

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

ORDER NO. 89-002

NPDES NO. CA0005053

WASTE DISCHARGE REQUIREMENTS FOR:

UNION OIL COMPANY OF CALIFORNIA  
DBA UNOCAL  
RODEO, CONTRA COSTA COUNTY

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

1. Union Oil Company of California, dba Unocal, henceforth Unocal or the Discharger, submitted an NPDES application (Report of Waste Discharge) dated March 20, 1987 for reissuance of NPDES Permit No. CA0005053.
2. The discharge of wastewater from the Unocal facilities is currently regulated by Waste Discharge Requirements, Order No. 85-29, adopted by the Board on February 20, 1985. This order was administratively extended pursuant to 40 CFR 122.6(d) by a letter dated May 12, 1987. On February 19, 1986, the Board adopted Order No. 86-8 ordering the Discharger to cease and desist from discharging waste or threatening to discharge waste contrary to the requirements of Order No. 85-29. On March 5, 1986, the Board adopted Order No. 86-11, amending Order No. 86-8, setting a schedule for upgrading the Discharger's wastewater treatment plant by July 1, 1988.
3. Unocal operates a petroleum refinery with a crude-run throughput of 60,600 barrels per day. It manufactures fuels and lubricants and is classified as a lube refinery as defined by the U.S. Environmental Protection Agency in 40 CFR 419.40. Treated process wastewater, stormwater runoff, and other wastes as described below are discharged into San Pablo Bay, a water of the United States.
4. The report of waste discharge and recent self-monitoring reports describe the discharges as follows:
  - a. Waste 001 averages 6.0 million gallons per day (mgd) and consists of saltwater used for once-through cooling which is discharged near the refinery's compound area at a point 1400-feet south of the refinery pier.
  - b. Waste 002 averages 2.7 mgd and consists of process wastes, sanitary wastes, boiler blowdown, cooling tower blowdown, ballast water, and stormwater runoff. The treated wastes are discharged into San Pablo Bay through a deepwater effluent diffuser mounted on the pilings of the refinery's marine terminal. After full completion in May of 1989, the expanded wastewater treatment plant will have a total hydraulic capacity of 10.08 million gallons per day.

- c. Waste 003 averages 37 mgd of saltwater used for once-through cooling and is discharged to San Pablo Bay at a point just north of the refinery's safety basin, where it is combined with Waste 005, a stormwater runoff flow described below and stormwater runoff from portions of Rodeo, San Pablo Avenue, Interstate 80, and undeveloped land.
- d. Waste 005 consists of stormwater runoff from the seasonal storage tank farm area and is discharged in combination with Waste 003.
5. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986, and the State Water Resources Control Board approved it on May 21, 1987. The provisions of this permit are consistent with the revised Basin Plan.
6. San Pablo Bay is suspected to be a water quality limited receiving water segment, but more data are necessary to make a final determination.
7. The beneficial uses of San Pablo Bay are:
- a. Water contact recreation
  - b. Non-contact water recreation
  - c. Navigation
  - d. Ocean commercial and sport fishing
  - e. Wildlife habitat
  - f. Estuarine habitat
  - g. Fish spawning and migration
  - h. Industrial process and service supply
  - i. Preservation of rare and endangered species
  - j. Shellfishing
8. Order No. 85-29 included a prohibition of discharge of Waste 002 into any place where it does not receive a minimum dilution of at least 10 to 1 after July 1, 1987, unless an exception is granted. Board Order 86-8 extended the date for compliance with this Basin Plan Prohibition C.1 to July 1, 1988.
9. The Discharger submitted an application on June 26, 1987 for a lease modification to the State Lands Commission for a proposed Deep Water Outfall Project which would allow the Discharger to comply with the July 1, 1988 deadline identified in Finding No. 8. The State Lands Commission, designated as the Lead Agency, determined that the project would require an Environmental Impact Report (EIR) to meet the California Environmental Quality Act (CEQA) stipulations. Due to delays in the CEQA process Unocal has not been able to comply with the July, 1988 deadline in Prohibition C.1.
10. Order No. 86-11 required the Discharger to upgrade the refinery wastewater treatment process by July 1, 1988. Due to delays in design and construction of this plant upgrade, the discharger will not comply with this order until May 1, 1989.
11. The State Board, on May 16, 1974, adopted Resolution No. 74-43, which

prescribed a Water Quality Control Policy for the Enclosed Bays and Estuaries of California. This policy states in part:

"Persistent or cumulative toxic substances shall be removed from the waste to the maximum extent practicable through source control or adequate treatment prior to discharge."

12. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21110) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.
13. Effluent limitation and toxic effluent standards established pursuant to Sections 208(b), 301, 304, and 307 of the Federal Water Pollution Control Act and amendments thereto are applicable to the discharge.
14. Effluent limitation guidelines requiring the application of best available technology economically achievable (BAT) have been promulgated by the U.S. Environmental Protection Agency for the Lube Subcategory of the Petroleum Refining Point Source Category 40 CFR Part 419 on October 18, 1982 and amended on July 12, 1985. Effluent limitations of this Order are based on these guidelines, the Basin Plan, other State plans and policies, current plant performance, and best professional judgement.
15. This Order contains effluent limits based on recent production rates at this facility. The Board is aware that production can vary and will expedite reissuance of a new permit pursuant to 40 CFR 122.62 and 124.5 upon receipt of an application with new production data.
16. The Board has notified the discharger and interested agencies and persons of its intent to reissue waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
17. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the discharger, 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 Water Pollution Control Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Effluent Limitations

1. The discharge of Waste 002 containing constituents in excess of the following limits is prohibited:

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Maximum Daily</u>
BOD (5-day @ 20°C)	lbs/day	808.1	1590
	kg/day	367.3	722.5
TSS	lbs/day	710.4	1110
	kg/day	322.9	504.5
TOC	lbs/day	1776	3499
	kg/day	807.3	1590
Oil and Grease	lbs/day	266.4	506.2
	kg/day	121.1	230.1
	mg/l	8	15
Phenolic Compounds	lbs/day	5.599	11.8
	kg/day	2.545	5.36
	mg/l	0.17	0.35
Ammonia as N	lbs/day	337.4	737
	kg/day	153.4	335
	mg/l	10	22
Sulfide	lbs/day	4.7	42.9
	kg/day	2.14	19.5
	mg/l	0.14	0.31
Total Chromium	lbs/day	6.51	18.73
	kg/day	2.96	8.51
	mg/l	0.21	0.60
Hexavalent Chromium	lbs/day	0.538	1.20
	kg/day	0.245	0.545
	mg/l	0.028	0.062
Settleable Solids	ml/l-hr	0.1	0.2

2. In addition to the monthly average and daily maximum pollutant weight allowances shown in A.1, allocations for pollutants attributable to stormwater runoff discharged as a part of Waste 002 are permitted in accordance with the following schedules:

STORMWATER RUNOFF

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Maximum Daily</u>
BOD (5-day @ 20°C)	mg/l	26	48
TSS	mg/l	21	33
TOC	mg/l	57	106
Oil and Grease	mg/l	8	15
Phenolic Compounds	mg/l	0.17	0.35
Total Chromium	mg/l	0.21	0.60
Hexavalent Chromium	mg/l	0.028	0.062

Ballast Water

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Maximum Daily</u>
BOD (5-day @ 20°C)	mg/l	26	48
TSS	mg/l	21	33
TOC	mg/l	57	106
Oil and Grease	mg/l	8	15
pH	Within the range of 6.0 to 9.0		

The total effluent limitation for the discharge is the sum of the stormwater runoff allocation, the ballast water allocation and the mass limits contained in A.1. The total effluent limitation (both maximum and average) is to be computed at the discretion of the discharger on a monthly basis as shown in Part B of the Monitoring Program.

3. The discharge of Waste 002 containing constituents in excess of the following limits is prohibited:

<u>Constituent</u>	<u>Units</u>	<u>Maximum Daily</u>
a. Arsenic	ug/l	200
b. Cadmium	ug/l	30
c. Chromium(VI) <sup>a</sup>	ug/l	110

<u>Constituent</u>	<u>Units</u>	<u>Maximum Daily</u>
d. Copper	ug/l	200
e. Cyanide <sup>b</sup>	ug/l	25
f. Lead	ug/l	56
g. Mercury	ug/l	1
h. Nickel	ug/l	71
i. Silver	ug/l	23
j. Zinc	ug/l	580
k. Phenols	ug/l	500
l. PAHs <sup>c</sup>	ug/l	150

- a. The Discharger may at their option meet this limit as total chromium.
  - b. The Discharger has initiated a proposal for an alternate limit for cyanide following procedures outlined in the Basin Plan. A time schedule for submittal of a proposed alternate limit is presented in Provision D.3. of this Order.
  - c. Polynuclear Aromatic Hydrocarbons as identified by EPA Method 610. If a discharge exceeds the limit for PAHs, concentrations of individual constituents shall be reported.
4. The discharge of Waste 001 and Waste 003 shall not contain a TOC concentration above intake levels in excess of 5 mg/l.
  5. Waste 001 and Waste 003 shall not have a pH less than 6.5 nor greater than 8.5.
  6. Waste 002 shall not have a pH less than 6.0 nor greater than 9.0.
  7. The survival of test fishes in 96 hour bioassays of the discharge of Waste 002 shall not be less than 50 percent.
  8. Neither the discharge of Waste 001, Waste 002 nor Waste 003 shall contain a chlorine residual in excess of 0.0 mg/l.
  9. Total coliform bacteria for a median of 5 consecutive samples shall not exceed 240 MPN/100 ml in the discharge from each of the septic tanks tributary to Waste 002 or in the combined flow from those septic tanks. Any single sample shall not exceed 10,000 MPN/100 ml.

