

# **-California Regional Water Quality Control Board**



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

## **San Francisco Bay Region**

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**Arnold Schwarzenegger**  
*Governor*

**ORDER NO. R2-2006-0035**  
**NPDES NO. CA0005134**

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

<b>Discharger</b>	<b>Chevron U.S.A. INC., Richmond Refinery Chevron Chemical Company LLC, Richmond Plant, and General Chemical Corporation, Richmond Works</b>
<b>Name of Facility</b>	<b>Richmond Refinery, Richmond</b>
<b>Facility Address</b>	<b>841 Chevron Way</b>
	<b>Richmond, CA 94801</b>
	<b>Contra Costa County</b>

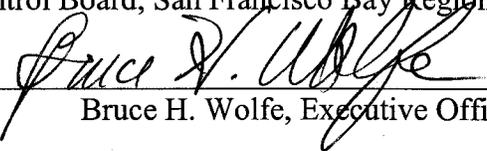
The Discharger is authorized to discharge from the following discharge points as set forth below:

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Treated wastewater	37 °, 58', 15" N	122 °, 25', 45" W	San Pablo Bay
002	Firewater Testing	37 °, 55', 15" N	122 °, 24', 30" W	San Francisco Bay
003	Stormwater	37 °, 57', 15" N	122 °, 23', 30" W	San Pablo Bay
004	Stormwater	37 °, 57', 30" N	122 °, 25', 30" W	San Francisco Bay
005	Stormwater	37 °, 57', 30" N	122 °, 25', 30" W	San Francisco Bay
006	Stormwater	37 °, 57', 15" N	122 °, 25', 15" W	San Francisco Bay
007	Stormwater	37 °, 57', 15" N	122 °, 25', 15" W	San Francisco Bay
008	Stormwater	37 °, 57', 15" N	122 °, 23', 30" W	San Pablo Bay
009	Stormwater	37 °, 56', 00" N	122 °, 24', 15" W	San Francisco Bay
010	Stormwater	37 °, 57', 15" N	122 °, 22', 45" W	Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay
011	Stormwater	37 °, 56', 45" N	122 °, 22', 30" W	Castro Creek to San Pablo Bay
012	Stormwater	37 °, 56', 45" N	122 °, 22', 30" W	Does not discharge
013	Stormwater	37 °, 57', 00" N	122 °, 22', 45" W	Castro Creek to San Pablo Bay
014	Stormwater	37 °, 57', 00" N	122 °, 22', 45" W	Castro Creek to San Pablo Bay
015	Stormwater	37 °, 55', 60" N	122 °, 23', 30" W	San Francisco Bay
016	Stormwater	37 °, 55', 60" N	122 °, 23', 30" W	San Francisco Bay
017	Stormwater	37 °, 55', 45" N	122 °, 24', 30" W	San Francisco Bay
018	Stormwater	37 °, 55', 45" N	122 °, 24', 00" W	San Francisco Bay
019	Stormwater	37 °, 57', 15" N	122 °, 24', 45" W	San Francisco Bay
020	Stormwater	37 °, 57', 15" N	122 °, 23', 15" W	Castro Street to San Pablo Bay
021	Stormwater	37 °, 56', 45" N	122 °, 22', 30" W	Castro Street to San Pablo Bay
022	Stormwater	37 °, 57', 15" N	122 °, 22', 45" W	Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay
023	Stormwater	37 °, 57', 15" N	122 °, 22', 45" W	

This Order was adopted by the Regional Water Board on:	<b>June 14, 2006</b>
This Order shall become effective on:	<b>June 14, 2006</b>
This Order shall expire on:	<b>June 13, 2011</b>
The U.S. Environmental Protection Agency (U.S. EPA) and the Regional Water Board have classified this discharge as a major discharge.	
The Discharger shall file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of the Order expiration date as application for issuance of new waste discharge requirements.	

IT IS HEREBY ORDERED, that Order No. 01-067 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in Division 7 of the California Water Code (CWC) and regulations adopted therein, and the provisions of the federal Clean Water Act (CWA), and regulations and guidelines adopted therein, the Discharger shall comply with the requirements in this Order.

I, Bruce H. Wolfe, Executive Officer, do hereby certify the following is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 14, 2006.

  
\_\_\_\_\_  
Bruce H. Wolfe, Executive Officer

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
REGION 2, SAN FRANCISCO BAY REGION**

ORDER NO. R2-2006-0035  
NPDES NO. CA0005134

**TABLE OF CONTENTS**

I.	Facility Information .....	6
II.	Findings.....	7
III.	Discharge Prohibitions.....	11
IV.	Effluent Limitations and Discharge Specifications .....	12
	A. Effluent Limitations .....	12
	B. Land Discharge Specifications .....	19
	C. Reclamation Specifications .....	19
V.	Receiving Water Limitations .....	20
	A. Surface Water Limitations.....	20
	B. Groundwater Limitations .....	21
VI.	Provisions.....	22
	A. Standard Provisions.....	22
	B. Monitoring and Reporting Program Requirements .....	22
	C. Special Provisions .....	22
	1. Reopener Provisions .....	22
	2. Special Studies, Technical Reports and Additional Monitoring Requirements .....	22
	3. Best Management Practices and Pollution Prevention .....	23
	4. Compliance Schedules .....	23
	5. Construction, Operation and Maintenance Specifications.....	24
	6. Special Provisions for Municipal Facilities (POTWs Only).....	26
	7. Other Special Provisions.....	29
VII.	Compliance Determination .....	31
	A. Average Monthly Effluent Limitation (AMEL) .....	31
	B. Average Weekly Effluent Limitation (AWEL).....	31
	C. Maximum Daily Effluent Limitation (MDEL) .....	31
	D. Instantaneous Minimum Effluent Limitation.....	31
	E. Instantaneous Maximum Effluent Limitation .....	31
	F. Six-month Median Effluent Limitation .....	32
	Attachment A – Definitions .....	A-1
	Attachment B – Topographic Map .....	B-1
	Attachment C – Flow Schematic .....	C-1
	Attachment D – Federal Standard Provisions.....	D-1
	Attachment E – Monitoring and Reporting Program (MRP).....	E-1
	Attachment F – Fact Sheet.....	F-1
	Attachment G – Chronic Toxicity - Definition of Terms and Screening Phase Requirements.....	G-1
	Attachment H - Form A: Stormwater/Ballast Water Allocation Procedures	
	Attachment I – The following documents are part of this Permit, but are not physically attached due to volume. They are available on the internet at <a href="http://www.waterboards.ca.gov/sanfranciscobay/">www.waterboards.ca.gov/sanfranciscobay/</a>	
	- Standard Provisions and Reporting Requirements, August 1993	
	- Self-Monitoring Program, Part A, adopted August 1993	

- August 6, 2001 Staff Letter: *Requirement for Priority Pollutant Monitoring in Receiving Water and Wastewater Discharges*
- Resolution 74-10: *Policy Regarding Waste Discharger's Responsibilities to Develop and Implement Contingency Plans*
- Staff Report – *Statistical Analysis of Ultraclean Mercury Data from San Francisco Bay Area Refineries (June 11, 2001)*

## I. FACILITY INFORMATION

The following Discharger is authorized to discharge in accordance with the conditions set forth in this Order:

<b>Discharger</b>	<b>Chevron U.S.A. INC., Richmond Refinery Chevron Chemical Company LLC, Richmond Plant, and General Chemical Corporation, Richmond Works</b>
<b>Name of Facility</b>	<b>Richmond Refinery, Richmond</b>
<b>Facility Address</b>	<b>841 Chevron Way</b>
	<b>Richmond, CA 94801</b>
	<b>Contra Costa County</b>
<b>Facility Contact, Title, and Phone</b>	<b>J.G. Whiteside, General Manager, (510) 242-4400</b>
<b>Mailing Address</b>	<b>Same</b>
<b>Type of Facility</b>	<b>Refinery</b>
<b>Facility Design Flow</b>	<b>7.6 mgd (2005 – average flow)</b>

## II. FINDINGS

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

- A. **Background.** Chevron U.S.A. Inc., Chevron Chemical Company LLC, and General Chemical Corporation (hereinafter Discharger) are currently discharging under Order No. 01-067 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0005134. The Discharger submitted a Report of Waste Discharge, dated November 30, 2005, and applied for a NPDES permit renewal to discharge treated wastewater from its wastewater treatment plant, hereinafter Facility, to San Pablo Bay. The application was deemed complete on March 29, 2006.
- B. **Facility Description.** The Discharger operates a petroleum refinery with an average crude-run throughput of approximately 224,000 barrels per day (12-month average from June 2004 through May 2005). This NPDES Permit regulates the discharge of effluent from the Discharger's wastewater treatment system, and the discharges of all stormwater associated with industrial activity from the refinery to San Pablo and San Francisco Bay.

The Discharger owns and operates its wastewater treatment plant. The treatment system first consists of three oil and water separators. From 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 its 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 2000 feet offshore to the north of Point San Pablo (E-001). The Discharger has the option to discharge a portion of wetland effluent directly to outfall 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. 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 refining industry's use of recycled water to minimize the use of a scarce resource. The Discharger has replaced bay water in its firewater lines with recycled wastewater that has received biological treatment. In addition to the use of water drawn from the firewater lines (firewater) in the fire protection and safety systems (including emergency and non-emergency use), the Discharger also uses firewater in their 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 Discharger's facilities.

2. **Municipal Recycled Water Use:** East Bay Municipal Utility District (EBMUD) owns and operates the North Richmond Water Reclamation Plant that since 1995 has provided tertiary treatment of West County Wastewater District's secondary effluent, to provide high quality recycled water to the Discharger. EBMUD plans to expand its recycled water production capabilities by 2008 by constructing and bringing into operation the Richmond Advanced Recycled Expansion water project. The Discharger may use 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 section 402 of the Federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (CWC). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC for discharges that are not subject to regulation under CWA section 402.
- 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 through special studies. Attachments A through I, which contain background information and rationale for Order requirements, are hereby incorporated into this Order and, thus, constitute part of the Findings for this Order.
- E. **California Environmental Quality Act (CEQA).** This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the CWC.
- F. **Technology-based Effluent Limitations.** The Code of Federal Regulations (CFR) at 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards. This Order includes technology-based effluent limitations based on 40 CFR § 419.50 since the refinery is classified as an "integrated refinery" as defined by the USEPA. Therefore, the USEPA Effluent Guidelines and Standards for Petroleum Refining Point Sources (40 CFR § 419 Subpart E) based on Best Available Technology Economically Achievable (BAT), Best Practicable Control Technology (BPT), and/or Best Conventional Pollutant Control technology (BCT), whichever are more stringent, are applicable to the discharge. The application of these guidelines and standards is based on production rates at the refinery. The effluent limitations in this Permit are based on facility production rates from June 2004 through May 2005. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).
- G. **Water Quality-based Effluent Limitations.** Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a), proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information, or an indicator parameter.
1. **Constituents Identified on the 303(d) List.** On June 6, 2003, the USEPA approved a revised list of impaired water bodies prepared by the State (the 303(d) List). The State had prepared the 303(d) List pursuant to provisions of section 303(d) of the CWA requiring 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. The pollutants impairing San Pablo Bay include chlordane, DDT, diazinon, dieldrin, dioxin

compounds, exotic species, furan compounds, mercury, nickel, PCBs, dioxin-like PCBs, and selenium.

H. **Water Quality Control Plans.** The Regional Water Board adopted a Water Quality Control Plan for the San Francisco Bay Region, (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Beneficial uses applicable to San Pablo Bay and San Francisco Bay are as follows:

Discharge Points	Receiving Water Name	Beneficial Use(s)
001, 003, 008, 010-014, and 020-023	San Pablo Bay	Industrial Service Supply (IND), Navigation (NAV), Water Contact Recreation (REC1), Non-contact Water Recreation (REC2), Ocean Commercial and Sport Fishing (COMM), Wildlife Habitat (WILD), Preservation of Rare and Endangered Species (RARE), Fish Migration (MIGR), Shellfish Harvesting (SHELL), Fish Spawning (SPWN), and Estuarine Habitat (EST)
002, 004-007, 009, and 015-019	San Francisco Bay	Industrial Service Supply (IND), Industrial Process Supply (PRO), Navigation (NAV), Water Contact Recreation (REC1), Non-contact Water Recreation (REC2), Ocean Commercial and Sport Fishing (COMM), Wildlife Habitat (WILD), Preservation of Rare and Endangered Species (RARE), Fish Migration (MIGR), Shellfish Harvesting (SHELL), Fish Spawning (SPWN), and Estuarine Habitat (EST)

Requirements of this Order specifically implement the Basin Plan.

- I. **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, and the CTR on May 18, 2000, which was amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.
- J. **State Implementation Policy.** On March 2, 2000, 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 promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The SIP includes procedures for determining the need for and calculating WQBELs and requires dischargers to submit data sufficient to do so.
- K. **Compliance Schedules and Interim Requirements.** Section 2.1 of the SIP provides that, based on a discharger's request and demonstration that it is infeasible for an existing discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under Section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective

date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order includes compliance schedules and interim effluent limitations. A detailed discussion of the basis for the compliance schedules and interim effluent limitations is included in the Fact Sheet (Attachment F).

- L. **Antidegradation Policy.** Section 131.12 of 40 CFR requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16, which incorporates the requirements of the federal antidegradation policy. Resolution 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. As discussed in detail in the Fact Sheet (Attachment F) the permitted discharge is consistent with the antidegradation provision of 40 CFR §131.12 and State Water Board Resolution 68-16.
- M. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR § 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.
- N. **Monitoring and Reporting.** Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.
- O. **Standard and Special Provisions.** 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. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet (Attachment F).
- P. **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 their written comments and recommendations. Details of notification are provided in the Fact Sheet (Attachment F) of this Order.
- Q. **Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet (Attachment F) of this Order.

### III. DISCHARGE PROHIBITIONS

- A. Discharge of any wastewater at a location or in a manner different from that described in this Order, is prohibited.
- B. The discharge of Waste 001 at any point at which the wastewaters do not receive an initial dilution of at least 10:1 is prohibited. The Discharger may reuse a portion of Waste 001 for on-site landscape irrigation or in the facilities' firewater system, including the Richmond Long Wharf Fire Protection System, provided the Discharger complies with the Provisions of this Order.
- C. The bypass or overflow of untreated or partially treated Waste 001 to waters of the State, either at the treatment plant or from the collection system, with the exception of bypass from the process discussed in Finding B (firewater systems, landscape irrigation, and dust control), is prohibited.
- D. The discharge of Waste 011 to waters of the state is prohibited unless the following conditions occur: During any wet season in which a rainfall event occurs which yields a 24-hour precipitation with a return frequency of 25 years, an amount of Waste 011 may be discharged equal to that attributable to the precipitation occurring in excess of the 25-year rain fall event.
- E. The discharge of Waste 013 is prohibited except when it has been demonstrated to the satisfaction of the Executive Officer it contains only non-contaminated stormwater. This demonstration must include measures to ensure that any synthetically lined surface impoundment is adequately decontaminated.
- F. The discharge of Wetland effluent directly to outfall 001 (downstream of the GAC facility), is prohibited, unless the Discharger complies with Provision C.14 of this Order.
- G. The discharge of non-segregated ballast water directly to Waters of the State, is prohibited.

#### IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

##### A. Effluent Limitations – Discharge Point 001

##### 1. Final Effluent Limitations – Discharge Point 001

- a. The discharge of treated wastewater shall maintain compliance with the following technology-based effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location E-001 as described in the attached Monitoring and Reporting Program (Attachment E):

Parameter	Units	Effluent Limitations		
		Average Monthly	Maximum Daily	Instantaneous Minimum Instantaneous Maximum
Five-day Biochemical Oxygen Demand	lbs/day	5100	9600	
Total Suspended Solids	lbs/day	4200	6600	
Total Organic Carbon	lbs/day	11000	21000	
Oil & Grease	lbs/day	1600	3000	
	mg/L	8	15	
Phenolic Compounds	lbs/day	22	70	
Ammonia as N	lbs/day	1900	4200	
Sulfide	lbs/day	28	62	
Total Chromium	lbs/day	25	72	
Hexavalent Chromium	lbs/day	2.1	4.6	
Settleable Solids	mL/ L-hr	0.1	0.2	
pH <sup>1</sup>	standard units			6.0 9.0

<sup>1</sup> If the Discharger employs continuous pH monitoring, 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 the 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. In addition to the monthly average and daily maximum pollutant weight allowances shown in A.1a, allocations for pollutants attributable to stormwater runoff and ballast water discharged as a part of Discharge Point 001 are permitted in accordance with the following schedules:

**Stormwater Runoff Allocation**

<b>Parameter</b>	<b>Units</b>	<b>Monthly Average</b>	<b>Daily Maximum</b>
BOD	mg/L	26	48
TSS	mg/L	21	33
TOC	mg/L	57	106
Oil & Grease	mg/L	8	15
Phenolic Compounds	mg/L	0.17	0.35
Total Chromium	mg/L	0.21	0.60
Hexavalent Chromium	mg/L	0.028	0.062

**Ballast Water Allocation**

<b>Parameter</b>	<b>Units</b>	<b>Monthly Average</b>	<b>Daily Maximum</b>
BOD	mg/L	26	48
TSS	mg/L	21	33
TOC	mg/L	57	106
Oil & Grease	mg/L	8	15
pH	Within the range of 6.0 to 9.0		

The total effluent limitation is the sum of the stormwater runoff allocation, the ballast water allocation, and the mass limits contained in A.1a. The Discharger shall compute the total effluent limitation (both maximum and average) on a monthly basis as shown in the Monitoring and Reporting Program, when necessary to show compliance with the concentration and mass limitations contained in A.1a.

## 2. Water Quality Based Effluent Limits – Discharge Point 001

a. The discharge of treated wastewater shall maintain compliance with the following water quality based effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location E-001 as described in the attached Monitoring and Reporting Program (Attachment E). These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated in this limitation.

**Table 1. Toxic Substances Effluent Limitations<sup>(1,5)</sup>**

Constituent	Water Quality-Based Effluent Limits (WQBELs)		Interim Limits <sup>(2)</sup>	
	Average Monthly (AMEL) (µg/L)	Maximum Daily (MDEL) (µg/L)	Maximum Daily (µg/L)	Average Monthly (µg/L)
Copper	13	25		
Lead	7.4	15		
Mercury <sup>3</sup>	0.017	0.046		0.075
Nickel	45	66		
Selenium <sup>2</sup>	4.4	7.4	34	
Cyanide <sup>2</sup>	3.7	6.4	25	
TCDD Equivalents <sup>6</sup>			1*10 <sup>-7</sup>	
Heptachlor Epoxide	0.00088	0.0018		
Total PCBs <sup>2,4</sup>	0.00017	0.00034	0.5	

**Footnotes:**

- (1) (a) All analyses shall be performed using current USEPA methods, or equivalent methods approved in writing by the Executive Officer.
- (b) Limits apply to the average concentration of all samples collected during the averaging period (Daily = 24-hour period; Monthly = calendar month).
- (2) Interim limits shall remain in effect for cyanide and selenium until April 27, 2010, and for total PCBs until May 17, 2010, or until the Board amends the limits based on site-specific objectives or the Waste Load Allocations in the TMDLs.
- (3) Mercury: Effluent mercury monitoring shall be performed by using ultraclean sampling and analysis techniques to the maximum extent practicable, with a minimum level of 0.002 µg/l, or lower. The interim limit for mercury shall remain in effect until April 27, 2010, or until the Board amends the limit based on the Waste Load Allocation in the TMDL for mercury.
- (4) The PCB limit applies to the sum of the following individual PCB compounds: PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, and PCB-1260.
- (5) As outlined in Section 2.4.5 of the SIP, the following are Minimum Levels that the Discharger shall achieve for pollutants with effluent limits. The table below indicates the highest minimum level that the Discharger's laboratory must achieve for calibration purposes.

Constituent	Minimum Level	Units
Copper	2	µg/L
Lead	0.5	µg/L
Mercury	0.002	µg/L
Nickel	5	µg/L
Selenium	2	µg/L
Cyanide	5	µg/L
Heptachlor Epoxide	0.01	µg/L
Individual PCBs	0.5	µg/L

(6) TCDD Equivalents: The SIP does not contain an ML for this constituent, however, the Board requires use of one-half of those published in USEPA Method 1613. This interim limit shall remain effective until June 30, 2011, or until the Board amends the limits based on site-specific objectives or the Waste Load Allocations in the TMDLs.

**b. Alternative Water Quality Based Effluent Limit for Cyanide<sup>1</sup>**

If a cyanide SSO for the receiving water becomes legally effective, based on the assumptions in *Draft Staff Report on Proposed Site-Specific Water Quality Objectives and Effluent Limit Policy for Cyanide for San Francisco Bay*, dated November 10, 2005, upon its effective date, the following limits shall supercede those specified in A.2a, above.

MDEL of 38 µg/L, and AMEL of 22 µg/L

<sup>1</sup> The alternative WQBEL for cyanide will not become legally effective unless, as described in the Fact Sheet, the adopted site-specific criteria for marine waters are 2.9 µg/L as a four-day average, and 9.4 µg/L as a one-hour average.

**c. Whole Effluent Acute Toxicity:** Representative samples of the discharge at discharge point 001 shall meet the following limits for acute toxicity. Compliance with these limits shall be achieved in accordance with Provision C.8 of this Order:

The survival of bioassay test organisms in 96-hour bioassays of undiluted effluent shall be:

- (1) An eleven (11)-sample median value of not less than 90 percent survival; and
- (2) An eleven (11)-sample 90th percentile value of not less than 70 percent survival.

These acute toxicity limits are further defined as follows:

- (1) 11-sample median limit:

Any bioassay test showing survival of 90 percent or greater is not a violation of this limit.

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

- (2) 90th percentile limit:

Any bioassay test showing survival of 70 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit, if one or more of the past ten or fewer bioassay tests also show less than 70 percent survival.

**d. Chronic Toxicity:**

The survival of bioassay test organisms in the discharge at discharge point shall be:

- (1) A three-sample median value of equal to or less than 10 TUc,
- (2) A single-sample value of equal to or less than 20 TUc.

These chronic toxicity limits are defined as follows:

- (1) A test sample showing chronic toxicity greater than 10 TUc represents consistent toxicity and a violation of this limitation, if two or more of the past three or less tests show toxicity greater than 10 TUc.
- (2) A TUc equals 100/NOEL. The NOEL is the no observable effect level, determined from IC, EC, or NOEC values. These terms and their usage in determining compliance with the limitations are defined in the Attachment G of this Order. The NOEL shall be based on a critical life stage test using the most sensitive test species as specified by the Executive Officer. The Executive Officer may specify two compliance species if test data indicate that there is alternating sensitivity between the two species. If two compliance test species are specified; compliance shall be based on the maximum TUc value for the discharge sample based on a comparison of TUc values obtained through concurrent testing of the two species.
- (3) A test sample showing chronic toxicity greater than 20 TUc represents a violation of this limitation.

**3. Interim Mass Emission Limit - Mercury**

Until TMDL and WLA efforts for mercury provide enough information to establish a different WQBEL, the Discharger shall demonstrate that the total mercury mass loading from discharge point 001 to San Pablo Bay has not increased by complying with the following:

- a. Interim mass emission limit: The mass emission limit for mercury is 0.149 kilograms per month (kg/month). The monthly average shall be calculated by taking the arithmetic average of the current daily mass loading value, and all of the previous month's values. Compliance with this limit shall be evaluated using monthly moving averages of total mass load, computed as described below:

12-Month Monthly Moving Average of Total Mass Load = Average of the monthly total mass loads from the past 12 months

- a. The Discharger shall submit a cumulative total of mass loadings for the previous twelve months with each monthly Self-Monitoring Report. Compliance each month will be determined based on the 12-month moving averages over the previous twelve months of monitoring. The Discharger may use monitoring data collected under accelerated schedules (i.e., special studies) to determine compliance. This requirement may be

satisfied by the 12-month moving average values calculated by the electronic reporting system (ERS).

- b. The mercury TMDL and WLAs will supersede this mass emission limitation upon their completion. The Clean Water Act's antibacksliding rule, Section 402(o), indicates that this Order may be modified to include a less stringent requirement following completion of the TMDL and WLA, if the requirements for an exception to the rule are met.

**4. Interim Mass Emission Limit - Selenium**

Until TMDL and WLA efforts for selenium provide enough information to establish a different WQBEL, the Discharger shall demonstrate that the total selenium mass loading from the discharge point 001 to San Pablo Bay has not increased by complying with the following:

- a. Interim mass emission limit: The mass emission limit for selenium is 2.38 lbs/day (running annual average). Running annual averages shall be calculated by taking the arithmetic average of the current daily mass loading value, and all of the previous year's values. The total selenium mass load shall not exceed this limit.

**5. Stormwater Limits**

The discharge from discharge points 002 through 023 containing constituents in excess or outside of the following limits, is prohibited:

Constituent	Units	Limitation
pH	standard units	Within 6.5 to 8.5
Oil & Grease	mg/L	daily maximum of 15
Total Organic Carbon	mg/L	daily maximum of 110
visible oil	----	none observed
visible color	----	none observed <sup>1</sup>

<sup>1</sup> Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.

**6. Effluent Limit Credit for Recycled Water Use**

When the Discharger uses recycled water, credit 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, provided the Discharger satisfies Provision C.6:

- a. The Discharger shall sample and analyze for constituents for which effluent limit credit is sought at least as frequently as is required in the attached Self-Monitoring Program for that constituent. Influent sampling shall occur at influent sampling station I-002 defined in the Self-Monitoring Program.
- 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 limit credit for the constituent.

- c. Credit for constituents listed will be given on a mass and concentration basis.

