Site Assessment
Preliminary Site Investigation

Encinal Terminals
1521 Buena Vista Avenue
Alameda, California

June 9, 1993 BEI Job No. 92150

Prepared by:

Blymyer Engineers, Inc.
1829 Clement Avenue
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Client:

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Alameda, CA 94501

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LIMITATIONS

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Laurie A. Buckman
Project Geologist

John Morrison, RG
Registered Geologist

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Overview

Blymyer Engineers, Inc. was retained by Encinal Terminals to conduct a Preliminary Subsurface Investigation at its property located at 1521 Buena Vista Avenue, Alameda, California. The investigation was requested by the Alameda County Health Care Services Agency (ACHCSA) in a letter dated April 15, 1992. The investigation was requested as a follow up to the removal of three gasoline underground storage tanks (USTs), and one waste oil aboveground storage tank (AST), and a concrete containment sump from the property.

Soil samples collected from the base of the UST excavations and along the product lines following the removal of the USTs in January 1988 were analyzed for Total Volatile Hydrocarbons (TVH) and benzene, toluene, and total xylenes (BTX). Concentrations of TVH and BTX were detected in soil samples collected from the site. Concentrations of TVH and BTX were also detected in the grab groundwater samples collected from the UST excavations.

Following the removal of the waste oil AST and concrete containment sump in February 1989, approximately 7 tons of petroleum-contaminated material was excavated from the surrounding area. Analytical results of soil samples collected from the excavation indicated detectable concentrations of Oil and Grease (O & G).

The scope of work for this Preliminary Subsurface Investigation included the installation of three 2-inch-diameter groundwater monitoring wells (MW-1, MW-3, and MW-4), one groundwater piezometer well (MW-2), and three soil bores (SB-1, SB-2, and SB-3). A total of 10 soil samples, 3 groundwater samples and two grab groundwater samples were collected from the monitoring wells and soil bores. The soil and groundwater samples collected from MW-1, MW-3, SB-1, and SB-2 were analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline and benzene, toluene, ethylbenzene, and total xylenes. The soil and groundwater samples collected from MW-3 and SB-1 were also analyzed for TPH as diesel, Halogenated Volatile Organics, and Total Recoverable Petroleum Hydrocarbons (TRPH). The soil and groundwater samples collected

from MW-4 were analyzed for TRPH. No soil or groundwater samples were collected from the piezometer.

The only analyte detected in the soil and groundwater samples was TRPH in the grab groundwater sample collected from soil bore SB-1 downgradient of the waste oil AST and concrete containment sump. However, TRPH concentrations were not detected in the representative groundwater sample collected from MW-4, installed adjacent to SB-1.

Blymyer Engineers recommends that the investigative activities associated with the removal of the USTs and AST at the site be terminated and all site wells be abandoned according to ACHCSA regulations.

1.0 Introduction

1.1 Background

This report describes a Preliminary Site Investigation completed by Blymyer Engineers, Inc. at the Encinal Terminals facility located at 1521 Buena Vista Avenue, Alameda, California (Figures 1 and 2). The Preliminary Site Investigation was requested by the Alameda County Health Care Services Agency (ACHCSA) in a letter dated April 15, 1992. The purpose of the investigation was to assess potential subsurface petroleum-hydrocarbon contamination following the removal of three gasoline underground storage tanks (USTs), a concrete secondary containment sump, and an waste oil aboveground storage tank (AST) from the site.

On January 27, 1988, three gasoline USTs with capacities of 1,500 gallons (T-1), 5,000 gallons (T-2), and 8,500 gallons (T-3) were removed from the site by Trace Environmental Services, Inc. Two soil samples were collected from beneath each UST and along the product lines and were analyzed for Total Volatile Hydrocarbons (TVH) and benzene, toluene, and total xylenes (BTX). Concentrations of TVH and BTX were detected in soil samples collected from excavations T-1 and T-2. Concentrations of benzene were detected in the soil samples collected from excavation T-3. Concentrations of TVH were also detected in the soil sample collected from the piping trench of excavation T-3.

Grab groundwater samples were collected from UST excavations T-1, T-2, and T-3 and analyzed for TVH and BTX. Concentrations of TVH of 100,000 micrograms per liter (µg/L) were detected in the groundwater samples collected from excavation T-2 and 1,800 µg/L in the groundwater sample collected from excavation T-3. Total BTX concentrations of 1,780 µg/L were detected in the groundwater sample collected from excavation T-2 and 16.37 µg/L in the groundwater sample collected from excavation T-3.

On February 1, 1988, 17 cubic yards of backfill and naturally occurring soils were removed from excavation T-1 and T-2, by Trace Environmental Services and were stockpiled on and covered

with heavy plastic sheeting at the site. Upon completion of the removal of the petroleum-hydrocarbon-contaminated soils, verification soil samples were collected along the north, south, and east sidewalls of the excavations and analyzed for TVH and BTX. Concentrations of TVH and BTX were not detected in the analyzed soil samples. Following disposal characterization profiling of the soils, the stockpiled soil was disposed of on August 8, 1988, at the Forward Landfill in Manteca, California.

On February 1, 1989, a concrete secondary containment sump, which previously surrounded a waste oil AST, was removed by Trace Environmental Services. Upon removal of the sump, soil that was visibly contaminated with petroleum hydrocarbons was excavated, excluding the petroleum hydrocarbon-impacted soil located underneath the adjacent building. Approximately 7 tons of concrete rubble and petroleum-hydrocarbon-contaminated soil was disposed of at Casmalia Resources, Inc. in Casmalia, California. Following the excavation of the soil, one soil sample was obtained at an approximate depth of 2 feet below grade surface (bgs) and analyzed for Volatile Organic Compounds and ~~Total Recoverable Petroleum Hydrocarbons (TRPH)~~ Oil & Grease. TRPH concentrations of 750,000 micrograms per kilogram (µg/kg) were detected in the soil sample. Volatile Organic Compounds were not detected in the analyzed sample.

1.2 Site Conditions

The site is located at 1521 Buena Vista Avenue in Alameda, California. The surrounding area is light industrial and residential. The property is located along the southern shore of the Alameda-Oakland Estuary surrounding the Alaska and Fortmann Basins. A residential area and Pacific Mini Storage are located to the west across Sherman Street, Buena Vista park is located to the south across Buena Vista Avenue, and Weyerhaeuser Containerboard Packaging is located to the east across Nautilus Street. The site is occupied by loading and distribution facilities which include ASTs, warehouses, loading docks, outdoor storage areas, offices, maintenance shops, and asphalt parking areas. A railroad easement runs through the southern portion of the

property with tracks traversing through the western, central, and eastern portions of the site. The site is relatively flat with a slight downward surface slope to the north.

1.3 Scope of Work

The scope of work for this Preliminary Subsurface Investigation included:

- Installation of three 2-inch-diameter groundwater monitoring wells to an approximate depth of 25 to 30 feet bgs
- Collection of two soil samples and one groundwater sample from each well
- Installation of one groundwater piezometer to an approximate depth of 30 feet bgs
- Installation of two soil bores to an approximate depth of 10 feet bgs, and collection of two soil samples and one grab groundwater sample from each bore
- Installation of one continuously cored, pneumatically-driven soil bore to an approximate depth of 35 feet bgs to determine the site hydrostratigraphy
- Analysis of soil and groundwater samples for Total Petroleum Hydrocarbons (TPH) as gasoline and benzene, toluene, ethylbenzene, and total xylenes (BTEX)
- Analysis of four soil samples and two groundwater samples for TPH as diesel, Halogenated Volatile Organics (HVOs), and TRPH
- Analysis of one groundwater sample for TRPH
- Survey of the top of casing (TOC) elevation of each monitoring well and the piezometer to allow the determination of groundwater flow direction
- Collection of depth to groundwater information periodically throughout one day to determine local tidal influences.

2.0 Environmental Setting

2.1 Regional Geology

The project site is located in the city of Alameda on the gently sloping East Bay Plain, approximately 1/2 mile northeast of the San Francisco Bay, at an approximate elevation of 15 feet above mean sea level, National Geodetic Vertical Datum. The San Francisco Bay Area is a northwest-southeast trending region within the Coast Range Province of California. Rocks within the region range from Jurassic-aged sedimentary, metamorphic, and plutonic basement rocks to Holocene alluvium. The geologic structure of the region is dominated by a major fault system which includes the San Andreas fault on the west side of the San Francisco Bay and the Hayward Fault at the base of the Berkeley Hills on the east side of the Bay. These faults are a result of the forces which have uplifted the Coast Range and dropped the section now covered by the open water of the San Francisco Bay and Quaternary alluvium (Goldman, 1967; Radbruch, 1957; and Radbruch and Case 1967).

Alameda is currently an island, but was historically connected to the city of Oakland. A channel was dredged that eliminated the land connection to the remainder of the East Bay landmass. The project site contained artificial fill material consisting of sand, clay, and miscellaneous refuse from 1 to approximately 10 to 15 feet bgs. Bay Mud consisting of sandy, clayey silt with organic material underlies the artificial fill from approximately 10 to 15 feet bgs extending to approximately 20 to 25 feet bgs. The Merritt Sand, consisting of loose, poorly-graded, fine to medium grained sand and silt, with lenses of sandy clay and clay (Hickenbottom, et al., 1988) underlies the Bay Mud.

2.2 Climate

The East Bay Plain exhibits a Mediterranean type climate with cool, wet winters and warmer, dry summers. Mean annual precipitation in Alameda, California, is 23.24 inches, with a mean monthly rainfall of 5.30 inches in January and 0.11 inches in August. The mean monthly temperature in Alameda is 49.7 degrees Fahrenheit in January and 62.2 degrees Fahrenheit in August (National Oceanic and Atmospheric Administration, 1982).

3.0 Data Collection

3.1 Soil Investigation

3.1.1 Soil Sample Collection

On January 4, 1993, and March 17, 1993, Blymyer Engineers installed five soil bores to a depth of approximately 30 to 35 feet bgs (MW-1, MW-2, MW-3, MW-4, and SB-3) and two soil bores to a depth of approximately 10 feet bgs (SB-1 and SB-2). The soil bores were drilled using a B-53 drill rig with hollow-stem flight augers. Soil samples were collected at 5-foot intervals in soil bores MW-1, MW-3, MW-4, SB-1, and SB-2. Soil bore SB-3 was continuously cored and logged for detailed stratigraphic soil descriptions with no soil samples collected for laboratory analysis. Soil bore MW-2 was completed as a groundwater piezometer; therefore, no soil samples were collected for laboratory analysis.

The augers were advanced to the desired sampling depth with a California split-spoon sampler lined with three clean, 6-inch-long brass sleeves, which was driven 18 inches ahead of the augers. Blow counts required to drive the sampler each 6-inch segment were recorded to aid in the detection of changes in lithology. The sampler was retrieved and the brass sleeves removed. The desired sample was sealed in its brass sleeve with Teflon® sheets, plastic end caps, and silicone adhesiveless tape were, and labeled and placed on ice for transportation to the analytical laboratory. Proper chain-of-custody procedures were observed. Soil samples were field-screened for organic vapors using a photoionization detector (PID) and the results were noted on the bore logs, which are included as Appendix A. The split-spoon sampler was decontaminated between samples with a trisodium phosphate wash and clean water rinse.

All drill cuttings from the wells and soil bores were stored on-site in labeled, Department of Transportation (DOT)-approved, 55-gallon drums for later disposal by the owner.

3.1.2 Analytical Methods and Results

The soil samples were sent to Coast-to-Coast Analytical Services, a California-certified laboratory whose quality control and quality assurance program complies with all applicable requirements of the U.S. EPA.

The soil samples collected from soil bores MW-1, MW-3, SB-1, and SB-2 were analyzed for TPH as gasoline by modified EPA Method 8015 and BTEX by EPA Method 8020. Soil samples collected from the soil bore installed downgradient of excavation T-3 (MW-3) and the shallow soil bore installed downgradient of the former waste oil AST (SB-1) were also analyzed for TPH as diesel by modified EPA Method 8015, HVOs by EPA Method 8010, and TRPH by EPA Method 418.1. The soil samples collected from the deep soil bore installed downgradient of the former waste oil AST (MW-4) were analyzed for TRPH by EPA Method 418.1. The soil sample analytical results are summarized in Table I and the laboratory reports are included as Appendix B.

Only the soil samples collected from MW-4 at 14 feet bgs and 25 feet bgs each indicated an TRPH concentration of 15 milligrams per kilograms (mg/kg).

3.2 Groundwater Investigation

3.2.1 Monitoring Well Installation

Three of the soil bores (MW-1, MW-3, and MW-4) were converted to 2-inch-diameter groundwater monitoring wells following the completion of drilling, in the locations indicated on Figure 2. One groundwater piezometer (MW-2) was installed to 30 feet bgs prior to the installation of monitoring well MW-4, in the upgradient direction from monitoring wells MW-1 and MW-3, to establish an accurate groundwater flow direction and gradient. The well construction details are included on the soil bore logs in Appendix A.

The wells and piezometer were constructed of schedule 40 PVC casing in threaded, 10-foot-long sections. The casing was factory slotted with 0.020-inch slots from the bottom of the bore to approximately 5 feet above the detected location of the water- bearing zone. The remainder of the casing was blank. A threaded plug was attached to the bottom of the casing.

The annulus between the borehole wall and the casing was backfilled with #2 Monterey sand from the bottom of the borehole to 2 feet above the screened interval. One foot of bentonite pellets was placed in the annulus above the sand and then hydrated to form a seal. The remainder of the annulus was backfilled to grade with a neat cement slurry. The top of the casing was secured with a locking well cap. A flush mounted traffic box was installed over each well.

Each well was developed by surging and pumping approximately 6 to 10 well casing volumes of water. Development water was stored on-site in labeled, DOT-approved, 55-gallon drums for disposal by the owner.

3.2.2 Groundwater Sample Collection

Two types of groundwater samples were collected at the site. One type was collected from the developed wells and the other type from open soil bores. Groundwater samples collected from developed monitoring wells provide valid, quantitative, groundwater data. Grab groundwater samples, collected by lowering a bailer into an uncased soil bore, only provide qualitative information about the groundwater quality. Grab groundwater samples are not necessarily representative, often contain large amounts of sediment which may influence analytical results, and are not considered valid monitoring data for submittal to regulatory agencies.

Groundwater samples were collected from all four monitoring wells, at least 24 hours after development, on January 6, 1993, and March 23, 1993. At least three well casing volumes were removed prior to sampling using a decontaminated Teflon® bailer. Temperature, pH, and

conductivity were measured initially and after the removal of each well volume. The well was sampled when these measurements were all within 15 percent of each other for three consecutive well casing volumes. Purge water was stored on site in labeled, DOT-approved, 55-gallon drums for disposal by the owner. The Well Purging and Sampling Data forms are included in Appendix C. The groundwater samples were placed in appropriate containers provided by the laboratory, labeled, and placed on ice for transportation to the analytical laboratory. All proper chain-of-custody procedures were observed.

Grab groundwater samples were collected from soil bores SB-1 and SB-2. A Teflon® bailer was lowered down into the open soil bore and the sample containers were filled directly from the bailer. The water samples were placed in appropriate containers provided by the laboratory, labeled, and placed on ice for transportation to the analytical laboratory. All proper chain-of-custody procedures were observed.

3.2.3 Analytical Methods and Results

The groundwater samples collected from wells MW-1 and MW-3 were analyzed for TPH as gasoline by modified EPA Method 8015 and BTEX by EPA Method 8020. The groundwater sample collected from monitoring well MW-3 was also analyzed for TPH as diesel by modified EPA Method 8015, HVOs by EPA Method 8010, and TRPH by EPA Method 418.1. The groundwater sample collected from monitoring well MW-4 was analyzed for TRPH by EPA Method 418.1.

The grab groundwater samples collected from soil bores SB-1 and SB-2 were analyzed for TPH as gasoline by modified EPA Method 8015 and BTEX by EPA Method 8020. The grab groundwater sample collected from SB-1 was also analyzed for TPH as diesel by modified EPA Method 8015, HVOs by EPA Method 8010, and TRPH by EPA Method 418.1 The groundwater sample analytical results are summarized in Table II and the full laboratory report is included in Appendix D.

The grab groundwater sample collected from soil bore SB-1 (adjacent to the former waste oil AST and concrete sump) indicated an TRPH concentration of 6 mg/L. However, the representative groundwater sample collected from monitoring well MW-4, installed adjacent to soil bore SB-1, did not indicate detectable concentrations of TRPH. None of the remaining groundwater samples analyzed indicated detectable concentrations of the analytical parameters.