10. The discharge of Waste 005 containing constituents in excess of the following limits is prohibited:

<u>Constituent</u>	<u>Units</u>	<u>Maximum Daily</u>
Oil and Grease	mg/l	15
TOC	mg/l	110
pH	pH units	6.5-8.5
Visible oil	observation	none
Visible color	observation	none

B. Receiving Water Limitations

1. The discharge of wastes shall not cause the following conditions to exist in waters of the State at any place at levels that cause nuisance or adversely affect beneficial uses:
  - a. Floating, suspended, or deposited macroscopic particulate matter or foam;
  - b. Bottom deposits or aquatic growths;
  - c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
  - d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;
  - e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.
  
2. The discharge of wastes shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:
  - a. Dissolved oxygen: 5.0 mg/l minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
  - b. Dissolved sulfide: 0.1 mg/l maximum.

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

d. Un-ionized ammonia (as N): 0.025 mg/l Annual Median,  
0.16 mg/l Maximum at any time.

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

C. Prohibitions

1. The discharge of Waste 002 at any place where it does not receive a minimum initial dilution of at least 10:1 is prohibited after February 1, 1989.
2. The discharge of Waste 002 to areas where it causes a blockage of zones of passage required for the migration of anadromous fish is prohibited.
3. The discharge of Waste 005 is prohibited except when it has been demonstrated to the satisfaction of the Executive Officer that it contains only non-contaminated stormwater runoff. Upon a satisfactory demonstration, discharges of the waste must comply with Effluent Limitation A.10.
4. The discharge of all conservative toxic and deleterious substances, above those levels which can be achieved by a program acceptable to the Board, is prohibited.

D. Provisions

1. The Discharger shall comply with the limitations, prohibitions, and other provisions of this Order immediately upon its adoption by the Board except as noted below.
2. The Discharger shall demonstrate compliance with Effluent Limitation A.7. in accordance with the following time schedule:

<u>Method</u>	<u>Deadline</u>
Flowthrough bioassay using three-spine stickleback and fathead minnow or rainbow trout. The Discharger will be exempt from compliance with Effluent Limitation A.7. for periods in which it can be demonstrated to the satisfaction of the Executive Officer that stormwater caused flows of wastewater exceed storage capacity and bioplant hydraulic capacity of 3500 gallons per minute.	Thirty days after start-up of the first train of the wastewater treatment plant expansion or no later than March 15, 1989.
Flow-through bioassay using three-spine stickleback and either fathead minnow or rainbow trout. No exceptions to Effluent Limitation A.7., flow based or otherwise will exist after this date.	May 15, 1989

3. Cyanide Alternate Limit Study

Compliance with Effluent Limitation A.3.e. or any amendments to Effluent Limitation A.3.e. shall be achieved according to the following time schedule:

<u>Task</u>	<u>Compliance Date</u>
a. Complete an investigation to determine if all sources of cyanide are being controlled through the application of all reasonable treatment and source control measures and submit a report on the findings. If the report determines that all sources of cyanide are not being controlled through the application of all reasonable treatment and source control measures, then the report shall include a schedule of actions along with milestone dates, acceptable to the Board's Executive Officer which will assure that all sources of cyanide are being controlled through the application of all reasonable treatment and source control measures.	March 1, 1989

b. Submit a proposal for an alternate limit for cyanide in a report which shall include an assessment of the impact of the proposed alternate cyanide effluent limit on the beneficial uses of the receiving water, and must include a demonstration that the costs of additional treatment and source control measures do not bear a reasonable relationship to the level of beneficial uses protected by such additional measures. The report shall also include a schedule of specific control strategies along with milestone dates, acceptable to the Board's Executive Officer, for the control of non-point sources of pollution (including urban runoff) within or upstream from the Discharger's contribution to the total pollutant load.

February 1, 1990

c. Achieve compliance with the cyanide limit listed under Effluent Limitation A.3.e. of this Order or an alternate to Effluent Limitation A.3.e. which is approved by the Board.

July 1, 1990

#### 4. Effluent Dispersion Study

The Discharger shall conduct a dispersion study to determine the actual dilution and transport of Waste 002 achieved by discharge through the deep water outfall. The study shall be conducted during high and low effluent (Waste 002) flows, and strong and weak tidal cycles during periods of high and low Delta inflow. [See 40 CFR 125.61(a)]. Receiving water monitoring stations shall also be sited as part of the study. The Discharger shall implement the dispersion study according to the following time schedule:

<u>Task</u>	<u>Deadline</u>
Submit a plan for implementing the dispersion study for approval by the Executive Officer.	March 1, 1989
Implement the dispersion study.	July 1, 1989
Submit the results of the approved study.	April 1, 1990

#### 5. Toxic Substance Control Program

The Discharger shall demonstrate compliance with Prohibition C.4. in accordance with the following programs:

- A. The Discharger shall investigate thoroughly and then implement forthwith all reasonable treatment and source control measures to limit the discharge of the constituents arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc to the maximum extent practicable. The Discharger shall report on the findings of this study and describe future plans for source reduction and treatment to the satisfaction of the Executive Officer by February 1, 1990.

In the development of control strategies consideration must be given to:

- a) elimination of the source, and
  - b) control to a level that would result in final effluent quality meeting the 1986 Basin Plan shallow water effluent limits.
- B. The Discharger shall investigate thoroughly and implement all reasonable treatment and source control measures to limit the discharge of selenium according to the following time schedule:

<u>Task</u>	<u>Deadline</u>
Determine sources and develop a source control and treatment assessment program acceptable to the Executive Officer for selenium in Waste 002. This shall include a program to assess alternative treatment technologies which will determine the technical and economic feasibility of reducing the Waste 002 selenium effluent concentration into the range of 1 to 50 ug/l.	April 1, 1989
Begin implementing a control strategy study acceptable to the Executive Officer for selenium in Waste 002 that incorporates the findings from the previous task.	June 1, 1989
Implement a control strategy acceptable to the Executive Officer that incorporates the results and findings of the previous task.	June 1, 1990

Based on the results of the Toxic Substance Control Program, this permit shall be reopened and modified pursuant to 40 CFR 122.62 and 124.5 to incorporate the results of the source control and treatment program.

In the event that the Discharger's control strategies are not effective or that the Discharger's progress towards implementing those strategies is not effective, this permit shall be reopened and modified to include effluent limits pursuant to 40 CFR 122.62 and 124.5.

6. Effluent Toxicity Characterization Program

The Discharger shall participate in the Effluent Toxicity Characterization program described in Chapter 4 of the Basin Plan, in accordance with the Guidelines for the Effluent Toxicity Characterization Program adopted by the Board in Resolution 87-107 on August 19, 1987. A proposal for effluent characterization program studies with time schedule shall be submitted by June 1, 1989.

7. The Discharger shall study the potential for accumulation of metallic and organic compounds present in Waste 002 in San Francisco Bay organisms known or suspected to accumulate these compounds. These compounds should be analyzed in Waste 002 and in the tissue of test organisms exposed to Waste 002 to determine bioconcentration factors that can then be used to predict concentrations of these compounds in organisms that may be exposed to Waste 002 in the receiving water. This study may involve a combination of laboratory and in situ work. An implementation plan shall be submitted by July 1, 1989, and implementation shall commence no later than 30 days after approval of the plan by the Executive Officer.
8. The Discharger shall study the potential for accumulation of metallic and organic constituents present in Waste 002 in sediments adjacent to the Waste 002 deepwater outfall. An implementation plan shall be submitted by July 1, 1989, and implementation shall commence no later than 30 days after approval of the plan by the Executive Officer.
9. The Discharger shall investigate sediments in the area of the Waste 003 outfall, (former combined outfall) to determine the full spatial extent of historical sediment contamination in the area of the Waste 003 outfall. The sediments at this location shall be monitored for metallic and organic compounds twice a year for at least two years. Benthic organism monitoring shall also be conducted as part of the investigation. An implementation plan shall be submitted by July 1, 1989, and implementation shall commence no later than 30 days after approval of the plan by the Executive Officer.
10. A comprehensive surveillance program to document the changes in fish and crustacean uses in the area affected by the Waste 002 deep water outfall and in the area of the former combined outfall, now the Waste 003 outfall, shall be conducted. The study will include data taken prior to, and after the change of the Waste 002 outfall to the deepwater diffuser. The program should include the use of gill nets, ring nets, or other appropriate sampling equipment on an

appropriate time basis to document fisheries use patterns. The purpose of this survey is to determine any alteration in use patterns by migrating fish, fish spawning in the area, or crustaceans.

A study plan and corresponding report, requested in a letter dated November 7, 1988, describing the results of the first phase of this work which addresses the time period of several weeks before and after the switch to the deepwater diffuser discharge shall be submitted by June 1, 1989. A plan for the second phase of this study, which will involve sampling for a six month period shall be submitted by April 1, 1989 and a final report on the results of this program shall be submitted by January 1, 1990.

