

WORK PLAN
SITE INVESTIGATION AND
FUEL RECOVERY
Pfizer Pigments Plant
Emeryville, California

Prepared for:
Pfizer Pigments Inc.
Emeryville, California

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Roux Project No. 04735W

ROUX ASSOCIATES WEST, INC.
1340 Arnold Drive, Suite 231
Martinez, California 94553
(415) 370-2275

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1.0 INTRODUCTION

1.1 Site Location and Background

This work plan presents background information and describes the proposed procedures for performing a site investigation of diesel fuel detected in the subsurface at the Pfizer Pigments Plant, 4650 Shellmound Street, Emeryville, California (site, Figure 1). Diesel fuel was detected in two ground-water monitoring wells at the site during a routine semi-annual sampling of the wells on January 22, 1990 performed by Roux Associates. The monitoring wells are adjacent to aboveground and underground fuel lines and two recently installed underground storage tanks. Following the discovery of diesel fuel in the subsurface, a pressure test was performed on the secondary containment structure for the two recently installed tanks and lines by Diablo Tank & Equipment Company of Martinez, California on January 24, 1990. The leak detectors and annular spaces surrounding the tanks were also inspected. No leaks were detected during the pressure testing or inspection (McShane, 1990).

Based on the absence of subsurface leaks as determined by the tank and line pressure testing, the source of diesel fuel in the subsurface was probably a leak from an aboveground valve that was replaced in December 1989.

An "Underground Storage Tank Unauthorized Release (Leak) Contamination Site Report" was submitted by Pfizer to the

Alameda County Department of Environmental Health on February 7, 1990. The volume of diesel fuel that was accidentally discharged is unknown. Currently, diesel fuel is periodically being recovered from two monitoring wells on site.

1.2 Scope of Work

This work plan describes three potential phases of work. The first phase will be to drill soil borings and install monitoring wells around the affected area in order to characterize and assess the extent of diesel fuel in the soils and ground water. Based on the results of the first phase, a possible second phase will consist of the excavation of a trench and recovery of free product from the ground water within the trench. The decision on whether to implement the fuel recovery will be based on the volume of fuel detected in the subsurface and the cost effectiveness of fuel recovery from the trench versus alternative remedial measures. The final phase of work described in this work plan will consist of data compilation from the site investigation and development of a permanent remediation plan for the site.

1.3 Site History

1.3.1 Description of Plant

The Pfizer plant is located in a predominantly industrial part of Emeryville (Figure 1). The plant produces iron oxide

pigments and has been in operation since 1925. Figure 2 is a plot plan of the Pfizer facility showing the location of plant buildings, soil borings, monitoring wells, and former and present tank locations.

1.3.2 Underground Storage Tanks

Two underground storage tanks are currently in place and used at the site. A 10,000-gallon diesel tank and one 1,000-gallon gasoline tank were installed east of Service Bldg. No.10 by Diablo Tank & Equipment in September, 1989. The tanks are double-walled fiberglass tanks with annular leak detection monitors and an alarm system. The tanks and lines were set and pressure tested by Diablo Tank & Equipment Company on September 20, 1989 (McShane, 1990). A pressure test on the primary containment was performed on October 10, 1989 and a pressure test on the secondary containment performed on October 11, 1989 (McShane, 1990). No leaks were detected during any of the pressure tests.

A total of 12 underground storage tanks have been removed from the Pfizer plant since 1987. An underground storage tank used for storage of waste oil and solvents was removed on December 1, 1987. The tank was a steel tank with a capacity of about 350 gallons. The tank was located within the waste oil tank pit immediately east of Service Bldg. No.10 (Figure 2). Further description of the tank removal and site investigation are presented in the Roux Associates

report titled "Underground Storage Tank Site Investigation", dated August 12, 1988.

A total of nine 10,000-gallon diesel tanks and one 10,000-gallon Bunker C fuel oil tank were removed from the tank pit south of Service Bldg. No.10 (Figure 2) on December 12th and 13th, 1989. Holes were observed in one of the diesel tanks removed on December 13, 1989. A report describing the tank removal and sampling results is in preparation.

A 1,000-gallon gasoline tank was removed from a tank pit south of Maintenance Shop Bldg. No. 6 on December 12, 1989. No gasoline was detected in soil samples from the tank pit.

1.3.3 Previous Subsurface Investigations

Two previous subsurface investigations of soil and groundwater contamination have been performed at the site.

