continue to monitor at the minimum frequency specified in the monitoring tables, 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 (except for biosolids, sludge, or ash provisions).

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

**Table E-9. Monitoring Periods and Reporting Schedule**

| Sampling Frequency | Monitoring Period Begins On… | Monitoring Period |
|---|---|---|
| Continuous | Day after permit effective date | All |
| 1/Hour | Day after permit effective date | Hourly |
| 1/Day | Day after permit effective date | Midnight through 11:59 PM or any 24-hour period that reasonably represents a calendar day for purposes of sampling. |
| 1/Week | Sunday following permit effective date or on permit effective date if on a Sunday | Sunday through Saturday |
| 1/Month | First day of calendar month following permit effective date or on permit effective date if that date is first day of the month | 1st day of calendar month through last day of calendar month |
| 1/Quarter | Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date | January 1 through March 31<br>April 1 through June 30<br>July 1 through September 30<br>October 1 through December 31 |
| 2/Year | Closest of January 1 or July 1 following (or on) permit effective date | January 1 through June 30<br>July 1 through December 31 |
| 1/Year | January 1 following (or on) permit effective date | January 1 through December 31 |
| 2/5 Years or "twice per permit term" | Day after permit effective date | Once within the first 12 months, and once within 12 months prior to applying for permit reissuance. |
| 1/Discharge Event | Anytime during the discharge event or as soon as possible after aware of the event | At a time when sampling can characterize the discharge event |

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

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

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

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

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

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

**d.** Dischargers are to instruct laboratories to establish calibration standards so that the ML (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.

**5.** The Discharger shall submit SMRs in accordance with the following requirements:

**a.** The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with effluent limitations. 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 within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

**b.** The Discharger shall attach a cover letter to the SMR. The information in the cover letter shall clearly identify violations of the Waste Discharge Requirements, discuss corrective actions taken or planned, and specify the proposed time schedule for corrective actions. Identified violations shall include a description of the requirement that was violated and a description of the violation.

**c.** SMRs shall be submitted to the Regional Water Board, signed and certified as required by the Federal Standard Provisions (Attachment D), to the address listed below:

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

## C. Discharge Monitoring Reports (DMRs)

**1.** DMRs shall be signed and certified as required by the Federal Standard Provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to one of the addresses listed below:

| Standard Mail | FedEx/UPS/Other Private Carriers |
|---|---|
| State Water Resources Control Board<br>Division of Water Quality<br>c/o DMR Processing Center<br>PO Box 100<br>Sacramento, CA 95812-1000 | State Water Resources Control Board<br>Division of Water Quality<br>c/o DMR Processing Center<br>1001 I Street, 15th Floor<br>Sacramento, CA 95814 |

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

## 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) for the duration of the bypass (including acute toxicity using static renewals). Because such discharges may result in noncompliance that may endanger 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 USEPA'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 5 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, or as approved by the Executive Officer.

**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 and as approved by the Executive Officer.

**3.** Appropriate controls.

**4.** Concurrent reference toxicant tests.

**5.** Dilution series 100%, 50%, 25%, 10%, 5%, 0 %, where "%" is percent effluent as discharged, or as otherwise approved the Executive Officer.

**C.** The Discharger shall submit a screening phase proposal acceptable to the Executive Officer. 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

## Critical Life Stage Toxicity Tests for Estuarine Waters

| Species | (Scientific Name) | Effect | Test Duration | Reference |
|---|---|---|---|---|
| Alga | *(Skeletonema costatum)*<br>*(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<br>Mussel | *(Crassostrea gigas)*<br>*(Mytilus edulis)* | Abnormal shell development; percent survival | 48 hours | 2 |
| Echinoderms -<br>Urchins<br>Sand dollar | *(Strongylocentrotus purpuratus, S. franciscanus)*<br>*(Dendraster excentricus)* | Percent fertilization | 1 hour | 2 |
| Shrimp | *(Mysidopsis 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/600/4-90/003. July 1994.

## 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)* | Cell division rate | 4 days | 4 |

**Toxicity Test Reference:**

4. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, third edition. EPA/600/4-91/002. July 1994.

## Toxicity Test Requirements for Stage One Screening Phase

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

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

(a) The salinity of the effluent is above 1 part per thousand (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.

[2] (a) Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95 percent of the time during a normal water year.

(b) Fresh refers to receiving water with salinities less than 1 ppt at least 95 percent of the time during a normal water year.

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# ATTACHMENT F – FACT SHEET

As described in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. All other sections or subsections of this Order apply fully to this Discharger.

## I. PERMIT INFORMATION

The following table summarizes administrative information related to the Richmond Refinery.

**Table F-1. Facility Information**

| | |
|---|---|
| **WDID** | 2 071044001 |
| **Discharger** | Chevron Products Company, a division of Chevron U.S.A. Inc.<br>Chevron Chemical Company LLC, and<br>General Chemical |
| **Name of Facility** | Richmond Refinery |
| **Facility Address** | 841 Chevron Way |
| | Richmond, CA 94801 |
| | Contra Costa County |
| **Facility Contact, Title, Phone** | Michael E. Coyle, General Manager, (510) 242-4400 |
| **Authorized Person to Sign and Submit Reports** | Michael E. Coyle, General Manager, (510) 242-4400 |
| **Mailing Address** | 841 Chevron Way, Richmond, CA 94801 |
| **Billing Address** | PO Box 1272, Richmond, CA 94802 |
| **Type of Facility** | Petroleum Refinery |
| **Major or Minor Facility** | Major |
| **Threat to Water Quality** | 1 |
| **Complexity** | 1A |
| **Pretreatment Program** | No |
| **Reclamation Requirements** | N/A |
| **Facility Flow** | Discharge Point No. 001: 27.5 million gallons per day (MGD) (maximum reported daily flow); 6.6 MGD (long-term average flow) |
| **Watershed** | San Francisco Bay |
| **Receiving Water** | San Pablo Bay and San Francisco Bay |
| **Receiving Water Type** | Estuarine |

**A.** Chevron Products Company, a division of Chevron U.S.A., Inc, owns and operates the Richmond Refinery (hereinafter Facility). As described in Facility Description II.A, Chevron Chemical Company LLC discharges stormwater under this Order, and General Chemical routes wastewater and stormwater from the production of sulfuric acid to Chevron Products Company's wastewater treatment plant. Chevron Products Company, a division of Chevron U.S.A. Inc., Chevron Chemical Company LLC, and General Chemical are hereinafter collectively referred to as Discharger. 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.

**B.** The Facility discharges treated wastewater and stormwater to San Pablo Bay and San Francisco Bay, waters of the United States, and is currently regulated by Order No. R2-2006-0035, which was adopted on June 14, 2006. Order No. R2-2006-0035 was amended by Order No. R2-2010-0057 (Amendment of Waste Discharge Requirements for San Francisco Bay Region Refineries), which amended effluent limitations for selenium. The Discharger is also regulated by Order No. R2-2007-0077 (NPDES Permit CA0038849) amended by Order No. R2-2011-0012, which supersedes all requirements on mercury and PCBs from wastewater discharges in the region. This Order does not affect Order No. R2-2007-0077, as amended.

**C.** The Discharger filed a Report of Waste Discharge and submitted an application for reissuance of its WDRs and NPDES permit on December 7, 2010.

## II. FACILITY DESCRIPTION

### A. Description of Wastewater Treatment or Controls

The discharge is made up of wastewater from the Chevron Richmond Refinery and General Chemical Corporation, Richmond Works. The major contributor of wastewater to the Facility is from the Chevron Richmond Refinery.

The Discharger owns and operates the Chevron Richmond Refinery, a petroleum refinery that produces a broad range of petroleum products and some petrochemicals. The Discharger reported that from May 2007 through April 2008 the refinery had a crude-run throughput of approximately 244,000 barrels per day (bbls/day). Refinery production rates can fluctuate for a variety of reasons, including maintenance shutdowns. Nonetheless, these data are consistent with more recent production data in 2010 of 228,000 bbls/day. The former Chevron Chemical Company Hensley Street and Castro Street Facility, managed by Chevron Environmental Management Company, is comprised of two locations referred to as the Hensley Street and Castro Street facilities. These locations were formerly used in the manufacture and formulation of fertilizers, pesticides, and fuel additives. These locations ceased operations about 15 years ago. The stormwater discharged from these areas is governed under this Order (Discharge Points 011 to 013). General Chemical, Richmond Works, produces sulfuric acid using spent alkylation acid and elemental sulfur. General Chemical's wastewater along with collected stormwater (which may include water from construction activities) is discharged to the wastewater treatment system for treatment.

The Chevron Richmond Refinery wastewater treatment system consists of an extensive network of drains, trunk lines, separators, and treatment areas servicing numerous plant areas throughout the refinery. Process water as well as non-process water from utility infrastructure and other operations enters the wastewater treatment system from many sources including process units, cooling water tower facilities and blowdown, fresh water treatment facilities (reverse osmosis plant), steam and electrical generation facilities, steam distribution systems, fire protection and safety systems, laboratories, and the General Chemical, Richmond Works, facility, as well as the recovered oil system and groundwater extraction systems. In addition, wastewater may also contain water generated from onsite and offsite activities including construction activities, marketing and pipeline activities, tank wash water, environmental remediation activities, inspection and maintenance activities, and other activities as described in the permit application. The average dry season flow is approximately 6.6 MGD, with wet season flows in excess of 20 MGD due to the introduction of processed stormwater. The Facility discharges treated process wastewater to San Pablo Bay through a submerged outfall and engineered diffuser via Discharge Point No. 001.

Process water is initially treated in one of three API separators (each servicing a distinct area of the refinery). Each separator consists of two or more parallel cells, not all of which are required depending on flow. Therefore, on any given day some cells may constitute auxiliary treatment consistent with 40 CFR 122.41(e). From the API separators, the Discharger routes wastewater to an aggressive biological treatment unit (ABTU) that consists of four quadrants. The first two quadrants provide biological treatment through aeration, while the next two quadrants are used as settling basins. The residence time of the ABTU is between 5 and 14 days. Treated wastewater from the ABTU may be routed to the 96-acre Richmond Refinery Enhancement Wetland pilot treatment facility, which the Discharger maintains as an adjunct effluent treatment process. The remaining bioreactor effluent, and typically all wetland effluent is routed through a granular activated carbon (GAC) facility that consists of 24 GAC vessels on 12 skids that may be operated in series (for normal operation) or parallel (during high flow conditions). The use of GAC units is flow dependent. Not all of the 24 units are typically required, and therefore, some of the single units may be considered auxiliary treatment pursuant to 40 CFR 122.41(e). The GAC facility serves to reduce effluent toxicity with the added benefit of some reduction in metals and hydrocarbons. Effluent is then routed to a compliance sampling station (E-001), and onward to San Pablo Bay. The discharge point is through a deepwater diffuser (average depth of 30 to 50 feet), approximately 2,000 feet offshore north of Point San Pablo. The Discharger has the option to discharge a portion of wetland effluent directly to Discharge Point No. 001 (downstream of the GAC facility) at a point prior to where representative samples for all parameters with effluent limits can be collected on the combined discharge, provided wetland effluent discharges do not exceed a daily maximum of 3 MGD, and do not cause acute toxicity.

Contact stormwater from the Facility is routed to one of the oil and water separators and/or may be sent to the ABTU directly and subsequently treated as described above. Stormwater from non-process industrial areas is collected in retention basins and can be discharged from the basins to the receiving water via several permitted stormwater outfalls discussed below. The stormwater retention basins can also be directed to the wastewater treatment system and/or the ABTU directly. Stormwater may include stormwater from construction activities, provided stormwater is discharged via controlled discharge points and the Discharger has updated its Stormwater Pollution Prevention Plan to show an equivalent level of protection as required by *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* Order No. 2009-0009-DWQ.

The Discharger uses tertiary treated recycled water from the East Bay Municipal Utility District's North Richmond Water Reclamation Plant in refinery cooling towers. Further, the East Bay Municipal Utility District owns and operates the Richmond Advanced Recycled Expansion (RARE) Facility, which is located at the Discharger's facility. The RARE facility treats secondary treated effluent from West County Wastewater District's Water Pollution Control Plant through microfiltration and reverse osmosis to produce high-purity recycled water suitable for boiler feedwater. Recycled water used onsite, and reverse osmosis reject water generated onsite may be discharged directly to the Discharger's wastewater treatment system.

## B. Description of Stormwater Outfalls

1. **Discharge Point No. 002 (Richmond Long Wharf).** This controlled discharge consists of stormwater that falls on the wharf, and biologically-treated wastewater drawn from the wastewater treatment system. The use of biologically-treated wastewater in the Richmond Refinery fire protection system displaces vast quantities of potable water that would otherwise be required for these activities. The Discharger returns the majority of the water used to the

wastewater treatment plant, except for the portion used at the Richmond Long Wharf. Richmond Long Wharf discharges may also consist of bay water, residual steam condensate, and activities related to water rinsing the exterior of the Richmond Long Wharf pipelines. These routine discharges of biologically-treated wastewater (typically 0.0036 MG to 0.0128 MG) occur during housekeeping activities and tests of, or maintenance on, the fire protection system. The fire system testing discharges have occurred about once each week and last for about 10 minutes.

2. **Discharge Point No. 003 (North Yard Impoundment Basin).** This controlled discharge from an earthen basin consists mainly of stormwater, but other potential non-stormwater sources include incidental estimated quantities of 5,000 gallons of steam condensate, non-contact bay water, groundwater seepage, hydrotest water, and water from fire protection systems that may remain in the basin and mixes with stormwater during the controlled discharges. Hydrotest water is routed to the basin prior to being sent to the ABTU. Stormwater runoff originates from an area of approximately 407 acres from areas within the: Poleyard and Alkane Tankfields and adjacent hill sides; LPG and Ammonia Storage Facilities; Former Oxidation Ponds 2-5, Cracking and Hydroprocessing facilities and processing areas; and Hydropits Cap. The North Yard Impound Basin provides treatment of stormwater via physical settling. Before discharging, Chevron analyzes stormwater samples for compliance with its effluent limits. Once compliance is assured, Chevron opens a valve and discharges stormwater from this basin by gravity to San Pablo Bay. Discharge may also include water from Discharge Point-008.

3. **Discharge Point No. 004 (12-Basin).** This discharge consists of stormwater runoff from an area of approximately 3 acres in the former Point Orient Tankfield. 12-Basin discharges to San Francisco Bay. 12-Basin may also be transferred to the 10-Basin and discharged at Discharge Point No. 006.

4. **Discharge Point No. 005 (11-Basin).** This discharge consists of stormwater runoff from an area of approximately 4 acres located in a former Point Orient Tankfield area. Discharge Point No. 005 discharges into San Francisco Bay.

5. **Discharge Point No. 006 (10-Basin).** This discharge consists of stormwater runoff from an area of approximately 48 acres located in a former Point Orient Tankfield area. In addition, stormwater from 12-Basin (approximately 4 acres) and the Horse Pasture area (approximately 17 acres) may run onto the site. Discharge Point No. 006 discharges into San Francisco Bay.

6. **Discharge Point No. 007 (Horse Pasture, Basin 13).** This discharge consists of stormwater runoff from an area of approximately 17 acres located in a former Point Orient Tankfield area. Discharge Point No. 007 discharges into San Francisco Bay.

7. **Discharge Point No. 008 (Tank Field 100' Channel).** This controlled discharge from an earthen basin consists mainly of stormwater, but other residual sources may include steam condensate, groundwater seepage, hydrotest water, and water from the fire protection system. Hydrotest water is routed to the basin prior to being sent to the ABTU. Runoff originates from an area of approximately 496 acres in and around the Main Tankfield, Distillation and Reforming facilities, Main and South Yard areas, rail car loading areas, former Asphalt Plant area, and Cogeneration Facility. This earthen basin provides treatment of stormwater via

physical settling. Before discharging, Chevron analyzes stormwater samples for compliance with its effluent limits. Once compliance is assured, Chevron opens a valve and discharges stormwater from this basin by gravity to San Pablo Bay. This discharge may also be discharged as part of Discharge Point 003.

8. **Discharge Point No. 009 (8-Basin).** This controlled discharge from an earthen basin consists mainly of stormwater, but other residual sources may include steam condensate, groundwater seepage, hydrotest water, and water from the fire protection system. Hydrotest water is routed to the basin prior to being sent to the ABTU. Runoff originates from an area of approximately 26 acres within the Quarry Tankfield. During unusual circumstances (i.e., emergency based events, special conditions), non-stormwater may be stored in the basin. This non-stormwater will be dealt with in a manner acceptable to the Regional Water Board. This earthen basin provides treatment of stormwater via physical settling. Before discharging, Chevron analyzes stormwater samples for compliance with its effluent limits. Once compliance is assured, Chevron opens a valve and discharges stormwater from this basin by gravity to San Francisco Bay.

9. **Discharge Point No. 010 (Reclamation Area).** This discharge consists of stormwater runoff from an area of approximately 6 acres that is a portion of the Reclamation Yard area. Discharge Point No. 010 discharges into Wildcat Creek via the Gertrude Street Ditch, which then drains to Wildcat Creek, which drains to Castro Creek, a tributary of San Pablo Bay.

10. **Discharge Point No. 011 (Former Chevron Chemical Company Hensley Street Plant Runoff).** This controlled discharge consists mainly of stormwater runoff, but may include water from the following non-stormwater sources: groundwater, irrigation water, and potable water from the firewater system and facility wash downs. The stormwater runoff, which is drained from an area of approximately 36 acres within the former Chevron Chemical Company Hensley Street Plant, is collected at the Castro Acres surge pond (located along the east side of Castro Street).