11. The Discharger shall investigate far-field impacts of the discharge of Waste 002. The investigation shall include water column, sediment, and bioaccumulation monitoring. An implementation plan shall be submitted by July 1, 1989 and implementation shall commence no later than 30 days after approval of the plan by the Executive Officer.
12. The Discharger shall develop and submit a Best Management Practices (BMP) program to the Board by November 1, 1989. The BMP program shall be consistent with the EPA regulations 40 CFR 125, Subpart K and the general guidance contained in the "NPDES Best Management Guidance Document", EPA Report No. 600/9-79-045, December 1979 (revised June 1981). A BMP program acceptable to the Executive Officer shall be implemented by May 1, 1990.
13. This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Water Pollution Control Act, or amendments thereto, and shall take effect at the end of ten days from the date of hearing provided the Regional Administrator, EPA Region 9, has no objections.
14. This permit shall be modified or alternatively revoked and reissued to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(c), and (d), 303, 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
  - (a) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or,
  - (b) Controls any pollutant not limited in the permit.The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.
15. The Discharger shall comply with the attached self-monitoring program as adopted by the Board and as may be amended by the Board pursuant to EPA regulations 40 CFR 122.62, 122.63, and 124.5.
16. Pursuant to EPA regulations 40 CFR 122.44, 122.62, and 124.5, this permit may be modified prior to the expiration date to include

effluent limitations for toxic constituents determined to be present in significant amounts in the discharge through a more comprehensive monitoring program included as a part of this Order.

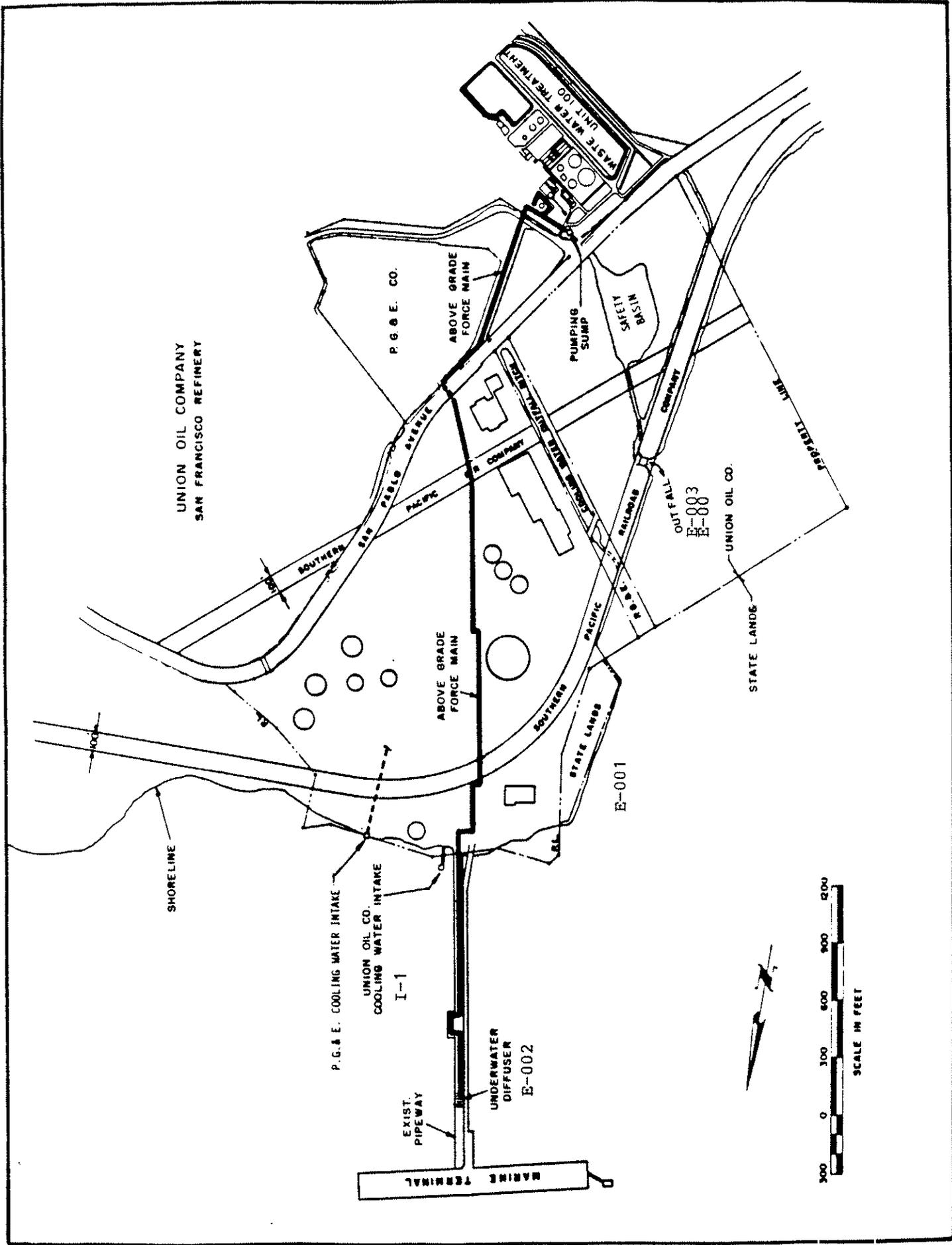
17. All applications, reports, or information submitted to the Board shall be signed and certified pursuant to EPA regulations 40 CFR 122.41(k).
18. Pursuant to EPA regulations 40 CFR 122.42(a), the discharger must notify the Board as soon as it knows or has reason to believe (1) that they have begun or expect to begin, use or manufacture a pollutant not reported in the permit application, or (2) a discharge of a toxic pollutant not limited by this permit has occurred, or will occur, in concentrations that exceed the specified limits included in 40 CFR 122.42(a).
19. Order No. 85-29 remains in full force and effect for purposes of enforcement of Cease and Desist Orders No. 86-8 and 86-11 and Resolution No. 86-003. For all other purposes, Order No. 85-29 is hereby rescinded.
20. This Order includes all items of the attached "Standard Provisions, Reporting Requirements and Definitions" dated December 17, 1986.
21. The Board will consider <sup>APPENDIX A</sup> proposed alternatives to concentration based effluent limits when the Discharger demonstrates significant water conservation and/or wastewater flow reduction.
22. This Order expires on January 18, 1994 and the Discharger must file a Report of Waste Discharge in accordance with Title 23, California Administrative Code, not later than 180 days in advance of such date as application for issuance of new waste discharge requirements.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on January 18, 1989.

  
STEVEN R. RITCHIE  
Executive Officer

Attachments:

Location Map  
Standard Provisions, Reporting  
Requirements and Definitions dated December 17, 1986.  
Self-Monitoring Program



UNION OIL COMPANY  
SAN FRANCISCO REFINERY

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION  
DECEMBER 1986

STANDARD PROVISIONS AND REPORTING REQUIREMENTS

A. General Provisions

1. All Provisions and Reporting Requirements apply to all regulated discharges unless otherwise noted.
2. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Section 13050 of the California Water Code.
3. The discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this order and permit which has a reasonable likelihood of adversely affecting public health or the environment, including such accelerated or additional monitoring as requested by the Regional Board or Executive Officer to determine the nature and impact of the violation. [40 CFR 122.41(d)]
4. All discharges authorized by this Order shall be consistent with the terms and conditions of this Order.
5. Pursuant to Environmental Protection Agency regulations the discharger must notify the Regional Board as soon as it knows or has reason to believe (1) that they have begun or expect to begin, use or manufacture of a pollutant not reported in the permit application, or (2) a discharge of toxic pollutants not limited by this permit has occurred, or will occur, in concentrations that exceed the limits specified in 40 CFR 122.42(a).
6. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307 (a) of the Clean Water Act, or amendments thereto, for a toxic pollutant which is present in the discharge authorized herein and such standard or prohibition is more stringent than any limitation upon such pollutant in a Board adopted Order, discharger must comply with the new standard or prohibition. The Board will revise or modify the Order in accordance with such toxic effluent standard or prohibition and so notify the discharger.
7. If more stringent applicable water quality standards are approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the discharger must comply with the new standard. The Board will revise and modify this Order in accordance with such more stringent standards.
8. The discharge of any radiological, chemical, or biological warfare agent waste is prohibited.

9. Solids storage prior to final disposal shall be maintained to minimize runoff, to prevent leaching, and shall comply with all requirements contained in Title 23, Chapter 3, Subchapter 15 of the California Administrative Code.
10. All facilities used for transport, treatment, or disposal of wastes shall be adequately protected against overflow or washout as the result of a 100-year frequency flood.
11. Collection, treatment, storage and disposal systems shall be operated in a manner that precludes public contact with wastewater, except where excluding the public is inappropriate, warning signs shall be posted.
12. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of at a legal point of disposal, and in accordance with the provisions of Chapter 15 of Title 23 of the California Administration Code. For the purpose of this requirement, a legal point of disposal is defined as one for which waste discharge requirements have been prescribed or waived by a Regional Water Quality Control Board and which is in full compliance therewith.
13. This Order and Permit does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, nor protect the discharger from liabilities under federal, state or local laws, nor create a vested right for the discharge to continue the waste discharge or guarantee the discharger a capacity right in the receiving water. [40 CFR 122.41(g)]
14. The Regional Board or its authorized representatives shall be allowed:
  - a. Entry upon premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of the order and permit;
  - b. Access to and copy at reasonable times any records that must be kept under the conditions of the order and permit;
  - c. To inspect at reasonable times any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under the order and permit; and
  - d. To photograph, sample, and monitor at reasonable times for the purpose of assuring compliance with the order and permit or as otherwise authorized by the Clean Water Act any substances or parameters at any locations. [40 CFR 122.41(i)]

15. This Order and Permit may be modified, revoked and reissued, or terminated in accordance with applicable State and/or Federal regulations. Cause for taking such action includes, but is not limited to any of the following:
- a. Violation of any term or condition contained in the Order and Permit;
  - b. Obtaining the Order and Permit by misrepresentation, or by failure to disclose fully all relevant facts;
  - c. Endangerment to public health or environment that can only be regulated to acceptable levels by order and permit modification or termination; and
  - d. Any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
16. The filing of a request by the discharger for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. [40 CFR 122.41(f)]
17. The discharger shall furnish, within a reasonable time, any information the Regional Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit. The discharger shall also furnish to the Regional Board, upon request, copies of records required to be kept by its permit. [40 CFR 122.41(h)]
18. Bypass (the intentional diversion of waste streams from any portion of a treatment facility) is prohibited. The Regional Board may take enforcement action against the discharger for plant bypass unless:
- a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.);
  - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

- c. The permittee submitted advance notice of the need for a bypass to the Regional Board. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass. The permittee shall submit notice of an unanticipated bypass as required by 40 CFR 122.41(1)(6) (24 hour notice), as required in paragraph C.10.