3.2.4 Groundwater Elevation Survey

The depth to water in the monitoring wells MW-1 and MW-3 and piezometer MW-2 were measured from the TOC using an oil/water interface probe, accurate to 0.01 feet, on January 6, 1993. Groundwater level measurements were collected again on January 8, 1993, at 7:45 am, 11:45 am, 1:45 pm, and 5:45 pm to determine the tidal influence resulting from the site's close proximity to the Oakland-Alameda Estuary and East Bay. One groundwater level measurement was collected from monitoring well MW-4 on March 23, 1993. The TOC elevations for each well were surveyed with a rod and level referenced to a common datum. This allowed the determination of the elevation of the groundwater table and local groundwater flow direction. Table III includes the TOC elevations, depth to water measurements, and water surface elevations used to determine the direction of groundwater flow. Figures 3, 4, 5, and 6 depict the changes in groundwater elevation and flow direction resulting from local tidal influences. Figure 7 depicts the groundwater elevation and flow direction as determined from the measurements collected at the time of initial groundwater sampling.

4.0 Data Interpretation

4.1 Site Stratigraphy

Blymyer Engineers drilled and logged five soil bores and groundwater monitoring wells during the site investigation from January through March 1993. Soil bore SB-3 was continuously cored and examined in the field to obtain details of the subsurface geologic conditions at the site. Soils were logged in accordance with the Unified Soils Classification System by a Blymyer Engineers geologist. Subsurface data from the investigation is included on geologic logs of the soil bores and monitoring wells included as Appendix A. The bore logs should be referred to for detailed subsurface soil descriptions at each soil bore location. Interpretative geologic data from the bore logs are also portrayed in Geologic Section A - A', included as Figure 8.

Stratigraphically, soil units underlying the site consist of gravelly fill material, brown sand, brown sandy clay, brown to gray silty sand, gray plastic clay, black clayey sand green silty clay, and tan water-bearing sand with interfingered medium grained, poorly graded water-bearing sand lenses. A medium grained poorly graded water- bearing sand was encountered at a depth of approximately 17.5 feet bgs in soil bore MW-1 and 29 feet bgs in soil bore MW-3.

The underlying soils at the site grade laterally from one soil type to another. Thin lenses of dense plastic clay and poorly graded medium-grained sand were encountered throughout the soil column.

Water bearing zones were encountered at varying depths in the bores and wells. Depths ranged from 19 feet bgs to 28.5 feet bgs. The primary water bearing zone at the site appeared to be situated in a fine to medium grained, poorly graded sand ranging in depth from 10 feet bgs in monitoring well MW-1 to 20 feet bgs in monitoring well MW-3. Groundwater was not detected during drilling in soil bores SB-1 and SB-2, which extended less then 10 feet bgs; however small quantities (less than 2 inches) of water were detected in the bottom of the two bores following

drilling. Water levels rose from the initial level in the monitoring wells, indicating that groundwater in the primary water bearing zone at the site is in a confined zone.

4.2 Discussion of Soil Sample Analytical Results

The analytical results of the collected soil samples indicated an TRPH concentration of 15 mg/kg each in the soil samples collected from monitoring well MW-4 at 14 feet bgs and 25 feet bgs. The detected TRPH concentrations indicate low levels of petroleum-hydrocarbon contamination in the soil in the vicinity of the former waste oil AST and concrete containment sump.

4.3 Discussion of Groundwater Sample Analytical Results

The presence of TRPH concentrations detected in the grab groundwater sample collected from soil bore SB-1 indicate the possible presence of petroleum hydrocarbons within the upper 10 feet of the soil column adjacent to the waste oil AST and containment sump. However, TRPH concentrations were not detected in the representative groundwater sample collected from MW-4, adjacent to SB-1.

4.4 Groundwater Gradient

The groundwater gradient information, based on surveyed TOC elevations and depths to water in all four wells, is presented in Table III. Figures 3, 4, 5, and 6 show the tidal influence on the groundwater level in the wells measured over one day at four separate points in time. In general, the groundwater gradient flows toward the nearest estuary following the existing topography. The groundwater flow direction measured in monitoring wells MW-1 and MW-3, and piezometer MW-2 fluctuated from a due north flow direction to slightly northeast, toward the adjacent estuary, at an average gradient of .003 feet per linear foot.

5.0 Summary and Conclusions

- An TRPH concentration of 15 mg/kg was detected in the soil samples collected from soil bore MW-4 at 14 feet bgs and 25 feet bgs downgradient of the waste oil AST and concrete containment sump.

- An TRPH concentration of 6.0 mg/L was detected in the grab groundwater sample collected downgradient of the former waste oil AST and concrete containment sump. However, TRPH concentrations were not detected in a groundwater sample collected from monitoring well MW-4 installed in the same approximate location.

- Concentrations of TPH as gasoline, TPH as diesel, BTEX, HVOs, and TRPH were not detected above analytical method reporting limits in the groundwater samples collected from three of the monitoring wells installed at the site.

- Groundwater flow direction is north to northeast at an average gradient of .003 feet per linear foot, and is tidally influenced.

6.0 Recommendations

Blymyer Engineers recommends that this report be submitted to:

Ms. Juliet Shin
Alameda County Health Care Services Agency
80 Swan Way, Room 200
Oakland, CA 94621

Low concentrations of TRPH were detected in the soil samples and shallow grab groundwater sample collected from the soil bores installed downgradient of the former location of the waste oil AST. However, based on field observations and well construction diagrams, Blymyer Engineers feels that the main water bearing zone at the site has been adequately screened and sampled with no indication of detectable concentrations of TRPH. Therefore, Blymyer Engineers recommends that the investigative activities associated with the removal of the USTs and AST at the site be terminated and all site monitoring wells be abandoned according to ACHCSA regulations.

7.0 References

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U.S. Geological Survey, photorevised 1980, 7.5 Minute Topographic Quadrangle, "Oakland East, California": Scale 1:24,000.

Table I, Summary of Soil Sample Analytical Results
BEI Job No. 92150, Encinal Terminals
1521 Buena Vista Avenue, Alameda, California

Sample ID	Modified EPA Method 8015		EPA Method 8020	EPA Method 8010	EPA Method 418.1
	TPH as gasoline	TPH as diesel	BTEX	HVOs	TRPH
MW-1 10'	<1 mg/kg	NA	<.005 mg/kg	NA	NA
MW-1 27.5'-30'	<1 mg/kg	NA	<.005 mg/kg	NA	NA
MW-3 18.5'-20'	<1 mg/kg	<1 mg/kg	<.005 mg/kg	ND	<10 mg/kg
MW-3 27.5'-30'	<1 mg/kg	<1 mg/kg	<.005 mg/kg	ND	<10 mg/kg
SB-1 5'	<1 mg/kg	<1 mg/kg	<.005 mg/kg	ND	<10 mg/kg
SB-1 10'	<1 mg/kg	<1 mg/kg	<.005 mg/kg	ND	<10 mg/kg
SB-2 5'	<1 mg/kg	NA	<.005 mg/kg	NA	NA
SB-2 10'	<1 mg/kg	NA	NA	NA	NA
MW-4 14'	NA	NA	NA	NA	15 mg/kg
MW-4 25'	NA	NA	NA	NA	15 mg/kg

Note:
BTEX = benzene, toluene, ehtylbenzene, and total xylenes
TPH = Total Petroleum Hydrocarbons
HVOs = Halogenated Volatile Organics
TRPH = Total Recoverable Petroleum Hydrocarbons
ND = Not detected above the analytical method reporting limit (used when more then one reporting limit applies to method)
NA = Not analyzed
mg/kg = milligrams per kilogram

Table II, Summary of Groundwater Sample Analytical Results
BEI Job No. 92150, Encinal Terminals
1521 Buena Vista Avenue, Alameda, California

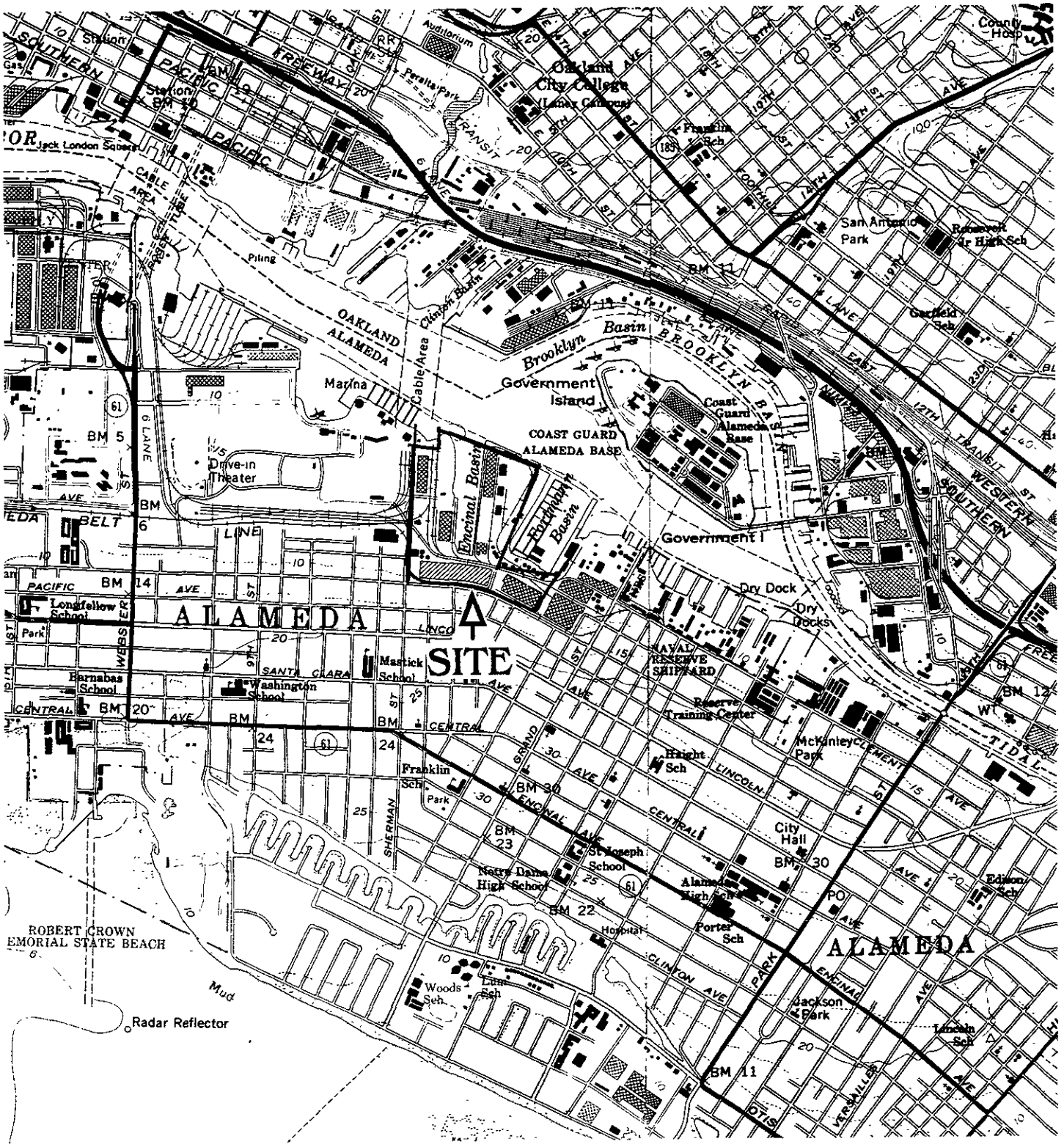
Sample ID	Modified EPA Method 8015		EPA Method 8020	EPA Method 8010	EPA Method 418.1
	TPH as Gasoline	TPH as Diesel	BTEX	HVOs	TRPH
MW-1	<50 µg/L	NA	<0.5 µg/L	NA	NA
MW-3	<50 µg/L	<50 µg/L	<0.5 µg/L	ND	<0.5 µg/L
MW-4	NA	NA	NA	NA	<0.5 µg/L
SB-1*	<50 µg/L	<50 µg/L	<0.5 µg/L	ND	6.0 mg/L
SB-2*	<50 µg/L	NA	<0.5 µg/L	NA	NA

Note:
- * = grab groundwater sample
- BTEX = benzene, toluene, ethylbenzene, and total xylenes
- TPH = Total Petroleum Hydrocarbons
- HVOs = Halogenated Volatile Organics
- TRPH = Total Recoverable Petroleum Hydrocarbons
- ND = Not detected above the analytical method reporting limit (used when more then one reporting limit applies to method)
- NA = Not analyzed
- µg/L = Micrograms per liter
- mg/L = Milligrams per liter

Table III, Groundwater Elevation Measurements
BEI Job No. 92150, Encinal Terminals
1521 Buena Vista Avenue, Alameda, California

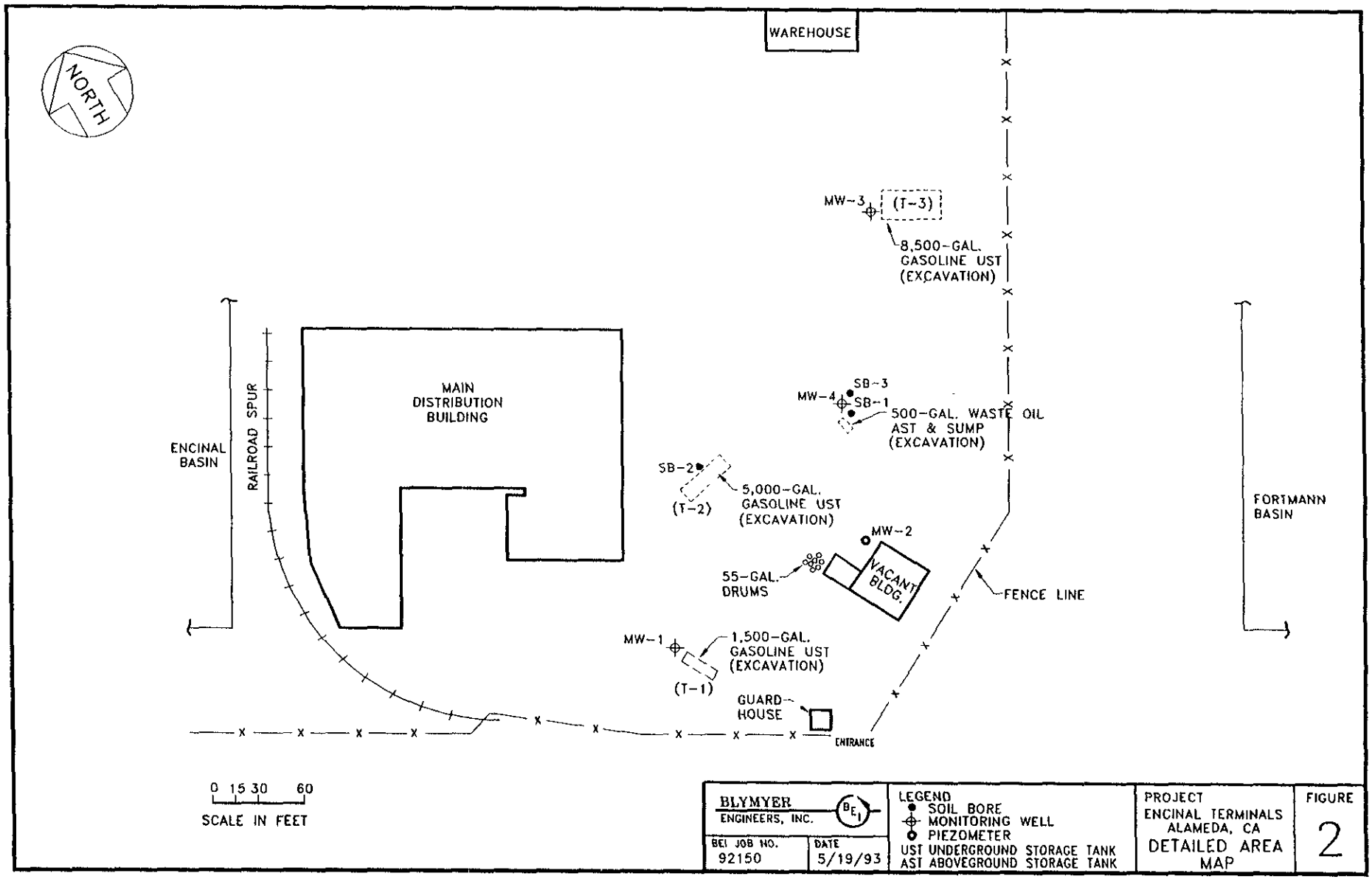
Well ID	Date	Time	TOC Elevation (feet)	Depth to Water	Water Surface Elevation (feet)
MW-1	1/6/93	12:34 pm	96.12	4.86	89.98
	1/8/93	7:45 am		5.5	90.62
	1/8/93	11:45 am		4.5	91.62
	1/8/93	1:45 pm		4.5	91.62
	1/8/93	5:45 pm		6.1	90.02
MW-2	1/6/93	N/A	96.68	6.03	89.87
	1/8/93	7:45 am		6.1	90.58
	1/8/93	11:45 am		5.1	91.58
	1/8/93	1:45 am		5.3	91.38
	1/8/93	5:45 pm		6.9	89.78
MW-3	1/6/93	10:32 am	95.18	4.5	89.23
	1/8/93	7:45 am		5.3	89.88
	1/8/93	11:45 am		4.2	90.98
	1/8/93	1:45 pm		4.3	90.88
	1/8/93	5:45 pm		5.11	90.07
MW-4	3/23/93	9:45 am	96.78	7.34	89.44