Concentration Credit

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 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 credit 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) / (Total Waste 001 discharge volume for one week, Y days after influent week) = (Concentration credit to be subtracted from concentration of constituent in the effluent, valid for that one week period)

Mass Credit

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 b. above, this influent mass of the constituent is then divided by the number of days in that monitoring period to give a mass credit 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 credit to be subtracted from mass of constituent in the effluent, valid for that one week period)

**B. Land Discharge Specifications – N/A**

**C. Reclamation Specifications – N/A**

## V. RECEIVING WATER LIMITATIONS

### A. Surface Water Limitations

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

1. Floating, suspended, or deposited macroscopic particulate matter or foam.
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 or other products of petroleum origin.
5. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl or render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
6. The discharges shall not cause nuisance, or adversely affect the beneficial uses of the receiving water.
7. The discharges shall not cause the following limits to be exceeded in waters of the State at any one place within one foot of the water surface.

a. Dissolved Oxygen: 5.0 mg/L, minimum

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharges shall not cause further reduction in ambient dissolved oxygen concentrations.

b. Dissolved Sulfide: 0.1 mg/L, maximum

c. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH by more than 0.5 pH units.

d. Un-ionized Ammonia: 0.025 mg/L as N, annual median; and  
0.16 mg/L as N, maximum

e. 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.

8. The discharges shall not cause a violation of any particular water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.

**B. Groundwater Limitations – N/A**

## VI. PROVISIONS

### A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.
2. **Regional Water Board Standard Provisions.** The Discharger shall comply with all applicable items of the *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993* (Attachment I), including any amendments thereto. Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in the Standard Provisions, the specifications of this Order shall apply.

### B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this Order.

### C. Special Provisions

#### 1. Reopener Provisions

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

- a. If present or future investigations demonstrate that the discharge(s) governed by this Order will, or cease to, have adverse impacts on water quality and/or beneficial uses of the receiving waters.
- b. As new or revised WQOs 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.
- c. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified.
- d. An administrative or judicial decision on a separate NPDES permit or WDR that addresses requirements similar to this discharge; and
- e. as authorized by law.

#### 2. Permit Compliance and Rescission of Previous Waste Discharge Requirements

The Discharger shall comply with the limitations, prohibitions, and other provisions of this Order on the effective date of this NPDES Permit. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 01-067. Order No. 01-067 is hereby rescinded upon the effective date of this Order.

**3. Effluent Characterization for Selected Constituents**

The Discharger shall monitor and evaluate the discharge at E-001 for the constituents listed in Enclosure A of the Regional Water Board's August 6, 2001 Letter. Compliance with this requirement shall be achieved in accordance with the specifications stated in the Regional Water Board's August 6, 2001 Letter under Effluent Monitoring for Major Dischargers. The Discharger shall conduct monitoring as specified in the table below:

<u>Constituent type</u>	<u>Sampling Frequency</u>	<u>EPA/SM Method Number</u>
Metals	As specified in SMP (for those not specified in SMP, Semiannual)	As specified in August 6, 2001, letter or SMP
Volatiles	Semiannual	EPA 601 or 624
Semi-volatiles	Semiannual	EPA 604 or 625
Pesticides	Semiannual	EPA 608
PAHs	Semiannual	EPA 610
Dioxin and Furans	As specified in SMP	EPA 1613
Total Solids	Semiannual concurrent with dioxin and furans monitoring	EPA Method 160.3/SM 2540B
Tributyltin	Semiannual	Batelle N-0959-2606
Diazinon	Semiannual	EPA 614

This information shall be included with the annual report required by Part A of the Self-Monitoring Program. The first annual report under this Order is due March 1, 2007. The report shall summarize the data collected to date and describe future monitoring to take place. A final report that presents all the data shall be submitted to the Regional Water Board no later than 180 days prior to the permit expiration date. This final report shall be submitted with the application for permit reissuance. Reporting requirements under this section may be satisfied by: (a) monthly reporting using the electronic reporting system (ERS), or an equivalent electronic system required by the Regional Water Board or State Water Board, and (b) submittal of a complete application for permit reissuance no later than 180 days prior to the permit expiration date.

**4. Receiving Water Monitoring**

The Discharger shall continue to collect or participate in collecting background ambient receiving water data with other dischargers and/or through the RMP. This information is required to perform RPAs and to calculate effluent limitations. To fulfill this requirement, the Discharger shall submit (or cause to have submitted on its behalf) data sufficient to characterize the concentration of each toxic pollutant listed in the CTR in the ambient receiving water. The data on the conventional water quality parameters (pH, salinity, and hardness) shall also be sufficient to characterize these parameters in the ambient receiving water at a point after the discharge has mixed with the receiving waters.

The sampling frequency and sampling station locations shall be specified in the sampling plan. The frequency of the monitoring shall consider the seasonal variability of the receiving water. It would be acceptable to select stations representative of incoming ocean waters because the combined effluent discharges to the Bay through deepwater diffusers.

## 5. Pollution Prevention and Minimization Program

- a. The Discharger shall conduct, in a manner acceptable to the Executive Officer, a Pollution Minimization Program to reduce pollutant loadings of mercury, selenium, cyanide, PCBs, and dioxin-TEQ 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 March 1 of each year. Annual reports shall cover January through December of the preceding year. Annual reports shall include at least the following information.
  - i. A brief description of its treatment facilities and treatment processes.
  - ii. *A discussion of the current pollutants of concern.* Periodically, the Discharger shall analyze its own situation to determine which pollutants are currently a problem and/or which pollutants may be potential future problems. This discussion shall include the reasons why the pollutants were chosen.
  - iii. *Identification of sources for the pollutants of concern.* This discussion shall include how the Discharger intends to estimate and identify sources of the pollutants. The Discharger shall also identify sources or potential sources not directly within the ability or authority of the Discharger to control, such as pollutants in the potable water supply and air deposition.
  - iv. *Identification of tasks to reduce the sources of the pollutants of concern.* This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement tasks itself 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 tasks 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 employees about the pollutants of concern, potential sources, and how they might be able to help reduce the discharge of these pollutants of concern into the treatment facilities. The Discharger may provide a forum for employees to provide input to the Program.
  - vi. *Discussion of criteria used to measure the program's and tasks' effectiveness.* The Discharger shall establish criteria to evaluate the effectiveness of its Pollution Minimization Program. This shall also include a discussion of the specific criteria used to measure the effectiveness of each of the tasks in item b. (iii), b. (iv), and b. (v).

- vii. *Documentation of efforts and progress.* This discussion shall detail all the Discharger's activities in the Pollution Minimization Program during the reporting year.
  - viii. *Evaluation of program's and tasks' effectiveness.* The Discharger shall use the criteria established in 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 detail how it intends to continue or change its tasks to more effectively reduce the amount of pollutants to the treatment facilities, and subsequently in its effluent.
- c. According to Section 2.4.5 of the SIP, when there is evidence that a priority pollutant is present in the effluent above an effluent limitation and either:
- i. A sample result is reported as detected, but not quantified (less than the ML) and the effluent limitation is less than the reported ML; or
  - ii. A sample result is reported as not detected (less than the MDL) and the effluent limitation is less than the MDL;

The Discharger shall expand its existing Pollution Minimization Program to include the reportable priority pollutant. A priority pollutant becomes a reportable priority pollutant (1) when there is evidence that it is present in the effluent above an effluent limitation and either (c)(i), or c(ii) is triggered or (2) if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported ML.

- d. If triggered by the reasons in c. above and notified by the Executive Officer, the Discharger's Pollution Minimization Program shall, within 6 months, also include the following:
- i. An annual review and semiannual monitoring of potential sources of the reportable priority pollutant(s), 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 pollutant(s) in the influent to the wastewater treatment system, or alternative measures 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 pollutant(s) in the effluent at or below the effluent limitation.

- iv. Development of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy.
- v. An annual status report that shall be sent to the Regional Water Board including the following:
  - (1) All Pollution Minimization Program monitoring results for the previous year
  - (2) A list of potential sources of the reportable priority pollutant(s)
  - (3) A summary of all actions undertaken pursuant to the control strategy
  - (4) A description of actions to be taken in the following year.
- e. To the extent that the requirements of the Pollution Prevention Program and the Pollutant Minimization Program overlap, the Discharger is allowed to continue, modify, or expand its Pollution Prevention Program to satisfy the Pollutant Minimization Program requirements.
- f. These Pollution Prevention/Pollutant Minimization Program requirements are not intended to fulfill the requirements in the Clean Water Enforcement and Pollution Prevention Act of 1999 (Senate Bill 709).

#### **6. Mass and Concentration Credits**

Prior to obtaining mass or concentration credits for using recycled water, the Discharger shall submit a technical report that demonstrates such credits will not cause impairment of beneficial uses in the vicinity of its discharge, such as an acutely toxic zone to aquatic organisms. The demonstration shall include, but not be limited to an assessment of the results of whole effluent toxicity testing, and mass balance calculations that compare the as-discharged effluent concentrations (i.e., before credits) to potential WQBELs for constituent(s) for which credits are sought. The report shall also include one or more examples of how the credit calculations will be performed and reported based on the site-specific conditions of the Discharger. Following receipt of written approval of the technical report from the Executive Officer, this provision shall be considered satisfied.

#### **7. Storm Water Pollution Prevention Plan and Annual Report**

The Discharger shall update and submit an updated Storm Water Pollution Prevention Plan (SWPPP) acceptable to the Executive Officer by September 1<sup>st</sup> of each year. If the Discharger determines that it does not need to update its SWPPP, it shall submit a letter to the Executive Officer that indicates no revisions are necessary and the last year it updated its SWPPP. The Discharger shall implement the SWPPP, and the SWPPP shall comply with the requirements contained in the attached Standard provisions.

The Discharger shall also submit an annual storm water report by July 1 of each year covering data for the previous wet weather season for E-002 through E-023. The annual storm water report shall, at a minimum, include: (a) a tabulated summary of all sampling results and a summary of visual observations taken during the inspections; (b) a comprehensive discussion of the compliance record and any corrective actions taken or planned to ensure compliance with waste discharge requirements; and (c) a comprehensive discussion of source identification and control programs for constituents that do not have effluent limitations (e.g., total suspended solids).

**8. Whole Effluent Acute Toxicity**

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

From permit adoption date:

- (1) Compliance with the acute toxicity effluent limits of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour flow through bioassays.
- (2) Test organism shall be rainbow trout unless specified otherwise in writing by the Executive Officer.
- (3) All bioassays shall be performed according to 40 CFR 136, currently the "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms," 5<sup>th</sup> Edition, October 2002, EPA Publication Number 821-R-02-012. Exceptions may be granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

**9. Chronic Toxicity**

Consistent with the Basin Plan's specified approach for dischargers monitoring chronic toxicity on a quarterly basis, the Discharger shall comply with the following tiered approach with trigger values to ensure that potential chronic toxicity is addressed in a timely fashion.

- a. The Discharger shall conduct routine chronic toxicity monitoring in accordance with the SMP of this Order.
- b. If data from routine monitoring exceeds the evaluation parameter in 9.c. below, then the Discharger shall conduct accelerated chronic toxicity monitoring. Accelerated monitoring shall consist of monthly monitoring.
- c. Chronic toxicity evaluation parameter is as follows:
  - i. A single sample maximum value of equal to or greater than 20  $TU_c$ , or a three sample median greater than or equal to 10  $TU_c$ .
  - ii. This parameter is defined as follows:
    - (1)  $TU_c$  (chronic toxicity unit): A  $TU_c$  equals  $100/NOEL$  (e.g., if  $NOEL = 100$ , then toxicity = 1  $TU_c$ ).  $NOEL$  is the no-observed effect level determined from IC, EC, or  $NOEC$  values.
    - (2) The terms IC, EC,  $NOEL$  and  $NOEC$  and their use are defined in Attachment A of the SMP.
- d. If data from accelerated monitoring tests are found to be in compliance with the evaluation parameter, then routine monitoring shall be resumed.
- e. If accelerated monitoring tests continue to exceed the evaluation parameter (i.e., any two consecutive tests  $> 10 TU_c$ ), then the Discharger shall initiate a chronic TRE.
- f. The TRE shall be conducted in accordance with the following:

- i. The Discharger shall prepare and submit to the Regional Water Board for Executive Officer approval a TRE workplan. An initial generic workplan shall be submitted within 120 days of the date of adoption of this Order. The workplan shall be reviewed and updated as necessary in order to remain current and applicable to the discharge and discharge facilities.
- ii. The TRE shall be initiated within 30 days of the date of completion of the accelerated monitoring test observed to exceed either evaluation parameter.
- iii. The TRE shall be conducted in accordance with an approved workplan.
- iv. The TRE needs to be specific to the discharge and Discharger facility, and may be in accordance with current technical guidance and reference materials including USEPA guidance materials. The TRE should be conducted as a tiered evaluation process, such as summarized below:
  - (1) Tier 1 consists of basic data collection (routine and accelerated monitoring).
  - (2) Tier 2 consists of evaluation of optimization of the treatment process including operation practices, and in-plant process chemicals.
  - (3) Tier 3 consists of a toxicity identification evaluation (TIE).
  - (4) Tier 4 consists of an evaluation of options for additional effluent treatment processes.
  - (5) Tier 5 consists of an evaluation of options for modifications of in-plant treatment processes.
  - (6) Tier 6 consists of implementation of selected toxicity control measures, as well as follow-up monitoring and confirmation of implementation success.
- v. The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity.
- vi. 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 methodologies should be employed.
- vii. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the source(s) 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.
- viii. Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention, and storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of compliance with requirements or recommended efforts of such programs may be acceptable to comply with TRE requirements.
- ix. The Regional Water Board recognizes that chronic toxicity may be episodic and identification of the causes and reduction of sources of chronic toxicity may not be successful in all cases. Consideration of enforcement action 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.

- g. Chronic Toxicity Monitoring Screening Phase Requirements, Critical Life Stage Toxicity Tests, and definitions of terms used in the chronic toxicity monitoring are identified in Attachment G to this Order. The Discharger shall comply with these requirements as applicable to the discharge.

#### **10. Optional Mass Offset**

The Discharger may submit to the Regional Water Board for approval a mass offset plan to reduce 303(d) listed pollutants to the same watershed or drainage basin. The Regional Water Board may modify this Order to allow an approved mass offset program.

#### **11. Contingency Plan Update**

- a. The Discharger shall maintain a Contingency Plan as required by Regional Water Board Resolution 74-10 (attached), and as prudent in accordance with current industrial facility emergency planning. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or adequately implement a contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.
- b. The Discharger shall regularly review, and update as necessary, the Contingency Plan in order for the plan to remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and updates shall be completed as necessary.
- c. The Discharger shall provide the Executive Officer, upon his or her request, a report describing the current status of its Contingency Plan review and update. The Discharger shall also include, in each Annual Self-Monitoring Report, a description or summary of review and evaluation procedures, and applicable changes to its Contingency Plan.

#### **12. Collection System Maintenance**

Within 60 days of the effective date of this Order, the Discharger shall document (a) current preventative maintenance activities to prevent spills and leaks (e.g., percentage of collection system that it cleans and inspects on an annual basis, how cleaning and inspections occur, and how it determines which portions of the collection system need cleaning, sealing, or replacing), (b) past spills and corrective measures taken to avoid future spills (i.e., document that collection system maintenance is more proactive rather than reactive), and (c) any proposed upgrades to the collection system that will occur within the next five years.

#### **13. Actions for Compliance Schedule Pollutants**

This Order grants compliance schedules for mercury, selenium, cyanide, PCBs, and dioxin-TEQ. Pursuant to Section 2.1 of the SIP and Chapter 4 of the Basin Plan, the Discharger shall (a) conduct pollution minimization in accordance with Provision C.5, (b) participate in and support the development of a TMDL or an SSO for mercury, selenium, cyanide, PCBs, and dioxin-TEQ, and (c) submit an update to the Regional Water Board in the annual self-monitoring report to document its efforts toward development of TMDL(s) or SSO(s). Regional Water Board staff shall review the status of TMDL development. In the event

TMDL(s) or SSO(s) are not developed for mercury, selenium, cyanide, or PCBs by July 1, 2009, the Discharger shall submit by July 1, 2009, a schedule that documents how it will further reduce pollutant concentrations to ensure compliance with the final limits specified in Effluent Limitations and Discharge Specifications A.2.

#### **14. Wastewater Discharges from the Wetland**

The Discharger may discharge Wetland effluent directly to outfall 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 Waste 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 outfall 001. The Discharger may resume discharging Wetland effluent directly to outfall 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 outfall 001, it shall report the daily flow rate of this treated wastewater, and the results of acute toxicity testing.

#### **15. Changes in Control and Ownership**

- a. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board.
- b. To assume responsibility of and operations under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order (see Standard Provisions & Reporting Requirements, August 1993, Section E.4.). Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.

## VII. Compliance Determination

Compliance with the effluent limitations contained in Section IV of this Order will be determined as specified below:

### A. Average Monthly Effluent Limitation (AMEL).

If the average of daily discharges over a calendar month exceeds the AMEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). The average of daily discharges over the calendar month that exceeds the AMEL for a parameter will be considered out of compliance for that month only. If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the discharger will be considered out of compliance for that calendar month. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month.

### B. Average Weekly Effluent Limitation (AWEL).

If the average of daily discharges over a calendar week exceeds the AWEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for each day of that week for that parameter, resulting in 7 days of non-compliance. The average of daily discharges over the calendar week that exceeds the AWEL for a parameter will be considered out of compliance for that week only. If only a single sample is taken during the calendar week and the analytical result for that sample exceeds the AWEL, the discharger will be considered out of compliance for that calendar week. For any one calendar week during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar week.

### C. Maximum Daily Effluent Limitation (MDEL).

If a daily discharge exceeds the MDEL for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day.

### D. Instantaneous Minimum Effluent Limitation.

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, a violation will be flagged and the discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

### E. Instantaneous Maximum Effluent Limitation.

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, a violation will be flagged and the discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

**F. Six-month Median Effluent Limitation.**

If the median of daily discharges over any 180-day period exceeds the six-month median effluent limitation for a given parameter, an alleged violation will be flagged and the discharger will be considered out of compliance for each day of that 180-day period for that parameter. The next assessment of compliance will occur after the next sample is taken. If only a single sample is taken during a given 180-day period and the analytical result for that sample exceeds the six-month median, the discharger will be considered out of compliance for the 180-day period. For any 180-period during which no sample is taken, no compliance determination can be made for the six-month median limitation.

## ATTACHMENT A – DEFINITIONS

**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.

**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 the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

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

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

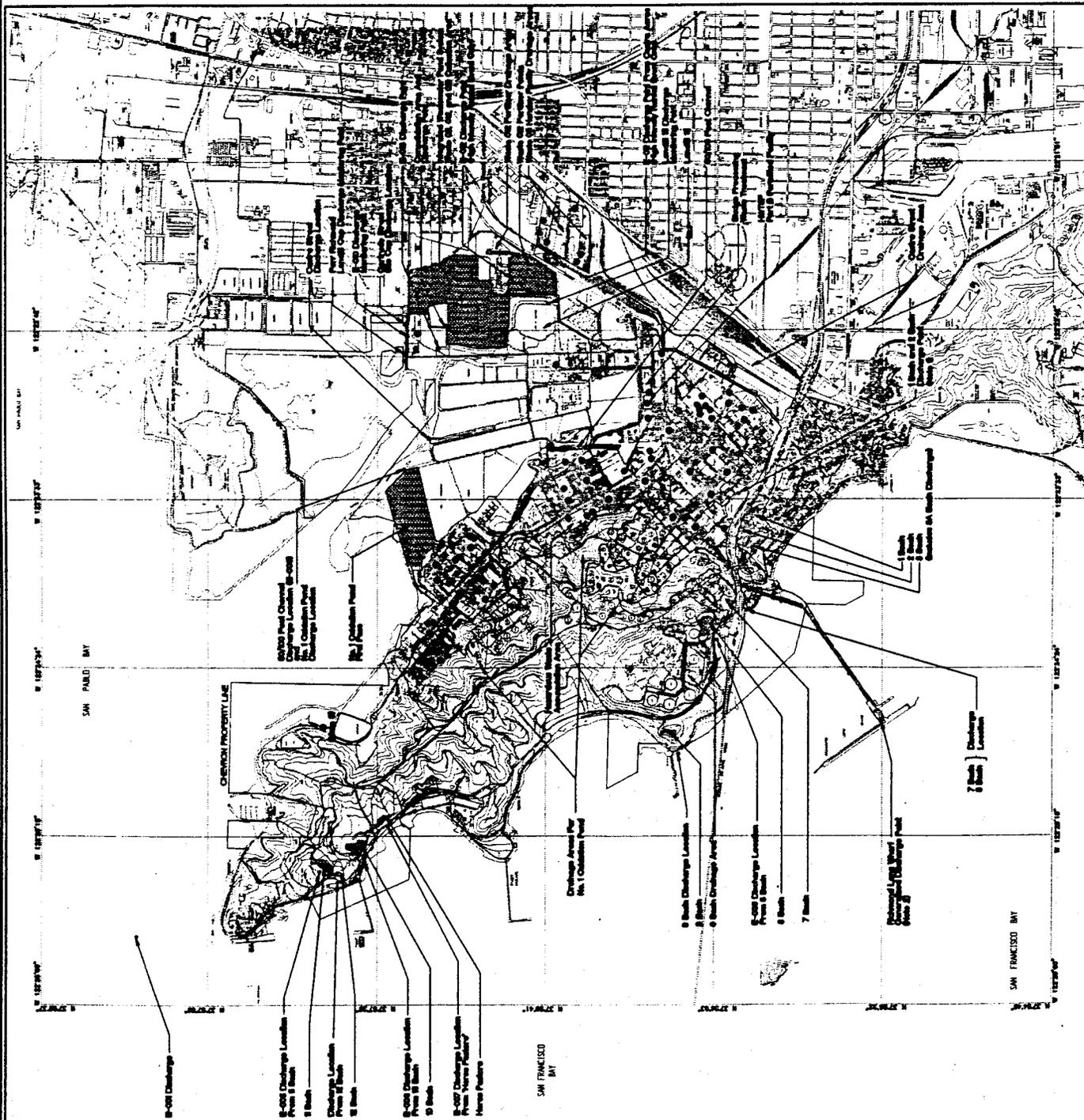
**Instantaneous Maximum Effluent Limitation:** the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

**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):** the highest allowable daily discharge of a pollutant.

**Six-month Median Effluent Limitation:** the highest allowable moving median of all daily discharges for any 180-day period.

**ATTACHMENT B – TOPOGRAPHIC MAP (ATTACHED)**

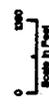
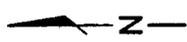


**LEGEND**

- - ROUTINE ACCUMULATION POINTS FOR HAZARDOUS WASTE. (NOTE 5)
- - GROUNDWATER SEEP (SEE NOTE 4)
- - PROPERTY LINE
- - OUTLINE OF DRAINAGE AREA
- WAST - HAZARDOUS WASTE TREATMENT AND STORAGE FACILITY
- ▨ - WATER COLLECTION AREAS

**NOTES**

1. DISCHARGE LOCATION REPRESENTS POINT WHERE WATER ENTERS CASTRO STREET DRAINAGE SYSTEM
2. GENERALIZED POINT FOR FIRE WATER DISCHARGES FROM MONITORS. MONITORS ARE DISTRIBUTED ALONG WHARF.
3. INDUSTRIAL DEBRIS BIN (11.5 years)
4. SOURCE OF SEEP DATA - HYDROGEOLOGIC INVESTIGATION FOR ALVARE, OFFICE HILL, S.P. HILL AND QUARRY TANKFIELDS BECHTEL ENVIRONMENTAL/DAWES & MORRE, SEPTEMBER 30, 1991
5. ACCUMULATION POINTS ARE ESTABLISHED THROUGHOUT THE FACILITIES ON AN AS NEEDED BASIS.



THIS IS AN AUTOCAD DRAWING. DO NOT REVISE MANUALLY.

