

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER No. 93 - 076

SITE CLEANUP REQUIREMENTS FOR:

ARCO PRODUCTS COMPANY
RICHMOND TERMINAL, RICHMOND, CONTRA COSTA COUNTY

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

Description of Discharger

1. Arco Products Company, (hereinafter called the Discharger) owns and operates a petroleum fuel storage and distribution facility (hereinafter called the Facility), at Richmond terminal in the City of Richmond. Prior to development the facility was a tidal wetland. The Facility currently receives and distributes gasoline, diesel fuel, lubricating oil, gasoline additives, and jet fuel which are stored in on-site above ground petroleum storage tank.

Location of Facilities

2. Richmond terminal is about a 45 acre Facility located at 1306 Canal Boulevard in the City of Richmond. The Facility has two major areas as follows:
 - a. The "Lower Terminal Area" is a 28 acre unit bounded by the UNOCAL Richmond Oil Terminal to the North, Canal Boulevard to the west and Santa Fe Channel to the east. The truck loading rack, ship on/off loading dock, train car off loading rack, two tank farms, underground tanks, and office building are all located in the Lower tank farm area.
 - b. The "Upper Terminal Area" is a 17 acre area bounded to the east, west and south by the City of Richmond port facility and is bounded to the north by an East Bay Regional Park property. Primary contents of this area are aboveground petroleum storage tanks.

Lithology (Lower Terminal Area)

3. Due to releases at the truck loading portion of this area, the Discharger has investigated the lithology of to a maximum depth of 25 feet below ground surface. A March 1991 "Report of Subsurface Assessment" prepared by "HART CROWSER Earth and Environmental Technologies" identified two distinct soil layers as follows:
 - a. Fill /Sandy Layer - This is the uppermost soil layer of the Facility and consists of 4 inches to 10 inches of concrete or asphalt cover underlain by about 8 feet of heterogenous fill material consisting of boulders, gravel, sand, silt, and construction debris.
 - b. Silty Clay layer - This is the native soil underlying the fill zone and consists of

unconsolidated marine intertidal material deposited as an irregularly layered sequence of clay and silty clay. Occasional fine sand lenses and fine angular gravel are found within this layer. Thickness of the layer is not defined because it stretches upto the 25 feet depth of the borings.

- c. In general, other areas of the Lower tank farm have not been investigated and therefore it is not clear that the described lithology applies to the rest of the area.

Lithology (Upper Terminal Area)

4. The discharger has not conducted any subsurface investigation in this area. However, Regional studies by the discharger indicates that the aboveground tanks in the upper terminal area may be located in an area of very thin soil horizon and then immediately underlain by sandstone, shale, chert and greenstone bedrock of the Franciscan Formation.

Hydrology (Lower Terminal Area)

5. The Discharger investigated the shallow (<25 feet) hydrology of a portion of the (truck loading rack) of the lower terminal area. Saturated groundwater conditions was encountered in the sandy and Silty Clay layer at about 3.5 feet to 25 feet below ground surface. The groundwater gradient in the truck loading rack is about 0.0011 ft/mile and has a southern flow direction. The hydraulic conductivity of the permeable fill and silty clay layer was not measured.

Facility Drainage / Discharge Systems (Lower Terminal Area)

6. Over the years the Facility has managed its storm water drainage and discharge systems as follows:
 - a. Storm water from the truck loading rack, railcar unloading rack, truck refueling dock, graveled area as well discharges from the laboratory and warehouse is discharged to the facility's oil/water separator system. The oil/water separator system consist of storage tanks, skimmers, ozone injection chambers and activated carbon units. Effluent from the system is discharged to the City of Richmond waste treatment plant.
 - b. Tank water bottom draw from tanks in containment areas and storm water from lube oil truck loading rack drains to a sump which is pumped to holding tanks No. 53 and 54. Oily water from the holding tanks is sent through the oil/water separator. Storm water collected in the containment areas is discharged through valves in the diked walls, discharged through underground piping to the oil / water separator in the case of contamination and drains into the ground below because the containment area is covered with gravel underlain by native soil. The Discharger states that discharge from the containment area occurs after due inspection of the collected storm water
 - c. Stormwater from other area of the Lower tank farm are discharged to the Santa Fe channel or onto Canal Boulevard through a system of connected under ground storm drain lines.
 - d. The Facility has a stormwater NPDES Discharge Permit Number 2 07S002986 issued by the state of California State Water Resources Control Board. The Facility's industrial waste is discharged to the City of Richmond POTW and has a an industrial Waste discharge permit issued by the City's Department of Public Works. The discharger does not operate any groundwater treatment system at this time.

