

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 01-067
NPDES NO. CA0005134

WASTE DISCHARGE REQUIREMENTS FOR:

CHEVRON U.S.A. INC., RICHMOND REFINERY,
CHEVRON CHEMICAL COMPANY LLC, RICHMOND PLANT, AND
GENERAL CHEMICAL CORPORATION, RICHMOND WORKS,
RICHMOND, CONTRA COSTA COUNTY

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

1. Chevron U.S.A. Inc., Richmond Refinery (Chevron) has applied for reissuance of National Pollutant Discharge Elimination System (NPDES) permit No. CA0005134.

FACILITY DESCRIPTION

2. Chevron operates a petroleum refinery with an average crude throughput of 225,000 barrels of oil per day. The refinery manufactures a broad range of petroleum products (e.g., fuels, lubricants, blending components, sulfur, and ammonia) 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.

3. 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.
4. 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.

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

EXISTING PERMIT

6. The NPDES permit regulates the discharge of effluent from the Chevron Richmond Refinery's wastewater treatment plant and the discharges of stormwater associated with industrial activity from the Chevron Richmond Refinery, Chevron Chemical Company LLC Richmond facility, and General Chemical Company Richmond Works. These discharges were previously governed by Waste Discharge Requirements specified in Order No. 92-111 adopted by the Board on September 16, 1992 and as modified by the Board on September 17, 1997. The conditions of Order No. 92-111 as amended, were continued in effect past the expiration date, in accordance with NPDES regulations, by letter of the Executive Officer dated July 23, 1997.

MAJOR DISCHARGER

7. The State and the USEPA have classified the discharger as a major discharger.

DISCHARGE/TREATMENT DESCRIPTIONS

8. Discharges are described below and are based on the information contained in the Report of Waste Discharge and recent self-monitoring reports. Figure 1 and 2 of this Order shows the flow diagram for the process wastewater treatment plant. Figure 3 shows the drainage areas and location of discharge points.
 - a. **Waste 001** averages 4.0 million gallons per day (mgd) during dry weather conditions and approximates 6.8 mgd on a yearly average. Waste 001 consists mostly of: refinery wastewater associated with petroleum refining, petrochemical manufacturing and research (including water generated from: processing operations; cooling water facilities; water treatment facilities; steam and electrical generation facilities; steam distribution systems; fire protection and safety systems, and laboratories [including Chevron Research and Technology Research Center, another division of Chevron U.S.A. Inc.]); and groundwater. In addition, Waste 001 contains wastewater associated with chemical manufacturing at General Chemical Corporation (approximately 0.144 mgd on a yearly average, including stormwater) and stormwater runoff from Chevron U.S.A. Inc. and General Chemical Corporation properties.

Waste 001 may also contain a relatively small amount of water generated from: construction dewatering at the refinery and offsite marketing and pipeline facilities; groundwater monitoring and remediation activities at offsite marketing and pipeline facilities; tank wash water and water draws at offsite marketing and pipeline facilities; hydrotesting offsite pipelines; ship ballast water discharges (including

slops); equipment inspection and maintenance activities; waste treatment operations; and sources of wastewater from storage tanks at offsite marketing and pipeline facilities (and other wastewater streams identified in the permit application).

Oily and some non-oily wastewater streams contributing to Waste 001 are first treated in one of three API separators. Treatment then consists of biological treatment in an aerated lagoon and adsorption in a Granular Activated Carbon (GAC) Facility. Non-oily wastewater streams may be routed directly to the aerated lagoon for treatment. The capacity of the GAC Facility is designed to be 20 mgd.

The Discharger routes a portion of aerated lagoon effluent directly to its water enhancement wetland (Wetland). The use of the Wetland as a treatment stage for wastewater is optional. However, the discharge from the Wetland shall be managed pursuant to the requirement of this Order.

The final discharge of Waste 001 is through a deepwater outfall at an average depth of 30-50 feet into San Pablo Bay, approximately 2000 feet offshore to the north of Point San Pablo. This discharge point is referred to as E-001. (Lat. 37°58'15", Long. 122°25'45")

- b. **Waste 005*** (11 Basin) 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. (Lat. 37°57'30", Long. 122°25'30")
- c. **Waste 006** (10 Basin) 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. (Lat. 37°57'15", Long. 122°25'15")
- d. **Waste 007** (Horse Pasture) 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. (Lat. 37°57'15", Long. 122°25'15")
- e. **Waste 008** 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 (Lat. 37°57'15", Long. 122°23'30"), or is transferred to the North Yard Impound Basin for discharge as part of the North Yard Impound Basin discharge.
- f. **Waste 009** (8 Basin) 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

* The Discharger has eliminated or re-routed Waste 002, 003, and 004.

into San Francisco Bay at outfall location E-009. (Lat. 37°56'00", Long. 122°24'15")

- g. **Waste 010** 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. (Lat. 37°57'15", Long. 122°22'45")
- h. **Waste 011** 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. (Lat. 37°56'45", Long. 122°22'30")

- i. **Waste 012** 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 for facility washdown. Runoff originates 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 is collected in evaporation ponds located along the west side of Castro Street.

Waste 012, which collects in the fertilizer ponds, is not permitted to discharge to surface waters under typical rainfall conditions as it may contain trace contaminants. Typically, Waste 012 is discharged to the fertilizer ponds, which provide necessary surge capacity before discharge to the City of Richmond POTW. However, during periods of high intensity rainfall (in excess of a 25-year, 24-hour rainfall event), Waste 012 may be discharged into Castro Creek at an outfall identified as E-012. (Lat. 37°56'45", Long. 122°22'30")

- j. **Waste 013** 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. (Lat. 37°57'00", Long. 122°22'45").

- k. **1-Basin** 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. Refer to the attached discharge location map (Figure 3) for the 1-Basin discharge location into the stormwater management system. (Lat. 37°55'60", Long. 122°23'30")
- l. **2- Basin** 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. Refer to the attached discharge location map (Figure 3) for the 1-Basin discharge location into the stormwater management system. (Lat. 37°55'60", Long. 122°23'30")
- m. **3-Basin** 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. (Lat. 37°55'45", Long. 122°24'00").
- n. **7-Basin** 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. (Lat. 37°55'45", Long. 122°24'00")
- o. **9-Basin** 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. (Lat. 37°57'15", Long. 122°24'45")
- p. **12-Basin** 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 10-Basin and discharged at E-006 as part of Waste 006. (Lat. 37°57'15", Long. 122°25'15")
- q. **Castro Street** 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. (Lat. 37°57'15", Long. 122°23'15")

- r. **Consolidation Area** 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. (Lat. 37°57'00", Long. 122°22'45")
- s. **Gertrude Street Site** discharge consists of stormwater runoff from a capped waste management unit area of approximately 3 acres. Runoff from the Gertrude Street Site is routed to the Gertrude Street ditch which drains to Wildcat Creek. Wildcat Creek flows to Castro Creek then to San Pablo Bay. (Lat. 37°57'15", Long. 122°25'45")
- t. **Landfill 15** 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. (Lat. 37°56'45", Long. 122°22'30")
- u. **North Yard Impound Basin** (1st Pass #1 Oxidation Pond) 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. (Lat. 37°57'15", Long. 122°23'30").
- v. **Parr-Richmond Site** 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. (Lat. 37°57'15", Long. 122°25'45")
- w. **Richmond Long Wharf** 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. (Lat. 37°55'15", Long. 122°24'30")

APPLICABLE PLANS, POLICIES AND REGULATIONS

- 9. On June 21, 1995, the Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan), which was subsequently approved by the State Water Resources Control Board (State Board) and the Office of Administrative Law on July 20, and November 13, respectively, of 1995. The Basin Plan identifies beneficial uses and water quality objectives for surface waters in the region, as well as effluent limitations and

discharge prohibitions intended to protect those uses. This Order implements the plans, policies, and provisions of the Board's Basin Plan.

10. California Toxic Rule: On May 18, 2000, the US EPA published the *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (Federal Register, Volume 65, Number 97, 18 May 2000). These standards are generally referred to as the California Toxics Rule (CTR). The CTR specified water quality standards for numerous pollutants, of which some are applicable to the Discharger's effluent discharges.
11. State Implementation Policy: on March 2, 2000, the State Water Resources Control Board (State Board) adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bay and Estuaries of California*. This policy prescribes the plans for implementing the water quality standards in the CTR. This policy is generally referred to as the State Implementation Plan (SIP). The SIP was subsequently approved by the Office of Administrative Law on April 28, 2000.
12. The beneficial uses of San Pablo Bay, Castro Creek (tributary of San Pablo Bay), Castro Cove (tributary of San Pablo Bay), and San Francisco Bay are as follows:

San Pablo Bay (including Castro Cove and Castro Creek, tributaries to San Pablo Bay)

- a. Ocean, commercial, and sport fishing,
- b. Estuarine habitat,
- c. Industrial service supply,
- d. Fish migration,
- e. Navigation,
- f. Preservation of rare and endangered species,
- g. Water contact recreation,
- h. Non-contact water recreation,
- i. Shellfish harvesting,
- j. Fish spawning, and
- k. Wildlife habitat.

San Francisco Bay

- a. Ocean, commercial, and sport fishing,
- b. Estuarine habitat,
- c. Industrial service supply,
- d. Fish migration,
- e. Navigation,
- f. Industrial process supply
- g. Preservation of rare and endangered species,
- h. Water contact recreation,
- i. Non-contact water recreation,
- j. Shellfish harvesting,
- k. Fish spawning, and
- l. Wildlife habitat.

13. The reissuance of waste discharge requirements for these discharges is exempt from the provisions of Chapter 3 (commencing with section 21100 of Division 13) of the Public Resources Code (CEQA) pursuant to section 13389 of the California Water Code.
14. Under 40 CFR § 122.44, "Establishing Limitations, Standards, and Other Permit Conditions", NPDES permits should also include toxic pollutant limitations if the Discharger uses or manufactures a toxic pollutant as an intermediate or final product or byproduct.
15. Effluent limitations and toxic effluent standards established pursuant to sections 301, 304, 306, and 307 of the Federal Water Pollution Control Act and amendments thereto are applicable to the discharges herein

Basis for Effluent Limitations:

General Basis

16. Water Quality Objectives (WQOs) and Effluent Limits: WQOs and effluent limitations in this permit are based on the SIP; the plans, policies and water quality objectives and criteria of the 1995 Basin Plan, CTR (Federal Register Volume 65, No. 97), Quality Criteria for Water (EPA 440/5-86-001, 1986 and subsequent amendments "Gold Book"), applicable Federal Regulations (40 CFR Parts 122 and 131), National Toxics Rule (57 FR 60848, 22 December 1992; 40 CFR Part 131.36(b), "NTR"), National Toxics Rule Amendment (Federal Register Vol. 60, No. 86, 4 May 1995 pg. 22229-22237), and best professional judgment (BPJ) as defined in the Basin Plan. Where numeric water quality criteria have not been promulgated, 40CFR122.44(d) specifies that water quality based effluent limits may be set based on USEPA criteria and supplemented where necessary by other relevant information to attain and maintain narrative water quality criteria to fully protect designated beneficial uses.
17. BPJ Guidance: U.S EPA guidance documents upon which BPJ was developed may include in part:
 - Technical Support Document for Water Quality Based Toxics Control March 1991,
 - USEPA Region 9 Guidance For NPDES Permit Issuance February 1994,
 - Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria October 1, 1993,
 - Whole Effluent Toxicity (WET) Control Policy July 1994,
 - Draft National Guidance for the Permitting, Monitoring, and Enforcement of Water Quality-based Effluent Limitations set Below Analytical Detection/Quantification Levels March 18, 1994,
 - National Policy Regarding Whole Effluent Toxicity Enforcement, August 14, 1995,
 - Clarifications Regarding Flexibility in 40 CFR Part 136 Whole Effluent Toxicity (WET) Test Methods, April 10, 1996,
 - Interim Guidance for Performance - Based Reductions of NPDES Permit Monitoring Frequencies April 19, 1996,
 - USEPA Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Programs Final May 31, 1996,
 - Draft Whole Effluent Toxicity (WET) Implementation Strategy February 19, 1997.

18. **Applicable Water Quality Objectives:** The Basin Plan contains numeric water quality objectives (WQOs) as well as narrative objectives for toxicity and bioaccumulation in order to protect beneficial uses. The narrative objective for toxicity states: "All waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental responses in aquatic organisms". The narrative objective for bioaccumulation states, in part: Controllable water quality factors shall not cause a detrimental increase in concentration of toxic substances found in bottom sediments or aquatic life. Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information. The CTR promulgates numeric aquatic life criteria for toxic pollutants, numeric human health criteria for many toxic pollutants and a compliance schedule which authorizes the State to issue schedules of compliance for new or revised NPDES permit limits based on the federal criteria when certain conditions are met. This Order also includes effluent limits for pollutants listed in the latest 303(d) report as impairing the beneficial uses or quality of waters.
19. **CTR Receiving Water Salinity Policy:** The CTR states that the salinity characteristics (i.e., fresh water vs. marine water) of the receiving water shall be considered in establishing water quality objectives. Freshwater quality objectives shall apply to discharges to waters with salinities equal to or less than one part per thousand (ppt) at least 95 percent of the time. Marine (saltwater) water quality objectives 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 fresh waters that support estuarine beneficial uses, effluent limitations shall be the lower of the marine or freshwater quality objectives, based on ambient hardness, for each substance.
20. **Receiving Water Salinity:** The information submitted by the Discharger (see Attachment A) and evaluated by staff, shows that more than five percent of the time the receiving water salinity is between 1 ppt and 10 ppt. Thus, the receiving water is considered estuarine in character.
21. **Effluent limitation guidelines** requiring the application of best practicable control technology currently available (BPT), best conventional pollutant control technology (BCT), and best available technology economically achievable (BAT) were promulgated by the USEPA for some of the pollutants in this discharge. Effluent limitations for pollutants not subject to the USEPA effluent limitation guidelines are based on one of the following: best professional judgment (BPJ) of BPT, BCT or BAT; current plant performance; or, they are water quality-based effluent limitations (WQBELs). The WQBELs are based on the Basin Plan, other State Plans and policies, or USEPA water quality criteria.

303(d)-LISTED POLLUTANTS

22. On May 12, 1999, the USEPA approved a revised list of impaired waterbodies prepared by the State. The list (hereinafter referred to as the 303(d) list) was prepared in accordance with section 303(d) of the federal Clean Water Act to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources. San Pablo Bay is listed as one of these impaired water bodies. The pollutants impairing San Pablo Bay include copper, mercury, nickel, selenium, exotic species, total PCBs, dioxin and furan compounds, chlordane, DDT, Dieldrin, Diazinon, and dioxin-like PCBs.

TOTAL MAXIMUM DAILY LOADS and WASTE LOAD ALLOCATIONS

23. Based on the adopted 303(d) list of pollutants impairing San Pablo Bay, the Board plans to adopt Total Maximum Daily Loads (TMDLs) for these pollutants no later than 2010 (U.S. EPA is the lead agency for development of dioxin TMDL). However, future review of the 303(d) list for San Pablo Bay may result in revision of the schedules and/or provide schedules for other pollutants.
24. The TMDLs will establish waste load allocations (WLAs) and load allocations for point sources and non-point sources, respectively, and will result in achieving the water quality standards for the waterbody. The final effluent limitations for this discharge will be consistent with the WLAs that are derived from the TMDLs.
25. The following summarizes the Board's strategy to collect water quality data and to develop TMDLs:
 - a. Data collection – The Board will request dischargers collectively assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or water quality objectives. The 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 also be used to update/revise the 303(d) list and/or change the water quality objectives for the impaired waterbodies including San Pablo Bay.
 - b. Funding mechanism – The Board has received, and anticipates continuation to receive, resources from federal and state agencies for the development of TMDLs. To ensure timely development of TMDLs, the Board intends to supplement these resources by allocating development costs among dischargers through the RMP or other appropriate funding mechanisms.