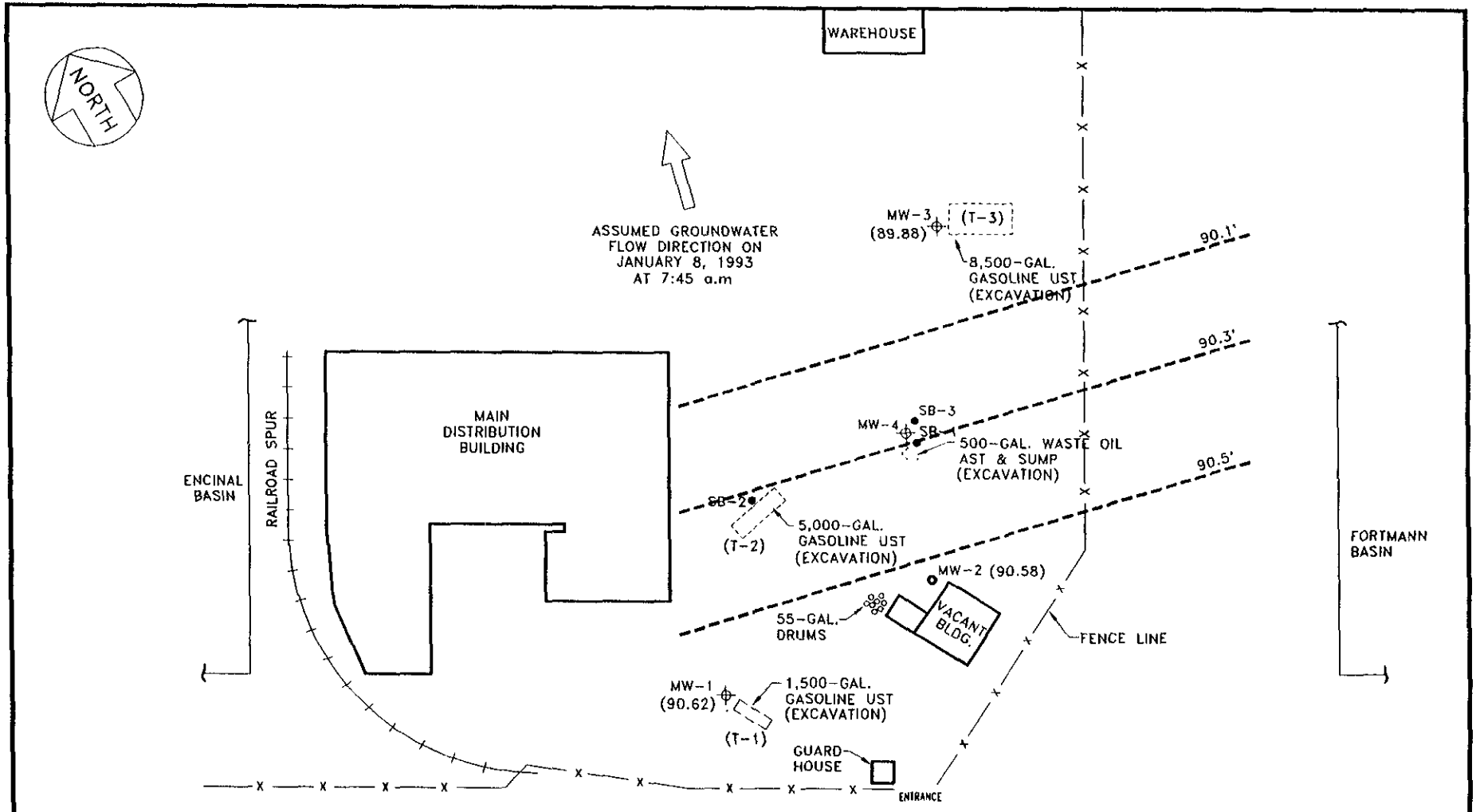
Notes: TOC = Top of Casing



SOURCE: UNITED STATES GEOGRAPHICAL SURVEY 7.5' QUAD. "OAKLAND WEST, CA" PHOTOREVISED 1980 AND "OAKLAND EAST, CA" PHOTOREVISED 1980.

BLYMYER ENGINEERS, INC. (BEI)	0 1000 2000 SCALE IN FEET (N)	SITE LOCATION MAP ENCINAL TERMINALS ALAMEDA, CA	FIGURE 1
BEI JOB NO. 92150	DATE 10/92		


NORTH
WAREHOUSE
MW-3
(T-3)
8,500-GAL. GASOLINE UST (EXCAVATION)
ENCINAL BASIN
RAILROAD SPUR
MAIN DISTRIBUTION BUILDING
SB-3
MW-4
SB-1
500-GAL. WASTE OIL AST & SUMP (EXCAVATION)
SB-2
(T-2)
5,000-GAL. GASOLINE UST (EXCAVATION)
MW-2
55-GAL. DRUMS
VACANT BLDG.
FENCE LINE
FORTMANN BASIN
MW-1
1,500-GAL. GASOLINE UST (EXCAVATION)
(T-1)
GUARD-HOUSE
ENTRANCE
0 15 30 60
SCALE IN FEET
BLYMYER ENGINEERS, INC.
BEI JOB NO. 92150
DATE 5/19/93
LEGEND
SOIL BORE
MONITORING WELL
PIEZOMETER
UST UNDERGROUND STORAGE TANK
AST ABOVEGROUND STORAGE TANK
PROJECT
ENCINAL TERMINALS
ALAMEDA, CA
DETAILED AREA MAP
FIGURE
2



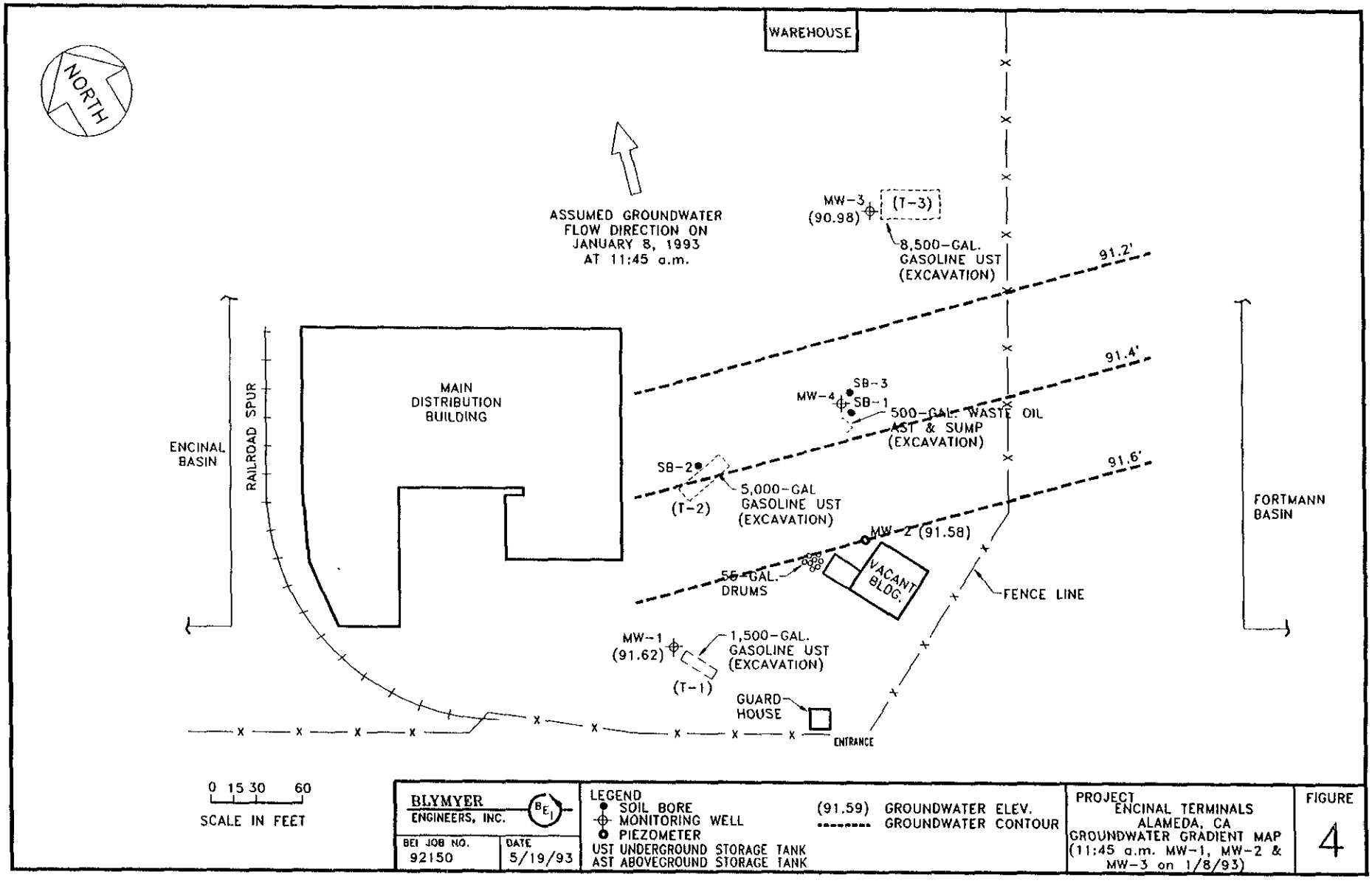
BLYMYER ENGINEERS, INC.

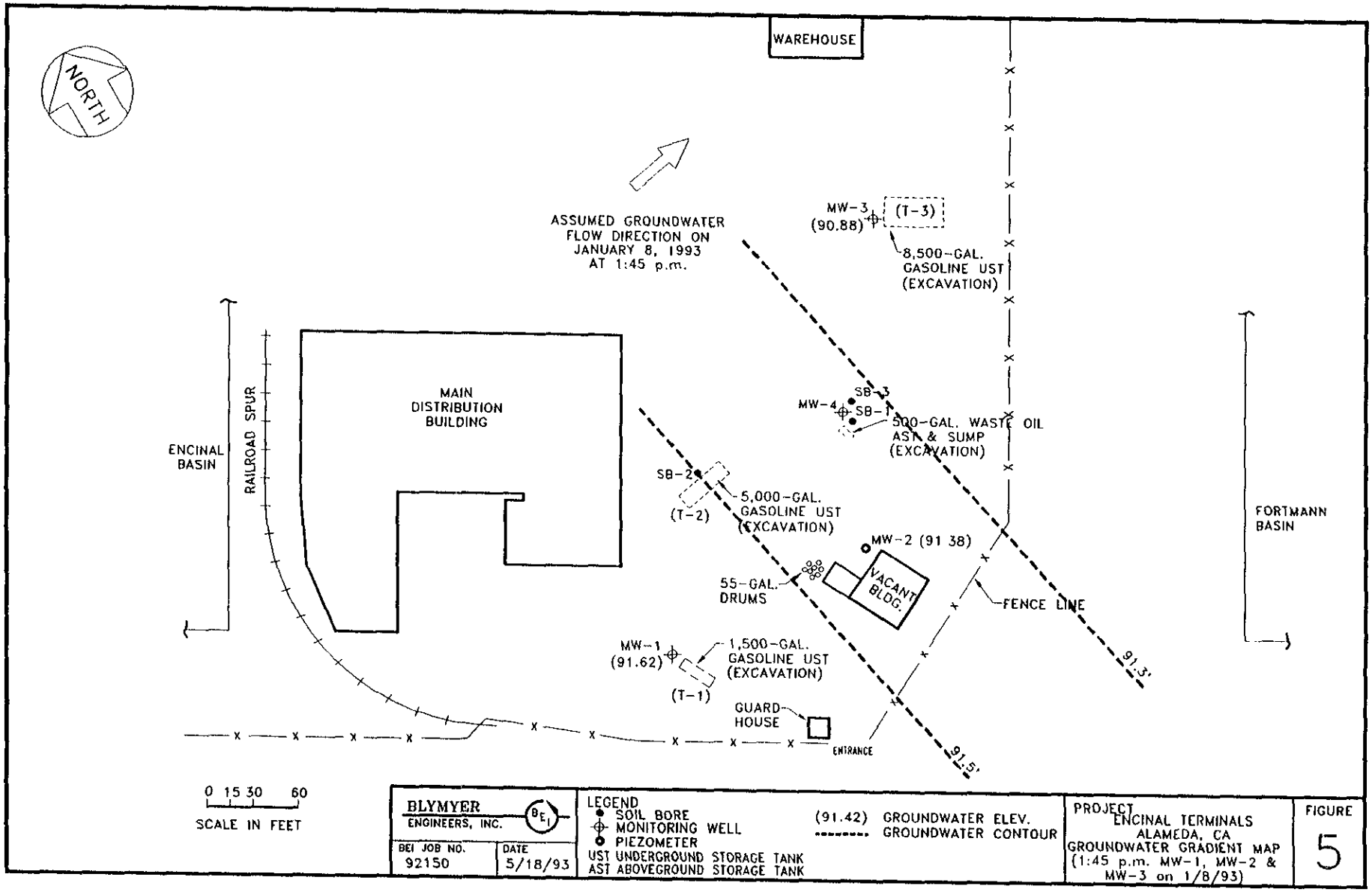
BEI JOB NO.	DATE
92150	5/19/93

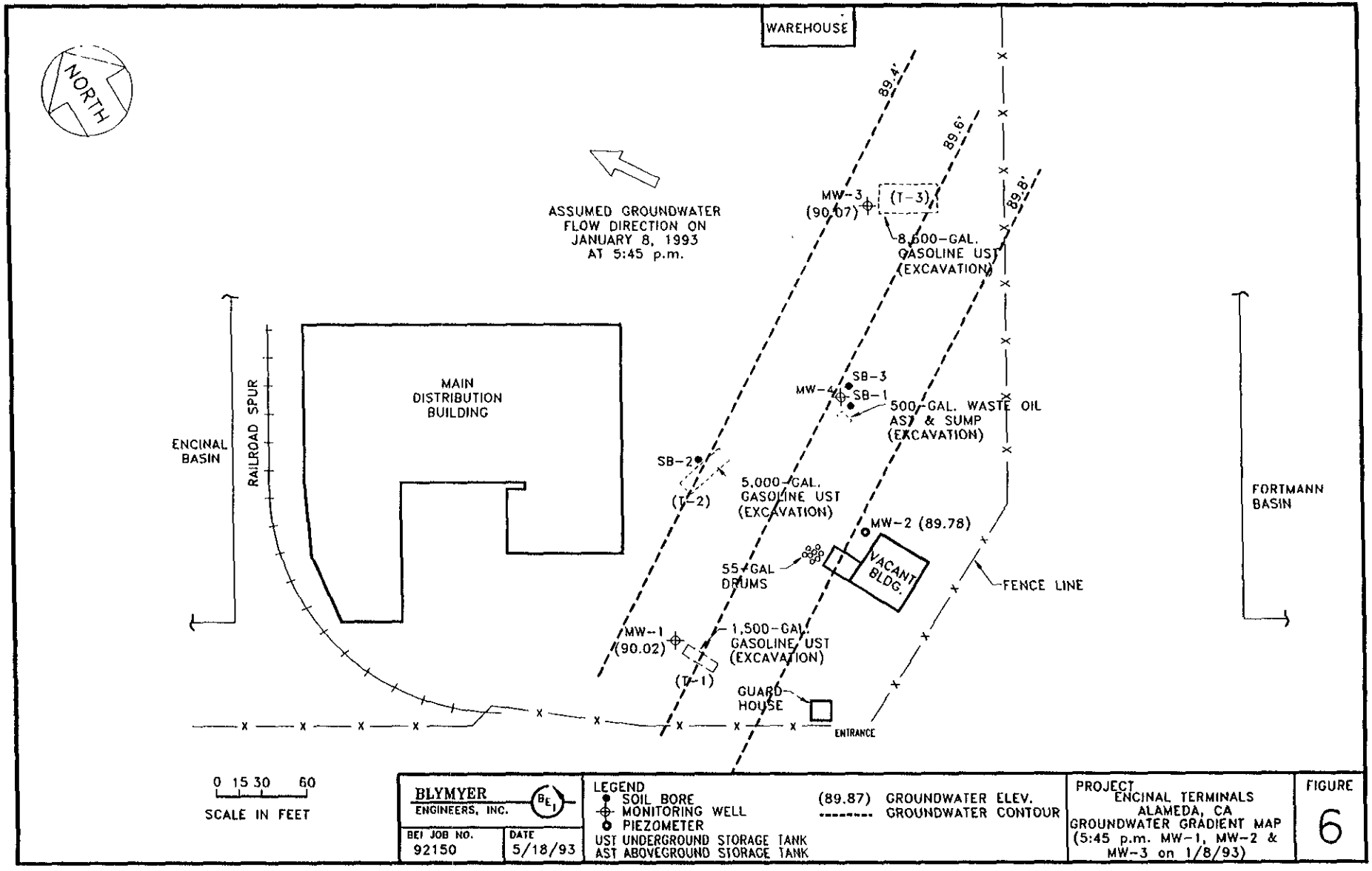
LEGEND
- SOIL BORE
- MONITORING WELL
- PIEZOMETER
- (90.54) GROUNDWATER ELEV.
- GROUNDWATER CONTOUR
- UST UNDERGROUND STORAGE TANK
- AST ABOVEGROUND STORAGE TANK

