

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER 94 - 144
SITE CLEANUP REQUIREMENTS FOR

EXXON COMPANY, U.S.A.,
EXXON MARKETING TERMINAL, BENICIA.

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

1. Facility Location. Exxon Company U.S.A., Marketing Department, (hereinafter called the Discharger), owns and operates a refined petroleum distribution terminal, (hereinafter called the facility or Exxon marketing terminal), located at 3410 East 2nd Street in the City of Benicia, Solano County.
2. Facility Operation The Facility, receives refined petroleum products from the nearby Exxon refinery's Day tank storage field. In the past the products consisted of LPG, diesel and leaded gasoline but presently, the discharger ships mostly unleaded gasoline. Products are shipped from the facility to other bulk terminals and service stations. About 5 million barrels per day of products are shipped from the site via pipelines and tanker trucks. The operation of this facility has resulted in spills, leaks and release of petroleum products into soil and groundwater.
3. Facility Wastewater Discharge The Facility waste water generation consist of stormwater, groundwater and surface runoff which are pumped into the refinery's drain and treatment system. The refinery's waste water treatment and discharges are currently regulated by Board Order No. 90 - 096, NPDES Permit No. CA0005550, adopted June 20, 1990. The refinery's process waste water and contaminated stormwater runoff are treated at the on-site wastewater treatment plant.
4. Purpose of Order. The purpose of this order is to add to the requirements of Order 91 - 094 and do not supersede Order 91 - 094. This order directs the process of investigation and cleanup of spills, leaks and contamination relating to organic and inorganic sources at the Exxon marketing terminal.
5. Facility Description. The facility is bounded to the south and northeast by the Exxon refinery, east second street and an undeveloped plot to the northwest. Structures contained in the facility includes the loading rack and nearby five above ground fuel additive tanks, the vapor recovery unit and the close underground condensed fuel storage tank, a truck maintenance garage and a nearby 2000 gallon waste oil tank, and the office building. Figure 1 attached shows the facility plan view.
6. Site History The facility is located in a former knoll area which has been cut and filled. The facility is now relatively flat with a top elevation of about 183 feet msl and an area of about 11.4 acres. At the northeast and southeast edge of the facility the topography changes into a 30 feet to 50 feet slope descent toward the refinery. In the past, underground storage tanks were used to store fuel additives, waste oil and gasoline recovered from the vapor recovery unit. Presently the discharger has removed most of the underground tanks and has replaced these with aboveground storage tanks.

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7. Geology / Hydrogeology According to the report¹, Benicia overlies the Mesozoic - age sedimentary and igneous rocks of the Franciscan assemblage, which have been deformed by a series of folding and faulting. This folding and faulting has produced complex geologic lithology consisting of shale, sandstone, chert and volcanic rocks. Locally the Franciscan assemblage is overlain by the great valley sequence (GVS) of interbedded sandstone, shale and conglomerate which was deposited within a deep marine environment. As faulting and uplifting continued in this GVS low lying areas have been filled by alluvial and shallow marine sediment consisting of interbedded gravel, sand, silt and clay. Shallow groundwater is generally found in these alluvial deposits. A summary of local stratigraphy and hydrogeology are as follows:

- a. The report¹ indicates that the facility originally consisted of a knoll with steep sided slopes. In constructing the facility the knoll was cut and cut material was used as fill in mostly lower lying areas such that the facility is relatively flat at present. The native engineered fill range from 2 feet in the vicinity of east second street to over 40 feet in the eastern section of the facility. The fill is underlain by colluvium consisting of a red brown clayey silt layer. The colluvium is underlain by intensely fractured and weathered bedrock which consists of siltstone with interbedded sandstone.
- b. The report¹ indicates the presence of a shallow water table groundwater body. The shallow groundwater exhibits have varying potentiometric levels of about 179 feet msl in the vicinity of east second street to about 133 feet msl in the vicinity of well 214 (figure 2). Apparently, groundwater follows the old topography before filling and flows from the northwest (east second street) to the east and south toward the refinery day tank field and process block. Seasonal fluctuations range from 3.5 feet to over 13 feet within a wet / dry season cycle. Hydraulic conductivity from a previous investigation (report⁶) ranged from 3.4×10^{-4} cm/sec (1 ft/day) to 3.7×10^{-5} cm/sec (0.11 ft/day). Average seepage velocity calculated is 280 feet/year. However seepage velocity may range from 100 feet/year to 800 feet/year downgradient of the former location of the fuel additive tanks.

8. Groundwater Contamination Groundwater samples from monitoring wells installed in the vicinity of the facility have been analyzed for contaminants and the results are documented in various technical reports^{1,2}, including the self monitoring program reports. The following is summary of contaminant concentrations from monitoring wells in the vicinity of the facility as documented in the reports:

- a. In the report¹, total petroleum hydrocarbon concentrations as gasoline and diesel were as high as 33 mg/l and 2.5 mg/l respectively. Volatile organics concentrations were as high as 1.5 mg/l for benzene and 3.0 mg/l for ethyl benzene, toluene, and xylene. Semi - volatile organic compounds that were detected include benzene, ethyl-benzene, toluene and xylene, methyl phenol, 2- methyl naphthalene, naphthalene, phenol,
- b. The October 1993 quarterly monitoring report², documented detection of volatile and semi volatile organic compounds in the vicinity of the facility. The analysis results indicate concentrations of TPH as gasoline and diesel upto 24 mg/l and 8.6 mg/l. Volatile organic compound concentrations were upto 3.1 mg/l for Benzene, 0.056 mg/l for toluene, 0.051 mg/l for ethyl benzene and 3.0 mg/l for xylene. The semi volatile organic compounds detected include benzene, ethyl-benzene, toluene and xylene, methyl phenol, 2- methyl naphthalene, naphthalene and phenol. Metal contamination was not included in the analysis but, previous quarterly sampling and analysis results have indicated metal contamination.
- c. The 1992 assessment report¹ detected metals in the groundwater samples. Maximum concentrations of antimony is up to 0.012 mg/L, Arsenic is upto 0.014 mg/L, Barium up to 0.82 mg/L, chromium up to 0.04 mg/L, lead upto 0.004 mg/l and nickel up to 0.056

mg/L.