Following removal of an underground waste oil tank from the Pfizer plant on December 1, 1987, solvents were detected in soil within the former waste oil tank pit. As a result, a site investigation which included a total of 11 soil borings and 6 monitoring wells was performed during 1988 (Roux, 1988). Acetone, 2-butanone, and hexone (MIBK) along with trace concentrations of naphthalene and methylnaphthalene were detected in ground water from monitoring well RW-4, which is within the former tank pit. Other monitoring wells at the site, including wells downgradient from the tank pit, showed not detected results for all analyses. Quarterly and semi-

annual monitoring of three wells at the site indicated that the concentrations of solvents in the former tank pit was decreasing probably due to biodegradation and that solvents had not migrated to downgradient monitoring wells (Roux 1988).

During the 1988 site investigation, oil and grease was detected in soils beneath some areas of the plant. Further investigation of the oil and grease distribution including an additional ten soil borings, was performed in 1989 (Roux, 1989). Results of the 1988 and 1989 site investigation indicated that the oil and grease present in the soil is greater than 50 years old and resulted from contamination of tidal sediments and fill emplaced along the western portion of the Pfizer plant (Roux, 1989). No oil and grease was detected in ground water.

2.0 SITE DESCRIPTION

2.1 Hydrogeology and Geology

The Pfizer Emeryville plant is located along the eastern edge of San Francisco Bay at an elevation of about seven feet above mean sea level. The current bay shoreline is approximately 1,000 feet west of Pfizer's property. A 1936 aerial photograph of the plant shows a former shoreline located along the eastern edge of present day Shellmound Street.

The sediments immediately underlying the site are artificial fill, bay mud, and alluvial fan deposits. The artificial fill consists of gravel, sand, clay, and miscellaneous refuse. The thickness of the fill under the site averages about five feet (Roux, 1989). Based on the grain size of the fill, the permeability of the fill is higher than that of the underlying bay mud.

The bay mud consists of sandy clay to clay with shells and other organic matter and underlies the artificial fill at the site. The thickness of the bay mud beneath the site appears to be about 15 feet but may be greater in places. The permeability of the bay mud is low but may vary slightly with its composition. The bay mud has been cut in places by meandering tidal channels. The old channel cuts within the bay mud may contain coarser, more permeable material. Alluvial fan sediments of the Temescal Formation underly the

bay mud.

The regional direction of ground water movement is westwards towards San Francisco Bay. Coarser lens within the bay mud beneath the site cause local variations in the direction of flow. Permeability differences within the bay mud also have a significant effect on the rate of ground water flow.

No active water supply wells are within one mile of the site. Industrial supply wells were used in the area several decades ago but are no longer in service (Roux, 1988). Several ground water monitoring wells are in close proximity to the site. The nearest monitoring wells are located a few feet west of the Pfizer property. An additional 15 monitoring wells are within the shopping center and vacant lot 100 to 500 feet west of the Pfizer plant (Alton Geoscience, 1988).

2.2 Description of Contamination and Actions Taken to Date

During routine inspection and sampling of monitoring wells at the site on January 22, 1990, diesel fuel was discovered as floating free product in wells RW-11 and RW-4. Monitoring wells RW-4 and RW-11 are near the northeastern corner of Service Bldg. No.10 (Figure 2). The monitoring wells are within a former waste oil tank pit and are adjacent to two recently installed underground storage tanks and lines.

Diesel fuel is currently bailed from monitoring wells RW-11 and RW-4 on a periodic basis. A total of about 15 gallons of

diesel fuel has been removed from the wells. Purged diesel fuel is stored in a closed top 55-gallon drum on site. The recovery of diesel fuel in the monitoring well was measured using an oil/water interface probe to help determine the thickness of diesel fuel in the surrounding formation. The initial thickness of diesel fuel measured in well RW-11 on January 22, 1989 was 2.57 feet. Following the repeated bail down of product in well RW-11, the diesel fuel has re-entered the well to a thickness of three to six inches.

3.0 PLAN FOR DETERMINING THE EXTENT OF SOIL AND GROUND-WATER CONTAMINATION

The first phase of work will consist of the drilling and sampling of soil borings and installation of monitoring wells to determine the approximate extent of hydrocarbons in the soil and ground water. The volume and extent of free product will also be estimated during the first phase. A possible second phase may consist of recovery of diesel fuel from an excavated trench. The third phase will be preparation of a summary report and remedial action plan.