The permittee may allow a bypass to occur that does not cause effluent limitations to be exceeded, but only if it is for essential maintenance to assure efficient operation. In such a case, the above bypass conditions are not applicable.

B. Treatment Reliability

1. The discharger shall, at all times, properly operate and maintain all facilities and systems of treatment disposal and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with this order and permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. All of these procedures shall be described in an Operation and Maintenance Manual. The discharger shall keep in a state of readiness all systems necessary to achieve compliance with the conditions of this order and permit. All systems, both those in service and reserve, shall be inspected and maintained on a regular basis. Records shall be kept of the tests and made available to the Regional Board. [40 CFR 122.41(e)]
2. Safeguard to electric power failure:
  - a. The discharger shall, within ninety (90) days of the effective date of this permit, submit to the Regional Board for approval a description of the existing safeguards provided to assure that, should there be reduction, loss, or failure of electric power, the discharger shall comply with the terms and conditions of its Order. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past five years on effluent quality and on the capability of the discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Board.

- b. Should the Regional Board not approve the existing safeguards, the discharger shall, within ninety (90) days of having been advised by the Regional Board that the existing safeguards are inadequate, provide to the Regional Board and the Environmental Protection Agency a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the permittee shall comply with the terms and conditions of this permit. The schedule of compliance shall, upon approval of the Regional Board Executive Officer, become a condition of the Order.
- c. If the discharger already has approved plan(s), the plan shall be revised and updated as specified in the plan or whenever there has been a material change in design or operation. A revised plan shall be submitted to the Regional Board within ninety (90) days of the material change.

3. POTW facilities subject to this order and permit shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Chapter 3, Subchapter 14, Title 23 of the California Administrative Code.

C. General Reporting Requirements

1. All reports required by the order and permit and other information requested by the Regional Board or EPA Region 9 shall be signed by a principal executive officer or ranking elected official of the discharger, or by a duly authorized representative of that person. [40 CFR 122.22(b)]
2. All reports signed by a duly authorized representative shall contain the following certification:

"I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. [40 CFR 122.22(d)]

3. Should the discharger discover that it failed to submit any relevant facts or that it submitted incorrect information in any report, it shall promptly submit the missing or correct information. [40 CFR 122.41(1)(8)]

4. Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall be subject to enforcement procedures as identified in Section D of these Provisions.
5. This permit is not transferable to any person except after notice to the Regional Board. The Regional Board may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Clean Water Act.
6. Transfer of control or ownership of a waste discharge facility under an National Pollutant Discharge Elimination System permit must be preceded by a notice to the Regional Board at least 30 days in advance of the proposed transfer date. The notice must include a written agreement between the existing discharger and proposed discharger containing specific dates for transfer of responsibility, coverage, and liability between them. Whether an order and permit may be transferred without modification or revocation and reissuance is at the discretion of the Regional Board. If order and permit modification or revocation and reissuance is necessary, transfer may be delayed 180 days after the Regional Board's receipt of a complete application for waste discharge requirements and an NPDES permit.
7. The discharger shall file with the Board a report of waste discharge at least 120 days before making any material change or proposed change in the character, location or volume of the discharge.
8. The discharger shall file with the Board, for Executive Officer review and approval within ninety (90) days after the effective date of this Order, a technical report or a statement that the existing plan(s) was reviewed and updated, as appropriate, on preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. The technical report or updated revisions should:
  - a. Identify the possible sources of accidental loss, untreated or partially treated waste bypass, and polluted drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.
  - b. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
  - c. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

This Board, after review of the technical report or updated revisions, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions may be incorporated as part of this Order, upon notice to the discharger. If the discharger already has an approved plan(s) he shall update them as specified in the plan(s).

9. Reports of compliance or noncompliance with, or any progress reports on, interim and final compliance dates contained in any compliance schedule shall be submitted within 10 working days following each scheduled date unless otherwise specified within this order and permit. If reporting noncompliance, the report shall include a description of the reason for failure to comply, a description and schedule of tasks necessary to achieve compliance and an estimated date for achieving full compliance. A final report shall be submitted within 10 working days of achieving full compliance, documenting full compliance
10. Twenty-four hour reporting:
  - (a) The permit shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five working days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
  - (b) The following shall be included as information that must be reported within 24 hours under this paragraph:
    - (A) Any unanticipated bypass that exceeds any effluent limitation in the permit.
    - (B) Any upset that exceeds any effluent limitation in the permit.
    - (C) Violation of a maximum daily discharge limitation for any of the pollutants listed in this permit to be reported within 24 hours.
  - (c) The Regional Board may waive the above-required written report on a case-by-case basis.

11. All POTWs must provide adequate notice to the Regional Board of:
  - (a) Any introduction of new pollutants into the POTW from an indirect discharger that would be subject to Sections 301 or 306 of the Clean Water Act if it were directly discharging those pollutants.
  - (b) Any substantial or material change in the volume or character of pollutants being introduced into that POTW by an input source at the time of issuance of the permit.

Adequate notice shall include information on the quality and quantity of influent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

D. Enforcement

1. The provision contained in this enforcement section shall not act as a limitation on the statutory or regulatory authority of the Regional Board.
2. Any violation of the permit constitutes violation of the California Water Code and regulations adopted thereunder and the provisions of the Clean Water Act, and is the basis for enforcement action, permit termination, permit revocation and reissuance, denial of an application for permit reissuance; or a combination thereof.
3. The Regional Board may impose administrative civil liability, may refer a discharger to the State Attorney General to seek civil monetary penalties, may seek injunctive relief or take other appropriate enforcement action as provided in the California Water Code or federal law for violation of Regional Board orders.
4. It shall not be a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this order and permit.
5. A discharger seeking to establish the occurrence of any upset (See Definitions, E.23) has the burden of proof. A discharger who wishes to establish the affirmative defense of any upset in an action brought for noncompliance shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:
  - a. an upset occurred and that the permittee can identify the cause(s) or the upset;
  - b. the permitted facility was being properly operated at the time of the upset;

- c. the permittee submitted notice of the upset as required in paragraph c.10.; and
- d. the permittee complied with any remedial measures required under A.3.

No determination made before an action for noncompliance, such as during administrative review of claims that noncompliance was caused by an upset, is final administrative action subject to judicial review.

In any enforcement proceeding, the permittee seeking to establish the occurrence of any upset has the burden of proof. [40 CFR 122.41(n)]

#### E. Definitions

1. Bypass means the intentional diversion of waste streams from any portion of treatment facility.
2. Daily discharge means:
  - a. For flow rate measurements, the average flow rate measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.
  - b. For pollutant measurements, the concentration or mass emission rate measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.
3. Daily Maximum Limit means the maximum acceptable daily discharge. For pollutant measurements, unless otherwise specified, the results to be compared to the daily maximum limit are based on composite samples.
4. DDT and Derivatives shall mean the sum of the p,p' and o,p' isomers of DDT, DDD (TDE), and DDE.
5. Duly authorized representative is one whose:
  - a. Authorization is made in writing by a principal executive officer or ranking elected official;
  - b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as general manager in a partnership, manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

- c. Written authorization is submitted to the Regional Board and EPA Region 9. If an authorization becomes no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements above must be submitted to the Regional Board and EPA Region 9 prior to or together with any reports, information, or applications to be signed by an authorized representative.
6. Hazardous substance means any substance designated under 40 CFR 116 pursuant to Section 311 of the Clean Water Act.
7. HCH shall mean the sum of the alpha, beta, gamma (Lindane), and delta isomers of hexachlorocyclohexane.
8. Inadequately Treated Waste is wastewater receiving partial treatment but failing to meet discharge requirements.
9. Incompatible pollutants are:
- Pollutants which create a fire or explosion hazard in the POTW;
  - Pollutants which will cause corrosive structural damage to the POTW, or wastewaters with pH lower than 5.0 pH units, unless the facilities are specifically designed to accommodate such wastewater;
  - Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference;
  - Any pollutant, including oxygen-demanding pollutants (e.g., BOD) released into the wastewater system at a flow rate and/or pollutant concentration which will cause interference with the POTW.
  - Heat in amounts which will inhibit biological activity in the POTW and result in interference, or heat in such quantities that the temperature at the POTW treatment plant exceeds 40°C (104°F) unless the works is designed to accommodate such heat or the Regional Board approves alternate temperature limits.
10. Indirect discharger means a non-domestic discharger introducing pollutants into a publicly owned treatment and disposal system.
11. Initial dilution is the process which results in the rapid and irreversible turbulent mixing of wastewater with receiving water around the point of discharge.