- d. Most groundwater contamination exists in the loading / fuel additive tank areas. Although soil in the vapor recovery unit (VRU) area is contaminated by hydrocarbon pollutants, only sporadic occurrences of organic contaminants have been recorded in groundwater. An improved groundwater monitoring system in the VRU will be required to ensure the consistent detection of contaminants if present.

9. Soil Contamination: Soil samples from installed monitoring wells have been chemically analyzed for contaminants and the results were documented in various technical reports^{1,3,4,5,6}. The operation of the terminal has caused degradation of the soil beneath which continues to provide a source of groundwater degradation. The following summarizes contaminant concentrations described in the reports:

- a. Table 5, page T-16 of the report¹, summarizes the analytical results of soil samples collected in borings which were converted into monitoring wells. TPH as gasoline, diesel, and oil were as high as 1200 mg/kg, 27 mg/kg and 85 mg/kg respectively. Volatile organics compounds were detected in concentrations as high as 11 mg/kg for benzene, 110 mg/kg for toluene, 180 mg/kg for ethyl - benzene, 880 mg/kg for xylene.
- b. In addition, a previous soil sampling and analysis results was also summarized in Table 5, page T - 18 of the report¹. Soil samples were collected from various depths of the borings and mostly from the vapor recovery unit area of the facility. The analysis indicate concentrations of TPH as gasoline and oil as high as 2000 mg/kg and 1000 mg/kg respectively. Concentrations of benzene were as high as 7.5 mg/kg. The highest concentration detected from analysis for toluene, ethyl - benzene and xylene is 160 mg/kg.
- c. Following an October 9, 1992 petroleum hydrocarbon spill in the vapor recovery unit area, some of the impacted soil was excavated. Prior to back filling, the discharger sampled the perimeter and bottom of the excavation. The results of the soil analysis was documented in Table 1 of report³ and indicates that hydrocarbon contaminated soil is left in place. Total Petroleum Hydrocarbons concentrations as gasoline ranged from less than detection limits to 22000 mg/kg. Organics (ethyl benzene, toluene and xylene) concentrations were as high as 340 mg/kg for ethylbenzene, up to 1000 mg/kg of toluene, up to 1600 mg/kg of xylene and up to 160 mg/kg of benzene. Further soil investigation and analysis in the vapor recovery unit area is documented in Table 3 of the report⁴ and continues to indicate hydrocarbon contamination.
- d. In April of 1993, the discharger removed portions of a concrete surface from the loading area. Petroleum odors were reported from excavated area and soil analysis of the excavated area indicated high hydrocarbon concentrations as indicated in Table 1 of report⁵. The concrete has been replaced and subsequent soil samples from borings installed in the area indicates that organic contaminants remain in place. The results of the soil analysis is documented in Table 2 of the report⁵. Contaminant concentrations were as high as 3200 mg/kg for TPH as gasoline, 9.5 mg/kg for benzene and 8.0 mg/kg, 65 mg/kg, 140 mg/kg for toluene, ethylbenzene and xylene respectively.
- e. As documented by the report¹, only samples from boring 222, which is upgradient, are analyzed for metal contamination. Metal present in the soil includes arsenic, barium, chromium, copper, lead, mercury, nickel, vanadium and zinc. More soil analysis from the facility is needed to define metal soil contamination at the site, including definition of natural and caused sources

10. Remedial Actions: Two major areas of soil and groundwater contamination occur in the vicinity

of the vapor recovery unit and the loading rack area. As the spills and leaks occurred the discharger applied immediate response measures including soil excavation and bailing of product and groundwater. However, contaminated soil remains in places and continues to provide a source for groundwater contamination. Further remedial actions will be needed to reduce soil contamination and protect groundwater as follows:

- a. Spills and leaks associated with the operation of the VRU system has resulted in soil contamination and sporadic occurrences in groundwater. The Board has approved a soil vapor extraction system (SVE) which is to be installed in the VRU area. Some limitations of the SVE system as an effective remedial option include the presence of some less porous clay material, the presence of semivolatile organics and oil which may not easily volatilize. Complementary remedial actions may be required if consistent groundwater contamination is noted. The present monitoring system needs to be reviewed with additional wells installed, if necessary, at locations where groundwater contamination is likely to occur.
 - b. Spills at the loading rack and leaks from a former fuel additive underground tank have resulted soil and groundwater contamination. Groundwater continues to be contaminated and the plume continues to migrate offsite. Remedial action at the loading rack area shall insure reduction of source concentration and containment of the plume to eliminate offsite migration. The monitoring system shall be reviewed with additional wells installed, if necessary, to detect of site migration from all possible places.
11. Spill History. Hydrocarbon releases have occurred in the facility. The probable sources of the spills / releases includes the aboveground and underground tanks, pipelines and product loading rack. Observed releases include the April 1987 discovery of product sheen at the bottom of the excavation pit for removal of underground tanks, the August 31, 1990 release of about 2000 gallon of gasoline from the vru, the October 1992 spill of hydrocarbon in the vru area and the discovery of contaminated soil following the April, 1993 excavation of the concrete surface.