3.1 Phase 1: Site Investigation

3.1.1 Soil Borings

A total of five soil borings are initially proposed within the area surrounding monitoring wells RW-4 and RW-11 (Figure 2). The soil borings are located in accessible areas that surround the free product. An additional three soil borings will be drilled beyond the initially proposed five soil borings, if needed, to further define the approximate extent of diesel fuel in soils (Figure 2). The locations of borings north of Service Bldg. No.10 are tentative due to the presence of overhead and underground obstructions within the corridor between Service Bldg. No.10 and Boiler House No.4. The locations will be adjusted in the field.

Each of the soil borings that will not be converted to a monitoring well will be drilled to a depth of 6.5 feet.

Ground water is expected to be encountered at depths of 3 to 5 feet in the soil borings. Samples will be collected at depths of 2, 3.5, and 5 feet below land surface.

With the exception of soil borings north of Service Bldg. No.10, all soil borings will be drilled using a truck mounted hollow-stem auger drilling rig. Due to severe space limitations north of Service Bldg. No.10, the two borings within the walkway north of Service Bldg. No.10 will be drilled with a hand auger or small hollow stem auger drilling rig. Soil samples will be collected using California split-spoon samplers with brass tube liners. Samples will be retrieved ahead of the auger flights by placing the sampler through the hollow stem of the augers to the bottom of the borehole and then by driving into the undisturbed sediments with a 140 lb. hammer. The California sampler will then be withdrawn from the borehole and the inside liners removed. Both ends of one liner will then be immediately covered with aluminum foil, capped with plastic end caps, and wrapped with electrical tape. The liner will then be labelled and placed on ice for transport to Curtis & Tompkins Laboratories for analysis. Soils will be analyzed for Total Petroleum Hydrocarbons as Diesel (TPH-D, Modified USEPA Method 8015). A Chain-of-Custody will be maintained for all samples collected and analyzed.

The soil in the remaining two liners will be extruded, examined, and logged by the hydrogeologist. A portion of the

sample will be placed into a glass jar and sealed with aluminum foil and a metal cap. The sealed jar will be then placed in the sun to accelerate the vaporization of volatile hydrocarbons from the soil. A photoionization meter will be used to measure the relative concentration of volatile organic compounds in the headspace of the jar.

The California sampler and liners will be cleaned between each use by scrubbing with a brush and detergent solution and then rinsing with distilled or deionized water. The augers will be steam cleaned between soil borings. Cuttings from the soil borings will be stockpiled on plastic sheeting. The cuttings will be sampled and analyzed prior to disposal. Those soil borings that are not extended to greater depths for the installation of monitoring wells will be abandoned by filling the borehole with bentonite Hole Plug and repairing the asphalt or concrete surface.

3.1.2 Monitoring Wells

Three monitoring wells will be installed at the site (Figure 2). The boreholes for each monitoring well will be a minimum of eight inches in diameter and will be drilled to a depth of 13 feet. Samples will be collected in each borehole at depths of 2, 3.5, 5, 8.5, and 12 feet below land surface. After the boreholes are drilled and sampled to a depth of 13 feet, a ten-foot long, threaded, four-inch diameter, PVC slotted (0.010-inch slot) section and an appropriate length of blank PVC riser pipe will be placed in each hole. The

screen zone will be gravel packed with Monterey No.2 sand. A one-foot thick layer of bentonite pellets will be emplaced above the sand pack. A locking well cap will be placed on the PVC pipe and a metal traffic box will be cemented in place at land surface.

The wells will be surveyed to an accuracy of 0.01 feet by a licensed surveyor. The wells will be developed by removing five to ten casing volumes of water from the well to ensure that the well screens are open to the formation. Water withdrawn from the wells will be stored in an aboveground tank or 55-gallon drums located on site.

Following development of the wells, they will be allowed to recover over a period of at least 48 hours. Water levels will be measured from the top of the PVC casing using an electronic water level meter and will be calibrated using a chalked steel tape. If free product is present, the depth to free product and depth to ground water will be measured using an electronic oil/water interface probe.

