State of California

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
320 W. 4th Street, Suite 200, Los Angeles

**FACT SHEET**
**WASTE DISCHARGE REQUIREMENTS**
**for**
**ATLANTIC RICHFIELD COMPANY**
**(Carson Refinery, Carson)**

NPDES Permit No.: CA0000680
Public Notice No.: 01-004

## I. Introduction

| FACILITY ADDRESS | FACILITY MAILING ADDRESS |
|---|---|
| Atlantic Richfield Company<br>Carson Refinery<br>1801 Sepulveda Boulevard<br>Carson, CA 90749 | Atlantic Richfield Company<br>Carson Refinery<br>1801 E. Sepulveda Boulevard<br>Carson, CA 90749<br>Contact: Neil Norcross<br>Telephone: (310) 816-8520 |

Atlantic Richfield Company (ARCO hereinafter) owns and operates its Carson Refinery. Wastes discharged from the Carson Refinery to Dominguez Channel are covered under waste discharge requirements contained in Order No. 93-051 (NPDES Permit No. CA0000680), issued by this Regional Board on September 27, 1993. Order No. 93-051 expired on August 10, 1998.

ARCO has filed a report of waste discharge and has applied for renewal of its waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permit.

## II. Description of Facility and Refining Processes

The Carson Refinery, a petroleum refinery (SIC 2911), is located at 1801 East Sepulveda Boulevard, Carson, California. The refinery has a daily average crude throughput of 242,000 barrels per day. The refinery processes at the Carson Refinery include crude atmospheric distillation, vacuum distillation, chemical treating superfractionation, alkylation/MTBE, catalytic cracking, hydrocracking, hydrotreating, delayed coking, catalytic reforming, hydro-desulfurization, petrochemical production, NGL production,

cogeneration/steam production, gasoline blending, and sulfur recovery.

The Regional Board and the United States Environmental Protection Agency (USEPA) have classified the Carson Refinery as a major discharge.

Petroleum refining is the physical, thermal, and chemical separation of crude oil into its major distillation fractions that are then further processed through a series of separation and conversion steps into finished petroleum products. These processes can be separated into two phases. The first phase includes desalting of crude oil and the subsequent distillation into various components/fractions. The second phase includes downstream processes to convert the distillation fractions into petroleum products through any combination of different cracking, coking, reforming, and alkylation processes.

Desalting – Before separation into fractions, crude oil must first be treated to remove corrosive salts. Desalting involves the mixing of heated crude oil with water so that the salts are dissolved in the water. The water must then be separated from the crude oil in a separating vessel by adding demulsifier chemicals to assist in breaking the emulsion.

Distillation – The desalted crude oil is then heated in a heat exchanger and furnace to about 750$^{o}$F and fed to distillation column at atmospheric pressure where most of the feed is vaporized and separated into its various fractions (atmospheric distillation). The light fractions condense and are collected at the top of the column. The heavier fractions are collected at the bottom of the column and are further separated by distillation at a very low pressure to increase volatile and separation (vacuum distillation).

Cracking – Thermal cracking, or visbreaking, uses heat and pressure to break large hydrocarbon molecules into smaller, lighter molecules. This process has been largely replaced by catalytic cracking that uses catalyst in addition to heat and pressure to break large hydrocarbon molecules into smaller, lighter molecules. Catalytic cracking is able to produce gasoline with higher octane.

Catalytic Hydrocracking – Catalytic hydrocracking utilizes a fixed-bed catalytic reactor under substantially high pressure (1,200 to 2,000 psig) with the presence of hydrogen. This process is used to break crude oil fractions that are the most difficult to crack or cannot be cracked effectively in catalytic cracking units.

Coking – Coking is a cracking process used to reduce refinery production of low-value residual fuel oils to gasoline and diesel. Coking also produces petroleum coke, a solid carbon used as a fuel for power plants.

Hydrotreating – Hydrotreating is a process used to remove impurities such as sulfur, nitrogen, oxygen, halides, and trace metal impurities that may deactivate process catalysts. Hydrotreating also increases the quality of fractions by converting olefins and diolefins to paraffins for the purposes of reducing gum formation in fuels.