GENERAL FINDINGS

12. Chemicals of Concern. Soil and ground water contaminants and parameters consist of total petroleum hydrocarbons as gasoline, diesel, and total oil and grease, benzene, toluene, ethylbenzene, xylene and other volatile and semi volatile organic compounds. Metals, including antimony, barium, arsenic, chromium, lead, nickel and selenium were detected in soil or groundwater.
13. Water Quality Goals. Pursuant to California Water code section 13000 the Board may regulate activities which affects the quality of waters of the state to obtain the highest water quality. Article 5 of Chapter 15 specifies the water quality monitoring and response programs for waste units. Background water quality shall be established as goals for the waste units regulated by this Order pursuant to Article 5 of Chapter 15 and the San Francisco Bay Region Water Quality control plan.
- a. The background water quality is considered non - detectable for total petroleum hydrocarbons, total oil and grease, and benzene, toluene, ethylbenzene, and xylene, other volatile organic and semi volatile organic compounds according to test methods specified in the attached Self Monitoring Program.
 - b. Concentrations of inorganic constituents and parameters have been detected in soil and groundwater. In addition, the naturally occurring concentrations have not been

defined. Further study will be needed to determine the appropriate water quality protection standards for inorganics at the facility.

14. Cost Reimbursement. Pursuant to Section 13304 of the Water Code, the Discharger is hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order.
15. Beneficial Uses.
 - a. Surface Waters. The existing and potential beneficial uses of the Suisun Bay, Carquinez Strait, Beaver Creek and Sulphur Spring Creek are:
 - (1) Industrial Process and Service Supply;
 - (2) Navigation;
 - (3) Water Contact Recreation;
 - (4) Non-Contact Recreation;
 - (5) Ocean Commercial and Sport Fishing;
 - (6) Wildlife Habitat;
 - (7) Preservation of Rare and Endangered Species;
 - (8) Fish Migration and Spawning;
 - (9) Shellfish Harvesting, and;
 - (10) Estuarine Habitat.
 - b. Groundwater. The Discharger indicates that groundwater at the site is not utilized for drinking water purposes. The potential beneficial uses of groundwater in the vicinity of the facility are Industrial and domestic water supply from both deep and shallow aquifers.
16. Basin Plan. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986 and amended it August 19, 1987, July 18, 1989, December 11, 1991 and August 1994. In addition, the State Water Board adopted state wide plans for enclosed bays, estuaries and inland surface water bodies in April 11, 1991. These Basin Plans contain water quality objectives and beneficial uses for San Francisco Bay and contiguous surface and ground water including the water bodies identified in "Finding 39" of this Order. This Order implements the water quality objectives for the north San Francisco Bay as stated in the Basin Plan.
17. California Environmental Quality Act. This action is exempt from the provisions of the California Environmental Quality Act pursuant to Section 15308, Title 14 of the California Code of Regulations "Action by Regulatory Agencies to Protect the Environment"
18. Notification. The Board has notified the discharger and interested agencies and persons of its intent to prescribe a Site Cleanup Requirements for the discharge and has provided them with the opportunity to submit their written views and recommendations.
19. Hearing. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, that the discharger or its agents, successors or assigns, in order to meet the provisions of Division 7 of the California Water Code, shall comply with the following:

A. PROHIBITIONS

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect the beneficial uses of the waters of the State of California is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State of California is prohibited. Significant migration shall be deemed to occur if:
 - a. Constituent concentrations exceed or equal established water quality protection standards at points of compliance.
 - b. Incidents, activities directly or indirectly caused by Discharger, which is deemed or suspected to cause further migration of contaminants at existing discharge areas or currently applied discharge.
3. Activities, associated with the subsurface investigation and site cleanup, that cause significant adverse migration of pollutants are prohibited, except as approved by the Executive Officer of the Board.
4. Wastes shall not be disposed of in any way, where they can be carried from the disposal site and discharged into waters of the State or of the United States.
5. The treatment, discharge, or storage of wastes or materials which may impact the beneficial uses of ground and surface water shall not be allowed to create a condition of pollution or nuisance as defined in sections 13350 of the California Water Code.

B. SPECIFICATIONS

1. General Specification _ The Discharger shall abide by the following specifications:
 - a. The storage, handling, treatment or disposal of soil or groundwater containing pollutants shall not create a nuisance as defined in Section 13050(m) of the California Water Code.
 - b. The discharger shall carry out remedial actions for the contaminated areas at the site in a manner acceptable to the Executive Officer.
 - c. If groundwater extraction and treatment is considered as part of remedial activity, the feasibility of water reuse, reinjection, and disposal to the sanitary sewer must be evaluated. Based on the Regional Board Resolution 88-160, the discharger shall optimize, with a goal of 100%, the reclamation or reuse of ground water extracted. The discharger shall not be found in violation of this Order if documented factors beyond the discharger's control prevent the discharger from attaining this goal, provided the discharger has made a good faith effort to attain this goal. If reuse or reinjection is part of a proposed alternative, an application for Waste Discharge Requirements may be required. If discharge to waters of the State is part of a proposed alternative, an application for an NPDES permit must be completed and submitted, and must include the evaluation of the feasibility of water reuse, reinjection, and disposal if groundwater quality standards are exceeded to the sanitary sewer.
 - d. The discharger shall operate the facility so as not to cause a significant difference to exist between water quality at the compliance points and Water Quality Protection Standards to be established for the following applicable parameters. The discharger shall establish water quality protection standards as approved by the Board, according to the requirements of this Order and

