State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. 99-093
NPDES NO. CA0003778

WASTE DISCHARGE REQUIREMENTS FOR LOS ANGELES REFINING COMPANY (Los Angeles Refinery)

The California Regional Water Quality Control Board, Los Angeles Region, (hereinafter Regional Board) finds:

1. The Los Angeles Refining Company (hereinafter LARC), a Division of Equilon Enterprises LLC, formerly Texaco Refining and Marketing, Inc., discharges wastes from its Los Angeles Refinery under waste discharge requirements contained in Order No. 84-53 adopted by this Regional Board on May 21, 1984. This Order serves as the National Pollutant Discharge Elimination System (NPDES) permit (CA0003778).

2. LARC has filed a report of waste discharge and has applied for renewal of its waste discharge requirements and NPDES permit.

3. LARC operates its Los Angeles Refinery, a petroleum refinery facility (SIC 2911) located at 2101 East Pacific Coast Highway, Wilmington, California. The facility discharges up to 4 million gallons per day (mgd) with an average of 2 mgd of facility operational related wastewaters into the Dominguez Channel, a water of the United States, within the estuary. The wastes discharged and average flow rates are as follows: boiler blowdown [440,000 gallons per day (gpd)], cooling tower blowdown (490,000 gpd), miscellaneous wastewaters (miscellaneous cleanup wastewaters, petroleum coke-belt washwaters, excess coke drum cutting and quench waters, hydrostatic test waters, fire system test wastewater, and water softener regeneration wastewaters) (760,000 gpd), and sulfur recovery plant wastewaters (310,000 gpd). Stormwater discharge rates depend on rainfall runoff event intensity and duration.

   The wastewaters from the Sulfur Recovery Plant (NPDES Permit No. CA0002020 and Order No. 94-024) located one mile north of the refinery are pumped to the Los Angeles Refinery and further treated with the combined wastewaters mentioned above. The wastes discharged from the sulfur recovery plant consist of boiler blowdown wastewater, cooling tower blowdown wastewater, miscellaneous clean-up and water softener regeneration wastewaters. Stormwater can also be pumped from the sulfur recovery plant to the refinery.

4. In Cleanup and Abatement (CAO) Order No. 88-70, the Regional Board directed Texaco Refining and Marketing to initiate a full scale program to cleanup and abate conditions of ground water pollution caused by the uncontrolled release of hydrocarbons from the Los Angeles Refinery. LARC is operating free-phase and dissolved phase hydrocarbon recovery systems under CAO Order No. 88-70. The hydrocarbon contamination has been

found to affect and to be confined to the Gaspur/Gage Aquifer, which is the uppermost aquifer underlying the Los Angeles Refinery.

The three wells which LARC uses to supply water to the Los Angeles Refinery and the Sulfur Recovery Plant, draw from the Silverado Aquifer, which is separated by aquitards from the Gaspur/Gage aquifer. Subsequently, LARC's pumping for supply water is not expected to impact the groundwater cleanup operations conducted at the plant.

Water consumption at the refinery totals about 7 million gallons per day. Most of this water (about 90 percent) is ground water pumped from three wells (2 at the Los Angeles Refinery and 1 at the Sulfur Recovery Plant with a total capacity of 4,500 gallons per minute). This ground water is supplemented by municipal water supplied by The City of Los Angeles' Department of Water and Power. Not all water supplied ends up as wastewater: about 53 percent is lost through evaporation during refinery processes.

5. LARC imports crude oil to the Los Angeles Refinery via pipeline and marine vessels and manufactures the following products for sale: gasoline, jet fuel, diesel fuel, fuel oils, liquefied petroleum gases, coke, and molten sulfur. The refinery's crude throughput averages 95,000 barrels per day (bbls/day). The refinery processes include atmospheric distillation, vacuum distillation, fluid catalytic cracking, hydrocracking, delayed coking, hydrotreating, sulfuric acid alkylation, catalytic reforming, hydrogen generation, and sulfur recovery. Petrochemicals are not produced at the plant.

6. The refinery generates two types of wastewaters that go into two separate trains of collection and treatment systems. The two systems are the high chemical oxygen demand (HCOD) and the low chemical oxygen demand (LCOD) treatment systems. The plant has an average ratio of LCOD to the total LCOD and HCOD wastewaters of about 0.65. The HCOD wastewaters which are coming from enclosed process unit systems are sent to a pre-treatment system before being discharged to the sanitary sewer. LCOD wastewaters are coming from the boiler blowdown, cooling tower blowdown, miscellaneous wastewaters (miscellaneous cleanup wastewaters, petroleum coke-belt washwaters, excess coke drum cutting and quench waters, hydrostatic test waters, fire system test wastewater, and water softener regeneration wastewaters), and the sulfur plant. The refinery's LCOD wastewater treatment system consists of lamella units; flow equalization tanks, induced gas flotation units (IGFUs), storage tanks, and number of collection sumps and ponds. In the event of a storm, runoff from the north and south tank farm areas is combined with normal refinery generated LCOD wastewater. The combined stream is processed through the LCOD wastewater treatment system. After treatment, the combined stream is discharged to outfall 001 and/or outfall 002 into Dominguez Channel.

7. LARC discharges through three discharge points along the west bank of the Dominguez Channel described as follows:

Discharge Serial No. 001 - This outfall is located about 515 north of the Pacific Coast Highway (PCH) at latitude 33° 48' 15" and longitude 118° 13' 45". During a storm event, Pond Nos. 8 and 9 may be used to store runoff, which may not be commingled with operational LCOD wastes from the refinery. Non-commingled stormwater from these ponds may be discharged directly to the Dominguez Channel through Discharge Serial No. 001 if flooding is imminent during a high storm event.

Discharge Serial No. 002 - This outfall is located about 50 feet south of PCH at latitude 33°47'29" and longitude 118°13'51". This is LARC's primary outfall. In November 1994, wastewaters during refinery's normal operation (dry weather) and intermittent rainfall events (below 4 inches in 24 hours or 8 inches in 5 days) began discharging through this outfall. Discharges at this outfall are simultaneous with outfall 001 during high storm event (above 5 inches in 24-hours).

Discharge Serial No. 003 - This outfall is located about 2,450 feet south of PCH or 88 feet north of Southern Pacific Railroad at latitude 33°47'8" and longitude 118° 14'28". Wastewaters are being discharged through this outfall only during very high storm event above 6 inches in 24 hours. The January 1995 storms, a 30-year 24-hour storm of 6.5 inches, caused the plant to discharge from this outfall to protect the refinery.

8. LARC's maximum capacity for treating LCOD operational wastes and commingled stormwater is about 5.7 mgd. LARC also has a stormwater collection and storage capacity of aproximately 32.3 million gallons (including the 2.3 million total capacity of Pond Nos. 8 and 9), which is the approximate storage capacity needed, in conjunction with the treatment capacity, to handle a ten year 24-hour storm of approximately 5.5 inches. In the event of a storm, runoff from the north and south tank farm areas is combined with normal refinery generated LCOD wastewater. The combined stream is processed through the LCOD wastewater treatment system and discharged to outfall 002 into Dominguez Channel. If stormwater flow and LCOD flows exceed the treatment capacity, flow is diverted to storage. However, during storm events when flooding at the plant is imminent, stormwater flows would bypass treatment and storage and be discharged directly to Dominguez Channel at Outfalls 001 or 003. Small amounts of LCOD wastes may be commingled with stormwater flows and stored in the stormwater storage system and may bypass treatment during flooding situations. Stormwater discharge rates would depend on intensity and duration of rainfall event and rate and volume of stormwater generated above the collection, storage, and treatment capacity of LARC. At the conclusion of a storm event, wastes collected and stored onsite are released and treated with operational wastes and discharged through Outfall Serial 002.

The 1984 permit includes mass emission effluent limits for a stormwater flow of 2.88 million gallons per day. This flow value was not a cap on the hydraulic discharge of stormwater from the plant, nor were the mass limits caps on the total emissions for

stormwater discharged from the plant. The 2.88 million gallons flow value was an estimated stormwater flow which LARC may treat and discharge in addition to the nonprocess LCOD flow. Again as described above, during more severe storm events, when storage and treatment capabilities of the refinery are exceeded and flooding is imminent, the refinery would bypass stormwater from treatment and discharge untreated stormwater at flow rates necessary to prevent the refinery from flooding.

The numeric flow based mass limits prescribed herein are established also for the stormwater discharge event where untreated stormwater is discharged. Though they are technology based limits from 40 CFR Part 419, this does not preclude the Regional Board from establishing TMDL based effluent limits in the future when more information is available from Dominguez Channel watershed initiative activities and stormwater monitoring activities prescribed herein.