Alkylation – Alkylation is used to produce a high octane gasoline from isobutane formed primarily during catalytic cracking and coking operations. Alkylation joins an olefin and an isoparaffin compound using either a sulfuric acid or hydrofluoric acid as a catalyst.

Catalytic Reforming – Catalytic reforming uses catalytic reactions to process low octane gasolines and naphthas into high octane aromatics (including benzene). There are four major types of reactions that occur during reforming processes: (1) dehydrogeneration of napthenes to aromatics; (2) dehydrocycclization of paraffins to aromatics; (3) isomerization; and (4) hydrocracking.

Chemical treating – Chemical treating is used to remove or change the undesirable properties associated with sulfur, nitrogen, or oxygen compound contaminates in petroleum products. This can be done by either extraction or oxydation.

Isomerization – Isomerization is used to alter the arrangement of a molecule without adding or removing anything from the original molecule. Typically, paraffins (butane or pentane) are converted to isoparaffins having a much higher octane. The reaction takes place at temperature in the range of 200 to 400$^{o}$F with the presence of platinum as a catalyst.

## III. Description of Wastes and Discharge Outfalls

Wastes that might be discharged to the Dominguez Channel estuary includes:

**Waste Stream 1** – Process wastewater commingled with stormwater runoff.

Treated process wastewater and storm water (that is commingled and treated with process wastewater) is discharged to the Los Angeles County Sanitation Districts' sewer. However, when rainfall exceeds 0.1 inch, the refinery is required to divert some of the flow into a 50-million gallon reservoir and two smaller retention basins and hold the water for 24 or more hours. After cessation of the storm, the discharge is sent to the sewer during off-peak hours of sewer flow.

During extended storms when the storage capacity is filled to 40 million gallons and discharge to the sewer is restricted, the wastewater in the reservoir is directed to a carbon absorption filters at the rate of 4.32 mgd and discharged to Dominguez Channel. Discharge continues until the reservoir water is reduced to 20 million gallons or until discharge to the sewer is allowed. This volume will allow sufficient impound capacity to accommodate runoff from rainfall in the event there should be successive days of heavy rainfall in excess of 0.1 inch.

Waste Stream 1 is discharged to Dominguez Channel through **Discharge Serial No. 012** (latitude 33$^{o}$49'02", longitude 118$^{o}$14'24"), located on the west bank of the Dominguez Channel, behind the co-generation facility. This Outfall currently discharges storm runoff

from the co-generation facility areas and a small amount of low volume waste (see description of low volume waste stream below). There have been no discharges of process wastewater and stormwater since January, 1995.

The effluent characteristics as reported in the application for permit renewal Form 2C are summarized as follows:

| | Concentration, mg/L or as specified | |
|---|---|---|
| Constituent[1/] | Daily Maximum | 30-Day Average |
| Flow, mgd | 0.84 | 0.62 |
| Biochemical oxygen demand (BOD) | 16 | <10 |
| Chemical oxygen demand (COD) | 44 | 27 |
| Total suspended solids (TSS) | 15 | 7 |
| Ammonia (as N) | 2.3 | 2 |
| Temperature ($^{o}$C) - Winter | 17 | NR |
| pH, standard units | 7.4 - 8.6 | NR |
| Oil and grease | 4 | 3 |
| Arsenic, µg/L | 16 | NR |
| Cadmium, µg/L | <1.3 | <1.3 |
| Chromium, µg/L | 4.3 | 3 |
| Copper, µg/L | 6 | 3 |
| Lead, µg/L | <0.45 | <0.45 |
| Mercury, µg/L | <0.2 | <0.2 |
| Nickel, µg/L | <8 | <8 |
| Selenium, µg/L | 9 | 7.6 |
| Silver, µg/L | <0.4 | <0.4 |
| Zinc, µg/L | 150 | 90 |
| Cyanide, µg/L | NR | NR |
| Phenols, µg/L | <0.02 | <0.02 |
| Benzene, µg/L | 12 | 3 |
| Toluene, µg/L | 20 | 6 |
| Ethylbenzene, µg/L | <2 | <2 |

Note: 1/ Data were reported for these pollutants only. NR - not reported.