    Water collected in the Castro Acres surge pond is not permitted to discharge to surface waters under typical rainfall conditions since the stormwater runoff may contain trace contaminants. Typically, the collected water is discharged to the Integrated Wastewater Pond System (IWPS), which provides necessary surge capacity before discharge to the City of Richmond's Wastewater Treatment Plant. However, during periods of high intensity rainfall (i.e., in excess of a 25-year, 24-hour rainfall event), a limited quantity of stormwater from the drainage area may be discharged from the Castro Acres surge pond into Castro Creek via a drainage ditch on the east side of Castro Street, identified as Discharge Point No. 011.

11. **Discharge Point No. 012 (Fertilizer Evaporation Pond).** This discharge consists of stormwater runoff from a clean-filled vegetative capped area. Runoff originates from an area of approximately 19 acres within the former Chevron Chemical Company's Castro Street facility, which was formerly used to manufacture fertilizer. Stormwater from this location is currently routed to the City of Richmond's Wastewater Treatment Plant. In the future, the Discharger may route stormwater from this area directly to Castro Creek.

12. **Discharge Point No. 013 (IWPS**). This discharge consists of stormwater from direct rainfall onto sections of the former Chevron Chemical Company's IWPS, an area of approximately

81 acres of synthetically-lined surface impoundments. Potential non-storm wastewaters include water from irrigation and groundwater. Depending on annual precipitation, various sections of the IWPS could receive flows from the former Chevron Chemical Company's Hensley Street Plant site and the Fertilizer Evaporation Pond. Contributing stormwater runoff from an adjacent 4-acre capped Class II waste management unit (Soil Management Unit No.1) may also commingle with stormwater from the IWPS. Stormwater (and associated non-stormwater discharges) are typically discharged to the City of Richmond's Wastewater Treatment Plant. With approval from the Executive Officer, Chevron may discharge from Discharge Point No. 013 to Castro Creek, a tributary of San Pablo Bay.

13. **Discharge Point No. 014 (Consolidation Area).** This discharge consists of stormwater runoff from a capped waste management unit area of approximately 5 acres. Runoff from the Consolidation Area is discharged to Castro Creek, a tributary of San Pablo Bay.

14. **Discharge Point No. 015 (1-Basin).** This discharge consists of stormwater runoff from an area of approximately 4 acres in a former tankfield area of the Office Hill Tankfield. Order No. R2-2006-0035 had indicated that the 1-Basin discharged through Discharge Point No. 015 to Discharge Point E-020. Historically, the Discharger used the 1-Basin as spill containment for tanks within the area. However, the Discharger has dismantled the tanks and there is no industrial activity in this area. The Discharger has requested that the 1-Basin be permitted to discharge through Discharge Point No. 020. Therefore, this Order requires that the Discharger evaluate compliance for discharges from this area at Discharge Point 020.

15. **Discharge Point No. 016 (2-Basin).** This discharge consists of stormwater runoff from an area of approximately 5 acres in a former tankfield area of the Office Hill Tankfield. Order No. R2-2006-0035 had indicated that the 2-Basin discharged through Discharge Point No. 016 to Discharge Point E-020. Historically, the 2-Basin was used as spill containment for tanks within the area. However, the Discharger has dismantled the tanks and there is no industrial activity in this area. The Discharger has requested that the 2-Basin be permitted to discharge through Discharge Point No. 020. Therefore, this Order requires that the Discharger evaluate compliance for discharges from this area at Discharge Point 020.

16. **Discharge Point No. 017 (3-Basin).** This controlled discharge (including 3A Basin discharge) from an earthen basin consists of stormwater runoff from an area of approximately 7 acres in a former tankfield area of the Office Hill Tankfield. Additional non-stormwater wastewaters include water from the fire protection system. This earthen basin provides treatment of stormwater via physical settling. Before discharging, Chevron analyzes stormwater samples for compliance with its effluent limits. Once compliance is assured, Chevron opens a valve and discharges stormwater from this basin by gravity to San Francisco Bay.

17. **Discharge Point No. 018 (9-Basin).** This controlled discharge from an earthen basin consists mainly of stormwater, but other residual sources may include steam condensate, hydrotest water, and water from the fire protection system. Hydrotest water is routed to the basin prior to being sent to the ABTU. Runoff originates from an area of approximately 29 acres in the Quarry Tankfield. This earthen basin provides treatment of stormwater via physical settling. Before discharging, Chevron analyzes stormwater samples for compliance with its effluent limits. Once compliance is assured, Chevron opens a valve and discharges stormwater from this basin by gravity to San Francisco Bay.

18. **Discharge Point No. 019 (7-Basin**). This controlled discharge from an earthen basin consists mainly of stormwater, but other residual sources may include steam condensate, hydrotest water, and water from the fire protection system. Hydrotest water is routed to the basin prior to being sent to the ABTU. Runoff originates from an area of approximately 20 acres in the SP Hill Tankfield. This earthen basin provides treatment of stormwater via physical settling. Before discharging, Chevron analyzes stormwater samples for compliance with its effluent limits. Once compliance is assured, Chevron opens a valve and discharges stormwater from this basin by gravity to San Francisco Bay.

19. **Discharge Point No. 020 (Castro Street, 1-Basin, 2-Basin).** This discharge consists of stormwater runoff from the City of Richmond's stormwater management system. Specifically, this discharge consists of: (1) stormwater runoff that drains an area of approximately 260 acres at Castro Street; (2) stormwater runoff from an area of approximately 4 acres in a former tankfield area of the Office Hill Tankfield that is collected at 1-Basin; and (3) stormwater runoff from an area of approximately 5 acres in a former tankfield area of the Office Hill Tankfield that is collected at 2-Basin. Stormwater from the three locations and water from the City of Richmond's storm sewers are routed to the Castro Street Pump Station. The Pump Station pumps water to Chevron's 38' Channel, which discharges into Castro Creek, which then flows to San Pablo Bay. In previous Orders, stormwater runoff from 1-Basin and 2-Basin were discharged through Discharge Point Nos. 015 and 016, respectively. However, as explained in section II.F.2 of this Fact Sheet, this Order permits the discharge of stormwater from 1-Basin and 2-Basin through Discharge Point No. 020.

20. **Discharge Point No. 021 (Landfill 15).** This discharge consists of stormwater runoff from a capped waste management unit area of approximately 41 acres. Runoff from Landfill 15 discharges to Castro Creek, a tributary of San Pablo Bay.

21. **Discharge Point No. 022 (Parr-Richmond).** This discharge consists of stormwater runoff from a capped waste management unit area of approximately 24 acres. Runoff from the Parr-Richmond Site discharges to Wildcat Creek and Gertrude Street ditch (which drains to Wildcat Creek). Wildcat Creek drains to Castro Creek, a tributary of San Pablo Bay.

22. **Discharge Point No. 023 (Gertrude Street**). This discharge consists of stormwater runoff from a 3-acre drainage area which collects at the Gertrude Street Ditch. Stormwater in the Gertrude Street Ditch discharges to Wildcat Creek, which drains to Castro Creek, a tributary of San Pablo Bay.

## C. Discharge Points and Receiving Waters

The receiving water and the location of the discharge points are shown in Table F-2 below. Compliance monitoring is conducted at Monitoring Locations E-001 through E-023 as described in Attachment E, Monitoring and Reporting Program (MRP). San Pablo Bay is located in the San Pablo Bay Watershed.

**Table F-2. Outfall Location**

| Discharge Point | Effluent Description | Discharge Point Latitude | Discharge Point Longitude | Receiving Water |
|---|---|---|---|---|
| 001 | Treated wastewater | 37º 58’ 15” N | 122º 25’ 45” W | San Pablo Bay |
| 002 | Richmond Long Wharf | 37º 55’ 15” N | 122º 24’ 30” W | San Francisco Bay |
| 003 | Stormwater | 37º 57’ 15” N | 122º 23’ 30” W | San Pablo Bay |
| 004 | Stormwater | 37º 57’ 15” N | 122º 24’ 45” W | San Francisco Bay |
| 005 | Stormwater | 37º 57’ 30” N | 122º 25’ 30” W | San Francisco Bay |
| 006 | Stormwater | 37º 57’ 15” N | 122º 25’ 15” W | San Francisco Bay |
| 007 | Stormwater | 37º 57’ 15” N | 122º 25’ 15” W | San Francisco Bay |
| 008 | Stormwater | 37º 57’ 15” N | 122º 23’ 30” W | San Pablo Bay |
| 009 | Stormwater | 37º 56’ 00” N | 122º 24’ 15” W | San Francisco Bay |
| 010 | Stormwater | 37º 57’ 15” N | 122º 22’ 45” W | Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay |
| 011 | Stormwater | 37º 56’ 45” N | 122º 22’ 30” W | Castro Creek to San Pablo Bay |
| 012 | Stormwater | 37º 56’ 45” N | 122º 22’ 30” W | Castro Creek to San Pablo Bay |
| 013 | Stormwater | 37º 57’ 00” N | 122º 22’ 45” W | Castro Creek to San Pablo Bay |
| 014 | Stormwater | 37º 57’ 00” N | 122º 22’ 45” W | Castro Creek to San Pablo Bay |
| 015 | Stormwater | 37º 55’ 60” N | 122º 23’ 30” W | 38’ Channel to San Pablo Bay via 020 |
| 016 | Stormwater | 37º 55’ 60” N | 122º 23’ 30” W | 38’ Channel to San Pablo Bay via 020 |
| 017 | Stormwater | 37º 55’ 45” N | 122º 24’ 30” W | San Francisco Bay |
| 018 | Stormwater | 37º 55’ 45” N | 122º 24’ 00” W | San Francisco Bay |
| 019 | Stormwater | 37º 57’ 30” N | 122º 25’ 30” W | San Francisco Bay |
| 020 | Stormwater | 37º 57’ 15” N | 122º 23’ 15” W | Castro Creek to San Pablo Bay |
| 021 | Stormwater | 37º 56’ 45” N | 122º 22’ 30” W | Castro Creek to San Pablo Bay |
| 022 | Stormwater | 37º 57’ 15” N | 122º 22’ 45” W | Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay |
| 023 | Stormwater | 37º 57’ 15” N | 122º 22’ 45” W | Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay |

## D. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

1. **Effluent Limitations and Monitoring Data at Discharge Point No. 001.** Effluent limitations for discharges to San Pablo Bay contained in the previous Order, and representative monitoring data for Discharge Point No. 001 are as follows:

**Table F-3. Historical Effluent Limitations and Monitoring Data for Conventional and Non-Conventional Pollutants for Discharge Point No. 001**

| Parameter | Units | Effluent Limitations | | Monitoring Data (From June 2006 to November 2010)[1] | |
|---|---|---|---|---|---|
| | | Monthly Average | Daily Maximum | Highest Monthly Average | Highest Daily Discharge |
| Biochemical Oxygen Demand (5-day @ 20 °C) (BOD) | lbs/day | 5,100 | 9,600 | 3,072 | 3,072 |
| Total Suspended Solids (TSS) | lbs/day | 4,200 | 6,600 | 1,471 | 1,471 |
| Total Organic Carbon (TOC) | lbs/day | 11,000 | 21,000 | 2,274 | 2,274 |
| Oil and Grease | lbs/day | 1,600 | 3,000 | 194 | 194 |
| | mg/L | 8 | 15 | 3.53 | 3.53 |
| Phenolic Compounds | lbs/day | 22 | 70 | 2.3 | 2.3 |
| Ammonia as N | lbs/day | 1,900 | 4,200 | 368 | 368 |
| Sulfide | lbs/day | 28 | 62 | 4.2 | 4.2 |
| Settleable Solids | mL/L-hr | 0.1 | 0.2 | <0.1 | <0.1 |
| Total Chromium | lbs/day | 25 | 72 | 1.1 | 1.1 |
| Hexavalent Chromium | lbs/day | 2.1 | 4.6 | 0.33 | 0.33 |
| pH | standard units | 6.0 – 9.0 | | 6.1 – 8.9 | |

NR = Not Reported
[1] As reported in the Report of Waste Discharge.

**Table F-4. Historical Effluent Limitations and Monitoring Data for Toxic Pollutants at Discharge Point No. 001**

| Parameter | Units | Final Limits | | Interim Limits[1] | | Monitoring Data (From September 2005 to March 2010) |
|---|---|---|---|---|---|---|
| | | Daily Maximum | Monthly Average | Daily Maximum | Monthly Average | Highest Daily Concentration |
| Copper | µg/L | 25 | 13 | -- | -- | 6.2 |
| Lead | µg/L | 15 | 7.4 | -- | -- | 1.7 |
| Mercury[1] | µg/L | 0.046 | 0.017 | -- | 0.075 | 0.070 |
| Nickel | µg/L | 66 | 45 | -- | -- | 27 |
| Selenium[1] | µg/L | 7.4 | 4.4 | 34 | -- | 47 |
| Cyanide[1] | µg/L | 6.4 | 3.7 | 25 | -- | 21 |
| Heptachlor Epoxide | µg/L | 0.0018 | 0.00088 | -- | -- | ND (0.002)[2] |
| Polychlorinated Biphenyls (PCBs) (Sum) [1] | µg/L | 0.00034 | 0.00017 | 0.5 | -- | ND (0.02)[2] |
| TCDD Equivalents[3] | µg/L | -- | -- | $1.0 \times 10^{-7}$ | -- | $4.6 \times 10^{-8}$ |
| Acute Toxicity | Percent | -- | [4] | -- | -- | 98[5]/98[6] |
| Chronic Toxicity | TUc | -- | [7] | -- | -- | 7.6[8]/8.8[9] |

[1] Interim limits were effective until April 27, 2010, for cyanide, selenium, and mercury; and interim limits for PCBs were effective until May 17, 2010. For selenium, Order No. R2-2010-0057 (permit amendment for selenium) required that the Discharger not exceed an annual running average for selenium of 0.92 kg/day. In 2010, the Discharger's annual running average ranged from 0.29 to 0.38 kg/day, which was well below the prescribed mass limit.
[2] Analyte not detected in effluent. Number is the lowest method detection limit (MDL) as reported by the analytical laboratory.
[3] The interim limit shall remain effective until June 30, 2011, or until the Board amends the limits based on site-specific objectives on the Waste Load Allocations in the TMDLs.
[4] The survival of bioassay test organisms in 96-hour bioassays of undiluted effluent shall be: (1) an 11 sample median value of not less than 90% survival; and (2) an 11 sample 90th percentile value of not less than 70% survival.
[5] Minimum 11-sample median percent survival. Compliance data collected between January 2009 and January 2010.
[6] Minimum 11-sample 90th percentile survival. Compliance data collected between January 2009 and January 2010.
[7] The survival of bioassay test organisms in the discharge shall be: (1) a three-sample median value equal to or less than 10 TUc; and (2) a single-sample value equal to or less than 20 TUc.
[8] Maximum three sample median of compliance data collected from August 2006 through December 2009.
[9] Maximum single sample value of compliance data collected from August 2006 through December 2009.

### 3. Stormwater Data from Discharge Points 002-023

The following tables include the quality of stormwater runoff from June 2006 through November 2010. During this period, the Discharger did not discharge to San Pablo Bay or San Francisco Bay from several discharge points, and therefore, summary data is not available for these outfalls.

#### a. Discharge Point No. 002, Richmond Long Wharf

**Table F-5 – E-002 Monitoring Data**

| Pollutant | MAX | AVG | Units |
|---|---|---|---|
| HEM[1] | 7.5 | 2.57 | mg/L |
| pH | 8.6 | 7.9 | S.U. |
| Specific Conductance (EC) | 44,800 | 8,519 | umhos/cm |
| Total Organic Carbon | 23.9 | 14.4 | mg/L |
| Total Suspended Solids | 105 | 23.4 | mg/L |

[1] HEM = Hexane Extractable Material (Oil & Grease)

#### b. Discharge Point No. 003, North Yard Impound Basin

**Table F-6 – E-003 Monitoring Data**

| Pollutant | MAX | AVG | Units |
|---|---|---|---|
| HEM | 3.39 | 1.02 | mg/L |
| pH | 7.43 | 7.27 | S.U. |
| Specific Conductance (EC) | 2070 | 1402 | umhos/cm |
| Total Organic Carbon | 11.86 | 10.11 | mg/L |
| Total Suspended Solids | 74.80 | 39.95 | mg/L |

**c. Discharge Point Nos. 004 – 007 (10-13 Basins).** These basins are located on the west side of the San Pablo Peninsula ridge. In this area, the Discharger indicates that all tanks associated with operations were dismantled, and that all operations ceased by 1996. Because there is no industrial activity and past samples show that discharges from these areas comply with effluent limits, Order No. R2-2006-0035 did not require monitoring of these basins.

d. **Discharge Point No. 008, Tank Field.** The Discharger indicates that operationally it is easier to route stormwater from this area directly to its wastewater treatment plant. For this reason, there were no discharges from this location in the last five years.

e. **Discharge Point No. 009, 8 Basin**

**Table F-7 – E-009 Monitoring Data**

| Pollutant | MAX | AVG | Units |
|---|---|---|---|
| HEM | 3.1 | 0.31 | mg/L |
| pH | 8.47 | 7.99 | S.U. |
| Specific Conductance | 1681 | 891.7 | umhos/cm |
| Total Organic Carbon | 22.42 | 9.14 | mg/L |
| Total Suspended Solids | 133 | 21.41 | mg/L |

f. **Discharge Point No. 010, Reclamation Area**

**Table F-8 – E-010 Monitoring Data**

| Pollutant | MAX | AVG | Units |
|---|---|---|---|
| HEM | 4.82 | 1.06 | mg/L |
| pH | 8.73 | 8.19 | S.U. |
| Specific Conductance (EC) | 578 | 258 | umhos/cm |
| Total Organic Carbon | 9.02 | 4.12 | mg/L |
| Total Suspended Solids | 582 | 119 | mg/L |

g. **Discharge Point Nos. 011 – 013**. The Discharger has not discharged from these locations in the last five years. This is because operationally the Discharger has chosen to route stormwater from these locations to the City of Richmond's wastewater treatment plant. To discharge stormwater from Discharge Points 011 and 013, the Discharger must document that it only contains non-contaminated stormwater and receive approval from the Executive Officer.

h. **Discharge Point No. 014, Consolidation Area**

**Table F-9 – E-014 Monitoring Data**

| Pollutant | MAX | AVG | Units |
|---|---|---|---|
| HEM | 3.57 | 3.57 | mg/L |
| pH | 8.47 | 7.74 | S.U. |
| Specific Conductance (EC) | 3,590 | 778 | umhos/cm |
| Total Organic Carbon | 39 | 18 | mg/L |
| Total Suspended Solids | 63 | 13 | mg/L |

i. **Discharge Point Nos. 015 and 016 (1-Basin and 2-Basin).** During the past five years, the Discharger has chosen to route stormwater from these locations to its wastewater treatment

plant. This is because operationally these are difficult locations to access and collect samples.