12. Mass emission rate is obtained from the following calculation for any calendar day:

$$\text{Mass emission rate (lb/day)} = \frac{8.345}{N} \sum_{i=1}^N Q_i C_i$$

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

in which 'N' is the number of samples analyzed in any calendar day. 'Q<sub>i</sub>' and 'C<sub>i</sub>' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' grab samples which may be taken in any calendar day. If a composite sample is taken, 'C<sub>i</sub>' is the concentration measured in the composite sample and 'Q<sub>i</sub>' is the average flow rate occurring during the period over which samples are composited. The daily concentration measured over any calendar day of all constituents shall be determined from the flow-weighted average of the same constituents in the combined waste streams as follows:

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

in which 'N' is the number of component waste streams. 'Q' and 'C' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' waste streams. 'Q<sub>t</sub>' is the total flow rate of the combined waste streams.

13. Maximum allowable mass emission rate, whether for a 24-hour, weekly 7-day, monthly 30-day, or 6-month period, is a limitation expressed as a daily rate determined with the formulas in paragraph above, using the effluent concentration limit specified in the order and permit for the period and the specified allowable flow. (Refer to Section C of Part A of Self-monitoring Program for definitions of limitation period)
14. Overflow is defined as the intentional or unintentional spilling or forcing out of untreated or partially treated wastes from a transport system (e.g. through manholes, at pump stations, and at collection points) upstream from the plant headworks caused by excess flow in the transport system.
15. POTW means Publically Owned Treatment Works.

16. POTW Removal efficiency is expressed as the percentage of the ratio of pollutants removed by the treatment facilities to pollutants entering the treatment facilities. Removal efficiencies of a treatment plant shall be determined using monthly averages of pollutant concentration of influent and effluent samples collected at about the same time and using the following equation (or its equivalent):

$$\text{Removal Efficiency (\%)} = 100 \times [1 - (\text{Effluent Conc}/\text{Influent Conc})]$$

When preferred, the discharger may substitute mass loadings and mass emissions for the concentrations.

17. Priority pollutants are those constituents referred to in 40 CFR S122, Appendix D and listed in the EPA NPDES Application Form 2C, (dated 6/80) Items V-3 thru V-9.
18. Sludge means the solids, semi-liquid suspensions of solids, residues, screenings, grit, scum, and precipitates separated from, or created in wastewater by the unit processes of a treatment system. It also includes but is not limited to, all supernatant, filtrate, centrate, decantate, and thickener overflow/underflow in the solids handling parts of the wastewater treatment system.
19. Toxic pollutant means any pollutant listed as toxic under Section 307(a)(1) of the Clean Water Act or under 40 CFR S401.15.
20. Total Identifiable Chlorinated HydroCarbons (TICH) shall be measured by summing the individual concentrations of DDT, DDD, DDE, aldrin, BHC, chlordane, endrin, heptachlor, lindane, dieldrin, PCBs and other indentifiable chlorinated hydrocarbons.
21. Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass or overflow. It does not mean economic loss caused by delays in production.
22. Untreated waste is defined as raw wastewater.
23. Upset means an exceptional incident in which there is unintentional temporary noncompliance with effluent technology based permit limitations in the order and permit because of factors beyond the reasonable control of the discharger. It does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

24. Waste, waste discharge, discharge of waste, and discharge are used interchangeably in this order and permit. The requirements of this order and permit are applicable to the entire volume of water, and the material therein, which is disposed of to surface and ground waters of the State of California.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM  
FOR

UNION OIL COMPANY OF CALIFORNIA  
DBA UNOCAL  
SAN FRANCISCO REFINERY  
RODEO, CONTRA COSTA COUNTY

NPDES NO. CA0005053

ORDER NO. 89-002

CONSISTS OF

PART A (dated December 1986)

AND

PART B

December 1986

SELF-MONITORING PROGRAM  
PART A

A. GENERAL

Basis

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383 and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16 and the Environmental Protection Agency's Discharge Monitoring Report (Form 3320-1).

Purpose

The principal purposes of a monitoring program by a waste discharger, also referred to as self-monitoring program, are: (1) to document compliance with waste discharge requirements and prohibitions established by this Regional Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the 40 CFR 5136 or other methods approved and specified by the Executive Officer of this Regional Board. (See Appendix E, attached)

Water and waste analyses shall be performed by a laboratory approved for these analyses by the State Department of Health Services (DOHS) or a laboratory waived by the Executive Officer from obtaining a certification for these analyses by the DOHS. The director of the laboratory whose name appears on the certification or his/her laboratory supervisor who is directly responsible for analytical work performed shall supervise all analytical work including appropriate quality assurance/quality control procedures in his or her laboratory and shall sign all reports of such work submitted to the Regional Board.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. DEFINITION OF TERMS

1. A grab sample is defined as an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may or may not be during hydraulic peaks. It is used primarily in determining compliance with daily maximum limits and instantaneous maximum limits. Grab samples represent only the condition that exists at the time the wastewater is collected.
2. A composite sample is defined as a sample composed of individual grab samples mixed in proportions varying not more than plus or minus five percent from the instantaneous rate (or highest concentration) of waste flow corresponding to each grab sample collected at regular intervals not greater than one hour, or collected by the use of continuous automatic sampling devices capable of attaining the proportional accuracy stipulated above throughout the period of discharge for 8 consecutive or of 24 consecutive hours, whichever is specified in Table 1 of Part B.
3. A flow sample is defined as the accurate measurement of the average daily flow volume using a properly calibrated and maintained flow measuring device.
4. Duly authorized representative is one whose:
  - a. Authorization is made in writing by a principal executive officer or ranking elected official;
  - b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as general partner in a partnership, sole proprietor in a sole proprietorship, the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)
5. Average values for daily and monthly values is obtained by taking the sum of all daily values divided by the number of all daily values measured during the specified period.

6. Median of an ordered set of values is that value below and above which there is an equal number of values, or which is the arithmetic mean of the two middle values, if there is no one middle value.
- a. A 5-day median value for coliform bacteria is the third highest count of 5 daily counts obtained from 5 consecutive sampling days. A 7-day median value is the fourth highest of 7 daily counts obtained from 7 consecutive sampling days.
  - b. A 5-day moving median value for coliform bacteria is the median value calculated for each consecutive sampling day based upon the period from the sample day and the previous 4 sampling days.  
 A 7-day moving median is calculated for each consecutive sampling day based upon the period from the sample day and the previous 6 sampling days. Moving median values for the beginning of the month shall be calculated using the previous month's counts (i.e. the last four counts for a 5-day moving median and the last seven counts for a 7-day moving median from the previous month).
7. A 6-month median means a moving median of daily values for any 180 day period in which daily values represent flow-weighted average concentrations within a daily or 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.
8. The geometric mean is antilog of log mean. Used for determining compliance with bacteriological standards, the log mean is calculated with the following equation:

$$\text{Log Mean} = \frac{1}{N} \sum_{i=1}^N \text{Log } C_i$$

in which "N" is the number of days samples that were analyzed during the period and "C<sub>i</sub>" is the concentration of bacteria (MPN/100 ml) found on each day of sampling.

9. Daily Maximum limit is the total discharge in a calendar day for pollutants measured by mass or the average measurement obtained for other pollutants.
10. Instantaneous maximum is defined as the highest measurement obtained for the calendar day.

11. A depth-integrated sample is defined as a water or waste sample collected by allowing a sampling device to fill during a vertical traverse in the waste or receiving water body being sampled and shall be collected in such a manner that the collected sample will be representative of the waste or water body at that sampling point.
12. Bottom sediment sampling and reporting guidelines mean those guidelines developed by the Regional Board staff to provide for standard bottom sampling, laboratory, and reporting procedures.

D. SPECIFICATIONS FOR SAMPLING AND ANALYSES

The discharger is required to perform sampling and analyses according to the schedule in Part B in accordance with the following conditions:

1. Influent

- a. Composite samples of influent shall be collected on varying days selected at random and shall not include any plant recirculation or other sidestream wastes. Deviation from this must be approved by the Executive Officer.

2. Effluent

- a. Composite samples of effluent shall be collected on days coincident with influent composite sampling unless otherwise stipulated. At least one sampling day in each seven shall reflect one day of weekend discharge, one day of peak loading and during major unit operation shutdown or startup. The Board may approve an alternative sampling plan if it is demonstrated to the Board's satisfaction that expected operating conditions for the facility warrant a deviation from the standard sampling plan.
- b. Grab samples of effluent shall be collected during periods of maximum peak flows and shall coincide with effluent composite sample days.
- c. Fish bioassay samples shall be collected on days coincident with effluent composite sampling.
  - 1) Bioassay sample should be collected after chlorination. Bioassay test should be performed on dechlorinated samples. Dechlorination may be performed at the laboratory before testing.
  - 2) Total ammonia nitrogen shall be analyzed and un-ionized ammonia calculated whenever fish bioassay test results fail to meet the specified percent survival.

- d. If two consecutive samples of a constituent monitored on a weekly or monthly basis in a 30 day period exceed the monthly average effluent limit for any parameter, (or if the required sampling frequency is once per month and the monthly sample exceeds the monthly average limit), the sampling frequency shall be increased to daily until the additional sampling shows that the most recent 30-day moving average is in compliance with the monthly average limit.
- e. If any maximum daily limit is exceeded, the sampling frequency shall be increased to daily until two samples collected on consecutive days show compliance with the maximum daily limit.
- f. If the final or intermediate results of any single bioassay test indicate a threatened violation (i.e. the percentage of surviving test organisms is less than the required survival percentage), a new test will begin and the discharger shall investigate the cause of the mortalities and report the finding in the next self-monitoring report.
- g. Chlorine residual analyzers shall be calibrated against grab samples as frequently as necessary to maintain accurate control and reliable operation. If an effluent violation is detected, grab samples shall be collected at least every 30 minutes until compliance is achieved.
- h. When any type of bypass occurs, composite samples shall be collected on a daily basis for all constituents at all affected discharge points which have effluent limits for the duration of the bypass.