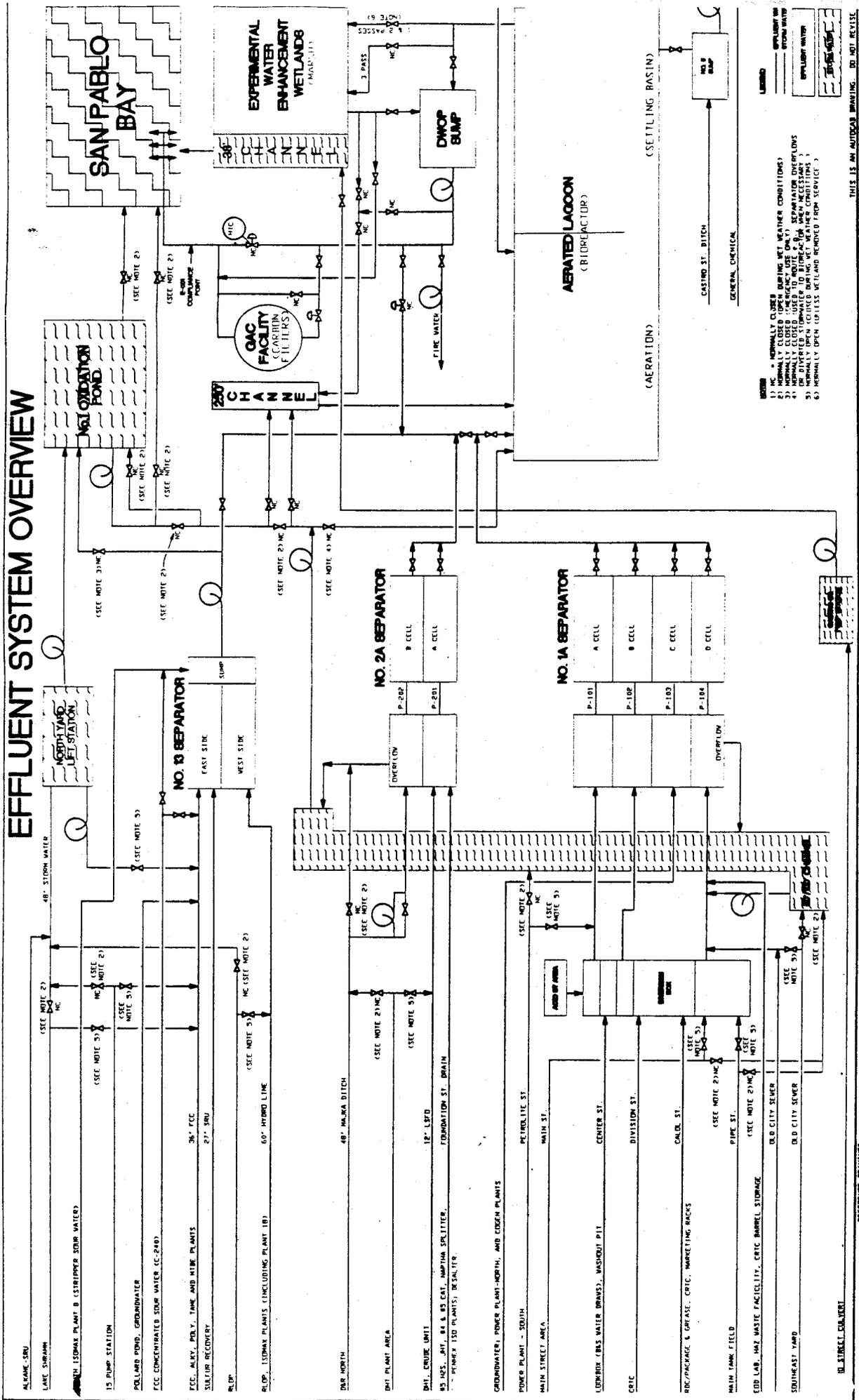
	DATE 02/29/90	PROJECT CHEVRON Richmond Refinery	DRAWN BY J.B.	CHECKED BY M.A.	APPROVED BY M.A.
NPDES APPLICATION MAP DISCHARGE LOCATIONS AND DRAINAGE AREAS ENVIRONMENTAL AFFAIRS GENERAL ENVIRONMENTAL AND SAFETY DIVISION			A 11.5 6.6. D-700840-2		

Attachment B - Topographic Map

**ATTACHMENT C – FLOW SCHEMATIC (ATTACHED)**

# Attachment C - Flow Schematic

## EFFLUENT SYSTEM OVERVIEW



- NOTES:**
1. NORMALLY CLOSED
  2. NORMALLY CLOSED (OPEN DURING WET WEATHER CONDITIONS)
  3. NORMALLY CLOSED (OPEN DURING WET WEATHER CONDITIONS)
  4. NORMALLY OPEN (CLOSED DURING WET WEATHER CONDITIONS)
  5. NORMALLY OPEN (CLOSED DURING WET WEATHER CONDITIONS)
  6. NORMALLY OPEN (CLOSED DURING WET WEATHER CONDITIONS)
  7. NORMALLY OPEN (CLOSED DURING WET WEATHER CONDITIONS)

THIS IS AN AUTOCAD DRAWING. DO NOT REUSE.

PROCESS FLOW DIAGRAM

EPAL 20-114

ENVIRONMENTAL AFFAIRS GENERAL

UTILITIES AND ENVIRONMENTAL AREA BUSTIN

APPROVED: [Signature]

DATE: [Date]

SCALE: [Scale]

PROJECT: [Project Name]

REVISIONS:

NO.	DATE	DESCRIPTION

REFERENCE DRAWINGS:

OLD STREET COLLECT

RECEIVED: [Date]

PROJECT: [Project Name]

ADDRESS: [Address]

PROJECT NO.: [Project No.]

SCALE: [Scale]

DATE: [Date]

PROJECT: [Project Name]

ADDRESS: [Address]

PROJECT NO.: [Project No.]

SCALE: [Scale]

DATE: [Date]

PROJECT: [Project Name]

ADDRESS: [Address]

PROJECT NO.: [Project No.]

SCALE: [Scale]

DATE: [Date]

## **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 (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, 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 Clean Water Act 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 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 Quality Control Board (RWQCB), State Water Resources Control Board (SWRCB), United States Environmental Protection Agency (USEPA), and/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)] [CWC 13383(c)]:

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)];
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, 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 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)(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)(B)]; and
  - c. The Discharger submitted notice to the Regional Water Board as required under Standard Provision – Permit Compliance I.G.5 below [40 CFR §122.41(m)(4)(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 [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 permittee. 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 paragraph H.2 of this section 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)(i)];

- c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b [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 the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the CWC [40 CFR §122.41(l)(3)] [40 CFR §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 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order [40 CFR §122.41(j)(4)] [40 CFR §122.44(i)(1)(iv)].

## IV. STANDARD PROVISIONS – RECORDS

- A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR 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, SWRCB, or USEPA within a reasonable time, any information which the Regional Water Board, SWRCB, 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, SWRCB, or USEPA copies of records required to be kept by this Order [40 CFR §122.41(h)] [CWC 13267].

**B. Signatory and Certification Requirements**

1. All applications, reports, or information submitted to the Regional Water Board, SWRCB, and/or USEPA shall be signed and certified in accordance with paragraph (2.) and (3.) of this provision [40 CFR §122.41(k)].
2. All permit applications shall be signed as follows:
  - a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities,

- provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures [40 CFR §122.22(a)(1)];
- b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively [40 CFR §122.22(a)(2)]; or
  - c. For a municipality, State, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA) [40 CFR §122.22(a)(3)].
3. All reports required by this Order and other information requested by the Regional Water Board, SWRCB, or USEPA shall be signed by a person described in paragraph (b) of this provision, 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 paragraph (2.) of this provision [40 CFR §122.22(b)(1)];
  - b. The authorization specified 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, SWRCB, or USEPA [40 CFR §122.22(b)(3)].
4. If an authorization under paragraph (3.) of this provision 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 paragraph (3.) of this provision must be submitted to the Regional Water Board, SWRCB or USEPA 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 paragraph (2.) or (3.) of this provision 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 in this Order [40 CFR §122.41(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 SWRCB 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 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR 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 contained 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)].
  - c. Violation of a maximum daily discharge limitation for any of the pollutants listed in this Order to be reported within 24 hours [40 CFR §122.41(l)(6)(ii)(C)].
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 40 CFR §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 which are subject neither to effluent limitations in this Order nor to notification requirements under 40 CFR Part 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1) [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 SWRCB 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 E.3, E.4, and E.5 at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E [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, SWRCB, or USEPA, the Discharger shall promptly submit such facts or information [40 CFR §122.41(l)(8)].

## VI. STANDARD PROVISIONS – ENFORCEMENT

- A. The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed \$25,000 per day for each violation. The CWA provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the Clean Water Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions [40 CFR §122.41(a)(2)] [CWC 13385 and 13387].
- B. Any person may be assessed an administrative penalty by the Regional Water Board for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000 [40 CFR §122.41(a)(3)].
- C. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon

conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or both [40 CFR §122.41(j)(5)].

- D. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both [40 CFR §122.41(k)(2)].

## 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 ( $\mu\text{g/L}$ ) [40 CFR §122.42(a)(1)(i)];
  - b. 200  $\mu\text{g/L}$  for acrolein and acrylonitrile; 500  $\mu\text{g/L}$  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 40 CFR §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 ( $\mu\text{g/L}$ ) [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 40 CFR §122.44(f) [40 CFR §122.42(a)(2)(iv)].

**B. Publicly-Owned Treatment Works (POTWs)**

All POTWs shall provide adequate notice to the Regional Water Board of the following [40 CFR §122.42(b)]:

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to Sections 301 or 306 of the CWA if it were directly discharging those pollutants [40 CFR §122.42(b)(1)]; and
2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order [40 CFR §122.42(b)(2)].

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

## Attachment E – Monitoring and Reporting Program – Table of Contents

Attachment E – Monitoring and Reporting Program (MRP).....	E-2
I. General Monitoring Provisions.....	E-2
A. General Monitoring Provision.....	E-2
B. Etc.....	E-2
II. Monitoring Locations.....	E-3
III. Influent Monitoring Requirements .....	E-4
IV. Effluent Monitoring Requirements .....	E-4
A. Monitoring Location.....	E-4
B. Monitoring Location.....	E-6
V. Whole Effluent Toxicity Testing Requirements .....	E-7
VI. Land Discharge Monitoring Requirements.....	E-8
VII. Reclamation Monitoring Requirements .....	E-8
VIII. Receiving Water Monitoring Requirements – Surface Water and Groundwater .....	E-8
A. Monitoring Location.....	E-8
IX. Other Monitoring Requirements .....	E-9
X. Reporting Requirements .....	E-9
A. General Monitoring and Reporting Requirements .....	E-9
B. Self Monitoring Reports (SMRs) .....	E-9
C. Discharge Monitoring Reports (DMRs).....	E-11
D. Other Reports .....	E-11

## **ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)**

The Code of Federal Regulations (CFR) at 40 CFR §122.48 requires that all NPDES permits specify monitoring and reporting requirements. CWC sections 13267 and 13383 also authorize the Regional Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements which implement the federal and California regulations.

### **I. GENERAL MONITORING PROVISIONS**

- A.** The Discharger shall comply with the MRP for this Order as adopted by the Regional Water Board, and with all of the Self-Monitoring Program, Part A, adopted August 1993 (SMP). The MRP and SMP may be amended by the Executive Officer pursuant to USEPA regulations 40 CFR 122.62, 122.63, and 124.5. If any discrepancies exist between the MRP and SMP, the MRP prevails.
- B.** Sampling is required during the entire year when discharging. All analyses shall be conducted using current USEPA methods that have been approved by the USEPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5, or equivalent methods that are commercially and reasonably available, and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits. The Regional Water Board will find the Discharger in violation of effluent limitations if the discharge concentration exceeds the effluent limitation and the Reporting Level for the analysis of that constituent.

## II. MONITORING LOCATIONS

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

**Table 1: Monitoring Locations**

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
Recycled Water	I-002	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
Firewater Testing	E-002	At any point where the sample is representative of Waste 002
Stormwater	E-003	Same as above except for Waste 003
Stormwater	E-004	Same as above except for Waste 004
Stormwater	E-005	Same as above except for Waste 005
Stormwater	E-006	Same as above except for Waste 006
Stormwater	E-007	Same as above except for Waste 007
Stormwater	E-008	Same as above except for Waste 008
Stormwater	E-009	Same as above except for Waste 009
Stormwater	E-010	Same as above except for Waste 010
Stormwater	E-011	Same as above except for Waste 011
Stormwater	E-012	Does not discharge
Stormwater	E-013	Same as above except for Waste 013
Stormwater	E-014	Same as above except for Waste 014
Stormwater	E-015	Same as above except for Waste 015
Stormwater	E-016	Same as above except for Waste 016
Stormwater	E-017	Same as above except for Waste 017
Stormwater	E-018	Same as above except for Waste 018
Stormwater	E-019	Same as above except for Waste 019
Stormwater	E-020	Same as above except for Waste 020
Stormwater	E-021	Same as above except for Waste 021
Stormwater	E-022	Same as above except for Waste 022
Stormwater	E-023	Same as above except for Waste 023
Receiving Water	C-001	At any point in San Pablo Bay, approximately 2000 feet north of Point San Pablo
Land observation	P-1	At the point of discharge of Waste 011 to the drainage ditch tributary to Castro Creek
Land observation	P-3	At the point of discharge of Waste 012 to the drainage ditch tributary to Castro Creek
Rainfall	R-1	The nearest official recording National Weather Service rainfall station or other station acceptable to the Executive Officer

### III. INFLUENT MONITORING REQUIREMENTS – N/A

### IV. EFFLUENT MONITORING REQUIREMENTS

#### A. Monitoring Location E-001

1. The Discharger shall monitor treated wastewater at E-001 as follows:

**Table 2: Schedule of Sampling, Analyses, and Observations [1]**

Parameter	Units	Sample Type [7]	Minimum Sampling Frequency	Required Analytical Test Method
Flow Rate [2]	mgd	Metered	Continuous	
Temperature	°F	Metered	Continuous	
pH	s.u.	Meter	Continuous	
Settleable Solids	mL/ L-hr	Grab	Monthly	
BOD (5-day at 20°C)	mg/L lb/day	24-hour composite	Monthly	
TSS	mg/L lb/day	24-hour composite	Monthly	
Oil & Grease	mg/L lb/day	Composite [3]	Monthly	
Ammonia as N	mg/L lb/day	Grab	Monthly	
TOC	mg/L lb/day	Grab	Monthly	
Total Phenols	mg/L lb/day	Grab	Monthly	
Total Chromium [8]	µg/L lb/day	24-hour Composite	Monthly	
Hexavalent Chromium	µg/L lb/day	Grab	Monthly	
Sulfide	mg/L lb/day	Grab	Monthly	
Copper	µg/L	24-hour Composite	Monthly	
Lead	µg/L	24-hour Composite	Monthly	
Mercury	µg/L	[6]	Monthly	
Nickel	µg/L	24-hour Composite	Monthly	
Selenium	µg/L	24-hour Composite	Weekly	[9]
Cyanide	µg/L	Grab	Monthly	[10]
Heptachlor Epoxide	µg/L	Grab	Quarterly	
Total PCBs	µg/L	Grab	Twice/ Year	[11]
2,3,7,8 - TCDD and Congeners	pg/L	Grab	Twice/ Year	[12]
Acute Toxicity [4]	percent survival	Composite	Weekly	
Chronic Toxicity [5]	TU <sub>c</sub>	Composite	Quarterly	

[1] Indicates sampling is required during the entire year. The Discharger shall use approved USEPA Methods with the lowest Minimum Levels specified in the SIP and described in footnote 5 of Effluent Limitations A.2, and in the August 6, 2001, letter

[2] Flow Monitoring: Effluent flow shall be measured continuously at E-001, and recorded daily. For effluent flows, the following information shall also be reported, monthly:

Daily Flow (MG)  
Average Daily Flow (MGD)  
Maximum Daily Flow (MGD)  
Minimum Daily Flow (MGD)  
Total Flow Volume (MG)

Reporting requirements under this section may be satisfied by monthly reporting using the electronic reporting system (ERS), or an equivalent electronic system required by the Regional Water Board or State Water Board.

[3] Each Oil & Grease sample event 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.

[4] Bioassays: Monitoring of the bioassay water shall include, on a daily basis, the parameters specified in the USEPA-approved method, such as pH, dissolved oxygen, ammonia nitrogen, and temperature. These results shall be kept onsite, and made available upon request. If the fish survival rate in the effluent is less than 70 percent or if the control fish survival rate is less than 90 percent, the bioassay test shall be restarted as soon as practicable with new fish and shall continue back to back until compliance is demonstrated.

[5] A Critical Life Stage Toxicity Test shall be performed and reported in accordance with the Chronic Toxicity Requirements specified in Sections V of the SMP contained in this Order.

[6] The Discharger may, at its option, sample effluent mercury either as grab or as 24-hour composite samples. Use ultra-clean sampling (USEPA 1669) to the maximum extent practicable and ultra-clean analytical methods (USEPA 1631) for mercury monitoring. The Discharger may use alternative methods of analysis (such as USEPA 245), if that alternative method has an ML of 2 ng/L or less.

[7] Composite sampling: 24-hour composites may be made up of discrete grabs collected over the course of a day and volumetrically or mathematically flow-weighted. Samples for inorganic pollutants maybe combined prior to analysis. Samples for organic pollutants should be analyzed separately. Samples shall be taken on random weekdays.

[8] 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.

[9] Selenium must be analyzed for by ICP/MS, or the atomic absorption gaseous hydride procedure (USEPA Method No. 200.8, or Standard Method No. 3114B or 3114C).

[10] The Discharger may, at their option, analyze for cyanide as Weak Acid Dissociable Cyanide using protocols specified in Standard Method Part 4500-CN-I, USEPA Method OI 1677, or equivalent alternatives in latest edition. Alternative methods of analysis must be approved by the Executive Officer.

[11] The latest versions of USEPA Methods 608 (or 8080) shall be used to determine compliance with the limits for Total PCBs. The Discharger shall attempt to achieve the lowest detection limits commercially available using this method and shall instruct its lab to calibrate to the minimum level indicated in footnote 5 of Effluent Limitation A.2.

[12] Chlorinated dibenzodioxins and chlorinated dibenzofurans shall be analyzed using the latest version of USEPA Method 1613; the analysis shall be capable of achieving one-half of the USEPA MLs and the Discharger shall collect 4-liter samples to lower the detection limits to the greatest extent practicable. Alternative methods of analysis must be approved by the Executive Officer.

**B. Monitoring Locations E-002 through E-023**

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

**Table 3: Schedule of Sampling, Analyses, and Observations for Stormwater [1]**

Parameter	Units	Sample Type	Minimum Sampling Frequency [2]	Required Test Method
Oil & Grease	mg/L	Grab	At least twice/year	
TOC	mg/L	Grab	At least twice/year	
pH	s.u.	Grab	At least twice/year	
TSS	mg/L	Grab	At least twice/year	
Specific Conductance	µmhos/cm	Grab	At least twice/year	
Visual Observations	---	Visual	At least twice/year	

[1] The Discharger shall monitor the first storm event of the year. If the Discharger finds Oil & Grease, TOC, or pH outside the discharge limitations specified in this Order, it shall accelerate monitoring to monthly at that respective station for the duration of the rainy season.

[2] The Discharger shall monitor E-002 for the parameters specified at least monthly. For stormwater discharges that are controlled (i.e., out of basins), the Discharger shall monitor on each occurrence.

2. The Discharger shall monitor stormwater at E-011 and E-013, as follows:

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Test Method
Oil & Grease	mg/L	Grab	On each occurrence	
TOC	mg/L	Grab	On each occurrence	
pH	s.u.	Grab	On each occurrence	
TSS	mg/L	Grab	On each occurrence	
Specific Conductance	µmhos/cm	Grab	On each occurrence	
Priority Pollutants	µg/L	Grab	On each occurrence	In accordance with the August 6, 2001, letter
Visual Observations	---	Visual	On each occurrence	

## V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

### A. Whole Effluent Acute Toxicity

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

1. Acute toxicity effluent limits shall be evaluated by measuring survival of test organisms exposed to a 96-hour flow through bioassays;
2. The test organism shall be rainbow trout unless specified otherwise in writing by the Executive Officer, and
3. All bioassays shall be performed according to 40 CFR Part 136, currently *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms*, 5<sup>th</sup> Edition. Exceptions may be granted by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

### B. Chronic Toxicity Monitoring Requirements

1. Sampling. The Discharger shall collect 24-hour composite samples of the treatment facilities' effluent at the compliance point specified in Table 1 of the SMP, for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, 24-hour composite samples collected on consecutive days are required.
2. Test Species. Chronic toxicity shall be monitored by using critical life stage test(s) and the most sensitive tests species identified by screening phase testing described in Attachment A of the SMP. The Discharger shall conduct routine monitoring with the species approved by the Executive Officer. The approved species at this time is giant kelp (*Macrocystis pyrifera*).

If the Discharger uses two or more species, after at least twelve test rounds, the Discharger may request the Executive Officer to decrease the required frequency of testing, and/or to reduce the number of compliance species to one. Such a request may be made only if toxicity exceeding the TUC values specified in the effluent limitations was never observed using that test species.

3. Conditions for Accelerated Monitoring: The Discharger shall accelerate the frequency of monitoring to monthly, or as otherwise specified by the Executive Officer, after exceeding a single sample maximum of 20 TU<sub>c</sub>, or a three sample median of 10 TU<sub>c</sub>.
4. Methodology: Sample collection, handling and preservation shall be in accordance with USEPA protocols. The test methodology used shall be in accordance with the references cited in the Permit, or as approved by the Executive Officer. A concurrent reference toxicant test shall be performed for each test.
5. Dilution Series: The Discharger shall conduct tests at 100%, 50%, 25%, 10%, and 5%, and 2.5%. The “%” represents percent effluent as discharged.

#### C. Chronic Toxicity Reporting Requirements

1. Routine Reporting: Toxicity test results for the current reporting period shall include the following, at a minimum, for each test.
  - a. Sample date(s)
  - b. Test initiation date
  - c. Test species
  - d. End point values for each dilution (e.g., number of young, growth rate, percent survival)
  - e. NOEC value(s) in percent effluent
  - f. IC<sub>15</sub>, IC<sub>25</sub>, IC<sub>40</sub>, and IC<sub>50</sub> values (or EC<sub>15</sub>, EC<sub>25</sub> ... etc.) in percent effluent
  - g. TU<sub>c</sub> values (100/NOEC, 100/IC<sub>25</sub>, and 100/EC<sub>25</sub>)
  - h. Mean percent mortality ( $\pm$  s.d.) after 96 hours in 100% effluent
  - i. NOEC and LOEC values for reference toxicant test(s)
  - j. IC<sub>50</sub> or EC<sub>50</sub> value(s) for reference toxicant test(s)
  - k. Available water quality measurements for each test (i.e., pH, D.O., temperature, conductivity, hardness, salinity, ammonia)
2. Compliance Summary: The results of the chronic toxicity testing shall be provided in the most recent 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 the items listed above under V.C, items a, c, e, f(IC<sub>25</sub> or EC<sub>25</sub>), g, and h.

#### VI. LAND DISCHARGE MONITORING REQUIREMENTS – N/A

#### VII. RECLAMATION MONITORING REQUIREMENTS – N/A

#### VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

##### A. Monitoring Location C-001

1. The Discharger shall monitor San Pablo Bay at C-001 as follows:

**Table 4 – Receiving Water Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency
pH	s.u.	Grab	Annual
Temperature	°F	Grab	Annual
Dissolved Oxygen	mg/L	Grab	Annual
Sulfides	mg/L	Grab	Annual
Unionized Ammonia	mg/L	Grab	Annual

**IX. OTHER MONITORING REQUIREMENTS – N/A**

**X. REPORTING REQUIREMENTS**

**A. General Monitoring and Reporting Requirements**

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

**B. Self Monitoring Reports (SMRs)**

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit self-monitoring reports. Until such notification is given, the Discharger shall submit self-monitoring reports in accordance with the requirements described below.
2. The Discharger shall submit monthly Self Monitoring Reports including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. Monthly reports shall be due no later than 30 days after the end of each calendar month.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

**Table 5 – Monitoring Periods and SMR Due Date**

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Effective date of permit	All	Within 30 days of the end of the calendar month of sampling
Weekly	Effective date of permit	Sunday through Saturday	Within 30 days of the end of the calendar month of sampling
Monthly	Effective date of permit	1 <sup>st</sup> day of calendar month through last day of calendar month	Within 30 days of the end of the calendar month of sampling
Quarterly	Effective date of permit	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	April 30 July 30 October 30 January 30

Twice/Year	Effective date of permit	January 1 through June 30 July 1 through December 31	July 30 January 30
Annually	Effective date of permit	January 1 through December 31	February 1

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

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

- a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

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

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
  - d. The Dischargers shall instruct laboratories to establish calibration standards so that the RL value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. The Discharger shall not use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.
5. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations.
  6. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
  7. SMRs must be submitted to the Regional Water Board, signed and certified as required by the standard provisions (Attachment D), to the address listed below:

Executive Officer  
 Attn: NPDES Division  
 California Regional Water Quality Control Board

San Francisco Bay Region  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

### C. Discharge Monitoring Reports (DMRs)

1. As described in Section X.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the discharger to electronically submit self-monitoring reports. Until such notification is given, the Discharger shall submit discharge monitoring reports (DMRs) in accordance with the requirements described below.
2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharge shall submit the original DMR and one copy of the DMR to the address listed below:

State Water Resources Control Board  
Discharge Monitoring Report Processing Center  
Post Office Box 671  
Sacramento, CA 95812

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated or modified cannot be accepted.

### D. Other Reports

1. **Annual Reports.** By February 1<sup>st</sup> of each year, the Discharger shall submit an annual report to the Regional Water Board covering the previous calendar year. The report shall contain the items described in Standard Provisions and Reporting Requirements, and SMP Part A, August 1993 (Attachment I).

### E. Miscellaneous Reporting

1. The Discharger shall submit a clear and legible sketch showing the locations of all ponds, treatment facilities, and points of waste discharge. The map shall be updated by the Discharger as changes occur.

If the Discharger seeks credit for stormwater runoff/ballast water allocation (daily & monthly) for its discharge, it must use the method described in the attached Form A (Attachment H). To receive such credits, Form A must be submitted with the monthly self-monitoring report and the daily maximum allocation for each day outfall 001 is monitored must be computed.

Ballast water treated and discharged as part of outfall 001 shall be metered and the volume recorded in the attached Form A for each calendar year. The 30-day average shall be the sum of the daily values in a calendar month divided by the number of days in that month. Ballast-water allocations shall be calculated by multiplying the volume of ballast water, determined above by the appropriate volume of ballast water, determined above by the appropriate concentration listed under Effluent Limitation A.1b of this permit.