Facility Drainage / Discharge Systems (Upper Terminal Area)

7. Tank water bottom draw is piped to tanks 53 and 54 in the lower tank farm. Storm water in the tank containment areas are either allowed to drain below ground or discharged through valves to the street after due inspection by the operator.

Facility Spill/ Releases

8. A review of the discharger's spill/release history indicates that the discharger has reported three known releases since 1990. Spill history prior to 1990 is not available. The three releases are described as follows:
 - a. The March 30, 1990 "Report of Tank Removal" prepared by HART CROWSER, INC. indicated the observation of a release during the removal of two underground tanks in the facility. Free phase hydrocarbon was observed on groundwater in one of the tank excavations (diesel additive tank). The discharger indicates that the minimal additive release drained from attached piping at the time that the piping was disconnected
 - b. The report "Site Assessment Report, Phase 2 Soil and Groundwater Assessment, September 23, 1992" indicated that a release of hydrocarbon (seepage from concrete cracks in the truck loading dock area) was observed by Facility personnel in November of 1991. Subsequent investigations indicated soil and groundwater contamination.
 - c. The Board was notified of a November 1, 1992 release which occurred in the lower tank farm containment of lower Terminal area. The discharger indicated that over 300 gallons of gasoline additive was released as a result of tank over fill. The windblown additive material covered approximately 600 square feet of surface soil immediately to the north of storage tank # 32. The investigation and remediation of this release will be combined with other site assessment work to be completed at the terminal.

Groundwater Contamination (Lower Tank Farm Area)

9. A March 1991 "Report of Subsurface Assessment" at the truck loading rack documented the installation three monitoring wells (MW1, MW2, MW3). About 0.05 inch (MW1) to 0.1 inch (MW2) of free liquid phase hydrocarbon were noted in the drillings logs. In addition, the drilling logs indicated strong sulfur odor. The report indicates that groundwater samples were not analyzed due to the observation of hydrocarbon sheen in all three wells following development.
10. The March 1990 "Report of Tank Removal Arco Richmond Terminal Richmond" indicated that free liquid phase petroleum hydrocarbon was observed at the bottom of the excavation during the tank removal activity near the truck loading rack. The report indicates that the release was observed in the diesel additive tank excavation alone and was thought to be additive drained from a disconnected piping. Groundwater samples were not analyzed.
11. The discharger conducted an Investigation due to a release of gasoline additive observed seeping out of the concrete cracks at the truck loading area. The report "Site Assessment Report Phase 2 Soil and Ground Water Assessment, September 23, 1992" indicated groundwater contamination in the 3 temporary monitoring wells sampled. Total Petroleum Hydrocarbon concentrations using USEPA method 8015 modified were up to 93,000 ug/L for gasoline and 51,000 ug/L for diesel. Volatile organic concentration using USEPA method 8020 were up to 3,800 ug/L for Benzene, 1,900 ug/L for Toluene, 1,900 ug/L for Ethyl-benzene 8,500 ug/L for

Xylene. Semi volatile organic concentration using USEPA method 8240 was up to 1,200 ug/L for Methylene chloride.

Groundwater Contamination (Upper Terminal Area)

12. Subsurface groundwater investigations has not been conducted in this area. The discharger indicates that elevation of the upper terminal is higher than the lower terminal elevation by about 60 feet to 100 feet. Although, groundwater in this area may be at considerable depth below ground surface, the hydraulic head that could be provided by a full leaking tank or system may be enough to cause a downward gradient.