**j. Discharge Point No. 017, 3-Basin**

**Table F-10 – E-017 Monitoring Data**

| Pollutant | MAX | AVG | Units |
|---|---|---|---|
| HEM | 1.52 | 0.38 | mg/L |
| pH | 7.32 | 7.17 | S.U. |
| Specific Conductance (EC) | 159 | 155 | umhos/cm |
| Total Organic Carbon | 12.40 | 10.66 | mg/L |
| Total Suspended Solids | 14.00 | 9.60 | mg/L |

**k. Discharge Point No. 018, 9-Basin**

**Table F-11 – E-018 Monitoring Data**

| Pollutant | MAX | AVG | Units |
|---|---|---|---|
| HEM | 1.94 | 0.45 | mg/L |
| pH | 8.40 | 7.99 | S.U. |
| Specific Conductance (EC) | 696 | 587 | umhos/cm |
| Total Organic Carbon | 10.37 | 8.88 | mg/L |
| Total Suspended Solids | 43.25 | 9.98 | mg/L |

**l. Discharge Point No. 019, 7-Basin**

**Table F-12 – E-019 Monitoring Data**

| Pollutant | MAX | AVG | Units |
|---|---|---|---|
| HEM | 2.21 | 0.96 | mg/L |
| pH | 7.53 | 7.41 | S.U. |
| Specific Conductance (EC) | 2980 | 1761 | umhos/cm |
| Total Organic Carbon | 20.28 | 13.98 | mg/L |
| Total Suspended Solids | 43.50 | 19.70 | mg/L |

**m. Discharge No. Point 020, Castro Street**

**Table F-13 – E-020 Monitoring Data**

| Pollutant | MAX | AVG | Units |
|---|---|---|---|
| HEM | 3.0 | 1.0 | mg/L |
| pH | 7.9 | 7.5 | S.U. |
| Specific Conductance (EC) | 4330 | 2449 | umhos/cm |
| Total Organic Carbon | 12.5 | 7.7 | mg/L |
| Total Suspended Solids | 91.2 | 31.8 | mg/L |

**n. Discharge Point No. 021, Landfill 15**

**Table F-14 – E-021 Monitoring Data**

| Pollutant | MAX | AVG | Units |
|---|---|---|---|
| HEM | 1.83 | 0.20 | mg/L |
| pH | 8.31 | 7.95 | S.U. |
| Specific Conductance (EC) | 703 | 363 | umhos/cm |
| Total Organic Carbon | 19 | 8.12 | mg/L |
| Total Suspended Solids | 35.60 | 11.91 | mg/L |

**o. Discharge Point No. 022, Parr-Richmond**

**Table F-15 – E-022 Monitoring Data**

| Pollutant | MAX | AVG | Units |
|---|---|---|---|
| HEM | 2.27 | 0.83 | mg/L |
| pH | 7.74 | 7.60 | S.U. |
| Specific Conductance (EC) | 56 | 40 | umhos/cm |
| Total Organic Carbon | 3.46 | 2.30 | mg/L |
| Total Suspended Solids | 90 | 33.88 | mg/L |

**p. Discharge Point No. 023, Gertrude Street**

**Table F-16 – E-023 Monitoring Data**

| Pollutant | MAX | AVG | Units |
|---|---|---|---|
| HEM | 1.76 | 0.25 | mg/L |
| pH | 7.74 | 7.40 | S.U. |
| Specific Conductance (EC) | 971 | 288 | umhos/cm |
| Total Organic Carbon | 9.36 | 5.22 | mg/L |
| Total Suspended Solids | 27.67 | 7.37 | mg/L |

## E. Compliance Summary

1. **Compliance and Enforcement.** The Discharger violated its daily maximum effluent limit for selenium in May 2008, and submitted its 2008 Annual Stormwater Report more than 30 days late. To address these violations, the Regional Water Board issued a Notice of Violation, dated February 5, 2009, that also allowed the Discharger to settle these violations by offering a payment of $6,000. The Discharger made payment on June 19, 2009.

   Additionally, the Discharger violated its pH limitation at Discharge Point 010 (Stormwater outfall). On December 12, 2009, the Discharger reported a value of 8.73, which exceeded the maximum pH allowed of 8.5. The Regional Water Board has chosen not to formally address this violation, in part, because the excursion was of a small magnitude, and therefore, was not subject to a mandatory penalty under Section 13385(h) and (i) of the California Water Code.

2. **Reported Spills.** The Discharger reported 24 spills of toxic or hazardous pollutants at the Facility between July 9, 2007, through November 29, 2010. Of the 24 reported spills within

this time frame, six of the spills were directly to the San Francisco Bay. The largest spill to surface waters consisted of 2 gallons of oil and water mixture.

### F. Planned Changes

1. **Modification to North Yard Impoundment Basin.** The Discharger plans to make modifications to the North Yard Impound Basin in order to collect stormwater draining from the areas known as Passes 2 through 5. These modifications are being undertaken in order to comply with the requirements of Order No. R2-2006-0078, which requires remediation of sediment in a portion of Castro Cove. These areas were formerly elements of an oxidation pond that is currently being remediated according to general clean closure standards for closure and post-closure site requirements contained in Title 27. Modifications will be made such that surface water from Passes 2 through 5 drain to the North Yard Impoundment Basin. Groundwater will be pumped to the Aggressive Biological Treatment System.

2. **Discharge Point 012.** The Discharger proposes to modify, within the next five years, the location of stormwater discharges at Discharge Point 012. This potential discharge would consist of stormwater runoff from an area of approximately 19 acres within the former Chevron Chemical Company LLC's Castro Street facility that was historically used to manufacture fertilizer until 1996. In 2002, the Discharger filled the former fertilizer pond and topped it with a vegetative cap. The Discharger is proposing to regrade this area so stormwater would drain to a vegetated swale before discharge to Castro Creek. As no industrial activity occurs in this area, the Discharger indicates that the quality of stormwater runoff should be comparable to other undeveloped areas at the facility.

## III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements in this Order are based on the requirements and authorities described in this section.

### A. Legal Authorities

This Order is issued pursuant to federal Clean Water Act (CWA) section 402 and implements regulations adopted by United States Environmental Protection Agency (USEPA), and pursuant to California Water Code (CWC) Chapter 5.5, Division 7 (commencing with section 13370). It shall serve as an NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to CWC Article 4, Chapter 4, Division 7 (commencing with section 13260).

### B. California Environmental Quality Act (CEQA)

Under CWC section 13389, this action to adopt an NPDES permit is exempt from CEQA provisions.

### C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** *The Water Quality Control Plan for the San Francisco Bay Basin* (hereinafter Basin Plan) is the Regional Water Quality Control Board, San Francisco Bay Region's (Regional Water Board's) master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including

surface waters and groundwater. It also includes programs of implementation to achieve the water quality objectives. The Basin Plan was duly adopted by the Regional Water Board and approved by the State Water Quality Control Board (State Water Board), the Office of Administrative Law (OAL), and USEPA, as required. Requirements of this Order implement the Basin Plan.

The State Water Board's *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* 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.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995, and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that applied in the State. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority toxic pollutants that apply to San Pablo Bay.

3. **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 USEPA promulgated for California through the NTR and to 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 USEPA promulgated through the CTR. On February 24, 2005, the State Water Board adopted amendments to the SIP that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

4. **Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised State and tribal water quality standards (WQS) become effective for CWA purposes [65 Fed. Reg. 24641 (April 27, 2000) (codified at 40 CFR 131.21)]. Under the revised regulation (also known as the Alaska Rule), USEPA must approve any new and revised standards submitted to USEPA after May 30, 2000, before they can be used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.

5. **Antidegradation Policy.** 40 CFR 131.12 requires 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, which incorporates the federal antidegradation policy where the federal policy applies under federal law. It also requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Antidegradation is discussed further in Fact Sheet section IV.D.2.

6. **Anti-Backsliding Requirements.** CWA sections 402(o)(2) and 303(d)(4) and 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit be as stringent as those in the previous permits, with some exceptions where limitations may be relaxed. Some effluent limitations in this Order are less stringent than those in the previous Order. Anti-backsliding is discussed further in Fact Sheet section IV.D.1.

### D. Impaired Water Bodies on CWA 303(d) List

In November 2006, the USEPA approved a revised list of impaired water bodies prepared by the State [hereinafter referred to as the 303(d) list], prepared pursuant to provisions of 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 limitations on point sources. San Pablo Bay and Central San Francisco Bay are listed as an impaired waterbody for chlordane, DDT, dieldrin, dioxin compounds, invasive species, furan compounds, mercury, PCBs, dioxin-like PCBs, and selenium. The SIP requires final effluent limitations for all 303(d)-listed pollutants to be consistent with total maximum daily loads (TMDLs) and associated waste load allocations. The Regional Water Board plans to adopt TMDLs for pollutants on the 303(d) list. On February 12, 2008, USEPA approved a TMDL for mercury in San Francisco Bay. On March 29, 2010, USEPA approved a TMDL for PCBs in San Francisco Bay. Regional Water Board Order No. R2-2007-0077, as amended, implements these TMDLs.

## 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 limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the NPDES regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where reasonable potential has been established for a pollutant, but there is no numeric objective for the pollutant, water quality-based effluent limitations may be established: (1) using USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) on an indicator parameter for the pollutant of concern; or (3) using a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

### A. Discharge Prohibitions

1. **Discharge Prohibition III.A (No discharge different from that described in this Order):** This prohibition is the same as in the previous Order and is based on 40 CFR 122.21(a), duty to apply, and CWC section 13260, which requires filing a Report of Waste Discharge before discharges can occur. Discharges not described in the Report of Waste Discharge, and subsequently in this Order, are prohibited.

2. **Discharge Prohibition III.B (Discharge that does not receive a minimum 34:1 dilution):** This Order allows a conservative estimate of the actual initial dilution of 34:1 to calculate WQBELs for ammonia. This is discussed further in section IV.C.4.b of this Order. These

WQBELs would not be protective of water quality if the discharge did not actually achieve at least a 34:1 minimum initial dilution, thus this prohibition is necessary and warranted.

This Order permits discharge of stormwater from 20 outfalls that do not provide an initial dilution of at least 10:1. Though Discharge Prohibition No. 1 of the Basin Plan prohibits discharges having characteristics of particular concern that do not receive a minimum 10:1 initial dilution, the Basin Plan further indicates that the prohibition is to address discharges of treated sewage and other discharges where the treatment process is subject to upset. Since these stormwater discharges do not contain treated sewage or wastewater from a treatment process subject to upset, the prohibition does not apply to these stormwater discharges.

3. **Discharge Prohibition III.C (No bypass or overflow of untreated or partially treated wastewaters):** This prohibition is retained from the previous Order and based on 40 CFR 122.41(m) (see federal Standard Provisions, Attachment D).

4. **Discharge Prohibition III.D (No discharge except during 25-year, 24-hour storm event):** This prohibition is retained from the previous Order. The drainage area for Discharge Point No. 011 includes the site of the former Chevron Chemical Company and may contain contaminated stormwater. This prohibition is necessary to minimize the potential for the discharge of contaminated stormwater.

5. **Discharge Prohibition III.E (No discharge without Executive Officer approval):** This prohibition is retained from the previous Order and is necessary to ensure that contaminated stormwater is not discharged from this basin (Discharge Point 013) in the event of an extreme storm event.

6. **Discharge Prohibition III.F (No discharge of wetland effluent directly to Discharge Point No. 001):** This prohibition is retained from the previous Order and necessary to ensure adequate treatment of wastewater discharged to the receiving water.

## B. Technology-Based Effluent Limitations

### 1. Scope and Authority

CWA section 301(b) and 40 CFR 122.44(a) require that permits include applicable technology-based limitations based on several levels of control:

a. 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. Conventional pollutants include BOD, TSS, pH, and oil and grease.

b. 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.

c. Best conventional 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.

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

Where USEPA has not yet developed technology-based standards for a particular industry or a particular pollutant, CWA section 402(a)(1) and 40 CFR 125.3 authorize the use of BPJ to derive technology-based effluent limitations on a case-by-case basis. When BPJ is used, the permit must reflect specific factors outlined at 40 CFR 125.3.

USEPA has established standards of performance (technology-based limitations and standards) for the petroleum refining industry at 40 CFR 419, *Effluent Limitations Guidelines for the Petroleum Refining Point Source Category*. Subpart E of these regulations for the Integrated Subcategory apply to discharges from the Facility and have been used to develop limitations and requirements of this Order.

## 2. Applicable Technology-Based Effluent Limitations

### a. Technology-Based Effluent Limitations – Discharge Point No. 001

#### i. Process Wastewater Mass-Based Effluent Limitations

40 CFR 419 Subpart E requires that technology-based effluent limitations for Discharge Point No. 001 be derived based on refinery production (the total crude oil throughput of the Facility) and the treatment processes used. The Facility currently operates with a maximum crude oil throughput of 244,000 bbls/day. Attachment F-1 presents the derivation of the production-based effluent limitations based on 40 CFR 419 Subpart E.

#### ii. Effluent Limitation Allocations for Contaminated Runoff and Ballast Water

Additional effluent limitation allocations for contaminated runoff commingled with process wastewater are developed from requirements in 40 CFR 419.53(f)(2) and 419.52(e)(2). These allocations are in addition to the process wastewater mass-based limitations. A full description of the additional effluent limitation allocations for Discharge Point No. 001 can be found in Attachment F-1 to this Order.

Additional ballast water (i.e., cargo hold wash water) effluent limitation allocations are developed from requirements in 40 CFR 419.52(c), 419.53(d), and 419.54(c). These allocations are in addition to the process wastewater mass-based limitations. A full description of the additional effluent limitation allocations for Discharge Point No. 001 can be found in Attachment F-1 to this Order.

## C. Water Quality-Based Effluent Limitations (WQBELs) for Toxic Substances

### 1. Scope and Authority

**a.** 40 CFR 122.44(d)(1)(i) requires permits to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard (Reasonable Potential). The process for determining Reasonable Potential and, when necessary, calculating WQBELs is intended to (1) protect the designated beneficial uses of the receiving water, and (2) achieve applicable WQOs in the CTR, NTR, and the Basin Plan.

**b.** NPDES regulations and the SIP provide the basis to establish Maximum Daily Effluent Limitations (MDELs).

**i. NPDES Regulations.** 40 CFR 122.45(d) states "For continuous discharges all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall *unless impracticable* be stated as maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works."

**ii. SIP.** SIP section 1.4 requires that WQBELs be expressed as MDELs and average monthly effluent limitations (AMELs).

### 2. Applicable Beneficial Uses and Water Quality Objectives

**a.** The Basin Plan implements State Water Board Resolution No. 88-63, which establishes State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply (MUN). Because of the marine influence on receiving waters of San Francisco Bay, total dissolved solids levels in San Francisco Bay commonly (and often significantly) exceed 3,000 mg/L and thereby meet an exception to State Water Board Resolution No. 88-63. The designation MUN does not apply to the San Pablo Bay. Beneficial uses applicable to the San Pablo Bay and Central San Francisco Bay are as follows:

**Table F-17. Basin Plan Beneficial Uses**

| Discharge Point | Receiving Water Name | Beneficial Use(s) |
|---|---|---|
| 001, 003, 008, 010-014, and 020-023 | San Pablo Bay | Industrial Service Supply (IND)<br>Ocean, Commercial and Sport Fishing (COMM)<br>Shellfish Harvesting (SHELL)<br>Estuarine Habitat (EST)<br>Fish Migration (MIGR)<br>Preservation of Rare and Endangered Species (RARE)<br>Fish Spawning (SPWN)<br>Wildlife Habitat (WILD)<br>Water Contact Recreation (REC1)<br>Non-Contact Water Recreation (REC2)<br>Navigation (NAV) |

| Discharge Point | Receiving Water Name | Beneficial Use(s) |
|---|---|---|
| 002, 004-007, 009, and 017-019 | Central San Francisco Bay | Industrial Service Supply (IND)<br>Industrial Process Supply (PRO)<br>Ocean, Commercial and Sport Fishing (COMM)<br>Shellfish Harvesting (SHELL)<br>Estuarine Habitat (EST)<br>Fish Migration (MIGR)<br>Preservation of Rare and Endangered Species (RARE)<br>Fish Spawning (SPWN)<br>Wildlife Habitat (WILD)<br>Water Contact Recreation (REC1)<br>Non-Contact Water Recreation (REC2)<br>Navigation (NAV) |

**b.** The WQOs applicable to the receiving waters for this discharge are from the Basin Plan; the CTR, established by USEPA at 40 CFR 131.38; and the NTR, established by USEPA at 40 CFR 131.36. Some pollutants have WQOs established by more than one of these three sources.

**i. Basin Plan.** The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, hexavalent chromium, copper in freshwater, lead, mercury, nickel, silver, zinc, and cyanide. The Basin Plan's narrative toxicity objective (section 3.3.18) states in part, "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." The bioaccumulation objective states in part, "[c]ontrollable 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."