REASONABLE POTENTIAL (RP)

26. When a discharge causes, has the reasonable potential to cause, or contributes to a receiving water excursion above a narrative or numeric criteria within a State water quality standard, federal law and regulations, as specified in 40 CFR § 122.44(d) (1) (i), require the establishment of WQBELs that will protect water quality. Pollutants exhibiting RP in the discharge authorized by this Order are identified below. The Board plans to adopt TMDLs that will include WLAs for the 303(d)-listed pollutants, except for dioxins and furans. The Board defers development of the TMDL for dioxins and furans to the U.S. EPA. When each TMDL is complete, the Board will adopt a WQBEL consistent with the corresponding WLA. A time schedule may be included in the revised permit to require compliance with the final WQBELs.

Interim Limits

27. Bases for Interim Limits:
 - a. The Board, state and federal antibacksliding (there are exceptions to this policy) and antidegradation policies require that the Board (in most cases) retain effluent concentration limits from the Previous Order (or plant performance, whichever is

more stringent) to ensure that the waterbody will not become further degraded. In addition to these interim concentration limits, interim performance-based mass limits are required to limit discharge of 303(d)-listed pollutants' mass loads to their current levels. These interim mass limits are based on recent discharge data. Where pollutants have existing high detection limits (such as total PCBs, Chlordane, DDT, Dieldrin, certain congeners of Dioxins and Furans, etc.), on a case by case interim mass limits may not be required because meaningful performance-based limits cannot be calculated for those pollutants with non-detectable concentrations. However, the dischargers, are required to investigate alternative analytical procedures that result in lower detection limits. This may occur either through participation in new RMP special studies or through equivalent studies conducted jointly with other dischargers. One exception to this is dioxins and furans. The discharger will participate, through the RMP, in a special study to investigate the feasibility and reliability of increasing sample size to reduce the detection limits for these dioxin and furan compounds.

- b. If an existing discharger cannot immediately comply with a new and more stringent effluent limitation, the SIP and the Basin Plan authorize a compliance schedule in the permit. To qualify for a compliance schedule, both the SIP and the Basin Plan require that the discharger demonstrate that it is infeasible to achieve immediate compliance with the new limit. The SIP and Basin Plan require that the following information be submitted to the Board to support a finding of infeasibility:
 - i. documentation that diligent efforts have been made to quantify pollutant levels in the discharge and sources of the pollutant in the waste stream, including the results of those efforts;
 - ii. documentation of source control and/or pollution minimization efforts currently under way or completed;
 - iii. a proposed schedule for additional or future source control measures, pollutant minimization or waste treatment; and
 - iv. a demonstration that the proposed schedule is as short as practicable
- c. On May 23, 2001, the Discharger submitted "Request For Compliance Schedule and Demonstration of Infeasibility To Achieve Immediate Compliance With Calculated Effluent Limitation." Based on the information in this report, Board finds that the Discharger has fulfilled all of the above requirements and is eligible for compliance schedules for mercury, nickel, selenium, cyanide, aldrin, A-BHC, chlordane, DDT, DDE, DDD, dieldrin, alpha-Endosulfan, beta-Endosulfan, endrin, and dioxin. Furthermore, the schedules established in this Order are as short as practicable.

Reasonable Potential Analysis

28. As specified in Section 1.3 of the SIP, permits are required to include WQBELs for all pollutants discharges "which may 1) cause, 2) have the reasonable potential to cause, or 3) contribute to an excursion above any applicable priority pollutant criterion or objective." Using the method prescribed in the Section 1.3 of the SIP, Board staff has analyzed the effluent data to determine if the discharges which are the subject of this Permit and Order have a reasonable potential to cause or contribute to an excursion above any applicable

priority pollutant criterion or objective ("Reasonable Potential Analysis" or "RPA").

- a. **Reasonable Potential Determination:** The RPA involves identifying the observed maximum effluent concentration (MEC) for each constituent based on effluent concentration data. There are two triggers in determining reasonable potential. For the first trigger, the MEC is compared with the lowest applicable WQO, which has been adjusted for pH, hardness, and translator data, if appropriate. If the MEC is greater than the (adjusted) WQO, then there is reasonable potential for that constituent to cause or contribute to an excursion above the WQO and a water-quality based effluent limitation (WQBEL) is required. The second trigger is activated, if the MEC is less than the adjusted WQO, then the observed maximum ambient concentration (B) for the pollutant is compared with the adjusted WQO. If B is greater than the adjusted WQO, then WQBEL is required. If B is less than the WQO, then a limit is only required under certain circumstances to protect beneficial uses. If a pollutant was not detected in any of the effluent samples and all of the detection levels are greater than or equal to the adjusted WQO, then the background concentration is compared with the adjusted WQO. For all parameters that have reasonable potential to cause or contribute to an exceedance of a WQO, numeric water quality-based effluent limitations (WQBELs) are required. WQBELs are based on USEPA water quality criteria and the Basin Plan objectives. The RPA compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQOs from the USEPA Gold Book, NTR, and CTR.
- b. **RPA Data:** The RPA was based on effluent monitoring data for the past three or five years for metals, semi volatile organic, dioxins and furans, and other organic compounds.
- c. **Discharges to San Pablo Bay:**
 - The detection limits for the following pollutants are above WQO: Aldrin, A-BHC, Benzo(a)Anthracene, Benzo(k)Fluoranthene, chlordane, DDT, DDE, Dieldrin, alpha-Endosulfan, beta-Endosulfan, Endrin, Heptachlor, Hexachlorobenzene, PCBs, Toxaphene, and certain congeners of Dioxins and Furans. However, due to the Discharger's past activities (Chevron Chemical past activity included manufacturing and/or formulating fertilizers and pesticides) and present activities, there is reasonable potential for these organic constituents to exceed the applicable water quality objective. Thus, this Order contains an effluent limitation for each of these pollutants.
 - **No Reasonable Potential:** Based on the RP analysis the priority pollutants, which have not been listed above, have no reasonable potential to cause or contribute to excursion above applicable water quality objective.
 - **Reasonable Potential and Final Effluent Limitation:** Based on the RP analysis the following constituents are found to have reasonable potential to cause or contribute to an excursion above water quality objectives: cadmium, copper, lead, zinc, Benzo(a)Anthracene, Benzo(k)Fluoranthene, Benzo(a)Pyrene, chrysene, Dibenzo(a,h)Anthracene, G-BHC, heptachlor, heptachloro-benzene, heptachlor Epoxide, Indeno(1,2,3-cd)Pyrene, PCBs, and Toxaphene. Thus, this Order contains a final effluent limitation for each of these pollutants.

- Reasonable Potential and Interim Effluent Limitation: Based on the RP analysis the following constituent are found to have reasonable potential to cause or contribute to an excursion above water quality objectives: nickel, mercury, selenium, cyanide, aldrin, A-BHC, chlordane, DDT, DDE, DDD, dieldrin, alpha-Endosulfan, beta-Endosulfan, endrin, and dioxin. On May 23, 2001, Chevron submitted feasibility studies to evaluate immediate compliance with the WQBELs. Staff approved the feasibility studies for these pollutants. Thus, interim limits with compliance schedules were established for these pollutants.

Summary of Reasonable Potential Analysis (RPA) Determinations: The WQOs, Maximum Observed Effluent Concentration and reasonable potential conclusions from the RPA are listed in the following table for each constituent analyzed. All the data are in µg/L.

CONSTITUENT	Water Quality Objective(µg/L)	Maximum Observed Concentration (MEC) or Lowest DL*(µg/L)	Reasonable Potential ?
Antimony	4300	91	no
Arsenic	36	23.2	no
Beryllium	no objec.	5	no
Cadmium	9.3	9.1	no
Chromium (VI)	50	10	no
Chromium (III)	180	5	no
Copper	3.7	9.54	yes
Lead	5.6	9.6	yes
Mercury	0.025	0.123	yes
Nickel	7.1	43.16	yes
Selenium	5	49	yes
Silver	2.3	1	no
Thallium	6.3	160	DL
Zinc	58	314	yes
Cyanide	1	21	yes
2,3,7,8-TCDD (Dioxin)	0.00000014	See Findings	
Acrolein	780	10	no
Acrylonitrile	0.66	10	DL
Benzene	71	1	no
Bromoform	360	0.5	no
Carbon Tetrachloride	4.4	0.5	no
Chlorobenzene	21000	0.5	no
Chlorodibromomethane	34	0.5	no
Chloroethane	no objec.	1	no
2-Chloroethylvinyl Ether	no objec.	0.5	no
Chloroform	no objec.	0.5	no
Dichlorobromomethane	46	0.5	no
1,1-Dichloroethane	0	0.5	no
1,2-Dichloroethane	99	0.5	no

CONSTITUENT	Water Quality Objective($\mu\text{g/L}$)	Maximum Observed Concentration (MEC) or Lowest DL*($\mu\text{g/L}$)	Reasonable Potential ?
1,1-Dichloroethylene	3.2	0.5	no
1,2-Dichloropropane	39	0.5	no
1,3-Dichloropropylene	1700	0.5	no
Ethylbenzene	29000	1	no
Methyl Bromide	4000	0.9	no
Methyl Chloride	no objec.	1	no
Methylene Chloride	1600	1	no
1,1,2,2-Tetrachloroethane	11	0.5	no
Tetrachloroethylene	8.85	1	no
Toluene	200000	1	no
1,2-Trans-Dichloroethylene	140000	0.5	no
1,1,1-Trichloroethane	no objec.	0.5	no
1,1,2-Trichloroethane	42	0.5	no
Trichloroethylene	81	0.5	no
Vinyl Chloride	525	0.5	no
2-Chlorophenol	400	5	no
2,4-Dichlorophenol	790	5	no
2,4-Dimethylphenol	2300	5	no
2-Methyl-4,6-Dinitrophenol	765	10	no
2,4-Dinitrophenol	14000	10	no
2-Nitrophenol	no objec.	5	no
4-Nitrophenol	no objec.	5	no
3-Methyl-4-Chlorophenol	no objec.	5	no
Pentachlorophenol	7.9	5	no
Phenol	500	5	no
2,4,6-Trichlorophenol	6.5	5	no
Acenaphthene	2700	1	no
Acenaphthylene	no objec.	1	no
Anthracene	110000	1	no
Benzidine	0.00054	20	DL
Benzo(a)Anthracene	0.049	0.1	DL
Benzo(a)Pyrene	0.049	0.26	yes
Benzo(b)Fluoranthene	0.049	0.14	yes
Benzo(ghi)Perylene	no objec.	0.29	CD
Benzo(k)Fluoranthene	0.049	0.05	DL
Bis(2-Chloroethoxy)Methane	no objec.	5	no
Bis(2-Chloroethyl)Ether	1.4	5	DL
Bis(2-Chloroisopropyl)Ether	170000	10	no
Bis(2-Ethylhexyl)Phthalate	5.9	10	DL
4-Bromophenyl Phenyl Ether	no objec.	5	no
Butylbenzyl Phthalate	5200	5	no

CONSTITUENT	Water Quality Objective($\mu\text{g/L}$)	Maximum Observed Concentration (MEC) or Lowest DL*($\mu\text{g/L}$)	Reasonable Potential ?
2-Chloronaphthalene	4300	5	no
4-Chlorophenyl Phenyl Ether	no objec.	5	no
Chrysene	0.049	0.17	yes
Dibenzo(a,h)Anthracene	0.049	0.18	yes
1,2 Dichlorobenzene	17000	0.5	no
1,3 Dichlorobenzene	2600	0.5	no
1,4 Dichlorobenzene	2600	0.5	no
3,3,1-Dichlorobenzidine	0.077	20	DL
Diethyl Phthalate	120000	5	no
Dimethyl Phthalate	2900000	5	no
Di-n-Butyl Phthalate	12000	10	no
2,4-Dinitrotoluene	9.1	5	no
2,6-Dinitrotoluene	no objec.	5	no
Di-n-Octyl Phthalate	no objec.	5	no
1,2-Diphenylhydrazine	0.54	5	DL
Fluoranthene	370	5	no
Fluorene	14000	1	no
Hexachlorobenzene	0.00077	5	DL
Hexachlorobutadiene	50	10	no
Hexachlorocyclopentadiene	17000	25	no
Hexachloroethane	8.9	5	no
Indeno(1,2,3-cd) Pyrene	0.049	0.28	yes
Isophorone	600	10	no
naphthalene	no objec.	5	no
Nitrobenzene	1900	5	no
N-Nitrosodimethylamine	8.1	10	DL
N-Nitrosodi-n-Propylamine	1.4	5	DL
N-Nitrosodiphenylamine	16	5	no
Phenanthrene	no objec.	0.1	no
Pyrene	11000	1.1	no
1,2,4-Trichlorobenzene	no objec.	10	no
Aldrin	0.00014	0.025	DL
alpha-BHC	0.013	0.025	DL
beta-BHC	0.046	0.025	no
gamma-BHC	0.063	0.14	yes
delta-BHC	no objec.	0.025	no
Chlordane	0.00059	0.12	DL
4,4-DDT	0.00059	0.05	DL
4,4-DDE	0.00059	0.05	DL
4,4-DDD	0.00084	0.05	DL
Dieldrin	0.00014	0.05	DL

CONSTITUENT	Water Quality Objective(µg/L)	Maximum Observed Concentration (MEC) or Lowest DL*(µg/L)	Reasonable Potential ?
alpha-Endosulfan	0.0087	0.025	DL
beta-Endosulfan	0.0087	0.05	DL
Endosulfan Sulfate	240	0.05	no
Endrin	0.0023	0.05	DL
Endrin Aldehyde	0.81	0.05	no
Heptachlor	0.00021	0.025	DL
Heptchlor Epoxide	0.00011	0.03	yes
PCBs	0.00017	100	DL
Toxaphene	0.0002	1.2	DL
Tributyltin	0.005	0.002	no

*Table Definitions:

CD	= Can not determine reasonable potential due to the absence of data
DL	= Detection limit above water quality objective
no	= No reasonable potential
No Objec.	= No water quality objective available
yes	= Reasonable potential

d. Reasonable Potential Analysis for Dioxin.

- (1) The CTR establishes a standard for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) of 0.014 picograms per liter (pg/l) for the protection of human health from consumption of aquatic organisms.
- (2) Although the CTR establishes a numeric standard for just one of the dioxin-like compounds, the preamble of the CTR states that California should use toxicity equivalents or TEQs in NPDES Permits where there is a reasonable potential for dioxin-like compounds to cause or contribute to a violation of a narrative criterion. The preamble further states U.S. EPA's intent to use the 1998 World Health Organization Toxicity Equivalence Factor (TEF)¹ scheme in the future and encourages California to use this scheme in State programs. Finally, the preamble states U.S. EPA's intent to adopt revised water quality criteria guidance subsequent to their health reassessment for dioxin-like compounds.
- (3) The SIP establishes the implementation policy for all toxic pollutants including dioxins and furans. The SIP requires a limit for 2,3,7,8-TCDD if a limit is necessary, and requires monitoring for a minimum of 3 years by all major NPDES dischargers for the other sixteen dioxins and furan compounds.
- (4) The Basin Plan specifies a narrative objective for bio-accumulative substances:

“Many pollutants can accumulate on particulates, in sediments, or

¹ The 1998 WHO scheme includes TEFs for dioxin-like PCBs. But since dioxin – like PCBs are already included within “Total PCBs” for which the CTR has established a specific standard, dioxin – like PCBs are not included in the TEF scheme used in this Order.

bio-accumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.”