Soil Contamination (Lower Terminal Area)

13. During investigations documented in the September 23, 1992 "Site Assessment Report Phase 2 Soil and Groundwater Assessment" the Discharger installed five soil borings and collected several soil samples from various depths and locations near the truck loading dock of the lower terminal area. In general the borings were advanced no more than 5 feet below ground surface except for boring SB-4. The discharger indicates that sampling depths of 2.5 feet and 5 feet was chosen because groundwater is about 5 feet bgs. A summary of the analysis of the soil samples is as follows:
 - a. Soil samples analyzed for Total Petroleum Hydrocarbon as gasoline (EPA method 8015 modified) were as high as 42,000 mg/kg at 5 feet depth in soil boring (SB- 1) and 90 mg/kg at 10 feet below ground surface in SB-4;
 - b. Soil samples analyzed for Total Petroleum Hydrocarbon as Diesel (EPA method 8015 modified) were as high as 2,600 mg/kg at 2.5 feet below ground surface in soil boring (SB- 1) and 2,000 mg/kg at 5 feet below ground surface in SB-4;
 - c. Soil samples analyzed for volatile organic (EPA method 8020) had concentrations of benzene as high as 530 mg/kg at 2.5 feet depth in SB-1, toluene as high as 2,000 mg/kg at 2 feet depth, xylene as high as 6000 mg/kg at 2.5 feet depth, Ethyl benzene as high as 1,000 mg/kg at 2.5 feet depth and, methanol as high as 26,000 mg/kg at 2.5 feet depth below ground surface.

Contamination at Unocal's Richmond Petroleum Storage Terminal.

14. Unocal's Richmond Terminal is directly north of The ARCO's Richmond Facility (Lower Tank Farm Area). The January, 1993 "Quarterly Groundwater Sampling Report" submitted by Unocal to this Regional Board, indicates that free phase hydrocarbon and groundwater contamination exists in the southern part of the terminal. The contaminated area is directly across from the Discharger's Facility. The report indicates that groundwater flow direction is in the north - south direction (from Unocal's southern part towards the discharger's northern area of the lower tank).

Responsible Parties in a release, spill or Pollution condition

15. It has been the practice of this Boards, after consideration of available information, to require all parties that have contributed to a condition of pollution, or that threatens to cause a condition of pollution or nuisance, to take actions to abate that condition. In the event that a condition of pollution is identified and adequate data does not exist to reliably determine the source of this condition, the Board will require the property owner or facility operator to take the steps

necessary to abate the condition and its effects or to provide information regarding the source of the pollution.

Groundwater Remedial Actions.

16. Groundwater contamination was discovered in about March of 1990. The Discharger has not instituted remedial actions to date. Interim free phase product recovery and groundwater remedial actions may be needed in the truck loading area where contamination is known to occur. To define the overall groundwater condition in the Facility, the discharger will need to conduct a comprehensive site investigations. Areas discovered to have free phase product or high concentration of contaminant indicators shall have interim remedial action instituted pending more detail investigations and remedial actions.

Soil Remedial Actions

17. Petroleum hydrocarbon has been released into the underlying soil. Soil cleanup action has been limited to a few areas. The extent of soil contamination in the Facility is not known. More investigations will be required to define the extent of contamination.

Investigations Required

18. Tank Farms - Subsurface and surface investigations will be necessary in the upper and lower terminal tank farms to determine the soil and groundwater conditions. No previous investigation were conducted in these tank farms. Our records indicates that past operations of various aboveground petroleum storage facilities have caused releases of contaminants into the soil and ground water. This facility has experienced releases to the soil and groundwater.
19. Truck Loading Dock - The truck loading dock is within the "Lower Terminal Area". Soil and groundwater contamination as well as free phase hydrocarbon has been discovered in this area. The discharger has conducted some limited investigation in this portion, however the extent of soil and groundwater contamination has not been clearly defined.
20. Characterization of the entire facility is required to determine the extent and existence of areas of contamination. Currently, a contaminated groundwater plume exists at the Arco / Unocal boundaries area and may be spreading. The contaminated truck loading area may be contributing to spreading plumes. Any release from the terminals, as well as past use of locations may be contributing to soil and groundwater contamination.
21. Additional investigations may be required to properly define areas of off site and on site migration of hydrocarbon plume.