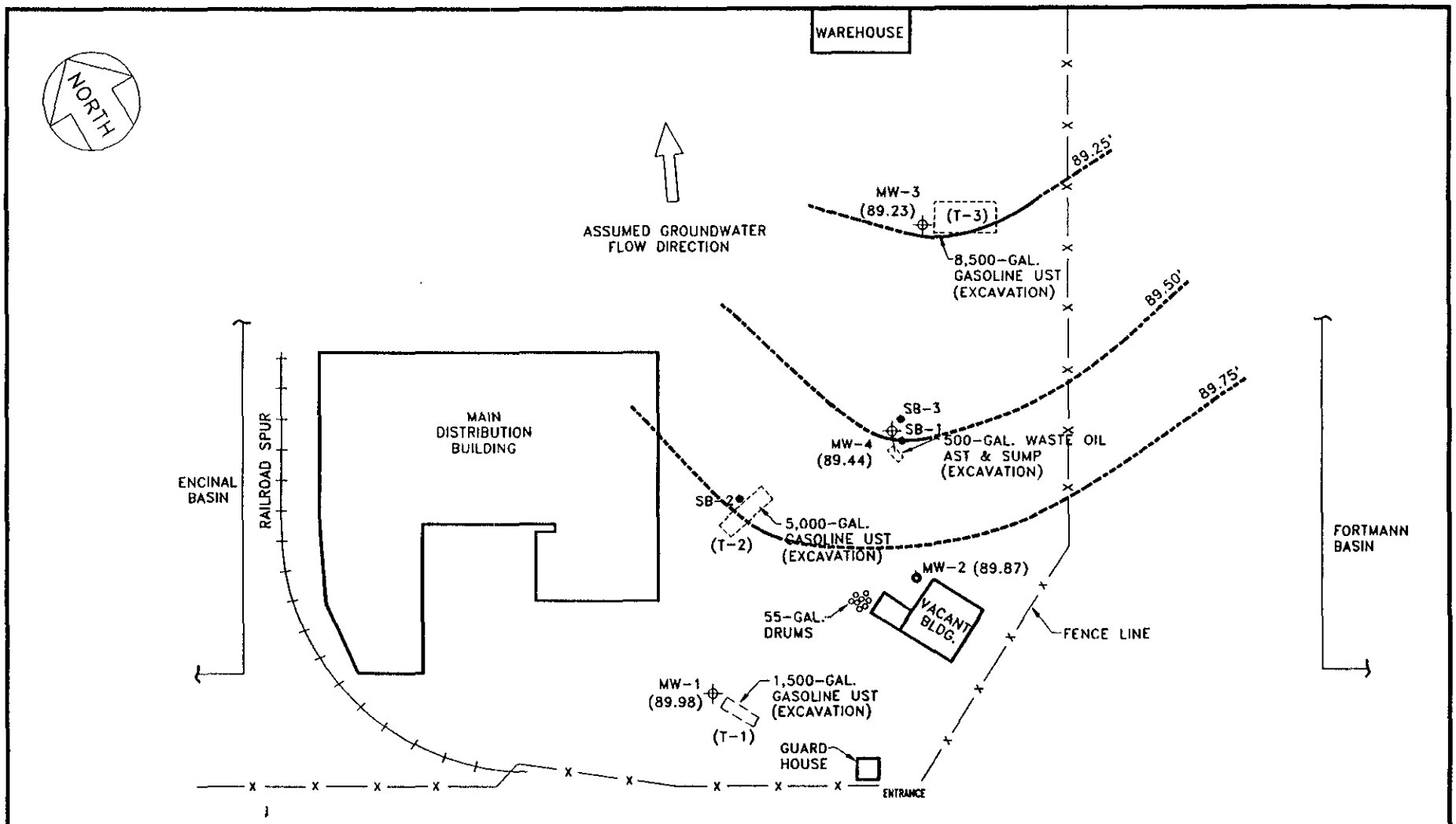
PROJECT
ENCINAL TERMINALS
ALAMEDA, CA
GROUNDWATER GRADIENT MAP
(7:45 a.m. MW-1, MW-2 & MW-3 on 1/8/93)

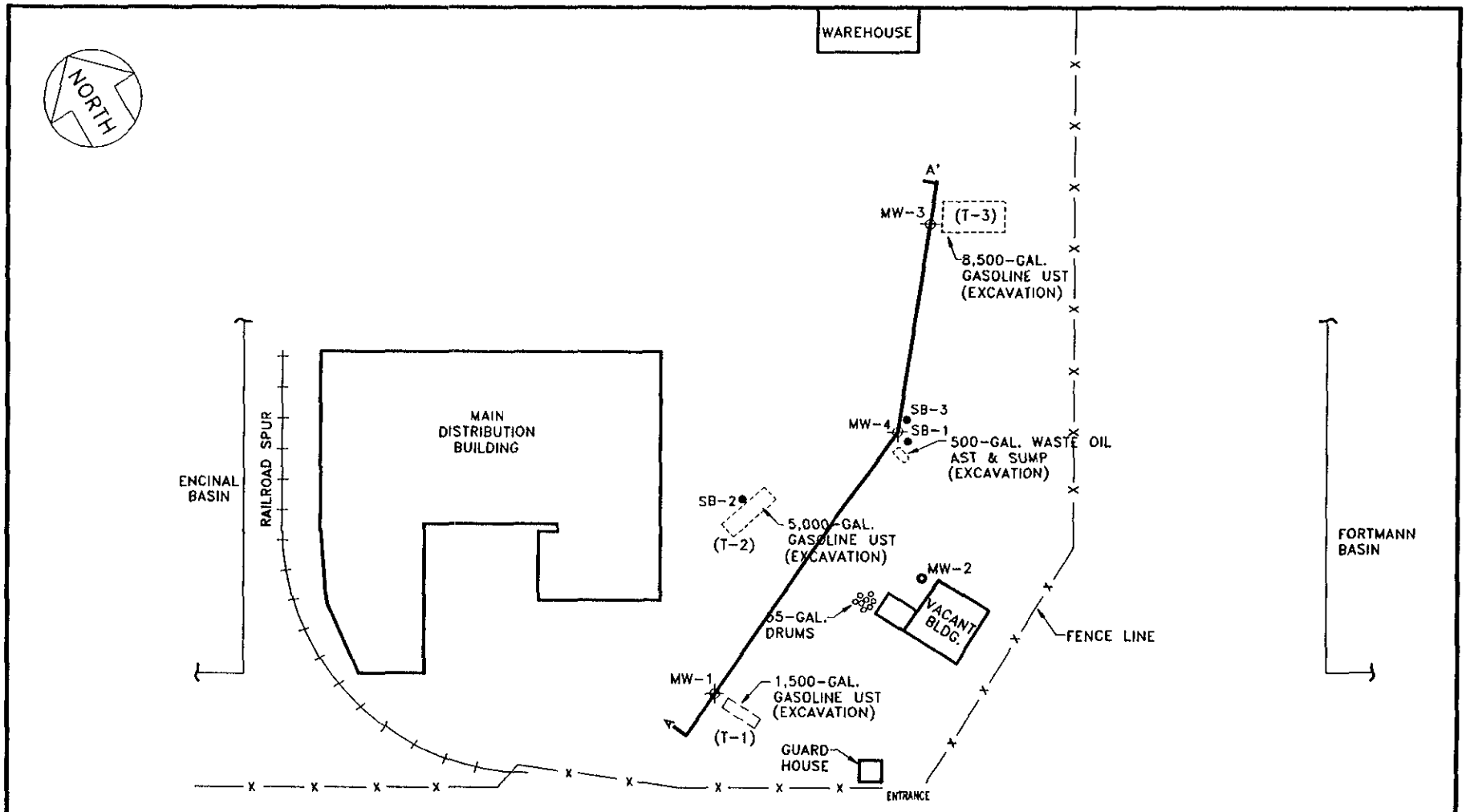
FIGURE 3

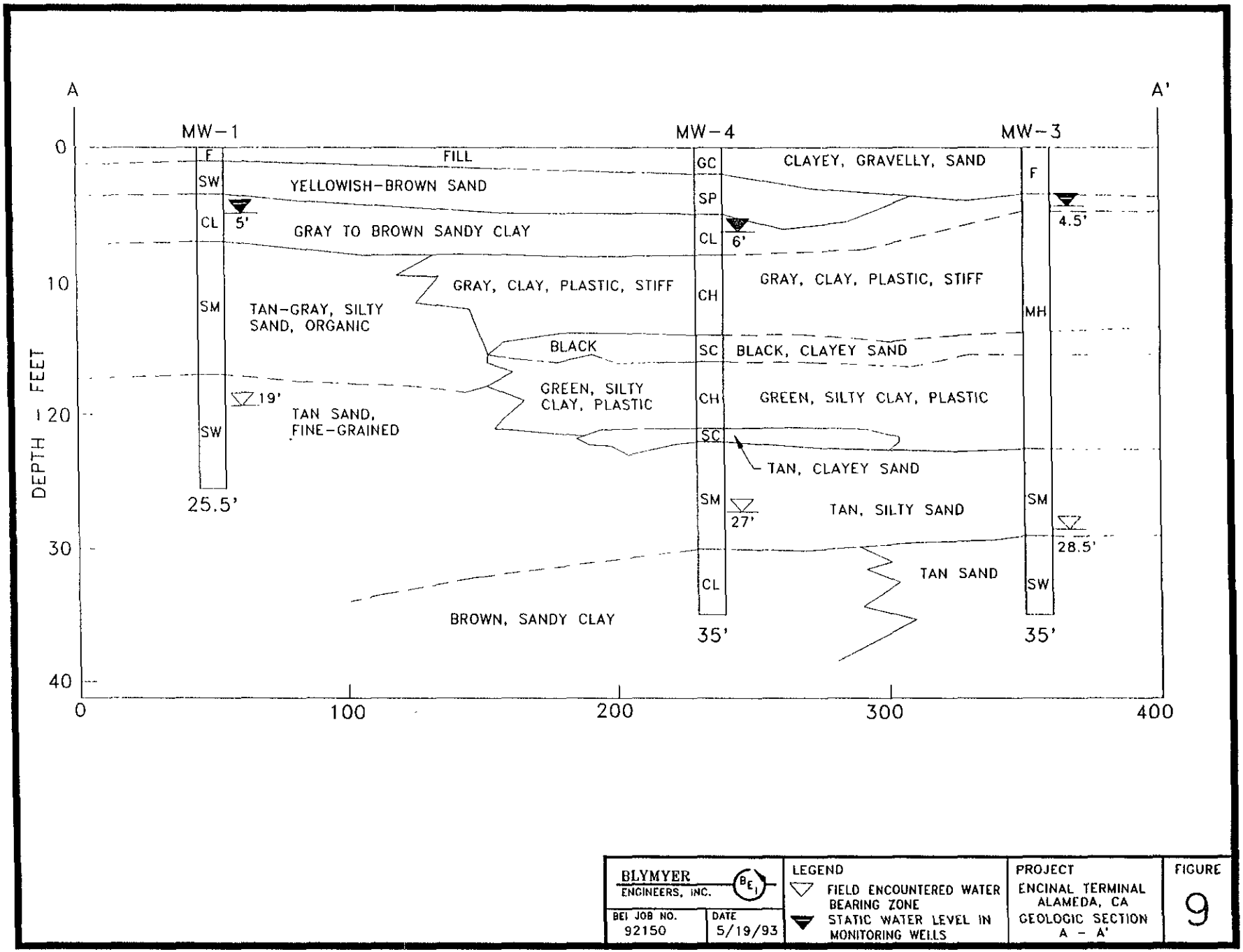

NORTH
WAREHOUSE
ASSUMED GROUNDWATER FLOW DIRECTION ON JANUARY 8, 1993 AT 11:45 a.m.
MW-3 (90.98)
(T-3)
8,500-GAL. GASOLINE UST (EXCAVATION)
91.2'
91.4'
91.6'
MAIN DISTRIBUTION BUILDING
SB-3
MW-4
SB-1
500-GAL. WASTE OIL AST & SUMP (EXCAVATION)
SB-2
(T-2)
5,000-GAL GASOLINE UST (EXCAVATION)
MW-2 (91.58)
55-GAL. DRUMS
VACANT BLDG.
FENCE LINE
ENCINAL BASIN
RAILROAD SPUR
FORTMANN BASIN
MW-1 (91.62)
1,500-GAL. GASOLINE UST (EXCAVATION)
(T-1)
GUARD HOUSE
ENTRANCE
0 15 30 60
SCALE IN FEET
BLYMYER ENGINEERS, INC.
BEI JOB NO. 92150
DATE 5/19/93
LEGEND
SOIL BORE
MONITORING WELL
PIEZOMETER
UST UNDERGROUND STORAGE TANK
AST ABOVEGROUND STORAGE TANK
(91.59) GROUNDWATER ELEV.
GROUNDWATER CONTOUR
PROJECT
ENCINAL TERMINALS
ALAMEDA, CA
GROUNDWATER GRADIENT MAP
(11:45 a.m. MW-1, MW-2 & MW-3 on 1/8/93)
FIGURE
4


NORTH
WAREHOUSE
ASSUMED GROUNDWATER FLOW DIRECTION ON JANUARY 8, 1993 AT 1:45 p.m.
MW-3 (90.88)
(T-3)
8,500-GAL. GASOLINE UST (EXCAVATION)
MAIN DISTRIBUTION BUILDING
ENCINAL BASIN
RAILROAD SPUR
MW-4
SB-3
SB-1
500-GAL. WASTE OIL AST & SUMP (EXCAVATION)
SB-2
(T-2)
5,000-GAL. GASOLINE UST (EXCAVATION)
MW-2 (91 38)
VACANT BLDG.
55-GAL. DRUMS
FENCE LINE
FORTMANN BASIN
MW-1 (91.62)
1,500-GAL. GASOLINE UST (EXCAVATION)
(T-1)
GUARD-HOUSE
ENTRANCE
91.5'
91.5'
0 15 30 60
SCALE IN FEET
BLYMYER ENGINEERS, INC.
BEI JOB NO. 92150
DATE 5/18/93
LEGEND
SOIL BORE
MONITORING WELL
PIEZOMETER
UST UNDERGROUND STORAGE TANK
AST ABOVEGROUND STORAGE TANK
(91.42) GROUNDWATER ELEV.
GROUNDWATER CONTOUR
PROJECT
ENCINAL TERMINALS
ALAMEDA, CA
GROUNDWATER GRADIENT MAP
(1:45 p.m. MW-1, MW-2 & MW-3 on 1/8/93)
FIGURE
5