This objective is applicable to dioxins and furan compounds. There is consensus in the scientific community that these compounds associate with particulates, accumulate in sediments, and bio-accumulate in the fatty tissue of fish and other organisms.

- (5) The U.S. EPA's 303(d) listing determined that the narrative objective for bio-accumulative pollutants was not met because of the levels of dioxins and furans in the fish tissue. Since dioxins and furans do not readily breakdown, there is a reasonable potential for the Discharger to contribute to the impairment (determined by the U.S. EPA) of the narrative objective.
 - (6) The analytical detection limits for dioxin sampling need to be improved. Dioxins tend to be ubiquitous in Bay Area stormwater and other discharges. The Regional Monitoring Program (“RMP”), to which all major dischargers contribute, is the appropriate forum to investigate the feasibility of lowering the detection limits. This is a neutral and credible scientific program managed by the San Francisco Estuary Institute. The Discharger has agreed and will participate in this investigation through the RMP.
- e. **Other Constituents with Limited Data:** Reasonable Potential cannot be determined for various priority pollutants because estimations are not possible for a majority of this subset of constituents due to water quality objectives or effluent limitations that are lower than current analytical techniques can measure. This Order requires the Discharger to continue to monitor for these constituents using analytical methods that provide the best detection limits reasonably feasible. If detection limits improve to the point where it is feasible to evaluate compliance with applicable water quality criteria, a reasonable potential analysis will be conducted to determine whether there is need to add numeric effluent limits to the permit or to continue monitoring.
 - f. *Monitoring.* For constituents that do not show a reasonable potential to cause or contribute to exceedance of applicable water quality objectives, effluent limits are not included in the permit but continued monitoring is required as identified in the self-monitoring program of the permit. If significant increases occur in the concentrations of these constituents, the Discharger shall be required to investigate the source of the increases and establish remedial measures if the increases pose a threat to water quality.
 - g. *Permit Reopener.* The order includes a reopener provision to allow numeric effluent limits to be added for any constituent that exhibits reasonable potential to cause or contribute to exceedance of a water quality objective. This determination, based on monitoring results, shall be made by the Board.

29. Mercury

- a. **Mercury Water Quality Objectives and TMDL.** For mercury, the national chronic

criterion is based on protection of human health. The criterion is intended to limit the bioaccumulation of methyl-mercury in fish and shellfish to levels that are safe for human consumption. As described in the Gold Book, the fresh water criterion is based on the Final Residual Value of 0.012 µg/L derived from the bioconcentration factor (BCF) of 81,700 for methyl mercury with the fathead minnow. The saltwater criterion of 0.025 µg/L was similarly derived using the BCF of 40,000 obtained for methylmercury with the eastern oyster and the criterion is listed in the 1986 Basin Plan. The CTR adopted a dissolved mercury water quality objective of 0.05 µg/L for protection of human health. However, pursuant to Footnote b in the CTR's Table of Criteria for Priority Toxic Pollutants, "criteria apply to California water except for those waters subject to objectives in Table III-2A and III-2B of the San Francisco Bay Regional Water Quality Control Board's (SFRWQCB) 1986 Basin Plan, that were adopted by the SFRWQCB and the State Water Resources Control Board, approved by USEPA, and which continue to apply". Although ambient background concentrations are below WQOs for protection of both fresh and salt-water aquatic species, San Pablo Bay is listed as impaired for mercury because of fish tissue level exceedances. These WQOs were meant to limit bioaccumulation of methyl-mercury in fish and shellfish; they have clearly not succeeded in accomplishing this. The Board intends to work toward the derivation of a TMDL that will lead towards overall reduction of mercury mass loadings in the watershed. Based on these studies, the final limit will be derived based on an adopted TMDL/WLA.

- b. *Mercury Strategy.* Board staff is in the process of developing a plan to address control of mercury levels in San Francisco Bay including San Pablo Bay. At present, it appears that the most appropriate course of action is to apply interim mass loading limits to these discharges, and focus mercury reduction efforts on more significant and controllable sources. While site-specific objectives and Total Maximum Daily Loads (TMDLs) are being developed, the Discharger will be held accountable for maintaining ambient conditions in the receiving water by complying with performance-based mass emission limits for mercury. This permit includes interim concentration and mass emission loading limits.
- c. *Effluent Concentration Limit.* Regional Board staff performed a statistical analysis of "low detection limit" (ultraclean) mercury data pooled from the refinery dischargers in the Region. The purpose of the study is to evaluate the feasibility of establishing a regionwide interim performance-based effluent limitation for mercury. This interim limitation is derived from pooled data from five local refineries and thus applicable to all refineries in the region. .

The statistical analysis used pooled data because dischargers began using ultraclean mercury sampling and analytical techniques in January 2000. As a result, only about 14 to 16 ultraclean mercury data points were available; any interpretation from a statistical analysis based on a small sample size of up to 16 data points may be of limited use, unreliable, and prone to significant error. In light of the similarities between refineries regarding the nature of their process wastes and treatment technologies involved, it is reasonable to pool the ultraclean mercury data from the refineries to enable a statistical approach to setting interim limit based on best available information and performance. Statistical analysis from this pooled data set results in uniform interim mercury effluent limit that is applicable to refinery discharges.

Data were gathered from the Region's Electronic Reporting Program database. A statistical analysis was carried out upon data verification. Based on the analysis, Regional Board staff proposes an interim monthly average effluent limitation of 75 ng/l for mercury.

- d. *Mass Emission Limit.* A mass-based loading limit (mass emission limit) for mercury is established in this Order. This limit is the average value plus three standard of deviation of calculated total mercury mass loading from the discharge, based on effluent data from past three years. This mass limit is designed to hold the Discharger to current loadings until a TMDL is established and is intended to address anti-degradation concerns. The final effluent limit will be based on the WLA derived from the mercury TMDL. When a final WLA is approved for the Discharger, the permit may be reopened. Based on Board staff's report titled "Watershed Management of Mercury in the San Francisco Bay Estuary: Total Maximum Daily Load Report to U.S. EPA," dated June 30, 2000, point sources are a very small contributor of the mercury load to the Bay. Because of this, it is unlikely that the TMDL will require reduction efforts beyond the requirements of this permit or a separate 13267 letter.

Assimilative Capacity

30. In response to the State Board's recommendation (SB Order #2001-06), staff has evaluated the assimilative capacity of the receiving water for 303(d) listed pollutants and pollutants which Chevron has reasonable potential. The evaluation included review of RMP data, effluent data and WQOs. From this evaluation, staff has found that the assimilative capacity is highly variable due to the complex hydrology of the receiving water. Therefore, there is uncertainty associated with the representativeness of the appropriate ambient background data to conclusively quantify the assimilative capacity of the receiving water. However, in calculating the final WQBEL to facilitate feasibility demonstration, for non-bioaccumulative constituents, it is assumed there is assimilative capacity, and a 10:1 dilution is granted. Conversely, for bioaccumulative constituents, it is assumed there is no assimilative capacity and a 10:1 dilution is not granted.
31. As stated in the State Board's Order 2001-06, "the regulation [CFR Section 122.44(d)(1)(ii)] directed the Regional Water Board to consider dilution 'where appropriate.'" For 303 (d) listed bioaccumulative impairing pollutants, controlling the mass of the pollution discharged is critical. This is because the impairment is due to fish tissue exceedances. The concentration of ambient background is secondary to the mass loading. Based on staff evaluation, there are no assimilative capacities for 303(d) listed bioaccumulative impairing pollutants in this case. Dilution credit allows increase in mass discharge there by, further degrades the waterbody. This is contrary to the Federal Anti-degradation policy which "prohibits any action that would lower water quality below that necessary to maintain and protect existing uses... In cases where water quality is lower than necessary to support these uses, the requirement in Section 303(d) of the Clean Water Act, 40 CFR 131.10 and other pertinent regulations must be satisfied". (Guidance on Implementing the Anti-degradation Provisions of 40 CFR 131.12, U.S. EPA, Region 9.) Granting no dilution credit for 303 (d) listed bioaccumulative pollutants in this permit was designed to comply with federal and State Anti-degradation policy.
32. Aldrin, Chlordane, DDT, DDE, DDD, Dieldrin, PCBs, and Texaphene are environmentally persistent, resistant to treatment processes, and prone to undergo bioaccumulation. Pursuant

to Section 1.4.21. of the SIP, "dilution credit may be limited or denied on a pollutant-by-pollutant basis..." Given that these pollutants are bioaccumulative, based on best professional judgment, dilution credits are not included in calculating the final WQBEL.

Compliance Schedule

33. Pursuant to Section 2.1.1 of the SIP, "the compliance schedule provisions for the development and adoption of a TMDL only apply when: ... (b) the discharger has made appropriate commitments to support and expedite the development of the TMDL. In determining appropriate commitments, the RWQCB should consider the discharge's contribution to current loadings and the discharger's ability to participate in TMDL development." The discharger has agreed to assist the Board in TMDL development. One mechanism to demonstrate the commitment maybe for the discharger to enter into agreement with the Board staff to provide specific work products to complete TMDLs.
34. Compliance determination section of the SIP states " Discharger shall be deemed out of compliance with an effluent limitation 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." This implies that compliance will be determined at the ML when the effluent limitation is below ML.
35. On May 23, 2001, Chevron submitted feasibility studies to evaluate immediate compliance with the WQBELs. Along with the discharger's feasibility study, Regional Board staff compared the maximum effluent concentration (MEC) to the AMEL to determine feasibility of compliance with the WQBELs. In the case where the Minimum Level (ML) is above the AMEL, the MEC is compared to the ML instead. For the following pollutants the MEC is greater than the AMEL and the ML, Board staff determined that the discharger could not immediately comply with the WQBELs: aldrin, A-BHC, chlordane, DDT, DDE, DDD, dieldrin, alpha-Endosulfan, beta-Endosulfan, and endrin.
36. For these pollutants, the discharger has satisfied the Basin Plan conditions for granting a compliance schedule. Interim effluent limitations are included in the Order for these pollutants based on the existing permit.

Selenium

37. 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 rate limitations for selenium. Order No. 91-026 specified a limit of 50 ppb as a daily maximum. Order No. 91-099 specified a limit of 2.38 lb/day as a running annual average by December 12, 1993. The monthly mass limit of 72.39 lb/month is calculated based on the limit of 2.38 lb/day.
38. 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 approves the Settlement Agreement between WSPA and the Board.

Cyanide

39. The CTR specifies that the salt water Criterion Chronic Concentration (CCC) of 1 µg/l for cyanide is applicable to Central San Francisco Bay. This CCC value is below the presently achievable reporting limit (ranges from approximately 3 to 5 µg/l).
40. The background data set was very limited as there was only 6 total and 6 dissolved cyanide data points which were all non detects (<1 µg/L) collected at the two background stations in 1993. The non-detect value (<1 µg/L) is equivalent to the WQO (1 µg/L) and causes the dilution portion of the final effluent limit equation to be eliminated, thereby giving no dilution. The calculated WQBELs for cyanide, presented in the fact sheet, are a point of reference to conduct a feasibility study for immediate compliance. Cyanide is a regional problem associated with the analytical protocol for cyanide analysis due to matrix interferences. A body of evidence exists to show that cyanide measurements in effluent may be an artifact of the analytical method. This question is being explored in a national research study sponsored by the Water Environment Research Foundation (WERF).
41. A data collection period is set for May 18, 2003, as the Discharger satisfies the conditions under which to grant one. This Order contains a provision requiring the Discharger to conduct a study for data collection. . The Discharger is required to fully implement the study and submit a final report to the Board by May 18, 2003. The Board intends to include, in a subsequent permit revision, a revised final limit based on the study required as an enforceable limit. However, if the discharger requests and demonstrates that it is infeasible to comply with the revised final limit, the permit revision will establish a maximum five-year compliance schedule.

Dioxin – Basis for Limitation

42. Basis for Final Dioxins and Furans Limitation
 - a. The Discharger's effluent analysis for the past five years was reviewed (see attachment E). For the past five years, only OCDD has been detected in the effluent and only one time.
 - b. This one sample showing a detectable level was flagged as "less than the Lower Method Calibration Limit (LMCL) and should be considered as estimated value" by the discharger's contract analytical laboratory that conducted the work. However, because Chevron generates Dioxin during the regeneration of catalyst in catalytic reformers, it is reasonable to conclude that the discharge has a reasonable potential to cause or contribute to exceedance of a standard.
 - c. Compliance determination section of the SIP states " Discharger shall be deemed out of compliance with an effluent limitation 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." This implies that compliance will be determined at the ML when the effluent limitation is below ML. However, there is no ML for dioxins and furans in the SIP. As a result, Chevron's compliance with a WQBEL for dioxins and furans calculated pursuant to the SIP cannot be determined at this time. In such cases, the Basin Plan allows for a compliance schedule provided the discharger satisfies the Basin Plan

requirement. Chevron submitted feasibility studies to evaluate immediate compliance with the WQBELs. Based on our evaluation, the discharger satisfies the conditions under which to grant a compliance schedule. As a result, a compliance schedule is set for May 18, 2010. In the mean time, this Order specifies an interim limit (existing permit limit) for dioxin TEQ (as TCDD Equivalent.)

43. This Order establishes that a final limit for dioxins will be based on the waste load allocated to the Discharger from the TMDL. A 10-year compliance schedule is specified with an interim limit from the previous permit of 0.1 pg/l TCDD Equivalents. A compliance schedule is warranted because it is infeasible for the Discharger to comply with a new more stringent WQBEL calculated pursuant to the SIP. This calculated WQBEL is presented in the fact sheet and is a point of reference to conduct a feasibility study for immediate compliance. Furthermore, based on the following

- 1) Board staff's report titled "Dioxin in the Bay Environment – A Review of the Environmental Concerns, Regulatory History, Current Status, and Possible Regulatory Options," dated February 1998; and
- 2) U.S. EPA slides titled "Status of Dioxin Reassessment and Policy Response," 2000,

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. The following two findings describe the factors considered for these requirements.

44. The U.S. EPA's 303(d) listing highlights the need for a region wide cross media assessment of the problem. This integrated assessment should result in a more balanced, and more effective limitation for the Discharger. The WQBEL for the Discharger will be based on the WLAs from this TMDL.
45. To assist in developing the TMDL, the Discharger must participate in a special study, through the RMP, to investigate the feasibility and reliability of different methods of increasing sample volumes to lower the detection limits for these dioxin and furan compounds. Furthermore, the Discharger must apply to have the preferred method approved by the U.S. EPA.

Antibacksliding and Antidegradation

46. Compliance with Antibacksliding and Antidegradation

- a. The limitations in this Order are in compliance with the Clean Water Act Section 402(o) prohibition against establishment of less stringent water quality-based effluent limitations for the following reasons:
 - The revised final limitation will be in accordance with the TMDL and waste load allocation once they are established; hence, this amendment is exempt in accordance with Clean Water Act Section 303(d)(4)(A).