Article 5 of Chapter 15 for the following minimum parameters:

pH;
Electrical conductivity;
Total dissolved solids;
Chloride;
Total petroleum hydrocarbons as gasoline;
Total petroleum hydrocarbons as diesel;
Total petroleum hydrocarbons as kerosene;
Total oil and grease;
Metal Contaminants, and;
Volatile and semi volatile Organics

- e. The concentrations of indicator parameters or waste constituents in waters passing through points of compliance, (as defined in the Self Monitoring Program) , shall not exceed the Water Quality Protection Standards, established by the provisions of this Order.
- f. The waste units areas shall not cause migration of wastes to adjacent geologic materials, groundwater, or surface water, throughout the operation, closure, and post closure periods pursuant to the provisions of Chapter 15.

C. PROVISIONS

1. The discharger shall, in a timely manner, submit work descriptions and draft technical reports to Board staff for all technical reports required in these Provisions. The discharger may be assessed monetary penalties for late or incomplete technical reports required by these Provisions.
2. The discharger shall be liable , pursuant to Section 13304 of the Water Code, to the Board for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the site addressed by this order is enrolled in a state Board managed reimbursement program, reimbursement shall be made pursuant to this order and according to the procedures established in that program. Any disputes raised by the discharger over the reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures of that program.
3. The discharger shall comply with the Prohibitions and Specifications above, in accordance with the following time schedule and tasks:
 - a. VRU Area. The Board has approved a plan to install a soil vapor extraction system at the VRU area. As stated in the June 3, 1994 approval letter, the Board may require additional remedial action if consistent groundwater contamination occurs and soil vapor shall be continuously withdrawn without intentional interruption except as approved by the Board. In addition, sampling / analysis, volume and mass of recovered contaminants as well as a summary performance evaluation of the SVE system shall be reported in conjunction with the quarterly self monitoring reports. The following specific reports shall be submitted to the Board in accordance with the following schedule:
 - (1) The discharger shall prepare an amended remedial plan report which reviews the monitoring system in the VRU area. The report must, as

minimum, include contaminant areal and depth extent with graphic crosssections, review of adequacy of the number and spacing of monitoring wells, and provide the description of depth and intervals of screening. The report shall include a better description of the perched groundwater zone where free product has been found in the past and recommendation for improved monitoring system. In addition the report shall contain preliminary as built plans, scaled detail drawing, cost estimates, descriptions and documents relevant to the SVE the project.

Report Due: No later than February 16, 1995.

- (2) The discharger shall submit a certification of construction report as acceptable to the Executive Officer. The report must contain detailed as - built design, specifications and a description of all working parts of the SVE system. The report shall contain first the performance evaluation of system as well as analysis of extracted gas samples.

Report Due: No later than April 17, 1995.

b. Loading Rack Area. The discharger shall submit the following technical reports:

- (1) A Workplan, acceptable to the Executive Officer for soil and groundwater remediation in the loading rack area. The plan must include as a minimum, the detailed consideration of alternatives for soil and groundwater remediation as well as off site containment of migration. The plan shall include detailed cost estimates for the considered alternative and evaluation of efficiency, feasibility, and effects of each alternative.

Report Due: No later than April 17, 1995.

- (2) A preliminary report documenting the design, specification and description of the chosen remedial alternative shall be submitted to the Board for approval. The report shall include operation, maintenance and compliance plans for the loading rack areas.

Report Due: No later than July 17, 1995.

- (3) The discharger shall submit a certification of construction and report as acceptable to the Executive Officer. The report must contain detailed as built design, specifications and a description of all working parts of the system. The report shall contain the first performance evaluation of system.

Report Due: No Later Than January 17, 1996

c. Post Earthquake Inspection and Corrective Action Plan. The discharger shall submit a detailed Post Earthquake Inspection and Corrective Action Plan for the remedial systems installed, to be implemented in the event of any earthquake generating ground shaking of Richter Magnitude 5.3 or greater at or near the facility. The report shall describe the containment features, and ground water monitoring and leachate control facilities potentially impacted by the static and seismic deformations in the facility. The plan shall provide for preliminary reporting of the post earthquake inspection to the Board within 18 hours of the occurrence of the earthquake. Immediately after an earthquake event causing

damage to the facility, the corrective action plan shall be implemented and this Board be notified of any damage.

Report Due: No later than the workplan due dates for the facility as indicated in Provisions 3.a. or 3.b.

- d. Ground Water Quality Protection Standards. The discharger shall submit in accordance with the requirements of Article 5 of Chapter 15 a report on the groundwater quality at the site that proposes facility water quality protection standards for the constituents listed in the Specifications of this Order.

Report Due: No later than the report due dates for the facility indicated in Provisions 3.a.(2), and 3.b.(3).