9. The United States Environmental Protection Agency (USEPA) promulgated toxics criteria (40 CFR Part 131.36) for states that are not in compliance with Section 303 (c)(2)(B) of the Clean Water Act (CWA). These criteria supersede any criteria adopted by the State, except when State regulations contain criteria which are more stringent for a particular use in which case the State's criteria will continue to apply. Discharge from the LARC plant is subject to the USEPA's toxics criteria.

10. USEPA Effluent Guidelines and Standards for Petroleum Refining Point Sources (40 CFR Part 419) are applicable to the discharge limitations on conventional pollutants and contaminated stormwater runoff. Based on the processes employed and the products manufactured, LARC is classified under the cracking subcategory (40 CFR Part 419 Subpart B).

11. Pursuant to Section 402(p) of the Clean Water Act and 40 CFR Parts 122, 123 and 124, the State Water Resources Control Board (State Board) adopted general NPDES permits to regulate stormwater discharges associated with industrial activity (State Board Order No. 97-03-DWQ) and construction activity (State Board Order No. 92-08-DWQ). LARC is covered by the general permit associated with industrial activity.

12. On June 13, 1994, the Regional Board, updated and adopted a Water Quality Control Plan for the Los Angeles Region (Basin Plan). The Basin Plan incorporates, by reference, State Board's water quality control plans for control of temperature, significant State Board policies that are applicable to the Los Angeles Region, and the antidegradation policy. The Basin Plan identifies water quality objectives and beneficial uses for Dominguez Channel.

13. The beneficial uses designated for the receiving water, the Dominguez Channel (estuary) are: noncontact water recreation; contact water recreation (access prohibited by Los Angeles County); commercial and sport fishing; preservation and enhancement of estuarine habitat; marine habitat; wildlife habitat; spawning, reproduction, and/or early

development; migration of aquatic organisms; navigation (potential); and maintenance of rare and endangered plant or animal species established under state or federal law.

14. The USEPA and the Regional Board have classified LARC's discharge as a major discharge.

15. Effluent limitations, toxic effluent standards, regulations, water quality criteria, requirements and guidelines established pursuant to Section 301, 302, 303, 304, 306, and 307 of the Federal Clean Water Act, and amendments thereto, are applicable to the discharge.

16. The requirements contained in this Order, which are based on the Basin Plan and on Federal and State guidelines, and, as they are met, will be in conformance with the goals of the Water Quality Control Plan and will protect and maintain the beneficial uses of the receiving waters.

17. The area of the Dominguez Channel receiving the LARC discharge is classified as an estuary. The toxic pollutants discharge limits included in this Order were established after consideration of the standards from the "USEPA's National Ambient Criteria for Saltwater Aquatic Life Protection"; the "USEPA's National Ambient Criteria for Freshwater Aquatic Life Protection"; and USEPA standards for health and welfare.

18. The 1998 Water Quality Assessment Report describes the Dominguez Channel as an impaired water body. The Dominguez Channel is also included on the 303(d) list of impaired water bodies with the following pollutants cited as causing impairment for aquatic life beneficial use: ammonia, copper, lead, chromium, and zinc.

19. The discharger has a history of effluent violations for oil and grease, chemical oxygen demand (COD), suspended solids (TSS), sulfides, temperature, and residual chlorine. On March 30, 1998, the Regional Board issued a Notice of Violation (NOV) to the discharger for continuing violations for COD, TSS, and sulfides. Because of the discharger's failure to achieve compliance with permit limits in Order No. 84-053 subsequent to the NOV, and because the discharger may not be able to achieve compliance with the limits in this Order, the Regional Board is taking enforcement action concurrent with this Order. A Cease and Desist Order that provides interim limits and requires the LARC to undertake actions toward compliance with the limits, accompanies this Order and permit.

20. The State of California is currently without water quality control plans which include criteria for dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin), a potential byproduct of petrochemical plant operations. The USEPA has proposed a rule for the State of California, in fulfillment of section 303(c)(2)(B) of the Clean Water Act, for numeric water quality criteria for priority toxic pollutants which include dioxin (TCDD). Though the rule has not been promulgated, the standard proposed for dioxin has been determined to be scientifically defensible. Subsequently, the standard proposed in the USEPA's rule for dioxin, 0.014 picograms/liter

(pg/l), has been included as a receiving water objective in this permit.

21. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code in accordance with Water Code Section 13389.

The Regional Board has notified the discharger and interested agencies and persons of its intent to renew waste discharge requirements for this discharge and has provided them with an opportunity to submit their written views and recommendations.

The Regional Board, in a public hearing, heard and considered all comments pertaining to the discharge. All orders referred to above and records of hearings and testimony therein are included herein by reference.

This Order shall serve as an NPDES permit pursuant to Section 402 of the Federal Clean Water Act of amendments thereto, and shall take effect at the end of ten days from the date of its adoption, provided the Regional Administrator of the USEPA has no objections.

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

I. DISCHARGE LIMITATIONS

A. Effluent Limitations

1. Wastes discharged shall be limited to boiler blowdown, cooling tower blowdown, miscellaneous wastewaters (miscellaneous cleanup wastewaters, petroleum coke-belt washwaters, excess coke drum cutting and quench waters, hydrostatic test waters, fire system test wastewater, and water softener regeneration wastewaters), sulfur recovery plant wastewaters, and stormwater runoff, only as proposed.

2. The discharge of an effluent from Discharge Serial No. 001, 002, and 003 with constituents in excess of the following limits is prohibited:

   a. For the dry weather discharges of boiler blowdown wastewater, cooling tower blowdown wastewater, miscellaneous wastewaters (miscellaneous cleanup wastewaters, petroleum coke-belt washwaters, excess coke drum cutting and quench waters, hydrostatic test waters, fire system test wastewater, and water softener regeneration wastewaters), and sulfur recovery plant wastewaters.

(1). Conventional and Nonconventional Pollutants

Constituents	Units	Discharge Limitations Monthly Average	Daily Maximum[1]
BOD_5 20°C	mg/l	30	60
	lbs/day	725	1300
Total suspended solids	mg/l	30	60
	lbs/day	580	910
Chemical oxygen demand	lbs/day	3140	3140
Oil and grease	mg/l	10	15
	lbs/day	211	360
Phenolic compounds[2]	mg/l	0.2	0.5
	lbs/day	4.8	9.8
Ammonia as N	mg/l	21	47
	lbs/day	395	867
Sulfides	mg/l	0.2	0.46
	lbs/day	3.8	8.6
Total chromium[3]	ug/l	50	--
	lbs/day	1.7	18
Hexavalent chromium	ug/l	39	45
	lbs/day	0.5	1.15
Residual chlorine	mg/l	---	0.10
Settleable solids	ml/l	0.1	0.3

(See footnotes on page 16)

(2). Toxic Pollutants[12]

Constituents	Units	Discharge Limitations Monthly Average	Instantaneous Maximum[1]
Arsenic[4,13]	ug/l	36	69
	lbs/day	0.93	-
Cadmium[4,5,13]	ug/l	9.3	42
	lbs/day	0.24	-
Copper[4,5,13]	ug/l	2.4	2.4
	lbs/day	0.062	-
Cyanide[13]	ug/l	1	1
	lbs/day	0.026	-
Lead[4,13]	ug/l	8.1	210
	lbs/day	0.21	-
Mercury[4,5,13]	ug/l	0.025	1.8
	lbs/day	0.00064	-
Nickel[4,13]	ug/l	8.2	74
	lbs/day	0.21	-
Selenium[4,5,13]	ug/l	71	290
	lbs/day	1.84	-
Silver[4,5,13]	ug/l	-	2.3
Thallium[4,13]	ug/l	6.3	-
	lbs/day	0.16	-
Zinc[4,5,13]	ug/l	81	90
	lbs/day	2.1	-

(See footnotes on page 16)

(2). Toxic Pollutants[12]: (continued)

Constituents	Units	Discharge Limitations Daily Maximum[1]
Acrolein	ug/l	780
	lbs/day	26
Acrylonitrile	ug/l	0.66
	lbs/day	0.022
Benzene	ug/l	71[13]
	lbs/day	2.36
Benzidine	ug/l	0.00054
	lbs/day	0.000018
Bis(2-chloroethyl)-ether	ug/l	1.4
	lbs/day	0.047
Carbon tetra-chloride	ug/l	4.4
	lbs/day	0.15
Chlorobenzene	mg/l	21
	lbs/day	700
Chloroform	ug/l	470
	lbs/day	15.7
1,2-dichlorobenzene	mg/l	17
	lbs/day	567
1,3-dichlorobenzene	mg/l	2.6
	lbs/day	86.7
3,3-dichloroben-zidine	ng/l	77
	lbs/day	0.003
1,2-dichloro-ethane	ug/l	99
	lbs/day	3.3
1,1-dichloro-ethylene	ug/l	3.2
	lbs/day	0.11

(See footnotes on page 16)

(2). Toxic Pollutants[12]: (continued)