- Antibalancing does not apply to the interim limitations established to give time to come into compliance.
 - Even if the antibalancing and antidegradation policies apply to interim limitations under 402(o)(2)(c), a less stringent limitation is necessary because of events over which the Discharger has no control and for which there is no reasonable available remedy.
- b. The interim limits in this permit are in compliance with antidegradation for following reasons:
- The interim limits hold the Discharger to current facility performance;
 - The interim limits are in compliance with the SIP requirements; and
 - The final limits are in compliance with anti-degradation requirements.
- c. The daily average effluent concentration limit for total PAHs (0.31 µg/l) in Waste 001 specified in Order No. 92-111 are replaced by the monthly average limit for individual PAHs (0.49 µg/l) specified in this Order. In addition, the U.S. EPA criteria for three of the eleven are higher than the other eight; these are anthracene (NTR objective at 110,000 ppb), fluorene (14,000 ppb), and pyrene (11,000 ppb). Therefore, the PAH objectives in the current permit are for the other eight PAHs that may be present in the discharge at concentrations which pose a reasonable potential to contribute to water quality impacts. This effluent concentration change is exempt from antibalancing concerns because of following reasons:
- Based on updated cancer potency factors (q*) from U.S. EPA's Integrated Risk Information System (IRIS), the U.S. EPA criteria for each of these eight PAHs are 0.049 ppb. Calculations based on average human body weight of 70 kg, U.S. EPA estimated national average fish consumption of 6.5 g/d, and a 1×10^{-6} cancer risk level for carcinogens.
 - The Discharger has exceeded the 0.31 µg/l effluent concentration limit.
 - Section 303 (d)(4)(B) allows establishment of less stringent water quality based effluent limitation in a permit for discharge into an attainment waters as long as the revised permit limit is consistent with a State's antidegradation policy.
 - a) Change of the effluent concentration limit will not cause an increase in discharge of PAHs into receiving water body.
 - b) The receiving water body is an attainment water for PAHs.
47. RPA for Diazinon: Although diazinon is on the 303(d) list for San Pablo Bay, no effluent limit is required for the Discharger for because there is no approved WQO for diazinon.
48. Ambient Water Quality Monitoring: Ambient, background data, upstream from the facility is required, according to the SIP, in order to complete the RP analysis and to determine final effluent limits, where applicable. Dischargers are required to investigate alternative analytical procedures that result in lower detection limits. This may occur either through participation in new RMP special studies or through equivalent studies conducted jointly with other dischargers.

REGIONAL MONITORING PROGRAM

49. On April 15, 1992, the Board adopted Resolution No. 92-043 directing the Executive Officer to implement the Regional Monitoring Program (RMP) for the San Francisco Bay. Subsequent to a public hearing and various meetings, Board staff requested major permit holders in this region, under authority of section 13267 of California Water Code, to report on the water quality of the estuary. These permit holders, including the Discharger, responded to this request by participating in a collaborative effort, through the San Francisco Estuary Institute (formerly the Aquatic Habitat Institute). This effort has come to be known as the San Francisco Bay Regional Monitoring Program for Trace Substances (RMP). This Order specifies that the Discharger shall continue to participate in the RMP, which involves collection of data on pollutants and toxicity in water, sediment and biota of the estuary. Annual reports from the RMP are referenced elsewhere in this Order.

POLLUTION PREVENTION

50. For nickel, mercury, selenium, cyanide, and dioxin/furans, the Discharger will conduct any additional source control or pollutant minimization measures in accordance with California Water Code 13263.3 and Section 2.1 of the SIP. Section 13263.3 establishes a separate process outside of the NPDES permit process for preparation, review, approval, and implementation of such source control and pollutant minimization measures.
51. The Board staff intends to require an objective third party to establish baseline programs, and to review program proposals and reports for adequacy before they are submitted to the Executive Officer for approval.

OPTIONAL MASS OFFSET

52. This Order contains requirements to prevent further degradation of the impaired waterbody. Such requirements include the adoption of mass limits that are based on the treatment plant performance, provisions for aggressive source control and waste minimization, feasibility studies for wastewater reclamation, and treatment plant optimization. After implementing these efforts, the Discharger may find that further net reductions of the total mass loadings of the 303(d)-listed pollutants to the receiving water can be achieved through a mass offset program. This Order includes an optional provision for a mass offset program.

EFFLUENT TOXICITY CONTROL PROGRAM

53. The Basin Plan adopts an Effluent Toxicity Control Program (ETCP) that requires certain permit holders, including the Discharger, to monitor the toxicity of their effluent using critical life stage toxicity tests. The Board implements the water quality objective for toxicity through the ETCP and by monitoring the toxicity of waters at or near discharge sites. The long-term goal of the ETCP is to develop water quality based effluent limits using information about the acute and chronic toxicity of each discharge and resulting toxicity in the receiving water. This Order specifies that the Discharger shall continue its effluent toxicity monitoring efforts as part of the compliance requirements.

CHRONIC TOXICITY

54. An effluent chronic toxicity testing screening program was conducted with final effluent from the Discharger to identify the most sensitive species. The study results indicated that *Menidia beryllina* (silversides) is the most sensitive species.

ADDITIONAL FACILITY FINDINGS

55. 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. The Regional Board supports the refining industry's use of reclaimed water to minimize the use of a scarce resource.
56. EBMUD owns and operates an Advanced Wastewater Treatment Plant to provide tertiary treatment to WCCSD's effluent water, which is then supplied to Chevron U.S.A Inc. Chevron U.S.A Inc. may use the recycled water for cooling-water tower make-up water, landscape irrigation, and other activities to replace fresh water. Reclaimed water that is used for reclaimed water pipeline maintenance and cooling-water tower start-up activities may be discharged directly to Chevron's wastewater treatment system.

NOTIFICATION

57. The Board notified the Discharger and interested agencies and persons of its intent to re-issue waste discharge requirements for the discharge, and has provided them with an opportunity for a public hearing and to submit their written views and recommendations.
58. The Board, in a public hearing, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Discharger, in order to meet the provisions of Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Prohibitions

1. 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 fire water system, including the Richmond Long Wharf Fire Protection System, provided the Discharger comply with the Provisions of this Order.
2. 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 is prohibited with the

exception of bypass from the process discussed in Finding 44 (firewater systems including the Richmond Long Wharf discharge, irrigation, dust control, etc.), and Finding 45 (reclaimed/recycled water use). Standard Provisions address bypass conditions and are applicable to the Discharger.

3. 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.

4. The discharge of Waste 012 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 012 may be discharged equal to that attributable to the precipitation occurring in excess of the 25-year rainfall events.

5. The discharge of Waste 013 from ponds not currently in 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 which had been previously used for managing other wastewater is adequately decontaminated prior to placing it into Waste 013.
6. The discharge of Wetland effluent directly to Outfall E001 (downstream of the GAC Facility) is prohibited unless the Discharger complies with the provision D.2 of this Order.
7. Non-segregated ballast water received by the refinery shall be treated at the wastewater treatment plant prior to discharging to San Pablo Bay and/or its tributaries.
8. The discharge of all conservative toxic and deleterious substances, above levels which can be achieved by a program acceptable to the Board, is prohibited.

B. EFFLUENT LIMITATIONS

Production Based Mass Emission Limits

1. The discharge of Waste 001 containing constituents in excess of any of the following mass loading limits is prohibited:

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD (5-day @ 20C)	lb/day	5,507	10,366
	kg/day	2,497	4,702

TSS	lb/day	4,535	7,127
	kg/day	2,057	3,232
TOC	lb/day	12,094	22,783
	kg/day	5,485	10,334
Oil & Grease	lb/day	1,728	3,239
	kg/day	783	1,469
	mg/l	8	15
Phenolic Compounds	lb/day	20.66	76
	kg/day	9.37	34.47
Ammonia as N	lb/day	2,052	4,481
	kg/day	930	2,032
Sulfide	lb/day	30	67
	kg/day	13.6	30.3
Settleable Solids	ml/l-hr	0.1	0.2
Total Chromium	lb/day	24	69.08
	kg/day	10.88	31.33
Hexavalent Chromium ¹	lb/day	1.98	4.42
	kg/day	0.89	2.00

Storm Water Runoff and Ballast Water Allocations

2. In addition to the monthly average and daily maximum pollutant weight allowances shown in B.1, allocations for pollutants attributable to storm water runoff and ballast water discharged as a part of Waste 001 are permitted in accordance with the following schedules:

STORM WATER RUNOFF ALLOCATION

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD (5-day @ 20C)	mg/l	26	48
TSS	mg/l	21	33
TOC	mg/l	57	106
Oil & Grease	mg/l	8	15

¹ The Discharger may, at its option, meet this limitation by measurement of total chromium.

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

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD (5-day @ 20C)	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 storm water runoff allocation, the ballast water allocation and the mass limits contained in B.1. The Discharger shall compute the total effluent limitation (both maximum and average) on a monthly basis as shown in Part B of the Self-Monitoring Program.

3. The discharge of Waste 001 shall meet the following toxicity limitations:

a. Acute Toxicity:

The survival of test fish 96-hour flow-through bioassays of Waste 001 as discharged shall be an eleven-sample¹ median value of not less than 90-percent survival, and an eleven-sample 90-percentile² value of not less than 70-percent survival. Test fish shall be specified in the Self-Monitoring Program. Parallel tests with two species of fish are considered two separate tests.

b. Chronic Toxicity:

An eleven-sample median value³ of 10 TUC⁴, and a 90-percentile value of 20 TUC⁵.

¹ A bioassay test showing survival of less than 90-percent represents a violation of this effluent limitation, if five or more of the past ten or less bioassay tests show less than 90-percent survival.

² 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 less tests shows less than 70-percent survival.

³ A test sample showing chronic toxicity greater than 10 TUC represents consistent toxicity and a violation of this limitation, if five or more of the past ten or less tests show toxicity greater than 10 TUC.

4. The discharge of Waste 001 containing constituents in excess of the following limitations is prohibited:

<u>Constituent</u>	<u>Unit</u>	<u>MDEL⁶</u>	<u>AMEL⁶</u>
Cadmium	µg/l	22.11	11.02
Copper ¹³	µg/l	27.06	10.96
Lead	µg/l	66.80	33.30
Zinc	µg/l	995.43	204.08
Benzo(a)Anthracene	µg/l	0.962	0.480
Benzo(k)Fluoranthene	µg/l	0.950	0.474
Benzo(a)Pyren	µg/l	0.981	0.489
Chrysene	µg/l	0.9662	0.4816
Dibenzo(a,h)Anthracene	µg/l	0.9780	0.4875
G-BHC	µg/l	1.260	0.62
Heptachlor	µg/l	0.0042	0.002
Hexachloro-benzene	µg/l	0.0153	0.007
Heptchlor Epoxide	µg/l	0.00161	0.0007
Indeno(1,2,3-cd)Pyrene	µg/l	0.9561	0.4766
PCB-1016	µg/l	0.00034	0.00017
PCB-1221	µg/l	0.00034	0.00017
PCB-1232	µg/l	0.00034	0.00017
PCB-1242	µg/l	0.00034	0.00017
PCB-1248	µg/l	0.00034	0.00017
PCB-1254	µg/l	0.00034	0.00017
PCB-1260	µg/l	0.00034	0.00017
Toxaphene	µg/l	0.00118	0.00059

⁴ 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 B** 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.

⁵ A test sample showing chronic toxicity greater than 20 TUC represents consistent toxicity and a violation of this limitation if one or more of the past ten or less samples shows toxicity greater than 20 TUC.

⁶ AMEL: Average monthly effluent limitation and MDEL: Maximum daily effluent limitation

¹³ The Board may amend the limit based on site specific objectives or the Waste Load Allocation in the TMDL

5. The discharge of Waste 001 containing constituents in excess of the following interim limitations is prohibited:

<u>Constituent</u>	<u>Unit</u>	<u>MDEL</u>	<u>AMEL</u>
Mercury ⁹	µg/l		0.075
Nickel ⁹	µg/l	65	
Selenium ¹⁰	µg/l	50	
Cyanide ¹¹	µg/l	25 ⁸	
Aldrin ¹⁰	µg/l	0.001	
A-BHC ¹⁰	µg/l	0.13	
Chlordane ¹⁰	µg/l	0.0008	
4,4 DDT ¹⁰	µg/l	0.0059	
4,4-DDE ¹⁰	µg/l	0.0059	
4,4-DDD ¹⁰	µg/l	0.0059	
Dieldrin ¹⁰	µg/l	0.001	
alpha-Endosulfan ¹⁰	µg/l	0.087	
beta-Endosulfan ¹⁰	µg/l	0.087	
Endrin ¹⁰	µg/l	0.02	
TCDD Equivalents* ¹²	pg/l	0.1	

* See Attachment D for definition. For the calculation, the Discharger shall use laboratory reported concentrations and method detection limits as reported (that are determined by the procedure found in 40 CFR 136). Compliance with this limit shall be based on analytical result without any data qualifiers. If improved laboratory practices or improved analytical methods result in lower detection limits, this permit may be reopened to reconsider the feasibility of compliance with the interim limit. In this case, the data from these improved methods will be used to determine a more appropriate interim limit based on performance.

⁹ Interim limit shall remain in effect until May 18, 2010, or until the Board amends the limit based on the Waste Load Allocation in the TMDL. However, during the next permit reissuance, Board staff may re-evaluate the interim limits.

¹⁰ The interim limit shall remain in effect until June 30, 2006, or until the Board amends the limit based on site specific objectives or the Waste Load Allocation in the TMDL. However, during the next permit reissuance, Board staff may re-evaluate the interim limits.

¹¹ The interim limit shall remain in effect until May 18, 2003, or until the Board amends the limit based on additional background data or site specific objective for cyanide. However, during the next permit reissuance, Board staff may re-evaluate the interim limits.

¹² The interim limit shall remain in effect until June 30, 2011, or until the Board amends the limit based on the Waste Load Allocation in the TMDL. However, during the next permit reissuance, Board staff may re-evaluate the interim limits.

⁸ Discharger may, at their option, demonstrate compliance with this limitation by measurement of weak acid dissociable cyanide

		<u>Running Annual Average</u> ⁷
Mercury	kg/month	0.149
Selenium	lb/day	2.38

6. Waste 001 shall not be discharged with pH outside the range of 6.0 to 9.0.
7. The discharge of Wastes 005, 006, 007, 008, 009, 010, 011, 012, 013, 1-Basin, 2-Basin, 3-Basin, 7-Basin, 9-Basin, 12-Basin, Castro Street, Consolidation Area, Gertrude Street Site, Landfill 15, North Yard Impound Basin, Parr Richmond Site, and Richmond Long Wharf containing constituents in excess or outside of the following limits is prohibited:

<u>Constituent Units</u>	<u>Limitation</u>	
pH	standard units	within 6.5 to 8.5
Oil & Grease	mg/l	daily maximum of 15
TOC	mg/l	daily maximum of 110
visible oil	-	none observed
visible color*	-	none observed

* For Richmond Long Wharf, the discharges are in compliance if the discharge does not result in a change in the apparent background level, determined at a point approximately 10 feet from the point of discharge

8. EFFLUENT LIMIT CREDIT FOR RECLAIMED WATER USE: When the Discharger uses reclaimed water as influent water for cooling tower make-up water, credit for influent concentrations of the constituents listed above, shall be granted in the discharge according to the following procedure:
- 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 reclaimed water and the first appearance of the constituent in the final effluent. This determination is subject to approval by

⁷ These mass limits are based on running annual average monthly mass loadings. To determine the running annual average monthly mass loading, The Discharger shall take the arithmetic average of the current monthly mass loading value (see sample calculation below) and the previous 11-month' values.

Sample Calculation:

For pollutant Y, the monthly average mass loading (kg) is given by
 Monthly Mass Loading (kg/month) = (Flow) x (Constituent Concentration) x (0.1151)

Flow = Average of monthly plant effluent flows in mgd

Concentration = Average of monthly effluent concentration measurements in µg/L

0.1151= Unit conversion factor

And the running annual average monthly mass loading is given by

=1/12 x (current monthly average mass loading + preceding 11-month monthly average mass loadings)

Compliance of these mass limits will be required starting from the next calendar month upon the adoption of this Order.