4. The discharger shall maintain a copy of this order at the project field office so as to be available at all times to project personnel.
5. The discharger's technical reports under subparagraph 3.a, 3.b, 3.c and 3.d hereof shall consider the guidance provided by the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California".
6. Technical reports, submitted by the discharger, in compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted to the Board on the schedule specified herein. These reports shall consist of a letter report that includes the following:
 - a. A summary of work completed since submittal of the previous report and work projected to be completed by the time of the next report;
 - b. Identification of any obstacles which may threaten compliance with the schedule of this Order and what actions are being taken to overcome these obstacles;
 - c. In the event of non-compliance with any Prohibition, Specification or Provision of this Order, written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order, and;
 - d. In the first self-monitoring report, an evaluation of the current ground water monitoring system and a proposal for modifications as appropriate.
7. All submittal of hydrogeological plans, specifications, reports, and documents (except quarterly progress and self-monitoring reports), shall be signed by and stamped with the seal of a registered geologist, registered engineering geologist, or registered professional civil engineer.
8. All samples shall be analyzed by State certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.
9. The discharger shall maintain in good working order, and operate as efficiently as possible, any facility or control system installed to achieve compliance with the

- ments of this Order.
10. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, submitted by the discharger, shall also be provided to the following agencies:
 - a. City of Benicia, Planning Department;
 - b. Solano County Health Department, and;
 - c. California EPA, DTSC.

 11. The discharger shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code, the following:
 - a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order;
 - b. Access to copy all records required to be kept under the terms and conditions of this Order;
 - c. Inspection of any monitoring equipment or methodology implemented in response to this Order; and,
 - d. Sampling of any ground water or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.

 12. The discharger shall file with this Board a report of any material change or proposed change in the character, location, or quantity of this waste discharge. For the purpose of these requirements, this includes any proposed change in the boundaries, contours, or ownership of the disposal if ground water quality standards are exceeded areas.

 13. The Board considers the discharger, Exxon Company, the property owner and site operator to have a continuing responsibility for correcting any problems within their reasonable control which arise in the future as a result of this waste discharge or water applied to this property during subsequent use of the land for other purposes.

 14. These requirements do not authorize the commission of any act causing injury to the property of another or of the public, do not convey any property rights, do not remove liability under federal, state or local laws, and do not authorize the discharge of waste without the appropriate federal, state or local permits, authorizations, or determinations.

 15. If hazardous substances or designated waste is discharged in or on any waters of the state, or discharged and deposited in any place where it may be carried off to, or probably will be discharged in or on any waters of the state, the discharger shall report such discharge / incidents to the following:
 - a. This Regional Board at (510) 286-1255 on weekdays during office hours from 8 a.m. to 5 p.m.; and,
 - b. The Office of Emergency Services at (800) 852- 7550.

Hazardous and designated substances include wastes and chemicals as defined in Title 22 and Title 23 of the California code of Regulation and the California Water Quality control Act. A written report shall be filed with the Regional Board within five working

days and shall contain information relative to the following:

- c. The nature of waste or pollutant;
 - d. The quantity involved and the duration of incident;
 - e. The cause of spill;
 - f. The estimated size of affected area;
 - g. The corrective measures that have been taken or planned, and a schedule of these measures; and,
 - h. The persons/agencies notified.
16. This Order is subject to Board review and updating, as necessary, to comply with changing State and Federal laws, regulations, policies, or guidelines; changes in the Board's Basin Plan; or changes in the discharge characteristics.
17. This Order amends Order No. 91 - 094. Order No. 91 - 094 remains in effect.
18. If, for reasons beyond the control of the discharger, the discharger is delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the discharger shall promptly notify the Executive Officer and the Board may consider revision to this Order.
19. This Order is subject to Board review and updating, as necessary, to comply with changing state or Federal Laws, regulations, policies, or guidelines; changes in the Board's Basin plan; or changes in the discharge characteristics.