### 3. Sewage Sludge

- a. Analysis of sewage sludge shall comply with the State Department of Health Service Article II of Title 22 (Section 66693 - 66670) procedures in order to determine proper disposal locations.

### 4. Receiving Waters

- a. Receiving water sampling shall be conducted on days coincident with composite sampling of effluent.
- b. Receiving water samples shall be collected at each station on each sampling day during the period within 1 hour following low slack water. Where sampling at lower slack water period is not practical, sampling shall be performed during higher slack water period. Samples shall be collected within the discharge plume and downcurrent of the discharge point so as to be representative, unless otherwise stipulated.

- c. Samples shall be collected within one foot below the surface of the receiving water body, unless otherwise stipulated.

5. Bottom Sediment Samples and Sampling and Reporting Guidelines

- a. Bottom sediment sample means: (1) a separate grab sample taken at each sampling station for the determination of selected physical-chemical parameters, or (2) four grab samples collected from different locations in the immediate vicinity of a sampling station while the boat is anchored and analyzed separately for macroinvertebrates.

Physical-chemical sample analyses include as a minimum:

- 1) pH
- 2) TOC (Total Organic Carbon)
- 3) Grease analysis:
  - (a) Mg grease per kg sediment
  - (b) Percent fraction of hydrocarbon in grease
- 4) Selected metals (depending on industrial input) mg/kg dry wt (and soluble metals in mg/l).
- 5) Particle size distribution, i.e., % sand, % silt-clay
- 6) Depth of water at sampling station in meters
- 7) Water salinity and temperature in the water column within one meter of the bottom.

E. Standard Observations

1. Receiving Water

- a. Floating and suspended materials of waste origin (to include oil, grease, algae, and other macroscopic particulate matter): presence or absence, source, and size of affected area.
- b. Discoloration and turbidity: description of color, source, and size of affected area.
- c. Odor: presence or absence, characterization, source, distance of travel, and wind direction.

d. Evidence of beneficial water use: presence of water-associated waterfowl or wildlife, fishermen, and other recreational activities in the vicinity of the sampling stations.

e. Hydrographic condition:

1) Time and height of corrected high and low tides (corrected to nearest NOAA location for the sampling date and time of sample and collection).

2) Depth of water columns and sampling depths.

f. Weather condition:

1) Air temperatures.

2) Wind - direction and estimated velocity.

3) Precipitation - total precipitation during the previous five days and on the day of observation.

## 2. Wastewater Effluent

a. Floating and suspended material of waste origin (to include oil, grease, algae, and other macroscopic particulate matter): presence or absence.

b. Odor: presence or absence, characterization, source, distance of travel.

## 3. Beach and Shoreline

a. Material of waste origin: presence or absence, description of material, estimated size of affected area, and source.

b. Beneficial use: estimated number of people sunbathing, swimming, waterskiing, surfing, etc.

## 4. Land Retention or Disposal Area

This applies both to liquid and solid wastes confined or unconfined.

a. For each impoundment determine amount of the freeboard at lowest point of dikes confining liquid wastes.

b. Evidence of leaching liquid from area of confinement and estimated size of affected area. (Show affected area on a sketch and volume of flow (gpm, etc.))

- c. Odor: presence or absence, characterization, source, and distance of travel.
- d. Estimated number of waterfowl and other water-associated birds in the disposal area and vicinity.

5. Periphery of Waste Treatment and/or Disposal Facilities

- a. Odor: presence or absence, characterization, source, and distance of travel.
- b. Weather condition: wind direction and estimated velocity.

F. RECORDS TO BE MAINTAINED

- 1. Written reports, strip charts, calibration and maintenance records, and other records shall be maintained by the discharger and accessible (at the waste treatment plant), and retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board or Regional Administrator of the U.S. Environmental Protection Agency, Region IX. Such records shall show the following for each sample:
  - a. Identity of sampling and observation stations by number.
  - b. Date and time of sampling and/or observations.
  - c. Method of composite sampling (See Section C - Definition of Terms)
  - d. Type of fish bioassay test (96 hour static or flow-through bioassay)
  - e. Date and time that analyses are started and completed, and name of personnel performing the analyses.
  - f. Complete procedure used, including method of preserving sample and identity and volumes of reagents used. A reference to a specific section of Standard Methods is satisfactory
  - g. Calculations of results.
  - h. Results of analyses and/or observations.
- 2. A tabulation shall be maintained showing the following flow data for influent and effluent stations and disposal areas:
  - a. Total waste flow or volume for each day.

- b. Maximum and minimum daily flows for each month.
3. A tabulation shall be maintained showing the following information for all other plant wastes and disposal areas:
  - a. Total monthly volume of grit, skimmings, and undigested sludge (in cubic yards or cubic feet) from each treatment unit and the disposal site location.
  - b. Total monthly volume and solids content of dewatered sludge from each treatment unit (in cubic yards or cubic feet) and the disposal site location.
4. A tabulation reflecting to bypassing and accidental waste spills shall be maintained showing information items listed in Sections F -1 and F-2 for each occurrence.
5. A chronological log for each month shall be maintained of the effluent disinfection and bacterial analyses, showing the following:
  - a. Date and time each sample is collected and waste flow rate at time of collection.
  - b. Chlorine residual, contact time, and dosage (in kilograms per day and parts per million).
  - c. Coliform count for each sample.
  - d. Moving median coliform of the number of samples specified by waste discharge requirements.

G. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Spill Reports

A report shall be made of any spill of oil or other hazardous material. Spills shall be reported to this Regional Board, at (415) 464-1255 on weekdays during office hours from 8 AM to 5 PM, and to the Office of Emergency Services at (800) 852-7550 during non-office hours, and the U.S. Coast Guard at (415) 556-3741 by telephone immediately after occurrence. A written report shall be filed with the Regional Board within five (5) working days and shall contain information relative to:

- a. nature of waste or pollutant,
- b. quantity involved,
- c. duration of incident,

- d. cause of spilling,
- e. SPOC Spill Prevention and Containment Plan in effect, if any
- f. estimated size of affected area,
- g. nature of effects (i.e., fishkill, discoloration of receiving water, etc.),
- h. corrective measures that have been taken or planned, and a schedule of these activities, and
- i. persons notified.

2. Reports of Plant Bypass, Treatment Unit Bypass and Permit Violation

In the event the discharger violates or threatens to violate the conditions of the waste discharge requirements and prohibitions or intends to experience a plant bypass or treatment unit bypass due to:

- a. Maintenance work, power failures, or breakdown of waste treatment equipment, or
- b. accidents caused by human error or negligence, or
- c. other causes, such as acts of nature,

the discharger shall notify the Regional Board office by telephone as soon as he or his agents have knowledge of the incident and confirm this notification in writing within 7 working days of the telephone notification. The written report shall include time and date, duration and estimated volume of waste bypassed, method used in estimating volume and person notified of the incident. The report shall include pertinent information explaining reasons for the noncompliance and shall indicate what steps were taken to prevent the problem from recurring.

In addition, the waste discharger shall promptly accelerate his monitoring program to analyze the discharge at least once every day (Section D.2.h). Such daily analyses shall continue until such time as the effluent limits have been attained, until bypassing stops or until such time as the Executive Officer determines to be appropriate. The results of such monitoring shall be included in the regular Self-Monitoring Report.

3. The discharger shall file a written technical report to be received at least 30 days prior to advertising for bid (a 60 days prior to construction) on any construction project which would cause or aggravate the discharge of waste in violation of requirements; said report shall describe the nature, cost, and scheduling of all action necessary to preclude such discharge. In no case will any discharge of wastes in violation of permit and order be permitted unless notification is made to Executive Officer and approval obtained from the Regional Board.

4. Self-Monitoring Reports

Written reports shall be filed regularly for each calendar month (unless specified otherwise) and filed no later than the fifteenth day of the following month. The reports shall be comprised of the following:

a. Letter of Transmittal:

A letter transmitting self-monitoring reports should accompany each report. Such a letter shall include:

- 1) Identification of all violations of waste discharge requirements found during the reporting period,
- 2) Details of the magnitude, frequency, and dates of all violations,
- 3) The cause of the violations, and
- 4) Discussion of the corrective actions taken or planned and the time schedule for completion. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory.

Monitoring reports and the letter transmitting reports shall be signed by a principal executive officer or ranking elected official of the discharger, or by a duly authorized representative of that person.

The letter shall contain the following certification:

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

submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

b. Compliance Evaluation Summary

Each report shall be accompanied by a compliance evaluation summary sheet prepared by the discharger. The report format will be prepared using the example shown in APPENDIX A (attached). The discharger will prepare the format using those parameters and requirement limits for receiving water and effluent constituents specified in his permit.

c. Map or Aerial Photograph

A map or aerial photograph shall accompany the report showing sampling and observation station locations.

d. Results of Analyses and Observations

Tabulations of the results from each required analysis specified in Part B by date, time, type of sample, detection limit and station, signed by the laboratory director. The report format will be prepared using the examples shown in APPENDIX B.

- 1) If the permittee monitors any pollutant more frequently than required by this permit using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Self-Monitoring Report.
- 2) Calculations for all limitations that require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

e. Effluent Data Summary

Summary tabulations of the data to include for each constituent total number of analyses, maximum, minimum, and average values for each period. The report format will be the NPDES Discharge Monitoring Report, EPA Form 3320-1. Flow data shall be included. The original is to be submitted to EPA:

Regional Administrator  
U.S. Environmental Protection Agency  
Attention: Enforcement Division (W-5)  
215 Fremont Street  
San Francisco, CA 94105

with a copy to the Regional Board:

Executive Officer  
California Regional Water Quality Control Board  
San Francisco Bay Region  
1111 Jackson Street, Room 6040  
Oakland, CA 94607

f. List of Approved Analyses

- 1) Listing of analyses for which the discharger is approved by the State Department of Health Services.
- 2) List of analyses performed for the discharger by another approved laboratory (and copies of reports signed by the laboratory director of that laboratory shall also be submitted as part of the report).
- 3) List of "waived" analyses, as approved.

g. Flow Data

- 1) The tabulation pursuant to Section F-2.