Constituents	Units	Discharge Limitations Daily Maximum[1]
2,4-dichlorophenol	ug/l	790
	lbs/day	26.3
1,3-dichloropropene	mg/l	1.7
	lbs/day	56.7
Dichloromethane	mg/l	1.6
	lbs/day	53.3
Di(2-ethylhexyl)-pthalate	ug/l	5.9
	lbs/day	0.20
Diethyl phthalate	mg/l	120
	lbs/day	4,000
2,4-dinitrophenol	mg/l	14
	lbs/day	467
2,4-dinitrotoluene	ug/l	9.1
	lbs/day	0.30
1,2-diphenylhydrazine	ug/l	0.54
	lbs/day	0.018
Ethylbenzene	mg/l	29[13]
	lbs/day	967
Fluoranthene	ug/l	370
	lbs/day	12.3
Hexachlorobenzene	ug/l	0.00077
	lbs/day	0.000026
Hexachlorobutadiene	ug/l	50
	lbs/day	1.7

(See footnotes on page 16)

(2). Toxic Pollutants[12]: (continued)

Constituents	Units	Discharge Limitations Daily Maximum[1]
Hexachlorocylo-pentadiene	mg/l	17
	lbs/day	567
Hexachloroethane	ug/l	8.9
	lbs/day	0.30
Isophorone	ug/l	600
	lbs/day	20
Nitrobenzene	mg/l	1.9
	lbs/day	63
N-nitrosodi-methylamine	ug/l	8.1
	lbs/day	0.27
N-nitrosodi-phenylamine	ug/l	16
	lbs/day	0.53
Anthracene[13]	ug/l	110
	lbs/day	3,670
1,2-Benzanthracene[13]	ug/l	0.049
	lbs/day	0.0016
3,4-Benzofluoranthene[13]	ug/l	0.049
	lbs/day	0.0016
Benzo(k)fluouranthene[13]	ug/l	0.049
	lbs/day	0.0016
Benzo(a)pyrene[13]	ug/l	0.049
	lbs/day	0.0016

(See footnotes on page 16)

(2). Toxic Pollutants[12]: (continued)

Constituents	Units	Discharge Limitations Daily Maximum[1]
Chrysene[13]	ug/l	0.049
	lbs/day	0.0016
Dibenzo(a)anthracene[13]	ug/l	0.049
	lbs/day	0.0016
Fluorene[13]	mg/l	14
	lbs/day	467
Indeno(1,2,3-cd)pyrene[13]	ug/l	0.049
	lbs/day	0.0016
Pyrene[13]	mg/l	11
	lbs/day	367
PCBs[7]	ng/l	0.045
	lbs/day	0.0000015
Pentachlorophenol	ug/l	7.9
	lbs/day	0.26
1,1,2,2-tetrachloro-ethane	ug/l	11
	lbs/day	0.37
Tetrachloro-ethylene	ug/l	8.85
	lbs/day	0.3
Toluene	mg/l	200[13]
	lbs/day	6,670
1,1,2-trichloro-ethane	ug/l	42
	lbs/day	1.4
Trichloroethylene	ug/l	81
	lbs/day	2.7

(See footnotes on page 16)

(2). Toxic Pollutants[12]: (continued)

Constituents	Units	Discharge Limitations Daily Maximum[1]
2,4,6-trichloro-phenol	ug/l	6.5
	lbs/day	0.22
Vinyl chloride	ug/l	525
	lbs/day	17.5
Methyl tertiary-butyl ether	mg/l	8[11]
	lbs/day	267
Bromoform	ug/l	360
	lbs/day	12
Bromodichloromethane	ug/l	22
	lbs/day	0.73
Dibromochloromethane	ug/l	34
	lbs/day	1.13

(See footnotes on page 16)

(3.) The pH of wastes discharged shall at all times be within the range of 6.0 to 9.0.

(4.) The temperature of wastes discharged shall not exceed 100 °F.

(5.) The acute toxicity of the effluent shall be such that the average survival in the undiluted effluent for any three (3) consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with no single test less than 70% survival.

If the acute toxicity effluent limitation is violated three consecutive months, the discharger shall conduct a toxicity identification evaluation (TIE). The TIE shall include all reasonable steps to identify the source of toxicity. Once the sources are identified, the discharger shall take all reasonable steps to reduce toxicity to the required level.

b. The incremental limits for wet weather discharges are based on the actual stormwater flows discharged. Subsequently, the discharger shall submit to the Executive Officer by October 16, 1999, a description of the method proposed to determine the daily rainfall runoff discharged during and subsequent to rainfall events. This method must include measures to calculate daily discharges of stored stormwater. The discharger shall follow the method, as approved by the Executive Officer, in calculating actual mass emissions and mass emission limits as a result of stormwater discharges.

The following mass limit allocations are permitted for contaminated runoff discharges.

Constituents	Units	Discharge Limitations[8,9,10] Monthly Average	Daily Maximum
$BOD_5$20°C	lbs/1000 gallons per day of contaminated runoff	0.21	0.4
Total suspended solids	lbs/1000 gallons per day of contaminated runoff	0.14	0.24
Chemical oxygen demand	lbs/1000 gallons per day of contaminated runoff	1.5	3
Oil and grease	lbs/1000 gallons per day of contaminated runoff	0.067	0.13
Phenolic compounds	lbs/1000 gallons per day of contaminated runoff	0.0014	0.0029
Total chromium	lbs/1000 gallons per day of contaminated runoff	0.0018	0.005
Hexavalent chromium	lbs/1000 gallons per day of contaminated runoff	0.00023	0.00052
pH	(pH unit)	-	6.0 to 9.0

See footnotes on following page

c. For concentration limits for untreated stormwater, refer to constituents with footnote [13] in Table (2). Toxic Pollutants.

Footnotes:

[1] The daily maximum effluent concentration limit shall apply to grab and flow-weighted 24-hour composite samples for dry weather discharges which have or have not commingled with stormwater. A storm event less frequent than ten year 24-hour shall be stored and treated, except for non-commingled stormwater stored in Ponds 8 and 9.

[2] Phenolic compounds includes chlorinated and non-chlorinated phenolic compounds.

[3] Sum of Hexavalent chromium and other Chromium valences.

[4] Concentrations expressed as total recoverable.

[5] Concentrations are expressed as total recoverable and correspond to a water effect ratio of 1.0. For other conditions, the limits can be calculated by following a water effect ratio study according to USEPA guidance documents and\or state protocols, if applicable.

[6] PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[a]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene, and pyrene.

[7] PCBs (Polychlorinated biphenyls) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.

[8] Technology based effluent limitations based on 40CFR Part 419 Subpart B.

[9] The discharge mass emission rate limitation formula is as follows:

lbs/day = Cf x Q

where:

Cf = mass limit factor/concentration, (from table above)
Q = calculated one-day flow in gallons per day, divided by 1000.

[10] Actual mass emission rate is calculated by the mass emission formula: Mass = Cn x Q x 8.34,
where: Cn - actual water quality concentration (mg/l),
Q - one-day flow of contaminated runoff (mgd).
8.34 - constant

[11] LARC must make best efforts to meet the effluent performance goal (95th percentile) of 243 ug/l for methyl tertiary butyl ether. Any exceedance of the goal shall trigger an evaluation by LARC on the cause of the exceedance. LARC shall report to the Regional Board on a quarterly basis any continued exceedance of the effluent quality goal. If exceedance of the goal persists into a consecutive quarterly period, LARC shall undertake an evaluation of the causes of the exceedance(s). The discharger shall submit for the Executive Officer's review and approval, a report of corrective action including a description of the exceedance, cause(s) of the exceedance, and proposed corrective measures and time schedule, if necessary. However, LARC shall proceed to implement any corrective measures needed prior to the Executive Officer's approval. The Executive Officer may modify a performance goal if the discharger requests and has demonstrated that the change is warranted.

(Footnotes continued on following page.)

Footnotes (continued):

[12] If the constituent limit is less than the method detection limit, compliance with the constituent limit shall be based on the PQL (Practical Quantitation Level). PQL shall be determined by multiplying the USEPA method detection limit (MDL) shown in Attachment 1 or the Discharger's performance MDL approved by the Executive Officer, with the factors five (5) for carcinogens or ten (10) for noncarcinogens.

[13] Concentration limits (not mass limits) applicable to untreated stormwater.

B. RECEIVING WATER LIMITATIONS

1. The natural receiving water temperature shall not be altered by more than 5°F above the natural temperature. At no time shall the receiving water temperature be raised above 80°F as a result of waste discharged.

2. The pH of the receiving water shall not be depressed below 6.5 or raised above 8.5 as a result of wastes discharged. Ambient pH levels shall not be changed more than 0.2 units from natural conditions.

3. The wastes discharged shall not contain toxic pollutants at levels that will bioaccumulate in aquatic life to levels which are harmful to aquatic life or human health.

4. The wastes discharged shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affect beneficial uses of the receiving water.