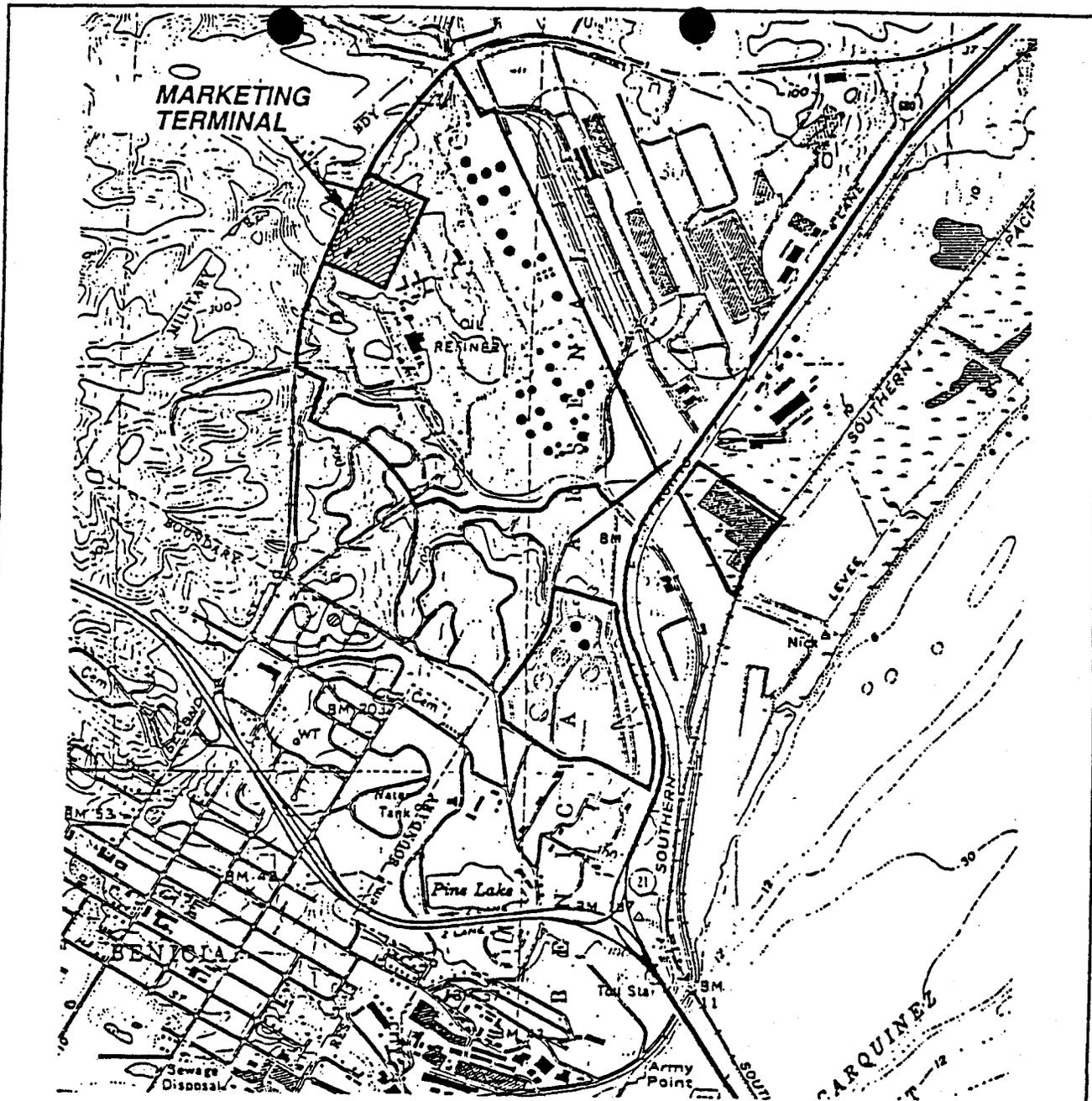
I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on October 19, 1994.



Steven R. Ritchie
Executive Officer

Attachments:

Figure 1: Vicinity Map, Exxon Marketing Terminal
Figure 2: Map of Area 2, Exxon Marketing Terminal
References
Self Monitoring Program



EXPLANATION

REFINERY PROPERTY

0 2000 4000

SCALE IN FEET

REFINERY NORTH

TRUE NORTH

NOTE:
 THE REFINERY COORDINATE SYSTEM IS BASED UPON AN ASSUMED ORIENTATION. THE REFINERY NORTH IS APPROXIMATELY 35 DEGREES WEST OF TRUE NORTH (C.F. BRAUN & CO. OCT. 1966, DRAWING NO. 2922-133-CD-29).

REFERENCE: FROM THE FOLLOWING U. S. G. S. 7.5' TOPOGRAPHIC QUADRANGLES BENICIA AND VINE HILL, CALIFORNIA, DATED 1980 AND 1959 RESPECTIVELY.

Vicinity Map

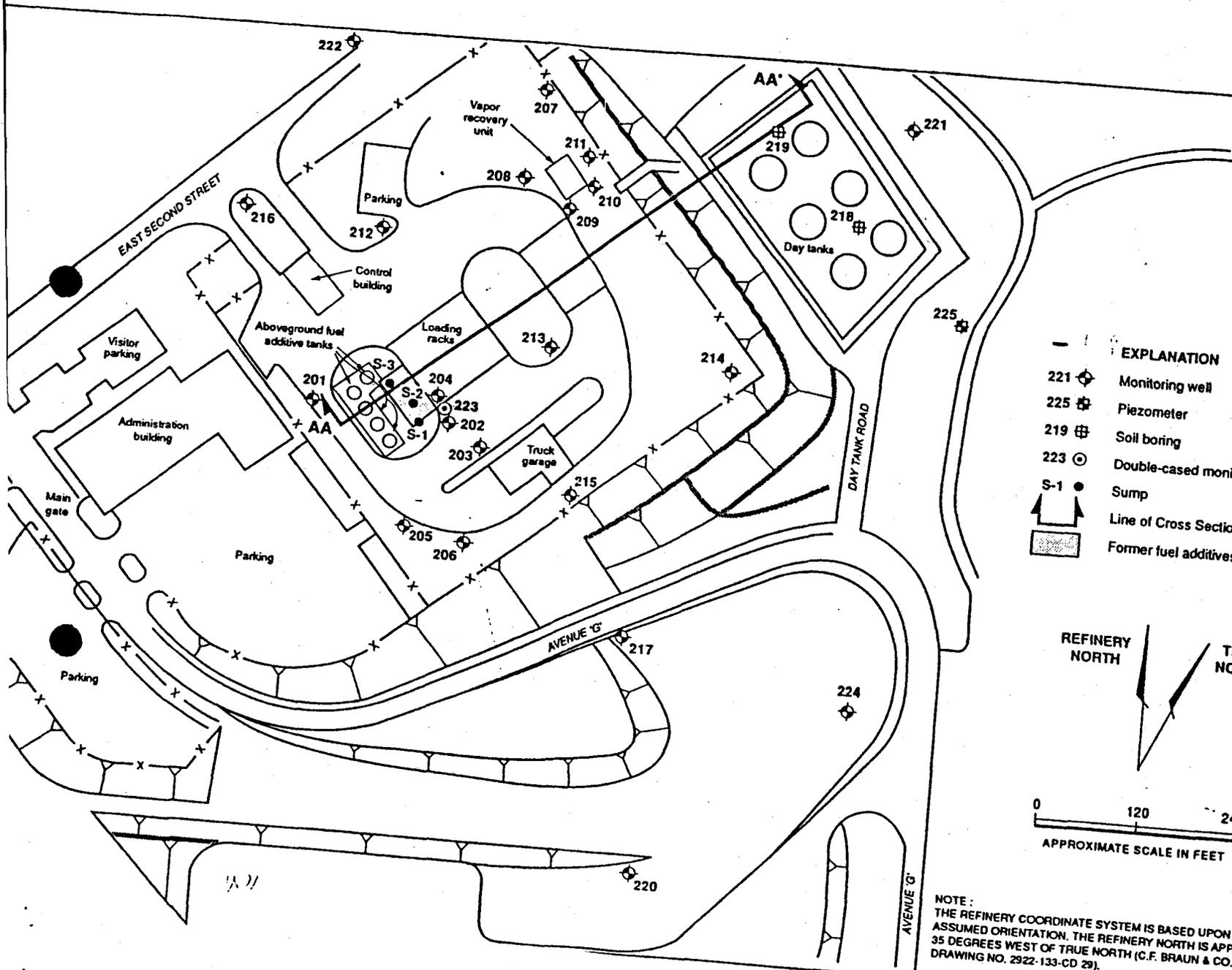
Marketing Terminal
 Exxon Refinery
 Benicia, California