Cost Recovery

22. The Executive Officer has notified the Discharger that pursuant to Sections 25270.9 and 25270.11 of Chapter 6.67, Division 20 of California's Health and Safety Code, the Discharger shall be liable to the extent of the reasonable costs actually incurred in overseeing or contracting for cleanup or abatement efforts. The Discharger has agreed to reimburse the State according to Sections 25270.9 and 25270.11.
23. Pursuant to Section 13304 of the Water Code, the Discharger is hereby notified that the Regional Board is entitled to, and may seek reimbursement (except where reimbursement is provided in the above finding) for, all reasonable costs incurred by the Regional Board to

investigate unauthorized discharges of waste and oversee cleanup of such waste, abatement of the effects thereof, or remedial action, required by this Order. Upon receipt of a billing statement for such costs, the discharger shall reimburse the Regional Board.

Basin Plan

24. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986 and amended it on August 19, 1987, July 18, 1989, December 1991 and September 16, 1992. This Order implements the water quality objectives for the Basin Plan.

Beneficial Uses

25. The existing and potential beneficial uses of the Richmond Harbor Channel are:
- a. Water contact recreation;
 - b. Non-contact water recreation;
 - c. Wildlife Habitat;
 - d. Preservation of Rare and Endangered Species;
 - e. Estuarine Habitat;
 - f. Fish migration and spawning;
 - g. Industrial service supply;
 - h. Navigation; and,
 - i. Commercial and Sport Fishing.
26. The existing and potential beneficial uses of the ground water in the area are:
- a. Municipal Supply.
The investigations shall include tests for salinity and total dissolved solid which will help in determination of potential municipal use of the shallow and deeper groundwater bodies;
 - b. Industrial Process and Service Supply; and,
 - c. Agricultural Supply.

California Environmental Quality Act

27. This action is exempt from the provisions of the California Environmental Quality Act pursuant to Section 15321, Title 14 of the California Code of Regulations.

Notice and Meeting

28. The Board has notified the Discharger and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup 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.
29. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code and Section 25270 of the California Health and Safety Code, that the Discharger shall cleanup and abate the effects described

in the above findings as follows:

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 is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. Activities which will cause significant adverse migration of pollutants are prohibited.
4. The discharge of contaminated groundwater or recovered free phase liquid petroleum hydrocarbons onto land, into groundwaters or surface waters is prohibited except when permitted by an appropriate authority.

B. Specifications

1. The storage, handling, treatment or disposal of soil or ground water containing pollutants shall not create a nuisance as defined in Section 13050(m) of the California Water Code.
2. Where they exist, the Discharger shall conduct free phase liquid petroleum hydrocarbons recovery activities to the extent feasible as approved by the Executive Officer, to remove all free phase liquid petroleum hydrocarbons beneath the Facility.
3. The Discharger shall remediate soil and groundwater contamination as approved by the Executive Officer, to the extent feasible which actually or threatens to degrade water quality or adversely affect the beneficial uses of the waters of the State as approved by the Executive Officer.
4. The Discharger shall investigate and undertake remedial action with respect to the possible offsite migration of contaminants through groundwater and surface run off as approved by the Executive Officer and to the extent feasible.
5. The Discharger shall conduct groundwater monitoring according to the Self Monitoring Program attached to this Order or as hereinafter modified by the Executive Officer.
6. In all cases relating to Specifications 2, 3 and 4 of this Order, the Board shall give due consideration to its stated practice pursuant to Findings 15 of this Order as it concerns responsible parties to a condition of pollution.

C. Provisions

The Discharger shall comply with the Prohibitions and Specifications above according to the following task and time schedule:

1. Submit technical reports, acceptable to the Executive Officer, relating to the evaluation of soil and groundwater contamination at the Lower Tank Farm Area of the Facility. The report shall include, but not necessarily limited to a reports documenting surface and subsurface investigations as follows.

- a. A plan for subsurface investigation of the soil and groundwater hydrocarbon contamination in the lower tank farm and other portions of the lower Terminal Area. The plan shall at the least include proposed methods of obtaining the information required in Provision 1.b. below.

REPORT DUE: No later than November 20, 1993.