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. This concentration credit is added to the existing concentration limit. 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 conc. of reclaimed water B- influent conc. 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. This mass credit is added to the existing mass limit. 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 conc. of reclaimed water B- influent conc. 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)

C. Receiving Water Limitations

1. The discharge shall not cause the following conditions to exist in waters of the State at any place:
 - a. floating, suspended or deposited macroscopic particulate matter or foam;
 - b. alteration of temperature, turbidity or apparent color beyond present natural background levels;
 - c. visible, floating, suspended or deposited oil or other products of petroleum origin;
 - d. bottom deposits or aquatic growths; and
 - e. 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.
2. The discharge shall not cause nuisance, or adversely affect beneficial uses of the receiving water.
3. The discharge shall not cause the following limits to be exceeded in waters of the State at any place within one foot of the water surface:
 - a. pH: the pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.
 - b. Dissolved Oxygen: the concentration of dissolved oxygen shall not be less than 5.0 mg/l any time, and the median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
 - c. Dissolved sulfide: 0.1 mg/l maximum.
 - d. Unionized ammonia (as N): annual median 0.025 mg/l
maximum at any time 0.16 mg/l
4. The discharge shall not cause a violation of any applicable water quality standards for receiving waters adopted by the Board or State Board. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such standards.

D. Provisions

1. Wastewater Reuse: The Discharger may reuse a portion of wastewater that has received biological treatment in their firewater systems, including the Richmond Long Wharf and subsequent discharge to San Francisco Bay. This recycled wastewater in the firewater lines

(firewater) is used in the fire protection and safety systems (including emergency use and non-emergency use such as fire-monitor flow checks); as utility water in their process, storage, and material transfer areas (such as equipment hydrotests and plant washdowns); and for on-site landscape maintenance. When firewater is used as utility water in the process, storage, and material transfer areas it should be routed back to the wastewater treatment system. In addition, when the Discharger has analytical results which indicates that Waste 001 does not meet effluent specifications the Discharger shall minimize non-emergency firewater use and irrigation use in areas that drain to segregated stormwater systems. The Discharger is not required to minimize the use of firewater for emergency response. Minimization plans shall be included in the Discharger's SWPPP.

2. Wastewater Discharges from the Wetland: The Discharger may discharge Wetland effluent directly to Outfall E001 (downstream of the GAC Facility). The Wetland effluent discharge shall not exceed 3 mgd when it is discharged directly to Outfall E001. The Discharger shall comply with all the conditions outline in Note 9 of Form-2C-Table 1 (see Attachment E) of its "NPDES Permit Application Modification", dated April 22, 1998.
3. Acute and Chronic Toxicity Variance: During periods of acute and chronic organism toxicity that can be attributed to the use of reclaimed water to the satisfaction of the Executive Officer of the Board, the Discharger may be granted a variance. This variance will last during the period of time (plus lag time) that the toxicity can be attributed to the use of reclaimed water.
4. Acute Toxicity Response: Unless directed otherwise by the Executive Officer of the Regional Board, the Discharger shall follow the Acute Toxicity Response Procedure specified in Attachment F for the first two years of this permit.
5. Effective Date of Permit
This Order shall serve as a NPDES permit pursuant to section 402 of the Federal Water Pollution Control Act, or amendments thereto, and shall take effect on July 1, 2001, (provided that the Regional Administrator of the USEPA has no objections) which is 10 days after the adoption date, is to accommodate the fact that some of the limits are monthly average limits. It is impractical to calculate compliance with monthly average limits that begin in the middle of a calendar month. If the Regional Administrator objects to its issuance, this Order shall not become effective until such objection is withdrawn, and the previous permit shall remain in force.
6. Self-Monitoring Program
This Order includes all items of the attached Self-Monitoring Program as adopted by the Board and as may be amended pursuant to USEPA regulations 40 CFR 122.62, 122.63, and 124.5.
7. Standard Provisions and Reporting
This Order includes all items, except as mentioned in Part B of the Self-Monitoring Program, of the "Standard Provisions and Reporting Requirements" of August 1993.
8. Nuisance
Neither the discharge nor its treatment shall create a nuisance or pollution as defined in Section 13050 of the California Water Code.

9. Compliance with Acute Toxicity Effluent Limitations

Compliance with the acute toxicity limitations in Effluent Limitations B.3.a of this Order shall be evaluated by measuring the survival rate of rainbow trout in a flow through 96-hour bioassay using the Fourth Edition of the U.S. EPA Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms for Rainbow trout until otherwise specified by the Executive Officer. Each test consists of exposing a minimum of ten fish to undiluted effluent for 96 hours, and each fish represents a single sample. Toxicity tests shall be performed according to protocols approved by the USEPA or equivalent alternatives acceptable to the Executive Officer.

10. Compliance with Chronic Toxicity Limitations

Definitions of terms used in the chronic toxicity effluent limitations are included in **Attachment B** of this Order. Compliance with chronic toxicity in Effluent Limitation B.3.b of this Order shall be evaluated by measuring the critical life stage toxicity tests for aquatic species as specified in the attached Self-Monitoring Report. **Attachment C** of this Order identifies the Critical Life Stage Toxicity Tests used in the chronic toxicity monitoring.

11. Toxicity Identification Evaluation / Toxicity Reduction Evaluation

If there is a violation of the chronic toxicity effluent limitation, the Discharger shall conduct a chronic toxicity reduction evaluation (TRE), which shall initially involve a toxicity identification evaluation (TIE). The TIE shall be in accordance with a work plan acceptable to the Executive Officer. The TIE shall be initiated within 30 days of the date of violation. The objective of the TIE shall be to identify the chemical or combination of chemicals that are causing the observed toxicity. Every effort using currently available TIE methodologies shall be employed by the Discharger. If toxic constituents are identified or characterized, the Discharger shall continue the TRE by investigating the source(s) of the toxic constituent(s). Whether toxic constituents can be identified, or not alternative strategies for reducing or eliminating the constituent(s) from the discharge shall be evaluated. All reasonable steps shall be taken to reduce toxicity to the required level. The Board recognizes that identification of causes of chronic toxicity and development of reduction strategies may not be successful in all cases, particularly where toxicity levels fluctuate in the discharge (e.g. violations are intermittent). Consideration of enforcement action resulting from chronic toxicity effluent limit violations by the Board will be based in part on the Discharger's actions in identifying and reducing sources of consistent toxicity.

12. Regional Monitoring Program

The Discharger shall continue to participate in the Regional Monitoring Program (RMP) for trace substances in San Francisco Bay in lieu of more extensive effluent and receiving water self-monitoring requirements that may be imposed.

13. Screening Phase Compliance Monitoring

The Discharger shall conduct screening phase compliance monitoring in accordance with a proposal submitted to and acceptable to the Executive Officer, as part of its ETCP. The proposal shall contain, at a minimum, the elements specified in **Attachment C** of this Order. The purpose of the screening is to determine the most sensitive test species for subsequent compliance monitoring for chronic toxicity. Screening phase compliance monitoring shall be conducted under either of the following conditions:

- a. Subsequent to any significant change in the nature of the treatment plant effluent

through changes in sources or treatment, except those changes resulting from reduction in pollutant concentrations attributable to pretreatment, source control, and waste minimization efforts; or,

- b. Prior to permit reissuance, except when the Discharger is conducting a TIE/TRE, 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.

14. Submittal of Plans or Updates

A. SWPPP

The discharger shall update and implement Storm Water Pollution Prevention Plans (SWPPP) acceptable to the Executive Officer. A SWPPP shall cover the entire facility owned and operated by each discharger. It shall describe the management and handling of storm water runoff from the facility, and measures taken to prevent contamination of storm water or discharge of pollutants with the storm water. As part of the SWPPP, the discharger shall 1) identify on a map of appropriate scale the areas which contribute runoff to the permitted discharge points, 2) describe the activities on each area and the potential for contamination of the runoff, and 3) address the feasibility for containment and/or treatment of the storm water. The Discharger shall submit an updated SWPPP acceptable to the Executive Officer by December 1, 2001, and within 30 days shall implement the SWPPP.

The annual update shall be timed with the preparation and submittal of the annual storm water report required in the Self-Monitoring Program. The Dischargers shall submit revisions to the Executive Officer by August 1 of each year.

B. TMDL or SSO Update

The Discharger shall participate in the development of a TMDL or SSO for copper, nickel, mercury, selenium, cyanide, and dioxin/furans. By January 31 of each year, the Discharger shall submit an update to the Board to document progress made on source control and pollutant minimization measures and participation in development of TMDL or SSO.

15. Contingency Plan Update

The Discharger shall submit no later than October 1, 2001 an updated contingency plan to the Executive Officer for approval. The Contingency Plan shall be consistent with the requirements of Board Resolution No. 74-10. The Discharger shall begin implementing the Contingency Plan within 10 calendar days of approval, unless otherwise directed. The contingency plan shall be reviewed at the same time with the SWPPP. Updated information shall be submitted within 30 days of revision. Discharging pollutants in violation of this Order where the Discharger failed to develop and implement an approved 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.

16. Optional Mass Offset

If the Discharger wishes to pursue a mass offset program, a mass offset plan for reducing 303(d)-listed pollutants to the same watershed or drainage basin needs to be submitted for Board approval. This Order may be modified by the Board to allow an acceptable mass offset program.

17. Special Studies:

A. Dioxin

In accordance with the SIP, the Discharger shall conduct effluent monitoring for the seventeen 2, 3, 7, 8-TCDD congeners listed below. The purpose of the monitoring is to assess the presence and amounts of the congeners being discharged to inland surface waters, enclosed bays, and estuaries for the development of a strategy to control these chemicals in a future multi-media approach. The Discharger is required to monitor the effluent once during the dry season and once during the wet season for a period of three consecutive years.

<u>Isomer Group</u>	<u>Toxicity Equivalence Factor</u>
2,3,7,8-tetra CDD	1.0
1, 2,3,7,8-penta CDD	1.0
1, 2, 3, 4, 7, 8-HexaCDD	0.1
1, 2, 3, 6, 7, 8-HexaCDD	0.1
1, 2, 3, 7, 8,9-HexaCDD	0.1
1, 2, 3, 4, 6, 7, 8-HeptaCDD	0.01
octa CDD	0.0001
2,3,7,8-Tetra CDF	0.1
1,2,3,7,8-Penta CDF	0.05
2,3,4,7,8-Penta CDF	0.5
1, 2, 3, 4, 7, 8-HexaCDF	0.1
1, 2, 3, 6, 7, 8-HexaCDF	0.1
1, 2, 3, 7, 8, 9-HexaCDF	0.1
2, 3, 4, 6, 7, 8-HexaCDF	0.1
1, 2, 3, 4, 6, 7, 8-HeptaCDF	0.01
1, 2, 3, 4, 7, 8,9-HeptaCDF	0.01
octa CDF	0.0001

- | <u>Task</u> | <u>Compliance Date</u> |
|-------------------------|------------------------|
| a. Sampling Plan | October 1, 2001 |

Submit a proposed sampling plan, acceptable to the Executive Officer, to sample the effluent for seventeen congeners. This submittal shall include a proposed plan and time schedule for performing the work.

- | | |
|--------------------------|---------------------------------|
| b. Implement Plan | 30 days after approval of study |
|--------------------------|---------------------------------|

Following approval by the Executive Officer, commence work in a timely fashion in accordance with the sampling plan.

- | | |
|------------------------|-----------------|
| c. Final Report | October 1, 2004 |
|------------------------|-----------------|

Submit a report, to the Executive Officer, documenting the work performed in the sampling plan for the seventeen congeners.

B. Cyanide

The Discharger shall submit the following proposals and reports acceptable to the Executive Officer within the specified time periods. Each proposal shall include detailed description of the scope of the study for cyanide, along with an implementation schedule that is based on the shortest practicable time required to perform each task.

- a. A proposal for ambient background water quality characterization for cyanide shall be submitted within 90 days of the effective date of this Order. It shall include, but is not limited to, the description of the location(s) for water quality sampling, analytical method(s) to be used, monitoring frequency, and reporting requirements.
- b. A proposal for site-specific objective study for cyanide shall be submitted within 120 days of the effective date of this Order. It shall include, but is not limited to, the information specified in section 5.2 (1), (2), and (3) of the SIP.

Upon approval by the Executive Officer, the Discharger shall implement the proposals. Annual reports shall be submitted by January 31 of each year documenting the progress of the ambient background characterization and site-specific objective studies. Annual report shall summarize the findings and progress to date, and include a realistic assessment of the shortest practicable time required to perform the remaining tasks of the studies.

By May 18, 2003, the Discharger shall complete the ambient background water quality characterization study, and submit a report of the results.

By June 30, 2003, the Discharger shall submit a report of completion for the site-specific objective study. This study shall be adequate to allow the Regional Board to initiate the development and adoption of the site-specific objective for cyanide.

18. Permit Reopener

Pursuant to USEPA regulations 40 CFR §§ 122.44, 122.62, and 124.5, this permit may be modified prior to the expiration date to

- a. reflect any changes in the progress of TMDL development
- b. reflect the potential impacts of future Clean Fuels requirements.
- c. reflect updated water quality objectives. Adoption of effluent limitations contained in this permit is not intended to restrict in any way future modifications based on legally adopted water quality objectives.

19. Signatory and Certification

All applications, reports, or information submitted to the Board shall be signed and certified pursuant to USEPA regulation 40 CFR 122.41(k).

20. Change of Ownership/Business Operation

In the event of any change in control or ownership of the site, business operation, or waste, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to this office. Requirements established in Standard Provisions E.4 of August 1993, and 40 CFR § 122.61 shall be complied with by the Discharger and the succeeding site owner or operator.

21. Notification of Changes

Pursuant to USEPA regulation 40 CFR § 122.42(a) the Discharger must notify the Board as soon as it knows or has reason to believe (1) that it has begun or expect to begin, use or manufacture a toxic pollutant not reported in the permit application, or (2) a discharge of toxic pollutant not limited by this Order has occurred, or will occur, in concentrations that exceed the specified limits in 40 CFR § 122.42(a).

22. Consistent Use of Low Detection Limits

The Minimum Levels (as defined in the SIP) shall be used in reporting and compliance determination purposes in accordance with section 2.4 of the SIP.

23. Rescission of Previous Order

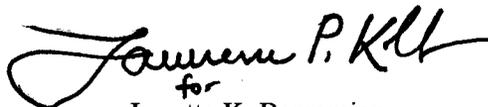
When this order becomes effective, Orders 91-026, 91-099, 92-111 and 97-108 are hereby rescinded.

24. Permit Expiration

This provision specifies that the permit will expire on May 31, 2006, and requires the discharge to file a report of waste discharge no later than 180 days before this expiration date. This is based on 40 CFR 122.46(a) that specifies that the term of the permit shall not exceed 5 years.

When this Order becomes effective, the Discharger shall immediately comply with all limitations, prohibitions, and other provisions of this Order.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing 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 20, 2001.