In those wells which do not contain free product, ground-water samples will be collected and analyzed for total petroleum hydrocarbons as diesel fuel and BTEX using Modified USEPA Method 8015. Prior to sampling, the wells will be purged by removing three to five casing volumes. The ground-water samples will be collected in stainless steel bailers. The pH, temperature, and conductivity of the water sample

will be measured in the field. The presence of a sheen or odor will be recorded. The samples will be placed in 40 ml vials, labelled, sealed in a plastic zip lock bag, and stored in an ice chest until delivery to Curtis & Tompkins Laboratories. Chain-of-custody documentation will be maintained throughout sample collection and transport.

3.2 Phase 2: Fuel Recovery (Optional)

Based on the results of the site investigation, a possible second phase consisting of recovery of diesel fuel from the top of the ground water surface may be implemented. The fuel recovery will be implemented if the volume of fuel detected during the site investigation indicates that fuel recovery from a trench is cost effective versus alternative remedial measures. If the fuel recovery is implemented, a trench approximately two feet wide will be excavated to a depth of approximately five feet below land surface within the area of free product. The location and length of the trench will be based upon results from the soil borings and monitoring wells. Following excavation, the trench will be covered with steel plates. Soil removed during trenching will be stockpiled on site and analyzed for TPH-D. Soils will be treated and disposed of in a manner consistent with the levels of TPH-D contamination.

Ground water and diesel fuel will be allowed to drain into the trench. Periodically, a skimmer pump will be placed in the trench to remove accumulated free product. The diesel

fuel will be pumped into 55-gallon drums at the surface. Following the removal of free product, the ground water will also be pumped from the trench. The ground water will be pumped into a storage tank or 55-gallon drums at the surface. Ground water removed from the trench and from monitoring wells during purging and development will be analyzed prior to disposal. Based on the volume of ground water that is removed, the water will be treated using an activated carbon adsorption unit or will be manifested, transported, and disposed of by Armour Petroleum Products of Fairfield, California. If the water is treated on site, the treated water will be discharged to the sanitary sewer with the permission of East Bay Municipal Utility District (EBMUD) or will be used for irrigation water. The treated water will be sampled and analyzed prior to discharge.

3.3 Phase 3: Summary Report and Remedial Action Plan

Following completion of the site investigation, a summary report will be prepared. The report will include all soil and ground-water data, a description of the methods of investigation, laboratory reports, chain-of-custody forms, disposal methods, and a plan for remediation.

Respectfully submitted,
ROUX ASSOCIATES WEST, INC.