**Waste Stream 2** – Cooling tower blowdown from cooling towers in the refinery, co-generation facility, LPG and polypropylene manufacturing facility. This discharge is sporadic. The last discharge of cooling tower blowdown to the Dominguez Channel was in July, 1999. The ROD describes the effluent characteristics as follows:

| | Concentration, mg/L or as specified | |
|---|---|---|
| Constituent | Daily Maximum | 30-Day Average |
| Flow, mgd | 1.74 | 1.07 |
| Biochemical oxygen demand (BOD) | 5.5 | NR |
| Chemical oxygen demand (COD) | 220 | 95 |
| Total organic carbon (TOC) | 22 | NR |
| Total suspended solids (TSS) | 15 | 10 |
| Ammonia (as N) | <1 | NR |
| Temperature, ($^{o}$C) | | |
| Winter | 23 | 20 |
| Summer | 27 | 24 |
| pH, standard units | 6-8 | 6.2-7.1 |
| Total residual chlorine | 0.6 | NR |
| Oil and grease | 2.9 | 1.1 |
| Antimony, µg/L | 27 | NR |
| Arsenic, µg/L | <5 | NR |
| Cadmium, µg/L | <5 | NR |
| Chromium, µg/L | 6.2 | NR |
| Copper, µg/l | 43 | NR |
| Lead, µg/L | 5.8 | NR |
| Mercury, µg/L | <0.2 | NR |
| Selenium, µg/L | 12 | NR |
| Silver, µg/L | <10 | NR |
| Thallium, µg/L | <5 | NR |
| Zinc, µg/L | 260 | NR |
| Cyanide, µg/l | <25 | NR |
| Phenols, µg/L | <100 | NR |
| Benzene, µg/L | 2.4 | NR |
| Chloroform, µg/L | 5.2 | NR |
| Toluene, µg/L | 5.8 | NR |

Note: NR - not reported.
NA - not available.

**Waste Stream 3** – Boiler blowdown from boiler feed water in the refinery and co-generation facility. There were no discharges of Waste Stream 3 during the term of the current permit. The ROD describes the waste characteristics as follows:

| | Concentration, mg/L or as specified | |
|---|---|---|
| Constituent | Daily Maximum | 30-Day Average |
| Biochemical oxygen demand (BOD) | 10 | NR |
| Chemical oxygen demand (COD) | 74 | NR |
| Total organic carbon (TOC) | 16 | NR |
| Total suspended solids (TSS) | <5 | NR |
| Ammonia (as N) | 0.77 | NR |
| pH, standard units | 8.9-9 | NR |
| Total residual chlorine | <0.1 | NR |
| Oil and grease | 2.0 | NR |
| Antimony, µg/L | 26 | NR |
| Arsenic, µg/L | <5 | NR |
| Cadmium, µg/L | <5 | NR |
| Chromium, µg/L | <5 | NR |
| Copper, µg/l | 83 | NR |
| Lead, µg/L | <5 | NR |
| Mercury, µg/L | <2 | NR |
| Selenium, µg/L | <10 | NR |
| Silver, µg/L | <10 | NR |
| Thallium, µg/L | <5 | NR |
| Zinc, µg/L | 83 | NR |
| Cyanide, µg/l | <25 | NR |
| Phenols, µg/L | <100 | NR |
| Benzene, µg/L | 24 | 16 |
| Toluene, µg/L | 15 | 11 |

Note: NR - not reported. NA - not available.

Other priority pollutants were not reported or reported as not detected.

Waste Streams 2 and 3 are discharged to Dominguez Channel through **Discharge Serial No. 002** (latitude 33°48'35", longitude 118°14'20"), located on the west bank at the channel turn, approximately 2,200 feet west of the Alameda Street Bridge. The maximum flow rate of this outfall is up to 2.87 mgd.