**Attachment F – Fact Sheet – Table of Contents**

Attachment F – Fact Sheet.....	F-3
I. Permit Information.....	F-3
II. Facility Description.....	F-4
A. Description of Wastewater and Biosolids Treatment or Controls.....	F-4
B. Discharge Points and Receiving Waters .....	F-8
C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data .....	F-9
D. Compliance Summary .....	F-14
E. Planned Changes .....	F-15
III. Applicable Plans, Policies, and Regulations.....	F-15
A. Legal Authorities.....	F-15
B. California Environmental Quality Act (CEQA).....	F-15
C. State and Federal Regulations, Policies, and Plans .....	F-16
D. Impaired Water Bodies on CWA 303(d) List .....	F-17
E. Other Plans, Polices and Regulations.....	F-18
IV. Rationale For Effluent Limitations and Discharge Specifications .....	F-18
A. Discharge Prohibitions .....	F-18
B. Technology-Based Effluent Limitations .....	F-19
1. Applicable Technology-Based Effluent Limitations .....	F-20
C. Water Quality-Based Effluent Limitations (WQBELs) .....	F-22
1. Scope and Authority .....	F-22
2. Applicable Beneficial Uses and Water Quality Criteria and Objectives .....	F-22
3. Determining the Need for WQBELs.....	F-25
4. WQBEL Calculations .....	F-32
5. Whole Effluent Toxicity (WET).....	G-43
D. Final Effluent Limitations .....	G-44
E. Interim Effluent Limitations.....	G-44
F. Land Discharge Specifications.....	G-44
G. Reclamation Specifications .....	G-44
V. Rationale for Receiving Water Limitations .....	G-44
A. Surface Water .....	G-44
B. Groundwater.....	G-45
VI. Rationale for Monitoring and Reporting Requirements .....	G-45
A. Influent Monitoring.....	G-45
B. Effluent Monitoring.....	G-45
C. Whole Effluent Toxicity Testing Requirements .....	G-45
D. Receiving Water Monitoring.....	G-45
1. Surface Water.....	G-45
2. Groundwater .....	G-46
E. Other Monitoring Requirements .....	G-46
VII. Rationale for Provisions.....	G-46
A. Standard Provisions .....	G-46
B. Special Provisions .....	G-46
1. Reopener Provisions .....	G-46
2. Permit Compliance and Rescission of Previous Waste Discharge Requirements.....	G-46
3. Effluent Characterization for Selected Constituents.....	G-46
4. Receiving Water Monitoring .....	G-46

5. Pollutant Prevention and Minimization Program .....	G-46
6. Mass and Concentration Credits .....	G-46
7. Storm Water Pollution Prevention Plan and Annual Report .....	G-48
8. Whole Effluent Acute Toxicity.....	F-46
9. Chronic Toxicity.....	F-46
10. Optional Mass Offset.....	F-46
11. Contingency Plan Update.....	F-46
12. Collection System Maintenance.....	F-46
13. Actions for Compliance Schedule Pollutants.....	F-47
14. Changes in Control or Ownership.....	F-47
VIII. Public Participation.....	G-49
A. Notification of Interested Parties.....	G-49
B. Written Comments .....	G-50
C. Public Hearing.....	G-50
D. Waste Discharge Requirements Petitions.....	G-50
E. Information and Copying .....	G-51
F. Register of Interested Persons .....	G-51
G. Additional Information.....	G-51

**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.

**I. PERMIT INFORMATION**

**Table 1F – Administrative Information for the Facility.**

<b>WDID</b>	<b>2 071044001</b>
<b>Discharger</b>	<b>Chevron U.S.A. INC., Richmond Refinery Chevron Chemical Company LLC, Richmond Plant, and General Chemical Corporation, Richmond Works</b>
<b>Name of Facility</b>	<b>Richmond Refinery</b>
<b>Facility Address</b>	<b>841 Chevron Way</b>
	<b>Richmond, CA 94801</b>
	<b>Contra Costa County</b>
<b>Facility Contact, Title and Phone</b>	<b>J.G. Whiteside, General Manager, (510) 242-4400</b>
<b>Authorized Person to Sign and Submit Reports</b>	<b>J.G. Whiteside</b>
<b>Mailing Address</b>	<b>Same</b>
<b>Billing Address</b>	<b>Same</b>
<b>Type of Facility</b>	<b>Refinery</b>
<b>Major or Minor Facility</b>	<b>Major</b>
<b>Threat to Water Quality</b>	<b>1</b>
<b>Complexity</b>	<b>1A</b>
<b>Pretreatment Program</b>	<b>No</b>
<b>Reclamation Requirements</b>	<b>N/A</b>
<b>Facility Permitted Flow</b>	<b>30.6 million gallons per day (E-001 - daily maximum from 2001 to 2005)</b>
<b>Facility Design Flow</b>	<b>7.6 million gallons per day (E-001 - 2005 annual average)</b>
<b>Watershed</b>	<b>San Francisco Bay</b>
<b>Receiving Water</b>	<b>San Pablo Bay</b>
<b>Receiving Water Type</b>	<b>Estuarine</b>

A. Chevron U.S.A., Inc. (hereinafter Discharger) is the owner and operator of the Richmond Refinery (hereinafter Facility). The refinery manufactures a broad range of petroleum products and some petrochemicals. The refinery is classified as an “integrated refinery” as defined by the U.S. Environmental Protection Agency (U.S. EPA) in 40 CFR § 419.50. Therefore, the U.S. EPA Effluent Guidelines and Standards for Petroleum Refining Point Sources (40 CFR § 419 Subpart E) based on Best Available Technology Economically Achievable (BAT), Best Practicable Control Technology (BPT), and/or Best Conventional Pollutant Control technology (BCT), whichever are more stringent, are applicable to Chevron’s discharge

Chevron discharges: treated process wastewater; treated process wastewater containing stormwater; stormwater; and stormwater commingled with steam condensate, firewater, and/or

groundwater (and other minor wastewater streams identified in the permit application) to locations in San Francisco and/or San Pablo Bay.

Chevron Chemical Company LLC operates two facilities in Richmond: the Hensley Street facility and the Castro Street facility. The Chevron Chemical Company LLC Richmond facilities were formerly used in the manufacture and/or formulation of fertilizers and pesticides, and fuel additives. The Hensley Street facility contains a fuel additives blending and terminal operation. Other Hensley Street site activities include operation of the Chevron U.S.A. Inc. Environmental Lab, Chevron U.S.A. Inc. Richmond Refinery training facilities and various warehouses. At the Castro Street facility, Chevron Chemical Company LLC operates a series of surface impoundments and capped waste management units. The area was formerly used to manufacture fertilizers. Both Chevron Chemical Company LLC facilities discharge wastewater (predominantly stormwater) to the City of Richmond systems.

General Chemical Corporation, Richmond Works, manufactures sulfuric acid and oleum, using spent alkylation acid and elemental sulfur as part of its raw materials. General Chemical Corporation discharges its wastewater to the Chevron Richmond Refinery wastewater system for treatment.

Chevron U.S.A. Inc., Chevron Chemical Company LLC, and General Chemical Corporation are hereinafter collectively referred to as the Discharger.

- B. The Facility discharges wastewater to San Pablo Bay, a water of the United States and is currently regulated by Order No. 01-067, which was adopted on June 20, 2001, and expired on May 31, 2006. Pursuant to the correspondence received from the Regional Water Board on March 29, 2006, the terms and conditions of the existing Order were automatically continued in effect after the permit expiration date, and until a new permit is issued.
- C. The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on November 30, 2005. Supplemental Information was requested on December 29, 2005, and received on March 20, 2006, and March 29, 2006.

## II. FACILITY DESCRIPTION

### A. Description of Wastewater Treatment or Controls

- 1. **Wastewater Sources and Conveyance.** The Chevron Richmond Refinery wastewater treatment system consists of an extensive network of drains, trunklines, separators, and treatment areas servicing numerous plant areas throughout the refinery. Process water 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. The average dry season flow is about 6.8 mgd, with wet season flows in excess of 20 mgd with the introduction of processed stormwater.

**2. Wastewater Treatment Units.** Process water is initially treated in one of three API separators (each servicing a distinct area of the refinery). 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 Richmond Refinery Enhancement Wetland, which is maintained 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 (normal operation) or parallel (high flow conditions). The GAC facility serves to remove aquatic toxicity from treated wastewater, as well as to provide additional removal of 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 to the north of Point San Pablo. The Discharger has the option to discharge a portion of wetland effluent directly to outfall 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.

### **3. Description of Stormwater Outfalls**

- a. Discharge Point E-002 (Richmond Long Wharf).** This discharge consists of biologically-treated wastewater drawn from the wastewater treatment system (refer to description of Waste 001). Richmond Long Wharf discharges may also consist of bay water. These routine discharges occur during tests of (or maintenance on) the fire protection system.
- b. Discharge Point E-003 (North Yard Impoundment Basin).** This discharge consists of stormwater commingled with steam condensate, groundwater seepage, and water from fire protection systems. North Yard Impound Basin is a containment basin formerly used in wastewater treatment. Runoff originates from an area of approximately 341 acres from areas within the: Poleyard and Alkane Tankfields and adjacent hill sides; LPG and Ammonia Storage Facilities; Cracking and Hydroprocessing facilities; Petrochemical facilities; FCC, RLOP, Isomax, MTBE/TAME cooling water towers; Hydrogen Plant; former Alkane and HF Plant areas; Sulfur Recovery Unit and sulfur sales facilities; and Hydropits Cap. The North Yard Impound Basin discharges may contain Waste 008 and discharges to Castro Creek. Castro Creek flows into San Pablo Bay.
- c. Discharge Point E-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 E-006 as part of Waste 006.
- d. Discharge Point E-005 (11-Basin).** This discharge consists of stormwater runoff from an area of approximately 4 acres located in a former Point Orient Tankfield area. Waste 005 discharges into San Francisco Bay at outfall location E-005.

- e. **Discharge Point E-006 (10-Basin).** This discharge consists of stormwater runoff from an area of approximately 48 acres located in a former Point Orient Tankfield area. Waste 006 may also contain stormwater runoff from the 12-Basin area, an area of approximately 3 acres. In addition, it may contain stormwater runoff from the Horse Pasture area (refer to Waste 007), an area of approximately 17 acres. Waste 006 discharges into San Francisco Bay at outfall location E-006.
- f. **Discharge Point E-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. Waste 007 discharges into San Francisco Bay at outfall location E-007.
- g. **Discharge Point E-008 (Tank Field).** This discharge consists of stormwater runoff commingled with steam condensate, groundwater seepage, and water from the fire protection systems. 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, Asphalt Plant, and Cogeneration Facility. Waste 008 discharges into San Pablo Bay at outfall location E-008, or is transferred to the North Yard Impound Basin for discharge as part of the North Yard Impound Basin discharge (E-003).
- h. **Discharge Point E-009 (8-Basin).** This discharge consists of stormwater runoff commingled with steam condensate and water from the fire protection systems. Runoff originates from an area of approximately 26 acres within the Quarry Tankfield. Waste 009 discharges into San Francisco Bay at outfall location E-009.
- i. **Discharge Point E-010 (Reclamation Area).** This discharge consists of stormwater runoff from an area of approximately 6 acres which is a portion of the Reclamation Yard area. Waste 010 discharges into Wildcat Creek via the Gertrude Street Ditch, which then drains to Castro Creek and San Pablo Bay. The discharge of Waste 010 is monitored at outfall E-010.
- j. **Discharge Point E-011 (Chevron Chemical Company Plant Runoff).** This discharge consists of stormwater runoff commingled with groundwater (both seepage and extracted from various subsurface hydraulic containment systems), steam condensate, and potable water used in the facility's fire protection systems and facility washdown. Runoff originates from an area of approximately 28.4 acres from areas within the Chevron Chemical Company LLC Hensley Street facility. Waste 011 is collected in the Castro Acres surge pond (located along the east side of Castro Street) prior to being pumped into sections of Chevron Chemical Company LLC's Integrated Wastewater Pond System (IWPS) or it can be pumped directly to the IWPS, located at the Castro Street facility.

Waste 011, which is collected in the Castro Acres surge pond, is not permitted to discharge to surface waters under typical rainfall conditions as it may contain trace contaminants. Typically, Waste 011 is discharged to the IWPS, which provides necessary surge capacity before discharge to the City of Richmond sanitary sewer system (POTW). However, during periods of high intensity rainfall (in excess of a 25-year, 24-hour rainfall event), Waste 011 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 Outfall E-011.

- k. Discharge Point E-012 (Fertilizer Evaporation Pond).** This discharge used to consist of stormwater runoff commingled with groundwater (both seepage and extracted from various subsurface hydraulic containment systems), steam condensate, and potable water used in the facility's fire protection systems and for facility washdown. Runoff originated from an area of approximately 19 acres within the Chevron Chemical Company LLC's Castro Street facility which was formerly used to manufacture fertilizer. Waste 012 used to collect in evaporation ponds located along the west side of Castro Street.

In July 2002, the Discharger filled this evaporation pond. Runoff from this area is now routed to the City of Richmond's Wastewater Treatment Plant.

- i. Discharge Point E-013 (Integrated Wastewater Pond System ).** This discharge consists of stormwater runoff from direct rainfall onto sections of Chevron Chemical Company LLC's Integrated Wastewater Pond System (IWPS), an area of approximately 81 acres of synthetically lined surface impoundments. This accumulated rainfall is designated Waste 013. Depending on annual precipitation, various sections of the IWPS receive Waste 011 and may receive Waste 012. When this occurs, these sections are no longer considered as solely containing Waste 013 and accumulated water is discharged to the City of Richmond's POTW. Waste 013 also contains rainfall runoff from an adjacent 4 acre capped Class II waste management unit (Soil Management Unit No.1). Waste 013 may be discharged into Castro Creek, at a point approximately 1000 feet upstream of its confluence with Wildcat Creek at an outfall identified as E-013.
- m. Discharge Point E-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. Castro Creek flows into San Pablo Bay.
- n. Discharge Point E-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. 1-Basin discharges to San Pablo Bay via the City of Richmond's stormwater management system. This system routes stormwater from storm sewers to the Castro Street Pump Station. The Pump Station pumps water to Chevron's 38-Foot Channel which discharges into Castro Creek. The Discharger's Report of Waste Discharge shows the location where the 1-Basin discharges into the stormwater management system.
- o. Discharge Point E-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. 2-Basin discharges to San Pablo Bay via the City of Richmond's stormwater management system. This system routes water from storm-sewers to the Castro Street Pump Station. The Pump Station pumps water to Chevron's 38-Foot Channel which discharges into Castro Creek. The Discharger's Report of Waste Discharge shows the location where the 2-Basin discharges into the stormwater management system.

- p. **Discharge Point E-017 (3-Basin).** This discharge (including 3A Basin discharge) consists of stormwater runoff from an area of approximately 7 acres in a former tankfield area of the Office Hill Tankfield. 3-Basin discharges into San Francisco Bay.
- q. **Discharge Point E-018 (9-Basin).** This discharge consists of stormwater runoff commingled with steam condensate and water from the fire protection systems. Runoff originates from an area of approximately 29 acres in the Quarry Tankfield. 9-Basin discharges to San Francisco Bay.
- r. **Discharge Point E-019 (7-Basin).** This discharge consists of stormwater runoff commingled with steam condensate and water from the fire protection systems. Runoff originates from an area of approximately 20 acres in the SP Hill Tankfield. 7-Basin discharges into San Francisco Bay.
- s. **Discharge Point E-020 (Castro Street).** This discharge consists of stormwater runoff from the City of Richmond's stormwater management system. This system drains an area of approximately 260 acres, and routes water from City of Richmond storm sewers to the Castro Street Pump Station. The Pump Station pumps water to Chevron's 38-Foot Channel, which discharges into Castro Creek which flows to San Pablo Bay. Castro Street discharges may also contain 1-Basin and 2-Basin discharges.
- t. **Discharge Point E-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, which flows to San Pablo Bay.
- u. **Discharge Point E-022 (Parr-Richmond).** This discharge consists of stormwater runoff from a capped waste management unit area of approximately 7 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, which flows to San Pablo Bay.
- v. **Discharge Point E-023 (Gertrude Street).** This discharge consists of biologically-treated wastewater drawn from the wastewater treatment system (refer to description of Waste 001). Richmond Long Wharf discharges may also consist of bay water. These routine discharges occur during tests of (or maintenance on) the fire protection system.

**B. Discharge Points and Receiving Waters**

The location of the deepwater diffuser (E-001), and stormwater outfalls are shown in the table below:

**Table 2F: Outfall Locations**

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Treated wastewater	37 °, 58', 15" N	122 °, 25', 45" W	San Pablo Bay
002	Firewater Testing	37 °, 55', 15" N	122 °, 24', 30" W	San Francisco Bay
003	Stormwater	37 °, 57', 15" N	122 °, 23', 30" W	San Pablo Bay

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
004	Stormwater	37 °, 57', 15" N	122 °, 24', 45" W	San Francisco Bay
005	Stormwater	37 °, 57', 30" N	122 °, 25', 30" W	San Francisco Bay
006	Stormwater	37 °, 57', 15" N	122 °, 25', 15" W	San Francisco Bay
007	Stormwater	37 °, 57', 15" N	122 °, 25', 15" W	San Francisco Bay
008	Stormwater	37 °, 57', 15" N	122 °, 23', 30" W	San Pablo Bay
009	Stormwater	37 °, 56', 00" N	122 °, 24', 15" W	San Francisco Bay
010	Stormwater	37 °, 57', 15" N	122 °, 22', 45" W	Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay
011	Stormwater	37 °, 56', 45" N	122 °, 22', 30" W	Castro Creek to San Pablo Bay
012	Stormwater	37 °, 56', 45" N	122 °, 22', 30" W	Does not discharge
013	Stormwater	37 °, 57', 00" N	122 °, 22', 45" W	Castro Creek to San Pablo Bay
014	Stormwater	37 °, 57', 00" N	122 °, 22', 45" W	Castro Creek to San Pablo Bay
015	Stormwater	37 °, 55', 60" N	122 °, 23', 30" W	San Francisco Bay
016	Stormwater	37 °, 55', 60" N	122 °, 23', 30" W	San Francisco Bay
017	Stormwater	37 °, 55', 45" N	122 °, 24', 30" W	San Francisco Bay
018	Stormwater	37 °, 55', 45" N	122 °, 24', 00" W	San Francisco Bay
019	Stormwater	37 °, 57', 30" N	122 °, 25', 30" W	San Francisco Bay
020	Stormwater	37 °, 57', 15" N	122 °, 23', 15" W	Castro Street to San Pablo Bay
021	Stormwater	37 °, 56', 45" N	122 °, 22', 30" W	Castro Street to San Pablo Bay
022	Stormwater	37 °, 57', 15" N	122 °, 22', 45" W	Gertrude Street Ditch to Wildcat Creek to Castro Creek to San Pablo Bay
023	Stormwater	37 °, 57', 15" N	122 °, 22', 45" W	

**C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data**

Effluent limitations contained in the previous permit (Order No. 01-067) for discharges from Chevron's wastewater treatment system (Monitoring Location E-001), and representative monitoring data from the term of the previous Order are as follows:

**1. Effluent Limitations and Monitoring Data for Treated Wastewater (E-001)**

The following two tables documents the quality of conventional and toxics pollutants relative to the effluent limitations contained in Order No. 01-067.

**a. Table 3F - Historic Conventional Substances Effluent Limitations and Monitoring Data**

Parameter (units)	Effluent Limitation			Monitoring Data (From 2003 to 2005)		
	Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
BOD <sub>5</sub> (lbs/day)	5507		10366	1120		1120
TSS (lbs/day)	4535		7127	1497		1497
TOC (lbs/day)	12094		22783	2618		2618
Oil & Grease (lbs/day)	1728		3239	445		445
Oil & Grease (mg/L)	8		15	8.56		8.56
Phenolic Compounds (lbs/day)	20.66		76	0.68		0.68
Ammonia as N (lbs/day)	2052		4481	342.5		342.5
Sulfide (lbs/day)	30		67	9.9		12.6
Settleable Solids (ml/l-hr)	0.1		0.2	0.1		0.1
Total Chromium (lbs/day)	24		69.08	0.90		0.90
Hexavalent Chromium (lbs/day)	1.98		4.42	0.08		0.08

**b. Table 4F - Historic Toxic Substances Effluent Limitations and Monitoring Data**

Parameter (µg/L)	Effluent Limitation			Monitoring Data (From 2003 to 2005)		
	Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Cadmium	11.02		22.11			0.2
Copper	10.96		27.06			6.73
Lead	33.30		66.80			2.68
Zinc	204.08		995.43			50.41
Benzo(a)anthracene	0.480		0.962			<0.1
Benzo(k)fluoranthene	0.474		0.950			<0.3
Benzo(a)pyrene	0.489		0.981			<0.3
Chrysene	0.4816		0.9662			<0.3
Dibenzo(a,h)anthracene	0.4875		0.9780			<0.1
G-BHC	0.62		1.260			<0.01
Heptachlor	0.002		0.0042			<0.01
Hexachlorobenzene	0.007		0.0153			<0.1
Heptachlor Epoxide	0.0007		0.00161			0.1
Indeno(1,2,3-cd)pyrene	0.4766		0.9561			<0.05

Parameter (µg/L)	Effluent Limitation			Monitoring Data (From 2003 to 2005)		
	Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
PCB-1016	0.00017		0.00034			<0.01
PCB-1221	0.00017		0.00034			<0.01
PCB-1232	0.00017		0.00034			<0.01
PCB-1242	0.00017		0.00034			<0.01
PCB-1248	0.00017		0.00034			<0.01
PCB-1254	0.00017		0.00034			<0.01
PCB-1260	0.00017		0.00034			<0.01
Toxaphene	0.00059		0.00118			<0.05
Mercury	0.075					0.11
Nickel			65			37.8
Selenium			50			22.1
Cyanide			25			4.8
Aldrin			0.001			<0.005
A-BHC			0.13			<0.01
Chlordane			0.0008			<0.02
4,4 DDT			0.0059			<0.01
4,4 DDE			0.0059			<0.01
4,4 DDD			0.0059			<0.01
Dieldrin			0.001			<0.01
Alpha-endosulfan			0.087			<0.01
Beta-endosulfan			0.087			<0.01
Endrin			0.02			<0.01
TCDD Equivalents (pg/L)			0.1			Nondetect

**2. Historic Stormwater Data from Outfalls E-002 to E-023**

The following tables include the quality of stormwater runoff from November 2002 through June 2005. During this period, Chevron did not discharge to San Pablo or San Francisco Bay from several discharge points, and therefore, summary data is not available for these outfalls.

**a. Discharge Point E-002, Richmond Long Wharf**

**Table 5F – E-002 Monitoring Data**

Parameter	Average	Daily Maximum <sup>1</sup>
pH, standard units	7.24 (minimum)	8.65
Conductivity (µmhos/cm)	4565	32200
Total Suspended Solids (mg/L)	22	68
Total Organic Carbon (mg/L)	16	27
Oil and Grease (mg/L)	<3.0 (median)	31.8

<sup>1</sup> These results are based on 33 samples that Chevron collected from 2003 through 2005. As this is a controlled discharge, Chevron evaluates samples for compliance with stormwater limitations prior to discharging. The daily maximum values shown for oil and grease and pH did not violate

the limitations of Order No. 01-067 because Chevron did not discharge this water to San Francisco Bay.

**b. Discharge Point E-003, North Yard Impoundment Basin**

**Table 6F – E-003 Monitoring Data**

<u>Parameter</u>	<u>Average</u>	<u>Daily Maximum</u> <sup>1</sup>
pH, standard units	7.2 (minimum)	7.2
Conductivity (µmhos/cm)	651	651
Total Suspended Solids (mg/L)	102	102
Total Organic Carbon (mg/L)	8.4	8.4
Oil and Grease (mg/L)	<3.0	<3.0

<sup>1</sup> These results are based on one sample that Chevron collected in December 2004.

**c-f. Discharge Points E-004-E-007 (10-13-Basins)** – These basins are located on the westside of the San Pablo Peninsula ridge. In this area, Chevron indicates that all tanks associated with operations were dismantled, and that all operations ceased by 1996. Order No. 01-067 required that Chevron collect two sample s during the first wet season, and since these samples showed compliance with effluent limitations, no further samples were required. As such, this Order no longer includes stormwater monitoring requirements for these basins.

**g. Discharge Point E-008, Tank Field – No Discharge**

**h. Discharge Point E-009, 8 Basin**

**Table 7F – E-009 Monitoring Data**

<u>Parameter</u>	<u>Average</u>	<u>Daily Maximum</u> <sup>1</sup>
pH, standard units	8.1 (minimum)	8.1
Conductivity (µmhos/cm)	705	705
Total Suspended Solids (mg/L)	<9.0	<9.0
Total Organic Carbon (mg/L)	5.6	5.6
Oil and Grease (mg/L)	<3.0	<3.0

<sup>1</sup> These results are based on one sample that Chevron collected in March2004.

**i. Discharge Point E-010, Reclamation Area**

**Table 8F – E-010 Monitoring Data**

<u>Parameter</u>	<u>Average</u>	<u>Daily Maximum</u> <sup>1</sup>
pH, standard units	7.7 (minimum)	8.5
Conductivity (µmhos/cm)	593	4290
Total Suspended Solids (mg/L)	74	216
Total Organic Carbon (mg/L)	5.8	12.6
Oil and Grease (mg/L)	<3.0 (median)	4.2

<sup>1</sup> These results are based on 11 samples that Chevron collected from December 2002 through April 2005.

**j. Discharge Point E-011, Chevron Chemical Company Plant Runoff – No Discharge**

**k. Discharge Point E-012, Fertilizer Evaporation Pond – No Discharge**

**l. Discharge Point E-013, Integrated Wastewater Pond System – No Discharge**

**m. Discharge Point E-014, Consolidation Area**

**Table 9F – E-014 Monitoring Data**

<u>Parameter</u>	<u>Average</u>	<u>Daily Maximum</u> <sup>1</sup>
pH, standard units	6.75 (minimum)	8.35
Conductivity (µmhos/cm)	580	1030
Total Suspended Solids (mg/L)	12.8	41.3
Total Organic Carbon (mg/L)	18.9	59.9
Oil and Grease (mg/L)	<3.0 (median)	7.7

<sup>1</sup> These results are based on 18 samples that Chevron collected from December 2002 through June 2005.

**n. Discharge Point E-015, 1-Basin – No Discharge**

**o. Discharge Point E-016, 2-Basin – No Discharge**

**p. Discharge Point E-017, 3-Basin**

**Table 10F – E-017 Monitoring Data**

<u>Parameter</u>	<u>Average</u>	<u>Daily Maximum</u> <sup>1</sup>
pH, standard units	7.0 (minimum)	7.7
Conductivity (µmhos/cm)	196	236
Total Suspended Solids (mg/L)	12.3	23.5
Total Organic Carbon (mg/L)	15.5	23.1
Oil and Grease (mg/L)	<3.0 (median)	4.01

<sup>1</sup> These results are based on 4 samples that Chevron collected from December 2002 through April 2005.