5. The wastes discharged shall not cause receiving water to contain any substance in concentration that adversely affect any designated beneficial use.

6. The wastes discharged shall not alter the color of the receiving waters; create a visual contrast with the natural appearance of the water; nor cause aesthetically undesirable discoloration of the receiving waters.

7. The wastes discharged shall not degrade surface water communities and population including vertebrate, invertebrate, and plant species.

8. The wastes discharged shall not result in problems due to breeding of mosquitos, gnats, black flies, midges, or other pests.

9. Floating particulates, foams, and oil and grease shall not be visible in the receiving waters as a result of the wastes discharged.

10. The wastes discharged shall not contain any individual pesticide or combination of pesticides in concentrations that adversely affect beneficial uses of the receiving waters. There shall be no increase in pesticide concentration found in bottom sediments or aquatic life.

11. The wastes discharged shall not alter the natural taste, odor, and color of fish, shellfish, or other surface water resources used for human consumption.

12. The wastes discharged shall not increase the turbidity of the receiving waters to the extent that causes nuisance or adversely affect beneficial uses.

13. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions as a result of wastes discharged.

14. The concentration of organic materials in marine sediments shall not be increased above that which would degrade marine life as result of wastes discharged.

15. The wastes discharged shall not cause receiving waters to contain any substance in concentrations toxic to human, animal, plant, or fish life.

16. No physical evidence of wastes discharged shall be visible at any time in the water or on beaches, shores, rocks, or structures.

17. The wastes discharged shall not cause the dissolved oxygen concentration of the receiving waters to be depressed below 5 mg/l; except when natural conditions cause lesser concentrations, in which case the wastes discharged shall not cause any further reduction in the dissolved oxygen concentration of the receiving waters.

C. RECEIVING WATER OBJECTIVES

1. There shall be no chronic toxicity in ambient waters as a result of dry weather wastes discharged.

If the chronic toxicity in the receiving water monitoring points downstream of the discharge point consistently exceeds 1.0 TU_c in a critical life stage test, the Discharger shall determine if the cause of the exceedance is the wastes discharged. If it is determined that the wastes discharged caused the exceedance, the Discharger shall conduct a toxicity reduction evaluation (TRE). The TRE shall include all reasonable steps to identify the sources of toxicity. Once the sources are identified, the Discharger shall take all reasonable steps to reduce toxicity to meet the objective.

2. To protect aquatic life, ammonia in the receiving water shall not exceed concentrations specified in the USEPA National Ambient Water Quality Criteria (Attachment A) as a result of the wastes discharged, subject to the following conditions:

   The discharger will have until June 13, 2002, to: (a) make the necessary adjustments/improvements to meet these objectives, or (b) conduct studies leading to an approved less restrictive site specific objective for ammonia. If it is determined that there is an immediate threat or impairment of beneficial uses due to ammonia, the objectives in Attachment A shall apply and the timing of compliance will be determined on a case-by-case basis by the Executive Officer.

3. The levels of TCDD equivalents in the receiving water shall not exceed 0.014 pg/l as a result of wastes discharged. If the TCDD levels in the receiving water monitoring points downstream of the discharge point exceeds the limit, the Discharger shall determine if the cause of the exceedance is the wastes discharged. 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, as shown in the following below:

Isomer Group	Toxicity Equivalence Factor
2,3,7,8-tetra CDD	1.00
2,3,7,8-penta CDD	0.50
2,3,7,8-hexa CDD	0.10
2,3,7,8-hepta CDD	0.01
octa CDD	0.001
2,3,7,8-penta CDF	0.10
1,2,3,7,8-penta CDF	0.050
2,3,4,7,8-penta CDF	0.50
2,3,7,8-hexa CDFs	0.10
2,3,7,8-hepta CDFs	0.01
octa CDF	0.001

II. OTHER REQUIREMENTS AND PROVISIONS

A. The Discharger shall comply with all applicable water quality objectives for the receiving waters, including the toxic criteria in 40 CFR Part 131.36.

B. This Order and permit includes the attached Standard Provisions and General Monitoring and Reporting Requirements (04/21/97). If there is any conflict between provisions stated herein and said "Standard Provisions", those provisions stated herein prevail.

C. This Order includes the attached Monitoring and Reporting Program No. CI-5427. If there is any conflict between provisions stated in Monitoring and Reporting Program and the Standard Provisions, those provisions stated in the former prevail.

D. This Order includes the requirements of the California State Water Resources Control Board's General NPDES permits for discharges of storm water associated with industrial activity (Order No. 97-03-DWQ, Attachment S-I).

The Discharger must develop and implement a Storm Water Pollution Prevention Plan (SWPPP) in accordance with Section A (Storm Water Pollution Prevention Plan) of Order No. 97-03-DWQ within 90 days of the effective date of this Order. If the Discharger has already developed a SWPPP pursuant to the requirements in Order No.97-03-DWQ, the Discharger shall be considered in compliance with this requirement and shall continue implementing said SWPPP.

E. This Order may be modified, in accordance with the provisions set forth in 40 CFR Parts 122 and 124, to include requirements for the implementation of the watershed protection management approach, and any requirements made applicable by the anticipated adoption of the California Toxics Rule.

F. This Order may be modified, revoked, and reissued or terminated in accordance with the provisions of 40 CFR Parts 122.44, 122.62 to 122.64, 125.62, and 125.64. Causes for taking such actions include, but are not limited to, failure to comply with any condition of this Order, endangerment to human health or the environment resulting from the permitted activity, or acquisition of newly obtained information which would have justified the application of different conditions if known at the time of Order adoption. The filing of a request by LARC for an Order modification, revocation, and issuance or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

G. The discharger must comply with the lawful requirements of municipalities, counties, drainage districts, and other local agencies regarding discharges of storm water to storm drain systems or other water courses under their jurisdiction, including applicable requirements in municipal storm water management programs developed to comply with NPDES permits issued by the Regional Board to local agencies.

III. EXPIRATION DATE

This Order expires on August 10, 2004.

The discharger must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations, not later than 180 days in advance of the expiration date as application for issuance of new waste discharge requirements.

IV. RESCISSION

Order No. 84-53, adopted by this Board on May 21, 1984, is hereby rescinded, except for enforcement purposes.

I, Dennis A. Dickerson, Executive Officer, do hereby certify that the foregoing is full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on September 16, 1999.

DENNIS A. DICKERSON
Executive Officer

/GS

WATER QUALITY GOALS — INORGANIC CONSTITUENTS
SALTWATER AQUATIC LIFE — AMMONIA

USEPA National Ambient Water Quality Criteria to protect Saltwater Aquatic Life

Criteria Continuous Concentrations (4-day Avg.) for Total Ammonia (mg/l) at these Temperatures

pH	0°C	5°C	10°C	15°C	20°C	25°C	30°C	35°C
Salinity = 10 g/kg								
7.0	41	29	20	14	9.4	6.6	4.4	3.1
7.2	26	18	12	8.7	5.9	4.1	2.8	2.0
7.4	17	12	7.8	5.3	3.7	2.6	1.8	1.2
7.6	10	7.2	5.0	3.4	2.4	1.7	1.2	0.84
7.8	6.6	4.7	3.1	2.2	1.5	1.1	0.75	0.53
8.0	4.1	2.9	2.0	1.40	0.97	0.69	0.47	0.34
8.2	2.7	1.8	1.3	0.87	0.62	0.44	0.31	0.23
8.4	1.7	1.2	0.81	0.56	0.41	0.29	0.21	0.16
8.6	1.1	0.75	0.53	0.37	0.27	0.20	0.15	0.11
8.8	0.69	0.50	0.34	0.25	0.18	0.14	0.11	0.08
9.0	0.44	0.31	0.23	0.17	0.13	0.10	0.08	0.07
Salinity = 20 g/kg								
7.0	44	30	21	14	9.7	6.6	4.7	3.1
7.2	27	19	13	9.0	6.2	4.4	3.0	2.1
7.4	18	12	8.1	5.6	4.1	2.7	1.9	1.3
7.6	11	7.5	5.3	3.4	2.5	1.7	1.2	0.84
7.8	6.9	4.7	3.4	2.3	1.6	1.1	0.78	0.53
8.0	4.4	3.0	2.1	1.5	1.0	0.72	0.50	0.34
8.2	2.8	1.9	1.3	0.94	0.66	0.47	0.31	0.24
8.4	1.8	1.2	0.84	0.59	0.44	0.30	0.22	0.16
8.6	1.1	0.78	0.56	0.41	0.28	0.20	0.15	0.12
8.8	0.72	0.50	0.37	0.26	0.19	0.14	0.11	0.08
9.0	0.47	0.34	0.24	0.18	0.13	0.10	0.08	0.07
Salinity = 30 g/kg								
7.0	47	31	22	15	11	7.2	5.0	3.4
7.2	29	20	14	9.7	6.6	4.7	3.1	2.2
7.4	19	13	8.7	5.6	4.1	2.9	2.0	1.4
7.6	12	8.1	5.6	3.7	3.1	1.8	1.3	0.90
7.8	7.5	5.0	3.4	2.4	1.7	1.2	0.81	0.56
8.0	4.7	3.1	2.2	1.6	1.1	0.75	0.53	0.37
8.2	3.0	2.1	1.4	1.0	0.69	0.50	0.34	0.25
8.4	1.9	1.3	0.90	0.62	0.44	0.31	0.23	0.17
8.6	1.2	0.84	0.59	0.41	0.30	0.22	0.16	0.12
8.8	0.76	0.53	0.37	0.27	0.20	0.15	0.11	0.09
9.0	0.50	0.34	0.26	0.19	0.14	0.11	0.08	0.07