Effluent limitations and provisions contained in this Order are based on available information to implement these objectives.

**ii. CTR.** The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to all inland surface waters and enclosed bays and estuaries of the San Francisco Bay Region, although Basin Plan Tables 3-3 and 3-4 include numeric objectives for certain priority toxic pollutants that supersede CTR criteria north of the Dumbarton Bridge.

**iii. NTR.** The NTR establishes numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for 33 other toxic organic pollutants for waters of San Pablo Bay. These NTR criteria apply to San Pablo Bay, the receiving water for Discharge Point No. 001 for this Discharger.

**iv. Technical Support Document for Water Quality-Based Toxics Controls.** Where numeric objectives have not been established or updated in the Basin Plan, 40 CFR 122.44(d) requires that WQBELs be established based on USEPA criteria,

supplemented where necessary by other relevant information, to attain and maintain narrative WQOs to fully protect designated beneficial uses. To determine the need for WQBELs and establish them when necessary, the Regional Water Board has followed the requirements of applicable NPDES regulations, including 40 CFR 122 and 131, as well as guidance and requirements established by the Basin Plan; USEPA's *Technical Support Document for Water Quality-Based Toxics Control* (the TSD, EPA/505/2-90-001, 1991); and the State Water Board's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, 2005* (SIP).

v. **Sediment Quality Objectives.** The Water Quality Control Plan for Enclosed Bays and Estuaries—Part 1, Sediment Quality contains a narrative WQO, "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 WQO 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 WQO, it is to impose the WQO as a receiving water limit.

vi. **Basin Plan Receiving Water Salinity Policy and Hardness.** The Basin Plan states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable WQO. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than one ppt at least 95 percent of the time. Saltwater criteria shall 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. For discharges to water with salinities in between these two categories, or tidally influenced freshwaters that support estuarine beneficial uses, the criteria shall be the lower of the salt or freshwater criteria, (the latter calculated based on ambient hardness), for each substance.

The receiving water for the subject discharge is San Pablo Bay, which is a tidally influenced waterbody, with significant fresh water inflows during the wet weather season. San Pablo Bay is specifically defined as estuarine under the Basin Plan salinity definition. Therefore, the effluent limitations specified in this Order for discharges to San Pablo Bay are based on the lower of the marine and freshwater Basin Plan WQOs and CTR and NTR WQC. Some WQOs and WQC are hardness dependent. Hardness data collected through the RMP are available for water bodies in the San Francisco Bay Region. In determining the WQOs and WQC for this Order, the Regional Water Board used a hardness of 59 mg/L, which is the minimum hardness at the Pinole Point Station observed from 1993-2008. This represents the best available information for hardness of the receiving water after it has mixed with the discharge.

vii. **Site-Specific Metal Translators.** 40 CFR 122.45(c) requires effluent limitations for metals to be expressed as total recoverable metal. Because applicable water quality criteria for the metals are typically expressed in the dissolved form, factors or translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. In the CTR, USEPA establishes default translators that are used in NPDES permitting activities; however, site-specific conditions, such as water temperature, pH, suspended solids, and organic carbon, greatly impact the form of

metal (dissolved, filterable, or otherwise) present and therefore available in the water to cause toxicity. In general, the dissolved form is more available and more toxic to aquatic life than filterable forms. Site-specific translators can be developed to account for site-specific conditions, thereby preventing exceedingly stringent or under protective water quality objectives.

For deep-water discharges to San Pablo Bay (Discharge Point No. 001), Regional Water Board staff used translators for copper and nickel based on Table 7.2-2 of the Basin Plan and recommendations of the Clean Estuary Partnership's *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (2005). These translators are summarized in the table below:

**Table F-18. Translators for Copper and Nickel for Deepwater Discharges North of Dumbarton Bridge**

| | Copper | Nickel |
|---|---|---|
| **AMEL Translator** | 0.38 | 0.27 |
| **MDEL Translator** | 0.66 | 0.57 |

In determining the need for and calculating WQBELs for all other metals, Regional Water Board staff used default translators from 40 CFR 131.38(b)(2), Table 2.

### 3. Determining the Need for WQBELs

40 CFR 122.44(d)(1)(i) requires permits to include WQBELs for all pollutants (non-priority or priority) "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any narrative or numeric criteria within a State water quality standard" (i.e., which have "Reasonable Potential"). Assessing whether a pollutant has Reasonable Potential is the fundamental step in determining whether or not a WQBEL is required.

#### a. Reasonable Potential Analysis

Regional Water Board staff used the methods and procedures prescribed in SIP section 1.3 to analyze the effluent and background data and the nature of facility operations to determine if the discharge has Reasonable Potential. The Reasonable Potential Analysis (RPA) compares the effluent data with numeric and narrative WQOs in the Basin Plan, NTR, and CTR.

#### b. Reasonable Potential Methodology

The RPA projects a maximum effluent concentration (MEC) for each pollutant based on existing data, while accounting for a limited data set and effluent variability. There are three triggers in determining Reasonable Potential.

**i.** The first trigger is activated if the MEC is greater than the lowest applicable WQO (MEC $\geq$ WQO), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than the adjusted WQO, then that pollutant has Reasonable Potential, and a WQBEL is required.

**ii.** The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO (B > WQO) and the pollutant is detected in any of the effluent samples.

**iii.** The third trigger is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the WQO. A limitation may be required under certain circumstances to protect beneficial uses.

### c. Effluent Data

The RPA was based on the effluent monitoring data collected by the Discharger from July 2006 through August 2010 for most pollutants. Regional Water Board staff analyzed these data and the nature of the discharge to determine if the discharge has Reasonable Potential.

### d. Ambient Background Data

Ambient background values are used in the RPA and in the calculation of effluent limitations. For the RPA, ambient background concentrations are the observed maximum detected water column concentrations. The SIP states that for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations or, for objectives intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations. The RMP station at Yerba Buena Island, located in the Central Bay, has been monitored for most of the inorganic (CTR constituent numbers 1–15) and some of the organic (CTR constituent numbers 16–126) toxic pollutants, and these data were used as background data in performing this RPA.

The RMP has not analyzed all the constituents listed in the CTR. On May 15, 2003, a group of several San Francisco Bay Region dischargers (known as the Bay Area Clean Water Agencies, or BACWA) submitted a collaborative receiving water study, entitled the *San Francisco Bay Ambient Water Monitoring Interim Report*. This study includes monitoring results from sampling events in 2002 and 2003 for the remaining priority pollutants not monitored by the RMP. The RPA was conducted and the WQBELs were calculated using RMP data from 1993 through 2008 for inorganics and organics at the Yerba Buena Island RMP station, and additional data from the BACWA *Ambient Water Monitoring: Final CTR Sampling Update Report* for the Yerba Buena Island RMP station.

### e. RPA Determination

The MECs, most stringent applicable WQOs, and background concentrations used in the RPA are presented in Table F-19, along with the RPA results (yes or no) for each pollutant analyzed. Reasonable Potential was not determined for all pollutants because there are not applicable water quality objectives for all pollutants, and monitoring data were not available for others. The pollutants that exhibit Reasonable Potential for Discharge Point No. 001 are copper, lead, selenium, cyanide, dioxin-TEQ, and ammonia.

**Table F-19. Summary of RPA Results – Discharge Point No. 001**

| CTR # | Priority Pollutants | MEC or Minimum DL [1],[2] (µg/L) | Governing WQO/WQC (µg/L) | Maximum Background or Minimum DL [1],[2] (µg/L) | RPA Results [3] |
|---|---|---|---|---|---|
| 1 | Antimony | 1.4 | 4,300 | 1.8 | No |
| 2 | Arsenic | 18.26 | 36 | 2.46 | No |
| 3 | Beryllium | 0.07 | No Criteria | 0.215 | Ud |
| 4 | Cadmium | 0.2 | 1.1 | 0.13 | No |
| 5a | Chromium (III) | Not Available | 201 | 4.4 | -- |
| 5b | Hexavalent Chromium | 8.03 | 11 | 4.4 | No |
| 6 | Copper | 6.2 | 14.2 | 2.549 | Yes[4] |
| 7 | Lead | 1.7 | 1.6 | 0.804 | Yes |
| 8 | Mercury (303d listed) | 0.070 | 0.025 | 0.0086 | [5] |
| 9 | Nickel (303d listed) | 27 | 30 | 3.73 | No |
| 10 | Selenium (303d listed) | 46.95 | 5 | 0.39 | Yes |
| 11 | Silver | 0.19 | 2.2 | 0.052 | No |
| 12 | Thallium | 0.05 | 6.3 | 0.21 | No |
| 13 | Zinc | 38 | 86 | 5.092 | No |
| 14 | Cyanide | 21 | 2.9 | <0.4 | Yes |
| 15 | Asbestos | Not Available | No Criteria | Not Available | Ud |
| 16 | 2,3,7,8-TCDD (303d listed) | $<1.4x10^{-7}$ | $1.4x10^{-8}$ | $8.2x10^{-9}$ | No |
| | Dioxin TEQ (303d listed) | $4.56x10^{-8}$ | $1.4x10^{-8}$ | $5.3x10^{-8}$ | Yes |
| 17 | Acrolein | <0.5 | 780 | <0.5 | No |
| 18 | Acrylonitrile | <0.58 | 0.66 | 0.03 | No |
| 19 | Benzene | <0.03 | 71 | <0.05 | No |
| 20 | Bromoform | <0.03 | 360 | <0.5 | No |
| 21 | Carbon Tetrachloride | <0.04 | 4.4 | 0.06 | No |
| 22 | Chlorobenzene | <0.03 | 21,000 | <0.5 | No |
| 23 | Chlorodibromomethane | <0.03 | 34 | <0.05 | No |
| 24 | Chloroethane | <0.03 | No Criteria | <0.5 | Ud |
| 25 | 2-Chloroethylvinyl ether | <0.1 | No Criteria | <0.5 | Ud |
| 26 | Chloroform | 3.4 | No Criteria | <0.5 | Ud |
| 27 | Dichlorobromomethane | <0.04 | 46 | <0.05 | No |
| 28 | 1,1-Dichloroethane | <0.04 | No Criteria | <0.05 | Ud |
| 29 | 1,2-Dichloroethane | <0.04 | 99 | 0.04 | No |
| 30 | 1,1-Dichloroethylene | <0.07 | 3.2 | <0.5 | No |
| 31 | 1,2-Dichloropropane | <0.03 | 39 | <0.05 | No |
| 32 | 1,3-Dichloropropylene | <0.03 | 1,700 | <0.5 | No |
| 33 | Ethylbenzene | <0.04 | 29,000 | <0.5 | No |
| 34 | Methyl Bromide | <0.06 | 4,000 | <0.5 | No |
| 35 | Methyl Chloride | <0.06 | No Criteria | <0.5 | Ud |
| 36 | Methylene Chloride | <0.08 | 1,600 | 22 | No |
| 37 | 1,1,2,2-Tetrachloroethane | <0.04 | 11 | <0.05 | No |
| 38 | Tetrachloroethylene | 0.5 | 8.85 | <0.05 | No |
| 39 | Toluene | <0.06 | 200,000 | <0.3 | No |
| 40 | 1,2-Trans-Dichloroethylene | <0.06 | 140,000 | <0.5 | No |
| 41 | 1,1,1-Trichloroethane | <0.03 | No Criteria | <0.5 | Ud |
| 42 | 1,1,2-Trichloroethane | <0.05 | 42 | <0.05 | No |
| 43 | Trichloroethylene | <0.05 | 81 | <0.5 | No |
| 44 | Vinyl Chloride | <0.06 | 525 | <0.5 | No |
| 45 | 2-Chlorophenol | <0.7 | 400 | <1.2 | No |
| 46 | 2,4-Dichlorophenol | <0.7 | 790 | <1.3 | No |
| 47 | 2,4-Dimethylphenol | <0.8 | 2,300 | <1.3 | No |
| 48 | 2-Methyl- 4,6- | <0.6 | 765 | <1.2 | No |

| CTR # | Priority Pollutants | MEC or Minimum DL [1],[2] (µg/L) | Governing WQO/WQC (µg/L) | Maximum Background or Minimum DL [1],[2] (µg/L) | RPA Results [3] |
|---|---|---|---|---|---|
| | Dinitrophenol | | | | |
| 49 | 2,4-Dinitrophenol | <0.6 | 14,000 | <0.7 | No |
| 50 | 2-Nitrophenol | <0.6 | No Criteria | <1.3 | Ud |
| 51 | 4-Nitrophenol | <0.6 | No Criteria | <1.6 | Ud |
| 52 | 3-Methyl 4-Chlorophenol | <0.6 | No Criteria | <1.1 | Ud |
| 53 | Pentachlorophenol | <0.6 | 7.9 | <1 | No |
| 54 | Phenol | Not Available | 4600000 | <1.3 | -- |
| 55 | 2,4,6-Trichlorophenol | <0.6 | 6.5 | <1.3 | No |
| 56 | Acenaphthene | <0.03 | 2,700 | 0.00193 | No |
| 57 | Acenaphthylene | <0.02 | No Criteria | 0.001285 | Ud |
| 58 | Anthracene | <0.02 | 110,000 | 0.000592 | No |
| 59 | Benzidine | <1 | 0.00054 | <0.0015 | No |
| 60 | Benzo(a)Anthracene | <0.02 | 0.049 | 0.005315 | No |
| 61 | Benzo(a)Pyrene | <0.02 | 0.049 | 0.00333 | No |
| 62 | Benzo(b)Fluoranthene | <0.02 | 0.049 | 0.00459 | No |
| 63 | Benzo(ghi)Perylene | 0.03 | No Criteria | 0.004544 | Ud |
| 64 | Benzo(k)Fluoranthene | <0.02 | 0.049 | 0.00177 | No |
| 65 | Bis(2-Chloroethoxy)Methane | <0.7 | No Criteria | <0.3 | Ud |
| 66 | Bis(2-Chloroethyl)Ether | <0.8 | 1.4 | <0.0002 | No |
| 67 | Bis(2-Chloroisopropyl)Ether | <0.6 | 170,000 | Not Available | No |
| 68 | Bis(2-Ethylhexyl)Phthalate | 1.7 | 5.9 | <0.7 | No |
| 69 | 4-Bromophenyl Phenyl Ether | <0.8 | No Criteria | <0.23 | Ud |
| 70 | Butylbenzyl Phthalate | 1.5 | 5,200 | 0.0056 | No |
| 71 | 2-Chloronaphthalene | <0.9 | 4,300 | <0.3 | No |
| 72 | 4-Chlorophenyl Phenyl Ether | <0.9 | No Criteria | <0.3 | Ud |
| 73 | Chrysene | <0.02 | 0.049 | 0.002781 | No |
| 74 | Dibenzo(a,h)Anthracene | <0.02 | 0.049 | 0.00064 | No |
| 75 | 1,2-Dichlorobenzene | <0.03 | 17,000 | <0.3 | No |
| 76 | 1,3-Dichlorobenzene | <0.18 | 2,600 | <0.3 | No |
| 77 | 1,4-Dichlorobenzene | <0.04 | 2,600 | <0.3 | No |
| 78 | 3,3 Dichlorobenzidine | <0.6 | 0.077 | <0.001 | No |
| 79 | Diethyl Phthalate | <0.6 | 120,000 | <0.21 | No |
| 80 | Dimethyl Phthalate | <0.7 | 2,900,000 | <0.21 | No |
| 81 | Di-n-Butyl Phthalate | 0.9 | 12,000 | 0.016 | No |
| 82 | 2,4-Dinitrotoluene | <0.6 | 9.1 | <0.27 | No |
| 83 | 2,6-Dinitrotoluene | <0.6 | No Criteria | <0.29 | Ud |
| 84 | Di-n-Octyl Phthalate | <0.7 | No Criteria | <0.38 | Ud |
| 85 | 1,2-Diphenylhydrazine | <0.6 | 0.54 | 0.0037 | No |
| 86 | Fluoranthene | 0.11 | 370 | 0.0109 | No |
| 87 | Fluorene | <0.02 | 14,000 | 0.00208 | No |
| 88 | Hexachlorobenzene | <0.7 | 0.00077 | 0.0000221 | No |
| 89 | Hexachlorobutadiene | <0.7 | 50 | <0.3 | No |
| 90 | Hexachlorocyclopentadiene | <0.8 | 17,000 | <0.3 | No |
| 91 | Hexachloroethane | <0.6 | 8.9 | <0.2 | No |
| 92 | Indeno(1,2,3-cd)Pyrene | <0.02 | 0.049 | 0.00398 | No |
| 93 | Isophorone | <0.7 | 600 | <0.3 | No |
| 94 | Naphthalene | <0.02 | No Criteria | 0.01262 | Ud |

| CTR # | Priority Pollutants | MEC or Minimum DL [1],[2] (µg/L) | Governing WQO/WQC (µg/L) | Maximum Background or Minimum DL [1],[2] (µg/L) | RPA Results [3] |
|---|---|---|---|---|---|
| 95 | Nitrobenzene | <0.7 | 1,900 | <0.25 | No |
| 96 | N-Nitrosodimethylamine | <0.8 | 8.1 | <0.3 | No |
| 97 | N-Nitrosodi-n-Propylamine | <0.6 | 1.4 | <0.001 | No |
| 98 | N-Nitrosodiphenylamine | <0.6 | 16 | <0.001 | No |
| 99 | Phenanthrene | 0.06 | No Criteria | 0.00951 | Ud |
| 100 | Pyrene | 0.09 | 11,000 | 0.0194 | No |
| 101 | 1,2,4-Trichlorobenzene | <0.8 | No Criteria | <0.3 | Ud |
| 102 | Aldrin | <0.002 | 0.00014 | 0.00000285 | No |
| 103 | Alpha-BHC | <0.002 | 0.013 | 0.000496 | No |
| 104 | beta-BHC | <0.002 | 0.046 | 0.000413 | No |
| 105 | gamma-BHC | <0.002 | 0.063 | 0.000703 | No |
| 106 | delta-BHC | <0.002 | No Criteria | 0.000053 | Ud |
| 107 | Chlordane (303d listed) | <0.005 | 0.00059 | 0.000178 | No |
| 108 | 4,4'-DDT (303d listed) | <0.003 | 0.00059 | 0.000167 | No |
| 109 | 4,4'-DDE (linked to DDT) | <0.003 | 0.00059 | 0.000693 | No |
| 110 | 4,4'-DDD | <0.003 | 0.00084 | 0.000313 | No |
| 111 | Dieldrin (303d listed) | <0.002 | 0.00014 | 0.000264 | No |
| 112 | Alpha-Endosulfan | <0.003 | 0.0087 | 0.000031 | No |
| 113 | beta-Endolsulfan | <0.003 | 0.0087 | 0.000069 | No |
| 114 | Endosulfan Sulfate | <0.002 | 240 | 0.0000819 | No |
| 115 | Endrin | <0.002 | 0.0023 | 0.00004 | No |
| 116 | Endrin Aldehyde | <0.002 | 0.81 | Not Available | No |
| 117 | Heptachlor | <0.003 | 0.00021 | 0.000019 | No |
| 118 | Heptachlor Epoxide | <0.002 | 0.00011 | 0.000094 | No |
| 119-125 | PCBs sum (303d listed[6]) | <0.02 | 0.00017 | 0.00146 | [5] |
| 126 | Toxaphene | <0.19 | 0.0002 | Not Available | No |
| | Tributyltin | <0.00019 | 0.0074 | 0.00222 | No |
| | Total PAHs | 0.54 | 15 | 0.0841 | No |
| | Total Ammonia (mg/L) | 3.3 | 1.27 | 0.2 | Yes |

[1] The MEC or maximum background concentration is the actual detected concentration unless there is a "<" sign before it, in which case the value shown is the minimum detection level.