**q. Discharge Point E-018, 9-Basin**

**Table 11F – E-018 Monitoring Data**

<u>Parameter</u>	<u>Average</u>	<u>Daily Maximum</u> <sup>1</sup>
pH, standard units	8.01 (minimum)	8.42
Conductivity (µmhos/cm)	555	580
Total Suspended Solids (mg/L)	2.8 to <9.0	2.8
Total Organic Carbon (mg/L)	7.4	8.2
Oil and Grease (mg/L)	<3.0	<3.0

<sup>1</sup> These results are based on 2 samples that Chevron collected in March 2004.

**r. Discharge Point E-019, 7-Basin – No discharge**

**s. Discharge Point E-020, Castro Street**

**Table 12F – E-020 Monitoring Data**

<u>Parameter</u>	<u>Average</u>	<u>Daily Maximum</u> <sup>1</sup>
pH, standard units	7.3 (minimum)	8.5
Conductivity (µmhos/cm)	2830	9830
Total Suspended Solids (mg/L)	32	112
Total Organic Carbon (mg/L)	8.7	17.3
Oil and Grease (mg/L)	<3.0 (median)	9.98

<sup>1</sup> These results are based on 16 samples that Chevron collected from November 2002 through April 2005.

**t. Discharge Point E-021, Landfill 15**

**Table 13F – E-021 Monitoring Data**

<u>Parameter</u>	<u>Average</u>	<u>Daily Maximum</u> <sup>1</sup>
pH, standard units	7.55 (minimum)	8.1
Conductivity (µmhos/cm)	293	719
Total Suspended Solids (mg/L)	11.3	43.5
Total Organic Carbon (mg/L)	9.8	48.7
Oil and Grease (mg/L)	<3.0 (median)	3.94

<sup>1</sup> These results are based on 16 samples that Chevron collected from November 2002 through April 2005.

**u. Discharge Point E-022, Parr-Richmond**

**Table 14F – E-022 Monitoring Data**

<u>Parameter</u>	<u>Average</u>	<u>Daily Maximum</u> <sup>1</sup>
pH, standard units	7.6 (minimum)	9.1
Conductivity (µmhos/cm)	55	83
Total Suspended Solids (mg/L)	6.5	26
Total Organic Carbon (mg/L)	<1.7 (median)	6.0
Oil and Grease (mg/L)	<3.0 (median)	7.57

<sup>1</sup> These results are based on 12 samples that Chevron collected from December 2002 through March 2005.

**v. Discharge Point E-023, Gertrude Street**

**Table 15F – E-023 Monitoring Data**

<u>Parameter</u>	<u>Average</u>	<u>Daily Maximum</u> <sup>1</sup>
pH, standard units	7.3 (minimum)	8.12
Conductivity (µmhos/cm)	183	535
Total Suspended Solids (mg/L)	14.3	61
Total Organic Carbon (mg/L)	7.3	36.9
Oil and Grease (mg/L)	<3.0 (median)	5.98

<sup>1</sup> These results are based on 14 samples that Chevron collected from November 2002 through April 2005.

**D. Compliance Summary**

During the last permit cycle, Chevron violated its permit on several occasions. Pursuant to California Water Code Section 13385, the Water Board, at its February 8, 2006, Board hearing, assessed a penalty of \$12,000 for the violations shown below:

**Table 16F – Compliance Summary**

Item	Date of Violation	Effluent Limitation Described	Effluent Limit	Reported Value
1	12/31/01	E-001 except where noted Mercury, monthly average (µg/L)	0.075	0.094
2	12/14/02	Oil & Grease, daily maximum (mg/L)	15	25.7
3	12/14/02	Oil & Grease, daily loading (lbs/day)	6,474	6,569
4	12/31/02	Mercury, monthly average (µg/L)	0.075	0.106
5	6/30/03	Oil & Grease, monthly average (mg/L)	8.0	8.56
6	12/1/03	pH (Parr-Richmond Site), daily maximum	8.5	8.58
7	5/5/04	Heptachlor Epoxide, daily maximum (µg/L)	0.00161	0.1
8	3/22/05	pH (Parr-Richmond Site), daily maximum	8.5	9.1

<sup>1</sup> Violations one through five and seven are for discharges of treated wastewater to San Pablo Bay, while violations 6 and 8 relate to stormwater discharges from discharge point 022.

**E. Planned Changes** – The Discharger in its Report of Waste Discharge identified a potential expansion to reclaimed/recycled water use, including development of a high-purity boiler feed water project using EBMUD produced recycled water. This may involve using a 3.5-4.0 mgd reverse osmosis (RO) treatment facility to be constructed on-site to provide supplemental boiler feed water. The RO facility reject water (concentrate) would be discharged to Chevron's wastewater system upstream of the E-001 compliance monitoring point. The source of RO feedwater would initially be West County Wastewater District (WCWD) secondary effluent that complies with all West County Agency NPDES permit requirements. In the future, additional/alternate sources may be used to supplement the RO feed water supply. RO permeate (boiler feed water) production and RO reject disposal would be conducted pursuant to conditions contained in a Water Supply Agreement between EBMUD and Chevron that ensures compliance with all Discharger effluent limits.

### III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

#### A. Legal Authorities

This Order is issued pursuant to section 402 of the Federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and Chapter 5.5, Division 7 of the California Water Code (CWC). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC for discharges that are not subject to regulation under CWA section 402.

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

This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with Section 13389 of the CWC.

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

- 1. Water Quality Control Plans.** The Regional Water Board adopted a Water Quality Control Plan for the San Francisco Bay Region (Revised in 2005) (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Beneficial uses applicable to San Pablo Bay and San Francisco Bay are as follows:

**Table 17F – Beneficial Uses of Receiving Waters**

Discharge Points	Receiving Water Name	Beneficial Use(s)
001, 003, 008, 010-014, and 020-023	San Pablo Bay	Industrial Service Supply (IND), Navigation (NAV), Water Contact Recreation (REC1), Non-contact Water Recreation (REC2), Ocean Commercial and Sport Fishing (COMM), Wildlife Habitat (WILD), Preservation of Rare and Endangered Species (RARE), Fish Migration (MIGR), Shellfish Harvesting (SHELL), Fish Spawning (SPWN), and Estuarine Habitat (EST)
002, 004-007, 009, and 015-019	San Francisco Bay	Industrial Service Supply (IND), Industrial Process Supply (PRO), Navigation (NAV), Water Contact Recreation (REC1), Non-contact Water Recreation (REC2), Ocean Commercial and Sport Fishing (COMM), Wildlife Habitat (WILD), Preservation of Rare and Endangered Species (RARE), Fish Migration (MIGR), Shellfish Harvesting (SHELL), Fish Spawning (SPWN), and Estuarine Habitat (EST)

- 2. Thermal Plan.** The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for inland surface waters.
- 3. 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, and the CTR on May 18, 2000, which was amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.
- 4. State Implementation Policy.** On March 2, 2000, 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 promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000. The SIP became effective on May 18, 2000. The SIP includes procedures for determining the need for and calculating water quality-based effluent limitations (WQBELs), and requires Dischargers to submit data sufficient to do so.
- 5. Antidegradation Policy.** Section 131.12 of 40 CFR requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State

Water Board established California's antidegradation policy in State Water Board Resolution 68-16, which incorporates the requirements of the federal antidegradation policy. Resolution 68-16 requires that existing water quality is maintained unless degradation is justified based on specific findings. As discussed in detail in this Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR §131.12 and State Water Board Resolution 68-16.

6. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and 40 CFR §122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. In this Order, all effluent limitations are at least as stringent as those in the previous Order.
7. **Monitoring and Reporting Requirements.** Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and State requirements. This MRP is provided in Attachment E.

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

On June 6, 2003, 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 Section 303(d) of the Federal CWA requiring 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 is listed as an impaired waterbody. The pollutants impairing San Pablo Bay include chlordane, DDT, diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, nickel, PCBs, dioxin-like PCBs, and selenium. The SIP requires final effluent limitations for all 303(d)-listed pollutants to be based on total maximum daily loads and associated waste load allocations.

##### **1. Total Maximum Daily Loads**

The Regional Water Board plans to adopt Total Maximum Daily Loads (TMDLs) for pollutants on the 303(d) list in San Pablo Bay in the next ten years. Future review of the 303(d)-list for San Pablo Bay may result in revision of the schedules or provide schedules for other pollutants.

##### **2. Waste Load Allocations**

The TMDLs will establish waste load allocations (WLAs) for point sources and load allocations (LAs) for non-point sources, and will result in achieving the water quality standards for the waterbodies. Final WQBELs for 303(d)-listed pollutants in this discharge will be based on WLAs contained in the respective TMDLs.

##### **3. Implementation Strategy**

The Regional Water Board's strategy to collect water quality data and to develop TMDLs is summarized below:

- a. **Data Collection.** The Regional Water Board has given the dischargers the option to collectively assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or WQOs/WQC. This collective effort may include development of sample concentration techniques for approval by the USEPA. The Regional Water Board will require dischargers to characterize the pollutant loads from their facilities into the water-quality limited waterbodies. The results will be used in the development of TMDLs, and may be used to update or revise the 303(d) list or change the WQOs/WQC for the impaired waterbodies including San Pablo Bay.
- b. **Funding Mechanism.** The Regional Water Board has received, and anticipates continuing to receive, resources from Federal and State agencies for TMDL development. To ensure timely development of TMDLs, the Regional Water Board intends to supplement these resources by allocating development costs among dischargers through the RMP or other appropriate funding mechanisms.

**E. Other Plans, Polices and Regulations – N/A**

**IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS**

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the 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: 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 numeric water quality objectives have not been established, three options exist to protect water quality: 1) 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a); 2) proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information may be used; or 3) an indicator parameter may be established.

**A. Discharge Prohibitions**

1. **Prohibition III.A (No discharge other than that described in this Order).** This prohibition is the same as in the previous permit and is based on California Water Code (CWC) Section 13260 that requires filing of a ROWD before a permit to discharge can be granted. The Discharger submitted a ROWD, dated November 30, 2005, for permission to discharge as specified in this permit, thus any discharges other than as described in this Order are prohibited.
2. **Prohibition III.B (10:1 Dilution).** This prohibition is based on the Basin Plan. The Basin Plan prohibits discharges of wastewater not receiving a minimum dilution of 10:1 (Chapter 4, Discharge Prohibition No. 1).

3. **Prohibition III.C (no bypass or overflow).** This prohibition is based on the previous Order and BPJ.
4. **Prohibition III.D (no discharge unless rainfall yields a 24-hour, 25-year storm).** This prohibition is based on the previous Order and BPJ.
5. **Prohibition III.E (no discharge without Executive Officer approval).** This prohibition is based on the previous Order and BPJ. It is necessary to ensure that only noncontaminated stormwater is discharged from this basin in the case of an extreme storm event.
6. **Prohibition III.F (no discharge of wetland effluent directly to outfall 001).** This prohibition is based on the previous Order.
7. **Prohibition III.G (no discharge of non-segregated ballast water directly to Waters of the State).** This prohibition is based on the previous Order, and would also violate Prohibition III.B, which requires that waste receive an initial dilution of at least 10:1.

## **B. Technology-Based Effluent Limitations**

**1. Effluent Limitations A.1a:** The refinery is classified as an “integrated refinery” as defined by the USEPA in 40 CFR § 419.50. Therefore, the USEPA Effluent Guidelines and Standards for Petroleum Refining Point Sources (40 CFR § 419 Subpart E) based on Best Available Technology Economically Achievable (BAT), Best Practicable Control Technology (BPT), and/or Best Conventional Pollutant Control technology (BCT), whichever are more stringent, are applicable to the Discharger.

This section contains production-based mass emission limits for the following constituents: Biochemical oxygen demand (BOD), total suspended solids (TSS), total organic carbon (TOC), oil & grease, phenolic compounds, ammonia (expressed as nitrogen), sulfide, and total and hexavalent chromium based on 40 CFR § 419 Subpart E. The application of these guidelines and standards is based on production rates at the refinery. In calculating currently applicable effluent limitations, Board staff has used the maximum 12-month average of facility production (June 2004 through May 2005) for 2002-2005. A detailed description of the methodology and data used to calculate the technology-based effluent limitations is included in Attachment 1.

This effluent limit for pH is a standard secondary treatment requirement and is unchanged from the existing permit. The limit is based on the Basin Plan (Chapter 4, Table 4-2), which is derived from federal requirements (40 CFR 133.102). This is an existing permit effluent limitation and compliance has been demonstrated by existing plant performance.

The limits for settleable solids are based on existing limits and the Basin Plan, and the concentration limits for oil and grease are based on existing limits and BPJ. The facility’s ability to comply with all of these limits has been demonstrated by existing plant performance

**2. Effluent Limitations A.1b:** Concentration limits for pollutants contained in storm water and ballast water are based on existing limits, which were developed from the requirements in 40 CFR Part 419.52(e)(2), 419.53(f)(2), and 419.52(c). The Order retains the requirement that the Discharger record storm water and ballast flow on a daily basis and report daily maximum and

monthly average flows. These flows are then used along with the above concentration limits to calculate the mass allowances that are added to the mass limits included in A.1a.

**Table 18F - Summary of Technology-based Effluent Limitations  
 Discharge Point E-001**

Parameter	Units	Effluent Limitations		
		Average Monthly	Maximum Daily	Instantaneous Minimum Instantaneous Maximum
Five-day Biochemical Oxygen Demand	lbs/day	5100	9600	
Total Suspended Solids	lbs/day	4200	6600	
Total Organic Carbon	lbs/day	11000	21000	
Oil & Grease	lbs/day	1600	3000	
	mg/L	8	15	
Phenolic Compounds	lbs/day	22	70	
Ammonia as N	lbs/day	1900	4200	
Sulfide	lbs/day	28	62	
Total Chromium	lbs/day	25	72	
Hexavalent Chromium	lbs/day	2.1	4.6	
Settleable Solids	mL/ L-hr	0.1	0.2	
pH <sup>1</sup>	standard units			6.0 9.0

<sup>1</sup> If the Discharger employs continuous pH monitoring, 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 the 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.

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

### 1. Scope and Authority

a. As specified in 40 CFR §122.44(d)(1)(i), permits are required 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 calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other State plans and policies, or water quality criteria contained in the CTR and NTR.

b. NPDES regulations and the SIP provide the basis to establish Maximum Daily Effluent Limitations (MDELs), and Average Monthly Effluent Limitations (AMELs).

1) **NPDES Regulations.** NPDES regulations at 40 CFR Part 122.45(d) state:  
“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.”

2) **SIP.** The SIP (page 8, section 1.4) requires WQBELs be expressed as MDELs and AMELs.

c. MDELs are used in this Order to protect against acute water quality effects. The MDELs are necessary for preventing fish kills or mortality to aquatic organisms.

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

The WQC and WQOs applicable to the receiving waters for this discharge are from the Basin Plan, the USEPA’s May 18, 2000 Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (the California Toxics Rule, or the CTR), and the USEPA’s National Toxics Rule (the NTR).

a. **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, chromium (VI), copper in freshwater, lead, mercury, nickel, silver, zinc, and cyanide (see also c., below). The narrative toxicity objective 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 designed to implement these objectives, based on available information.

**b. 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 inland surface waters and enclosed bays and estuaries such as here, except that where the Basin Plan's Tables 3-3 and 3-4 specify numeric objectives for certain of these priority toxic pollutants, the Basin Plan's numeric objectives apply over the CTR (except in the South Bay south of the Dumbarton Bridge).

**c. NTR.** The NTR established numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to, and including, Suisun Bay and the Delta. This includes the receiving water for this Discharger.

**d. Technical Support Document for Water Quality-Based Toxics Controls.** Where numeric objectives have not been established or updated in the Basin Plan, 40 CFR Part 122.44(d) specifies that WQBELs may be set based on USEPA criteria, supplemented where necessary by other relevant information, to attain and maintain narrative WQOs to fully protect designated beneficial uses. Regional Water Board staff used best professional judgment (BPJ) to determine the WQOs, WQCs, WQBELs, and calculations contained in this Order as defined by USEPA's March 1991 Technical Support Document for Water Quality-Based Toxics Control (the TSD).

**e. Receiving Water Salinity 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 WQC. 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.

**1) Receiving Water Salinity.** 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.

**2) Hardness.** 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 Board used a hardness of 59 mg/L, which is the minimum hardness at the Pinole Point Station observed from 1993-2001. This represents the best available information for hardness of the receiving water after it has mixed with the discharge.

**f. Interim Limitations and Compliance Schedules.**

1) Pursuant to Section 2.1.1 of the SIP, “the compliance schedule provisions for the development and adoption of a TMDL only apply when: (a) the Discharger requests and demonstrates that it is infeasible for the Discharger to achieve immediate compliance with a CTR criterion; and (b) the Discharger has made appropriate commitments to support and expedite the development of the TMDL. In determining appropriate commitments, the Regional Water Board should consider the Discharger’s contribution to current loadings and the Discharger’s ability to participate in TMDL development.” As further described in a finding below, the Discharger has requested and demonstrated that it is infeasible to achieve immediate compliance for mercury. Also, the Discharger has agreed to assist the Regional Water Board in TMDL development through its affiliation with WSPA.

2) The SIP and the Basin Plan authorize compliance schedules in a permit if an existing Discharger cannot immediately comply with a new and more stringent effluent limitation. Compliance schedules for limitations derived from CTR or the NTR WQC are based on Section 2.2 of the SIP, and compliance schedules for limitations derived from Basin Plan WQOs are based on the Basin Plan. Both the SIP and the Basin Plan require the Discharger to demonstrate the infeasibility of achieving immediate compliance with the new limitation to qualify for a compliance schedule.

The SIP and Basin Plan require the following documentation to be submitted to the Regional Water Board to support a finding of infeasibility:

- Descriptions of diligent efforts the Discharger have made to quantify pollutant levels in the discharge, sources of the pollutant in the waste stream, and the results of those efforts.
- Descriptions of source control and/or pollutant minimization efforts currently under way or completed.
- A proposed schedule for additional or future source control measures, pollutant minimization, or waste treatment.
- A demonstration that the proposed schedule is as short as practicable.

The Basin Plan provides for a 10-year compliance schedule to implement measures to comply with new standards as of the effective date of those standards. This provision applies to the objectives adopted in the 2004 Basin Plan Amendment. Additionally, the provision authorizes compliance schedules for new interpretations of other existing standards if the new interpretation results in more stringent limitations.

3) On March 23, 2006, the Discharger submitted a feasibility study (the 2006 Feasibility Study), asserting it is infeasible to immediately comply with the WQBELs, calculated according to SIP Section 1.4, for mercury, selenium, cyanide, PCBs, and TCDD Equivalents. Based on these analyses, the Regional Water Board concurs that it is infeasible to achieve immediate compliance for these pollutants, as discussed later in the Fact Sheet.

### 3. Determining the Need for WQBELs

Title 40 CFR Part 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” (have Reasonable Potential). Thus, assessing whether a pollutant has Reasonable Potential is the fundamental step in determining whether or not a WQBEL is required. For priority pollutants, Regional Water Board staff used the methods prescribed in Section 1.3 of the SIP to determine if the discharge from Discharge Point 001 demonstrates Reasonable Potential as described in Sections 3a through 3h below.

#### a. Reasonable Potential Analysis

Using the methods prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent data to determine if the discharge from E-001 demonstrates Reasonable Potential. The Reasonable Potential Analysis (RPA) compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQC from the USEPA, the NTR, and the CTR.

#### b. Reasonable Potential Methodology

Using the methods and procedures prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent and background data and the nature of facility operations to determine if the discharge has reasonable potential to cause or contribute to exceedances of applicable SSOs or WQC.

The RPA identifies the observed MEC in the effluent for each pollutant, based on effluent concentration data. There are three triggers in determining Reasonable Potential:

- 1) 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.
- 2) The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO ( $B > WQO$ ) and the pollutant was detected in any of the effluent samples.
- 3) 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/WQC. A limitation may be required under certain circumstances to protect beneficial uses.

#### c. Effluent Data

The Regional Water Board’s August 6, 2001 letter titled *Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (hereinafter referred to as the Regional Water Board’s August 6, 2001 Letter) to all permittees, formally required the Discharger (pursuant to Section 13267 of the CWC) to initiate or continue to monitor for the priority pollutants using analytical

methods that provide the best detection limits reasonably feasible. Regional Water Board staff analyzed this effluent data to determine if the discharge has Reasonable Potential. The RPA was based on the effluent monitoring data collected by the Discharger from 2003 through 2005.

**d. Ambient Background Data**

Ambient background values are used in the reasonable potential analysis (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 criteria/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 sampled for most of the inorganic (CTR constituent numbers 1–15) and some of the organic (CTR constituent numbers 16–126) toxic pollutants. Not all the constituents listed in the CTR were analyzed by the RMP during this time.

These data gaps are addressed by the Board's August 6, 2001 Letter titled "Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy" (hereinafter referred to as the Board's August 6, 2001 Letter—available online; see Standard Language and Other References Available Online, below). The Board's August 6, 2001 Letter formally requires the Dischargers (pursuant to Section 13267 of the California Water Code) to conduct ambient background monitoring and effluent monitoring for those constituents not currently sampled by the RMP and to provide this technical information to the Board.

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 2003 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, WQOs/WQC, bases for the WQOs/WQC, background concentrations used, and Reasonable Potential conclusions from the RPA are listed in the following table for all constituents analyzed. Some of the constituents in the CTR were not determined because of the lack of an objective/criteria or effluent data. Based on the RPA methodology in the SIP, some constituents did not demonstrate Reasonable Potential. The RPA results are shown below and Attachment 2 of this Fact Sheet. The pollutants that exhibit Reasonable Potential are copper, lead, mercury, nickel, selenium, cyanide, TCDD Equivalents, heptachlor epoxide, and total PCBs.

**Table 19F – RPA Results**

CTR #	Priority Pollutants	MEC or Minimum DL <sup>(a)(b)</sup> (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL <sup>(a)(b)</sup> (µg/L)	RPA Results <sup>(c)</sup>
1	Antimony	1.02	4300	1.8	No
2	Arsenic	28.2	36	2.46	No
3	Beryllium	<0.2	No Criteria	0.21	---
4	Cadmium	0.2	1.6	0.13	No
5a	Chromium (III)	2.86	134	Not Available	Cannot Determine
5b	Chromium (VI)	1.44	11.4	4.4	No
6	Copper	6.73	3.7	2.45	Yes
7	Lead	2.68	1.6	0.80	Yes
8	Mercury	0.11	0.025	0.0086	Yes
9	Nickel	37.8	8.3	3.7	Yes
10	Selenium	22.1	5.0	0.39	Yes
11	Silver	<0.5	1.07	0.052	No
12	Thallium	1.46	6.3	0.21	No
13	Zinc	50.41	77	5.1	No
14	Cyanide	4.8	1.0	<0.40	Yes
15	Asbestos	Not Available	No Criteria	Not Available	---
16	2,3,7,8-TCDD (Dioxin)	Nondetect	0.000000014	7.1*10 <sup>-8</sup>	Yes
17	Acrolein	<0.5	780	<0.50	No
18	Acrylonitrile	<2	0.66	0.030	Cannot Determine
19	Benzene	<0.5	71	<0.050	No
20	Bromoform	<0.5	360	<0.50	No
21	Carbon Tetrachloride	<0.5	4.4	0.060	No
22	Chlorobenzene	<0.5	21000	<0.50	No
23	Chlorodibromomethane	<0.5	34	<0.050	No
24	Chloroethane	<0.5	No Criteria	<0.50	---
25	2-Chloroethylvinyl Ether	<0.5	No Criteria	<0.50	---
26	Chloroform	0.9	No Criteria	<0.05	---
27	Dichlorobromomethane	<0.5	46	<0.05	No
28	1,1-Dichloroethane	<0.5	No Criteria	<0.05	---
29	1,2-Dichloroethane	<0.6	99	0.040	No
30	1,1-Dichloroethylene	<0.5	3.2	<0.50	No
31	1,2-Dichloropropane	<0.5	39	<0.050	No
32	1,3-Dichloropropylene	<0.5	1700	Not Available	Cannot Determine
33	Ethylbenzene	<0.5	29000	<0.50	No
34	Methyl Bromide	<0.5	4000	<0.50	No
35	Methyl Chloride	<0.5	No Criteria	<0.50	---
36	Methylene Chloride	2	1600	0.50	No
37	1,1,2,2-Tetrachloroethane	<0.5	11	<0.050	No
38	Tetrachloroethylene	0.5	8.85	<0.050	No
39	Toluene	<0.5	200000	<0.30	No
40	1,2-Trans-Dichloroethylene	<0.5	140000	<0.50	No
41	1,1,1-Trichloroethane	<0.5	No Criteria	<0.50	---
42	1,1,2-Trichloroethane	<0.5	42	<0.050	No
43	Trichloroethylene	<0.5	81	<0.50	No
44	Vinyl Chloride	<0.5	525	<0.50	No
45	2-Chlorophenol	<2	400	<1.2	No
46	2,4-Dichlorophenol	<1	790	<1.3	No
47	2,4-Dimethylphenol	<2	2300	<1.3	No
48	2-Methyl-4,6-Dinitrophenol	<5	765	<1.2	No
49	2,4-Dinitrophenol	<5	14000	<0.70	No
50	2-Nitrophenol	<5	No Criteria	<1.3	---
51	4-Nitrophenol	<5	No Criteria	<1.6	---
52	3-Methyl-4-Chlorophenol	<1	No Criteria	<1.1	---
53	Pentachlorophenol	<1	7.9	<1.0	No
54	Phenol	<1	4600000	<1.3	No
55	2,4,6-Trichlorophenol	5	6.5	<1.3	No