Criteria Maximum Concentrations (1-hour Avg.) for Total Ammonia (mg/l) at these Temperatures

0°C	5°C	10°C	15°C	20°C	25°C	30°C	35°C
Salinity = 10 g/kg							
270	191	131	92	62	44	29	21
175	121	83	59	40	27	19	13
110	77	52	35	25	14	12	8.3
69	48	33	23	16	11	7.7	5.6
44	31	21	15	10	7.1	5.0	3.5
27	19	13	9.4	6.4	4.6	3.1	2.3
18	12	8.5	5.8	4.2	2.9	2.1	1.5
11	7.9	5.4	3.7	2.7	1.9	1.4	1.0
7.3	5.0	3.5	2.5	1.8	1.3	0.98	0.75
4.6	3.3	2.3	1.7	1.2	0.92	0.71	0.56
2.9	2.1	1.5	1.1	0.86	0.67	0.52	0.44
Salinity = 20 g/kg							
291	200	137	96	64	44	31	21
183	125	87	60	42	29	20	14
116	79	54	37	27	18	12	8.7
73	50	35	23	17	11	7.9	5.6
46	31	23	15	11	7.5	5.2	3.5
29	20	14	9.8	6.7	4.8	3.3	2.3
19	13	8.9	6.2	4.4	3.1	2.1	1.6
12	8.1	5.6	4.0	2.9	2.0	1.5	1.1
7.5	5.2	3.7	2.7	1.9	1.4	1.0	0.77
4.8	3.3	2.5	1.7	1.3	0.94	0.73	0.56
3.1	2.3	1.6	1.2	0.87	0.69	0.54	0.44
Salinity = 30 g/kg							
312	208	146	102	71	48	33	23
196	135	94	64	44	31	21	15
125	85	58	40	27	19	13	9.4
79	54	37	25	21	12	8.5	6.0
50	33	23	16	11	7.9	5.4	3.7
31	21	15	10	7.3	5.0	3.5	2.5
20	14	9.8	6.7	4.6	3.3	2.3	1.7
12.7	8.7	6.0	4.2	2.9	2.1	1.6	1.1
8.1	5.6	4.0	2.7	2.0	1.4	1.1	0.81
5.2	3.5	2.5	1.8	1.3	1.0	0.75	0.56
3.3	2.3	1.7	1.2	0.94	0.71	0.56	0.46

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

MONITORING AND REPORTING PROGRAM NO. 5427
FOR
LOS ANGELES REFINING COMPANY
(LOS ANGELES REFINERY)
NPDES No. CA0003778

I. REPORTING AND MONITORING REQUIREMENTS

A. The Discharger shall implement this monitoring program on the effective date of this Order. All monitoring reports shall be received by the Regional Board monthly, by the first day of the second month following each monthly sampling period, addressed to the Regional Board, Attention: Information Technology Unit. The first monitoring report under this Program is to be received by November 1, 1999, and will cover the partial monitoring period of September 1999.

B. Quarterly monitoring shall be performed during the months of February, May, August, and November. Annual monitoring shall be performed in the month of November.

C. Laboratory analyses - all chemical, and toxicity analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services Environmental Laboratory Accreditation Program (ELAP) or approved by the Executive Officer. A copy of laboratory certification shall be provided each time a new and/or renewal is obtained from ELAP.

The analyses shall specify the United States Environmental Protection Agency (USEPA) analytical method used and its Method Detection Limit (MDL). For the purpose of reporting compliance with effluent limitations, performance goals, and receiving water limitations, analytical data shall be reported with an actual numerical value or "nondetected (ND)" with the MDL indicated for the analytical method used. The maximum allowed MDLs are those published by the USEPA (MDLs for priority pollutants are listed in Attachment 1).

The Discharger shall not use a MDL higher than that published by the USEPA unless the Discharger can demonstrate that a particular detection limit is not attainable and obtains approval for a higher detection limit from the Executive Officer.

D. Water/wastewater samples must be analyzed within allowable holding time limits as specified in 40 CFR Part 136.3. All QA/QC items must be run on the same dates when samples were actually analyzed, and the results shall be reported on Regional Board format and submitted with the laboratory reports. Proper chain of custody procedures must be followed and a copy shall be submitted with the report.

E. For parameters where both monthly average and maximum limits are specified but where the monitoring frequency is less than four times a month, the following procedure shall apply: If an analytical result is greater than the monthly average limit, the sampling frequency shall be increased (within one week of receiving the laboratory results) to a minimum of once weekly at equal intervals until at least four consecutive weekly samples have been obtained and compliance with the monthly average limit has been demonstrated again and the Discharger has set forth for the approval of the Executive Officer a program which ensures future compliance with the monthly average limit.

F. The Discharger shall submit an annual report (for both dry and wet weather discharges), containing a discussion of the previous year's effluent and receiving water monitoring data, as well as graphical and tabular summaries of the data. The data shall be submitted to the Regional Board on hard copy and on a 3 1/2" computer diskette. Submitted data must be IBM compatible, preferably using Excel software. In addition, the Discharger shall discuss the compliance record and the corrective actions taken or planned which may be needed to bring the discharge into full compliance with waste discharge requirements. This annual report is to be received by the Regional Board by July 1 of each year following the calendar year of data collection.

G. The Discharger shall inform the Regional Board well in advance of any construction activity proposed that can potentially affect compliance with applicable requirements.

II. REGIONAL MONITORING PROGRAM

A. Pursuant to the Code of Federal Regulations [40 CFR §122.41(j) and §122.48(b)], the monitoring program for a discharger receiving an NPDES permit must determine compliance with NPDES permit terms and conditions, and demonstrate that State water quality standards are met.

B. Since compliance monitoring focuses on the effects of point source discharge, it is not designed to assess impacts from other sources of pollution (e.g., non-point source run-off, aerial fallout) nor to evaluate the current status of important ecological resources on a regional basis.

The Regional Board is planning to develop and implement a comprehensive monitoring program for each Watershed in the Region. The goal is to establish a regional program to address public health concerns, monitor trends in natural resources and habitats, assess regional impacts from all contaminant sources, and assure protection of beneficial uses.

C. Substantial changes to the compliance monitoring program for the discharger will be required to fulfill the goals of regional monitoring, while retaining the compliance monitoring component required to evaluate the potential impacts from the NPDES discharge. Revisions to the Los Angeles Refining Company's program will be made under the direction of USEPA and the Regional Board as necessary to accomplish this goal, and may include a reduction or increase in the number of parameters to be monitored, the

frequency of monitoring, or the number, and size of samples collected.

D. Until such time when a regional monitoring program is developed, the discharger shall implement the following monitoring program.

III. EFFLUENT MONITORING REQUIREMENTS
(Footnotes on pages T-5 and T-6)

An effluent sampling station shall be established for each point of discharge. Effluent samples must be obtained at a representative station of the discharge points (001, 002, and 003). Any changes in sampling station locations shall be approved by the Executive Officer.