[2] The MEC or maximum background concentration is "Not Available" when there are no monitoring data for the constituent.

[3] RPA Results =Yes, if MEC => WQO/WQC, or B > WQO/WQC and MEC is detected;

= No, if MEC and B are < WQO/WQC or all effluent data are undetected;

= Undetermined (Ud), if no criteria have been promulgated;

= Cannot Determine, if there are insufficient data.

[4] Section 7.2.1.2 of the Basin Plan requires that individual NPDES permits for municipal and industrial wastewater treatment facilities include WQBELs for copper.

[5] SIP section 1.3 excludes from its RPA procedure priority pollutants for which a TMDL has been developed. TMDLs have been developed for mercury and PCBs in San Francisco Bay. Mercury and PCBs from wastewater discharges are regulated by NPDES Permit No. CA0038849 (currently Regional Water Board Order No. R2-2007-0077 as amended by Order No. R2-2011-0012), which implements the San Francisco Bay Mercury and PCB TMDLs.

i. **Constituents with limited data.** The Discharger has performed sampling and analysis for the constituents listed in the CTR. This data set was used to perform the RPA. In some cases, Reasonable Potential cannot be determined because effluent data are limited or ambient background concentrations are not available. The Discharger will continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available,

further RPA will be conducted to determine whether to add numeric effluent limitations to this Order or to continue monitoring.

ii. **Pollutants with no Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate Reasonable Potential; however, monitoring for such pollutants is still required. If concentrations of these constituents are found to have increased significantly, section VI.C.2.a of this Order requires the Discharger to investigate the source of the increase. Remedial measures are required if the increase poses a threat to water quality.

### f. RPA Determination for Sediment Quality Objectives

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 the 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 appropriate requirements to impose on the Discharger, along with other dischargers in the region, to obtain additional information that may inform future RPAs.

## 4. WQBEL Calculations

### a. Pollutants with Reasonable Potential

WQBELs were developed for the toxic and priority pollutants that were determined to have Reasonable Potential. The WQBELs were calculated based on appropriate WQOs and the appropriate procedures specified in SIP section 1.4. The WQOs used for each pollutant with Reasonable Potential are discussed below.

### b. Dilution Credit

The SIP provides the basis for any dilution credit. Based on a study entitled *In-Situ Measurement of Dilution of Chevron Effluent in San Pablo Bay*, dated November 1987, and prepared by CH2M Hill, the Discharger indicates that the diffuser achieves a field-verified minimum initial dilution of 200:1, and a modeled initial dilution (based on conservative assumptions) of at least 34:1.

Based on RMP monitoring data for San Pablo Bay, there is variability in the receiving water, and the hydrology of the receiving water is very complex. Therefore, it is uncertain how representative the ambient background data used to determine the effluent limitations is. Pursuant to SIP section 1.4.2.1, “dilution credit may be limited or denied on a pollutant-by-pollutant basis….” The detailed basis for each pollutant is explained below.

**i.** Bioaccumulative Pollutants: For certain bioaccumulative pollutants, dilution credit is significantly restricted or denied. This determination is based on available data on concentrations of these pollutants in aquatic organisms, sediment, and the water column. Selenium, chlordane, DDT, dieldrin, dioxin and furan compounds, dioxin-like PCBs, mercury, and PCBs appear on the CWA section 303(d) list for San Pablo Bay because they impair San Pablo Bay's beneficial uses. The following factors suggest insufficient assimilative capacity in San Pablo Bay for these pollutants.

(a) Bioaccumulative Pollutants Excluding Selenium

Tissue samples taken from fish in San Pablo Bay show the presence of these pollutants at concentrations greater than screening levels (*Contaminant Concentrations in Fish from San Francisco Bay*, San Francisco Estuary Institute, May 1997). The results of the 1994 San Francisco Bay pilot study, presented in *Contaminated Levels in Fish Tissue from San Francisco Bay* (Regional Water Board, 1994) also showed elevated levels of chemical contaminants in fish tissues. The Office of Environmental Health and Hazard Assessment completed a preliminary review of the data in the 1994 report and subsequently issued an interim consumption advisory covering certain fish species in San Francisco Bay due to the levels of some of these pollutants, including dioxins and pesticides (e.g., DDT). This advisory is still in effect. Therefore, dilution credits are denied for bioaccumulative pollutants on the 303(d) list for which there is lack of data on sources and significant uncertainty about how different sources of these pollutants contribute to bioaccumulation.

(b) Selenium

For selenium, San Francisco Bay waterfowl tissue data presented in the State Water Board and California Department of Fish and Game's *Selenium Verification Study*, 1988-1990 (Document 91-2-WQ, May 1991) showed elevated selenium levels in the livers of waterfowl that feed on bottom-dwelling organisms, such as clams. In addition, the Office of Environmental Health and Hazard Assessment issued an advisory in 1987 for consumption of two species of North Bay diving ducks found to have high tissue levels of selenium. This advisory is still in effect. Elevated selenium levels have also been found in the tissue of white sturgeon, which also feed on clams.

This information, together with high uncertainty regarding how different sources of selenium contribute to bioaccumulation, has previously led the Regional Water Board to deny dilution credit for selenium. However, refineries have significantly reduced their discharges of selenium, and altered the chemical forms of the selenium they discharge so the selenium is generally less bioavailable. Also, substantially more information has become available to advance the development of a selenium TMDL for north San Francisco Bay segments. Recent work reduces some uncertainties regarding selenium sources, fate, and transport, and suggests that some assimilative capacity remains in the receiving waters. Based on this preliminary information, Regional Water Board staff concludes that limited dilution credit for selenium may be granted such that existing refinery performance is maintained, pending the completion of a selenium TMDL. This Order grants limited

dilution credits for selenium, but only to a level that maintains existing refinery performance. When a selenium TMDL is completed, the Regional Water Board will amend these limits to be consistent with TMDL wasteload allocations. Granting dilution credits for selenium at this time is appropriate specifically because of the substantial new information about selenium in San Francisco Bay now available. This information does not apply to other pollutants. Therefore, this Order uses a dilution credit of D = 7 (8:1 dilution) to calculate selenium WQBELs. Using this dilution will maintain existing performance, because it is the same dilution granted in the previous permit, as amended by Order No. R2-2010-0057.

**ii.** Non-bioaccumlative Pollutants: SIP section 1.4.2 allows for limiting the dilution credit. For most non-bioaccumulative pollutants, dilution credit is restricted.

(a) Non-Bioaccumlative Pollutants, Excluding Ammonia

For non-bioaccumulative pollutants (except ammonia), a conservative dilution credit of 10:1 (D = 9) has been assigned for Discharge Point 001 to address uncertainties with mixing. The 10:1 dilution credit is consistent with the previous permit and is also based, in part, on Basin Plan Prohibition 1 (Basin Plan Table 4-1), which prohibits discharges with less than 10:1 dilution.

Based on RMP monitoring data for San Francisco Bay, there is variability in the receiving water, and the hydrology of the receiving water is very complex. Therefore, it is uncertain how representative the ambient background data used to determine the effluent limitations is. Models used to predict dilution have not considered 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 twice-daily tidal cycles, 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 the San Pablo Bay, Carquinez Straight, and Suisun Bay areas. 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.

(b) Ammonia

For ammonia, a non-persistent pollutant, a conservative estimate of actual initial dilution was used to calculate the effluent limitations for Discharge Point 001. This is justified because ammonia quickly disperses and degrades to a non-toxic state, and cumulative toxicity effects are unlikely. As described above, the 1987 field dye tracer studies found an initial dilution of 200:1 and initial dilution modeling estimated an actual initial dilution ratio of at least 34:1 (D = 33). For this Order, the 34:1 dilution ratio was used for calculating WQBELs based on both the acute and chronic objectives. To ensure that the 1987 study and modeling results are still

valid, this Order requires the Discharger to update the study and modeling (see Provision VI.C.2.d of this Order).

**c. Calculation of Pollutant-Specific WQBELs - Discharge Point No. 001**

i. Copper

(a) *Copper WQOs*. The most stringent applicable WQOs for copper are the Basin Plan's site-specific chronic and acute marine WQOs, 6.0 and 9.4 micrograms per liter (µg/L), respectively, expressed as dissolved metal. Regional Water Board staff converted these WQOs to total recoverable metal using site-specific translators of 0.38 (chronic) and 0.67 (acute). This results in a chronic water quality criterion of 16 µg/L and an acute water quality criterion of 14 µg/L.

(b) *RPA Results*. Even though the MEC for copper of 6.2 µg/L is below the most stringent applicable WQO for this pollutant, this Order establishes effluent limitations. This is because Section 7.2.1.2 of the Basin Plan requires that individual NPDES permits for municipal and industrial wastewater treatment facilities include WQBELs for copper.

(c) C*opper WQBELs*. WQBELs for copper calculated according to SIP procedures using a coefficient of variation (CV) of 0.25 and a dilution credit of D = 9 are an AMEL of 84 µg/L and an MDEL of 120 µg/L. The previous permit contained more stringent limits of an AMEL of 13 µg/L and an MDEL of 25 µg/L.

(d) *Anti-backsliding*. This Order satisfies anti-backsliding requirements because San Francisco Bay is in attainment for copper and, consistent with Section 303(d)(4)(B), the Regional Water Board completed an Antidegradation Analysis for copper when it developed site-specific objectives.

ii. Selenium

(a) *Selenium WQC.* The most stringent applicable WQC for selenium are from the NTR for protection of aquatic life. The NTR establishes a saltwater and freshwater acute criterion of 20 µg/L and chronic criterion of 5.0 µg/L.

(b) *RPA Results.* This Order establishes effluent limitations for selenium because the MEC of 47 µg/L exceeds the most stringent applicable WQC for this pollutant, demonstrating Reasonable Potential by Trigger 1.

(c) *Selenium WQBELs.* Based on a dilution credit of 8:1 (D=7), WQBELs for selenium calculated according to SIP procedure using a CV of 0.36 are an AMEL of 33µg/L and an MDEL of 53 µg/L. The previous permit as amended by Order No. R2-2010-0057 (*Amendment of Waste Discharge Requirements for San Francisco Bay Region Refineries*) contained more stringent limits of an AMEL of 33 µg/L and an MDEL of 34 µg/L.

(d) *Anti-backsliding.* This Order retains the more stringent WQBELs from the previous permit, thereby satisfying anti-backsliding requirements.

iii. Lead

(a) *Lead WQOs.* The most stringent applicable WQOs for lead are the Basin Plan's freshwater acute and chronic objectives for protection of aquatic life of 42 µg/L and 1.6 µg/L, as calculated using the receiving water hardness value of 59 mg/L, as $CaCO_3$.

(b) *RPA Results.* This Order establishes effluent limitations for lead because the MEC of 1.7 µg/L exceeds the most stringent applicable WQO for this pollutant, demonstrating Reasonable Potential by Trigger 1.

(c) *Lead WQBELs.* WQBELs for lead calculated according to SIP procedure using a CV of 0.77 and a dilution credit of D = 9 are an AMEL of 7.0 ug/L and an MDEL of 16 ug/L. The previous permit contained a less stringent limit AMEL of 7.4 µg/L, but a more stringent MDEL of 15 µg/L. This order includes the newly calculated AMEL of 7.0 µg/L and MDEL of 16 µg/L. As a pair, these limits are more stringent than those included in the previous permit. This is because the newly calculated pair of limits should hold the Discharger to a long-term average discharge of 4.1 µg/L compared with 4.7 µg/L under the previous permit.

(d) *Anti-backsliding.* This Order includes more stringent effluent limits than the previous permit, thereby satisfying anti-backsliding requirements.

iv. Cyanide

(a) *Cyanide WQO.* The most stringent applicable WQOs for cyanide are the Basin Plan's site-specific chronic and acute marine WQOs, 2.9 and 9.4 micrograms per liter (µg/L), respectively.

(b) *RPA Results.* This Order establishes effluent limitations for cyanide because the MEC of 21 µg/L exceeds the most stringent applicable WQO for this pollutant, demonstrating Reasonable Potential by Trigger 1.

(c) *Cyanide WQBELs.* Order No. R2-2006-0035 established conditional effluent limitations for cyanide if a SSO for cyanide for all segments of the San Francisco Bay became legally effective. On August 8, 2008, the Regional Water Board sent a letter to the Discharger informing the Discharger that on July 22, 2008, the USEPA approved the cyanide SSO, and the conditional cyanide effluent limitations of an AMEL of 22 µg/L and a MDEL of 38 µg/L were effective.

For this permit reissuance, WQBELs for cyanide were recalculated according to SIP procedure using a CV of 0.87 and a dilution credit of D = 9. The resulting WQBELs were an AMEL of 19 µg/L and an MDEL of 45 µg/L. This order includes the newly calculated AMEL of 19 µg/L and MDEL of 45 µg/L. As a pair, these limits are more stringent than those included in the previous permit. This is because the newly calculated pair of limits should hold the Discharger to a long-term average discharge of 10.5 µg/L compared with 15.6 µg/L under the previous permit.

(d) *Anti-backsliding.* This Order includes more stringent effluent limits than the previous permit, thereby satisfying anti-backsliding requirements

v. Dioxin-TEQ

(a) *Dioxin-TEQ WQO*. The Basin Plan narrative WQO 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 the consensus of the scientific community is that dioxins and furans associate with particulates, accumulate in sediments, and bioaccumulate in the fatty tissues of fish and other organisms, the Basin Plan's narrative bioaccumulation WQO applies to these pollutants. Elevated levels of dioxins and furans in San Francisco Bay fish tissue demonstrate that the narrative bioaccumulation WQO is not being met. USEPA has therefore included San Francisco Bay as impaired by dioxins and furans in the current CWA section 303(d) listing of receiving waters where WQOs are not being met after imposition of technology-based requirements.

The CTR establishes a numeric WQO for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) of $1.4 \times 10^{-8}$ µg/L to protect human health when aquatic organisms are consumed. When the CTR was promulgated, USEPA stated its support of the regulation of other dioxin and dioxin-like compounds through the use of toxicity equivalencies (TEQs) in NPDES permits. USEPA stated specifically, "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 WQBELs for dioxin or dioxin-like compounds should be included in NPDES permits and should be expressed using a TEQ scheme" [65 Fed. Reg. 31682, 31695 (2000)].

This Order uses a TEQ scheme based on a set of toxicity equivalency factors (TEFs) the World Health Organization (WHO) developed in 1998, and a set of bioaccumulation equivalency factors (BEFs) USEPA developed for the Great Lakes region (40 CFR 132, Appendix F), to convert the concentration of any congener of dioxin or furan into an equivalent concentration of 2,3,7,8-TCDD. 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 appropriate for the RPA.

To determine if the discharge of dioxin or dioxin-like compounds has reasonable potential to cause or contribute to a violation of the Basin Plan's narrative bioaccumulation WQO, TEFs and BEFs were used to express the measured concentrations of 16 dioxin congeners in effluent and background samples as 2,3,7,8-TCDD. These "equivalent" concentrations were then compared to the CTR

numeric criterion for 2,3,7,8-TCDD ($1.4 \times 10^{-8}$ µg/L). Although the 1998 WHO 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 standard for PCBs, and dioxin-like PCBs are included in the analysis of total PCBs.

(b) *RPA Results*. To determine if Reasonable Potential exists for dioxin or dioxin-like compounds in this discharge, Regional Water Board staff used TEFs and BEFs to express the measured concentrations of 16 dioxin congeners in effluent and background samples as 2,3,7,8-TCDD. These "equivalent" concentrations were then compared to the CTR numeric criterion for 2,3,7,8-TCDD ($1.4 \times 10^{-8}$ µg/L).

This Order establishes effluent limitations for dioxin-TEQ because the MEC ($4.56 \times 10^{-8}$ µg/L) exceeds the WQO for dioxin-TEQ translated from the bioaccumulation objective ($1.4 \times 10^{-8}$ µg/L), demonstrating Reasonable Potential by Trigger 1.