FIGURE 1

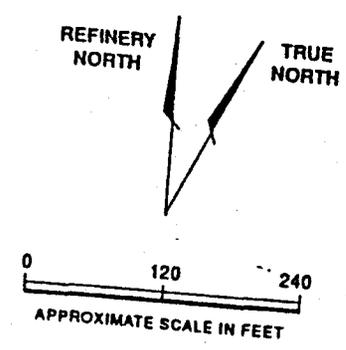
APPROVED

DATE
 9/29/92

REVISED DATE



- EXPLANATION**
- 221 ◊ Monitoring well
 - 225 ⊛ Piezometer
 - 219 ⊞ Soil boring
 - 223 ⊙ Double-cased monitoring well
 - S-1 ● Sump
 - Line of Cross Section AA-AA'
 - ▨ Former fuel additives UST location



NOTE :
 THE REFINERY COORDINATE SYSTEM IS BASED UPON AN ASSUMED ORIENTATION. THE REFINERY NORTH IS APPROXIMATELY 35 DEGREES WEST OF TRUE NORTH (C.F. BRAUN & CO. OCT. 1966. DRAWING NO. 2922-133-CD 29).

Map of Area 2

REFERENCES

1. ASSESSMENT REPORT VOLUME 1 – AREA 2: MARKETING TERMINAL, SEPTEMBER 30, 1992.
2. QUARTERLY MONITORING REPORT OCTOBER 1993: EXXON MARKETING TERMINAL BENICIA , FEBRUARY 22,1994.
3. WORK PLAN FOR SOIL AND GROUNDWATER ASSESSMENT/ REMEDIATION, FEBRUARY 26, 1993.
4. SOIL ASSESSMENT – VAPOR RECOVERY UNIT, BENICIA MARKETING TERMINAL, FEBRUARY 3, 1994.
5. SOIL INVESTIGATION RESULTS, BENICIA MARKETING TERMINAL, MAY 4, 1994.
6. SOIL AND GROUNDWATER INVESTIGATION , EXXON MARKETING TERMINAL, BENICIA, SEPTEMBER 3, 1991.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

EXXON COMPANY U.S.A., MARKETING DEPARTMENT

3410 East Second ST.,

BENICIA, SOLANO COUNTY

SITE CLEANUP REQUIREMENTS
ORDER NO. 94 - 144

CONSISTS OF

PART A

AND

PART B

PART A

A. General

1. Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.
2. The principal purposes of a self-monitoring program by a waste discharger are the following:
 - a. To document compliance with Waste Discharge Requirements and prohibitions established by the Board;
 - b. To facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge;
 - c. To develop or assist in the development of standards of performance, toxicity standards and other standards; and,
 - d. To prepare water and wastewater quality inventories.

B. Sampling And Analytical Methods

1. Sample collection, storage, and analyses shall be performed according to the most recent version of Standard Methods for the Analysis of Wastewater, and Test Methods for Evaluating Solid Waste EPA Document SW-846, or other EPA approved methods and in accordance with an approved sampling and analysis plan.
2. Vapor and soil waste analysis shall be performed by a laboratory approved for these analyses by the State Department of Health. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.
3. 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 a discrete sample collected at any time.
2. Duly authorized representative is a duly authorized representative may thus be either a named individual or any individual occupying a named position such as the following:
 - a. Authorization is made in writing by a principal executive officer; or,
 - 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.

D. Schedule Of Sampling, Analysis, And Observations

1. The discharger is required to perform sampling, analysis, and observations according to the schedule specified in Part B, and the requirements in Article 5 of Chapter 15.
2. A statistical analysis shall be performed and reported annually as described in the current revision of Appendix II of Chapter 15.

E. Records To Be Maintained By The Discharger

1. Written reports shall be maintained by the discharger for ground water monitoring and wastewater sampling, and shall be 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 Board. Such records shall show the following for each sample:
 - a. Identity of sample and sample station number;
 - b. Date and time of sampling;
 - c. Method of composite sampling (See Section C-Definition of Terms);
 - d. Date and time that analyses are started and completed, and name of the personnel performing the analyses;
 - e. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used. A reference to a specific section of a reference required in Part A Section B is satisfactory;
 - f. Calculation of results;
 - g. Results of analyses, and detection limits for each analyses; and,
 - h. Chain of custody forms for each sample.