1. The following shall constitute the monitoring program for Outfall No. 002 for the discharge of only boiler blowdown, cooling tower blowdown wastewater, miscellaneous wastewaters (miscellaneous cleanup wastewaters, petroleum coke-belt washwaters, excess coke drum cutting and quench waters, hydrostatic test waters, fire system test wastewater, and water softener regeneration wastewaters), and sulfur recovery plant wastewaters, which have or have not commingled with stormwater:

Constituent	Units	Type of Sample	Minimum Frequency of Analysis
Total waste flow	mgd	recorder	continuous
$BOD_5$20°C	mg/l	24-hour composite	weekly
Total Suspended solids	mg/l	24-hour composite	weekly
Chemical Oxygen Demand	mg/l	24-hour composite	weekly
Oil and grease	mg/l	grab	weekly
Phenolic Compounds	mg/l	grab	weekly
Residual chlorine	mg/l	grab	weekly
Ammonia (un-ionized)	mg/l	24-hour composite	weekly[9]
Ammonia, total	mg/l	24-hour composite	weekly[9]
Sulfides	mg/l	24-hour composite	weekly
Total Chromium	µg/l	24-hour composite	weekly
Hexavalent Chromium	µg/l	24-hour composite	weekly
Settleable solids	ml/l	grab	weekly
Temperature	°F	grab	weekly
pH	pH units	grab	weekly
Acute toxicity[1]	TU_A	grab	quarterly
Chronic toxicity[10]	TU_c	grab	quarterly
Antimony	µg/l	24-hour composite	monthly

Constituents	Units	Type of Sample	Minimum Frequency of Analysis
Arsenic	µg/l	24-hour composite	monthly
Barium	µg/l	24-hour composite	monthly
Beryllium	µg/l	24-hour composite	monthly
Cadmium	µg/l	24-hour composite	monthly
Cobalt	µg/l	24-hour composite	monthly
Copper	µg/l	24-hour composite	weekly
Cyanide	µg/l	grab	semi-annually
Lead	µg/l	24-hour composite	weekly
Mercury	µg/l	24-hour composite	monthly
Nickel	µg/l	24-hour composite	monthly
Selenium	µg/l	24-hour composite	monthly
Silver	µg/l	24-hour composite	monthly
Thallium	µg/l	24-hour composite	monthly
Zinc	µg/l	24-hour composite	weekly
Methyl tertiary butyl ether (MTBE)	ug/l	grab	monthly
PCBs[2]	ng/l	24-hour composite	semi-annually
Remaining USEPA[3] priority pollutants (including TCDD[6] but excluding pesticides in Attachment 1)	µg/l	24-hour composite	quarterly
HCH[4]	µg/l	24-hour composite	quarterly
Radioactivity[5]	pCi/l	24-hour composite	annually

2. The following shall constitute the effluent monitoring program for Outfall Nos. 001 and 003 for the discharge of stormwater runoff which has or has not commingled with boiler blowdown wastewater, cooling tower blowdown, and other operational discharges as proposed.

Constituent	Units	Type of Sample[7]	Minimum Frequency of Analysis[8]
Total waste flow	mgd	recorder	continuous
$BOD_5$20°C	mg/l	24-hour composite	weekly
Total Suspended solids	mg/l	24-hour composite	weekly
Chemical Oxygen Demand	mg/l	24-hour composite	weekly
Oil and grease	mg/l	grab	weekly
Phenolic Compounds	mg/l	24-hour composite	weekly
Residual chlorine	mg/l	grab	weekly
Ammonia (un-ionized)	mg/l	24-hour composite	weekly
Ammonia, total	mg/l	24-hour composite	weekly

Constituent	Units	Type of Sample[7]	Minimum Frequency of Analysis[8]
Sulfides	mg/l	24-hour composite	weekly
Total Chromium	µg/l	24-hour composite	weekly
Hexavalent Chromium	µg/l	24-hour composite	weekly
Settleable solids	ml/l	grab	weekly
Temperature	°F	grab	weekly
pH	pH units	grab	weekly
Acute toxicity[1]	TU_A	grab	quarterly
Antimony	µg/l	24-hour composite	annually
Arsenic	µg/l	24-hour composite	semi-annually
Barium	µg/l	24-hour composite	annually
Beryllium	µg/l	24-hour composite	annually
Cadmium	µg/l	24-hour composite	semi-annually
Cobalt	µg/l	24-hour composite	annually
Copper	µg/l	24-hour composite	quarterly
Cyanide	µg/l	grab	annually
Lead	µg/l	24-hour composite	quarterly
Mercury	µg/l	24-hour composite	semi-annually
Nickel	µg/l	24-hour composite	semi-annually
Selenium	µg/l	24-hour composite	semi-annually
Silver	µg/l	24-hour composite	semi-annually
Thallium	µg/l	24-hour composite	annually
Zinc	µg/l	24-hour composite	quarterly
Methyl tertiary butyl ether (MTBE)	ug/l	grab	quarterly
PCBs[2/]	ng/l	24-hour composite	annually
Remaining USEPA[3/] priority pollutants (including TCDD[6/] but excluding pesticides in Attachment 1)	µg/l	24-hour composite	quarterly
HCH[4/]	µg/l	24-hour composite	annually
Radioactivity[5/]	pCi/l	24-hour composite	annually

Footnotes:

[1] By methods specified in "Methods for Measuring the Acute Toxicity of Effluent to Freshwater and Marine Organisms" (September 1991, EPA/600/4-90/027F). Submission of bioassay results should include the information noted on pages 45 through 49 of the "Methods" where appropriate. The fathead minnow (Pimephales promelas) shall be used as the test species.

Except with prior approval from the Executive Officer of the Regional Board or USEPA, ammonia shall not be removed from the bioassay samples. The wastewater used for the toxicity test shall be analyzed for ammonia, and the result, along with an interpretation, shall be submitted with the toxicity data. If the test result is greater than the permit limitation, parallel tests or 100% effluent without ammonia removal and 100% effluent with

Footnotes (continued):

ammonia removed shall be conducted. If ammonia toxicity is suspected, the discharger should use methods specified in "US EPA Regions 9 and 10 Guidance For Implementing Whole Effluent Toxicity Testing Programs (May 31, 1996)".

If the survival rates are lower than the effluent permit limit, the frequency of monitoring should be increased to monthly for at least three months after a permit violation.

[2] PCBs (polychlorinated biphenyls) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.

[3] For volatile organic compounds, cyanide, phenols (nonchlorinated), and phthalates, grab samples shall be collected instead of 24-hour composites.

[4] HCH shall mean the sum of the alpha, beta, gamma (lindane), and delta isomers of hexachlorocyclohexane.

[5] Radioactivity determinations of gross and net beta activity, in picocuries per liter, shall be made within 48 hours following preparation of composite samples. The overall efficiency of the counting system, size of sample, and counting time shall be such that radioactivity can be determined to a sensitivity of ten picocuries per liter with a 95% confidence limit not to exceed 50 picocuries per liter.

[6] 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, as shown in the following below:

Isomer Group	Toxicity Equivalence Factor
2,3,7,8-tetra CDD	1.00
2,3,7,8-penta CDD	0.50
2,3,7,8-hexa CDD	0.10
2,3,7,8-hepta CDD	0.01
octa CDD	0.001
2,3,7,8-penta CDF	0.10
1,2,3,7,8-penta CDF	0.050
2,3,4,7,8-penta CDF	0.50
2,3,7,8-hexa CDFs	0.10
2,3,7,8-hepta CDFs	0.01
octa CDF	0.001

[7] Grab samples may be taken in lieu of 24-hour composite samples.

[8] Stormwater samples shall be taken once per discharge event, but need not be taken more frequently than that shown for the parameter. Samples shall be taken during the first hour of discharge. If, for safety reasons, a sample cannot be obtained at a safe opportunity, the reason for delay shall be included in the monitoring report.

[9] Effluent monitoring for ammonia to be concurrent with receiving water monitoring (Page T-10).

[10] Refer to Footnote [1] on Page T-11.

IV. RECEIVING WATER MONITORING REQUIREMENTS

The receiving water monitoring program shall consist of periodic surveys of Dominguez Channel and shall include studies of those physical-chemical characteristics of the receiving water which may be impacted by the discharges.

This program may be performed as a joint effort with other major dischargers to Dominguez Channel (ARCO Petroleum, UNOCAL, and Shell Oil) in connection with the receiving water monitoring programs for those facilities.

A. Receiving water stations

1. Sediment sampling stations are to be located in Dominguez Channel as follows, in each case south of the indicated street:

R1	-	At Anaheim Road
R2	-	At Pacific Coast Highway
R3	-	At Sepulveda Boulevard
R4	-	At Alameda Street
R5	-	At Wilmington Avenue
R6	-	At Avalon Boulevard
R7	-	At Main Street

2. A visual observation station shall be established in the vicinity of each discharge point.

3. Receiving water monitoring stations shall be established as follows around each discharge point:

_RW11 - 15 meters from the center of the outfall line in the direction of tidal flow at the time of sampling. If sampled at slack tide, this station shall be in the direction where the channel waters have been influenced by the discharge.

_RW21 - 75 meters from the center of the outfall line in the direction of tidal flow at the time of sampling. If sampled at slack tide, this station shall be in the direction where the channel waters have been influence by the discharge.

_RW31 - 75 meters from the center of the outfall line in the opposite direction of tidal flow at the time of sampling. If sampled at slack tide, this station shall be located opposite of where the channel waters have been influenced by the discharge.

4. Discharger outfall monitoring stations shall be listed as LRW1, LRW2, and LWR3; ARCO outfall monitoring stations shall be listed as ARRW1, ARRW2, and ARRW3; Unocal outfall monitoring stations shall be listed as UNRW1, UNRW2, and

UNRW3; Shell outfall monitoring stations shall be listed as SHRW1, SHRW2, and SHRW3.