(c) *WQBELs*. WQBELs for dioxin–TEQ calculated using SIP procedures as guidance, with a CV of 0.6 and no dilution credit, are an AMEL of $1.4 \times 10^{-8}$ µg/L and an MDEL of $2.8 \times 10^{-8}$ µg/L. The previous Order included an interim limitation for dioxin-TEQ of $1.0 \times 10^{-7}$ µg/L (effective until June 30, 2011 or until TMDL wasteload allocations are established and adopted by the Regional Water Board) and no final limitations.

(d) *Anti-backsliding*. Anti-backsliding requirements are satisfied because the previous Order did not contain a final limit for dioxin-TEQ.

vi. Ammonia

(a) *Ammonia WQO*. The Basin Plan contains WQOs for un-ionized ammonia of 0.025 mg/L as an annual median and 0.16 mg/L as a maximum upstream of the San Francisco Bay Bridge. Regional Water Board staff translated these WQOs from un-ionized ammonia concentrations to equivalent total ammonia concentrations (as nitrogen) since (1) sampling and laboratory methods are not available 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. To translate the Basin Plan un-ionized ammonia objective, Regional Water Board staff used pH, salinity, and temperature data from 1993 through 2001 from the Yerba Buena Island RMP Station (BC10). Regional Water Board staff used the following equations to determine the fraction of total ammonia that would exist in the toxic un-ionized form in the estuarine receiving water where the various measurements were taken from 1993-2001 (USEPA, 1989, Ambient Water Quality Criteria for Ammonia (Saltwater)–1989, EPA Publication 440/5-88-004):

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

Where:

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

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

S = Salinity (parts per thousand)

T = Temperature in degrees Kelvin

P = Pressure (one atmosphere)

Regional Water Board staff then used the 90th percentile and median un-ionized ammonia fractions from 1993 to 2001 to express the acute and chronic un-ionized ammonia WQOs as total ammonia concentrations. This approach is consistent with USEPA guidance on translating dissolved metal WQOs to total recoverable metal WQOs (USEPA, 1996, *The Metals Translator: Guidance for Calculating a Total Recoverable Limit from a Dissolved Criterion,* EPA Publication 823-B-96-007).

The equivalent total ammonia acute and chronic WQOs are 4.93 mg/L and 1.27 mg/L, respectively.

(b) *RPA Results.* Basin Plan section 4.5.5.2 indicates that WQBELs shall be calculated according to the SIP. Basin Plan section 3.3.20 refers to ammonia as a toxic pollutant. Therefore, The SIP methodology was used to perform the RPA and to calculate effluent limitations for ammonia. This Order establishes effluent limitations for total ammonia because the MEC of 3.3 mg/L as nitrogen exceeds the most stringent applicable translated WQO for this pollutant, demonstrating Reasonable Potential by Trigger 1.

(c) *WQBELs.* The total ammonia WQBELs calculated according to SIP procedures using a CV of 1.9 and a dilution of D = 33 are an MDEL of 150 mg/L as N and an AMEL of 51 mg/L as N. Regional Water Board staff made statistical adjustments to the WQBEL calculations because:

- the Basin Plan's chronic WQO for un-ionized ammonia is based on an annual median instead of the typical 4-day average;
- the SIP assumes a 4-day average concentration and monthly sampling frequency of 4 days per month to calculate effluent limitations based on chronic criteria, whereas a 365-day average and a monitoring frequency of 30 days per month, reflecting the actual basis of the WQO and actual sampling frequency, were used here.

These statistical adjustments are supported by USEPA's *Water Quality Criteria; Notice of Availability; 1999 Update of Ambient Water Quality Criteria for Ammonia,* published on December 22, 1999, in the Federal Register.

Following SIP methodology, Regional Water Board staff used the maximum ambient background total ammonia concentration to calculate effluent limitations based on the acute criterion; and the median background total ammonia

concentration to calculate effluent limitations based on the chronic criterion. Because the Basin Plan's chronic un-ionized ammonia objective is an annual median, the median background concentration is more representative of ambient conditions than a daily maximum.

| Effluent Limitations for Total Ammonia (as N) | | |
|---|---|---|
| | **AMEL** | **MDEL** |
| Based on Basin Plan | 51 mg/L | 150 mg/L |

(d) *Anti-backsliding.* Anti-backsliding requirements are satisfied because the previous Order did not include total ammonia WQBELs.

### d. Effluent Limitation Calculations – Discharge Point No. 001

Table F-20 below summarizes the effluent limitation calculations for Discharge Point No. 001.

**Table F-20. Effluent Limitation Calculations for Discharge Point No. 001**

| **PRIORITY POLLUTANTS** | **Selenium (303d listed)** | **Copper** | **Lead** | **Cyanide** | **Dioxin-TEQ (303d listed)** | **Total Ammonia (acute)** | **Total Ammonia (chronic)** |
|---|---|---|---|---|---|---|---|
| **Units** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **mg/L N** | **mg/L N** |
| Basis and Criteria type | CTR Aquatic Life | Basin Plan SSO | CTR Aquatic Life | CTR Aquatic Life | CTR HH | Basin Plan Aquatic Life | Basin Plan Aquatic Life |
| Criteria -Acute | 20 | ----- | 42 | ----- | ----- | 4.93 | ----- |
| Criteria -Chronic | 5.0 | ----- | 1.6 | ----- | ----- | ----- | 1.27 |
| SSO Criteria –Acute | ----- | 3.9 | ----- | 9.4 | ----- | ----- | ----- |
| SSO Criteria -Chronic | ----- | 2.5 | ----- | 2.9 | ----- | ----- | ----- |
| Water Effects ratio (WER) | 1 | 2.4 | 1 | 1 | 1 | 1 | 1 |
| Lowest WQO | 5.0 | 14.2 | 1.6 | 2.9 | 1.4E-08 | 4.93 | 1.27 |
| Site Specific Translator - MDEL | ----- | 0.66 | ----- | ----- | ----- | ----- | ----- |
| Site Specific Translator - AMEL | ----- | 0.38 | ----- | ----- | ----- | ----- | ----- |
| Dilution Factor (D) (if applicable) | 7 | 9 | 9 | 9 | 0 | 33 | 33 |
| No. of samples per month | 4 | 4 | 4 | 4 | 4 | 4 | 30 |
| Aquatic life criteria analysis required? (Y/N) | Y | Y | Y | Y | N | Y | Y |
| HH criteria analysis required? (Y/N) | N | N | N | Y | Y | N | N |
| | | | | | | | |
| Applicable Acute WQO | 20 | 14 | 42 | 9.4 | ----- | 4.93 | |
| Applicable Chronic WQO | 5 | 15.8 | 1.6 | 2.9 | ----- | | 1.27 |
| HH criteria | ----- | ----- | ----- | 2.2E+05 | 1.40E-08 | ----- | ----- |
| Background (Maximum Conc for Aquatic Life calc) | 0.39 | 2.55 | 0.8 | 0.4 | 8.20E-09 | 0.43 | 0.13 |

| PRIORITY POLLUTANTS | Selenium (303d listed) | Copper | Lead | Cyanide | Dioxin-TEQ (303d listed) | Total Ammonia (acute) | Total Ammonia (chronic) |
|---|---|---|---|---|---|---|---|
| **Units** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **mg/L N** | **mg/L N** |
| Background (Average Conc for Human Health calc) | ----- | ----- | ----- | 0.00 | 5.00E-08 | ----- | ----- |
| Is the pollutant on the 303d list and/or bioaccumulative (Y/N)? | Y | N | N | N | Y | N | N |
| | | | | | | | |
| ECA acute | 157.3 | 118.9 | 409.8 | 90.4 | ----- | 153 | ----- |
| ECA chronic | 37.3 | 135 | 9.0 | 25.4 | ----- | ----- | 38.9 |
| ECA HH | | | | 2.2E+06 | 1.40E-08 | | |
| | | | | | | | |
| No. of data points <10 or at least 80 percent of data reported non detect? (Y/N) | N | N | N | N | Y | N | N |
| Avg of effluent data points | 13 | 3.6 | 0.6 | 3.9 | --- | 0.39 | 0.39 |
| Std Dev of effluent data points | 4.5 | 0.91 | 0.46 | 3.4 | --- | 0.73 | 0.73 |
| CV calculated | 0.36 | 0.25 | 0.77 | 0.87 | 0.6 | 1.9 | 1.9 |
| CV (Selected) - Final | 0.36 | 0.25 | 0.77 | 0.87 | 0.6 | 1.9 | 1.9 |
| | | | | | | | |
| ECA acute mult99 | 0.48 | 0.58 | 0.26 | 0.23 | ----- | 0.12 | ----- |
| ECA chronic mult99 | 0.67 | 0.75 | 0.45 | 0.42 | ----- | ----- | 0.80 |
| LTA acute | 75 | 69 | 106 | 21.0 | ----- | 18.8 | ----- |
| LTA chronic | 25 | 101 | 4.1 | 10.5 | ----- | ----- | 31.2 |
| minimum of LTAs | 25 | 69 | 4.1 | 10.5 | ----- | 18.8 | 31.2 |
| | | | | | | | |
| AMEL mult95 | 1.3 | 1.2 | 1.7 | 1.8 | 3.7 | 2.7 | 1.6 |
| MDEL mult99 | 2.1 | 1.7 | 3.9 | 4.3 | 13 | 8.2 | 8.2 |
| AMEL (aq life) | 33 | 84 | 7.0 | 19 | ----- | 51 | 51 |
| MDEL(aq life) | 53 | 120 | 16 | 45 | ----- | 150 | 250 |
| | | | | | | | |
| MDEL/AMEL Multiplier | 1.6 | 1.4 | 2.3 | 2.4 | 3.4 | 3.0 | 3.0 |
| AMEL (human hlth) | ----- | ----- | ----- | 2.2.E+06 | 1.4.E-08 | ----- | ----- |
| MDEL (human hlth) | ----- | ----- | ----- | 5.2.E+06 | 2.8.E-08 | ----- | ----- |
| | | | | | | | |
| minimum of AMEL for Aq. life vs HH | 33 | 84 | 7.0 | 19 | 1.4E-08 | 51 | 51 |
| minimum of MDEL for Aq. Life vs HH | 53 | 120 | 16 | 45 | 2.8E-08 | 150 | 250 |
| Current limit in permit (30-day average) | 33 | 13 | 7.4 | 22 | ----- | ----- | ----- |
| Current limit in permit (daily) | 34 | 25 | 15 | 38 | 1.0E-07 | ----- | ----- |
| | | | | | | | |
| Final limit - AMEL | 33 | 84 | 7.0 | 19 | 1.4E-08 | 51 | 51 |
| Final limit - MDEL | 34 | 120 | 16 | 45 | 2.8E-08 | 150 | 250 |

| PRIORITY POLLUTANTS | Selenium (303d listed) | Copper | Lead | Cyanide | Dioxin-TEQ (303d listed) | Total Ammonia (acute) | Total Ammonia (chronic) |
|---|---|---|---|---|---|---|---|
| **Units** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **µg/L** | **mg/L N** | **mg/L N** |
| Max Effl Conc (MEC) | 47 | 6.2 | 1.7 | 21 | 4.8E-09 | 3.346 | 3.346 |

### 5. Selenium Mass Emission Limitation – Discharge Point No. 001

SIP section 2.1.1 states that for bioaccumulative compounds on the 303(d) list, the Regional Water Board should consider whether mass-loading limits should be limited to current levels. The Regional Water Board finds that mass-loading limits are warranted for selenium. The purpose of this mass-loading limit is to further ensure that this Discharger maintains its existing selenium treatment performance, and does not further contribute to impairment of the narrative objective for bioaccumulation in San Pablo Bay, pending a TMDL.

The mass emission limit is based on the average monthly effluent limitation (calculated above) and the long-term average daily effluent flows (as reported in the Report of Waste Discharge). The mass loading limit is calculated using the average monthly effluent limitation, instead of the maximum daily effluent limitation, because the average monthly effluent limitation better represents long-term performance.

The mass loading limit is calculated using the following equation.

Mass Emission (kg/day) = (Flow, MGD)x(Selenium Concentration, mg/L)x3.785
Mass Emission (kg/day) = 6.6 MGD x 0.033 mg/L x 3.785 = 0.82 kg/day

The existing mass emission limitation imposed under Order No. R2-2010-0057 for selenium is 0.92 kg/day as a running annual average. Because the newly-calculated mass emission limit is more stringent than the existing mass emission limits, this Order will require compliance with the more stringent, newly computed mass emission limit of 0.82 kg/day.

The mass emission limit is expressed as a running annual average to be consistent with the limit in the previous Order. The running annual average is the arithmetic average of the current day's mass load and the mass loads for each of the previous 364 days, as shown in the following example:

Annual Mass emission rate (kg/day) = $\frac{3.785}{N}\sum_{i=1}^{N} Q_i C_i$

where:

N = number of samples analyzed in any calendar year
$Q_i$ = flow rate (MGD) associated with the $I^{th}$ sample
$C_i$ = selenium concentration (mg/L) associated with the $I^{th}$ sample

Flow (MGD) = Average of monthly plant effluent flows.

Anti-backsliding requirements are satisfied because the mass-loading limit in this Order is more stringent than the mass-loading limit in the previous Order.

**6. Whole Effluent Acute Toxicity**

This Order includes effluent limitations for whole-effluent acute toxicity for Discharge Point No. 001 that are unchanged from the previous Order and based on the Basin Plan section 4.5.5.3.1. All bioassays are to be performed using the most up-to-date USEPA protocol and the most sensitive species as specified in writing by the Executive Officer based on the most recent screening test results. Bioassays shall be conducted in compliance with *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms*, currently 5th Edition (EPA-821-R-02-012), with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP) upon the Discharger's request with justification.

**7. Whole Effluent Chronic Toxicity**

This Order includes effluent limitations for chronic toxicity that are unchanged from the previous Order and based on section 4.5.5.3.2 of the Basin Plan. The permit requirements for chronic toxicity are also consistent with the CTR and SIP section 4, Toxicity Control Provisions.

**8. Effluent Limitation Adjustments for Recycled Water Use**

This Order provides for effluent limitation adjustments for recycled water use to encourage wastewater recycling, consistent with Basin Plan section 4.16 and State Water Board Resolutions 77-1 and 2009-0011, and to account for the increase in pollutant concentrations that may result.

Discharge Specification IV.A.6 of the previous Order granted effluent limitation adjustments for recycled water use under specific conditions. Provision VI.C.6 of the previous Order required that, prior to obtaining mass or concentration adjustments for recycled water, the Discharger submit a technical report that demonstrated such credits would not cause impairment of the beneficial uses in the vicinity of its discharge. Provision VI.C.6 further required the Discharger to include one or more examples of how the credit calculations would be performed and reported based on site-specific conditions.

Consistent with the requirements of Provision VI.C.6, the Discharger submitted a technical report dated October 2006 titled, *Permit Provision C.6 Recycled Water Credits Technical Report* to the Regional Water Board. On February 20, 2007, by letter, the Regional Water Board approved recycled water adjustments as described in the October 2006 technical report. Relevant findings of the Discharger's October 2006 technical report are summarized below:

a. The Discharger uses approximately 3.4 MGD of tertiary treated recycled water from EBMUD's North Richmond Water Reclamation Plant in refinery cooling towers.

b. The Discharger generates approximately 3.5 MGD of recycled water at the Facility by treating secondary effluent from West County Wastewater District's Water Pollution Control Plant through microfiltration and reverse osmosis suitable for use as boiler feedwater.

c. Two waste streams are produced from the microfiltration and reverse osmosis processes used to treat secondary effluent from West County Wastewater District's Water Pollution Control Plant:

   i. Microfiltration backwash – recycled back to the West County Wastewater District's Water Pollution Control Plant for treatment.

   ii. Reverse osmosis reject water is discharged to the Chevron industrial wastewater treatment system prior to the final compliance monitoring point for Discharge Point No. 001. The quantity of reject water is approximately 0.525 MGD.

d. The pollutant concentrations contained in the North Richmond Water Reclamation Plant's tertiary effluent will be used to calculate the total mass of pollutants for which the Discharger may receive recycled water adjustments (including flows from West County Wastewater District's Water Pollution Control Plant). The use of the higher quality tertiary-treated effluent results in a conservative estimate for the recycled water adjustments.

e. Acute and chronic whole effluent toxicity tests and two priority pollutant scans conducted on reverse osmosis reject water and blended reverse osmosis reject water with the Discharger's effluent indicate that toxicity is not anticipated to contribute to exceedances of water quality objectives.

Consistent with Basin Plan section 4.16 and State Water Board Resolutions 77-1 and 2009-0011, this Order carries over concentration adjustments as described in the Discharger's October 2006 technical report for non-bioaccumulative WQBELs (cyanide, lead, and copper). As dioxins will be regulated through a waste load allocation in a TMDL, additional concentration adjustments for dioxins are not provided in this Order. For selenium, this Order grants a concentration adjustment because recent work has reduced some uncertainties regarding selenium sources, fate, and transport, and suggests that some assimilative capacity remains in the receiving water.