**Waste Stream 4** consists of treated ground water generated from the groundwater cleanup operation under Board Cleanup and Abatement Order No.90-121. Ground water is treated with carbon adsorption, steam stripping, air stripping, or fluidized granular activated carbon

technology prior to discharge to the industrial sewer. Waste Stream 4 is currently discharges into the industrial sewer.

**Low Volume Wastes** comprise steam condensate, atmospheric condensate, non-contaminated service water, air conditioning condensate, irrigation runoff and fire system water. Low volume wastes are discharged into Dominguez Channel through **Discharge Serial No. 5** (latitude 33° 49'17", longitude 118°14'27"), **Discharge Serial No. 10** (latitude 33°49'10", longitude 118°14'25"), **Discharge Serial No. 11** (latitude 33°49'03", longitude 118°14'24"), **Discharge Serial No. 12** (latitude 33°49'02", longitude 118°14'24"), and **Discharge Serial No. 23** (latitude 33°48'57", longitude 118°14'03"). The discharges are intermittent with flow rates that rarely exceed 0.045 mgd. The ROD describes the waste characteristics as follows:

| | Concentration, mg/L or as specified | |
|---|---|---|
| Constituent | Daily Maximum | 30-Day Average |
| Biochemical oxygen demand (BOD) | <2.0 | <2.0 |
| Chemical oxygen demand (COD) | 210 | 100 |
| Total organic carbon (TOC) | NA | NA |
| Total suspended solids (TSS) | <10 | <10 |
| Ammonia (as N) | 0.51 | <1 |
| pH, standard units | 7.0-8.9 | NR |
| Total residual chlorine | 0.4 | NR |
| Oil and grease | <5 | NR |
| Arsenic, µg/L | 13 | NR |
| Cadmium, µg/L | <5 | NR |
| Chromium, µg/L | <5 | NR |
| Copper, µg/l | 54 | NR |
| Lead, µg/L | 5.8 | NR |
| Mercury, µg/L | 0.29 | NR |
| Selenium, µg/L | <5 | NR |
| Silver, µg/L | <10 | NR |
| Nickel, µg/L | <10 | NR |
| Zinc, µg/L | 67 | NR |

Note: NR - not reported. NA - not available.

Other priority pollutants were not reported or reported as not detected

## IV. General Rationale

The following documents are bases for proposed requirements:

1. The federal Clean Water Act (CWA).

2. Code of Federal Regulations, Title 40 (40 CFR) – Protection of Environment, Chapter 1, Environmental protection Agency, Subchapter D, Water programs, Parts 122-125 and Subchapter N, Effluent Guidelines and Standards, Part 419, Petroleum Refining Point Source Category, Subpart B, Cracking Subcategory. These regulations provide effluent limits for conventional pollutants discharged from petroleum refineries based on best practicable control technology currently available (BPT), best available technology economically available (BAT), and best conventional pollutant control technology (BCT).

3. Water Quality Control Plan (Basin Plan) for the Coastal Watersheds of Los Angeles and Ventura Counties adopted June 13, 1994; The Plan provides water quality objectives and lists the following beneficial uses for Dominguez Channel Estuary.

   Existing: water contact recreation, non-water contact recreation, commercial and sport fishing, estuarine habitat, marine habitat, wildlife habitat, preservation of rare and endangered species, migration of aquatic organisms, and spawning, reproduction, or early development.
   Potential: navigation.

   The saltwater criteria in the California Toxics Rule are used to protect estuarine habitat in the receiving waterbody.

4. There is public contact in the receiving water downstream of the discharge; therefore, the quality of wastewater discharge to the Dominguez Channel and the Dominguez Channel Estuary must be such that no public health hazard is created.

5. Water Quality Control Plan for Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California (Thermal Plan), adopted by the State Board on September 18, 1975. This Plan provides temperature objectives for Dominguez Channel.

6. Technical Support Document (TSD) for Water Quality-Based Toxics Control, USEPA/502/2-90-001, March 1991.

7. The California Toxics Rule (CTR) promulgated by the USEPA on May 18, 2000 and the State Implementation Plan (SIP) adopted by the State Board on March 2, 2000. The CTR establishes numerical criteria for priority pollutants for inland surface water as well as water in the enclosed bays and estuaries. The SIP was effective

on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through National Toxics Rule (NTR) and to the priority pollutant objectives established by the Regional Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by the USEPA Regional Administrator. The alternate test procedures provision was effective on May 22, 2000.