CTR #	Priority Pollutants	MEC or Minimum DL <sup>(a)(b)</sup> (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL <sup>(a)(b)</sup> (µg/L)	RPA Results <sup>(c)</sup>
56	Acenaphthene	<0.3	2700	0.0015	No
57	Acenaphthylene	<0.2	No Criteria	0.00053	---
58	Anthracene	<0.3	110000	0.00050	No
59	Benzidine	<5	0.00054	<0.0015	Cannot Determine
60	Benzo(a)Anthracene	<0.1	0.049	0.0053	Cannot Determine
61	Benzo(a)Pyrene	<0.3	0.049	0.00029	Cannot Determine
62	Benzo(b)Fluoranthene	<0.3	0.049	0.0046	Cannot Determine
63	Benzo(ghi)Perylene	<0.3	No Criteria	0.0027	---
64	Benzo(k)Fluoranthene	<0.3	0.049	0.0015	Cannot Determine
65	Bis(2-Chloroethoxy)Methane	<0.2	No Criteria	<0.30	---
66	Bis(2-Chloroethyl)Ether	<1	1.4	<0.30	No
67	Bis(2-Chloroisopropyl)Ether	<2	170000	Not Available	Cannot Determine
68	Bis(2-Ethylhexyl)Phthalate	<1	5.9	<0.5	No
69	4-Bromophenyl Phenyl Ether	<5	No Criteria	<0.23	---
70	Butylbenzyl Phthalate	<2	5200	<0.52	No
71	2-Chloronaphthalene	<2	4300	<0.30	No
72	4-Chlorophenyl Phenyl Ether	<5	No Criteria	<0.30	---
73	Chrysene	<0.3	0.049	0.0024	Cannot Determine
74	Dibenzo(a,h)Anthracene	<0.1	0.049	0.00064	Cannot Determine
75	1,2 Dichlorobenzene	Not Available	17000	<0.80	Cannot Determine
76	1,3 Dichlorobenzene	<0.5	2600	<0.80	No
77	1,4 Dichlorobenzene	<0.5	2600	<0.80	No
78	3,3-Dichlorobenzidine	<5	0.077	<0.0010	Cannot Determine
79	Diethyl Phthalate	<2	120000	<0.24	No
80	Dimethyl Phthalate	<2	2900000	<0.24	No
81	Di-n-Butyl Phthalate	<5	12000	<0.5	No
82	2,4-Dinitrotoluene	<5	9.1	<0.27	No
83	2,6-Dinitrotoluene	<5	No Criteria	<0.29	---
84	Di-n-Octyl Phthalate	<5	No Criteria	<0.38	---
85	1,2-Diphenylhydrazine	<1	0.54	0.0037	Cannot Determine
86	Fluoranthene	<0.05	370	0.011	No
87	Fluorene	<0.1	14000	0.0021	No
88	Hexachlorobenzene	<0.1	0.00077	0.000022	Cannot Determine
89	Hexachlorobutadiene	<1	50	<0.30	No
90	Hexachlorocyclopentadiene	<5	17000	<0.31	No
91	Hexachloroethane	<1	8.9	<0.20	No
92	Indeno(1,2,3-cd) Pyrene	<0.05	0.049	0.0040	Cannot Determine
93	Isophorone	<1	600	<0.30	No
94	Naphthalene	<0.2	No Criteria	0.0023	---
95	Nitrobenzene	<1	1900	<0.25	No
96	N-Nitrosodimethylamine	<1	8.1	<0.30	No
97	N-Nitrosodi-n-Propylamine	<5	1.4	<0.0010	Cannot Determine
98	N-Nitrosodiphenylamine	<1	16	<0.001	No
99	Phenanthrene	<0.05	No Criteria	0.0061	---
100	Pyrene	<0.05	11000	0.0051	No
101	1,2,4-Trichlorobenzene	<0.5	No Criteria	<0.30	---
102	Aldrin	<0.005	0.00014	Not Available	Cannot Determine
103	alpha-BHC	<0.01	0.013	0.00050	No
104	beta-BHC	<0.005	0.046	0.00041	No
105	Gamma-BHC	<0.001	0.063	0.0007	No
106	delta-BHC	<0.01	No Criteria	0.000042	---
107	Chlordane	<0.02	0.00059	0.00018	Cannot Determine
108	4,4'-DDT	<0.01	0.00059	0.000066	Cannot Determine
109	4,4'-DDE	<0.01	0.00059	0.000693	Cannot Determine
110	4,4'-DDD	<0.01	0.00084	0.000313	Cannot Determine
111	Dieldrin	<0.01	0.00014	0.000264	Cannot Determine

CTR #	Priority Pollutants	MEC or Minimum DL <sup>[a][b]</sup> (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL <sup>[a][b]</sup> (µg/L)	RPA Results <sup>[c]</sup>
112	alpha-Endosulfan	<0.01	0.0087	0.000031	Cannot Determine
113	beta-Endosulfan	<0.01	0.0087	0.000069	Cannot Determine
114	Endosulfan Sulfate	<0.01	240	0.000082	No
115	Endrin	<0.01	0.0023	0.000036	Cannot Determine
116	Endrin Aldehyde	<0.01	0.81	Not Available	Cannot Determine
117	Heptachlor	<0.01	0.00021	0.000019	Cannot Determine
118	Heptachlor Epoxide	0.1	0.00011	0.000094	Yes
119-125	PCBs (sum)	0.00651	0.00017	Not Available	Yes
126	Toxaphene	<0.05	0.00020	0.000050	Cannot Determine
	Total PAHs	<0.1	15	0.026	No

- [a] The Maximum Effluent Concentration (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.
- [b] The MEC or maximum background concentration is "Not Available" when there are no monitoring data for the constituent.
- [c] RPA Results = Yes, if MEC > WQO/WQC, or B > WQO/WQC and MEC is detected;  
 = No, if MEC and B are < WQO/WQC or if all effluent data are undetected below the lowest criterion or objective;  
 = Blank, if no criteria have been promulgated;  
 = Cannot Determine, if there are insufficient data, or if the effluent data are undetected at levels above the lowest criterion or objective.

**f. Pollutants that no Longer Trigger Reasonable Potential.**

**(1) Polynuclear Aromatic Hydrocarbons (PAHs).** The RPA was conducted on individual and total PAHs, as required by the SIP, CTR, and Basin Plan. No PAHs have been detected in the effluent. However, the detection levels achieved by the Discharger are above the applicable WQC. While the previous Order included limits for benzo(a)anthracene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene, this Order does not find that reasonable potential exists for total or individual PAHs. This finding is consistent with State Water Resources Control Board Order WQO 2002-0011 (i.e., there is not sufficient evidence to suggest that these pollutants have the potential to exhibit reasonable potential even though detection limits are above the WQC).

**(2) Cadmium, Zinc, alpha-BHC, and gamma-BHC.** The previous Order contained effluent limits for these pollutants. As indicated above, these constituents do not have a reasonable potential to cause an exceedance of their respective WQC. Accordingly, this Order does not propose to include effluent limitations for these constituents.

**(3) Hexachlorobenzene, Aldrin, Chlordane, 4,4 DDT, 4,4 DDE, 4,4 DDD, Dieldrin, alpha-Endosulfan, beta-Endosulfan, Endrin, Heptachlor, and Toxaphene:** The previous Order contained effluent limits for these pollutants. As indicated in above, it was not possible to determine whether these constituents have reasonable potential to cause an exceedance of their respective WQC because detection limits were too high. In order to be consistent with State Water Resources Control Board Order WQO 2002-0011, this Order does not include effluent limits for these pollutants (i.e., there is not sufficient evidence to suggest that these pollutants have the potential to exhibit reasonable potential even though detection limits are above the WQC).

#### 4. Dilution and Assimilative Capacity

**a. Dilution.** 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 probable minimum initial dilution of 200:1. To address uncertainties with mixing (discussed below) and to protect beneficial uses of the San Pablo Bay, this Order limits the dilution credit for Waste 001 for nonbioaccumulative constituents to 10:1

The Board believes a conservative 10:1 dilution credit for discharges of non-bioaccumulative pollutants to San Francisco Bay is necessary for protection of beneficial uses. The basis for limiting the dilution credit is based on SIP provisions in Section 1.4.2. The following outlines the basis for limiting the dilution credit:

- (1) A far-field background station is appropriate because the San Francisco Bay watershed, including the receiving waters, is a very complex estuarine system with highly variable and seasonal upstream freshwater inflows and diurnal tidal saltwater inputs.
- (2) Due to the complex hydrology of the San Francisco Bay watershed, a mixing zone cannot be accurately established.
- (3) Previous dilution studies do not fully account for the cumulative effects of other wastewater discharges to the system.
- (4) The SIP allows limiting a mixing zone and dilution credit for persistent pollutants (e.g., copper and nickel).

The main justification for limiting dilution credit is uncertainty in accurately determining ambient background and uncertainty in accurately determining the mixing zone in a complex estuarine system with multiple wastewater discharges. The basis for using 10:1 is that it was granted in the previous permit. This 10:1 limit is also based on the Basin Plan's prohibition number 1, which prohibits discharges like Waste 001 with less than 10:1. The following gives more detailed rationale

**(1) Complex Estuarine System Necessitates Far-Field Background** - The SIP allows background to be determined on a discharge-by-discharge or water body-by-water body basis (SIP section 1.4.3). Consistent with the SIP, Board staff has chosen to use a water body-by-water body basis because of the uncertainties inherent in accurately characterizing ambient background in a complex estuarine system on a discharge-by-discharge basis.

With this in mind, the Yerba Buena Island Station fits the guidance for ambient background in the SIP compared to other stations in the RMP. The SIP states that background data are applicable if they are "representative of the ambient receiving water column that will mix with the discharge." Board Staff believe that data from this station are representative of water that will mix with the discharge from Outfalls E-001. Although this station is located near the Golden Gate, it would represent the typical water flushing in and out in the Bay Area each tidal cycle. For most of the Bay Area, the waters represented by this station make up a large part of the receiving water that will mix with the discharge.

**(2) Uncertainties Prevent Accurate Mixing Zones in Complex Estuarine Systems** - There are uncertainties in accurately determining the mixing zones for each discharge. The models that have been used by dischargers to predict dilution have not considered the three-

dimensional nature of the currents in the estuary resulting from the interaction of tidal flushes and seasonal fresh water outflows. Saltwater is heavier than fresh water. Colder saltwater from the ocean flushes in twice a day generally under the warmer fresh river waters that flow out annually. When these waters mix and interact, complex circulation patterns occur due to the different densities of these waters. These complex patterns occur throughout the estuary but are most prevalent in the San Pablo Bay, Carquinez Strait, and Suisun Bay areas. The locations change depending on the strength of each tide and the variable rate of delta outflow. Additionally, sediment loads to the Bay from the Central Valley also change on a longer-term basis. These changes can result in changes to the depths of different parts of the Bay making some areas more shallow and/or other areas more deep. These changes affect flow patterns that in turn can affect the initial dilution achieved by a discharger's diffuser.

**(3) Dye studies do not account for cumulative effects from other discharges** - The tracer and dye studies conducted are often not long enough in duration to fully assess the long residence time of a portion of the discharge that is not flushed out of the system. In other words, some of the discharge, albeit a small portion, makes up part of the dilution water. So unless the dye studies are of long enough duration, the diluting effect on the dye measures only the initial dilution with "clean" dilution water rather than the actual dilution with "clean" dilution water plus some amount of original discharge that resides in the system. Furthermore, both models and dye studies that have been conducted have not considered the effects of discharges from other nearby discharge sources, nor the cumulative effect of discharges from over 20 other major dischargers to San Francisco Bay system. While it can be argued the effects from other discharges are accounted for by factoring in the local background concentration in calculating the limitations, accurate characterization of local background levels are also subject to uncertainties resulting from the interaction of tidal flushing and seasonal fresh water outflows described above.

**4) Mixing Zone Is Further Limited for Persistent Pollutants** - Discharges to the Bay Area waters are not completely-mixed discharges as defined by the SIP. Thus, the dilution credit should be determined using site-specific information for incompletely-mixed discharges. The SIP in section 1.4.2.2 specifies that the Regional Board "significantly limit a mixing zone and dilution credit as necessary... For example, in determining the extent of a mixing zone or dilution credit, the RWQCB shall consider the presence of pollutants in the discharge that are ... persistent." The SIP defines persistent pollutants to be "substances for which degradation or decomposition in the environment is nonexistent or very slow." The pollutants at issue here are persistent pollutants (e.g., copper, lead, nickel, silver, and zinc). The dilution studies that estimate actual dilution do not address the effects of these persistent pollutants in the Bay environment, such as their long-term effects on sediment concentrations.

**b. Assimilative Capacity.** In response to the SWRCB's Order No. 2001-06, Board staff has evaluated the assimilative capacity of the receiving water for 303(d) listed pollutants for which the Discharger has reasonable potential in its discharges. The evaluation included a review of RMP data (local and Central Bay stations), effluent data, and WQOs/WQC. From this evaluation, it is determined that the assimilative capacity is highly variable due to the complex hydrology of the receiving water. Therefore, there is uncertainty associated with the representative nature of the appropriate ambient background data to conclusively quantify the assimilative capacity of the receiving water. Pursuant to Section 1.4.2.1 of the SIP, "dilution credit may be limited or denied on a pollutant-by-pollutant basis..."

For certain bioaccumulative pollutants, based on BPJ, dilution credit is not included in calculating the final WQBELs. This determination is based on available data on concentrations of these pollutants in aquatic organisms, sediment, and the water column. The Board placed selenium, mercury, and PCBs on the CWA Section 303(d) list. The USEPA added dioxins and furans compounds on the CWA Section 303(d) list. Dilution credit is not included for the following pollutants: mercury, selenium, PCBs, and dioxins and furans. The following factors suggest that there is no more assimilative capacity in the Bay for these pollutants.

(1) San Francisco Bay fish tissue data shows that these pollutants, except for selenium, exceed screening levels. The fish tissue data are contained in "Contaminant Concentrations in Fish from San Francisco Bay 1997" May 1997. Denial of dilution credits for these pollutants is further justified by fish advisories to the San Francisco Bay. The Office of Environmental Health and Hazard Assessment (OEHHA) performed a preliminary review of the data from the 1994 San Francisco Bay pilot study, "Contaminated Levels in Fish Tissue from San Francisco Bay." The results of the study showed elevated levels of chemical contaminants in the fish tissues. Based on these results, OEHHA issued an interim consumption advisory covering certain fish species from the bay in December 1994. This interim consumption advice was issued and is still in effect due to health concerns based on exposure to sport fish from the bay contaminated with mercury, PCBs, dioxins, and pesticides.

(2) For selenium, the denial of dilution credits is based on Bay waterfowl tissue data presented in the California Department of Fish and Game's Selenium Verification Study (1986-1990). These data show elevated levels of selenium in the livers of waterfowl that feed on bottom dwelling organisms such as clams. Additionally, in 1987 the Office of Environmental Health Hazard Assessment issued an advisory for the consumption of two species of diving ducks in the north bay found to have high tissue levels of selenium. This advisory is still in effect.

## 5. WQBEL Calculations

WQBELs were developed for the toxic and priority pollutants that were determined to have reasonable potential to cause or contribute to exceedances of the WQOs or WQC. The WQBELs were calculated based on appropriate WQOs/WQC and the appropriate procedures specified in Section 1.4 of the SIP. The WQOs or WQC used for each pollutant with Reasonable Potential is discussed below:

### a. Copper

- i. *Copper WQC*. The saltwater criteria for copper in the adopted CTR are 3.1 µg/L for chronic protection and 4.8 µg/L for acute protection. Included in the CTR are translator values to convert the dissolved criteria to total criteria. The Discharger may also perform a translator study to determine a more site-specific translator. The SIP, Section 1.4.1, and the June 1996 USEPA guidance document, entitled *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion*, describe this process and provide guidance on how to establish a site-specific translator. Using the CTR translator, translated criteria of 3.7 µg/L for chronic protection and 5.8 µg/L for acute protection were used to calculate effluent limitations.

- ii. *RPA Results.* This Order establishes effluent limitations for copper because the 6.7 µg/L MEC exceeds the governing WQC of 3.7 µg/L, demonstrating Reasonable Potential by Trigger 1, above.
- iii. *Water Quality Based Effluent Limitations.* The copper QBELs calculated according to SIP procedures are 25 µg/L as the MDEL, and 13 µg/L as the AMEL.
- iv. *Discharger Performance and Attainability.* During the period from 2003 through 2005, all effluent copper concentrations were below the 13 µg/L AMEL (range from 0.64 µg/L to 6.7 µg/L, 36 samples); therefore, it is expected that the Discharger can comply with final QBELs for copper.
- v. *Antibacksliding/Antidegradation.* Antibacksliding and antidegradation requirements are satisfied because the calculated QBELs are statistically as stringent as the previous permit. Though the previous limit included an AMEL of 10.96, it also included a MDEL of 27.06. The pair of AMEL/MDEL in this Order of 13 and 25 is statistically as stringent because the same SIP methodology was followed in calculating QBELs, and could be more stringent because the MDEL is more stringent than the previous permit MDEL.

**b. Lead**

- i. *Lead WQOs.* The Basin Plan contains freshwater WQOs for lead 1.6 µg/L as a four-day average, and 42 µg/L as a 1-hour average, as calculated using the receiving water hardness value of 59 mg/L, as CaCO<sub>3</sub>.
- ii. *RPA Results.* This Order establishes effluent limitations for lead because the 2.7 µg/L MEC exceeds the governing WQO of 1.6 µg/L, demonstrating Reasonable Potential by Trigger 1, above.
- iii. *QBELs.* The lead QBELs calculated according to SIP procedures are 15 µg/L as the MDEL and 7.4 µg/L as the AMEL.
- iv. *Discharger Performance and Attainability.* During the period from 2003 through 2005, all effluent lead concentrations were below the 7.4 µg/L AMEL (range from 0.68 µg/L to 2.7 µg/L, 36 samples); therefore, it is expected that the Discharger can comply with final QBELs for lead.
- v. *Antibacksliding/Antidegradation.* Antibacksliding and antidegradation requirements are satisfied, since the final QBEL is more stringent than the previous permit limit.

**c. Mercury**

- i. *Mercury WQOs/WQC.* Both the Basin Plan and the CTR include objectives and criteria that govern mercury in the receiving water. The Basin Plan specifies objectives for the protection of aquatic life of 0.025 µg/L as a 4-day average and 2.1 µg/L as a 1-hour average. The CTR specifies a long-term average criterion for protection of human health of 0.051 µg/L.

- ii. *RPA Results*. This Order establishes effluent limitations for mercury because the 0.11 µg/L MEC exceeds the governing WQO of 0.025 µg/L, demonstrating Reasonable Potential by Trigger 1, above.
- iii. *WQBELs*. The mercury WQBELs calculated according to SIP procedures are 0.046 µg/L as the MDEL and 0.017 µg/L as the AMEL.
- iv. *Immediate Compliance Infeasible*. The Discharger's Infeasibility Study asserts the Discharger cannot immediately comply with the mercury WQBELs. Board staff statistically analyzed the Discharger's effluent data from 2003 through 2005. Based on this analysis, the Board determines that the assertion of infeasibility is substantiated for mercury.
- v. *IPBEL*. Because it is infeasible for the Discharger to immediately comply with the mercury WQBELs, an interim limitation is required. In light of the similarities between refineries regarding the nature of their process wastes and treatment technologies involved, in 2001 Board staff pooled ultraclean mercury data from the refineries to enable a statistical approach to setting an interim limit based on best available information and performance. Statistical analysis from this pooled data set results in an interim performance-based monthly average mercury effluent limit of 0.075 µg/L that is applicable to refinery discharges. This interim limit is carried over from the previous permit.
- vi. *Interim Mercury Mass Emission Limitation*. In addition to the concentration-based mercury IPBEL, this Order includes an interim 12-month moving average mercury mass-based effluent limitation of 0.149 kg/month. This is based on the previous permit. This mass-based effluent limitation maintains current loadings until a TMDL is established. The final mass-based effluent limitation will be based on the WLA derived from the mercury TMDL.
- vii. *Discharger's Performance and Attainability*. During the period from 2003 through 2005, the Discharger's effluent concentrations were below the interim limitation of 0.075 µg/L (range from 0.001 µg/L to 0.0275 µg/L, 45 samples, excluding the February 26, 2003, datum of 0.11 µg/L); therefore, it is expected that the Discharger can comply with the interim limitation for mercury.
- viii. *Term of IPBEL*. The mercury IPBEL shall remain in effect until April 27, 2010 or until the Board amends the limitations based on additional data, SSOs, or the WLA in the TMDL. During the next permit reissuance, Board staff may reevaluate the mercury IPBEL.
- ix. *Mercury Source Control Strategy*. As a prerequisite to being granted the compliance schedule and interim limits described above, the Discharger must implement mercury source control strategies, as required by Provision C.5 of this Order.
- x. *Expected Final Mercury Limitations*. The final mercury WQBELs and the interim mass limitation will be revised to be consistent with the WLA assigned in the adopted mercury TMDL. In order to maintain current ambient receiving water conditions while the TMDL is being developed, the Discharger must comply with performance-based mercury concentration and mass-based limitations contained in this Order.

- xi. *Antibacksliding/Antidegradation*. Antibacksliding and antidegradation requirements are satisfied, since the interim and final effluent limitations are both as stringent as the previous permit.

**d. Nickel**

- i. *Nickel WQOs*. The saltwater criteria for nickel in the adopted CTR are 8.2 µg/L for chronic protection and 74 µg/L for acute protection. Included in the CTR are translator values to convert the dissolved criteria to total criteria. The Discharger may also perform a translator study to determine a more site-specific translator. The SIP, Section 1.4.1, and the June 1996 USEPA guidance document, entitled *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion*, describe this process and provide guidance on how to establish a site-specific translator. Using the CTR translator, translated criteria of 8.3 µg/L for chronic protection and 75 µg/L for acute protection were used to calculate effluent limitations.
- ii. *RPA Results*. This Order establishes effluent limitations for nickel because the 38 µg/L MEC exceeds the governing WQO of 8.3 µg/L, demonstrating Reasonable Potential by Trigger 1, above.
- iii. *WQBELs*. The nickel WQBELs calculated according to SIP procedures are 66 µg/L as the MDEL and 45 µg/L as the AMEL.
- iv. *Discharger Performance and Attainability*. During the period from 2003 through 2005, all effluent nickel concentrations were below the 45 µg/L AMEL (range from 11.5 µg/L to 37.8 µg/L, 36 samples); therefore, it is expected that the Discharger can comply with final WQBELs for nickel.
- v. *Antibacksliding/Antidegradation*. Antibacksliding and antidegradation requirements are satisfied because the calculated WQBELs are more stringent than the previous permit. Though the previous limit of 65 µg/L is numerically more stringent than the calculated MDEL of 66 µg/L, the pair of AMEL/MDEL is more stringent than the single daily maximum limit. This is because the AMEL will limit the discharge to a lower long-term average level than the previous permit limitation, which only limits the daily average concentration of the effluent, and as a result, the Discharger could practically discharge an effluent with long-term average at the previous daily average level.

**e. Selenium**

- i. *Selenium WQC*. Selenium WQC were promulgated in the NTR for specific waters, which include San Pablo Bay. The NTR established a Criterion Chronic Concentration (CCC) for the protection of aquatic life of 5 µg/L and a Criterion Maximum Concentration (CMC) for the protection of aquatic life of 20 µg/L.
- ii. *RPA Results*. The 22 µg/L MEC exceeds the governing WQC of 5 µg/L, demonstrating Reasonable Potential by Trigger 1, above.

- iii. *Concentration-based WQBELs.* The WQBELs calculated according to SIP procedures are 7.4 µg/L as the MDEL and 4.4 µg/L as the AMEL.
- iv. *Immediate Compliance Infeasible.* The Discharger's Infeasibility Study asserts the Discharger cannot immediately comply with these WQBELs. Board staff statistically analyzed the Discharger's effluent data from 2003 through 2005. Based on this analysis, the Board determines that the assertion of infeasibility is substantiated for selenium.
- v. *IPBEL.* Because it is infeasible for the Discharger to immediately comply with the selenium WQBELs, an interim limitation is required. Board staff conducted a statistical analysis of recent effluent data. Historically, interim performance-based effluent limitations (IPBELs) have been referenced to the 99.87th percentile value of recent effluent data. Statistical analysis indicates that the 99.87th percentile of the recent selenium effluent data is 34 µg/L. The previous permit included an interim limit of 50 µg/L as a daily maximum, which is less stringent than the 99.87th percentile of the recent effluent data. Therefore, a permit limitation of 34 µg/L is established in this Order as the interim limitation, expressed as a daily maximum limitation.
- vi. *Development of Previous Permit Limitation.* On February 20, 1991, and June 19, 1991, the Board adopted Order Nos. 91-026 and 91-099, respectively, amending the NPDES permits for all six refineries in the region, including the Discharger, to add concentration and mass emission limitations for selenium. Order No. 91-026 specified a limit of 50 µg/L as a daily maximum limit. Order No. 91-099 specified a limit of 2.38 lbs/day as a running annual average by December 12, 1993. On October 16, 1992, the Western States Petroleum Association (WSPA) filed a Petition with the Superior Court for the County of Solano on behalf of the six oil refineries seeking to set aside Order Nos. 91-026 and 91-099. On January 19, 1994, the Board adopted Resolution No. 94-016, which approved a Settlement Agreement between WSPA and the Board. The Settlement Agreement adopted the limits included in Orders 91-026 and 91-099. The previous Order includes the daily maximum concentration limit of 50 µg/L and a more stringent annual average mass emission limit of 2.38 lbs/day.
- vii. *Discharger's Performance and Attainability.* During the period 2003 through 2005, the Discharger's effluent concentrations were below the interim limitation of 34 µg/L (range from 3.46 µg/L to 22.1 µg/L, 138 samples); therefore, it is expected that the Discharger can comply with the interim limitation for selenium.
- viii. *Term of IPBEL.* The selenium interim limitation shall remain in effect until April 27, 2010, or until the Board amends the limitations based on additional data, SSOs, or the WLA in the TMDL.
- ix. *Selenium Source Control Strategy.* As a prerequisite to being granted the compliance schedule and interim limits described above, the Discharger must implement selenium source control strategies, as required by Provision C.5 of this Order.
- x. *Expected Final Selenium Limitations.* The final selenium WQBELs will be revised to be consistent with the WLA assigned in the adopted selenium TMDL. While the TMDL is being developed, the Discharger will comply with the performance-based selenium

concentration limitation to cooperate in maintaining current ambient receiving water conditions.