While the Regional Water Board supports the use of recycled water, impacts to water quality must be considered within San Pablo Bay near the discharge location. Thus, it's appropriate to determine maximum recycled water adjustments available for the discharge that will be protective of water quality. As explained in section IV.C.4.b of this Fact Sheet, this Order limits dilution to 10:1 for conservative pollutants, 8:1 for selenium, and does not grant dilution for other bioaccumlative pollutants where there is evidence that they are accumulating to unsafe levels in wildlife. However, it may be infeasible for the Discharger to implement recycled water projects without sufficient adjustments to effluent limits to account for its use of recycled water, thus an appropriate balance that protects the beneficial uses of the receiving water and encourages the continued use of recycled water must be determined. In this case, the Discharger's dilution study shows a minimum dilution of at least 34:1. Since section 1.4.2.2 of the SIP requires that mixing zones be as small as practicable, it is appropriate to consider a dilution factor smaller than that shown in the Discharger's dilution study. In this case, a dilution factor of 20:1 is considered reasonable as a balance between encouraging and supporting reclamation, and protecting water quality. The use of a 20:1 dilution is consistent with the development of the maximum allowable concentrations used in the previous Order to become eligible to receive recycled water adjustments. Maximum effluent limitations with the application of recycled water adjustments have been determined for applicable non-bioaccumulative WQBELs (copper, lead, and cyanide)

and selenium. These values have been calculated based on site-specific objectives, effluent data, and receiving water data (as summarized for the calculation of WQBELs in section IV.C.3 of this Fact Sheet) and applied as maximum effluent limitations available when recycled water adjustments are applied. The applicable maximum effluent limitations with the application of recycled water adjustments are summarized below:

**Table F-21. Effluent Limitation Calculations for Discharge Point No. 001**

| Parameter | Units | Maximum Recycled Water Adjusted Effluent Limitations[1] | |
|---|---|---|---|
| | | Average Monthly | Maximum Daily |
| Cyanide | µg/L | 38 | 90 |
| Copper | µg/L | 170 | 240 |
| Lead | µg/L | 13 | 30 |
| Selenium | µg/L | 82 | 130 |

The use of recycled water will not increase the mass of pollutants discharged to the San Francisco Bay watershed (i.e., bioaccumlative pollutants will be discharged at the same levels or less than would otherwise be discharged to San Pablo Bay without reclamation), and therefore, the granting of mass adjustments for such pollutants is protective of water quality and consistent with anti-degradation requirements.

Recycled water adjustments shall be determined as specified in section V.A.6 of the Order.

### 9. Stormwater Limits

Based on the requirements of 40 CFR 419 Subpart B for stormwater discharges, this Order establishes technology-based limitations for Discharge Points 002 – 023. This Order also retains the narrative stormwater limits of no visible oil or color.

If the limitation for total organic carbon (TOC) or oil and grease is exceeded, the additional limitations become immediately effective for the discharge point where that exceedance occurred. Derivation of the stormwater effluent limitations based on 40 CFR 419 Subpart B is presented in detail in Attachment F-1 to this Order. The additional effluent limit on pH of 6.0 to 9.0 from 40 CFR 419 Subpart B is not established by this Order. The Basin Plan pH effluent limit for shallow water discharges of 6.5 to 8.5 is retained instead to satisfy anti-backsliding requirements.

## D. Anti-backsliding and Antidegradation

### 1. Anti-backsliding

CWA sections 402(o)(2) and 303(d)(4) and 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit be as stringent as those in the previous Order, with some exceptions in which limitations may be relaxed. WQBEL calculations and compliance with anti-backsliding requirements are discussed for each pollutant with a WQBEL in Fact Sheet section IV.C.4.c.

Because the RPA showed no Reasonable Potential for nickel or heptachlor epoxide at Discharge Point No. 001, the limitations in the previous permit are not retained in this Order. State Water Board Order WQ 2001-16 found, “Anti-backsliding does not necessarily dictate that a pollutant that was limited in a prior permit must have a limit in a later permit, even

though the pollutant has never been detected and its discharge does not have the Reasonable Potential to cause or contribute to a water quality standards violation." The logic of State Water Board Order WQ 2001-16 also applies to situations where a pollutant is detected, but no longer triggers reasonable potential. The removal of limits for these pollutants is therefore consistent with State Water Board Order WQ 2001-16 and anti-backsliding requirements.

Technology-based limitations in this Order for Discharge Point 001 are higher (appear less stringent) than corresponding limitations in the previous permit. The method for deriving these limits is presented in the *Effluent Limitations Guidelines for the Petroleum Refining Point Source Category* (40 CFR 419) and is explained in Attachment F-1. The derivation of limits depends on the process configuration of the refinery, which, in turn, depends on the feedstock rate of each process. Based on information provided by the Discharger in its application for permit reissuance, during the term of the previous permit, feedstock rates for certain refinery processes increased, resulting in different "process configuration values" used in the derivation of effluent limitations and higher effluent limitations. In such cases, anti-backsliding requirements under CWA section 402(o)(1) do not apply. This is because the limits are technology-based and were calculated in accordance with federal regulations (40 CFR 419).

## 2. Antidegradation

Antidegradation policies require that existing water quality be maintained unless degradation is justified based on specific findings. The permitted discharge is consistent with antidegradation policies. This Order continues the level of discharge authorized in the previous Order and thus there will be no degradation of water quality. This is because this Order does not provide for an increase in the permitted design flow or allow for a reduction in the level of treatment.

### a. Production-Based Limits

This Order establishes increased technology-based mass loading limits for BOD, TSS, oil and grease, phenolic compounds, ammonia, sulfide, total chromium, and hexavalent chromium consistent with applicable effluent guidelines. This is the result of increased feedstock rates to certain refinery processes that result in the derivation of increased effluent limitations consistent with the applicable effluent guidelines.

In 1990, the State Water Board adopted an administrative procedures update (APU 90-004) that specified guidance to the Regional Water Boards for implementing the State and federal antidegradation policies. The guidance states "… if the Regional Water Board has no reason to believe that existing water quality will be reduced due to the proposed action, no antidegradation analysis is required." The new mass loading limits for BOD, TSS, oil and grease, phenolic compounds, ammonia (as N), sulfide, total chromium, and hexavalent chromium will not result in a significant reduction of water quality.

The total effluent flow rate is a function of production. No increase in production, and therefore in flow, is authorized. These requirements mean that the mass of BOD, TSS, oil and grease, phenolic compounds, ammonia, sulfide, total chromium, and hexavalent chromium discharged is unlikely to increase despite the increased mass loading limitations. The Discharger proposes no changes to its treatment process, and no decrease in treatment is authorized. Furthermore, it is impossible for the Discharger to manipulate its treatment processes to adjust effluent levels of these pollutants independently of others. To maintain

compliance with other effluent limitations, the Discharger will have to at least maintain its existing performance.

The technology-based mass limitations are consistent with applicable statutes and regulations. They are derived from the applicable effluent guidelines for integrated refineries based on Effluent Limitations Guidelines for the Petroleum Refining Point Source Category (40 CFR 419) and represent Best Practicable Control Technology (BPT) and Best Conventional Pollutant Control Technology (BCT). They therefore represent the best practicable treatment or control available. San Pablo Bay meets water quality standards for all pollutants subject to the technology-based mass limits in this Order, and no increase in pollutant loading is likely. The new limits are therefore consistent with federal and State antidegradation policies.

Because antidegradation requirements are met, there will be no lowering of water quality; therefore, further analysis is unnecessary. Findings authorizing degradation are also unnecessary.

## V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Receiving water limitations are retained from the previous Order and reflect applicable water quality standards from Basin Plan Chapter 3, with the exception of ammonia. The receiving water limits for ammonia have been removed from this Order to avoid redundancy with the effluent limitations for ammonia at Discharge Point No. 001.

## VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

The principal purposes of a monitoring program by a discharger are to:

- Document compliance with waste discharge requirements and prohibitions,
- Facilitate self-policing in the prevention and abatement of pollution arising from waste discharge, and
- Develop or assist in the development of limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and prepare water and wastewater quality inventories.

The MRP is a standard requirement in almost all NPDES permits issued by the Regional Water Board, including this Order. It contains definitions of terms and sets out requirements for reporting of routine monitoring data in accordance with NPDES regulations, the CWC, and Regional Water Board policies. The MRP also defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs.

### A. Influent Monitoring

This Order does not require the Discharger to conduct monitoring of Facility influent. However, the Discharger has the option of using recycled water in exchange for adjustments, in which case the

Discharger will need to conduct monitoring of influent at I-001. Optional monitoring for parameters for which recycled water adjustments are available has been established.

## B. Effluent Monitoring

The SIP states that the Regional Water Board will require periodic monitoring for pollutants for which criteria or objectives apply and for which no effluent limitations have been established. This Order requires the Discharger to conduct semi-annual monitoring at Monitoring Locations E-001 for all CTR priority pollutants, as discussed in the MRP (Attachment E) and in accordance with the Regional Standard Provisions (Attachment G). The Regional Water Board will use the additional data in the future to conduct an RPA and determine if WQBELs are required.

To demonstrate compliance with effluent limitations, this Order retains most effluent monitoring requirements from the previous Order. Important changes are summarized below.

### 1. Discharge Point No. 001

Monthly monitoring for COD has been established in order to demonstrate compliance by the Discharger with the newly established effluent limitations for this parameter. Since the Discharger no longer triggers reasonable potential for heptachlor epoxide or nickel, the monitoring frequency for these two parameters has been reduced to semi-annual. Specific requirements for mercury and PCB monitoring have not been retained in the MRP because both of these pollutants are now regulated by Order No. R2-2007-0077, as amended.

### 2. Discharge Point Nos. 002 – 023

In the Report of Waste Discharge, the Discharger requested permission to discontinue the use of Discharge Point Nos. 015 and 016 and transfer flow from the basins to Discharge Point No. 20. Discharge Point Nos. 015, 016, and 020 each discharge non-industrial stormwater, and each are subject to the same effluent limitations. Therefore, this Order discontinues monitoring of Discharge Point Nos. 015 and 016 and associated monitoring requirements at Monitoring Locations E-015 and 016.

## C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Weekly 96-hour bioassay testing is required at Monitoring Location E-001 to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Chronic whole effluent toxicity testing is required at Monitoring Location E-001 on a quarterly basis in order to demonstrate compliance with effluent limitations for chronic toxicity.

## D. Receiving Water Monitoring

On April 15, 1992, the Regional Water Board adopted Resolution No. 92-043, directing the Executive Officer to implement the San Francisco Bay Regional Monitoring Program for Trace Substances. Subsequently, the Executive Officer required major permit holders in the Region, under authority of CWC section 13267, to report on the water quality of the estuary. These permit holders responded by participating in a collaborative effort through the San Francisco Estuary

Institute. This effort has come to be known as the Regional Monitoring Program (RMP). This Order specifies that the Discharger shall continue to participate in the RMP, which involves collection of data on pollutants and toxicity in the water, sediment, and biota of the estuary.

This Order also requires that the Discharger collect quarterly receiving water samples near its outfall for pH, temperature, dissolved oxygen, ammonia, salinity, and hardness. The purpose of this monitoring is to collect (1) basic information on the quality of receiving waters in the vicinity of the discharge, and (2) recent salinity and hardness data to determine the need for water quality based effluent limits in the next permit reissuance. For this Order, Regional Board staff used a very conservative hardness value of 59 mg/L in the calculation of effluent limits for lead. This value was used because of the limited amount of data available in the vicinity of the discharge point. With the next permit reissuance, it would be appropriate to use the site-specific hardness and salinity data required by this Order.

## VII. RATIONALE FOR PROVISIONS

### A. Standard Provisions (Provision VI.A)

Federal Standard Provisions, which in accordance with 40 CFR 122.41 and 122.42 apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D of this Order. 40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all state issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. The Regional Standard Provisions (Attachment G) supplement the Federal Standard Provisions. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under CWC is more stringent. In lieu of these conditions, this Order incorporates by reference CWC section 13387(e).

### B. Monitoring and Reporting Requirements (Provision VI.B)

The Discharger is required to monitor the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are contained in the MRP (Attachment E) and the Regional Standard Provisions (Attachment G). This provision requires compliance with these documents and is authorized by 40 CFR 122.41(h) and (j), and CWC section 13267 and 13383.

### C. Special Provisions (Provision VI.C)

#### 1. Reopener Provisions

These provisions are based on 40 CFR 122.63 and allow modification of this Order and its effluent limitations as necessary in response to updated WQOs, regulations, or other new relevant information that may be established in the future and other circumstances allowed by law.

#### 2. Special Studies and Additional Monitoring

##### a. Effluent Characterization Study.

This Order does not include effluent limitations for the selected constituents addressed in the Regional Standard Provisions (Attachment G) that do not demonstrate Reasonable Potential, but this provision requires the Discharger to continue monitoring for these pollutants as described in the Regional Standard Provisions and as specified in the MRP. If concentrations of these constituents increase significantly, the Discharger is required to investigate the sources of the increases and establish remedial measures, if the increases result in reasonable potential to cause or contribute to an excursion above water quality standards. This provision is based on the Basin Plan, the SIP, and CWC 13267.

**b. Ambient Background Receiving Water Study.**

This provision is based on the Basin Plan, the SIP, CWC 13267 and the Regional Standard Provisions (Attachment G). As indicated in this Order, this requirement may be met by participating in a collaborative study.

**c. Effluent and Receiving Water Selenium Characterization Study.**

This Order requires the Discharger to characterize: (a) the concentrations and speciation of selenium in effluent and receiving water, (b) the variability of selenium in the discharge, (c) the potential for uptake and conversion of selenium to more bioavailable forms, (d) mixing and dilution in the receiving water, and (e) the ability to comply with any more-stringent selenium criteria that may become effective in the foreseeable future. These requirements are reasonable and warranted because the Discharger discharges selenium into San Pablo Bay. Based on the results of the studies, the Regional Water Board will be able to evaluate better how the Discharger contributes to the selenium impairment of San Francisco Bay. The Regional Water Board may use the data to evaluate dilution credits, characterize selenium bioaccumulation potential and ecological risk, and evaluate receiving water quality with respect to selenium. The Regional Water Board may also use the data to determine whether receiving water quality correlates with seasonal or other environmental factors. CWC 13267 authorizes the Regional Water Board to require these studies.

**d. Dilution Modeling Update and Verification**. As described in Fact Sheet section IV.C.4.b, the Discharger provided a dilution modeling study in November 1987 (*In-Situ Measurement of Dilution of Chevron Effluent in San Pablo Bay*). There is no compelling evidence that this study's results are not valid as justification for the dilution credits in this permit. However, because it was conducted over 20 years ago, it is reasonable to verify its results with a new updated study for the next permit reissuance.

**3. Best Management Practices and Pollution Minimization**

The provisions related to PMP development and implementation are based on Basin Plan section 4.12.2 and SIP section 2.4.5.

**4. Other Special Provisions**

**a. Cyanide Action Plan.**

This provision is based on Basin Plan section 4.7.2.2. It is necessary to ensure that use of cyanide site-specific objectives is consistent with antidegradation policies.

**b. Copper Action Plan.**

This provision is based on Basin Plan section 7.2.1.2. It is necessary to ensure that use of copper site-specific objectives is consistent with antidegradation policies.

**c. Stormwater Pollution Prevention Plan and Annual Report.**

This provision is based on Basin Plan section 4.8, statewide stormwater requirements for industrial facilities, and applicable USEPA regulations. It is retained from the previous Order.

**d. Wastewater Discharges from the Wetland.**

This provision is based on the Consent Decree *United States v. Chevron Industries Inc.*, Civil No. C98-3966-MEJ and DOJ No. 90-11-3-1398. The Consent Decree required, in part, that Chevron increase the design capacity of its GAC facility to 20 MGD and to use that capacity to treat refinery wastewater, except for 3 MGD, which may be treated by Chevron's wetland as long as wetland effluent meets toxicity standards established in the Consent Decree (i.e., 80% survival).

For the last five years the Discharger has routed all wetland effluent to the GAC facility before discharge to San Pablo Bay; however, the Discharger has indicated that it would like to retain the option to discharge up to 3 MGD of wetland effluent directly to Discharge Point No. 001. To ensure that such a discharge will not pose a threat to water quality, this Order requires, consistent with the Consent Decree, that the Discharger document that wetland effluent that bypasses the GAC facility will not cause acute toxicity and that the quantity is limited to 3 MGD or less.

## VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of WDRs that will serve as a NPDES permit for the Chevron Richmond Refinery. As a step in the WDR adoption process, the Regional Water Board has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

### A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided by publication in the Martinez News Gazette on May 12, 2011.

### B. Written Comments

Staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Officer at the Regional Water Board at the address on the cover page of this Order, to the attention of Robert Schlipf.

To receive a full response from Regional Water Board staff and to be considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by **5:00 p.m. on June 13, 2011.**

## C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: July 13, 2011
Time: 9:00 am
Location: Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612

Contact: Robert Schlipf**,** (510) 622-2478, email RSchlipf@waterboards.ca.gov

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. The Regional Water Board's Web address is http://www.waterboards.ca.gov/sanfranciscobay where one can access the current agenda for changes in dates and locations.

## D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Board to review the decision of the Regional Water Board regarding the WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

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

## E. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday, except from noon to 1:00 p.m. 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 this 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 Robert Schlipf at 510-622-2478 (e-mail at RSchlipf@waterboards.ca.gov).

# ATTACHMENT F-1

## Derivation of Technology-Based Effluent Limitations
## Chevron Richmond Refinery

### *References*

1. 40 CFR 419 – Integrated 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 440/1-82-014 (1982)

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

4. Chevron, Richmond Refinery, NPDES Application for Permit Renewal, NPDES Permit No. CA0005134 (December 7, 2010)

5. Refinery Production Data from NPDES Application for Permit Renewal

### *Applicable Definitions*

*Process Waste Water* 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 CFR 401.11(q)]

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

*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 CFR 419.11(g)]

### *Background*

Effluent Limitations Guidelines (ELGs) for the Integrated Subcategory of the Petroleum Refining Point Source Category at 40 CFR 419 Subpart E are based, in part, on a discharger's production rate. The Discharger's current production rate is 243,970 barrels per day (bbls/day).

*Process Wastewaters.* The ELGs include limitations for process wastewaters based on best practicable control technology currently available (BPT), best available technology economically achievable (BAT), and best conventional pollutant control technology (BCT). Specific BPT, BAT, and BCT effluent limitations that apply to the Discharger must be derived using methods described by the ELGs and take into account such factors as production rate, as well as refinery processes and configuration. The most stringent of BPT, BAT, and BCT limitations apply.