5. Annual Reporting

By January 30 of each year, the discharger shall submit an annual report to the Regional Board covering the previous calendar year. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the report shall contain a comprehensive discussion of the compliance record and the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the waste discharge requirements. The report format will be prepared by the discharger using the examples shown in APPENDIX C (attached) and should be maintained and submitted with each regular self-monitoring report.

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

<u>Station</u>	<u>Description</u>
I-001	At any point in the water intake from San Pablo Bay, preceding treatment or use for cooling or processing.

B. EFFLUENT

<u>Station</u>	<u>Description</u>
E-001	In the buried pipeline outfall for Waste 001 at a manhole about 150 feet inland from the effluent weir.
E-002	In the Parshall flume that measures the Waste 002 treated process effluent flow rate, or at any point in the pipeline which conveys the entire Waste 002 treated process effluent from a point downflow from the last treatment unit to the deepwater diffuser.
E-003	At any point in the Waste 003 flow representative of the entire Waste 003.
E-005	At any point in the stormwater conduit which contains the entire Seasonal Tank Farm Storage Area stormwater runoff flow.
S-1 through S-23	In the outlet from the chlorine contact basin at each of the discharger's 23 septic tanks as depicted in map OE 37-58-Y-6, Figure II.

C. RECEIVING WATERS

<u>Station</u>	<u>Description</u>
C-R	At a point in San Pablo Bay, located approximately 500 feet north of the discharger's Tank No. 78.
C-19 thru C-30	A minimum of six receiving water sampling stations will be placed in the immediate vicinity of the Unocal Marine Terminal, three on either side of the pier along the area in which the diffuser is installed. C-19 through

C-21 shall be along the east side of the pier leading to the marine terminal. C-22 through C-24 shall be along the west side of the pier directly opposite the C-19 through C-21 stations. C-25 shall be off the end of the east end of the marine terminal, C-26 off the north side of the middle of the marine terminal and C-27 off the west end of the marine terminal. Following the dispersion performance study on the new diffuser these stations may be repositioned, and the remaining stations will be sited.

D. SEDIMENTS

<u>Station</u>	<u>Description</u>
To be determined.	

E. RAINFALL

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

II. MISCELLANEOUS REPORTING

- A. The Discharger shall record the rainfall on each day of the month.
- B. The discharger shall determine the stormwater runoff/ballast water allocation (daily & monthly) for its discharge using the method described in attached Form A. Form A shall be submitted with the monthly self-monitoring report. The daily maximum allocation must be computed for each day Waste 002 is monitored.
- C. The Discharger shall retain and submit (when requested) the following information concerning the monitoring program for organic and metallic pollutants.
  - a. Description of sample stations, times, and procedures.
  - b. Description of sample containers, storage, and holding time prior to analysis.
  - c. Quality assurance procedures together with any test results for replicate samples, sample blanks, and any quality assurance tests, and the recovery percentages for the internal and surrogate standards.

- D. The Discharger shall submit in the monthly self-monitoring report the metallic & organic test results together with the detection limits (including unidentified peaks). All unidentified (non-Priority Pollutants) peaks detected in the EPA 624 and 625 test methods shall be identified and semi-quantified. Hydrocarbons detected at < 10 ug/l based on the nearest internal standard may be appropriately grouped and identified together as aliphatic hydrocarbons, aromatic hydrocarbons, and unsaturated hydrocarbons. All other hydrocarbons detected at >10 ug/l based on the nearest internal standard shall be identified and semi-quantified.
- E. Ballast water treated and discharged as part of Waste 002 shall be metered and the volume recorded in attached Form A for each calendar day. The 30-day average shall be the sum of the daily values in a calendar month divided by the number of days in that month. Ballast-water allocations shall be calculated by multiplying the volume of ballast water, determined above by the appropriate concentration listed under Effluent Limitation A.2. in the permit.
- F. The Discharger shall submit a sketch showing the locations of all ponds, treatment facilities, and points of waste discharge. This shall be updated by the discharger as changes occur.

### III. SCHEDULE OF SAMPLING AND ANALYSIS

- A. The schedule of sampling and analysis shall be that given in Table 1 (attached).
- B. Sample collection, storage, and analyses shall be performed according to the latest 40 CFR Part 136 or other methods approved and specified by the Executive Officer or the Regional Board.

### IV. MODIFICATIONS TO PART A

- A. Exclude paragraph D.3., E.4., F.3., and F.5., D.2.b.
- B. Paragraph D.2.a. shall be modified as follows:

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

I, Steven R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Order No. 89-002.

2. Is effective on the date shown below.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Discharger and revisions will be ordered by the Executive Officer, pursuant to 40 CFR 122.62 and 124.4.



STEVEN R. RITCHIE  
EXECUTIVE OFFICER

Effective Date: January 18, 1989

Attachments:

- Table 1
- Form A
- Figure 1
- Figure II





LEGEND FOR TABLE 1

TYPES OF SAMPLES

G = grab sample  
C-24 = composite sample - 24-hour  
Cont = continuous sampling  
O = observation

TYPES OF STATIONS

I = intake stations  
E = waste effluent stations  
C = receiving water stations  
B = bottom sediment stations

FREQUENCY OF SAMPLING

E = each occurrence  
D = once each day  
W = once each week  
2/W = 2 days per week  
ED = once each day  
during each occurrence

M = once each month  
2M = every 2 months  
Y = once each year  
2Y = twice each year  
cont = continuous

FOOTNOTES FOR TABLE 1

- (1) Oil and grease sampling shall consist of 3 grab samples taken at 2 hour intervals during the sampling day, with each grab being collected in a glass container. The entire volume of each sample shall be composited prior to analysis. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsings as soon as possible after use, and the solvent rinsings shall be added to the composite wastewater sample for extraction and analysis.
- (2) Daily minimum and maximum shall be reported.
- (3) Receiving water analysis for sulfides should be run when dissolved oxygen is less than 5.0 mg/l.
- (4) Volatile Organic Toxic Pollutants shall be analyzed using EPA Method 624 of the July, 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057.
- (5) Acid and Base/Neutral Extractable Organic Toxic Pollutants shall be analyzed using EPA Method 625 of the July, 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-057.
- (6) Grab samples shall be collected coincident with samples collected for the analysis of the regulated parameters. In addition, the grab samples must be collected in glass containers.
- (7) Polynuclear Aromatic Hydrocarbons shall be analyzed using EPA Method 610 of the July, 1982, Methods for Organic Chemical Analysis of

Municipal and Industrial Wastewater, EPA-600/4-82-057. Note that the samples must be collected in amber glass containers. These samples shall be collected coincident with samples collected for the analysis of the regulated parameters. An automatic sampler which incorporates glass sample containers and keeps the samples refrigerated at 4 °C and protected from light during compositing may be used. The 24-hour composite samples may consist of eight grab samples collected at three-hour intervals. The analytical laboratory shall remove flow-proportioned volumes from each sample vial or container for the analysis.

- (8) When replicate analyses are made of a coliform sample, the reported result shall be the arithmetic mean of the replicate analysis values.
- (9) Samples of the sanitary waste, following treatment in septic tanks and disinfection systems, will be collected at each of the septic tank chlorine contact basins which discharge into the process waste system. Samples will be collected in sterile containers, to which dechlorination agent has been added prior to autoclaving. Samples will be collected during a period which corresponds to anticipated high sanitary flows. A small portion of each sample will be tested immediately to assure that all chlorine residual has been removed. Samples will be iced after collection and conveyed to the laboratory following collection of the last individual sample.

In the laboratory, a composite will be prepared from the individual samples, on either an equal volume or flow proportioned basis. The composite will be prepared by transferring an appropriate volume (not less than 50 ml) of each individual sample into a sterile container. The composite will be well mixed, and an aliquot will be taken and analyzed for total coliform. The analytical results from such composite samples shall be considered to be indicative of the bacteriological quality of the aggregate of the individual disinfected sanitary flows at the Unocal San Francisco Refinery.

- (10) Not used.
- (11) Selenium must be analyzed only by the atomic absorption, gaseous hydride procedure (EPA Method No. 270.3 / Standard Method No. 303 E).
- (12) Stormwater-runoff sampling shall be performed at the diversion manhole (downstream of the seasonal storage tank area). If sample is in compliance with runoff limits, open the diversion valve to drain runoff to the E-003 discharge point; otherwise runoff should be treated at the wastewater treatment plant.

STORMWATER/BALLAST WATER ALLOCATION PROCEDURE

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

Definitions:

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

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

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

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

Stormwater Bankbook - Calculated inventoried stormwater.

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

STORMWATER/BALLAST WATER ALLOCATION PROCEDURE

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
1	Rainfall (in.)	Stormwater Runoff (MGal/D)	Effluent Flow (MGal/D)	Dry Weather Effluent Flow (MGal/D)	Estimated Processed Stormwater (MGal/D)	Stormwater Bankbook (MGal)	Actual Processed Stormwater (MGal/D)	Ballast Water (MGal/D)
2								
3								
30								
TOTAL								
AVERAGE								
MAXIMUM								

Previous Month's Bankbook =

- Column (B) = Column (A) X Runoff Factor
- Column (E) = Column (C) - Column (D) - Column (H).
- Column (F): Column (F) = Column (F)(Previous Day) + Column (B) - Column (E).  
Column (F) = 0 if Column (F) < 0.
- Column (G): If Column (F) > 0, then Column (G) = Column (E).  
If Column (F) = 0, then Column (G) = Column (B) + Column (F) previous day.