8. Existing waste discharge requirements contained in Board Order No. 93-051, adopted by the Regional Board on September 27, 1993.

## V. Specific Rationale

Section 402(o) of the Clean Water Act and 40 CFR 122.44(l) require that water-quality based effluent limits in re-issued permits are at least as stringent as in the existing permit. Therefore, some of the requirements in the proposed Order are based on limits specified in the ARCO's existing permit.

There are several factors affecting the development of limitations and requirements in the proposed Order. These are discussed as follows:

1. Technology-Based Limitations

40 CFR 125.3 (a) states that technology-based treatment requirements under section 301 (d) of the Clean Water Act represent the minimum level of control that must be imposed in a permit issued under section 402. In summary, permits shall contain the following technology-based treatment requirements for dischargers other than publicly-owned treatment works: BPT and

a. for conventional pollutants, effluent limitations are based on the BCT;
b. for toxic pollutants, effluent limitations are based on the BAT; and
c. for all pollutants that are neither toxic nor conventional, effluent limitations are based on BAT.

40 CFR 122.44 states that each permit shall include conditions meeting requirements under sections 301, 304, 306, 307,318 of CWA. In summary, if after technology-based limits are applied the receiving water concentrations still exceed the water quality standards, or the discharge may cause such exceedances, the permit must include WQBELs to achieve water quality standards.

The limitations in the proposed Order are based on the USEPA's effluent limitation guidelines, which comprise of BPT, BCT, and BAT for some pollutants. For pollutants not subject to the effluent limitation guidelines, their reasonable potential is evaluated to determine whether or not WQBELs are required.

2. Water Quality-Based Limitations

   The WQBELs are based on the Basin Plan, other State plans and policies, or USEPA water quality criteria. These requirements, as they are met, will protect and maintain existing beneficial uses of the receiving water.

   The CTR and SIP require dischargers to submit sufficient data to conduct the determination of priority pollutants requiring WQBELs and to calculate the effluent limitations. The CTR criteria for saltwater or human health for consumption of organisms, whichever is more stringent, are used to prescribe the effluent limitations in this Order to protect the beneficial uses of the Dominguez Channel estuary.

3. Reasonable Potential Analysis (RPA)

   As specified in 40 CFR 122.44(d)(1)(i), permits are required to include limits for pollutants that are or may be discharged at a level which cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard.

   For toxic pollutants, the SIP specified three triggers to complete a RPA:

   a. Trigger 1 – If the maximum effluent concentration (MEC) is greater than or equal the CTR water quality criteria (C), a limit is needed.

   b. Trigger 2 – If MEC<C and background water quality (B) > C, a limit is needed. A pollutant with a method detection limit (MDL) > C falls in this trigger.

   c. Trigger 3 – Use other information to perform RPA such as CWA 303(d) List.

   Sufficient effluent and ambient data are needed to conduct a complete RPA. If data are not sufficient, the Discharger shall be required to gather the appropriate data for the Regional Board to conduct the RPA. Upon review of the data and if the Regional Board determines that effluent limits are needed to protect the beneficial uses, the permit will be reopened for appropriate modification.

4. Impaired Water Bodies in 303 (d) List

   The USEPA approved the State's 303 (d) list of impaired water bodies (Table 1). The list was prepared in accordance with Section 303 (d) of the federal CWA 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. USEPA requires final effluent limits for all 303(d)-listed pollutants to be based on total maximum daily loads (TMDL) and waste loads allocation (WLA) results .

   For 303(d) listed pollutants, the Regional Board plans to develop and adopt TMDLs

which will specify WLAs for point sources and load allocations (LA) for non-point sources, as appropriate. Following the adoption of TMDLs by the Regional Board, NPDES permits will be issued with effluent limits for water quality based on applicable WLAs. In the absence of a TMDL, effluent limits for 303(d) listed pollutants will be addressed in the following manner:

- If the impairment is due to bioaccumulation of a pollutant in tissue (e.g., fish) and/or elevated levels of the pollutant in sediment and effective numeric objectives/criteria protecting the beneficial use(s) are lacking, then the only final WQBEL which will not allow the discharge to cause or contribute to a violation of the narrative water quality objective protecting the beneficial use(s) is the mass-based effluent limit of "no net loading" of a pollutant discharged to the receiving water.