For derivation of BPT, BAT, and BCT limitations for process wastewaters being discharged at Discharge Point No. 001, size factors and process factors are determined as follows.

Size Factor. At a crude processing rate of 243,970 bbls/day, the appropriate size factors, pursuant to the ELGs at 40 CFR 419.52(b)(1) for BPT, at 40 CFR 419.53(b)(1) for BAT, and at 40 CFR 419.54(b)(1) for BCT, for derivation of technology-based effluent limitations is 1.04

Process Factor. 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. 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 a "process factor" in accordance with the ELGs at 40 CFR 419.52(b) (2) for BPT, at 40 CFR 419.53(b)(2) for BAT, and at 40 CFR 419.54(b)(2) for BCT.

Processes considered in deriving the process factors are those processes within the crude and cracking and coking categories as reported by the Discharger, which correspond to the process groups listed within the *Guide for the Application of Effluent Limitations Guidelines for the Petroleum Refining Industry* (page 19). The Discharger does not include asphalt processes, so this process group is not considered in determining process factors.

Derivation of the process configuration for a production rate of 243,970 bbls/day is shown in the following table:

**Table F-1A. Process Configurations for Discharge Point No. 001**

| **Production at 243,970 bbls/day** | | | | |
|---|---|---|---|---|
| **Process** | **Process Feedstock Rate (x 1,000 bbls/day)** | **Process/ Feedstock Ratio** | **Weight Factor** | **Process Configuration** |
| **Crude** | | | | |
| Atm. Dist. | 244.0 | 1.000 | | |
| Vac. Dist. | 101.0 | 0.414 | | |
| Desalt. | 244.0 | 1.000 | | |
| Total | 589.0 | 2.414 | 1 | = 2.41 |
| **Cracking** | | | | |
| Fluid Catalytic Cracking | 77.9 | 0.319 | | |
| Hydrocracking | 125.8 | 0.516 | | |
| Hydrotreating | 108.8 | 0.446 | | |
| Total | 312.5 | 1.281 | 6 | = 7.68 |
| **Lube** | | | | |
| Lube Hydrofinishing | 30.4 | 0.124 | | |
| Propane Deasphalting | 39.6 | 0.162 | | |
| Total | 70.0 | 0.287 | 13 | = 3.73 |
| **Reforming and Alkylation Processes** | 74.4 | 0.30 | 0 | 0 |
| **Total Refinery Configuration at 243,970 bbls/day** | | | | **13.8** |

The process factor, as determined in accordance with 40 CFR 419.52(b)(2) for BPT, 40 CFR 419.53(b)(2) for BAT, 40 CFR 419.54(b)(2) for BCT, is 2.26

To determine BAT limitations for total and hexavalent chromium and phenolic compounds in process wastewaters, the ELGs require consideration of effluent factors and refinery processes. BAT effluent factors are presented at 40 CFR 419.53(c)(1); the refinery processes considered are the crude, cracking and coking, and reforming and alkylation processes, which correspond to those identified within the *Guide for the Application of Effluent Limitations Guidelines for the Petroleum Refining Industry* (page 20).

*Contaminated Runoff.* The ELGs establish BPT, BAT, and BCT limitations for contaminated runoff, which apply to all stormwater discharges, except stormwater treated and discharged with process wastewaters through Discharge Point 001. ELGs establish effluent limitations for oil and grease and total organic carbon (TOC), and then, if limitations for oil and grease or TOC are exceeded, additional limitations for BOD, TSS, COD, phenolic compounds, total chromium, hexavalent chromium, and pH, found at 40 CFR 419.52(e)(2) and 419.53(f)(2) apply

***Determination of Process Wastewater Effluent Limitations at Discharge Point No. 001***

BPT. The following table shows the derivation of process wastewater BPT limitations at a production rate of 243,970 bbls/day.

Effluent Limit = (Size Factor)(Process Factor)(Feed Stock Rate)*(Effluent Limit Factor)

**Table F-1B. BPT Limitations for Process Wastewaters**

| | Preliminary Effluent Limitation Factor [1] | | Size Factor | Process Factor | Feed Stock Rate | Effluent Limitation [2] | |
|---|---|---|---|---|---|---|---|
| | Max Daily | Avg Monthly | | | | Max Daily | Avg Monthly |
| $BOD_5$ | 19.2 | 10.2 | 1.04 | 2.26 | 243.97 | 11,010 | 5,849 |
| TSS | 13.2 | 8.4 | 1.04 | 2.26 | 243.97 | 7,569 | 4,817 |
| COD | 136.0 | 70 | 1.04 | 2.26 | 243.97 | 77,986 | 40,140 |
| Oil & Grease | 6.0 | 3.2 | 1.04 | 2.26 | 243.97 | 3,441 | 1,835 |
| Phenolics (4AAP) | 0.14 | 0.068 | 1.04 | 2.26 | 243.97 | 80 | 39 |
| Ammonia (as N) | 8.3 | 3.8 | 1.04 | 2.26 | 243.97 | 4,759 | 2,179 |
| Sulfide | 0.124 | 0.056 | 1.04 | 2.26 | 243.97 | 71 | 32 |
| Total Chromium | 0.29 | 0.17 | 1.04 | 2.26 | 243.97 | 166 | 97 |
| Hexavalent Chromium | 0.025 | 0.011 | 1.04 | 2.26 | 243.97 | 14 | 6.3 |
| pH | -- | -- | -- | -- | -- | 6.0 – 9.0 | |

[1] From 40 CFR 419.52(a) (pounds per 1000 bbls of feedstock)
[2] Pounds per day (lbs/day)

BAT. The following table shows the derivation of BAT limitations for process wastewaters at production rates of 243,970 bbls/day.

**Table F-1C. BAT Limitations for Process Wastewater**

| | Preliminary Effluent Limitation Factor [1] | | Size Factor | Process Factor | Feed Stock Rate | Effluent Limitation [2] | |
|---|---|---|---|---|---|---|---|
| | Max Daily | Avg Monthly | | | | Max Daily | Avg Monthly |
| **Production at 243,970 bbls/day** | | | | | | | |
| COD[3] | 136 | 70 | 1.04 | 2.26 | 243.97 | 77,986 | 40,140 |
| Ammonia (as N) | 8.3 | 3.8 | 1.04 | 2.26 | 243.97 | 4,759 | 2,179 |
| Sulfide | 0.124 | 0.056 | 1.04 | 2.26 | 243.97 | 71 | 32 |

[1] From 40 CFR 419.53(a) (pounds per 1000 bbls of feedstock)
[2] Pounds/day (lbs/day)
[3] In any case in which the applicant can demonstrate that the chloride concentration in the effluent exceeds 1,000 mg/L (1,000 ppm), the Regional Administration may substitute TOC as a parameter in lieu of COD. Effluent limitations for TOC shall be based on effluent data from the plant conrrelating TOC to $BOD_5$.

BAT limitations for total and hexavalent chromium and phenolic compounds are based on feedstock rates. Figures used in calculations for this Order are shown in the following table.

**Table F-1D. Feedstock Rates for Determining BAT Limitations**

| **Refinery Throughput** | **243,970 bbls/day** |
|---|---|
| **Crude** | |
| Atmospheric Distillation | 244.0 |
| Vacuum Distillation | 101.0 |
| Desalting | 244.0 |
| **Total** | **589.0** |
| **Cracking and Coking** | |
| Catalytic Cracking | 77.9 |
| Hydrocracking | 125.8 |
| Hydrotreating | 108.8 |
| **Total** | **312.5** |
| **Lube** | |
| Lube Hydrofining | 30.4 |
| Propane Deasphalting | 39.6 |
| **Total** | **70.0** |
| **Reforming and Alkylation** | **74.1** |

Based on the total feedstock rates shown above, derivation of BAT limitations for total and hexavalent chromium and phenolic compounds are shown in the following table.

**Table F-1E. BAT Limitations for Process Wastewater (Chromium and Phenolics)**

| Pollutant | Preliminary Effluent Limitations Factor [a] | | Feedstock Rate | Effluent Limitations [b] | |
|---|---|---|---|---|---|
| | Max Daily | Avg Monthly | | Max Daily | Avg Monthly |
| **Production at 243,970 bbls/day** | | | | | |
| ***Phenolic Compounds*** | | | | | |
| Crude | 0.013 | 0.003 | 588.98 | 7.66 | 1.77 |
| Cracking and Coking | 0.147 | 0.036 | 312.46 | 45.93 | 11.25 |
| Asphalt | 0.079 | 0.019 | 0.00 | 0.00 | 0.00 |
| Lube | 0.369 | 0.090 | 69.96 | 25.82 | 6.30 |
| Reforming and Alkylation | 0.132 | 0.032 | 74.1 | 9.78 | 2.37 |
| **Limit (Sum)** | --- | --- | --- | **89.18** | **21.68** |
| ***Total Chromium*** | | | | | |
| Crude | 0.011 | 0.004 | 588.98 | 6.48 | 2.36 |
| Cracking and Coking | 0.119 | 0.041 | 312.46 | 37.18 | 12.81 |
| Asphalt | 0.064 | 0.022 | 0.00 | 0.00 | 0.00 |
| Lube | 0.299 | 0.104 | 69.96 | 20.92 | 7.28 |
| Reforming and Alkylation | 0.107 | 0.037 | 74.1 | 7.93 | 2.74 |
| **Limit (Sum)** | --- | --- | --- | **72.51** | **25.18** |
| ***Hexavalent Chromium*** | | | | | |
| Crude | 0.0007 | 0.0003 | 588.98 | 0.41 | 0.18 |
| Cracking and Coking | 0.0076 | 0.0034 | 312.46 | 2.37 | 1.06 |
| Asphalt | 0.0041 | 0.0019 | 0.00 | 0.00 | 0.00 |
| Lube | 0.0192 | 0.0087 | 69.96 | 1.34 | 0.61 |
| Reforming and Alkylation | 0.0069 | 0.0031 | 74.1 | 0.51 | 0.23 |
| **Limit (Sum)** | --- | --- | --- | **4.64** | **2.08** |

[1] From 40 CFR 419.53(c) (pounds per 1000 bbls of feedstock)
[2] Pounds per day

BCT. The following table shows the derivation of BCT limitations for process wastewaters at production rates of 243,970 bbls/day.

**Table F-1F. BCT Limitations for Process Wastewater**

| Pollutant | Preliminary Effluent Limitations Factor [1] | | Size Factor | Process Factor | Feed Stock Rate | Final Effluent Limitations [2] | |
|---|---|---|---|---|---|---|---|
| | Max Daily | Avg Monthly | | | | Max Daily | Avg Monthly |
| **Production at 243,970 bbls/day** | | | | | | | |
| $BOD_5$ | 19.2 | 10.2 | 1.04 | 2.26 | 243.97 | 11,010 | 5,849 |
| TSS | 13.2 | 8.4 | 1.04 | 2.26 | 243.97 | 7,569 | 4,817 |
| Oil & Grease | 6.0 | 3.2 | 1.04 | 2.26 | 243.97 | 3,441 | 1,835 |
| pH | -- | -- | -- | -- | -- | 6.0 – 9.0 | |

[1] From 40 CFR 419.54(a) (pounds per 1000 bbls of feedstock)
[2] Pounds per day (lbs/day)

### *Most Stringent Technology-Based Process Wastewater Effluent Limitations*

The following table presents the technology-based process wastewater effluent limitations that apply to the Discharger. The limitations are the most stringent of the BPT, BAT, and BCT limitations required by the ELGs and are expressed in units of lbs/day based on production rates of 243,970 bbls/day.

**Table F-1G. Summary of Technology-Based Wastewater Effluent Limitations**

| | Effluent Limitations [1],[2] | |
|---|---|---|
| **Pollutant** | **Max Daily** | **Avg Monthly** |
| **Production at 243,970 bbls/day** | | |
| $BOD_5$ | 11,010 | 5,849 |
| TSS | 7,569 | 4,817 |
| COD | 77,986 | 40,140 |
| Oil & Grease | 3,441 | 1,835 |
| Phenolics (4AAP) | 80 | 22[3] |
| Ammonia (as N) | 4,759 | 2,179 |
| Sulfide | 71 | 32 |
| Total Cr | 73[3] | 25[3] |
| Hex Cr | 4.6[3] | 2.1[3] |
| pH | 6.0 – 9.0 pH units | |

[1] Units are lbs/day
[2] All technology-based limitations for process wastewaters are based on BPT unless otherwise noted.
[3] Based on BAT.

### *Determination of Effluent Limitation Allocations for Contaminated Runoff*

If contaminated stormwater discharges exceed the oil and grease limit (15 mg/L) or the total organic carbon limit (110 mg/L), additional concentration-based limitations for BOD, TSS, COD, phenolics, total chromium, hexavalent chromium, and pH become immediately effective. The effluent limitations for these pollutants are derived from the most stringent of BAT and BPT effluent concentration-based limitations provided in the ELGs. A table summarizing these additional effluent limitations is shown below.

**Table F-1H. Additional Stormwater Effluent Limitations**

| Pollutant | Units | Max Daily[1] | Average Monthly[1] |
|---|---|---|---|
| BOD | mg/L | 48 | 26 |
| TSS | | 33 | 21 |
| COD | | 360 | 180 |
| Oil and Grease | | 15 | 8 |
| Phenolic Compounds | | 0.35 | 0.17 |
| Total Chromium | | 0.60 | 0.21 |
| Hexavalent Chromium | | 0.062 | 0.028 |
| pH | s.u. | 6.0 – 9.0 | |

[1] All effluent limitations reflect BPT requirements from 40 CFR 419.52(e)(2), except limitations for total chromium, which reflect BAT requirements from 40 CFR 419.53(f)(2).

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

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# 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 follow up 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 follow-up 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 limits in Table III of 40 CFR Part 503.13, Class A pathogen limits, 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 limits in Table I (ceiling concentrations) and Table II or Table III (cumulative loadings or pollutant concentration limits) 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 limits.

4. Biosolids sold or given away in a bag or other container must meet the pollutant limits in either Table III or Table IV (pollutant concentration limits or annual pollutant loading rate limits) 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 limits 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 USEPA (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 limits, the Discharger shall analyze these retained samples for pollutants that could be toxic to aquatic life and for which it has effluent limits.

(a). 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

(b) 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 limits 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 limits 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 limits, 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 limits, 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 (Attachment D)

### 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 USEPA, 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 limits, 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 limits 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 limits, the number of samples taken during the monitoring period, and the number of samples that exceed applicable effluent limits.

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:

(a) 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.

(b) 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:

$$\text{Dioxin-TEQ} = \Sigma\,(C_x \text{ x } TEF_x \text{ x } BEF_x)$$

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:

(a) List of analyses for which the Discharger is certified;

(b) 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

(c) 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 USEPA 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;

(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] 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.

(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 | Electronic[3] |

[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

| | | | |
|---|---|---|---|
| | | **24 hours** after becoming aware of the unauthorized discharge. | www.wbers.net |
| 3. Report | Regional Water Board | Within **5 business days** of becoming aware of the unauthorized discharge. | Electronic[4] www.wbers.net |

### F. Planned Changes

Not supplemented

### G. Anticipated Noncompliance

Not supplemented

### H. Other Noncompliance

Not supplemented

### I. Other Information

Not supplemented

## VI. STANDARD PROVISIONS – 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:

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.

$$\text{Geometric Mean} = Anti\log\left(\frac{1}{N}\sum_{i=1}^{N} Log(C_i)\right)$$

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:

$$C_d = \text{Average daily concentration} = \frac{1}{Q_t}\sum_{i=1}^{N} Q_i C_i$$

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 | | 1000 |
| 2. | Arsenic | 206.3 | | | | 20 | | 2 | 10 | 2 | 2 | 1 | | 1000 |
| 3. | Beryllium | | | | | | 20 | 0.5 | 2 | 0.5 | 1 | | | 1000 |
| 4. | Cadmium | 200 or 213 | | | | | 10 | 0.5 | 10 | 0.25 | 0.5 | | | 1000 |
| 5a. | Chromium (III) | SM 3500 | | | | | | | | | | | | |
| 5b. | Chromium (VI) | SM 3500 | | | | 10 | 5 | | | | | | | 1000 |
| | Chromium (total)[7] | SM 3500 | | | | | 50 | 2 | 10 | 0.5 | 1 | | | 1000 |
| 6. | Copper | 200.9 | | | | | 25 | 5 | 10 | 0.5 | 2 | | | 1000 |
| 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 | | | 1000 |
| 10. | Selenium | 200.8 or SM 3114B or C | | | | | | 5 | 10 | 2 | 5 | 1 | | 1000 |
| 11. | Silver | 272.2 | | | | | 10 | 1 | 10 | 0.25 | 2 | | | 1000 |
| 12. | Thallium | 279.2 | | | | | 10 | 2 | 10 | 1 | 5 | | | 1000 |
| 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] | | | | | | | | | | | | |

[5] The suggested method is the USEPA Method unless otherwise specified (SM = Standard Methods). The Discharger may use another USEPA-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., USEPA 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 ug/l).

[8] The Discharger shall use ultra-clean sampling (USEPA Method 1669) and ultra-clean analytical methods (USEPA Method 1631) for mercury monitoring. The minimum level for mercury is 2 ng/l (or 0.002 ug/l).

[9] MUN = Municipal and Domestic Supply. This designation, if applicable, is in the Findings of the permit.

| 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 |
| 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 | | | | | | | | | | |
| 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 | | | | | | | | | | |

[10] Determination of Asbestos Structures over 10 [micrometers] in Length in Drinking Water Using MCE Filters, USEPA 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 |
| 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 | | | | | | | | | |
| 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 | | | | | | | | | |

[11] Measurement for 1,2-Diphenylhydrazine may use azobenzene as a screen: if azobenzene is measured at >1 ug/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 |
| 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 | | | | | | | | | | | |
| 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 | | | | | | | | | | | |