- xi. *Antibacksliding/Antidegradation*. Antibacksliding and antidegradation requirements are satisfied, since the interim and final effluent limitations are more stringent than the limitations in the previous permit.

**f. Cyanide**

- i. *Cyanide WQC*. Cyanide WQC were promulgated in the NTR for specific waters, which include San Pablo Bay. The NTR established a Criterion Chronic Concentration (CCC) and a Criterion Maximum Concentration (CMC) for the protection of aquatic life of 1 µg/L.
- ii. *RPA Results*. The 4.8 µg/L MEC exceeds the governing WQC of 1 µg/L, demonstrating Reasonable Potential by Trigger 1, above.
- iii. *Concentration-based WQBELs*. The WQBELs calculated according to SIP procedures are 6.4 µg/L as the MDEL and 3.7 µg/L as the AMEL.
- iv. *Immediate Compliance Infeasible*. The Discharger's Infeasibility Study asserts the Discharger cannot immediately comply with these WQBELs. Board staff statistically analyzed the Discharger's effluent data from 2003 through 2005. Based on this analysis, the Board determines that the assertion of infeasibility is substantiated for cyanide.
- v. *Alternative Limit for Cyanide*. As described in *Draft Staff Report on Proposed Site-Specific Water Quality Objectives and Effluent Limit Policy for Cyanide for San Francisco Bay*, dated November 10, 2005, the Regional Water Board is proposing to develop site-specific criteria for cyanide. In this report, the proposed site-specific criteria for marine waters are 2.9 µg/L as a four-day average, and 9.4 µg/L as a one-hour average. Based on these assumption, and the Dischargers current cyanide data (coefficient of variation of 0.446), final water quality based effluent limits for cyanide will be 38 µg/L as a MDEL, and 22 µg/L as an AMEL. These alternative limits will become effective only if the site-specific objective adopted for cyanide contains the same assumptions in the staff report, dated November 10, 2005.
- vi. *IPBEL*. Because it is infeasible for the Discharger to immediately comply with the cyanide WQBELs, an interim limitation is required. The Board considered self-monitoring data from 2003 through 2005 (cyanide concentrations ranged from 1.4 µg/L to 4.8 µg/L) to develop an interim performance based limit. However, the data only contained 9 detected values out of 36 samples, and therefore, it was not possible to perform a meaningful statistical evaluation of current treatment performance. The previous permit included a WQBEL of 25 µg/L as a daily maximum. Therefore, the previous permit limitation of 25 µg/L is established in this Order as the interim limitation, expressed as a daily maximum limitation.
- vii. *Discharger's Performance and Attainability*. During the period 2003 through 2005, the Discharger's effluent concentrations were below the interim limitation of 25 µg/L (range

from 1.4 µg/L to 4.8 µg/L, 36 samples); therefore, it is expected that the Discharger can comply with the interim limitation for cyanide.

viii. *Term of IPBEL.* The cyanide interim limitation shall remain in effect until April 27, 2010, or until the Board amends the limitations based on additional data or site-specific objectives (SSOs).

ix. *Cyanide Source Control Strategy.* As a prerequisite to being granted the compliance schedule and interim limits described above, the Discharger must implement cyanide source control strategies, as required by Provision C.5 of this Order.

x. *Antibacksliding/Antidegradation.* Antibacksliding and antidegradation requirements are satisfied, since the interim effluent limitation is based on the previous permit limitation, and the final limits are more stringent.

**g. TCDD Equivalents**

i. *Dioxin TEQ WQC.* The CTR establishes a numeric human health WQC of 0.014 pg/L for 2,3,7,8-TCDD based on consumption of organisms. The preamble of the CTR states that California NPDES permits should use TEQs where dioxin-like compounds have Reasonable Potential with respect to narrative criteria. The preamble further states that USEPA intends to use the 1998 World Health Organization TEF scheme in the future and encourages California to use this scheme in State programs. In addition, the CTR preamble states USEPA's intent to adopt revised WQC guidance subsequent to their health reassessment for dioxin-like compounds. The Board used TEQs to translate the narrative WQOs to numeric WQOs for the other 16 congeners.

ii. *RPA Results.* Dioxins and furans are known to form during the regeneration of catalytic reformers and the Discharger's wastewater from caustic washes in the catalytic reforming process can contain dioxins and furans. Therefore, there is reasonable potential for TCDD Equivalents. Currently, it is not possible to document compliance with dioxin TEQ limits, as analytical reporting limits available from commercial laboratories using approved USEPA protocols are not low enough. Additionally, the dioxin TEQ maximum background concentration is above the governing WQC.

iii. *Dioxin TEQ Effluent Limits.* The TCDD Equivalents WQBELs calculated according to SIP procedures are 0.028 pg/L as the MDEL and 0.014 pg/L as the AMEL. As the compliance schedule for dioxin-TEQ exceeds the length of the permit, these values are included in the Fact Sheet as a point of reference.

iv. *Immediate Compliance Infeasible.* Compliance with the final WQBELs cannot be demonstrated at this time as the MLs for TCDD Equivalents are higher than the final calculated WQBELs.

v. *IPBEL.* Because it is infeasible for the Discharger to immediately comply with the TCDD Equivalents WQBELs, an interim limitation is required. Historically, interim performance-based effluent limitations (IPBELs) have been referenced to the 99.87th percentile value of recent effluent data. In this case, a statistical analysis is not possible due to the number of nondetects. The previous permit included a maximum daily interim limitation of 0.1 pg/L.

Therefore, the previous permit limitation is established in this Order, as an interim limitation.

- vi. *Discharger's Performance and Attainability.* Self-monitoring effluent data from 2003 through 2005 indicate that all TCDD Equivalents were nondetect; therefore, it is expected that the Discharger can comply with interim limits provided non-detect is considered zero in TEQ calculations, which is consistent with the SIP.
- vii. *Term of IPBEL.* The TCDD Equivalents interim limitation shall remain in effect until June 30, 2011, or until the Board amends the limitations based on additional data, SSOs, or the WLA in the TMDL.
- viii. *Dioxin TEQ Source Control Strategy.* As a prerequisite to being granted the compliance schedule and interim limits described above, the Discharger must implement dioxin TEQ source control strategies, as required by Provision C.5 of this Order.
- ix. *Expected Final Dioxin TEQ Limitations.* The final TCDD Equivalent WQBELs will be revised to be consistent with the WLA assigned in the adopted dioxin TEQ TMDL. While the TMDL is being developed, the Discharger will comply with the performance-based TCDD Equivalent concentration limitation to cooperate in maintaining current ambient receiving water conditions. Municipal and industrial sources are very small contributors of the dioxins and furans load to the Bay, and the dominant sources are from current and historical air emissions. Because of this, it is unlikely that the TMDL will require reduction efforts beyond the controls required by this permit.

#### **h. Heptachlor Epoxide**

- i. *WQOs.* The CTR contains numeric saltwater WQOs for heptachlor epoxide of 0.0036 µg/L for chronic protection and 0.053 µg/L for acute protection. The CTR also contains a long-term average WQO of 0.00011 µg/L for protection of human health.
- ii. *RPA Results.* The heptachlor epoxide MEC of 0.1 µg/L exceeds the governing WQO of 0.00011 µg/L, demonstrating reasonable potential by Trigger 1, above.
- iii. *WQBELs.* The Heptachlor Epoxide WQBELs calculated according to SIP procedures are 0.0018 µg/L for the MDEL and 0.00088 µg/L for the AMEL
- iv. *Discharger Performance and Attainability.* During the period from 2003 through 2005, 38 of the 39 effluent heptachlor epoxide samples were nondetect; therefore, it is expected that the Discharger can comply with final WQBELs for heptachlor epoxide using the reporting level of 0.01 µg/L required by the SIP.
- v. *Antibacksliding/Antidegradation.* Antibacksliding and antidegradation requirements are satisfied, since the final effluent limitations are more stringent than the previous permit.

**i. PCBs**

- i. *PCBs WQC.* The CTR contains a numeric water quality criterion of 0.00017  $\mu\text{g/L}$  for the sum of seven individual PCB compounds for the protection of human health based on the consumption of aquatic organisms.
- ii. *RPA Results.* The 0.000651  $\text{pg/L}$  MEC exceeds the governing WQC of 0.00017  $\text{pg/L}$ , demonstrating Reasonable Potential by Trigger 1, above.
- iii. *PCB Effluent Limits.* The WQBELs calculated according to SIP procedures are 0.00034  $\mu\text{g/L}$  as the MDEL and 0.00017  $\mu\text{g/L}$  as the AMEL for the sum of seven individual PCB compounds. The previous Order includes limits for each of the seven individual PCBs of 0.00017  $\mu\text{g/L}$  (monthly average) and 0.0034  $\mu\text{g/L}$  (daily average).
- iv. *Immediate Compliance Infeasible.* Compliance with the final WQBELs cannot be determined at this time as the MLs of 0.5  $\mu\text{g/L}$  (for each PCB using U.S. EPA approved methods) identified in Appendix 4 of the SIP, are higher than the final calculated WQBELs. However, non-EPA approved methods generated a MEC of 0.000651  $\mu\text{g/L}$  suggesting that the Discharger may not be able to immediately comply.
- v. *Interim Effluent Limitations.* Interim limitations are established at the respective MLs. The Discharger may demonstrate compliance by showing no detection of any PCBs above the SIP ML of 0.5  $\mu\text{g/L}$ .
- vi. *Discharger's Performance and Attainability.* Self-monitoring effluent data from 2003 through 2005 indicate that PCBs were not detected in the effluent in any of the samples using USEPA approved protocols. However, the Discharger did detect PCBs using more sensitive analytical techniques. In support of the Board's TMDL development for PCBs, the San Francisco Estuary Institute measured PCB congeners in Bay Area refinery discharges using sensitive analytical techniques with large sample volumes to achieve low detection limits. It published the results of these analyses in *Polychlorinated Biphenyls in Northern San Francisco Estuary Refinery Effluents*, dated September 10, 2002, which indicates that Chevron's effluent contained total PCBs ranging from 566 to 651  $\text{pg/L}$ . As the MEC of PCBs in the Discharger's effluent exceeds the WQC for protecting human health, the discharge has a reasonable potential to cause exceedances of the WQC for PCBs. However, the methodology described above has not been approved by USEPA, and therefore, cannot be used for compliance purposes. As such, the Discharger should be able to comply with the effluent limitations contained in this Order

The only known historical presence of PCBs at the site was sealed electrical transformers. However, in the previous Order, the Board determined that there is reasonable potential for PCBs and the results from the above analysis suggest a reasonable potential exists. This reasonable potential is based on (a) The historical presence of PCBs at the facility, (b) The San Francisco Estuary Institute's detection of PCBs above the WQC (described above), (c) The detection limits for PCBs using approved USEPA methods are above the WQC, thus, PCBs maybe discharged at a level below the detection limits but above WQC; and (d) PCBs are persistent bioaccumulative toxicants that have impaired the receiving waterbody. In addition, the PCBs have been included in the 303(d) listing because of high fish tissue

levels (*Contaminant Levels in Fish Tissue from San Francisco Bay, San Francisco Regional Water Quality Control Board, June 1997*).

- vii. *Term of Interim Effluent Limitations.* PCBs interim effluent limitations shall remain in effect until May 17, 2010, or until the Regional Water Board amends the limitations based on additional data, SSOs, or the WLA in the TMDL.
- viii. *Antibacksliding/Antidegradation.* Antibacksliding and antidegradation requirements are satisfied, since final limits are more stringent than the previous permit. This is because values of a sum of 7 compounds are more stringent than the same values for each compound.

**Table 20F -Summary of Water Quality-based Effluent Limitations Discharge Point E-001**

Parameter	Units	Final Effluent Limits		Interim Effluent Limits	
		Daily Maximum (MDEL)	Monthly Average (AMEL)	Daily Maximum	Monthly Average
Copper	µg/L	25	13		
Lead	µg/L	15	7.4		
Mercury	µg/L	0.046	0.017		0.075
Nickel	µg/L	66	45		
Selenium	µg/L	7.4	4.4	34	
Cyanide	µg/L	6.4	3.7	25	
TCDD Equivalents	µg/L			1*10 <sup>-7</sup>	
Heptachlor Epoxide	µg/L	0.0018	0.00088		
Total PCBs <sup>1</sup>	µg/L	0.00017	0.00034	0.5	

<sup>1</sup> The PCB limit applies to the sum of the following individual PCB compounds: PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, and PCB-1260.

**6. Feasibility Evaluation and Compliance Schedules:**

**a. Feasibility Evaluation.** The Discharger submitted infeasibility to comply reports on March 23, 2006, for mercury, selenium, cyanide, PCBs, and TCDD Equivalents. For constituents that Board staff could perform a meaningful statistical analysis (i.e., selenium), it used self-monitoring data from 2003- 2005 to compare the median, 95<sup>th</sup> percentile, and 99<sup>th</sup> percentile with the long-term average (LTA), AMEL, and MDEL to confirm if it is feasible for the Discharger to comply with WQBELs. If the LTA, AMEL, and MDEL all exceed the mean, 95<sup>th</sup> percentile, and 99<sup>th</sup> percentile, it is feasible for the Discharger to comply with WQBELs. Table 21F below shows these comparisons in µg/L.

**Table 21F - Summary of Feasibility Analysis**

	<u>Median /</u> <u>LTA</u>	<u>95<sup>th</sup> /</u> <u>AMEL</u>	<u>99<sup>th</sup> /</u> <u>MDEL</u>	<u>Feasible to</u> <u>Comply</u>
Selenium	9.7 > 3.2	19 > 4.4	26 > 7.4	No

On mercury, the data could not be transformed to fit a normal distribution, and therefore, it was not possible to perform a statistical analysis with the comparisons shown in Table 21F. The observed maximum effluent concentration of mercury between 2003 and 2005 was 0.11 µg/L, which exceeds the AMEL calculated in accordance with the SIP. Therefore, it is infeasible for the Discharger to immediately comply with final WQBELs for mercury.

For cyanide, PCBs, and TCDD Equivalents, it was not possible to statistically analyze the data due to the number of nondetects. On cyanide, the observed maximum effluent concentration of 4.8 µg/L exceeds the AMEL calculated in accordance with the SIP. Therefore, it is infeasible for the Discharger to immediately comply with final WQBELs for cyanide. For PCBs and TCDD Equivalents, all data from 2003 through 2005 has been nondetect, and the minimum levels are too high to evaluate compliance with the final WQBELs.

**b. Compliance Schedules.** This permit establishes compliance schedules until May 17, 2010, PCBs; and until April 27, 2010 for mercury, cyanide, and selenium. Since these compliance schedules are within the effective date of the permit, this Order includes final WQBELs. For TCDD-TEQ, this permit established a compliance schedule until June 30, 2011, which exceeds the length of the permit.

During the compliance schedules, interim limitations are included based on current treatment facility performance or on previous permit limitations, whichever is more stringent to maintain existing water quality. The Regional Water Board may take appropriate enforcement actions if interim limitations and requirements are not met.

**i. Total PCBs.** For total PCBs, the previous permit did not grant an interim limit. As it is not possible for the Discharger to document compliance because U.S. EPA approved analytical methods cannot quantify total PCBs at low enough levels, it is not possible to determine compliance with final limits. Because SIP §2.1 provides for a maximum five-year compliance schedule, and the Discharger has not been previously granted such a schedule under §2.1, the Discharger qualifies for such a §2.1 schedule up to the maximum statutory date (May 17, 2010), which is ten years from the effective date of the CTR/SIP. The basis for this compliance schedule is the CTR/SIP.

**ii. Mercury.** For mercury, the previous permit included an interim limit that was to remain effective until May 18, 2010. However, the basis for the mercury compliance schedule in previous permit (Basin Plan/CTR) was incorrect. The compliance schedule for final mercury limits should be based on the Basin Plan and SIP (i.e., 10 years from the effective date of the SIP). Therefore, in this Order, compliance with final mercury limits must be achieved by no later than April 28, 2010.

**iii. Cyanide.** For cyanide, the Regional Water Board granted, in the previous permit, a compliance schedule pursuant to the 2000 SIP §2.2.2, Interim Requirements for Providing Data (note 2005 SIP amendment deleted this section as it is not applicable to permits effective after May 18, 2003). This was to allow collection of ambient data, because the Regional Monitoring Program data were not complete primarily due to inadequate detection limits. The Discharger, thru BACWA and WSPA, helped fund an effort to collect these data as part of the collaborative receiving water monitoring for other CTR pollutants. The Regional Water Board has received these data, which form the basis for current permits. However, the use of the SIP to grant a compliance schedule for cyanide in the previous permit was incorrect. The NTR promulgated water quality objectives for cyanide, with the Basin Plan as the implementation tool, and therefore, the compliance schedule provisions in the SIP are not applicable. This is because SIP compliance schedules apply only to "...CTR criterion-based effluent limitations..." The Basin Plan provides for a 10-year compliance schedule for implementation of measures to comply with new standards as of the effective date of those standards. This provision has been construed to authorize compliance schedules for new interpretations of existing standards, if the new interpretations result in more stringent limits than in the previous permit. As the SIP methodology for calculating water quality based effluent limits results in more stringent limits, the Basin Plan provides for a 10-year compliance schedule from the effective date of the SIP. Therefore, in this Order, compliance with final cyanide limits must be achieved by no later than April 28, 2010.

**iv. Selenium.** For selenium, the Regional Water Board included an interim limit that was to remain effective until June 30, 2006 based on the CTR and SIP. The National Toxics Rule promulgated water quality objectives for selenium, and therefore, this CTR/SIP compliance schedule was incorrect. In the case of NTR pollutants (as stated for cyanide), the compliance schedule provisions in the SIP do not apply because §2.1 of the SIP applies only to "...CTR criterion-based effluent limitations..." As with cyanide, the SIP methodology for calculating water quality based effluent limits results in more stringent limits. Therefore, the Basin Plan provides for a 10-year compliance schedule from the effective date of this SIP. Therefore, in this Order, compliance with final selenium limits must be achieved by no later than April 28, 2010.

**v. TCDD Equivalents.** For TCDD Equivalents, the previous permit included an interim limits that was to remain effective until June 30, 2011. This Order carries over the compliance schedule from the previous permit.

## **7. Whole Effluent Toxicity (WET)**

- a. Acute Toxicity - Effluent Limitation A.2c:** The Basin Plan specifies a narrative objective for toxicity, requiring that all waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental response on aquatic organisms. Detrimental response includes but is not limited to decreased growth rate, decreased reproductive success of resident or indicator species, and/or significant alternations in population, community ecology, or receiving water biota. These effluent toxicity limits are necessary to ensure that this objective is protected. The acute toxicity limit is consistent with the previous permit and is based on the Basin Plan Table 4-2, page 4-69.

**b. Chronic Toxicity - Effluent Limitation A.2d:** The chronic toxicity limit is consistent with the previous permit and is based on the Basin Plan's narrative toxicity definition on page 3-4.

**8. Interim Mass Limits**

**a. Mercury Interim Mass Limit - Effluent Limitation A.3:** This Order establishes a running average mercury, mass-based effluent limitation of 0.149 kilograms per month. This limit is based on the previous permit. This mass-based effluent limitation maintains current loadings until a TMDL is established and is consistent with state and federal antidegradation and antibacksliding requirements. The final mass based effluent limitation will be based on the WLA derived from the mercury TMDL.

**b. Selenium Interim Mass Limit - Effluent Limitation A.4:** This Order includes an interim mass emission limit for selenium of 2.38 lbs/day. This limitation is based on a Settlement Agreement between WSPA and the Board.

**9. Stormwater Limits – Effluent Limitation A.5.** These limits are based on based on 40 CFR § 419 Subpart E.

**10. Credit for Recycled Water Use - Effluent Limitation A.6.** This credit is to encourage the Discharger to use recycled water provided it will not cause toxicity to aquatic life.

**D. Final Effluent Limitations – see above**

**E. Interim Effluent Limitations – see above**

**F. Land Discharge Specifications – N/A**

**G. Reclamation Specifications – N/A**

**V. RATIONALE FOR RECEIVING WATER LIMITATIONS**

**A. Surface Water**

**1. Receiving water limitations V.A.1 through V.A.7 (conditions to be avoided):** These limits are based on the previous Order and the narrative/numerical objectives contained in Chapter 3 of the Basin Plan, page 3-2 – 3-5.

**2. Receiving water limitation V.A.8 (compliance with State Law):** This requirement is in the previous permit, requires compliance with Federal and State law, and is self-explanatory.

## **B. Groundwater – N/A**

# **VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS**

Section 122.48 of 40 CFR requires all NPDES permits to specify recording and reporting of monitoring results. Sections 13267 and 13383 of the California Water Code authorize the Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program, Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for this facility.

**A. Influent Monitoring.** This Order does not require the Discharger to conduct influent monitoring. However, it does provide the Discharger with the opportunity to receive credits for the use of recycled water. In such cases, the Discharger will need to conduct monitoring for such pollutants at I-002.

**B. Effluent Monitoring.** This Order requires monitoring at E-001 for conventional, non-conventional, and toxic pollutants. For conventional pollutants, this Order requires monthly monitoring, which is necessary for evaluating compliance for a major discharger that has daily and monthly loading limits that are based on concentration and flow. For one constituent that the Water Board has granted interim limits (selenium), this Order requires weekly monitoring. The exceptions to this requirement are cyanide, mercury, TCDD Equivalents, and PCBs. Additional cost and effort is required for ultra-clean mercury monitoring, thus this Order requires monthly monitoring. For cyanide this Order requires monthly monitoring due to the significant number of nondetects. For TCDD Equivalents, and PCBs due to the considerable costs and the non-detects the Discharger has found, this Order requires twice yearly monitoring, which is also consistent with the SIP. Further, this Order requires monthly monitoring of copper, lead, and nickel, and quarterly monitoring for heptachlor epoxide to demonstrate compliance with final effluent limitations.

**C. Whole Effluent Toxicity Testing Requirements.** This Order requires weekly monitoring for acute toxicity, and quarterly monitoring for chronic toxicity. Additionally, this Order requires that the Discharger conduct screening phase monitoring for chronic toxicity to ensure that it continues to monitor the most sensitive species. Whole effluent toxicity monitoring is necessary to ensure that unmonitored pollutants, or pollutants that may have synergistic effects will not have adverse impacts to aquatic life.

## **D. Receiving Water Monitoring**

### **1. Surface Water**

This Order requires monitoring at location C-001 for conventional pollutants that are unchanged from the previous permit. For toxic pollutants, this Order allows the Discharger to participate in collaborative receiving water monitoring with other dischargers under the provisions of the August 6, 2001 letter, and the RMP, in lieu of near field discharge specific ambient monitoring.

## **2. Groundwater – N/A**

### **E. Other Monitoring Requirements – Stormwater**

This Order includes monitoring at locations E-002, E-003, and E-008 through E-023 (with the exception of E-012) for oil and grease, total organic carbon, pH, total suspended solids and specific conductance. This monitoring is necessary to evaluate compliance with effluent limitations, and ensure the Discharger is implementing best management practices.

Additionally, this Order requires priority pollutant monitoring at locations E-011 and E-013 due to historic contamination within these basins.

## **VII. RATIONALE FOR PROVISIONS**

### **A. Standard Provisions – (Provision A)**

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 to the Order.

### **B. Special Provisions – (Provision C)**

#### **1. Reopener Provisions**

These provisions are based on 40 CFR 123 and allow future modification of this Order and its effluent limitations as necessary in response to updated WQOs that may be established in the future.

#### **2. Permit Compliance and Rescission of Previous Waste Discharge Requirements**

Time of compliance is based on 40 CFR 122. The basis of this Order superseding and rescinding the previous permit is based on 40 CFR 122.46.

#### **3. Effluent Characterization for Selected Constituents**

This provision establishes monitoring requirements as stated in the Board's August 6, 2001 Letter under Effluent Monitoring for major dischargers. Interim and final reports shall be submitted to the Board in accordance with the schedule specified in the August 6, 2001 Letter. This provision is based on the Basin Plan and the SIP.

#### **4. Receiving Water Monitoring**

This provision, which requires the Discharger to continue to conduct receiving water monitoring is based on the previous Order and the Basin Plan.

#### **5. Pollutant Prevention and Minimization Program**

This provision is based on the Basin Plan, page 4-25 – 4-28, and the SIP, Section 2.1, Compliance Schedules.