- b. Submit a technical report documenting the completion of the planned task as requested in Provision 1.a. above. The report shall include detailed documentation including but not limited to site historical and present use, hydrology and geology of site, site run off/run on sources, Subsurface sources and extent of contaminant onsite/ offsite migration, well installation methods, detailed drillers log, description of groundwater and soil analysis in tables, quality assurance / quality control of test data, methods of sampling and analysis and, a detailed summary/interpretation of information gathered due to this investigation. The borings shall be continuously cored to total depth. Points of sampling and analysis shall be at intervals indicating contamination, at intervals of lithologic changes and sampling attempts should be made to define the vertical extent of contaminated intervals.

REPORT DUE: No Later Than April 30, 1994.

2. The Discharger shall proceed with the evaluation of contamination and remedial options acceptable to the Executive Officer, relating to the contaminated soil and groundwater at the Lower Terminal Truck Loading Dock as follows:

- a. Submit to this Regional Board a plan for the investigation of horizontal and vertical extent of soil and groundwater contamination in the Truck Loading Dock. The plan shall include proposal to conduct both surface and subsurface soil and groundwater investigation.

REPORT DUE: No later than November 20, 1993;

- b. Submit a technical report documenting the completion of the planned task as requested in Provision 2.a. above. The report shall include detailed documentation including but not limited to site historical and present use, hydrology and geology of site, site run off/run on sources, Subsurface sources and extent of contaminant onsite/ offsite migration, well installation methods, detailed drillers log, description of groundwater and soil analysis in tables, quality assurance / quality control of test data, methods of sampling and analysis and, a detailed summary/interpretation of information gathered due to this investigation. The borings shall be continuously cored to total depth. Points of sampling and analysis shall be at interval indicating contamination, at intervals of lithologic changes and sampling attempts should be made to define the vertical extent of contaminated intervals.

REPORT DUE: No Later than April 30, 1994.

- c. Submit a remedial plan for contaminated soil and groundwater. The plan shall include remedial alternatives, time schedule for implementation and suggested remedial option. The Discharger's technical reports under this subparagraph hereof shall include a projection of the cost, effectiveness, benefits, and impact

on public health, welfare, and environment of each alternative measure. The plan shall include proposal for soil cleanup levels. The reports 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" and California Regional Water Quality Control Board, San Francisco Bay Region's Guidance Document, "Discharge of Polluted Groundwater to Surface Waters, September 1985".

REPORT DUE: No later than July 31, 1994.

3. Submit technical reports, acceptable to the Executive Officer, relating to the evaluation of soil and groundwater contamination at the Upper Terminal Area of the Facility. The report shall include, but not necessarily limited to a report documenting surface and subsurface investigations as follows:

- a. A plan for subsurface investigation of the soil and groundwater hydrocarbon contamination in the Upper Tank Farm Area.

REPORT DUE: No later than November 20, 1993.

- b. Submit a technical report documenting the completion of the planned task as requested in Provision 2.a. above. The report shall include detailed documentation including but not limited to site historical and present use, hydrology and geology of site, site run off/run on sources, subsurface sources and extent of contaminant onsite/ offsite migration, well installation methods, detailed drillers log, description of groundwater and soil analysis in tables, quality assurance / quality control of test data, methods of sampling and analysis and, a detailed summary/interpretation of information gathered due to this investigation. The borings shall be continuously cored to total depth. Points of sampling and analysis shall be at interval indicating contamination, at intervals of lithologic changes and sampling attempts should be made to define the vertical extent of contaminated intervals.

REPORT DUE: No Later than April 30, 1994.

4. The Discharger shall submit a plan proposal acceptable to the Executive Officer for the installation of tank bottom monitoring systems pursuant to Section 25270.7 (c) of the California Health and Safety Code (Aboveground Petroleum Storage Act). The plan shall indicate for each tank, the method of compliance with the section of the code mentioned. A schedule for the implementation of the proposal shall be provided.

REPORT DUE: No Later than July 1, 1994.

5. The discharger shall submit to this Board a summary report of all releases in the Facility and any remedial actions taken to abate the effect.

REPORT DUE: No Later than October 16, 1993.

6. The Discharger shall institute and conduct groundwater monitoring program as stated in the Self Monitoring Program attached.

7. The Discharger is required to reimburse the State for all reasonable costs of the State

incurred in overseeing or contracting for cleanup or abatement efforts.