Gregory P. Murphy
Staff Geologist



Jerry T. Wickham
Cal. Reg. Geologist No. 3766
Cal. CEG No. 1177



4.0 REFERENCES

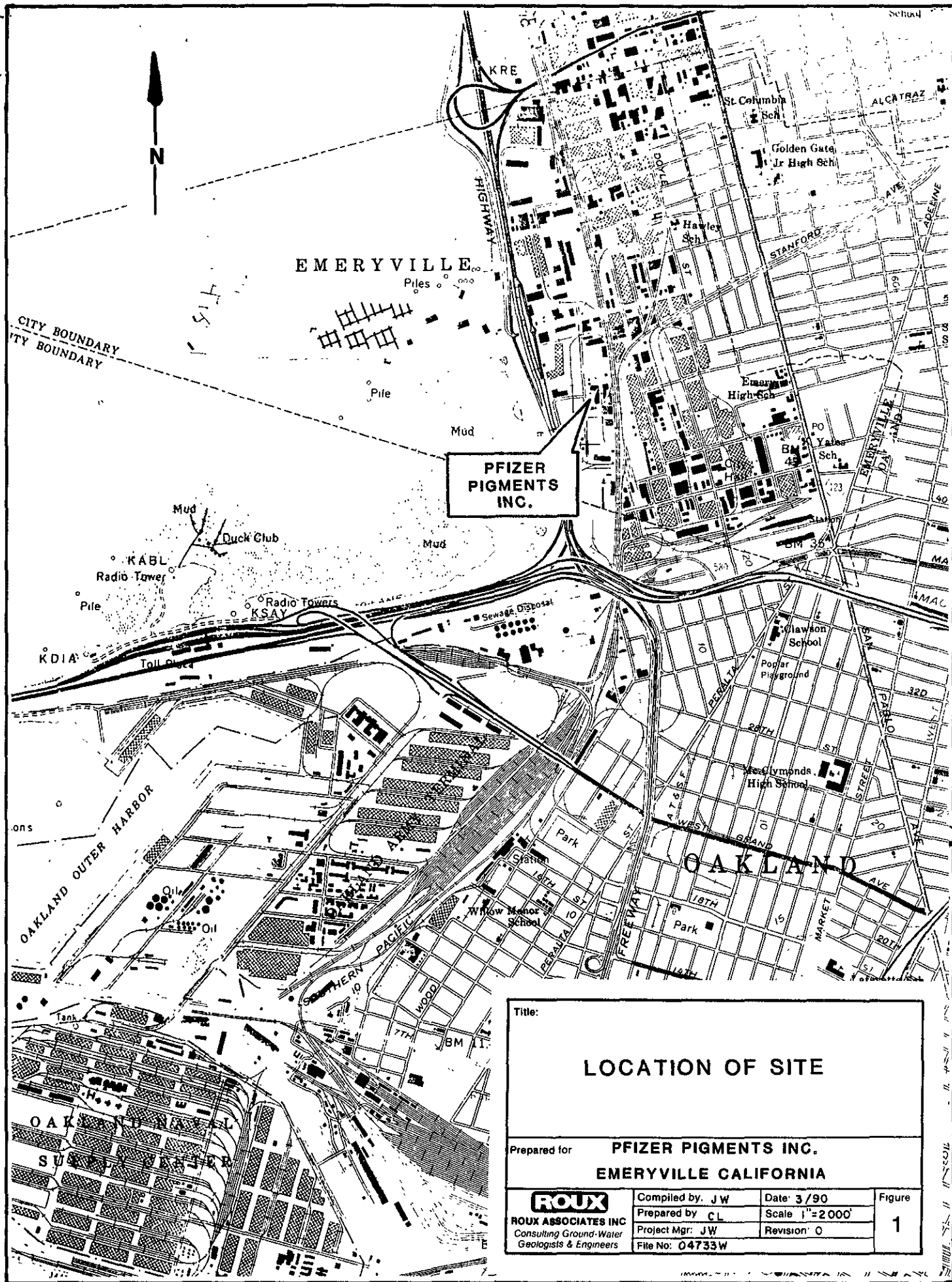
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Roux Associates West, Inc. 1988. Underground Storage Tank Site Investigation, Pfizer Pigments Plant, Emeryville, California, August 12, 1988.

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FIGURES



**PFIZER
PIGMENTS
INC.**

Title:

LOCATION OF SITE

Prepared for **PFIZER PIGMENTS INC.**
EMERYVILLE CALIFORNIA

ROUX ROUX ASSOCIATES INC Consulting Ground-Water Geologists & Engineers	Compiled by: JW	Date: 3/90	Figure 1
	Prepared by: CL	Scale: 1" = 2000'	
	Project Mgr: JW	Revision: 0	
	File No: 04733W		

APPENDIX A

UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK)
CONTAMINATION SITE REPORT

UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK) / CONTAMINATION SITE REPORT

EMERGENCY <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	HAS STATE OFFICE OF EMERGENCY SERVICES REPORT BEEN FILED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	FOR LOCAL AGENCY USE ONLY I HEREBY CERTIFY THAT I AM A DESIGNATED GOVERNMENT EMPLOYEE AND THAT I HAVE REPORTED THIS INFORMATION TO LOCAL OFFICIALS PURSUANT TO SECTION 25100.7 OF THE HEALTH AND SAFETY CODE.
REPORT DATE 0 M 2 M 0 D 6 D 9 Y 0 Y	CASE #	SIGNED _____ DATE _____

REPORTED BY	NAME OF INDIVIDUAL FILING REPORT J. N. Deblock	PHONE (415) 653-6151	SIGNATURE 	
	REPRESENTING <input checked="" type="checkbox"/> OWNER/OPERATOR <input type="checkbox"/> REGIONAL BOARD <input type="checkbox"/> LOCAL AGENCY <input type="checkbox"/> OTHER	COMPANY OR AGENCY NAME		
	ADDRESS 4608 Shellmound Street, Emeryville, CA 94608			

RESPONSIBLE PARTY	NAME <input checked="" type="checkbox"/> UNKNOWN	CONTACT PERSON	PHONE ()
	ADDRESS STREET CITY STATE ZIP		