**MAXIMUM DAILY LIMITS**

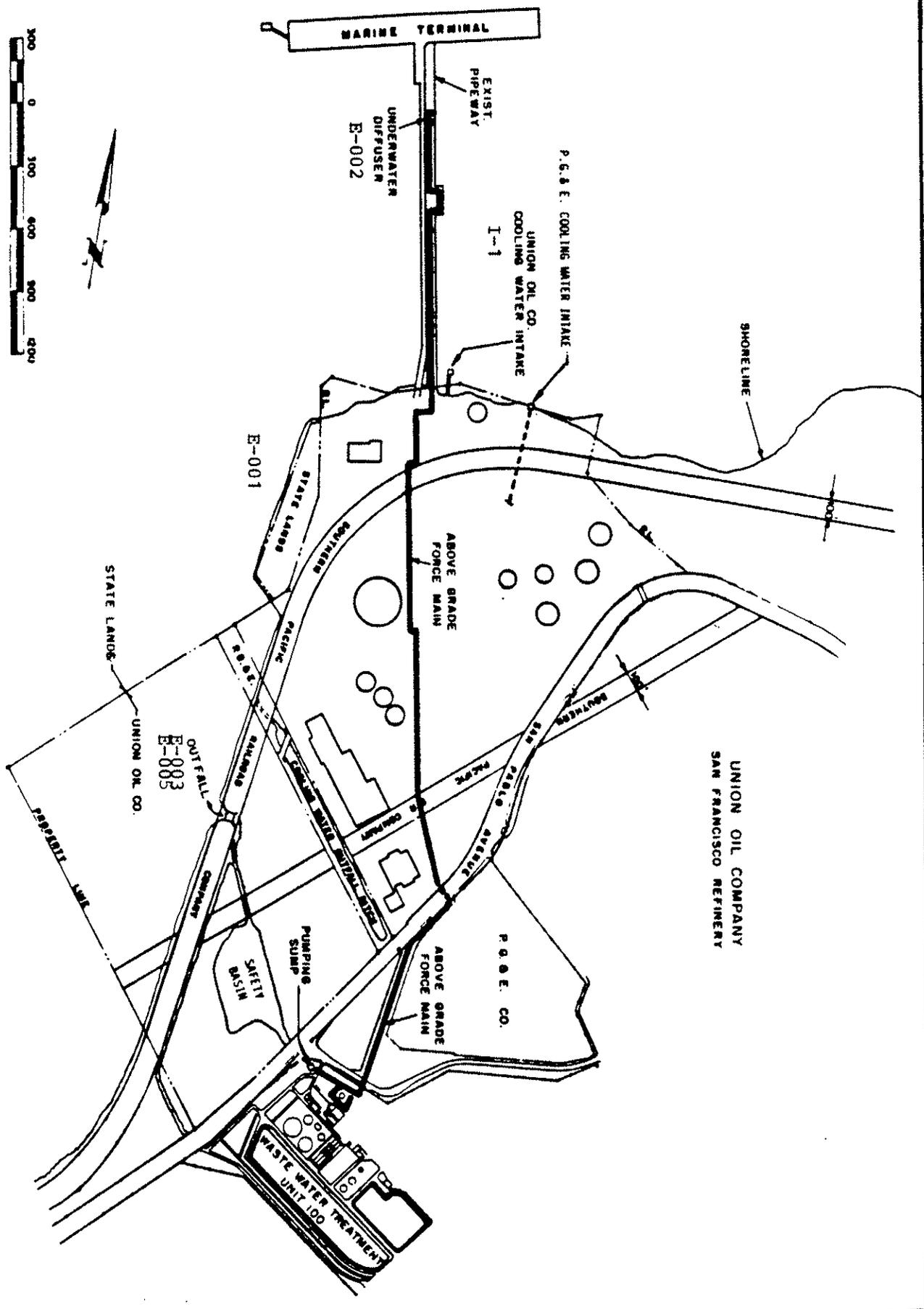
DATE	BOD (KG/D)	TSS (KG/D)	OCG (KG/D)	PHENOL (KG/D)	TOTAL CHROME (KG/D)	HEX. CHROME (KG/D)

Maximum Daily Limit = Effluent Limit A.1. + Stormwater Allocation  
 (Daily Max in kg/day) (Daily Max)  
 Stormwater Allocations = Effluent Limit A.2. x Daily Processed Stormwater x 3.785 l/gal  
 (Daily Max in mg/l) (in mgd)

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

MONTH: \_\_\_\_\_  
YEAR: \_\_\_\_\_

	Allocation	A.i. Total Effluent
Monthly Average	Storm Runoff-Ballast Water Flow Factor (expressed in thousand Gals/day) x (kg / 1000 Gals.) = (kg / day)	+ Effluent Limits = Limit (kg / day)
30-Day Average BOD <sub>5</sub>	x 0.098 =	+ =
Limits- TSS	x 0.079 =	+ =
Sign (kg / day)	0.22	+ =
TOC	x 0.68 =	+ =
COD	x 0.03 =	+ =
O&G	x 0.00064 =	+ =
PHENOL	x 0.00079 =	+ =
TOTAL CHROME	x 0.00011 =	+ =
HEX CHROME	x 0.00011 =	+ =



UNION OIL COMPANY  
SAN FRANCISCO REFINERY

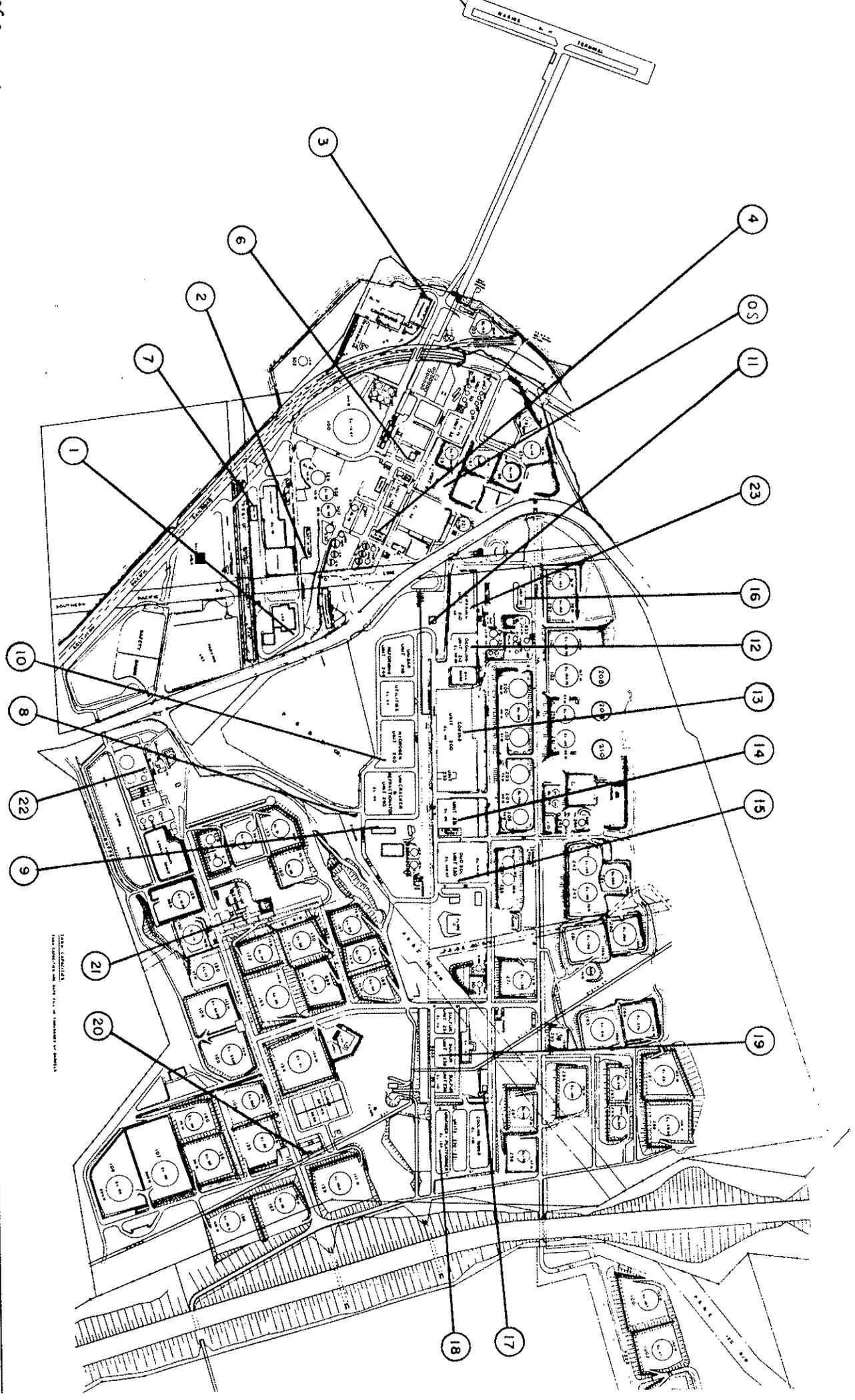


Figure II.

Unocal Rodeo Refinery, Sanitary Waste Sampling Locations

12/21/88 DCB