NORTH
WAREHOUSE
89.4'
89.6'
89.8'
ASSUMED GROUNDWATER FLOW DIRECTION ON JANUARY 8, 1993 AT 5:45 p.m.
MW-3 (90.07)
(T-3)
8,500-GAL. GASOLINE UST (EXCAVATION)
MAIN DISTRIBUTION BUILDING
ENCINAL BASIN
RAILROAD SPUR
SB-3
MW-4
SB-1
500-GAL. WASTE OIL AST & SUMP (EXCAVATION)
SB-2
(T-2)
5,000-GAL. GASOLINE UST (EXCAVATION)
MW-2 (89.78)
55-GAL DRUMS
VACANT BLDG.
FENCE LINE
FORTMANN BASIN
MW-1 (90.02)
1,500-GAL. GASOLINE UST (EXCAVATION)
(T-1)
GUARD HOUSE
ENTRANCE
0 15 30 60
SCALE IN FEET
BLYMYER ENGINEERS, INC.
BEI JOB NO. 92150
DATE 5/18/93
LEGEND
SOIL BORE
MONITORING WELL
PIEZOMETER
UST UNDERGROUND STORAGE TANK
AST ABOVEGROUND STORAGE TANK
(89.87) GROUNDWATER ELEV.
GROUNDWATER CONTOUR
PROJECT
ENCINAL TERMINALS
ALAMEDA, CA
GROUNDWATER GRADIENT MAP
(5:45 p.m. MW-1, MW-2 & MW-3 on 1/8/93)
FIGURE
6


NORTH
WAREHOUSE
ASSUMED GROUNDWATER FLOW DIRECTION
89.25'
MW-3 (89.23)
(T-3)
8,500-GAL. GASOLINE UST (EXCAVATION)
89.50'
89.75'
SB-3
SB-1
MW-4 (89.44)
500-GAL. WASTE OIL AST & SUMP (EXCAVATION)
MAIN DISTRIBUTION BUILDING
ENCINAL BASIN
RAILROAD SPUR
SB-2
(T-2)
5,000-GAL. GASOLINE UST (EXCAVATION)
MW-2 (89.87)
55-GAL. DRUMS
VACANT BLDG.
FENCE LINE
FORTMANN BASIN
MW-1 (89.98)
1,500-GAL. GASOLINE UST (EXCAVATION)
(T-1)
GUARD HOUSE
ENTRANCE
0 15 30 60
SCALE IN FEET
BLYMYER ENGINEERS, INC.
BEI JOB NO. 92150
DATE 5/20/93
LEGEND
SOIL BORE
MONITORING WELL
PIEZOMETER
UST UNDERGROUND STORAGE TANK
AST ABOVEGROUND STORAGE TANK
(89.87) GROUNDWATER ELEV.
GROUNDWATER CONTOUR
PROJECT
ENCINAL TERMINALS
ALAMEDA, CA
GENERAL GROUNDWATER GRADIENT MAP
(9.45 a.m. MW-1 THROUGH MW-4 ON 3/23/93)
FIGURE
7


NORTH
WAREHOUSE
A'
MW-3
(T-3)
8,500-GAL.
GASOLINE UST
(EXCAVATION)
MAIN
DISTRIBUTION
BUILDING
ENCINAL
BASIN
RAILROAD SPUR
MW-4
SB-3
SB-1
500-GAL. WASTE OIL
AST & SUMP
(EXCAVATION)
SB-2
(T-2)
5,000-GAL.
GASOLINE UST
(EXCAVATION)
MW-2
VACANT
BLDG.
55-GAL.
DRUMS
FENCE LINE
FORTMANN
BASIN
MW-1
1,500-GAL.
GASOLINE UST
(EXCAVATION)
(T-1)
GUARD
HOUSE
ENTRANCE
0 15 30 60
SCALE IN FEET
BLYMYER
ENGINEERS, INC.
BEI JOB NO.
92150
DATE
4/7/93
LEGEND
SOIL BORE
MONITORING WELL
PIEZOMETER
UST UNDERGROUND STORAGE TANK
AST ABOVEGROUND STORAGE TANK
A A' GEOLOGIC SECTION
LOCATION
PROJECT
ENCINAL TERMINALS
ALAMEDA, CA
GEOLOGIC SECTION
LOCATION MAP
FIGURE
8



BLYMYER ENGINEERS, INC. (BEI)	LEGEND	PROJECT	FIGURE
BEI JOB NO. 92150 / DATE 5/19/93	▽ FIELD ENCOUNTERED WATER BEARING ZONE ▼ STATIC WATER LEVEL IN MONITORING WELLS	ENCINAL TERMINAL ALAMEDA, CA GEOLOGIC SECTION A - A'	9

BLYMER ENGINEERS, INC. BEI

Job #: 92150
Log of Bore No.: SB-1
Client: Encinal Terminals
Site: 1521 Buena Vista Ave.
Driller: Paul Edwards
Drilling Contractor: Gregg Drilling
Logged by: Laurie Buckman

Date Drilled: 1/5/93
Drilling Equipment: Hollow Stem Auger
Bore diameter: 6 inches
Total depth: 10 feet
Initial water level:
Stabilized water level:

Well Completion
Completion Depth: 15.5'
Size/Type — Depth (feet) From To
Surface Completion:
Blank Casing:
Slotted Casing:
Filter Pack:
Seal:
Annular Seal:
Bottom Seal:

Depth (Ft.)	Blows/6 In.	P.I.D. (ppm)	Samples	DESCRIPTION	Unified Soil Classification	Graphic Log	Water Depth
0				0.0-4.5' Gray, silty clay, moist, no odor.	MH		
	1-1-1	0					
5				4.5-7.5' Tan sand, well sorted, iron-stained, moist, no odor.	SW		
	2-2-3	0		7.5-9.0' Gray, lean clay, dry, no odor.	CL		
				9.0-10.0' Gray, silty clay, wet, no odor.	MH		
10				End of bore 10.0 feet			
15							
20							
25							
30							

BLYMYER ENGINEERS, INC.

Job #: 92150
Log of Bore No.: SB-2
Client: Encinal Terminals
Site: 1521 Buena Vista Ave.
Driller: Paul Edwards
Drilling Contractor: Gregg Drilling
Logged by: Laurie Buckman

Date Drilled: 1/5/93
Drilling Equipment: Hollow Stem Auger
Bore diameter: 6 inches
Total depth: 10 feet
Initial water level:
Stabilized water level:

Well Completion
Completion Depth: 15.5'

Size/Type	Depth (feet) From	To
Surface Completion:		
Blank Casing:		
Slotted Casing:		
Filter Pack:		
Seal:		
Annular Seal:		
Bottom Seal:		

Depth (Ft.)	Blows/6 in.	P.I.D. (ppm)	Samples	DESCRIPTION	Unified Soil Classification	Graphic Log	Water Depth
0				0.0-0.2' Asphalt 0.2-1.0' Concrete	F		
				1.0-4.5' Brown, silty sand, dry, no odor.	SM		
5	4-2-4	0		4.5-8.0' Gray, silty clay, moist, no odor.	MH		
	2-2-3	75		8.0-10.0' Black, silty sand, organic rich, moist, no odor.	SM		
10				End of bore 10.0 feet			
15							
20							
25							
30							

0 5 10 15 20 25 30

BLYMER ENGINEERS, INC.

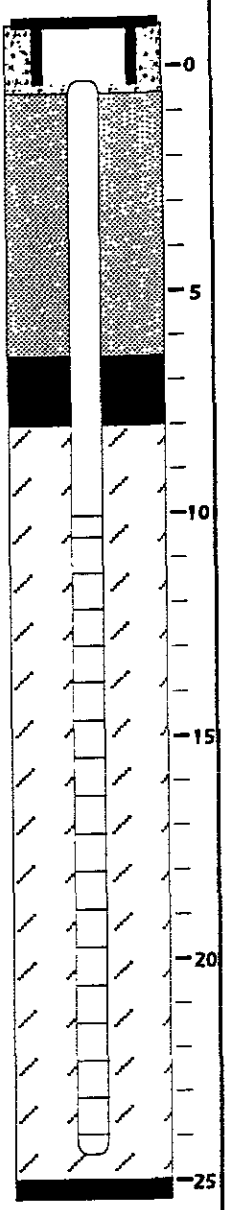
Job #: 92150
Log of Bore No.: MW-1
Client: Encinal Terminals
Site: 1521 Buena Vista Ave.
Driller: Paul Edwards
Drilling Contractor: Gregg Drilling
Logged by: Laurie Buckman

Date Drilled: 1/5/93
Drilling Equipment: Hollow Stem Auger
Bore diameter: 6 inches
Total depth: 25 feet
Initial water level: ▽ 19 feet
Stabilized water level: ▼ 4.86 feet

Well Completion
Completion Depth: 15.5'

Size/Type	Depth (feet) From	To
Surface Completion: Flush Mount w/locking cap		
Blank Casing: 2" Diam./PVC	0.5	10.0
Slotted Casing: 0.020" Slot-2" Diam./PVC	10.0	25.0
Filter Pack: #2-12 Silica Sand	8.0	25.0
Seal: Hydrated Bentonite	6.5	8.0
Annular Seal: Grout	0.0	6.5
Bottom Seal: Cement	25.0	25.5

Depth (Ft.)	Blows/6 in.	P.I.D (ppm)	Samples	DESCRIPTION	Unified Soil Classification	Graphic Log	Water Depth
0				0.0-0.4' Asphalt 0.4-2.5' Sandy - Gravel fill.	F SW		
5	5-6-6	0		2.5-7.0' Gray, lean clay, dry, no odor.	CL		4.86' ▼
10	11-18-25	0		7.0-10.0' Black, clayey sand, organic rich, moist, no odor. 10.0-12.5' Tan-gray, silty sand, organic rich, moist, no odor.	SM		
15	2-2-2	0		12.5-17.0' Tan-gray, silty sand, iron-stained, dry, no odor.			19.0' ▽
20	2-2-2	0		17.0-25.5' Tan sand, fine-grained, iron-stained, moist.	SW		
25				End of bore 25.5 feet			
30							



BLYMER ENGINEERS, INC.

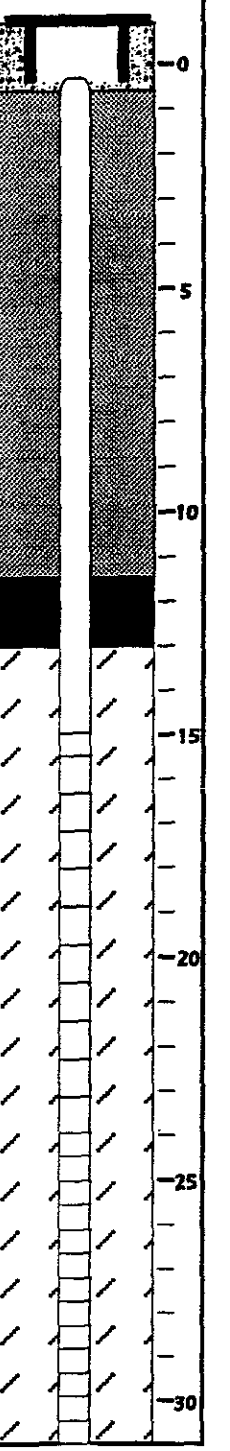
Job #: 92150
Log of Bore No.: MW-3
Client: Encinal Terminals
Site: 1521 Buena Vista Ave.
Driller: Paul Edwards
Drilling Contractor: Gregg Drilling
Logged by: Laurie Buckman

Date Drilled: 1/4/93
Drilling Equipment: Hollow Stem Auger
Bore diameter: 6 inches
Total depth: 35.5 feet
Initial water level: ▽ 28.5 feet
Stabilized water level: ▼ 4.5 feet

Well Completion
Completion Depth: 15.5'

Size/Type	Depth (feet) From	To
Surface Completion: Flush Mount w/locking cap		
Blank Casing: 2" Diam./PVC	0.5	15.0
Slotted Casing: 0.020" Slot-2" Diam./PVC	15.0	35.0
Filter Pack: #2-12 Silica Sand	13.0	35.0
Seal: Hydrated Bentonite	11.5	13.0
Annular Seal: Grout	0.0	11.5
Bottom Seal: Cement	35.0	35.5

Depth (Ft.)	Blows/6 in.	P.I.D. (ppm)	Samples	DESCRIPTION	Unified Soil Classification	Graphic Log	Water Depth
0				0.0-0.2' Asphalt 0.2-2.5' Fill	F		
	2-2-2	0		2.5-7.4' Brown, silty clay, moist, no odor.			4.5' ▼
5							
	2-2-2	0		7.4-11.5' Gray, silty clay, moist, no odor.	MH		
10							
	2-4-4	0		11.5-17.0' Brown, silty clay, iron-stained, moist, no odor.			
15							
	17-25-50	0		17.0-20.0' Gray, silty clay, moist, no odor.			
20				20.0-22.5' Brown, silty sand, organic rich, iron-stained, dry, no odor.			
	17-25-50	0		22.5-29.0' Tan, silty sand, iron-stained, dry, no odor.	SM		28.5' ▽
25							
	2-2-2	0					
30				29.0-35.5' Tan sand, well graded, iron-stained, wet, no odor.	SW		



BLYMER ENGINEERS, INC. BEI

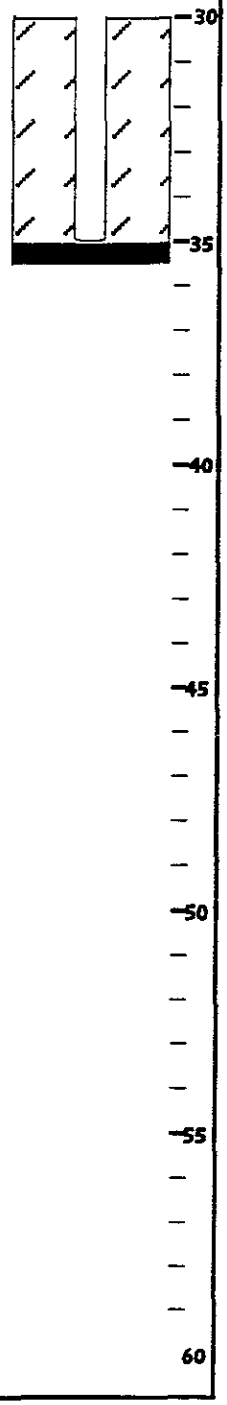
Job #: 92150
Log of Bore No.: MW-3
Client: Encinal Terminals
Site: 1521 Buena Vista Ave.
Driller: Paul Edwards
Drilling Contractor: Gregg Drilling
Logged by: Laurie Buckman

Date Drilled: 1/4/93
Drilling Equipment: Hollow Stem Auger
Bore diameter: 6 inches
Total depth: 35.5 feet
Initial water level: ▽ 28.5 feet
Stabilized water level: ▼ 4.5 feet

Well Completion
Completion Depth: 15.5'

Size/Type	Depth (feet) From	To
Surface Completion: Flush Mount w/locking cap		
Blank Casing: 2" Diam./PVC	0.5	15.0
Slotted Casing: 0.020" Slot-2" Diam./PVC	15.0	35.0
Filter Pack: #2-12 Silica Sand	13.0	35.0
Seal: Hydrated Bentonite	11.5	13.0
Annular Seal: Grout	0.0	11.5
Bottom Seal: Cement	35.0	35.5

Depth (Ft.)	Blows/6 in.	P.I.D. (ppm)	Samples	DESCRIPTION	Unified Soil Classification	Graphic Log	Water Depth
30				29.0-35.5' Tan sand, well graded, iron-stained, wet, no odor.	SW		
35				End of bore 35.5 feet			
40							
45							
50							
55							
60							



BLYMYER ENGINEERS, INC.