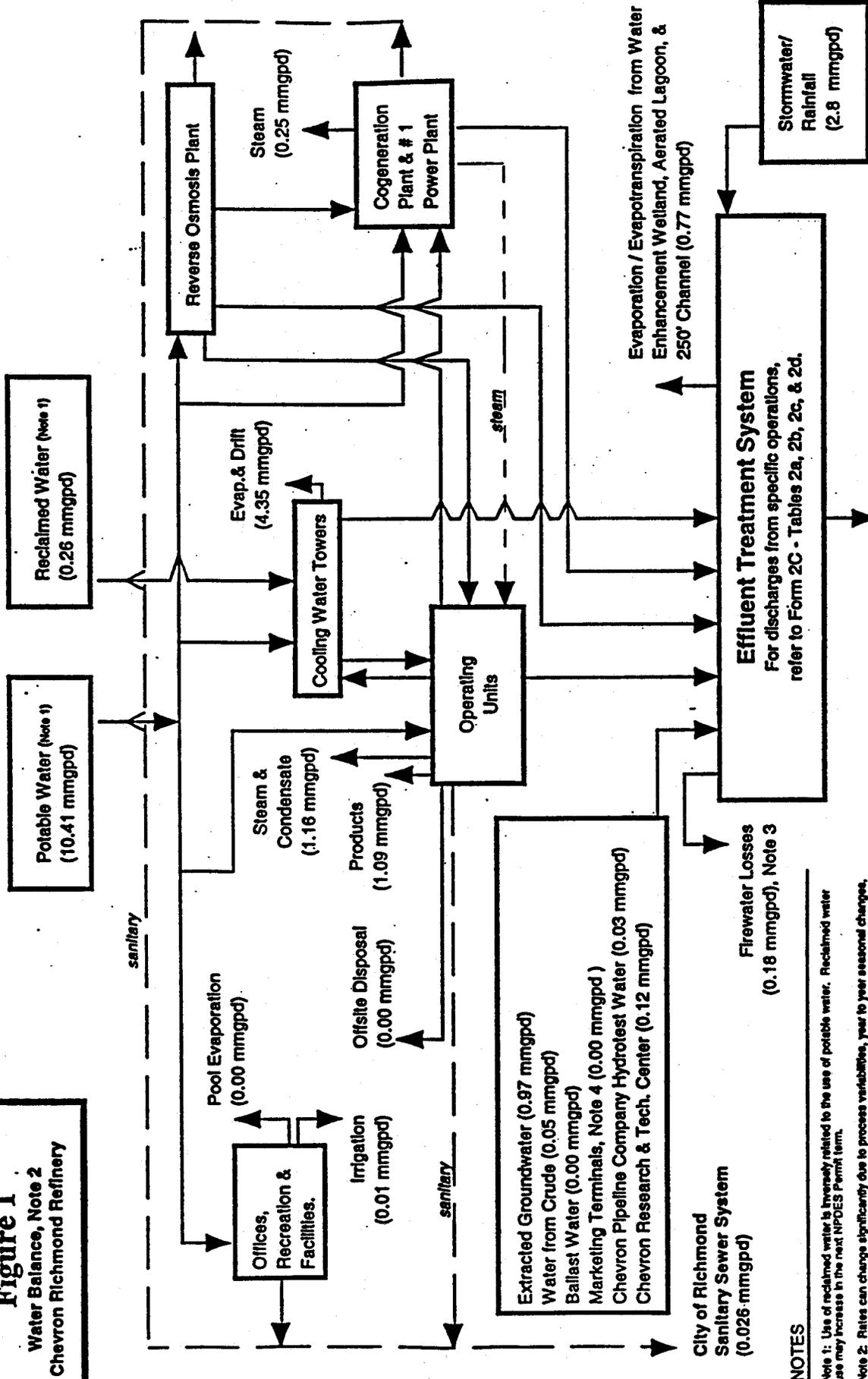


for
Loretta K. Barsamian
Executive Officer

Attachments:

- Figure 1 & 2- Wastewater Flow Diagram
- Figure 3 - Storm Water Drainage Areas
- A. Salinity of Receiving Water
- B. Chronic Toxicity Definition of Terms
- C. Chronic Toxicity Screening Phase Monitoring Requirements
- D. Definition of Terms for Chemical Pollutants
- E. Note 9 of Form-2C-Table 1
- F. Acute Toxicity Response Procedure
- G. Self-Monitoring Program, Parts A (August 1993) and B
- H. Standard Provisions, and Reporting Requirements dated August 1993

Figure 1
Water Balance, Note 2
Chevron Richmond Refinery



E-001 (6.80 mmgpd, Annual Average)
San Pablo Bay

NOTES

Note 1: Use of reclaimed water is inversely related to the use of potable water. Reclaimed water use may increase in the next NPDES Permit term.

Note 2: Rates can change significantly due to process variables, year to year seasonal changes, and plant shutdown and maintenance schedules. Rates listed as 0.00 mmgpd reflect discharges less than 5,000 gallons per day in 1996 (as an average).

Note 3: Routine firewater uses include, e.g., plant washdown, equipment hydrotests, deluge systems, fire monitor tests, landscape maintenance, and dust control.

Note 4: Includes, e.g., groundwater, tank water draws, tank cleaning water, and water from dewatering construction sites.

Chevron
Order No. 01-067

ATTACHMENT A

Chevron Richmond Refinery Salinity Data: 2001 NPDES Permit Renewal

Year	Sample Date	Results (PPT)	PQL	Method
1994	5/4/94	27	0.1	EPA 120.1
	11/2/94	30	0.1	EPA 120.1
1995	5/3	13.1	0.1	EPA 120.1
	11/1	21.6	0.1	EPA 120.1
1996	5/2	20.5	0.1	EPA 120.1
	11/6	26.6	0.1	EPA 120.1
1997	5/6	4	0.1	EPA 120.1
	11/4	26.3	0.1	EPA 120.1
1998	5/7	14.6	0.1	EPA 120.1
	11/4	24.9	0.1	EPA 120.1
1999	5/4	14.2	0.1	EPA 120.1
	11/10	28	0.1	EPA 120.1
2000	5/9	15.5	0.1	EPA 120.1
Average=		20.5		

Saltwater Criteria = 10 ppt

ATTACHMENT B

DEFINITION OF NO OBSERVED EFFECT LEVEL

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

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_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25% of the test organisms.

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_{25} 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.

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.

ATTACHMENT C

SCREENING PHASE MONITORING REQUIREMENTS

- A. The discharger shall perform screening phase compliance 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 pretreatment, source control, and waste minimization efforts; or
 2. Prior to permit reissuance. Screening phase monitoring data shall be included in the NPDES permit application for re-issuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit's expiration date.
- B. Design of the screening phase shall, at a minimum, consist of the following elements:
- Use of test species specified in Table C-1 and C-2 (attached), and use of the protocols referenced in those tables, or as approved by the Executive Officer;
 - Two stages:
 - 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 C-3 (attached); and
 - 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.
 - Appropriate controls; and
 - 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 C-1
CRITICAL LIFE STAGE TOXICITY TESTS FOR ESTUARINE WATERS

SPECIEIS	EFFECT	TEST	DURATION	REFERENCE
alga (<u>Skeletonema Costatum</u>) (<u>Thalassiosira pseudonana</u>)	growth rate		4 days	1
red alga (<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 (<u>Crassostree gigas</u>) mussel (<u>Mytilus edulis</u>)	abnormal shell development; percent survival		48 hours	2
Echinoderms (urchins - <u>Strongylocentrotus purpuratus, S. franciscanus</u>); (sand dollar - <u>Dendraster excentricus</u>)	percent fertilization		1 hour	2
shrimp (<u>Mysidopsis bahia</u>)	percent survival; growth		7 days	3
shrimp (<u>Holmesimysis bahia</u>)	percent survival; growth		7 days	2
topsmelt (<u>Atherinops affinis</u>)	percent survival; growth		7 days	2
silversides (<u>Menidia berylina</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 Effluents 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 Effluents and Receiving Waters to Marine and Estuarine Organisms. USEPA-600/4-90/003. July 1994

TABLE C-2
CRITICAL LIFE STAGE TOXICITY TESTS FOR FRESH WATERS

SPECIES	EFFECT	TEST DURATION	REFERENCE
fathead minnow (<i>Pimephales promelas</i>)	survival; growth rate	7 days	4
water flea (<i>Ceriodaphnia dubia</i>)	survival; number of young	7 days	4
alga (<i>Selenastrum capricornutum</i>)	cell divisions rate	4 days	4

TOXICITY TEST REFERENCE

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

TABLE C-3
 TOXICITY TEST REQUIREMENTS FOR STAGE ONE SCREENING PHASE

REQUIREMENTS	RECEIVING WATER CHARACTERISTICS		
	DISCHARGES TO COAST	DISCHARGES TO SAN FRANCISCO BAY ²	
	Ocean	Marine	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 ¹	0	1 or 2	3
Marine	4	3 or 4	0
Total number of tests	4	5	3

¹ The fresh water species may be substituted with marine species if:

- 1) the salinity of the effluent is above 10 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.

² Marine refers to receiving water salinities greater than 10 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 D

DEFINITION OF TERMS

TCDD Equivalents shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity equivalence factors (TEFs), as shown in the table below. (Note: These TEFs may be revised if new or updated information is available, and revision is considered appropriate.)

<u>Isomer Group</u>	<u>Toxicity Equi- valence Factor</u>
2,3,7,8-tetra CDD	1.0
2,3,7,8-penta CDD	1.0
2,3,7,8-hexa CDDs	0.1
2,3,7,8-hepta CDD	0.01
octa CDD	0.0001
2,3,7,8-tetra CDF	0.1
1,2,3,7,8-penta CDF	0.05
2,3,4,7,8-penta CDF	0.5
2,3,7,8-hexa CDFs	0.1
2,3,7,8-hepta CDFs	0.01
octa CDF	0.0001

ATTACHMENT E

Note 9 The Experimental Water Enhancement Wetland (Wetland) serves to enhance the water quality of bio-treated effluent water prior to its discharge to San Pablo Bay. The Wetland was created from a former Refinery oxidation/settling pond. The 90-acre site was planted with alkali bulrush and other vegetation found in natural marshes. It serves as a resting spot for migratory waterfowl and as a refuge for an increasing number of shorebirds. The creation of the Wetland was approved by the RWQCB in 1988 and was fully operational in the late spring of 1990.

Changes are made seasonally to Wetland operations to accommodate maintenance activities, bird nesting, and stormwater management. Operation of the Wetland is seasonally dependent. During the winter rainy season, a fraction of the Aerated Lagoon outlet flow may be routed to, and impounded in, the Wetland. Chevron has completed a Wetland Management Plan required by RWQCB staff.

As illustrated on Form 2C – Drawing 1, Effluent System Overview, the flows from the Wetland can be discharged either upstream or downstream of the GAC Facility. Wastewater discharges from the Wetland will not exceed 3 million gallons a day when Wetland effluent is discharged downstream of the GAC Facility, i.e. directly to Outfall E-001.

Before wastewater discharges from the Wetland can be discharged directly to Outfall E-001, the results of two consecutive weekly flow-through acute toxicity bioassays must demonstrate results of at least 80 percent survival. Wastewater discharges from the Wetland can be routed downstream of the GAC Facility and directly to Outfall E-001 when the results of weekly flowthrough acute toxicity bioassays (“Wetland Toxicity Tests”) demonstrate a survival rate of 80% or better.

Each Wetland Toxicity Test will be conducted on rainbow trout with at least two replicates of ten fish per replicate. Wetland Toxicity Tests will be conducted pursuant to the flow-through acute toxicity test method set fourth in 40 C.F.R. Part 136 (60 Fed. Reg. 53,529, Oct. 16, 1995) and the “Methods for measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms,” EPA/600/4-90/027F (4th Ed. 1993). Flow-through acute toxicity tests shall be conducted as a single concentration of 100%.

For each Wetland Toxicity Test conducted, at least one control test will be conducted on at least two replicates with ten fish per replicate. This control test may be the same as the control test for Outfall E-001 acute toxicity bioassays if (1) the Wetland and E-001 bioassays are conducted concurrently and (2) if both control tests are conducted on the same species and taken from the same supply batch or cohort. The results of a Wetland Toxicity Test will be considered invalid unless there is at least 90 percent survival in the control test.

If the results of a Wetland Toxicity Test are less than 80% survival, Wetland effluent will be routed through the GAC Facility before discharge to Outfall E-001. Chevron may resume discharging Wetland effluent directly to Outfall E-001 after two consecutive Wetland Toxicity Tests, started five days apart, demonstrate at least 80 percent survival.

Chevron will monitor and report to EPA and the RWQCB in its monthly Discharge Monitoring Reports the daily flow rate of wastewater from the Wetland directly to Outfall E001. The results of all Wetland Toxicity Tests conducted will also be submitted in Chevron’s Discharge Monitoring Reports.

The Wetland is an experimental facility whose use is not required by our existing permit and Chevron’s continued discretionary use is considered part of this application. In addition, use of the Wetland in lieu of the GAC Facility, and managing the Wetland discharges as described above, are not considered a bypass of the GAC Facility.

ATTACHMENT F

Rm

MAY 04 2001

QUALITY CONTROL BOARD

EXHIBIT A

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Pursuant to Paragraph 33 of this Decree, Chevron shall request the RWQCB to include the following provisions in Chevron's next NPDES permit for at least the first two years of the next permit. This Exhibit assumes that the new NPDES permit will require the same Toxicity Test as was required by the 1992 NPDES Permit. If a different toxicity test is required by the new permit, some of the following requirements may have to be adjusted accordingly.

Definitions

The "1992 Permit" refers to NPDES Permit No. CA0005134 issued pursuant to section 402 of the Clean Water Act, 33 U.S.C. § 1342, by the RWQCB to Chevron and in effect since September 16, 1992.

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5 "Acute Toxicity Limit" means the acute toxicity limit set
6 forth in Condition A.5 of Chevron's 1992 Permit. Condition A.5
7 of the 1992 Permit provides in part:

8 If five or more of the past ten samples are
9 less than 90 percent survival, then survival
10 of less than 90 percent on the next,
11 eleventh, sample represents an effluent limit
12 violation.

13 If one or more of the past ten samples is
14 less than 70 percent survival, then survival
15 of less than 70 percent on the next,
16 eleventh, sample represents an effluent limit
17 violation.

18 For purposes of this Decree, the term "samples" used in Chevron's
19 Acute Toxicity Limit referenced above means "Toxicity Test"
20 results, as defined below. (The term "sample" used elsewhere in
21 this Decree does not mean Toxicity Test results.)

22 "Bioreactor" means the partially aerated lagoon, located
23 upstream of the GAC Facility and the Wetland, that is used to
24 biologically treat wastewater discharged to Outfall E001.

25 "Consecutive Toxicity Tests" means successive Toxicity
26 Tests. If the trout and stickleback bioassays conclude
27 concurrently, then the trout bioassay is considered concluded
28 prior to the stickleback for the purpose of determining sequence.

"Days" (whether or not capitalized) means calendar days, as
opposed to working days.

"Discretionary Drops" refers to discharges to the wastewater

1 treatment system, the timing of which is discretionary.

2 "End of a [or the] Toxicity Test" is the end of the 96-hour
3 period over which a Toxicity Test, including associated control
4 tests, is conducted.

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10 "Operating Areas" refers to a group of processing plants
11 and/or related facilities and includes, without limitation, the
12 Isomax, RLOP, Cracking, Utilities & Environmental, Blending &
13 Shipping, Wax, and Distillation and Reforming areas at the
14 Chevron refinery in Richmond, California.

15 "RWQCB" refers to the California Regional Water Quality
16 Control Board (San Francisco Bay Region).

17 "Submit" means to deposit in the U.S. Mail or dispatch via
18 Federal Express or another overnight delivery service, postage
19 pre-paid.