SITE LOCATION	FACILITY NAME (IF APPLICABLE) Pfizer Pigments Inc.	OPERATOR Pfizer Pigments Inc.	PHONE (415) 653-6151	
	ADDRESS 4650 Shellmound Street, Emeryville, Alameda 94608			
	CROSS STREET Christie	TYPE OF AREA <input type="checkbox"/> COMMERCIAL <input checked="" type="checkbox"/> INDUSTRIAL <input type="checkbox"/> RURAL <input type="checkbox"/> RESIDENTIAL <input type="checkbox"/> OTHER	TYPE OF BUSINESS <input type="checkbox"/> RETAIL FUEL STATION <input type="checkbox"/> FARM <input checked="" type="checkbox"/> OTHER	

IMPLEMENTING AGENCIES	LOCAL AGENCY AGENCY NAME Alameda County Health Services	CONTACT PERSON Gil Wistar	PHONE ()
	REGIONAL BOARD Region 2 San Francisco	RW-QCB	PHONE (415) 464-1255

SUBSTANCES INVOLVED	(1) NAME Unknown diesel fuel	QUANTITY LOST (GALLONS) <input checked="" type="checkbox"/> UNKNOWN
	(2)	<input type="checkbox"/> UNKNOWN

DISCOVERY/ABATEMENT	DATE DISCOVERED 0 M 1 M 2 D 2 D 9 Y 0 Y	HOW DISCOVERED <input type="checkbox"/> INVENTORY CONTROL <input checked="" type="checkbox"/> SUBSURFACE MONITORING <input type="checkbox"/> NUISANCE CONDITIONS <input type="checkbox"/> TANK TEST <input type="checkbox"/> TANK REMOVAL <input type="checkbox"/> OTHER	
	DATE DISCHARGE BEGAN <input checked="" type="checkbox"/> UNKNOWN	METHOD USED TO STOP DISCHARGE (CHECK ALL THAT APPLY) <input type="checkbox"/> REMOVE CONTENTS <input type="checkbox"/> REPLACE TANK <input type="checkbox"/> CLOSE TANK <input type="checkbox"/> REPAIR TANK <input checked="" type="checkbox"/> REPAIR PIPING <input type="checkbox"/> CHANGE PROCEDURE <input type="checkbox"/> OTHER Valve	
	HAS DISCHARGE BEEN STOPPED? <input type="checkbox"/> YES <input type="checkbox"/> NO YES, DATE _____		

SOURCE/CAUSE	SOURCE OF DISCHARGE <input type="checkbox"/> TANK LEAK <input type="checkbox"/> UNKNOWN <input checked="" type="checkbox"/> PIPING LEAK <input type="checkbox"/> OTHER Valve Leak	TANKS ONLY/CAPACITY N/A GAL. AGE _____ YRS <input type="checkbox"/> UNKNOWN	MATERIAL <input type="checkbox"/> FIBERGLASS <input type="checkbox"/> STEEL <input type="checkbox"/> OTHER	CAUSE(S) <input type="checkbox"/> OVERFILL N/A <input type="checkbox"/> RUPTURE/FAILURE <input type="checkbox"/> CORROSION <input type="checkbox"/> UNKNOWN <input type="checkbox"/> SPILL <input type="checkbox"/> OTHER
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CASE TYPE	CHECK ONE ONLY <input type="checkbox"/> UNDETERMINED <input type="checkbox"/> SOIL ONLY <input checked="" type="checkbox"/> GROUNDWATER <input type="checkbox"/> DRINKING WATER - (CHECK ONLY IF WATER WELLS HAVE ACTUALLY BEEN AFFECTED)
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CURRENT STATUS	CHECK ONE ONLY <input checked="" type="checkbox"/> SITE INVESTIGATION IN PROGRESS (DEFINING EXTENT OF PROBLEM) <input type="checkbox"/> CLEANUP IN PROGRESS <input type="checkbox"/> SIGNED OFF (CLEANUP COMPLETED OR UNNECESSARY) <input type="checkbox"/> NO ACTION TAKEN <input type="checkbox"/> POST CLEANUP MONITORING IN PROGRESS <input type="checkbox"/> NO FUNDS AVAILABLE TO PROCEED <input type="checkbox"/> EVALUATING CLEANUP ALTERNATIVES
----------------	--

REMEDIAL ACTION	CHECK APPROPRIATE ACTION(S) (SEE BACK FOR DETAILS)			
	<input type="checkbox"/> CAP SITE (CD)	<input type="checkbox"/> EXCAVATE & DISPOSE (ED)	<input checked="" type="checkbox"/> REMOVE FREE PRODUCT (FP)	<input type="checkbox"/> ENHANCED BIO DEGRADATION (IT)
	<input type="checkbox"/> CONTAINMENT BARRIER (CB)	<input type="checkbox"/> EXCAVATE & TREAT (ET)	<input type="checkbox"/> PUMP & TREAT GROUNDWATER (GT)	<input type="checkbox"/> REPLACE SUPPLY (RS)

COMMENTS
 Some fuel was observed in monitoring well on 1/22/90. Source and quantity of fuel at that time was unknown. Additional work on 2/2 indicates subsurface release.