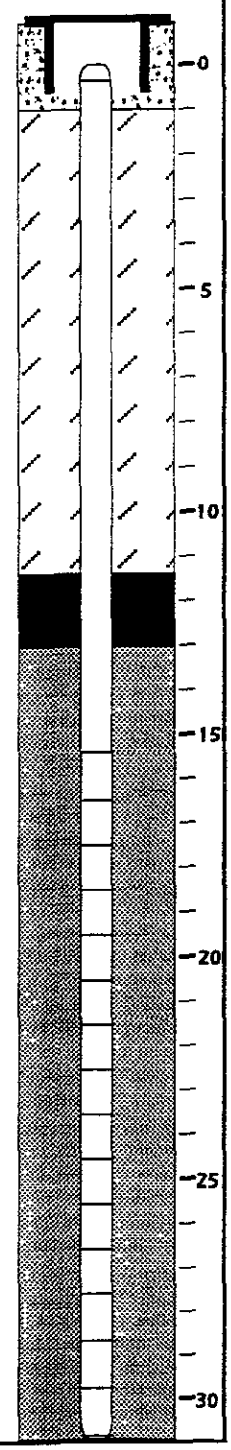
Job #: 92150
Log of Bore No.: MW-4 (SB-3)
Client: Encinal Terminals
Site: 1521 Buena Vista Ave.
Driller: Steve
Drilling Contractor: Gregg Drilling
Logged by: L.A.B./H.S.

Date Drilled: 3/17/93
Drilling Equipment: Hollow stem auger
Bore diameter: 8"
Total depth: 35 feet
Initial water level: ▽ 27'
Stabilized water level: ▼ 6'

Well Completion
Completion Depth: 35'

Size/Type	Depth (feet) From	To
Surface Completion: Flush mount/Traffic vault w/ locking cap		
Blank Casing: 4" Diam./PVC	0.0	15.0
Slotted Casing: 0.010" Slot-4" Diam./PVC	15.0	35.0
Filter Pack: #2-12 Sand	13.0	35.0
Seal: Bentonite pellets	11.5	13.0
Annular Seal: Grout	0.0	11.5
Bottom Seal: Cement		

Depth (Ft.)	Blows/6 In.	P.I.D. (ppm)	Samples	DESCRIPTION	Unified Soil Classification	Graphic Log	Water Depth
0				0.0-2.1' Brown, clayey, gravelly sand.	GC		
	10-16-10			2.1-5.0' Yellowish-brown sand, fine-grained.	SP		
5				5.0-7.9' Brown, sandy clay, iron-stained, dense, dry.	CL		6.0' ▼
				7.9-10.0' Gray clay, plastic, stiff.	CH		
10				10.0-12.0' Brown, silty clay, stiff, moist.			
	3-4-4			12.0-14.0' Black, clayey sand, moderately plastic, soft, moist.	SC		
15							
	7-14-25			14.0-20.0' Green, silty clay, highly plastic, stiff.	CH		
20							
	22-28-33			20.0-22.0' Tan, clayey sand, fine-grained, dense.	SC		
				22.0-30.0' Tan, silty sand, fine-grained, medium dense to dense, wet.			
25					SM		27.0' ▽
30							



BLYMYER ENGINEERS, INC. BEI

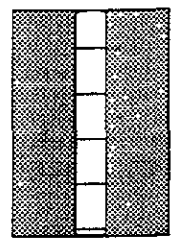
Job #: 92150
Log of Bore No.: MW-4
Client: Encinal Terminals
Site: 1521 Buena Vista Ave.
Driller: Steve
Drilling Contractor: Gregg Drilling
Logged by: L.A.B./H.S.

Date Drilled: 3/17/93
Drilling Equipment: Hollow stem auger
Bore diameter: 8"
Total depth: 35 feet
Initial water level: ▽ 27'
Stabilized water level: ▼ 6'

Well Completion
Completion Depth: 35'

Size/Type	Depth (feet) From	To
Surface Completion: Flush mount/Traffic vault w/ locking cap		
Blank Casing: 4" Diam./PVC	0.0	15.0
Slotted Casing: 0.010" Slot-4" Diam./PVC	15.0	35.0
Filter Pack: #2-12 Sand	13.0	35.0
Seal: Bentonite pellets	11.5	13.0
Annular Seal: Grout	0.0	11.5
Bottom Seal: Cement		

Depth (Ft.)	Blows/6 In.	P.I.D. (ppm)	Samples	DESCRIPTION	Unified Soil Classification	Graphic Log	Water Depth
30				30.0-35.0' Brown sandy clay, fine-grained, very dense.	CL		
35				End of bore 35.0 feet			
40							
45							
50							
55							
60							



COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (San Jose Laboratory)
2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Lab Number : JJ-0016-5
Project : 92150 Encinal Terminals

Analyzed : 01/11/93
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-1, 10'	Soil	L.Buckman	01/05/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.005	ND	
Toluene		0.005	ND	
Ethylbenzene		0.005	ND	
Xylenes		0.005	ND	
1,2-Dichloroethane		0.005	ND	
Ethylene dibromide		0.005	ND	
Total Petroleum Hydrocarbons (Gasoline)		1.	ND	
Total Petroleum Hydrocarbons (C5-C13)		1.	ND	
Percent Surrogate Recovery			100.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
MSD1/1K32A
MC/rlb/on
MSD1-0111

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
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NorCal Division (San Jose Laboratory)
2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Lab Number : JJ-0016-6
Project : 92150 Encinal Terminals

Analyzed : 01/11/93
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-1, 17.5'-20'	Soil	L.Buckman	01/05/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.005	ND	
Toluene		0.005	ND	
Ethylbenzene		0.005	ND	
Xylenes		0.005	ND	
1,2-Dichloroethane		0.005	ND	
Ethylene dibromide		0.005	ND	
Total Petroleum Hydrocarbons (Gasoline)		1.	ND	
Total Petroleum Hydrocarbons (C5-C13)		1.	ND	
Percent Surrogate Recovery			113.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
MSD1/1K48A
MC/rlb/on
MSD1-0111

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (San Jose Laboratory)
2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

Lab Number : JJ-0016-1
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Analyzed : 01/11/93
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-3, 18.5'-20'	Soil	L.Buckman	01/04/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.005	ND	
Toluene		0.005	ND	
Ethylbenzene		0.005	ND	
Xylenes		0.005	ND	
1,2-Dichloroethane		0.005	ND	
Ethylene dibromide		0.005	ND	
Total Petroleum Hydrocarbons (Gasoline)		1.	ND	
Total Petroleum Hydrocarbons (C5 - C13)		1.	ND	
Percent Surrogate Recovery			106.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
MSD1/1K28A
MC/rlb/mcc/on
MSD1-0111

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Lab Number : JJ-0016-2
Project : 92150 Encinal Terminals

Analyzed : 01/11/93
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-3, 27.5'-30'	Soil	L.Buckman	01/04/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.005	ND	
Toluene		0.005	ND	
Ethylbenzene		0.005	ND	
Xylenes		0.005	ND	
1,2-Dichloroethane		0.005	ND	
Ethylene dibromide		0.005	ND	
Total Petroleum Hydrocarbons (Gasoline)		1.	ND	
Total Petroleum Hydrocarbons (C5-C13)		1.	ND	
Percent Surrogate Recovery			99.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
MSD1/1K29A
MC/rlb/on
MSD1-0111

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (San Jose Laboratory)
2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

Lab Number : JJ-0016-7
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-1, 5'	Soil	L. Buckman	01/05/93	01/06/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Total Recoverable Petroleum Hydrocarbons	10.	ND	mg/Kg	EPA 418.1	01/13/93	JE	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93

MC/sab/jre
41893011301

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Nick J. Gaone

Nick Gaone, Inorganics Manager

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (San Jose Laboratory) San Jose, CA 95131
2059 Junction Ave. (408) 955-9077

Lab Number : JJ-0016-7
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Analyzed : 01/13/93
Analyzed by: MM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-1, 5'	Soil	L.Buckman	01/05/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/Kg	RESULT µg/Kg	NOTE
PURGEABLE HALOCARBONS AND AROMATICS + TPH				1,2
Benzene	(71432)	5.	ND	
Bromodichloromethane	(75274)	5.	ND	
Bromoform	(75252)	5.	ND	
Bromomethane	(74839)	5.	ND	
Carbon Tetrachloride	(56235)	5.	ND	
Chlorobenzene	(108907)	5.	ND	
Chloroethane	(75003)	5.	ND	
2-Chloroethyl Vinyl Ether	(110758)	50.	ND	
Chloroform	(67663)	20.	ND	
Chloromethane	(74873)	5.	ND	
Dibromochloromethane	(124481)	5.	ND	
1,2-Dichlorobenzene	(95501)	5.	ND	
1,3-Dichlorobenzene	(541731)	5.	ND	
1,4-Dichlorobenzene	(106467)	5.	ND	
Dichlorodifluoromethane (F12)	(75718)	10.	ND	
1,1-Dichloroethane	(75343)	5.	ND	
1,2-Dichloroethane	(107062)	5.	ND	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
FINN2/011308B
MC/mcc/on/rlb
FIN2-0113

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2059 Junction Ave. (408) 955-9077

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Lab Number : JJ-0016-7
Project : 92150 Encinal Terminals

Analyzed : 01/13/93
Analyzed by: MM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-1, 5'	Soil	L.Buckman	01/05/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/Kg	RESULT µg/Kg	NOTE
1,1-Dichloroethene	(75354)	5.	ND	
cis-1,2-Dichloroethene	(156592)	5.	ND	
trans-1,2-Dichloroethene	(156605)	5.	ND	
1,2-Dichloropropane	(78875)	5.	ND	
cis-1,3-Dichloropropene	(10061015)	5.	ND	
trans-1,3-Dichloropropene	(10061026)	5.	ND	
Ethylbenzene	(100414)	5.	ND	
Methylene Chloride	(75092)	50.	ND	
1,1,2,2-Tetrachloroethane	(79345)	5.	ND	
Tetrachloroethene	(127184)	5.	ND	
Toluene	(108883)	5.	ND	
1,1,1-Trichloroethane	(71556)	5.	ND	
1,1,2-Trichloroethane	(79005)	5.	ND	
Trichloroethene	(79016)	5.	ND	
Trichlorotrifluoroethane	(76131)	10.	ND	
Trichlorofluoromethane	(75694)	5.	ND	
Vinyl Chloride	(75014)	5.	ND	
Xylenes (total)		5.	ND	
Total Petroleum Hydrocarbons (Gasoline)		1000.	ND	
Total Petroleum Hydrocarbons (C5 - C13)		1000.	ND	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93
FINN2/011308B
MC/mcc/on/rlb
FIN2-0113

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CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Lab Number : JJ-0016-7
Project : 92150 Encinal Terminals

Analyzed : 01/13/93
Analyzed by: MM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-1, 5'	Soil	L.Buckman	01/05/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/Kg	RESULT µg/Kg	NOTE
D4-DCA (% Surrogate recovery #1)			88.	
D8-TOL (% Surrogate Recovery #2)			95.	
BFB (% Surrogate Recovery #3)			70.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93
FINN2/011308B
MC/mcc/on/rlb
FIN2-0113

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

Lab Number : JJ-0016-8
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-1, 10'	Soil	L. Buckman	01/05/93	01/06/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Total Recoverable Petroleum Hydrocarbons	10.	ND	mg/Kg	EPA 418.1	01/13/93	JE	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93

MC/sab/dds/jre
41893011301

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Nick Gaone, Inorganics Manager

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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2059 Junction Ave. (408) 955-9077

Lab Number : JJ-0016-8
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Analyzed : 01/13/93
Analyzed by: MM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-1, 10'	Soil	L.Buckman	01/05/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/Kg	RESULT µg/Kg	NOTE
PURGEABLE HALOCARBONS AND AROMATICS + TPH				1,2
Benzene	(71432)	5.	ND	
Bromodichloromethane	(75274)	5.	ND	
Bromoform	(75252)	5.	ND	
Bromomethane	(74839)	5.	ND	
Carbon Tetrachloride	(56235)	5.	ND	
Chlorobenzene	(108907)	5.	ND	
Chloroethane	(75003)	5.	ND	
2-Chloroethyl Vinyl Ether	(110758)	50.	ND	
Chloroform	(67663)	20.	ND	
Chloromethane	(74873)	5.	ND	
Dibromochloromethane	(124481)	5.	ND	
1,2-Dichlorobenzene	(95501)	5.	ND	
1,3-Dichlorobenzene	(541731)	5.	ND	
1,4-Dichlorobenzene	(106467)	5.	ND	
Dichlorodifluoromethane (F12)	(75718)	10.	ND	
1,1-Dichloroethane	(75343)	5.	ND	
1,2-Dichloroethane	(107062)	5.	ND	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
FINN2/011307B
MC/mcc/on/rlb
FIN2-0113

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NorCal Division (San Jose Laboratory) San Jose, CA 95131
2059 Junction Ave. (408) 955-9077

Lab Number : JJ-0016-8
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Analyzed : 01/13/93
Analyzed by: MM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-1, 10'	Soil	L.Buckman	01/05/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/Kg	RESULT µg/Kg	NOTE
1,1-Dichloroethene	(75354)	5.	ND	
cis-1,2-Dichloroethene	(156592)	5.	ND	
trans-1,2-Dichloroethene	(156605)	5.	ND	
1,2-Dichloropropane	(78875)	5.	ND	
cis-1,3-Dichloropropene	(10061015)	5.	ND	
trans-1,3-Dichloropropene	(10061026)	5.	ND	
Ethylbenzene	(100414)	5.	ND	
Methylene Chloride	(75092)	50.	ND	
1,1,2,2-Tetrachloroethane	(79345)	5.	ND	
Tetrachloroethene	(127184)	5.	ND	
Toluene	(108883)	5.	ND	
1,1,1-Trichloroethane	(71556)	5.	ND	
1,1,2-Trichloroethane	(79005)	5.	ND	
Trichloroethene	(79016)	5.	ND	
Trichlorotrifluoroethane	(76131)	10.	ND	
Trichlorofluoromethane	(75694)	5.	ND	
Vinyl Chloride	(75014)	5.	ND	
Xylenes (total)		5.	ND	
Total Petroleum Hydrocarbons (Gasoline)		1000.	ND	
Total Petroleum Hydrocarbons (C5 - C13)		1000.	ND	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93
FINN2/011307B
MC/mcc/on/rlb
FIN2-0113

COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (San Jose Laboratory)
2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Lab Number : JJ-0016-8
Project : 92150 Encinal Terminals

Analyzed : 01/13/93
Analyzed by: MM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-1, 10'	Soil	L.Buckman	01/05/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/Kg	RESULT µg/Kg	NOTE
D4-DCA (% Surrogate recovery #1)			84.	
D8-TOL (% Surrogate Recovery #2)			88.	
BFB (% Surrogate Recovery #3)			70.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93
FINN2/011307B
MC/mcc/on/rlb
FIN2-0113

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
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Anaheim, CA • Tempe, AZ • Valparaiso, IN • Westbrook, ME • Indianapolis, IN

NorCal Division (San Jose Laboratory) San Jose, CA 95131
2059 Junction Ave. (408) 955-9077

Lab Number : JJ-0016-3
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Analyzed : 01/11/93
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-2, 2.5'-5.0'	Soil	L.Buckman	01/04/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.005	ND	
Toluene		0.005	ND	
Ethylbenzene		0.005	ND	
Xylenes		0.005	ND	
1,2-Dichloroethane		0.005	ND	
Ethylene dibromide		0.005	ND	
Total Petroleum Hydrocarbons (Gasoline)		1.	ND	
Total Petroleum Hydrocarbons (C5-C13)		1.	ND	
Percent Surrogate Recovery			105.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
MSD1/1K30A
MC/rlb/on
MSD1-0111

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
Certified Hazardous Waste, Chemistry, Bacteriology & Bioassay Laboratories

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NorCal Division (San Jose Laboratory)
2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

Lab Number : JJ-0016-4
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Analyzed : 01/11/93
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-2, 7.5'-10.0'	Soil	L.Buckman	01/04/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.005	ND	
Toluene		0.005	ND	
Ethylbenzene		0.005	ND	
Xylenes		0.005	ND	
1,2-Dichloroethane		0.005	ND	
Ethylene dibromide		0.005	ND	
Total Petroleum Hydrocarbons (Gasoline)		1.	ND	
Total Petroleum Hydrocarbons (C5-C13)		1.	ND	
Percent Surrogate Recovery			108.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
MSD1/1K31A
MC/rlb/on
MSD1-0111

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
Certified Hazardous Waste, Chemistry, Bacteriology & Bioassay Laboratories

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NorCal Division (San Jose Laboratory) San Jose, CA 95131
2059 Junction Ave. (408) 955-9077

Lab Number : JJ-0235-1
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
MW-4 (14')	Soil	Lorie Buckman	03/17/93	03/19/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Total Recoverable Petroleum Hydrocarbons	10.	15.	mg/Kg	EPA 418.1	03/23/93	MC	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