20 "Toxicity Test," unless otherwise specified, means a 96-hour
21 flow-through test (or "flow-through bioassay") performed on one
22 of two fish species (rainbow trout or three-spine stickleback),
23 that Chevron is required to perform under Condition A.5 of the
24 1992 Permit on samples of Waste 001 to determine whether Waste
25 001 meets the Acute Toxicity Limit. (Under the 1992 Permit,
26 Chevron is required to conduct a Toxicity Test on rainbow trout
27 and a Toxicity Test on three-spine stickleback each week.)
28

1 Preventive Measures to Address Acute Toxicity

2 1. Chevron shall conduct all of the following preventive
3 measures specified in this Paragraph 1 upon: (1) the third and
4 each subsequent Toxicity Test result of less than 90% survival in
5 any group of eleven Consecutive Toxicity Tests when the
6 corresponding control test result is at least 90% survival, or
7 (2) the first and each subsequent Toxicity Test result of less
8 than 70% survival in any group of eleven Consecutive Toxicity
9 Tests when the corresponding control test result is at least 90%
10 survival. Chevron is not required to re-initiate such measures
11 if Chevron performs a Toxicity Test which has a result of less
12 than 90% survival within 10 days of the end of a previous
13 Toxicity Test result of less than 90% survival for which Chevron
14 is conducting these preventive measures.

15 a. No later than 24 hours, unless otherwise specified,
16 after the End of the Toxicity Test that triggers the preventive
17 measures specified in this Paragraph, Chevron shall:

18 (1) communicate to all Operating Areas the Toxicity
19 Test results and request information on non-routine
20 operations or operating conditions, such as plant
21 upsets (e.g. desalter undercarry and sourwater
22 concentrator pH excursions), plant shutdowns, and
23 Discretionary Drops. Chevron shall use this
24 information in its review of information concerning
25 wastewater routed to Outfall E001 under the provisions
26 of Paragraph 1.b and the reporting requirements of 1.c.

27 (2) Identify and temporarily suspend all Discretionary
28

1 Drops to the wastewater treatment system, pending
2 review of the drops' potential contribution to the
3 acute toxicity event. Chevron shall not resume
4 Discretionary Drops contributing to toxicity until the
5 results of two subsequent successive Toxicity Tests
6 started at least 5 days apart demonstrate greater than
7 90% survival.
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14 (4) Increase the number of GAC vessels in operation at
15 the GAC Facility, if available, to increase wastewater
16 residence time in the GAC Facility, if the flow through
17 the GAC Facility is less than the Actual Treatment
18 Capacity of the GAC Facility and such increase does not
19 lower the flow through the GAC skids below the skids'
20 design capacity. (For the purposes of this
21 Subparagraph, from May 1 through September 30, when
22 Chevron conducts routine maintenance on GAC vessels,
23 GAC vessels undergoing routine maintenance, for a
24 period not exceeding thirty (30) days, shall not be
25 considered available.) Chevron may subsequently reduce
26 the number of GAC vessels in operation after the
27 results of two subsequent successive Toxicity Tests
28

1 started at least 5 days apart demonstrate greater than
2 90% survival.

3 (5) Check the dissolved oxygen concentrations in all
4 aerated quadrants of the Bioreactor. If dissolved
5 oxygen in any quadrant is less than 2 parts per million
6 ("ppm"), Chevron shall increase the supply of air to
7 the Bioreactor lagoon by turning on the standby air
8 compressor if not off line for essential maintenance.
9 Chevron may suspend operation of the standby air
10 compressor while dissolved oxygen levels are at 2 ppm
11 or greater, or when Chevron demonstrates that two
12 subsequent successive Toxicity Tests started at least 5
13 days apart have resulted in greater than 90% survival.
14 Chevron shall use best efforts to maintain the standby
15 air compressor in good working condition.

16 (6) Increase the residence time that wastewater
17 remains in the Bioreactor by allowing the Bioreactor
18 water level to rise to the top of the Bioreactor's
19 operating range, except that Chevron need not comply
20 with this sub-Paragraph if:

21 (i) the Bioreactor is already filled to
22 capacity;

23 (ii) all available Bioreactor capacity is
24 needed to prepare for a storm event; or

25 (iii) Bioreactor capacity must be
26 increased to prepare for a storm event; or

27 (iv) changes in Bioreactor water level are
28

1 limited due to non-deferrable repair
2 activities. However, Chevron must maintain
3 the Bioreactor in good working condition so
4 as to maximize its operating range.

5 Chevron may thereafter decrease Bioreactor residence
6 times if two subsequent successive Toxicity Tests
7 started at least 5 days apart have resulted in greater
8 than 90% survival or if available Bioreactor capacity
9 must be increased to prepare for a storm event.

10 (7) No later than 48 hours after the end of a Toxicity
11 Test that triggers the preventive measures specified in
12 this Paragraph, collect wastewater samples at locations
13 not routinely sampled and submit for analyses to
14 evaluate the cause(s) of the toxicity. Routine
15 sampling locations are the outlet of the Bioreactor and
16 Outfall E001. Analyses shall include analyses of
17 phenol, ammonia, pH, surfactants, and metals.

18 2. No later than seven (7) days after the end of the
19 Toxicity Test that triggers the preventive measures specified in
20 this Paragraph, Chevron shall assemble and review all pertinent
21 and available wastewater treatment system monitoring data
22 (concerning wastewater routed to Outfall E001) collected over the
23 previous three week period. Examples of such data are
24 information regarding concentrations of phenol, ammonia, pH,
25 surfactants, and metals.

26 3. No later than twenty-one (21) days after the end of the
27 Toxicity Test that triggers the preventive measures specified in
28

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

CHEVRON U.S.A INC., RICHMOND REFINERY,
CHEVRON CHEMICAL COMPANY LLC, RICHMOND PLANT, AND
GENERAL CHEMICAL CORPORATION, RICHMOND WORKS,
RICHMOND, CONTRA COSTA COUNTY

NPDES NO. CA0005134
ORDER NO. 01-067

CONSISTS OF

PART A (dated August 1993)

AND

PART B

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. EFFLUENT

E-001	At any point in the discharge line from the Deep Water Discharge Pump Sump such that the sample is representative of the treated process water
E-005	At any point where the sample is representative of the discharge from Waste 005
E-006	Same as above except discharge is for Waste 006
E-007	Same as above except discharge is for Waste 007
E-008	Same as above except discharge is for Waste 008
E-009	Same as above except discharge is for Waste 009
E-010	Same as above except discharge is for Waste 010
E-011	Same as above except discharge is for Waste 011
E-012	Same as above except discharge is for Waste 012
E-013	Same as above except discharge is for Waste 013
1-Basin	Same as above except discharge is for 1-Basin
2-Basin	Same as above except discharge is for 2-Basin
3-Basin	Same as above except discharge is for 3-Basin
7-Basin	Same as above except discharge is for 7-Basin
9-Basin	Same as above except discharge is for 9-Basin
12-Basin	Same as above except discharge is for 12-Basin
Castro Street	Same as above except discharge is for Castro Street
Consolidation Area	Same as above except discharge is for Consolidation Area
Gertrude Street Site	Same as above except discharge is for Gertrude Street Site

Landfill 15	Same as above except discharge is for Landfill 15
North Yard Impound Basin	Same as above except discharge is for North Yard Impound Basin
Parr-Richmond Site	Same as above except discharge is for Parr-Richmond Site
Richmond Long Wharf	Same as above except discharge is for Richmond Long Wharf

B. RECEIVING WATERS

<u>Station</u>	<u>Description</u>
C-001	At a point in San Pablo Bay, approximately 2000 feet north of Point San Pablo

C. INFLUENT WATERS

<u>Station</u>	<u>Description</u>
I-002	Located at any point in the pipe which delivers only reclaimed water to the facility, but upstream of any water treatment unit, blending point or point of use

D. LAND OBSERVATIONS

<u>Station</u>	<u>Description</u>
P-1	At the point of discharge of Waste 011 to the drainage ditch tributary to Castro Creek
P-3	At the point of discharge of Waste 012 to the drainage ditch tributary to Castro Creek

E. RAINFALL

<u>Station</u>	<u>Description</u>
R-1	The nearest official recording National water service rainfall station or other station acceptable to the Executive Officer

C. II. SCHEDULE OF SAMPLING, ANALYSES AND OBSERVATIONS

The schedule of sampling, analysis and observation shall be that given in Tables below.

Table 1-A
SCHEDULE of SAMPLING, ANALYSES and OBSERVATIONS [1]

Sampling Station			E-001		C-001
Type of Sample			G	C-24	G
Parameter	Units	Notes	[1]	[1]	[1]
Flow Rate	mgd	[2]		Cont/D	
BOD(5-day @ 20C)	mg/l kg/day			M	
TSS	mg/l kg/day			Q	
Settleable Matter	Ml/l-hr		Q		
Oil & Grease	mg/l kg/day	[3]	M		
Ammonia N	mg/l kg/day			Q	
TOC	mg/l kg/day			M	
pH	--			Cont/D	Y
Temperature	°F			Cont/D	Y
Dissolved Oxygen	mg/L				Y
Arsenic	µg/l			M	
Cadmium	µg/l			M	
Total Chromium	µg/l			M	
Hexavalent Chromium	µg/l	[4]		M	
Copper	µg/l			M	
Lead	µg/l			M	
Mercury*	µg/L & lb/mo			M	
Nickel	µg/l			M	
Selenium	µg/L & lb/mo			W	
Silver	µg/l			M	
Zinc	µg/l			M	
Cyanide	µg/l		M		
Heptachlor Epoxide			M		
PAH's	µg/l	[11]	M		
Total Phenols	µg/l kg/day			Q	
Sulfides	mg/L		Q		Y
Unionized Ammonia	mg/L				Y
Acute Toxicity	% Survival	[5]		W	
Chronic Toxicity	TUc	[6]		Q	
Dioxins and Furans	pg/L	[7]	Y & SP		

Sampling Station			E-001		C-001
Type of Sample			G	C-24	G
Parameter	Units	Notes	[1]	[1]	[1]
Diazinon	µg/L			Y	
Table 2a of Appendix 4 of the SIP **	µg/L		Y		
Table 2b, and 2c of Appendix 4 of the SIP **				Y	
Table 2d of Appendix 4 of the SIP **			FY		

* The Discharger may, at their option, demonstrate compliance with this limitation by measurement of a grab sample
 ** If a pollutant is in more than one table with different monitoring frequency, the pollutant shall be monitored at the frequency that is higher.

Table 1-B
SCHEDULE of SAMPLING, ANALYSES and OBSERVATIONS [1]

Sampling Station			E-005 to E00-7		E-008 to E-010 [8]
Type of Sample			G		G
Parameter	Units	Notes	[1]		[1]
TSS	mg/l		Twice per first year		M
Oil & Grease	mg/l		"		"
TOC	mg/l		"		"
pH	--		"		"
Specific Conductance	µmhos/cm		"		"
Visual Observations	--		"		"

Table 1-C
SCHEDULE of SAMPLING, ANALYSES and OBSERVATIONS [1]

Sampling Station			E-011 [9]	E-012 [9]	E-013 [8]
Type of Sample			G	G	G
Parameter	Units		[1]	[1]	[1]
Total Daily Flow	MGD		Estimated	Estimated	Estimated
Fish Toxicity	% Survival		On each event	On each event	
Oil & Grease	mg/l		"	"	Once a month
TOC	mg/l		"	"	"
TSS	mg/l				"
Specific Conductance	µmhos/cm				"
pH	--		On each event	On each event	"
Arsenic	µg/l		"		
Total Chromium	µg/l		"		
Zinc	µg/l		"		

Sampling Station		E-011 [9]	E-012 [9]	E-013 [8]
Type of Sample		G	G	G
Parameter	Units	[1]	[1]	[1]
Phosphate (total)	mg/l		On each event	
Ammonia	mg/l		"	
Nitrogen	Kg/day		"	
Pesticides Total	µg/l	"		
Benzene	µg/l	"		
Toluene	µg/l	"		
Sevin	µg/l	"		
A-BHC	µg/l	"		
B-BHC	µg/l	"		
G-BHC	µg/l	"		
Trichloroethylene	µg/l	"		
Methylene	µg/l	"		
Visual Observations	--	"	On each event	Once a month

Table 1-D
SCHEDULE of SAMPLING, ANALYSES and OBSERVATIONS [1]

Sampling Station		1,2,3,7,9,and12-Basin, Castro Street, Consolidation Area, Gertrude Street Site, Landfill 15, North Yard Impound Basin, Parr-Richmond Site, and Richmond Long Wharf [8] [10]	
Type of Sample		G	
Parameter	Units	Notes	[1]
TSS	mg/l		Once a month
Oil & Grease	mg/l		"
TOC	mg/l		"
pH	--		"
Specific Conductance	µmhos/cm		"
Visual Observations	--		"

Table 1-E
SCHEDULE of SAMPLING, ANALYSES and OBSERVATIONS [1]

Sampling Station		P-1 and P-3 [1]	[1]
Parameter	Units		
Rainfall	inch		Daily
Visual Observations	--	On each event	

LEGEND FOR TABLE 1-A to 1-E

Sampling Stations:

E = treatment facility effluent	C-24 = composite sample, 24 hours (includes continuous sampling and flow through , such as for flows)
OV = overflow and bypass points	C-X = composite sample, X hours
P = treatment facility perimeter points	G = grab sample
O = observation	
Cont. = continuous	BOD ₅ , 20°C = Biochemical Oxygen Demand, 5-day, at 20 °C
Cont/D = continuous monitoring & daily reporting	D.O. = Dissolved Oxygen
D = once each day	FY = Once every five years
EA = each occurrence	PAHs = Polynuclear Aromatic Hydrocarbons; See SMP Section VI.H.
H = once each hour (at about hourly intervals)	TSS = Total Suspended Solids
M = once each month	mgd = million gallons per day
Q = once each calendar quarter (at about three month intervals)	mg/L = milligrams per liter
W = once each week	ml/L-hr = milliliters per liter, per hour
Y = once each calendar year	µg/L = micrograms per liter
2/Y = twice each calendar year (at about 6 months intervals)	kg/d = kilograms per day
3/W = three times each calendar week (on separate days)	kg/mo = kilograms per month
5/W = five times each calendar week (on separate days)	MPN/100 = Most Probable Number per ml 100 milliliters
SP = Special Study (Provision D. 15 of the permit)	

FOOTNOTES FOR TABLE 1

- [1] Additional details regarding sampling, analyses and observations are given in Section IV of this SMP, *Specifications for Sampling, Analyses and Observations*.
- [2] Flow Monitoring. See SMP Section: III. A
- [3] Oil & Grease Monitoring. See SMP Section: III. B
- [4] Chromium (VI) Monitoring. See SMP Section: III. C
- [5] Acute Toxicity Monitoring. See SMP Section: III. D
- [6] Chronic Toxicity Monitoring. See SMP Section: III. E
- [7] Dioxins and Furans See SMP Section: III. F
- [8] Once a month See SMP Section: III. G
- [9] For each 25-Year storm event that results in a discharge
- [10] For the Richmond Long Wharf, at least once a month

[11] PAHs shall be analyzed using the latest version of USEPA method 610.

III. SPECIFICATIONS for SAMPLING, ANALYSES and OBSERVATIONS

Sampling, analyses and observations, and recording and reporting of results shall be conducted in accordance with the schedule given in Table 1 of this SMP, and in accordance with the following specifications, as well as all other applicable requirements given in this SMP. All analyses shall be conducted using analytical methods that are commercially and reasonably available, and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits.

A. Flow Monitoring.

Flow monitoring indicated as continuous monitoring in Table 1 shall be conducted by continuous measurement of flows, and reporting of the following measurements:

1. Effluent (E-001):

a. Daily:

- (1) Average Daily Flow (mgd)
- (2) Maximum Daily Flow (mgd)

b. Monthly: The same values as given in a. above, for the calendar month.

B. Oil & Grease Monitoring.

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. The grab samples shall be mixed in proportion to the instantaneous flow rates occurring at the time of each grab sample. 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.

C. Chromium (VI) Monitoring

The Discharger may analyze for total chromium instead of Chromium VI.