  The "no net loading" approach is based on an analysis of effective water quality standards in the Basin Plan, including State and federal antidegradation policies (see SWRCB Resolution No. 68-16 and 40 CFR 131.12), and NPDES permitting regulations, including 40 CFR 122.44(d)(1) and 40 CFR 122.4(a). Any loading of a bioaccumulative/persistent pollutant to a receiving water with a beneficial use already impaired by that pollutant has the reasonable potential to cause or contribute to an exceedance of narrative water quality objective(s) in the Basin Plan (see 40 CFR 122.44(d)(1)(i)), and is in violation of State and federal antidegradation policies which require that existing instream beneficial uses and the level of water quality necessary to protect these uses be maintained and protected when a permit is issued by the Regional Board. The requirement that existing beneficial uses be protected is not satisfied if these uses are impaired. Where baseline water quality is less than the quality defined by the water quality objective, the antidegradation standard requires that water quality must be improved to a level which achieves the water quality objective (see page 4, Antidegradation policy implementation for NPDES permitting, SWRCB 90-004, Administrative Procedures Update, May 1990). Finally, 40 CFR 122.4(a) prohibits issuance of an NPDES permit when permit conditions do not provide for compliance with the Clean Water Act, or regulations promulgated under the Clean Water Act, including water quality standards and NPDES regulations. In the absence of a TMDL which provides that an alternative load can be assimilated by the receiving water, the only effluent limit for the pollutant which will ensure that the discharge does not cause or contribute to an exceedance of water quality standards and does comply with water quality standards and NPDES regulations is no net loading.

A "no net loading" effluent limit may be met by:

1) reducing the effluent concentration below detectable levels through source control and/or treatment;

2) reducing loads through recycling/reclamation;

3) reducing loads elsewhere in the watershed by an amount at least equal to the amount discharge (and of equivalent bioavailability) through an offset program approved by the Executive Officer. Alternatively, in lieu of the "no net loading" effluent limit, a numeric site-specific objective that is protective of the beneficial use(s) listed as impaired may be developed and used as the basis for WQBELs.

- If the impairment is due to water column exceedances of effective numeric water quality objectives/criteria, then the only WQBEL which will not allow the discharge to cause or contribute to a violation of the numeric water quality objectives/criteria protecting the beneficial use(s) are end-of-pipe effluent limits based on these objectives/criteria.

- For pollutants listed due to elevated fish tissue and sediment concentrations and for which there are numeric water quality objectives/criteria protective of the beneficial use(s), WQBELs were established for (1) concentration based on the most stringent applicable CTR criterion, and (2) mass emission based on the maximum allowable discharge flow rate.

- For 303(d)-listed non-priority pollutants (coliform and ammonia), water quality objectives specified in the Basin Plan that are applied to the receiving water were prescribed.

5. Interim Limits

- The ARCO facility may not be able to achieve immediate compliance with the WQBELs for copper and zinc contained in Section I.B.2, I.B.3, and mercury contained in Section I.B.4 of this permit. Data submitted in self monitoring reports indicates that these three constituents have been detected at a concentration greater than the new limit proposed in this Order.

- 40 CFR Part 131.38(e) provides conditions under which interim effluent limits and compliance schedules may be issued. The SIP does allow inclusion of an interim limit with specific compliance schedule in an NPDES permit for priority pollutants if the limit for the priority pollutant is CTR-based. Interim limits for copper, zinc and mercury will be contained in the NPDES permit.

- The SIP requires that the Regional Board establish other interim requirements such as requiring the discharger to implement pollutant minimization and/or source control measures and participate in the activities necessary to develop final effluent limitations. When interim requirements have been completed, the Regional Board shall calculate final WQBELs for that pollutant based on the collected data, reopen the permit, and include the final effluent limitations in the permit provisions. Once final limitations become effective, the interim limitations will no longer apply.