APPENDIX B
SITE/AREA SAFETY PLAN

PFIZER PIGMENTS PLANT TANK REMOVAL

SITE/AREA SAFETY PLAN

GENERAL INFORMATION

JOB: 04735W

DATE PREPARED: 2-14-90 PREPARED BY: Jerry Wickham

SITE/AREA NAME: Pfizer Pigments Plant

ADDRESS: 4650 Shellmound Street
Emeryville, California 94608

SITE CONTACT: Mr. Michael Herzog

PHONE: (415) 653-6151

PLANNED ACTIVITY AT SITE: Drilling and sampling of eight soil borings, installation of three monitoring wells, excavation of a trench, and recovery of diesel fuel from the trench.

PRESENT SITE USE: Active manufacturing plant

PREVIOUS USES: Long term manufacturing plant

SITE HISTORY (regulatory actions, complaints, injuries):

EXISTING INFORMATION FOR SITE: DETAILED _____ PRELIMINARY XX
SKETCHY _____ NONE _____

PREVIOUS SAMPLING/INVESTIGATION: Detected free diesel fuel in monitoring wells RW-4 and RW-11.

SITE TOPOGRAPHY: Flat

STATUS: OPEN _____ CLOSED _____ LIMITED ACCESS XX UNKNOWN _____

SURFACE: PAVED OR CONCRETE XX UNPAVED _____ OTHER _____

UNUSUAL FEATURES (utilities, obstacles, etc.)

HAZARD ASSESSMENT

POTENTIAL CONTAMINANTS:

CONTAMINANT	ANTICIPATED CONCENTRATION	COMMENTS
Diesel Fuel	0 to 100,000 ppm in soil 0 to 100% in ground water or floating on ground water.	Free product will be encountered during trench excavation.
Oil and Grease	0 to 100 ppm	Oil and grease from possibly old, unknown source encountered in nearby areas.
Gasoline	Not expected.	

POTENTIAL HIGH HAZARD MATERIALS:

NAME	WARNING PROPERTIES
Acetone	Fragrant, mint-like odor.
Methyl ethyl ketone	Fragrant, mint-like, moderately sharp odor.
Methyl isobutyl ketone	Pleasant odor.

EVALUATION OF EXPECTED HAZARD (operational considerations, routes of exposure, health effects, material stability):

Normal physical hazards associated with drilling and excavation operations. Normal explosion and chemical hazards for gasoline and diesel fuel.

SITE SAFETY SUPERVISOR

SITE SAFETY SUPERVISOR: Drilling contractor or excavation contractor supervisor.

COMPANY: _____ **PHONE:** _____

ADDRESS: _____

PERSONNEL PROTECTION

GENERAL LEVEL OF PROTECTION REQUIRED: A _____ B _____ C _____ D XX

STANDBY EQUIPMENT: Level C Standby

ADDITIONAL EQUIPMENT REQUIRED: Two fire extinguishers on job site. All personnel on site must have hard hats, safety glasses, and steel-toed boots at all times while outside of plant buildings. This includes anyone inspecting or supervising operations.

DETECTION EQUIPMENT: Photoionization detector.

MONITORING PROCEDURES (use and employment of fixed, portable, real-time, continuous and/or periodic monitoring devices): Working environment and soil will be monitored periodically with a photoionization detector.

PERMANENT ON-SITE EQUIPMENT: Eye wash stations, fire extinguishers, first aid equipment.

PERIMETER CONTROL: Ropes and barricades in drilling and excavation area.

EMERGENCY PROCEDURES

LOCATION OF NEAREST WORKING PHONE: Lobby of administration building and office building.

EMERGENCY PHONE NUMBERS:

AMBULANCE: 911

FIRE: 911

POLICE: 911

HOSPITAL: 547-1700

REGULATORY AGENCIES: Alameda Co. Haz. Materials Div. 271-4320.

ADDITIONAL RESOURCES: _____

PLAN APPROVED BY: *Bernard Murphy* DATE: 3/8/20