04/01/93

NG/sab/mjc
TPH93032301

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Nick J. Gaone

Nick Gaone
Inorganics Manager

COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (San Jose Laboratory) San Jose, CA 95131
2059 Junction Ave. (408) 955-9077

Lab Number : JJ-0235-2
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-4 (25')	Soil	Lorie Buckman	03/17/93	03/19/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Total Recoverable Petroleum Hydrocarbons	10.	15.	mg/Kg	EPA 418.1	03/23/93	MC	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

04/01/93

NG/sab/mjc
TPH93032301

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Nick Gaone
Inorganics Manager

COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (San Jose Laboratory) San Jose, CA 95131
2059 Junction Ave. (408) 955-9077

QC Batch ID: FIN2-0113

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 01/13/93
Analyzed by: MM
Method : As Listed

METHOD BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
METHOD BLANK	Solid			

CONSTITUENT	(CAS RN)	*PQL µg/Kg	RESULT µg/Kg	NOTE
PURGEABLE HALOCARBONS AND AROMATICS + TPH				
Benzene	(71432)	5.	ND	
Bromodichloromethane	(75274)	5.	ND	
Bromoform	(75252)	5.	ND	
Bromomethane	(74839)	5.	ND	
Carbon Tetrachloride	(56235)	5.	ND	
Chlorobenzene	(108907)	5.	ND	
Chloroethane	(75003)	5.	ND	
2-Chloroethyl Vinyl Ether	(110758)	50.	ND	
Chloroform	(67663)	20.	ND	
Chloromethane	(74873)	5.	ND	
Dibromochloromethane	(124481)	5.	ND	
1,2-Dichlorobenzene	(95501)	5.	ND	
1,3-Dichlorobenzene	(541731)	5.	ND	
1,4-Dichlorobenzene	(106467)	5.	ND	
Dichlorodifluoromethane (F12)	(75718)	10.	ND	
1,1-Dichloroethane	(75343)	5.	ND	
1,2-Dichloroethane	(107062)	5.	ND	
1,1-Dichloroethene	(75354)	5.	ND	
cis-1,2-Dichloroethene	(156592)	5.	ND	
trans-1,2-Dichloroethene	(156605)	5.	ND	
1,2-Dichloropropane	(78875)	5.	ND	
cis-1,3-Dichloropropene	(10061015)	5.	ND	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93
FINN2/011303B
MC/mcc/on
JJ0016-8

COAST - TO - COAST ANALYTICAL SERVICES

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2059 Junction Ave. (408) 955-9077

QC Batch ID: FIN2-0113

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 01/13/93
Analyzed by: MM
Method : As Listed

QC MATRIX SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
MATRIX SPIKE DUPLICATE	Solid			

CONSTITUENT	ORIGINAL RESULT	SPIKE AMOUNT	RESULT µg/Kg	%REC	%DIFF	NOTE
PURGEABLE HALOCARBONS AND AROMATICS + TPH						1,2
Benzene	ND	250.	280.	112.	2.6	
Chlorobenzene	ND	250.	260.	104.	3.9	
1,1-Dichloroethene	ND	250.	190.	76.	4.4	
Toluene	ND	250.	280.	112.	9.1	
Trichloroethene	ND	250.	260.	104.	8.6	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)

01/15/93
FINN2/011312B
MC/mcc/on
JJ0016-8

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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Certified Hazardous Waste, Chemistry, Bacteriology & Bioassay Laboratories

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Anaheim, CA • Tempe, AZ • Valparaiso, IN • Westbrook, ME • Indianapolis, IN

NorCal Division (San Jose Laboratory) San Jose, CA 95131
2059 Junction Ave. (408) 955-9077

QC Batch ID: FIN2-0113

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 01/13/93
Analyzed by: MM
Method : As Listed

QC MATRIX SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE RECEIVED
MATRIX SPIKE	Solid		

CONSTITUENT	ORIGINAL RESULT	SPIKE AMOUNT	RESULT µg/Kg	%REC	NOTE
PURGEABLE HALOCARBONS AND AROMATICS + TPH					1,2
Benzene	ND	220.	240.	109.	
Chlorobenzene	ND	220.	220.	100.	
1,1-Dichloroethene	ND	220.	160.	73.	
Toluene	ND	220.	270.	123.	
Trichloroethene	ND	220.	210.	95.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) EXTRACTED by EPA 5030 (purge-and-trap)
(2) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)

01/15/93
FINN2/011310B
MC/mcc/on
JJ0016-8

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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2059 Junction Ave. (408) 955-9077

QC Batch ID: FIN2-0113

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 01/13/93
Analyzed by: MM
Method : As Listed

METHOD BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
METHOD BLANK	Solid			

CONSTITUENT	(CAS RN)	*PQL µg/Kg	RESULT µg/Kg	NOTE
trans-1,3-Dichloropropene	(10061026)	5.	ND	
Ethylbenzene	(100414)	5.	ND	
Methylene Chloride	(75092)	50.	ND	
1,1,2,2-Tetrachloroethane	(79345)	5.	ND	
Tetrachloroethene	(127184)	5.	ND	
Toluene	(108883)	5.	ND	
1,1,1-Trichloroethane	(71556)	5.	ND	
1,1,2-Trichloroethane	(79005)	5.	ND	
Trichloroethene	(79016)	5.	ND	
Trichlorotrifluoroethane	(76131)	10.	ND	
Trichlorofluoromethane	(75694)	5.	ND	
Vinyl Chloride	(75014)	5.	ND	
Xylenes (total)		5.	ND	
Total Petroleum Hydrocarbons (Gasoline)		1000.	ND	
Total Petroleum Hydrocarbons (C5 - C13)		1000.	ND	
D4-DCA (% Surrogate recovery #1)			92.	
D8-TOL (% Surrogate Recovery #2)			100.	
BFB (% Surrogate Recovery #3)			80.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93
FINN2/011303B
MC/mcc/on
JJ0016-8

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (San Jose Laboratory)
2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

QC Batch ID: MSD1-0111

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 01/11/93
Analyzed by: ON
Method : As Listed

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
QC SPIKE	Solid			

CONSTITUENT	*PQL mg/Kg	SPIKE AMOUNT	RESULT mg/Kg	%REC	NOTE
FUEL FINGERPRINT ANALYSIS					1,2
Total Petroleum Hydrocarbons (Gasoline)	1.	250.	2.2	0.88	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
MSD1/1K38A
MC/rlb/on
JJ0016-2

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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San Jose, CA 95131
(408) 955-9077

QC Batch ID: MSD1-0111

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 01/11/93
Analyzed by: ON
Method : As Listed

QC MATRIX SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
MATRIX SPIKE	Solid			

CONSTITUENT	ORIGINAL RESULT	SPIKE AMOUNT	RESULT mg/Kg	%REC	NOTE
FUEL FINGERPRINT ANALYSIS					1,2
Benzene	ND	0.10	0.12	120.	
Toluene	ND	0.10	0.11	110.	
Ethylbenzene	ND	0.10	0.098	98.	
Xylenes	ND	0.10	0.098	98.	
1,2-Dichloroethane	ND	0.10	0.12	120.	
Ethylene dibromide	ND	0.10	0.11	110.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
MSD1/1K36A
MC/rlb/on
JJ0016-2

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
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2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

QC Batch ID: MSD1-0111

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 01/11/93
Analyzed by: ON
Method : As Listed

METHOD BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
METHOD BLANK	Solid			

CONSTITUENT	(CAS RN)	*PQL mg/Kg	RESULT mg/Kg	NOTE
FUEL FINGERPRINT ANALYSIS				
Benzene		0.005	ND	
Toluene		0.005	ND	
Ethylbenzene		0.005	ND	
Xylenes		0.005	ND	
1,2-Dichloroethane		0.005	ND	
Ethylene dibromide		0.005	ND	
Total Petroleum Hydrocarbons (Gasoline)		1.	ND	
Total Petroleum Hydrocarbons (C5-C13)		1.	ND	
Percent Surrogate Recovery			97.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93
MSD1/1K25A
MC/rlb/on
JJ0016-2

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

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2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

QC Batch ID: MSD1-0111

CLIENT: Coast-to-Coast Analytical Services, Inc.

Analyzed : 01/11/93
Analyzed by: ON
Method : As Listed

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
QC SPIKE DUPLICATE	Solid			

CONSTITUENT	*PQL mg/Kg	SPIKE AMOUNT	RESULT mg/Kg	%REC	%DIFF	NOTE
FUEL FINGERPRINT ANALYSIS						1,2
Total Petroleum Hydrocarbons (Gasoline)	1.	2.5	2.2	88.	200.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
MSD1/1K37A
MC/rlb/on
JJ0016-2

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

BLYMYER ENGINEERS, INC.

1829 Clement Avenue
Alameda, CA 94501 (415) 521-3773

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

JOB # 9215.0

PROJECT NAME/LOCATION: Encinal Terminals

SAMPLERS (SIGNATURE): Laurie G Buckman

TURNAROUND TIME: 7 DAY(S)

REMARKS:

DATE	TIME	COMP	GRAB	SAMPLE NAME/LOCATION	# OF CONTAINERS	TPH AS GASOLINE + BTXE (MOD EPA 8015/8020)	TPH AS DIESEL (MOD EPA 8015)	VOC (EPA 624/8240)	SEMI-VOC (EPA 625/8270)	TRPH (EPA 418.1)	BTXE (EPA 8020/602)	O+G 418.1					HOLD	
3/17/93	11:30			MW-4 (14')								X						JJ0235-1
3/17/93	12:36			MW-4 (25')								X						-2

REQUESTED BY: Laurie G Buckman

RESULTS AND INVOICE TO: Laurie Buckman, Blymyer Engineers

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
Laurie G Buckman	3/19/93 9:54	3/19/93 9:50		3/19/93 10:30	
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE / TIME	REMARKS:	
		Shellie Hoyt	3/19/93 1030	sealed, intact, cold	

WHITE: Accompany Sample YELLOW: BEI, After Lab Signs PINK: Original Sampler

BLYMYER ENGINEERS, INC.

1829 Clement Avenue
Alameda, CA 94501 (415) 521-3773

CHAIN OF CUSTODY RECORD

PAGE ____ OF ____

JOB #	PROJECT NAME/LOCATION
72150	Emeryville Terminals

SAMPLERS (SIGNATURE): [signature]

TURNAROUND TIME: ________ DAY(S)

DATE	TIME	COMP	GRAB	SAMPLE NAME/LOCATION	# OF CONTAINERS	TPH AS GASOLINE + BTXE (MOD EPA 8015/8020)	TPH AS DIESEL (MOD EPA 8015)	VOC (EPA 624/8240)	SEMI-VOC (EPA 625/8270)	TRPH (EPA 418.1)	BTXE (EPA 8020/602)	HVOCs (9010/8010)	[illegible]				HOLD	REMARKS
1/4/92	5:10			MW-3, 18.5'-20'	1	X												Soil
" "	5:40			MW-3, 27.5'-20'	1	X												
1/4/92	3:30			SB-2, 2.5'-5.0	1	X												
"	3:50			SB 2, 7.5'-10.0'	1	X												"
1/5/92	10:50			SB-1, 5'		X	X					X	X					"
1/5/92	"			SB 1, 10'		X	X					X	X					"
1/6/92	8:15			MW-1, 10'		X												Water
"	8:30			MW-1, 17.5'-20'		X												
1/6/92				SB1 (water)	6	X	X					X	X					Water
1/6/92				SB-2 (water)	2	X												Water

REQUESTED BY: [signature]

RESULTS AND INVOICE TO:

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
[signature]	1/6/93 4:15	[signature] 1/6/93 4:15			

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE / TIME	REMARKS:

WHITE: Accompany Sample YELLOW: BEI After Lab Signs PINK: Original Sampler

WELL PURGING AND SAMPLING DATA

DATE 1/6/93 | PROJECT NUMBER 92150 | PROJECT NAME ENCINAL TERMIANLS

WELL NUMBER MW-1 | BORING DIAMETER N/A | CASING DIAMETER 2"

Column of Liquid in Well

Depth to product	N/A
Depth to water	4.86 FT
Total depth of well	25.0 FT
Column of water	20.14 FT

Volume to be Removed

Gallon per foot of casing	=	0.17 GAL/FT
Column of water	x	20.14 FT
Volume of casing	=	3.4 GAL
Number of volumes to remove	x	3
Total volume to remove	=	10.2 GAL

Method of measuring liquid OIL/WATER INTERFACE PROBE

Method of purging well DISPOSABLE POLY BAILER rate N/A

Method of decon ALCONOX AND DISTILLED WATER

Physical appearance of water (clarity, color, particulates, odor)

Initial CLEAR, NO ODOR

During SILTY, TAN COLOR, NO ODOR

Final SILTY, TAN COLOR, NO ODOR

Field Analysis	Initial	During		Final
Time	12:34	12:45	12:57	13:10
Temperature (F)	64.1	63.3	63.0	62.6
Conductivity (us/cm)	3560	3800	3410	3550
Ph	8.99	8.25	8.14	7.92

Method of measurement HYDAC METER

Total volume purged 10.5 GALLONS

Comments

Sample Number MW-1 | Amount of Sample 2 - 40 ML VOA W/HCL

Signed/Sampler [signature] | Date 1/6/93

Signed/Reviewer | Date

BEI/swm 11/7/91

WELL PURGING AND SAMPLING DATA

DATE 1/6/93 PROJECT NUMBER 92150 PROJECT NAME ENCINAL TERMINALS

WELL NUMBER MW-2 BORING DIAMETER N/A CASING DIAMETER 2"

Column of Liquid in Well

			Volume to be Removed		
Depth to product	N/A		Gallon per foot of casing	=	N/A
Depth to water	6.03	FT	Column of water	x	
Total depth of well	34.5	FT	Volume of casing	=	
Column of water	28.47	FT	Number of volumes to remove	x	
			Total volume to remove	=	

Method of measuring liquid OIL/WATER INTERFACE PROBE

Method of purging well _____ rate _____

Method of decon ALCONOX AND DISTILLED WATER

Physical appearance of water (clarity, color, particulates, odor)

Initial N/A

During _____

Final _____

Field Analysis	Initial	During		Final
Time	N/A			
Temperature (F)				
Conductivity (us/cm)				
Ph				

Method of measurement N/A

Total volume purged N/A

Comments DEPTH TO WATER ONLY

DEPTH = 6.03 FT

Sample Number N/A Amount of Sample N/A

Signed/Sampler _____ Date 1/6/93

Signed/Reviewer _____ Date _____

BEI/swm 11/7/91

Well Purging and Sampling Data

Date	3/23/93	Project Number	92150	Project Name	Encinal Terminal
Well Number	MW-4	Boring Diameter	N/A	Casing Diameter	2"

Column of Liquid in Well		Volume to be Removed	
Depth to product	N/A	Gallons per foot of casing	= 0.17 gal/ft.
Depth to water	7.34 ft.	Column of water	x 26.92 ft.
Total depth of well	34.26 ft.	Volume of casing	= 4.6 gal.
Column of water	26.92 ft.	No. of volumes to remove	x 3
		Total volume to remove	= 13.8 gal.