F. Reports To Be Filed With The Board

1. Ground water monitoring results shall be filed monthly until the schedule allows quarterly samples, then reports shall be quarterly or semi annually as approved in the March 10, 1994. Written self-monitoring reports shall be filed no later than 45 calendar days following the end of the report period. In addition an annual report shall be filed as indicated. The reports shall be comprised of the following:
 - a. Letter of Transmittal - A letter transmitting the essential points in each self-monitoring report should accompany each report. Such a letter shall include a discussion of any requirement violations found during the last report period, and actions taken or planned for correcting the violations, such as, operation and/or facilities modifications. 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. If no violations have occurred in the last report period this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer at the level of vice president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the

best of the signer's knowledge the report is true, complete, and correct. 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. Each monitoring report shall include a compliance evaluation summary sheet. Until the Order's amended to specify ground water protection standards, the following shall apply and the compliance sheet shall contain:
 - i. The method and time of water level measurement, the type of pump used for purging, pump placement in the well, method of purging, pumping rate, equipment and methods used to monitor field Ph, temperature, and conductivity during purging, calibration of the field equipment, results of the Ph, temperature conductivity and turbidity testing, well recovery time, and method of disposing of the purge water; and,
 - ii. Type of pump used, pump placement for sampling, a detailed description of the sampling procedure; number and description of equipment, field and travel blanks; number and description of duplicate samples; type of sample containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations; the chain of custody record.
- c. A summary of the status of any remediation work performed during the reporting period. This shall be a brief and concise summary of the work initiated and completed as follows:
 - i. As interim corrective action measures; and,
 - ii. To define the extent and rate of migrations of waste constituents in the soil and ground water at the site.
- d. The discharger shall describe, in the quarterly report, the reasons for significant increases in a pollutant concentration at a well on site. The description shall include the following:
 - i. The source of the increase;
 - ii. How the discharger determined or will investigate the source of the increase; and,

- iii. What source removal measures have been completed or will be proposed.
 - e. A map or aerial photograph showing observation and monitoring station locations, and plume contours for selected chemical in each aquifer shall be included as part of the quarterly Self-Monitoring Report.
 - f. Laboratory statements of results of analyses specified in Part B must be included in each report. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Board. The following information shall be provided:
 - i. The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review; and,
 - ii. In addition to the results of the analyses, laboratory quality control/quality assurance (QA/QC) information must be included in the monitoring report. The laboratory QA/QC information should include the method, equipment and analytical detection limits; the recovery rates; an explanation for any recovery rate that is less than 80%; the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.
 - g. By March 31 of each year the discharger shall submit an annual report to the Board covering the previous calendar year. This report shall contain:
 - i. Tabular and graphical summaries of the monitoring data obtained during the previous year;
 - ii. 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 Site Cleanup Requirements; and,
 - iii. A written summary of the ground water analyses indicating any change in the quality of the ground water.
- G. In the event the discharger violates or threatens to violate the conditions of the Site Cleanup Requirement and prohibitions due to:
- 1. Maintenance work, power failures, or breakdown of waste treatment equipment, or;
 - 2. Accidents caused by human error or negligence, or;
 - 3. 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. Such daily analyses shall continue 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.

Part B

A. Description Of Observation Stations And Schedule Of Observations

1. The observation stations shall consist of the ground water monitoring wells, sampling points on the SVE system and such stations as may be indicated by the Board. The siting, location and number of the observation stations shall comply with article 5 of Chapter 15 as approved by the Executive Officer. Proposed observation station shall be included in the remediation plan for the facility.
2. The schedule of observations and grab sampling shall be conducted quarterly within the months of January, April, July and October or as approved in a proposed groundwater monitoring program.

B. Observations and Test Procedures

1. The observations for groundwater wells and other points shall consist of the following as applicable:
 - a. Water elevation reported to the nearest 0.1 inch for both depth to water from the ground surface and the elevation of the ground water level;
 - b. Groundwater temperature measured at the time of sampling and reported in degrees Fahrenheit;
 - c. Groundwater electrical conductivity measured at the time of sampling as per Standard Methods 205 using potentiometric methodology;
 - d. Groundwater pH measured at the time of sampling as per Standard Methods 423 using potentiometric methodology; and,
 - e. Groundwater turbidity measured at the time of sampling.
2. The test procedures for the ground water samples, vapor and soil samples shall consist of the following as applicable:
 - a. Volatile aromatic compound analysis using the EPA Method 5030/8020;
 - b. Total dissolved solids using a gravimetric method;
 - c. Total Petroleum Hydrocarbons and Fuel Hydrocarbons using the EPA Method 5030/8015 (Modified); and,
 - d. Total Oil and Grease using Standard Methods 418.1, infrared analysis.
 - e. Metals using EPA approved methods.
 - f. Salinity, Alkalinity and chloride using standard approved methods

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

1. Developed in accordance with the procedures set forth in this Board's Resolution No. 73-16;
2. Effective on the date shown below; and,
3. May be reviewed or modified at any time subsequent to the effective date, upon written notice from the Executive Officer, or request from the discharger.

October 19, 1994
Date Ordered



Steven R. Ritchie
Executive Officer