B. Type and frequency of monitoring

1. Sediment Monitoring - The seven sediment sampling stations (R1-R7) shall be sampled annually for sediment monitoring, the first report of which shall be included in the September monitoring report. Sediment toxicity testing shall be conducted semi-annually at stations R1 and R7. Surface grab samples containing the upper two centimeters of sediment shall be taken from an Ekman grab (or another method approved by the Executive Officer) collected at each station and analyzed for, at the minimum, sediment grain size (percent sand, silt, and clay), total organic carbon, total petroleum hydrocarbons, cadmium, chromium, copper, lead, nickel, zinc, PCBs, PAHs, and DDT (refer to Table 1). A description of sample odor, if any; visible aquatic life in sediment; and color of sample shall be included.

2. Visual Observations - General observations of the receiving water shall be made at each discharge point on a weekly basis and shall be reported in the monthly monitoring report. If no discharge occurred during the observation period, this shall be reported.

Observations shall be descriptive, where applicable, such that colors, approximate amounts, or types of materials are apparent. The following observations shall be made:

1) Tidal stage, time, and date of monitoring
2) Weather conditions
3) Color of water
4) Appearance of oil films or grease, or floatable materials
5) Extent of visible turbidity or color patches
6) Direction of tidal flow
7) Description of odor, if any, of the receiving water
8) Presence and activity of California Least Tern and California Brown Pelican.

3. Receiving Water Monitoring - The receiving water monitoring stations (__RW1-_RW3) shall be sampled during periods of discharge other than rainfall runoff, if possible, at least quarterly. If no discharge other than rainfall runoff occurs, this shall be reported. Samples shall be obtained within ten centimeters of the surface and shall be sampled for pH, dissolved oxygen, temperature, ammonia (total and un-ionized), hardness, chronic toxicity, TCDD, copper, zinc, and salinity (refer to Table 2). Receiving water samples for ammonia, salinity, copper, zinc, and TCDD shall be taken concurrently with the effluent samples for ammonia, copper, zinc, and TCDD.

C. QA/QC Procedures - Prior to the first sediment sampling event, the discharger shall submit a list of proposed analytical methods to be employed for each test, "ecologically relevant" detection limits, and associated laboratory quality assurance/quality control procedures for approval by the Executive Officer.

TABLE 1 - SEDIMENT MONITORING

Parameter	Units	Stations	Type of Sample	Minimum Frequency
Sediment grain size	---	R1 - R7	Surface grab	Annually
Total organic carbon	---	R1 - R7	Surface grab	Annually
Total petroleum hydrocarbons	---	R1 - R7	Surface grab	Annually
Cadmium	---	R1 - R7	Surface grab	Annually
Chromium	---	R1 - R7	Surface grab	Annually
Copper	---	R1 - R7	Surface grab	Annually
Lead	---	R1 - R7	Surface grab	Annually
Nickel	---	R1 - R7	Surface grab	Annually
Zinc	---	R1 - R7	Surface grab	Annually
PCBs	---	R1 - R7	Surface grab	Annually
Polynuclear aromatic hydrocarbons	---	R1 - R7	Surface grab	Annually
DDT	---	R1 - R7	Surface grab	Annually
Description of odor and color		R1 - R7	Surface grab	Annually
Sediment toxicity testing		R1, R7	Surface grab	Semi-annually

TABLE 2 - RECEIVING WATER MONITORING

Parameter	Units	Stations	Type of Sample	Minimum Frequency
pH	pH units	_RW1-_RW3	Subsurface grab	Quarterly
Dissolved oxygen	mg/l	_RW1-_RW3	Subsurface grab	Quarterly
Ammonia[2] total	mg/l	_RW1-_RW3	Subsurface grab	Quarterly
Ammonia[2] un-ionized	mg/l	_RW1-_RW3	Subsurface grab	Quarterly
Nitrate (as N)	mg/l	_RW1-_RW3	Subsurface grab	Quarterly
Hardness[2]	mg/l	_RW1-_RW3	Subsurface grab	Quarterly
Chronic toxicity[1]	TU_c	_RW1-_RW3	Subsurface grab	Semiannual
TCDD	pg/l	_RW1-_RW3	Subsurface grab	Quarterly
Temperature	°F or °C	_RW1-_RW3	Subsurface	Quarterly
Salinity[3]	g/kg	_RW1-_RW3	Subsurface grab	Quarterly
Copper	ug/l	_RW1-_RW3	Subsurface grab	Quarterly
Zinc	ug/l	_RW1-_RW3	Subsurface grab	Quarterly
Visual Observations	---	Each discharge point	--	Weekly

(Footnotes on following page.)

Footnotes:

[1] Initial screening shall be conducted using a minimum of three test species with approved test protocols to determine the most sensitive test organism for chronic toxicity testing. The initial screening process shall be conducted for a minimum of three months, but not to exceed five months, to account for potential variability of the effluent/receiving water. If possible, the test species used during the screening process should include a fish, an invertebrate and an aquatic plant.

Upon approval of the Executive Officer and after the initial screening period, chronic toxicity testing may be limited to the most sensitive test species. However, the initial screening process shall be repeated annually, with a minimum of three test species with approved test protocols, to ensure use of the most sensitive species for chronic toxicity testing.[4]

Dilution and control waters should be obtained from an unaffected area of the receiving waters. Standard dilution water may be used if the above source exhibits toxicity greater than 1.0 tu_C. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each batch of bioassay tests and reported with the test results.

Chronic toxicity shall be expressed and reported as toxic units, where:

$$tu_C = 100/NOEC$$

The No Observable Effect Concentration (NOEC) is expressed as the maximum percent effluent/receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test.

Except with prior approval from the Executive Officer, ammonia shall not be removed from bioassay samples. The effluent/receiving water used for the toxicity test shall be analyzed for ammonia, and the result, along with an interpretation, shall be submitted with the toxicity data. If the test result is greater than the permit limitation, parallel tests or 100% effluent/receiving water without ammonia removal and effluent/receiving water with ammonia removed shall be conducted. If ammonia toxicity is suspected, the discharger should use methods specified in "USEPA Regions 9 and 10 Guidance For Implementing Whole Effluent Toxicity Testing Programs".

[2] Receiving water samples for ammonia, salinity, and hardness shall be taken concurrently with the effluent sample for ammonia.

[3] Salinity used for determination of ammonia receiving water objective.

V. MONITORING FREQUENCY CHANGES

Monitoring frequencies may be adjusted by the Executive Officer to a less frequent basis if such is requested by the discharger and backed by statistical trends of monitoring data submitted.

Ordered by:

DENNIS A. DICKERSON
Executive Officer

Date: September 16, 1999

/GS

PRIORITY POLLUTANTS

Metals

Antimony
Arsenic
Beryllium
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Selenium
Silver
Thallium
Zinc

Miscellaneous

Cyanide
Asbestos (only if specifically required)

Pesticides & PCBs

Aldrin
Chlordane
Dieldrin
4,4'-DDT
4,4'-DDE
4,4'-DDD
Alpha-endosulfan
Beta-endosulfan
Endosulfan sulfate
Endrin
Endrin aldehyde
Heptachlor
Heptachlor epoxide
Alpha-BHC
Beta-BHC
Gamma-BHC
Delta-BHC
Toxaphene
PCB 1016
PCB 1221
PCB 1232
PCB 1242
PCB 1248
PCB 1254
PCB 1260

Base/Neutral Extractibles

Acenaphthene
Benzidine
1,2,4-trichlorobenzene
Hexachlorobenzene
Hexachloroethane
Bis(2-chloroethyl) ether
2-chloronaphthalene
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
3,3'-dichlorobenzidine
2,4-dinitrotoluene
2,6-dinitrotoluene
1,2-diphenylhydrazine
Fluoranthene
4-chlorophenyl phenyl ether
4-bromophenyl phenyl ether
Bis(2-chloroisopropyl) ether
Bis(2-chloroethoxy) methane
Hexachlorobutadiene
Hexachlorocyclopentadiene
Isophorone
Naphthalene
Nitrobenzene
N-nitrosodimethylamine
N-nitrosodi-n-propylamine
N-nitrosodiphenylamine
Bis (2-ethylhexyl) phthalate
Butyl benzyl phthalate
Di-n-butyl phthalate
Di-n-octyl phthalate
Diethyl phthalate
Dimethyl phthalate
Benzo(a) anthracene
Benzo(a) pyrene
Benzo(b) fluoranthene
Benzo(k) fluoranthene
Chrysene
Acenaphthylene
Anthracene
1,12-benzoperylene
Fluorene
Phenanthrene
1,2,5,6-dibenzanthracene
Indeno (1,2,3-cd) pyrene
Pyrene
TCDD

Acid Extractibles

2,4,6-trichlorophenol
P-chloro-m-cresol
2-chlorophenol
2,4-dichlorophenol
2,4-dimethylphenol
2-nitrophenol
4-nitrophenol
2,4-dinitrophenol
4,6-dinitro-o-cresol
Pentachlorophenol
Phenol