Method of measuring liquid	Oil/water interface probe
Method of purging well	Teflon bailer
Method of decontamination	Alconox and distilled water

Physical appearance of water (clarity, color, particulates, odor)	
Initial	Clear, no odor
During	Silty, gray color, no odor
Final	Very silty, gray color, no odor

Field Analysis	Initial	During		Final
Time	09:46	10:20	10:35	10:45
Temperature (F)	61.1	64.3	64.2	64.3
Conductivity (us/cm)	2090	2310	2340	2490
Ph	9.16	8.26	8.21	8.06
Method of measurement	Hydac meter			
Total volume purged	23.0 gallons			
Comments	Needed to purge 5 well volumes to stabilize conductivity readings			

Sample Number	Amount of Sample
MW-4	1-1l amber w/ HCl

Signed/Sampler	Stephen W Moore	Date	3/23/93
Signed/Reviewer		Date	

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NorCal Division (San Jose Laboratory) San Jose, CA 95131
2059 Junction Ave. (408) 955-9077

Lab Number : JJ-0016-12
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Analyzed : 01/08/93
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
MW-1	Aqueous	L.Buckman	01/06/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (C5-C13)		50.	ND	
Percent Surrogate Recovery			93.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
MSD1/1K16A
MC/rlb/on
MSD1-0108

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

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NorCal Division (San Jose Laboratory)
2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

Lab Number : JJ-0016-10
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Analyzed : 01/12/93
Analyzed by: MM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-3	Aqueous	L.Buckman	01/06/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
PURGEABLE HALOCARBONS AND AROMATICS + TPH				1,2
Benzene	(71432)	0.5	ND	
Bromodichloromethane	(75274)	0.5	ND	
Bromoform	(75252)	0.5	ND	
Bromomethane	(74839)	0.5	ND	
Carbon Tetrachloride	(56235)	0.5	ND	
Chlorobenzene	(108907)	0.5	ND	
Chloroethane	(75003)	0.5	ND	
2-Chloroethyl Vinyl Ether	(110758)	5.	ND	
Chloroform	(67663)	2.	ND	
Chloromethane	(74873)	0.5	ND	
Dibromochloromethane	(124481)	0.5	ND	
1,2-Dichlorobenzene	(95501)	0.5	ND	
1,3-Dichlorobenzene	(541731)	0.5	ND	
1,4-Dichlorobenzene	(106467)	0.5	ND	
Dichlorodifluoromethane (F12)	(75718)	1.	ND	
1,1-Dichloroethane	(75343)	0.5	ND	
1,2-Dichloroethane	(107062)	0.5	ND	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
FINN2/011207B
MC/mcc/on/rlb
FIN2-0112

WELL PURGING AND SAMPLING DATA

DATE 1/6/93 | PROJECT NUMBER 92150 | PROJECT NAME ENCINAL TERMINALS

WELL NUMBER MW-3 | BORING DIAMETER 6" | CASING DIAMETER 2"

Column of Liquid in Well

Depth to product	N/A
Depth to water	4.50 FT
Total depth of well	35.0 FT
Column of water	30.5 FT

Volume to be Removed

Gallon per foot of casing	=	0.17 GAL/FT
Column of water	x	30.5 FT
Volume of casing	=	5.2 GAL
Number of volumes to remove	x	3
Total volume to remove	=	15.6 GAL

Method of measuring liquid: OIL/WATER INTERFACE PROBE

Method of purging well: DISPOSABLE POLY BAILER rate N/A

Method of decon: ALCONOX AND DISTILLED WATER

Physical appearance of water (clarity, color, particulates, odor)

Initial: CLEAR, NO ODOR

During: SILTY, TAN COLOR, NO ODOR

Final: SILTY, TAN COLOR, NO ODOR

Field Analysis	Initial	During	During	Final
Time	10:32	10:41	10:53	11:02
Temperature (F)	59.9	59.5	62.0	61.1
Conductivity (us/cm)	2200	2320	2210	2170
Ph	10.20	9.42	9.18	9.00

Method of measurement: HYDAC METER

Total volume purged: 15.6 GAL

Comments:

Sample Number: MW-3

Amount of Sample: 4 - 40 ML VOA W/HCL
1 - 1L AMBER BOTTLE
1 - 1L AMBER BOTTLE W/H_2SO_4

Signed/Sampler: Stephen W. Morse Date: 1/6/93

Signed/Reviewer: Date:

BEI/swm 11/7/91

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NorCal Division (San Jose Laboratory) San Jose, CA 95131
2059 Junction Ave. (408) 955-9077

Lab Number : JJ-0016-10
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-3	Aqueous	L. Buckman	01/06/93	01/06/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Total Recoverable Petroleum Hydrocarbons	0.5	ND	mg/L	EPA 418.1	01/15/93	DS	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93

MC/sab/dds

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Nick J. Gaone
Nick Gaone, Inorganics Manager

MCarnel
Marissa Coronel
Laboratory Director

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2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Lab Number : JJ-0016-10
Project : 92150 Encinal Terminals

Analyzed : 01/12/93
Analyzed by: MM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-3	Aqueous	L.Buckman	01/06/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
D4-DCA (% Surrogate recovery #1)			102.	
D8-TOL (% Surrogate Recovery #2)			100.	
BFB (% Surrogate Recovery #3)			85.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93
FINN2/011207B
MC/mcc/on/rlb
FIN2-0112

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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2059 Junction Ave.

San Jose, CA 95131
(408) 955-9077

Lab Number : JJ-0016-10
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Analyzed : 01/12/93
Analyzed by: MM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
MW-3	Aqueous	L.Buckman	01/06/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
1,1-Dichloroethene	(75354)	0.5	ND	
cis-1,2-Dichloroethene	(156592)	0.5	ND	
trans-1,2-Dichloroethene	(156605)	0.5	ND	
1,2-Dichloropropane	(78875)	0.5	ND	
cis-1,3-Dichloropropene	(10061015)	0.5	ND	
trans-1,3-Dichloropropene	(10061026)	0.5	ND	
Ethylbenzene	(100414)	0.5	ND	
Methylene Chloride	(75092)	5.	ND	
1,1,2,2-Tetrachloroethane	(79345)	0.5	ND	
Tetrachloroethene	(127184)	0.5	ND	
Toluene	(108883)	0.5	ND	
1,1,1-Trichloroethane	(71556)	0.5	ND	
1,1,2-Trichloroethane	(79005)	0.5	ND	
Trichloroethene	(79016)	0.5	ND	
Trichlorotrifluoroethane	(76131)	5.	ND	
Trichlorofluoromethane	(75694)	0.5	ND	
Vinyl Chloride	(75014)	0.5	ND	
Xylenes (total)		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (C5 - C13)		50.	ND	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93
FINN2/011207B
MC/mcc/on/rlb
FIN2-0112

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CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Lab Number : JJ-0248-1
Project : 92150 Encinal Terminal, Alameda CA

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE	RECEIVED
MW-4	Monitoring Water	Stephen Moore	03/23/93	03/23/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Total Recoverable Petroleum Hydrocarbons	0.5	ND	mg/L	EPA 418.1	04/01/93	JE	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

04/01/93

NG/nfg/jre
41893040101

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Nick J. Gaone

Nick Gaone
Inorganics Manager

COAST - TO - COAST ANALYTICAL SERVICES

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San Jose, CA 95131
(408) 955-9077

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Lab Number : JJ-0016-9
Project : 92150 Encinal Terminals

Analyzed : 01/12/93
Analyzed by: MM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-1 (Water)	Aqueous	L.Buckman	01/05/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
D4-DCA (% Surrogate recovery #1)			106.	
D8-TOL (% Surrogate Recovery #2)			110.	
BFB (% Surrogate Recovery #3)			95.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93
FINN2/011211B
MC/mcc/on/rlb
FIN2-0112

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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(408) 955-9077

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Lab Number : JJ-0016-9
Project : 92150 Encinal Terminals

Analyzed : 01/12/93
Analyzed by: MM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-1 (Water)	Aqueous	L.Buckman	01/05/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
1,1-Dichloroethene	(75354)	0.5	ND	
cis-1,2-Dichloroethene	(156592)	0.5	ND	
trans-1,2-Dichloroethene	(156605)	0.5	ND	
1,2-Dichloropropane	(78875)	0.5	ND	
cis-1,3-Dichloropropene	(10061015)	0.5	ND	
trans-1,3-Dichloropropene	(10061026)	0.5	ND	
Ethylbenzene	(100414)	0.5	ND	
Methylene Chloride	(75092)	5.	ND	
1,1,2,2-Tetrachloroethane	(79345)	0.5	ND	
Tetrachloroethene	(127184)	0.5	ND	
Toluene	(108883)	0.5	ND	
1,1,1-Trichloroethane	(71556)	0.5	ND	
1,1,2-Trichloroethane	(79005)	0.5	ND	
Trichloroethene	(79016)	0.5	ND	
Trichlorotrifluoroethane	(76131)	5.	ND	
Trichlorofluoromethane	(75694)	0.5	ND	
Vinyl Chloride	(75014)	0.5	ND	
Xylenes (total)		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (C5 - C13)		50.	ND	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93
FINN2/011211B
MC/mcc/on/rlb
FIN2-0112

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(408) 955-9077

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Lab Number : JJ-0016-9
Project : 92150 Encinal Terminals

Analyzed : 01/12/93
Analyzed by: MM
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-1 (Water)	Aqueous	L.Buckman	01/05/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
PURGEABLE HALOCARBONS AND AROMATICS + TPH				1,2
Benzene	(71432)	0.5	ND	
Bromodichloromethane	(75274)	0.5	ND	
Bromoform	(75252)	0.5	ND	
Bromomethane	(74839)	0.5	ND	
Carbon Tetrachloride	(56235)	0.5	ND	
Chlorobenzene	(108907)	0.5	ND	
Chloroethane	(75003)	0.5	ND	
2-Chloroethyl Vinyl Ether	(110758)	5.	ND	
Chloroform	(67663)	2.	ND	
Chloromethane	(74873)	0.5	ND	
Dibromochloromethane	(124481)	0.5	ND	
1,2-Dichlorobenzene	(95501)	0.5	ND	
1,3-Dichlorobenzene	(541731)	0.5	ND	
1,4-Dichlorobenzene	(106467)	0.5	ND	
Dichlorodifluoromethane (F12)	(75718)	1.	ND	
1,1-Dichloroethane	(75343)	0.5	ND	
1,2-Dichloroethane	(107062)	0.5	ND	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
FINN2/011211B
MC/mcc/on/rlb
FIN2-0112

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2059 Junction Ave.
San Jose, CA 95131
(408) 955-9077

Lab Number : JJ-0016-9
Project : 92150 Encinal Terminals

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-1 (Water)	Aqueous	L. Buckman	01/05/93	01/06/93

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY	NOTES
Total Recoverable Petroleum Hydrocarbons	0.5	6.0	mg/L	EPA 418.1	01/15/93	DS	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

01/15/93

MC/sab/dds

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Nick F. Gaone
Nick Gaone, Inorganics Manager

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (San Jose Laboratory) San Jose, CA 95131
2059 Junction Ave. (408) 955-9077

CLIENT: Laurie Buckman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501

Lab Number : JJ-0016-11
Project : 92150 Encinal Terminals

Analyzed : 01/08/93
Analyzed by: ON
Method : As Listed

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
SB-2 (Water)	Aqueous	L.Buckman	01/05/93	01/06/93

CONSTITUENT	(CAS RN)	*PQL µg/L	RESULT µg/L	NOTE
FUEL FINGERPRINT ANALYSIS				1,2
Benzene		0.5	ND	
Toluene		0.5	ND	
Ethylbenzene		0.5	ND	
Xylenes		0.5	ND	
1,2-Dichloroethane		0.5	ND	
Ethylene dibromide		0.5	ND	
Total Petroleum Hydrocarbons (Gasoline)		50.	ND	
Total Petroleum Hydrocarbons (C5-C13)		50.	ND	
Percent Surrogate Recovery			91.	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)
(1) ANALYZED by CAL DHS DRAFT TPH (modified) and EPA 8260 (GC/MS)
(2) EXTRACTED by EPA 5030 (purge-and-trap)

01/15/93
MSD1/1K15A
MC/rlb/on
MSD1-0108

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Rick L. Boydston, Group Leader

Marissa Coronel
Laboratory Director

COAST - TO - COAST ANALYTICAL SERVICES

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NorCal Division (San Jose Laboratory) San Jose, CA 95131
2059 Junction Ave. (408) 955-9077

QC Batch ID: 41893040101

CLIENT: Coast-to-Coast Analytical Services, Inc.

METHOD BLANK
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
METHOD BLANK	Aqueous			

CONSTITUENT	*PQL	RESULT	UNITS	METHOD	ANALYZED	BY NOTE
Total Recoverable Petroleum Hydrocarbons	0.5	ND	mg/L	EPA 418.1	04/01/93	JE

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

04/01/93

NG/nfg/jre
JJ0248-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Nick J. Gaone

Nick Gaone
Inorganics Manager

COAST - TO - COAST ANALYTICAL SERVICES

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Certified Hazardous Waste, Chemistry, Bacteriology & Bioassay Laboratories

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NorCal Division (San Jose Laboratory) San Jose, CA 95131
2059 Junction Ave. (408) 955-9077

QC Batch ID: 41893040101

CLIENT: Coast-to-Coast Analytical Services, Inc.

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
QC SPIKE	Aqueous			

CONSTITUENT	*PQL	SPIKE	RESULT	%REC	UNITS	METHOD	ANALYZED	BY	NOTE
Total Recoverable Petroleum Hydrocarbons	0.5	2.3	2.5	109.	mg/L	EPA 418.1	04/01/93	JE	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

04/01/93

NG/nfg/jre
JJ0248-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Nick F. Gaone

Nick Gaone
Inorganics Manager

COAST - TO - COAST ANALYTICAL SERVICES

Air, Water & Hazardous Waste Sampling, Analysis & Consultation
Certified Hazardous Waste, Chemistry, Bacteriology & Bioassay Laboratories

San Luis Obispo, CA • Benicia, CA • Camarillo, CA • San Jose, CA
Anaheim, CA • Tempe, AZ • Valparaiso, IN • Westbrook, ME • Indianapolis, IN

NorCal Division (San Jose Laboratory) San Jose, CA 95131
2059 Junction Ave. (408) 955-9077

QC Batch ID: 41893040101

CLIENT: Coast-to-Coast Analytical Services, Inc.

QC SPIKE
REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED	DATE RECEIVED
QC SPIKE DUPLICATE	Aqueous			

CONSTITUENT	*PQL	SPIKE	RESULT	%DIFF	UNITS	METHOD	ANALYZED	BY	NOTE
Total Recoverable Petroleum Hydrocarbons	0.5	2.3	2.6	3.9	mg/L	EPA 418.1	04/01/93	JE	

San Jose Lab Certifications: CAELAP #1204
*RESULTS listed as 'ND' were not detected at or above the listed PQL (Practical Quantitation Limit)

04/01/93

NG/nfg/jre
JJ0248-1

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES, INC.

Nick F. Gaone

Nick Gaone
Inorganics Manager

BLYMYER
ENGINEERS, INC.
1829 Clement Avenue
Alameda, CA 94501 (415) 521-3773

CHAIN OF CUSTODY RECORD

JOB # 92150 | PROJECT NAME/LOCATION: Bulk Terminals

SAMPLERS (SIGNATURE):

DATE	TIME	COMP	GRAB	SAMPLE NAME/LOCATION	# OF CONTAINERS	TPH AS GASOLINE + BTXE (MOD EPA 8015/8020)	TPH AS DIESEL (MOD EPA 8015)	VOC (EPA 624/8240)	SEMI-VOC (EPA 625/8270)	TRPH (EPA 418.1)	BTXE (EPA 8020/602)	HVOCs (8010 or 8240)	O&G (5520 E&F)			HOLD	REMARKS
				JJ0016													
1/6/93	10:25		X	BB-1 -13	4											X	on Hold per L. Buckman 01/06/93 (CO)
1/6/93	11:15		X	MW-3 -10	6	X	X					X	X				
1/6/93	13:27		X	MW-1 -12	2	X											

REQUESTED BY: L. Buckman

RESULTS AND INVOICE TO:

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
Lawrence Buckman	1/6/93 4:15	[signature] 1/6/93
[signature]	1/6/93 4:45	[signature] 01/06/93 1500

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)

DATE / TIME	REMARKS:
	VOA vials placed in guard bottles @ lab (CB)

YELLOW: BEI After Lab Signs — PINK: Original Sampler

BLYMYER
ENGINEERS, INC.
1829 Clement Avenue
Alameda, CA 94501 (415) 521-3773

CHAIN OF CUSTODY RECORD

JOB # 92150

PROJECT NAME/LOCATION: Encinal Terminal / Alameda CA

SAMPLERS (SIGNATURE): S Steph W Moore

TURNAROUND TIME: Standard DAY(S)

REMARKS:

DATE	TIME	COMP	GRAB	SAMPLE NAME/LOCATION	# OF CONTAINERS	TPH AS GASOLINE + BTXE (MOD EPA 8015/8020)	TPH AS DIESEL (MOD EPA 8015)	VOC (EPA 624/8240)	SEMI-VOC (EPA 625/8270)	TRPH (EPA 418.1)	BTXE (EPA 8020/602)					HOLD	
3/23/93	0933		X	BB-1	1											X	JJ0248-2
03/23/93	1055		X	MW-4	1					X							-1

REQUESTED BY: Laurie Buckman

RESULTS AND INVOICE TO: Blymyer Engineers, Inc

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
Steph W Moore	3/23/93 16:00	3-23-93	3-23-93 17:55		
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE / TIME	REMARKS:	
		Shellie Hoyt	3/23/93 17:35	Sealed, intact, cold	

WHITE: Accompany Sample YELLOW: BEI, After Lab Signs PINK: Original Sampler