8. 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.
9. 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 groundwater monitoring system and a proposal for modifications as appropriate.
10. All submittals 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 engineer.
11. 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.
12. 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 requirements of this Order.
13. 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. Contra Costa County Health Department; and,
 - b. California Environmental Protection Agency, Department of Toxic Substances Control. Reports shall be provided, only at the request of the agency.
14. 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 groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the Discharger.
15. The Discharger shall file with this Board a report of any material change or proposed changes in the character, location, or quantity of contaminated soil and groundwater within the Facility. The report shall include any proposed change in the boundaries, contours, or ownership of the Facility. The report may be included in the regular quarterly self monitoring reports.
16. The Board considers the property owner and site operator to have a continuing responsibility for correcting any pollution problems within their reasonable control which arises as a result of past and present pollution applied to the property during use of the land.
17. 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.
18. If any hazardous substance, extracted groundwater or petroleum hydrocarbon is discharged in or on any waters of the state, or discharged and deposited, or probably will be discharged in or on any waters of the state, the Discharger shall
- a. Report such discharge to the following:
 - (1) This Regional Board at (510) 286-1255 on weekdays during office hours from 8 a.m. to 5 p.m.; and,
 - (2) The Office of Emergency Services at (800) 852-7550.
 - b. A written report shall be filed with the Regional Board within five working days and shall contain information relative to the following:
 - (1) The nature of waste or pollutant;
 - (2) The quantity involved and the duration of incident;
 - (3) The cause of spill;
 - (4) The estimated size of affected area;
 - (5) The corrective measures that have been taken or planned, and a schedule of these measures; and,
 - (6) The persons/agencies notified.

19. The Board will review this Order periodically and may revise the requirements when necessary.
20. If 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 shall consider revision to this Order.

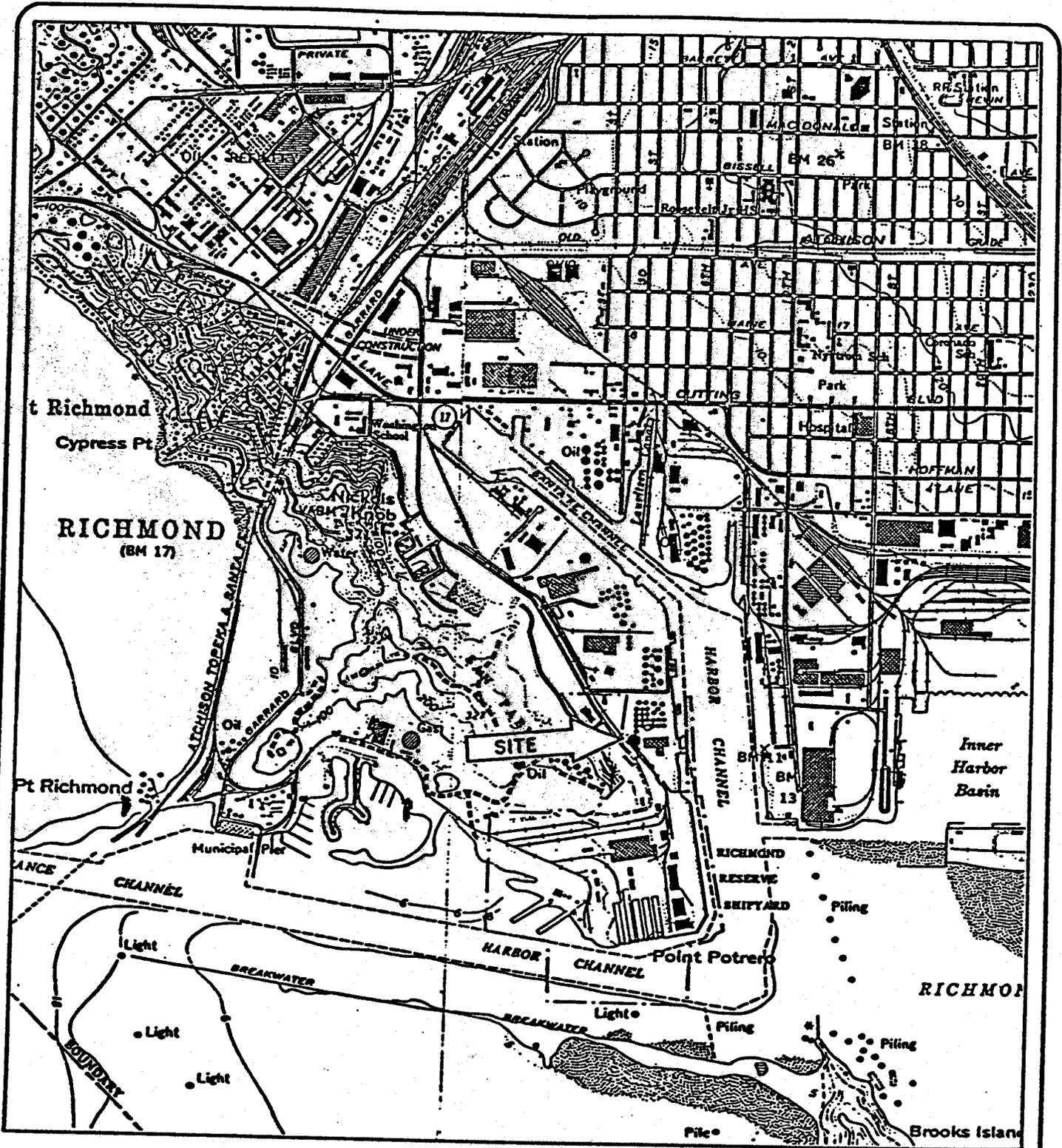
I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on July 21, 1993.