Volatile Organics

Acrolein
Acrylonitrile
Benzene
Carbon tetrachloride
Chlorobenzene
1,2-dichloroethane
1,1,1-trichloroethane
1,1-dichloroethane
1,1,2-trichloroethane
1,1,2,2-tetrachloroethane
Chloroethane
Chloroform
1,1-dichloroethylene
1,2-trans-dichloroethylene
1,2-dichloropropane
1,2-dichloropropylene
Ethylbenzene
Methylene chloride
Methyl chloride
Methyl bromide
Bromoform
Bromodichloromethane
Dibromochloromethane
Tetrachloroethylene
Toluene
Trichloroethylene
Vinyl chloride
2-chloroethyl vinyl ether
Xylene

vbc 7/6/99

ATTACHMENT 1
POLLUTANTS METHOD DETECTION LIMITS

A. USEPA PRIORITY POLLUTANTS	USEPA		TYPE *
	METHOD	MDL (ug/l)	
METALS AND CYANIDE			
Antimony	7062	1	NC
Arsenic	3114B	2	C
Barium	206.2	2	NC
Beryllium	210.2	0.2	C
Cadmium	200.7	4	NC
Chromium	200.7	7	NC
Cobalt	219.2	1	
Copper	200.7	6	NC
Lead	239.1	100	NC
Mercury	245.1	0.2	NC
Nickel	200.7	15	NC
Selenium	3114B	2	NC
Silver	272.1	0.2	NC
Thallium	279.2	1	NC
Zinc	200.7	2	NC
Cyanide			NC
VOLATILE COMPOUNDS			
Acrolein	603	0.6	NC
Acrylonitrile	603	0.5	C
Benzene	602	0.2	C
Bromoform	601	0.2	C
Bromodichloromethane	601	0.1	
Carbon Tetrachloride	601	0.12	C
Chlorobenzene (Monochlorobenzene)	602	0.2	NC
Chlorodibromomethane			C
Chloroethane	601	0.52	
Chloroform	601	0.05	C
Chloromethane	601	0.08	
Dibromochloromethane	601	0.09	
Dichlorobromomethane			C
Ethylbenzene	602	0.2	NC
Methylene Chloride	601	0.25	C
Methyl Bromide	601	1.15	C
Methyl Chloride	601	0.08	C
Tetrachloroethylene	601	0.03	C
Toluene	602	0.2	NC
Trichloroethylene	601	0.12	C
Vinyl Chloride	601	0.18	C
1,1-Dichloroethane	601	0.07	
1,1-Dichloroethylene	601	0.13	C
1,1,1-Trichloroethane	601	0.03	NC
1,1,2-Trichloroethane	601	0.02	C
1,1,2,2-Tetrachloroethane	601	0.03	C
1,2-Dichloroethane	601	0.03	C

* C - Carcinogen
NC - Noncarcinogen

ATTACHMENT 1
POLLUTANTS METHOD DETECTION LIMITS

A. USEPA PRIORITY POLLUTANTS (con't)	USEPA		TYPE *
	METHOD	MDL (µg/l)	
1,2-Dichloropropane	601	0.04	C
1,2-Dichloropropylene			
1,2-Trans-Dichloroethylene	601	0.1	NC
1,3-Dichloropropylene	601	0.34	NC
2-Chloroethylvinyl Ether	601	0.13	
ACID COMPOUNDS			
2-Chlorophenol	625	3.3	NC
Pentachlorophenol	625	3.6	C
Phenol	625	1.5	NC
2-Nitrophenol	625	3.6	
2,4-Dichlorophenol	625	2.7	NC
2,4-Dimethylphenol	625	2.7	NC
2,4-Dinitrophenol	625	42	NC
2,4,6-Trichlorophenol	625	2.7	NC
4-Nitrophenol	625	2.4	
4,6-Dinitro-O-Cresol (4,6-Dinitro-2-Methylphenol)			NC
4-Methylphenol (p-cresol)			NC
3-Methyl-4-Chlorophenol (P-Chloro-M-Cresol)	625	3	NC
BASE/NEUTRAL COMPOUNDS			
Acenaphthene	625	1.9	NC
Benzidine	625	4.4	C
Bis(2-Chloroethoxy)Methane	625	5.3	NC
Bis(2-Chloroethyl)Ether	625	5.7	C
Bis(2-Chloroisopropyl)Ether	625	5.7	NC
Bis(2-Ethylhexyl)Phthalate	625	2.5	C
Bis(Chloromethyl)Ether			C
Butyl Benzyl Phthalate	625	2.5	NC
Diethyl Phthalate	625	2.2	NC
Dimethyl Phthalate	625	1.6	NC
Di-N-Butyl Phthalate	625	2.5	NC
Di-N-Octyl Phthalate	625	2.5	
Fluoranthene	625	2.2	NC
Hexachlorobenzene	625	1.9	C
Hexachlorobutadiene	625	0.9	C
Hexachlorocyclopentadiene			NC
Hexachloroethane	625	1.6	C
Isophorone	625	2.2	NC
Naphthalene	625	1.6	NC
Nitrobenzene	625	1.9	NC
N-Nitrosodimethylamine	625	0.15	C
N-Nitrosodi-N-Propylamine	625		C
N-Nitrosodiphenylamine	625	1.9	C
TCDD			

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ATTACHMENT 1
POLLUTANTS METHOD DETECTION LIMITS

A. USEPA PRIORITY POLLUTANTS (con't)	USEPA		TYPE *
	METHOD	MDL (ug/l)	
Total PAHS			
Acenaphthylene		1.9	C
Anthracene	625	1.9	C
Benzo(A)Anthracene	625	7.8	C
Dibenzo(A,H)Anthracene (1,2,5,6-Dibenzanthracene)	625	2.5	C
Benzo(B)Fluoranthene	625	4.8	C
Benzo(K)Fluoranthene	625	2.5	C
Benzo(GHI)Perylene (1,12-Benzoperylene)	625	4.1	C
Benzo(A)Pyrene	625	2.5	C
Chrysene	625	2.5	C
Fluorene	625	1.9	C
Indeno(1,2,3-CD)Pyrene	625	3.7	C
Phenanthrene	625	5.4	C
Pyrene	625	1.9	C
1,2-Dichlorobenzene	625	1.9	NC
1,2-Diphenylhydrazine	625		C
1,2,4-Trichlorobenzene	625	1.9	
1,3-Dichlorobenzene	625	1.9	NC
1,4-Dichlorobenzene	625	4.4	C
2-Chloronaphthalene	625	1.9	
2,4-Dinitrotoluene	625	5.7	C
2,6-Dinitrotoluene	625	1.9	
3,3-Dichlorobenzidine	625	16.5	C
4-BromoPhenyl Phenyl Ether	625	1.9	
4-ChloroPhenyl Phenyl Ether	625	4.2	
PESTICIDES AND PCBs			
4,4'-DDD	625	2.8	C
4,4'-DDE	625	5.6	C
4,4'-DDT	625	4.7	C
Aldrin	608	0.004	C
Alpha-BHC	608	0.003	C
Alpha-Endosulfan	608	0.014	NC
Beta-BHC	608	0.006	C
Beta-Endosulfan	608	0.004	NC
Chlordane	608	0.014	C
Delta-BHC	608	0.008	C
Dieldrin	608	0.002	C
Endosulfan Sulfate	608	0.066	NC
Endrin	608	0.006	NC
Endrin Aldehyde	608	0.023	NC
Gamma-BHC (Lindane)	608	0.004	
Heptachlor	608	0.003	C
Heptachlor Epoxide	608	0.063	C

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ATTACHMENT 1
POLLUTANTS METHOD DETECTION LIMITS

A. USEPA PRIORITY POLLUTANTS (con't)	USEPA		TYPE *
	METHOD	MDL (ug/l)	
Total PCBs			
PCB-1016		65	
PCB-1221			C
PCB-1232			C
PCB-1242			C
PCB-1248	608	0.065	C
PCB-1254			C
PCB-1260			C
Toxaphene			C
		240	C

B. MISCELLANEOUS POLLUTANTS	USEPA		TYPE *
	METHOD	MDL (ug/l)	
2,3,7,8-Tetrachlorodibenzo-P-Dioxin			
Asbestos			
Ethylene Dibromide			
1,2-Dibromo-3-Chloropropane			
2,4,5-TP			
Simazine			
2,4-D			
Methoxychlor			
1,1,2-Trichloro-1,2,2-Trifluroethane			
Trichlorofluromethane			
Xylene			
Bentazon			
Carbofuran			
Barium			
Molinate			
Atrazine			
1,2-Cis-Dichloroethylene			
Thiobencarb			
Glyphosate			
Acetone			
Molybdenum			
Vanadium	246.2	1	
Aluminum	286.2	4	
	202.2	3	

* C - Carcinogen
NC - Noncarcinogen