6. Integrated Risk Information System (IRIS)

Updated reference doses or potency values are available in IRIS for some pollutants. USEPA uses these values to revise the water quality criteria for these compounds. This results in changes of limitations for some pollutants including benzene, halomethanes, heptachlor, heptachlor epoxide, hexachlorobenzene, and PAHs.

## VI. Basis for Effluent Limitations

A. Technology-Based Limitations for Waste Stream 1 (Discharge Serial 001)

There are promulgated effluent limitations for the discharge of process wastewater pollutants and storm water runoff pollutants. Therefore, proposed effluent limits will be based on promulgated effluent limits. As specified in the 40 CFR 419, the following requirements are used:

CFR 419.32(a) - BPT requirements for process wastewater.
CFR 419.32(e)(2) - BPT requirements for storm runoff.
CFR 419.33(a) - BAT requirements for process wastewater.
CFR 419.33(f)(2) - BAT requirements for storm runoff.
CFR 419.34(a) - BCT requirements for process wastewater.
CFR 419.34(e)(2) - BCT requirements for storm runoff.

1. For process wastewater:

BPT and BAT requirements pertaining to COD, ammonia as N and sulfide are equivalent, and also BPT and BCT requirements pertaining to BOD, TSS, oil and grease and pH are equivalent. However, because of the difference in methods to determine BPT and BAT requirements pertaining to phenolic compounds, total chromium and hexavalent chromium, it is necessary to calculate both BPT and BAT requirements and compare them to determine which is more stringent.

2. For contaminated stormwater runoff:

BPT and BCT requirements pertaining to BOD, TSS, and Oil and grease are equivalent, and also BPT and BAT requirements for COD, phenolic compounds, and chrome (VI) are equivalent. However, BAT requirement for total chrome is more stringent than BPT requirement; therefore for total chrome, BAT requirement is chosen to calculate the effluent limit.

3. The proposed effluent limitations for each pollutant are determined by adding the more stringent requirements applied for process wastewater to those of storm runoff.

a. Process Wastewater (lbs/day):

| Constituent (lbs/day) | 30-Day Average BPT | 30-Day Average BAT | 30-Day Average BCT | Most Strngt. | Daily Maximum BPT | Daily Maximum BAT | Daily Maximum BCT | Most Strngt. |
|---|---|---|---|---|---|---|---|---|
| BOD | 2,275 | 2,275 | | 2,275 | 4,235 | 4,235 | | 4,235 |
| TSS | 1,838 | 1,838 | | 1,838 | 2,905 | 2,905 | | 2,905 |
| COD | 13,441 | 13,441 | | 13,441 | 25,902 | 25,902 | | 25,902 |
| Oil & grease | 735 | | 735 | 735 | 1,365 | | 1,365 | 1,365 |
| Phenolic compounds | ~~14.88~~ | 10.72 | | 10.72 | 30.80 | ~~37.37~~ | | 30.80 |
| Ammonia (as N) | 1,330 | 1,330 | | 1,330 | 2,880 | 2,880 | | 2,880 |
| Sulfide | 12.25 | 12.25 | | 12.25 | 27.30 | 27.30 | | 27.30 |
| Total Cr | ~~37.45~~ | 12.59 | | 12.59 | ~~64.10~~ | 36.16 | | 36.16 |
| Cr (VI) | ~~2.52~~ | 1.03 | | 1.03 | ~~5.60~~ | 2.31 | | 2.31 |

b. Stormwater Runoff (lbs/day):

| Constituent (mg/L) | 30-Day Average | Daily Maximum |
|---|---|---|
| BOD | 26 | 48 |
| TSS | 21 | 33 |
| COD | 180 | 360 |
| Oil & grease | 8 | 15 |
| Phenolic compounds | 0.17 | 0.35 |
| Total Cr | 0.21 | 0.60 |
| Cr (VI) | 0.028 | 0.062 |

4. The Discharger must determine the fraction of process wastewater and of contaminated stormwater in the Reservoir 505 mixture prior to discharge. The effluent limitation (in lbs/day) for each pollutant in the commingled stream shall be the total of mass allowable for that pollutant attributed by process wastewater and that attributed by contaminated stormwater runoff.