Steven R. Ritchie
Executive Officer

Attachments:

- Figure 1: Site Location Map
- Figure 2: Site Plan (Lower Terminal Area)
- Figure 3: Site Plan (Upper Terminal Area)
- Attachment: Self Monitoring Program



Reference: USGS Richmond and San Quentin 7.5' Quadrangles
 Scale: 1:24,000



GERAGHTY & MILLER, INC.
Environmental Services
 Project No. RC07702 December 1991

SITE LOCATION
 ARCO Products Company
 Richmond Terminal, Facility #16T
 Richmond, California

FIGURE
1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

ARCO PRODUCTS COMPANY

RICHMOND TERMINAL

1306 CANAL BOULEVARD

RICHMOND, CONTRA COSTA COUNTY

SITE CLEANUP REQUIREMENTS
ORDER NO. 93 - 076

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 Site Cleanup 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. Water and waste analysis (except total suspended solids) 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 of this self monitoring program and Chapter 15, Division 3, Title 23 of the California Code of Regulation.

E. Records To Be Maintained By The Discharger

1. Written reports shall be maintained by the Discharger for groundwater 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. 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 a spider map showing contaminant or indicator concentrations for each chemical in each well or boring 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 January 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 Requirements and prohibitions or intends to experience a plant bypass or treatment unit bypass 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 such time as the effluent limits or containment 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.

Part B

A. Description Of Observation Stations And Schedule Of Observations

1. The observation stations shall consist of 3 existing groundwater monitoring wells (MW-1 to MW-3), and groundwater monitoring and recovery wells installed in a future soil and groundwater characterization, remedial work or the evaluation of remedial work.
2. The schedule of well observations and grab sampling shall be conducted quarterly and within the months of January, April, July and October.

B. Observations and Test Procedures

1. The groundwater well observations shall consist of the following:
 - 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 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.
 - f. Free phase petroleum product thickness measured using EPA approved methods.
2. The test procedures for the groundwater samples and soil samples shall be as described herein. The following section shall not apply to groundwater samples taken from wells with more than a 0.1 inch thickness of free phase petroleum hydrocarbon except in section d.:
 - a. Volatile aromatic organic compound analysis using the EPA Method 5030/8020;
 - b. Total Petroleum Hydrocarbons (TPH) and Fuel Hydrocarbons using the EPA Method 5030/8015 (Modified). Analysis shall include TPH as Total Diesel and Gasoline;
 - c. Total Oil and Grease using Standard Methods 418.1, infrared analysis;
 - d. Lead and Organic Lead using EPA Method 7420 and Department of Health Services method HML 338 respectively.

3. Quarterly reports to be filed pursuant to Part A of this Self Monitoring Program shall include a map showing the limit of groundwater contamination, direction of movement and concentration of contamination; and,

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.



Steven R. Ritchie
Executive Officer

July 21, 1993
Date Ordered