#### **6. Mass and Concentration Credits**

This provision is necessary to protect beneficial uses identified in the Basin Plan (the Discharger must ensure that granting it pollutant credits for the use of recycled water will not cause toxicity). As explained earlier in the Fact Sheet, this Order limits dilution to 10:1 for conservative pollutants, and does not grant dilution for bioaccumulative pollutants where

there is evidence that they are accumulating to unsafe levels in wildlife. The use of recycled water will not increase the mass of pollutants discharged to the Bay (i.e., bioaccumulative pollutants will be discharge at the same levels or less than would otherwise be discharged to the Bay without reclamation), and therefore, the granting of mass credits for such pollutants is protective. While the Board has established its support for reclamation projects, there is a concern that granting concentration credits could cause a zone of toxicity. The flip side is that without concentration credits, it may be infeasible for a Discharger to move forward with a recycled water project. In this case, the discharge is relatively close to the RMP background station used to calculate water quality based effluent limits, the Discharger's dilution study shows a minimum dilution of at least 200:1, the use of recycled water will not increase the mass of pollutants discharged to the Bay, and the Board supports the use of recycled water. As such, to document that the use of recycled water is not causing a zone of aquatic toxicity, it is appropriate to consider a dilution factor greater than 10:1. Since Section 1.4.2.2 of the SIP states that "a mixing zone shall be as small as practicable," it is appropriate to use a dilution factor much 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 from a more concentrated discharge. At a minimum, before the Discharger is eligible to receive recycled water concentration credits, it will need to document that concentrations of pollutants in its effluent (E-001) do not exceed the following water quality thresholds:

**Table 22F: Maximum Allowable Concentrations in E-001 to Receive Reclamation Credits for Recycled Water**

Constituent	Thresholds for Reclamation Credits		Interim Limits	
	Average Monthly (µg/L)	Maximum Daily (µg/L)	Maximum Daily (µg/L)	Average Monthly (µg/L)
Copper <sup>4</sup>	23	45		
Lead	14	28		
Nickel <sup>4</sup>	87	130		
Cyanide <sup>2</sup>	7.1	12	25	
Cyanide (alt limits) <sup>3</sup>	44	76		
Heptachlor Epoxide	0.0017	0.0035		

- <sup>1</sup> As mercury, selenium, TCDD Equivalents, and total PCBs are bioaccumulative pollutants, and will be regulated through a waste load allocation in a TMDL, additional concentration credits for these pollutants is not provided for in this Order.
- <sup>2</sup> The interim limit for cyanide remains effective until April 27, 2010, or until site-specific criteria become applicable. If site-specific criteria for cyanide are not applicable by April 27, 2010, these are the maximum concentrations the Discharger shall use for determining whether it can be granted concentration credits for this pollutant.
- <sup>3</sup> Should the alternative limits for cyanide become effective, as described in this Order, these are the maximum concentrations the Discharger shall use for determining whether it can be granted concentrations credits for this pollutant.
- <sup>4</sup> The threshold values for copper and nickel may be updated based on the copper and nickel site-specific objectives and translators being developed for San Francisco Bay.

The values shown in Table 22 are the maximum allowable concentrations in E-001 for the Discharger to be eligible to receive recycled water concentration credits. If the Discharger is eligible for such credits, it will still need to document that with these credits, using the

procedure indicated in Effluent Limitations and Discharge Specifications A.6, it complies with the limitations shown under Effluent Limitations and Discharge Specifications A.2.

**7. Storm Water Pollution Prevention Plan and Annual Report**

This provision is based on and consistent with Basin Plan objectives, statewide storm water requirements for industrial facilities, and applicable USEPA regulations.

**8. Whole Effluent Acute Toxicity**

This provision establishes conditions by which compliance with permit effluent limits for acute toxicity will be demonstrated. Conditions include the use of flow through bioassays with rainbow trout, in accordance with *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms*, 5<sup>th</sup> Edition. These conditions are based on the effluent limits for acute toxicity given in the Basin Plan, Chapter 4, and BPJ.

**9. Chronic Toxicity**

This provision establishes conditions and protocol by which compliance with the Basin Plan narrative WQO for toxicity will be demonstrated. Conditions include required monitoring and evaluation of the effluent for chronic toxicity and numerical values for chronic toxicity evaluation to be used as 'triggers' for initiating accelerated monitoring and toxicity reduction evaluation(s). These conditions apply to the discharges to San Francisco Bay and the numerical values for chronic toxicity evaluation are based on a minimum initial dilution ratio of 10:1. This provision also requires the Discharger to conduct a screening phase monitoring requirement and implement toxicity identification and reduction evaluations when there is consistent chronic toxicity in the discharge. New testing species and/or test methodology may be available before the next permit renewal. Characteristics, and thus toxicity, of the process wastewater may also have been changed during the life of the permit. This screening phase monitoring is important to help determine which test species is most sensitive to the toxicity of the effluent for future compliance monitoring. The proposed conditions in the draft permit for chronic toxicity are based on the Basin Plan narrative WQO for toxicity, Basin Plan effluent limitations for chronic toxicity (Basin Plan, Chapter 4), U.S. EPA and SWRCB Task Force guidance, applicable federal regulations [40 CFR 122.44(d)(1)(v)], and BPJ.

**10. Optional Mass Offset**

This option is provided to encourage the Discharger to implement aggressive reduction of mass loads to San Pablo Bay.

**11. Contingency Plan Update**

This provision is based on the requirements stipulated in Board Resolution No. 74-10.

**12. Collection System Maintenance**

This provision, based on the Basin Plan, is necessary to document that the Discharger implements appropriate operation and maintenance of its collection system to avoid spills to the maximum extent feasible. The Basin Plan prohibits the discharge of oil or any residuary product of petroleum to the waters of the State, except in accordance with waste discharge requirements or other Provisions of Division 7 of the California Water Code. As any discharge from Chevron's collection system would be unpermitted, it is appropriate to

have Chevron document that it properly maintains its collection system to show that all wastewater generated onsite reaches its treatment plant.

### **13. Actions for Compliance Schedule Pollutants**

This provision, based on the SIP, requires that the Discharger participate in the development of a TMDL or SSO for mercury, cyanide, selenium, PCBs, and dioxin-TEQ. In accordance with Section 2.1 of the SIP, and Chapter 4 of the Basin Plan, for the Board to authorize compliance schedules in a permit the Discharger must, in part, propose a schedule for additional or future source control measures, pollution minimization actions, or waste treatment. In the case of mercury, cyanide, selenium, PCBs, and dioxin-TEQ, the Discharger indicates that it proposes to achieve compliance with final limits through the SSO or TMDL process. Therefore, annual reporting on Discharger's efforts to facilitate SSO or TMDL development along with implementation of its Pollution Minimization Plan (required by Provision C.5) satisfy the intent of Section 2.1 of the SIP. In the event TMDL(s) or SSO(s) are not developed for mercury, selenium, cyanide, or PCBs by July 1, 2009, this provision also requires the Discharger to submit a schedule that documents how it will further reduce pollutant concentrations to ensure compliance with the final limits.

### **14. Wastewater Discharges from the Wetland**

This provision is based on the previous Order. The Discharger operates a water enhancement wetland to improve the quality of treated wastewater before it is routed to San Pablo Bay. While for the last five years the Discharger has routed all wetland effluent to the GAC facility before discharge to San Pablo Bay, it has indicated that it would like to retain the option to discharge up to 3 mgd of wetland effluent directly to outfall 001. To document that such a discharge will not pose a threat to water quality, this Order requires the Discharger to document that wetland effluent will not cause acute toxicity. This is because the main function of the GAC facility is to eliminate acute toxicity.

### **15. Changes in Control or Ownership**

This provision is based on 40 CFR 122.61.

## **VIII. PUBLIC PARTICIPATION**

The California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the Chevron Richmond Refinery. As a step in the WDR adoption process, the Regional Water Board staff 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 Dischargers 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 their written comments and recommendations. Notification was provided through the following: (a) paper and electronic copies of this Order were relayed to

the Discharger, and (b) the Martinez News Gazette published a notice that this item would appear before the Board on June 14, 2006.

#### **B. Written Comments**

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments should be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on May 15, 2006.

#### **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: June 14, 2006  
Time: 9:00 am  
Location: Elihu Harris State Office Building  
1515 Clay Street, 1<sup>st</sup> Floor Auditorium  
Oakland, CA 94612

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. Our web address is [www.waterboards.ca.gov/sanfranciscobay](http://www.waterboards.ca.gov/sanfranciscobay) where you can access the current agenda for changes in dates and locations.

#### **D. Waste Discharge Requirements Petitions**

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final 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 (RWD), 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 through the Regional Water Board 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, [rschlipf@waterboards.ca.gov](mailto:rschlipf@waterboards.ca.gov).

**Attachment 1:** Calculations for Production-Based Effluent Limitations

**Attachment 2:** RPA Results for Priority Pollutants at E-001

**Attachment 3:** Calculation of Final WQBELs at E-001

ATTACHMENT 1

CALCULATIONS FOR PRODUCTION-BASED  
BPT, BCT, AND BAT EFFLUENT LIMITATIONS  
FOR  
CHEVRON RICHMOND REFINERY

References:

- 1) 40 CFR § 419 Subpart E Effluent Limitations Guidelines and New Source Performance Standards for the Petroleum Refining Point Source Category (Integrated Subcategory)
- 2) Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Petroleum Refining Point Source Category
- 3) Guide for the Application of Effluent Limitations Guidelines for the Petroleum Refining Industry
- 4) NPDES Application for Permit Reissuance (November 2005)
- 5) Refinery Production Data 2002 – 2005, provided by the facility. The highest 12-month average from this period was used in calculations (June 2004 through May 2005).

Production-Based Effluent Limitations

**STEP 1:** Determine the size factor based on the refinery feedstock rate. Based on 40 CFR § 419 Subpart E, a total refinery throughput of 224.2 kbb/d results in a

SIZE FACTOR = 0.99

**STEP 2:** Determine the process configuration based on the process rates:

Process	Process Feedstock Rate (kbb/d)	Fraction of Total Throughput	Weight Factor	Process Configuration
Total Refinery Throughput = 224.2 kbb/d				
<b>CRUDE:</b>				
Atmospheric Distillation	224.2	1.0		
Vacuum Crude Distillation	102.6	0.458		
Desalting	241.5	1.077		
<b>TOTAL</b>	<b>568.3</b>	<b>2.535</b>	<b>1</b>	<b>2.535</b>
<b>CRACKING &amp; COKING:</b>				
Fluid Catalytic Cracking	67.4	0.301		
Hydrocracking	114.2	0.509		
Hydrotreating	156.2	0.697		
<b>TOTAL</b>	<b>337.8</b>	<b>1.507</b>	<b>6</b>	<b>9.042</b>
<b>LUBE</b>				
Lube Hydrofining	20.3	0.0905		
Propane Deasphalting	40.3	0.1798		
<b>TOTAL</b>	<b>60.6</b>	<b>0.2703</b>	<b>13</b>	<b>3.514</b>
<b>TOTAL PROCESS CONFIGURATION =</b>				<b>15.09</b>

(kbb/d = Thousand Barrels per day)

**STEP 3:** Determine the process factor. Based on 40 CFR § 419 Subpart E, a total process configuration of 15.09 results in a

PROCESS FACTOR = 2.26

**STEP 4:** Based on 40 CFR § 419.22(a), 419.23(a), and 419.24(a), the BPT/BAT/BCT effluent limit is equal to  
(THROUGHPUT) X (SIZE FACTOR) X (PROCESS FACTOR) X (EFFLUENT LIMIT FACTOR)

$$\text{EFFLUENT LIMIT} = (224.2)(0.99)(2.26)(\text{Effluent Limit Factor})$$

$$= (501.6)(\text{Effluent Limit Factor})$$

Pollutant	Effluent Limit in 40 CFR 419E						Multiplier	Final Limit Calculated						Final Limit	
	BPT		BAT		BCT			BPT		BAT		BCT		Daily Max	30-d Avg
	Daily Max	30-d Avg	Daily Max	30-d Avg	Daily Max	30-d Avg		Daily Max	30-d Avg	Daily Max	30-d Avg	Daily Max	30-d Avg		
	lb/kbbl	lb/kbbl	lb/kbbl	lb/kbbl	lb/kbbl	lb/kbbl		lb/d	lb/d	lb/d	lb/d	lb/d	lb/d	lb/d	lb/d
COD <sub>5</sub>	19.2	10.2			19.2	10.2	501.6	9630	5116			9630	5116	9630	5116
SS	13.2	8.4			13.2	8.4	501.6	6621	4213			6621	4213	6621	4213
DOC	42.2	22.4					501.6	21167	11235					21167	11235
Oil & Grease	6	3.2			6	3.2	501.6	3010	1605			3010	1605	3010	1605
Phenols (4AAP)*	0.14	0.068					501.6	70.22	34.11					70.22	34.11
NH <sub>3</sub> -N	8.3	3.8	8.3	3.8			501.6	4163	1906	4163	1906			4163	1906
Sulfide	0.124	0.056	0.124	0.056			501.6	62.2	28.1	62.2	28.1			62.2	28.1
Total Cr	0.29	0.17					501.6	145.5	85.3					145.5	85.3
Hex Cr	0.025	0.011					501.6	12.5	5.5					12.5	5.5

\*The BPT limits for these constituents are applicable only if they are more stringent than BAT limits (see STEP 5) below).

**STEP 5:** Calculate Amended BAT limits pursuant to 40 CFR § 419.53, for phenolic compounds (4AAP), total and hexavalent chromium. The effluent limit is equal to the sum of the products of each effluent limitation factor times the applicable process feedstock rate.

Pollutant	Process Category	BAT Effluent Limit Factors (lb/kbbl)		Feedstock (kbbl/d)	Effluent Limitation (lb/d)	
		Daily Max.	30-d Average		Daily Max.	30-d Average
Phenolic Compounds (4AAP)	Crude	0.013	0.003	568.3	7.39	1.70
	Cracking & Coking	0.147	0.036	337.8	49.66	12.16
	Lube	0.369	0.090	60.6	22.36	5.45
	Reforming & Alkylation	0.132	0.032	68.1	8.99	2.18
				TOTAL	88.40	21.50
Total Chromium	Crude	0.011	0.004	568.3	6.25	2.27
	Cracking & Coking	0.119	0.041	337.8	40.20	13.85
	Lube	0.299	0.104	60.6	18.12	6.30
	Reforming & Alkylation	0.107	0.037	68.1	7.29	2.52
				TOTAL	71.86	24.95
Hexavalent Chromium	Crude	0.0007	0.0003	568.3	0.40	0.17
	Cracking & Coking	0.0076	0.0034	337.8	2.57	1.15
	Lube	0.0192	0.0087	60.6	1.16	0.53
	Reforming & Alkylation	0.0069	0.0031	68.1	0.47	0.21
				TOTAL	4.60	2.06

**STEP 6:** Compare Amended BAT limitations for phenolic compounds (4AAP), total chromium, and hexavalent chromium with BPT limitations.

Except for daily maximum limitation for phenolic compounds, the above BAT limits are more stringent than the BPT limits calculated in STEP 4. Therefore, for these constituents, the above BAT limits, and the daily maximum BPT limit for phenolic compounds are considered for inclusion in the permit.

Chemero Richmond Refinery  
Attachment 2  
Responsible Potential Analysis Results

Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10	Step 11	Step 12	Step 13	Step 14	Step 15	Step 16	Step 17	Step 18	Step 19	Step 20	Step 21	Step 22	Step 23	Step 24	Step 25	Step 26	Step 27	Step 28	Step 29	Step 30	Step 31	Step 32	Step 33	Step 34	Step 35	Step 36	Step 37	Step 38	Step 39	Step 40	Step 41	Step 42	Step 43	Step 44	Step 45	Step 46	Step 47	Step 48	Step 49	Step 50	Step 51	Step 52	Step 53	Step 54	Step 55	Step 56	Step 57	Step 58	Step 59	Step 60	Step 61	Step 62	Step 63	Step 64	Step 65	Step 66	Step 67	Step 68	Step 69	Step 70	Step 71	Step 72	Step 73	Step 74	Step 75	Step 76	Step 77	Step 78	Step 79	Step 80	Step 81	Step 82	Step 83	Step 84	Step 85	Step 86	Step 87	Step 88	Step 89	Step 90	Step 91	Step 92	Step 93	Step 94	Step 95	Step 96	Step 97	Step 98	Step 99	Step 100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100





Beginning	Compound name	RP7	Acute ECA		Chronic ECA	Human Health ECA	CV by SIP Guidance	Acute ECA (Sigma <sup>2</sup> ) Sigma	Chronic ECA (Sigma <sup>2</sup> ) Sigma	Acute ECA Multiplier	Chronic ECA Multiplier	Acute LTA	Chronic LTA	AMEL Sigma <sup>2</sup>	AMEL Sigma	AMEL Multiplier	AMEL Multiplier	AMEL	MDEL Human Health	AMEL Human Health	Daily Maximum Average	Monthly Average
			ECA	ECA																		
60	Benzofuran																					
61	Benzofuran																					
62	Benzofuran																					
63	Benzofuran																					
64	Benzofuran																					
65	Benzofuran																					
66	Benzofuran																					
67	Benzofuran																					
68	Benzofuran																					
69	Benzofuran																					
70	Benzofuran																					
71	2-Chlorophenol																					
72	4-Chlorophenol																					
73	Chlorophenol																					
74	Chlorophenol																					
75	1,2-Dichlorobenzene																					
76	1,4-Dichlorobenzene																					
77	1,4-Dichlorobenzene																					
78	3,3-Dichlorobenzene																					
79	Dinitro Phenol																					
80	Dinitro Phenol																					
81	Di-n-Butyl Phthalate																					
82	2,4-Dinitrochlorobenzene																					
83	Di-n-Butyl Phthalate																					
84	Di-n-Butyl Phthalate																					
85	1,2-Dinitrobenzene																					
86	Fluoranthene																					
87	Fluorene																					
88	Hexachlorobenzene																					
89	Hexachlorobenzene																					
90	Hexachlorobenzene																					
91	Hexachlorobenzene																					
92	Hexachlorobenzene																					
93	Isophthalic acid																					
94	Naphthalene																					
95	Nitrobenzene																					
96	Nitrobenzene																					
97	Nitrobenzene																					
98	Nitrobenzene																					
99	Nitrobenzene																					
100	Pyrene																					
101	1,2,4-Trinitrobenzene																					
102	Acid																					
103	alpha-BHC																					
104	Beta-BHC																					
105	Gamma-BHC																					
106	Gamma-BHC																					
107	Chlorobenzene (R301, R302)																					
108	4,4'-DDT (DDE) (R60)																					
109	4,4'-DDE (R60)																					
110	4,4'-DDD																					
111	Dieldrin (R031, R032)																					
112	Endosulfan																					
113	Endosulfan																					
114	Endosulfan																					
115	Endosulfan																					
116	Endosulfan																					
117	Heptachlor																					
118	Heptachlor Epoxide																					
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## ATTACHMENT G – CHRONIC TOXICITY – DEFINITIONS OF TERMS AND SCREENING PHASE REQUIREMENTS

### CHRONIC TOXICITY

#### DEFINITION OF TERMS & SCREENING PHASE REQUIREMENTS

##### **I. Definition of Terms**

- A. No observed effect level (NOEL) for compliance determination is equal to IC<sub>25</sub> or EC<sub>25</sub>. If the IC<sub>25</sub> or EC<sub>25</sub> 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-Kärber. EC<sub>25</sub> is the concentration of toxicant (in percent effluent) that causes a response in 25% 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 non-lethal, non-quantal biological measurement, such as growth. For example, an IC<sub>25</sub> is the estimated concentration of toxicant that would cause a 25% 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 Tables 1 and 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 Table 3 (attached); and
  - 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; and
  4. Concurrent reference toxicant tests.
- C. The Discharger shall submit a screening phase proposal to the Executive Officer for approval. The proposal shall address each of the elements listed above.

**TABLE 1  
 CRITICAL LIFE STAGE TOXICITY TESTS FOR ESTUARINE WATERS**

TEST SPECIES	(Scientific name)	EFFECT	DURATION	REFERENCE
algae	( <u>Skeletonema costatum</u> ) ( <u>Thalassiosira pseudonana</u> )	growth rate	4 days	1
red algae	( <u>Champia parvula</u> )	number of cystocarps	7-9 days	3
Giant kelp	( <u>Macrocystis pyrifera</u> )	percent germination; germ tube length	48 hours	2
abalone	( <u>Haliotis rufescens</u> )	abnormal shell development	48 hours	2
oyster mussel	( <u>Crassostrea gigas</u> ) ( <u>Mytilus edulis</u> )	{abnormal shell development; {percent survival	48 hours	2
Echinoderms (urchins - (sand dollar -	<u>Strongylocentrotus purpuratus</u> , <u>S. franciscanus</u> ); <u>Dendraster excentricus</u> )	percent fertilization	1 hour	2
shrimp	( <u>Americamysis bahia</u> )	percent survival; growth	7 days	3
shrimp	( <u>holmesimysis costata</u> )	percent survival; growth	7 days	2
topsmelt	( <u>Atherinops affinis</u> )	percent survival; growth	7 days	2
silversides	( <u>Menidia beryllina</u> )	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. USEPA/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 as specified in 40CFR 136. Currently, this is USEPA/600/4-90/003, July 1994. Later editions may replace this version.

**TABLE 2  
 CRITICAL LIFE STAGE TOXICITY TESTS FOR FRESH WATERS**

SPECIES	(Scientific name)	EFFECT	TEST DURATION	REFERENCE
fathead minnow	( <u>Pimephales promelas</u> )	survival; growth rate	7 days	4
water flea	( <u>Ceriodaphnia dubia</u> )	survival; number of young	7 days	4
alga	( <u>Selenastrum capricornutum</u> )	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 as specified in 40CFR 136. Currently, this is the third edition, USEPA/600/4-91/002, July 1994. Later editions may replace this version.

**TABLE 3**

**TOXICITY TEST REQUIREMENTS FOR STAGE ONE SCREENING PHASE**

REQUIREMENTS	RECEIVING WATER CHARACTERISTICS		
	Discharges to Coast	Discharges to San Francisco Bay ‡	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic Diversity:	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater (†):	0 4	1 or 2 3 or 4	3 0
Marine/Estuarine:			
Total number of tests:	4	5	3

- † The fresh water species may be substituted with marine species if:
- 1) The salinity of the effluent is above 1 parts per thousand (ppt) greater than 95% of the time, or
  - 2) 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.

- ‡ Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95% of the time during a normal water year.  
 Fresh refers to receiving water with salinities less than 1 ppt at least 95% of the time during a normal water year.

## Attachment H – Form A

### STORMWATER / BALLAST WATER ALLOCATION PROCEDURE

This procedure uses a bankbook to inventory stormwater. Any stormwater in excess of the estimated processed stormwater is inventoried. Stormwater allocations are calculated using the actual processed stormwater developed in the attached table.

#### Definitions:

**Dry Weather Season** - The months of June to September exclusive of a one-week period following any rainstorm.

**Estimated Dry Weather Process Wastewater Flow** - The average effluent flow rate during the previous dry weather season.

**Stormwater Runoff** - The product of the inches of rainfall and the runoff factor.

**Estimated Processed Stormwater** - The difference between the actual effluent flow rate and the ballast water plus dry weather flow rate.

**Stormwater Bankbook** - Calculated inventoried stormwater.

**Actual Process Stormwater** - If the stormwater bankbook is not zero, the actual process stormwater equals the estimated flow. If the bankbook is zero, the actual processed stormwater is equal to the stormwater runoff for that day plus the bankbook for the previous day.

# Attachment H – Form A

TABLE FOR RECORDS OF RAINFALL, STORMWATER RUNOFF, AND BALLAST FLOW

Date	Rainfall (inches)	Storm Runoff Flow (rainfall x runoff factor) Gallons	Ballast Flow in Gallons
1-2			
2-3			
3-4			
4-5			
5-6			
6-7			
7-8			
8-9			
9-10			
10-11			
11-12			
12-13			
13-14			
14-15			
15-16			
16-17			
17-18			
18-19			
19-20			
20-21			
21-22			
22-23			
23-24			
24-25			
25-26			
26-27			
27-28			
28-29			
29-30			
30-31			
31-1			
Total			
Monthly Average			

# Attachment H – Form A

## STORMWATER/BALLAST WATER ALLOCATION PROCEDURE

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
				Dry Weather	Estimated Processed	Stormwater Bankbook	Actual Processed	Ballast Water
Rainfall (inch)	Stormwater Runoff (MGD)	Effluent Flow (MGD)	Effluent Flow (MGD)	Stormwater Processed (MGD)	Stormwater Bankbook (MGD)	Stormwater Processed (MGD)	Stormwater Processed (MGD)	Ballast Water (MGD)
1								
2								
3								
30								
Average								
Total								
Maximum								

Previous Month's Bankbook =

Column (B) = Column (A) X Runoff Factor.

Column (D) = Dry Weather Effluent Flow + Documented Process Water Increment.

Column (E) = Column (C) - Column (D) - Column (H).

Column (F):

Column (F) = Column (E) + Column (B) - Column (E);

Column (F) = 0, if Column (E) < 0.

Column (G):

Column (G) = Column (E), if Column (E) > 0;

Column (G) = Column (B) + Column (F); if Column (E) = 0.

Attachment H – Form A

CALCULATION OF STORMWATER AND BALLAST WATER ALLOCATIONS

30-Day Average Limitation	Monthly Average Storm Runoff + Ballast Water Flow (expressed in 1000 gallons/day)	Allocation Factor (kg/1000 gallons)	A.1 + Effluent Limits (kg/day)	Total Effluent Limit (kg/day)	Year
BOD <sub>5</sub>	x	0.098	=	+	=
TSS	x	0.079	=	+	=
TOC	x	0.22	=	+	=
COD	x	0.68	=	+	=
O&G	x	0.03	=	+	=
Phenol	x	0.00064	=	+	=
Total	x	0.00079	=	+	=
Hex	x	0.00011	=	+	=
Chrome	x	0.00011	=	+	=

# Attachment H – Form A

## REPORT FORMAT FOR ADJUSTED EFFLUENT LIMITATIONS

	MAXIMUM DAILY LIMITS					
BOD (kg/day)	TSS (kg/day)	COD (kg/day)	O&G (kg/day)	PHENOL (kg/day)	TOTAL CHROME (kg/day)	HEX CHROME (kg/day)
DATE						

**Maximum Daily Limit = Effluent Limit B.5 + Stormwater Allocation**  
 (kg/day)                      (Daily Max in kg/day)                      (Daily Max in kg/day)

**Stormwater Allocation = Effluent Limit B.6 x Daily Processed Stormwater x 3.785 liters/gal**  
 (kg/day)                      (Daily Max in mg/l)                      (in MGD)