B. Water Quality-Based Limitations

RPAs were performed for conventional, non-conventional, and toxic pollutants for which effluent data were available. The input data are based on the effluent data provided in the ROWD and the effluent information in the permit renewal application form. The final input data used in the RPA are summarized in the attachment of RPA results. Best professional judgment was used in this proposed Order to determine the

presence and reasonable potential of each toxic pollutant. Based on the nature of the business, similar discharges from petroleum refineries, and as indicated in the ROWD, seven inorganic pollutants (copper, mercury, nickel, silver, zinc, chromium, and cyanide) are expected to have reasonable potential of exceeding the water quality objectives. Effluent limitations are prescribed for these pollutants in this Order.

For some pollutants, including aldrin, alpha-BHC, beta-BHC, chlordane, DDT, dieldrin, endrin, heptachlor, heptachlor epoxide, hexachlorobenzene, PAHs, total PCBs, toxaphene, benzidine, 3,3-dichlorobenzidine, 1,2-diphenylhydrazine, are neither used or manufactured or known to be associated with petroleum refining. Effluent limitations are not specified for these pollutants; however, monitoring is required for future evaluation.

The water quality-based effluent limitations are as follows:

1. The results of the RPA indicated that effluent limits required for Waste Stream 1: copper, mercury, zinc; for Waste Stream 2 &3 : copper, mercury, silver, zinc, and cyanide; and for Low Volume Waste: copper, mercury, nickel, and silver.

2. The pollutants due to 303(d)-listed in the Dominguez Channel suggested are: lead, aldrin, chlordane, DDT, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, total PCBs, copper, zinc, PAHs, ammonia, chromium, and toxaphene.

   In the absence of a TMDL, effluent limits for 303(d) listed pollutants, for which RPA indicates a reasonable potential, were established for (1) concentration based on the most stringent applicable CTR criterion, and (2) mass emission based on the maximum allowable discharge flow rate and concentration limitation.

   For 303(d)-listed non-priority pollutants (ammonia), water quality objectives developed and specified in the Basin Plan, and applicable to the receiving water were prescribed

3. Monitoring is required for the remaining of toxic pollutants that lack of data.

C. Bases for whole effluent toxicity

The Basin Plan specifies a narrative objective for toxicity, requiring that all waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental response on aquatic organisms. Detrimental response includes but is not limited to decreased growth rate, decreased reproductive success of resident or indicator species, and/or significant alterations in population, community ecology, or receiving water biota. These acute and chronic toxicity limits in the Basin Plan and the existing permit are necessary to ensure that this objective is protected.

## VII. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments upon these tentative Waste Discharge Requirements. Comments should be submitted either in person or by mail to:

Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

To be fully responded to by staff and considered by the Board, written comments should be received by May 10, 2001.

## VIII. Public Hearing

The Board will hold a public hearing on May 24, 2001, to consider final determinations regarding the tentative requirements and monitoring program. The hearing will be held in Pasadena at the Richard H. Chambers, U.S. Court of Appeals Building, 125 S. Grand Avenue, and will begin at 9:00 a.m.

## IX. Waste Discharge Requirement Appeals

Any person may petition the State Board to review the decision of the Regional Board regarding the final Waste Discharge Requirements. A petition is due within 30 days of issuance of the waste discharge requirements by the Regional Board.

## X. Information and Copying

The Report of Waste Discharge, related documents, tentative effluent limitations and special conditions, comments received, and other information are on file and may be inspected at 320 West 4th Street, Suite 200, Los Angeles, California 90013, at any time between 8:00 am and 5:00 pm, Monday through Friday. Copying of documents may be arranged through the Los Angeles Regional Board by calling (213) 576-6600.

## XI. Register of Interested Persons

Any person interested in this particular application or NPDES permit may leave his name, address, and phone number with the Board as a part of the Board's file.