D. Acute Toxicity Monitoring (Flow-through bioassay tests).

The Discharger shall use rainbow trout, meeting the requirements of the specified 4th Edition Bioassay procedure, as the subject species for Acute Toxicity 96-Hour Flow through Bioassay Tests. The following parameters shall be monitored on the sample stream used for the acute toxicity bioassays, at the start of the bioassay test and daily for the duration of the bioassay test, and the results reported: pH, temperature, dissolved oxygen, and ammonia nitrogen.

E. Chronic Toxicity Monitoring:

The Discharger shall use *Menidia beryllina* as the subject species for Chronic Toxicity Monitoring Bioassay Tests. Critical Life Stage Toxicity Test shall be performed and reported in accordance with Chronic Toxicity Requirements. See also, Provision D.10 and Self-Monitoring Program

F. Dioxins and Furans:

Analysis shall be with U.S. EPA Method 1613, or with modifications to this method that are approved by the Executive Officer.

G. Once a month

For one storm event per month that produces significant storm water discharge during the wet season (October 1 to May 30). Significant storm water discharges are continuous discharges of stormwater for a minimum of one hour, or an intermittent discharge of stormwater for a minimum of three hours in a 12-hour period.

D. Monitoring Methods and Minimum Detection Levels

- A. The Discharger may use the methods listed in the Table 2a, 2b, 2c, or 2d of Appendix 4 of the SIP or alternate test procedures that have been approved by the U.S. EPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5 (revised as of May 14, 1999); or
- B. Where no methods are specified for a given pollutant in the Table 2a, 2b, 2c, or 2d of Appendix 4 of the SIP, the Discharger shall use methods approved by the SWRCB or RWQCB.

E. **IV. REPORTING REQUIREMENTS**

- A. General Reporting Requirements are described in Section E of the Board's "*Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits*", dated August 1993.
- B. Monthly Self-Monitoring Report (SMR) Requirements are described in Section F.4 of the attached *Self-Monitoring Program, Part A*, dated August 1993.
- C. Modification of Self-Monitoring Program, Part A (Part A):

1. Section E.1 of Part A shall be modified as follows:

- a. Written reports, electronic records, strip charts, equipment calibration and maintenance records, and other records pertinent to demonstrating compliance with waste discharge requirements including self-monitoring program requirements, shall be maintained by the Discharger in a manner and at a location (e.g., wastewater treatment plant or Discharger offices) such that the records are accessible to Board staff. These records shall be retained by the Discharger for a minimum of three years. The minimum period of retention shall be extended during the course of any unresolved litigation regarding the subject discharges, or when requested by the Board or by the Regional Administrator of the US EPA, Region IX. Records to be maintained shall include the following:

(1) Parameter Sampling and Analyses, and Observations.

For each sample, analysis or observation conducted, records shall include the following:

- (i) Parameter
- (ii) Identity of sampling or observation station, consistent with the station descriptions given in this SMP.
- (iii) Date and time of sampling or observation.
- (iv) Method of sampling (grab, composite, other method)
- (v) Date and time analysis started and completed, and name of personnel or contract laboratory performing the analysis.
- (vi) Reference or description of procedure(s) used for sample preservation and handling, and analytical method(s) used.
- (vii) Calculations of results.
- (viii) Analytical method detection limits and related quantitation parameters.
- (ix) Results of analyses or observations.

(2) Flow Monitoring Data.

For all required flow monitoring (e.g., influent and effluent flows), records shall include the following:

- (i) Total flow or volume, for each day.
- (ii) Maximum, minimum and average daily flows for each calendar month.

2. Section F.1 of Part A shall be modified as follows:

- a. A report shall be made of any spill of oil or other hazardous material.
- b. The spill shall be reported by telephone as soon as possible and no later than 24 hours following occurrence or Discharger's knowledge of occurrence. Spills shall be reported by telephone as follows:
 - (1) During weekdays, during office hours of 8 am to 5 pm, to the Regional Board:
Current phone number: (510) 622 - 2300.
Current Fax number: (510) 622 - 2460
 - (2) During non-office hours, to the State Office of Emergency Services:
Current phone number: (800) 852 - 7550.
- c. A written report shall be submitted to the Regional Board within five (5) working days following telephone notification, unless directed otherwise by Board staff. A report submitted by facsimile transmission is acceptable for this reporting. The written report shall include the following:
 - (1) Date and time of spill, and duration if known.
 - (2) Location of spill (street address or description of location).

- (3) Nature of material spilled.
- (4) Quantity of material involved.
- (5) Receiving water body affected.
- (6) Cause of spill.
- (7) Observed impacts to receiving waters (e.g., discoloration, oil sheen, fish kill).
- (8) Corrective actions that were taken to contain, minimize or cleanup the spill.
- (9) Future corrective actions planned to be taken in order to prevent recurrence, and time schedule of implementation.
- (10) Persons or agencies contacted.

3. Section F.4 of Part A shall be modified as follows:

For each calendar month, a self-monitoring report (SMR) shall be submitted to the Board in accordance with the following:

a. The report shall be submitted to the Board no later than 15 days from the last day of the reporting month.

b. *Letter of Transmittal*

Each report shall be submitted with a letter of transmittal. This letter shall include the following:

- (1) Identification of all violations of effluent limits or other discharge requirements found during the monitoring period;
- (2) Details of the violations: parameters, magnitude, test results, frequency, and dates;
- (3) The cause of the violations;
- (4) Discussion of corrective actions taken or planned to resolve violations and prevent recurrence, and dates or time schedule of action implementation. If previous reports have been submitted that address corrective actions, reference to such reports is satisfactory.
- (5) Signature: The letter of transmittal shall be signed by the Discharger's principal executive officer or duly authorized representative, and shall include the following certification statement:

"I certify under penalty of law that this document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. 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."

c. *Compliance Evaluation Summary*

Each report shall include a compliance evaluation summary. This summary shall include, for each parameter for which effluent limits are specified in the Permit,

the number of samples taken during the monitoring period, and the number of samples in violation of applicable effluent limits.

d. *Results of Analyses and Observations.*

- (1) Tabulations of all required analyses and observations, including parameter, sample date and time, sample station, and test result.
- (2) If any parameter is monitored more frequently than required by this permit and SMP, the results of this additional monitoring shall be included in the monitoring report, and the data shall be included in data calculations and compliance evaluations for the monitoring period.
- (3) Calculations for all effluent limits that require averaging of measurements shall utilize an arithmetic mean, unless specified otherwise in this permit or SMP.

e. *Data Reporting for Results Not Yet Available.*

The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in timely manner. The Board recognizes that certain analyses require additional time in order to complete analytical processes and result reporting. For cases where required monitoring parameters require additional time to complete analytical processes and reporting, and results are not available in time to be included in the SMR for the subject monitoring period, such cases shall be described in the SMR. Data for these parameters, and relevant discussions of any observed violations, shall be included in the next following SMR.

4. Exclude paragraphs C.5.; D.2, D.3, D.4 and D.5; E.3 and E.5.

5. Paragraph C.2.a. is modified to read as follows:

Composite samples of effluent shall be collected on random weekdays and on any day when substantial changes in flow occur during dry weather conditions.

6. The following paragraph is added to Section C.3.b.:

The discharger is not required to collect samples or perform visual observations during adverse climatic conditions or any other conditions that may jeopardize safety of the operators. If the discharger is unable to collect any of the required samples or visual observations because of the above circumstances, the discharger shall provide documentation to the Regional Board in its stormwater annual report.

7. Section C.3.d. is modified to read as follows:

If a facility discharges storm water at multiple locations the discharger may sample a reduced number of locations if it is established and documented in the monitoring program that storm water discharges from different locations are substantially identical.

8. Section F.5. is modified as follows:

F.5. Annual Reporting

- a. Process Wastewaters:** By February 15 of each year, the discharger shall submit an annual report to the Regional Board covering the previous calendar year for Waste 001. The report shall contain:
- 1) Both tabular and graphical summaries of the monitoring data for all parameters monitored during the previous year.
 - 2) A comprehensive discussion of the compliance record and the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the waste discharger requirements.
 - 3) List of Approved Analyses to include:
 - a) a list of analyses for which the discharger is approved by the California Department of Health Services,
 - b) a list of analyses performed for the discharger by another approved laboratory shall also be submitted as part of the report, and
 - c) a list of "waived" analyses, as approved.
- b. Storm Water:** The discharger shall submit an annual report by July 1 of each year (first report shall be submitted by July 1, 2002) covering data for the previous wet weather season for the identified storm water discharge points. The annual storm water report shall include:
- 1) a tabulated summary of all sampling results and a summary of visual observations taken during the inspections;
 - 2) a comprehensive discussion of the compliance record and the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the waste discharger requirements; and
 - 3) a comprehensive discussion of the progress and/or success of source identification and control programs for non-effluent limited parameters.

D. MISCELLANEOUS REPORTING

1. Ballast water treated and discharged as part of Waste 001 shall be measured and the volume recorded in attached Form A for each calendar day. 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 concentration listed under Effluent Limitation B.2. in the permit.
2. The Discharger shall submit with each monthly self-monitoring report a sketch showing the location of all ponds, and treatment facilities of waste discharge. This shall be updated by the discharger as changes occur.

3. For any discharge at E-011 and E-012 sufficient rainfall data acceptable to the Executive Officer shall be submitted by the discharger showing at least hourly rainfall rates to define a rainfall event that allows discharge. Rainfall data shall be submitted of at least 24 continuous hour to define that a rainfall event exceeding a "25-year, 24 hour" rainfall event has occurred.
4. Any discharge of Waste 011 and 012 shall be reported to the Board by telephone within 24 hours following the commencement of discharge.

E. Reporting Data in Electronic Format

The Discharger has the option to submit all monitoring results in electronic reporting format approved by the Executive Officer. If the Discharger chooses to submit the SMRs electronically, the following shall apply:

1. *Reporting Method:* The Discharger shall submit SMRs electronically via the process approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS).
2. *Modification of reporting requirements:* Reporting requirements F.4. in the attached *Self-Monitoring program, Part A*, dated August 1993, shall be modified as follows. In the future, the Board intends to modify Part A to reflect these changes.

a. Monthly Report Requirements:

Monthly Reporting Requirements: For each calendar month, a self-monitoring report (SMR) shall be submitted to the Board in accordance with the following:

(1) The report shall be submitted to the Board no later than 30 days from the last day of the reporting month.

(2) *Letter of Transmittal*

Each report shall be submitted with a letter of transmittal. This letter shall include the following:

- (i) Identification of all violations of effluent limits or other discharge requirements found during the monitoring period;
- (ii) Details of the violations: parameters, magnitude, test results, frequency, and dates;
- (iii) The cause of the violations;
- (iv) Discussion of corrective actions taken or planned to resolve violations and prevent recurrence, and dates or time schedule of action implementation. If previous reports have been submitted that address corrective actions, reference to such reports is satisfactory.
- (v) *Signature:* The letter of transmittal shall be signed by the Discharger's principal executive officer or ranking elected official, or duly authorized representative, and shall include the following certification statement: "I certify under penalty of law that this document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. 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."

(3) *Compliance Evaluation Summary*

Each report shall include a compliance evaluation summary. This summary shall include, the number of samples in violation of applicable effluent limits.

(4) *Results of Analyses and Observations.*

- (i) Tabulations of all required analyses and observations, including parameter, sample date, sample station, and test result.
- (ii) If any parameter is monitored more frequently than required by this permit and SMP, the results of this additional monitoring shall be included in the monitoring report, and the data shall be included in data calculations and compliance evaluations for the monitoring period.
- (iii) Calculations for all effluent limits that require averaging of measurements shall utilize an arithmetic mean, unless specified otherwise in this permit or SMP.

(5) *Data Reporting for Results Not Yet Available.*

The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in timely manner. The Board recognizes that certain analyses require additional time in order to complete analytical processes and result reporting. For cases where required monitoring parameters require additional time to complete analytical processes and reporting, and results are not available in time to be included in the SMR for the subject monitoring period, such cases shall be described in the SMR. Data for these parameters, and relevant discussions of any observed violations, shall be included in the next following SMR.

b. Annual Report Requirements:

An Annual Report shall be submitted for each calendar year. The report shall be submitted to the Board by February 15 of the following year. This report shall include the following:

- (1) Summaries of monitoring data collected during the calendar year that characterizes treatment plant performance and compliance with waste discharge requirements.
- (2) A comprehensive discussion of treatment plant performance and compliance with waste discharge requirements.

V. SELF-MONITORING PROGRAM CERTIFICATION

I, Loretta K. Barsamian, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

- A. Has been developed in accordance with the procedure set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge

Chevron
Order No. 01-067

requirements established in Board Order No. 01-067

- B. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Discharger, and revisions may be ordered by the Executive Officer.
- C. Is effective as of July 1, 2001.



Loretta K. Barsamian
Executive Officer

Attachments:

Form A: Stormwater/Ballast Water Allocation Procedures

Attachment of Self Monitoring Program: 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 of Self-Monitoring Program: Form A (Cont'd)

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			
Month			
Average			

Attachment of Self-Monitoring Program: Form A (Cont'd)

STORMWATER/BALLAST WATER ALLOCATION PROCEDURE

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
Rainfall (inch)	Stormwater Runoff (MGD)	Effluent Flow (MGD)	Dry Weather Effluent Flow (MGD)	Estimated Processed Stormwater (MGD)	Stormwater Bankbook (MGD)	Actual Processed Stormwater (MGD)	Ballast Water (MGD)
1							
2							
3							
.							
.							
.							
.							
30							
Total							
Average							
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 (F) _{previous day} + Column (B) - Column (E);
 - Column (F) = 0, if Column (F) < 0.
- Column (G):
 - Column (G) = Column (E), if Column (F) > 0;
 - Column (G) = Column (B) + Column (F) _{previous day}, if Column (F) = 0.

Attachment of Self-Monitoring Program: Form A (Cont'd)

CALCULATION OF STORMWATER AND BALLAST WATER ALLOCATIONS

		Year:		
30-Day Average Limitation	Monthly Average Storm Runoff + Ballast Water Flow (expressed in 1000 gallons/day)	Allocation Factor x (kg/1000 gallons) = (kg/day)	A.I. + Effluent Limits (kg/day)	Total Effluent Limit (kg/day)
BOD ₅	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 Chrome Hex	x	0.00079	+	-
Chrome	x	0.00011	+	-

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)



Winston H. Hickox
Secretary for
Environmental
Protection

California Regional Water Quality Control Board

San Francisco Bay Region

Gray Davis
Governor



Internet Address: <http://www.swrcb.ca.gov>
1515 Clay Street, Suite 1400, Oakland, California 94612
Phone (510) 622-2300 -- FAX (510) 622-2460

Date: JUL 05 2001
File No: 2119.1044 (KM)

Certified Mail No. 70993220000146714249
Mr. J. W. Hartwig

Chevron Products Company
Richmond Refinery
P.O. Box 1272
Richmond, CA 94802-0272

Attn.: Mr. Rich Sandman

Dear Mr. Hartwig:

The Regional Board adopted Order No. 01-067 at its regular monthly meeting on Wednesday, June 20, 2001. I have enclosed the adopted order which reissues the NPDES permit for Chevron U.S.A. Inc., Chevron Chemical Company LLC, and General Chemical Corporation, Richmond, Contra Costa County. Please note that the attached Self Monitoring Program incorporates several minor changes. These changes are made pursuant to 40 CFR 122.63.

Should you have any questions or comments regarding this matter, please contact Keyvan Moghbel of my staff at (510) 622-2391 or email him at km@rb2.swrcb.ca.gov.

Sincerely,

Loretta Barsamian
Executive Officer

Enclosure: Order No. 01-067
cc: Mailing List

California Environmental Protection Agency

