

Site Assessment Report

Former Underground Storage Tank

Site 11

Marine Corps Air Station

El Toro, California

SWDIV Contract No. N68711-93-D-1459, Delivery Order No. 0024

OHM Project No. 17486

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**OHM Remediation
Services Corp.**

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List of Acronyms and Abbreviations

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, total xylenes
EPA	Environmental Protection Agency
INEL	Idaho National Engineering Laboratory
JEG	Jacobs Engineering Group
JTL	JTL Environmental Remediation Group, Inc.
LUFT	Leaking Underground Fuel Tank
MCAS	Marine Corps Air Station
mg/kg	milligrams per kilogram
MSL	mean sea level
OCHCA	Orange County Health Care Agency
OHM	OHM Remediation Services Corp.
ppm	parts per million
TPH	total petroleum hydrocarbons
SWDIV	Southwest Division, Naval Facilities Engineering Command
UST	underground storage tank

Section 1

Introduction and Technical Rationale

Site 11, in addition to other former underground storage tank (UST) sites at Marine Corps Air Station (MCAS) El Toro is being assessed by OHM Remediation Services Corp. (OHM), under Delivery Order Number 0024, for the Southwest Division, Naval Facilities Engineering Command (SWDIV), under Contract Number N68711-93-D-1459.

During the UST 11 tank removal, soil samples collected by JTL Environmental Engineering Corp., Inc., (JTL, 1992) indicated that an unauthorized release of petroleum hydrocarbons [Orange County Health Care Agency (OCHCA), Case #92UT16] had occurred. The highest concentration of total petroleum hydrocarbon (TPH) as diesel was reported as 1,300 milligrams per kilogram (mg/kg) in a sample at a depth of approximately 9 feet below ground surface (bgs).

This report summarizes tank removal analytical data collected by JTL at former UST Site 11 and recommends that closure be requested for this unauthorized release case. The technical rationale for requesting closure is based on the following findings:

- The UST has been removed from the site.
- Analytical results of the soil samples collected by JTL during the UST removal reported concentrations below the State of California Leaking Underground Fuel Tank (LUFT) Field Manual maximum allowable level for TPH for diesel and benzene, toluene, ethylbenzene, and xylenes (BTEX).
- The UST was used to store fuel oil. Fuel oil has relatively limited mobility in unsaturated soil (vadose zone) as compared to gasoline.
- The depth to ground water is estimated to be approximately 141 feet bgs in the vicinity of the former UST Site 11.

Section 2

Environmental Setting

This section summarizes the general area surrounding MCAS El Toro (the Base) and the environmental setting in the vicinity of the former UST Site 11. The location of the Base is shown on Figure 2-1, Facility Location Map.

2.1 Site Description

MCAS El Toro is located on the southeastern edge of the Tustin Plain, which slopes gently to the west-southwest. The Base crosses the Tustin Plain and extends eastward into the Santa Ana Mountains. Land surface elevations are approximately 215 feet above mean sea level (MSL) at the western corner and rise to approximately 800 feet above MSL at the east corner of the Base. The topography in the immediate area of UST Site 11 is relatively flat.

The Base is located approximately 45 miles southeast of Los Angeles in Orange County, California, one mile north of the intersection of Interstate 5 (Santa Ana Freeway) and Interstate 405 (San Diego Freeway). The town of Lake Forest is less than 2 miles southeast of the Base; East Irvine is approximately 1 mile northwest of the Base. The Third Marine Aircraft Wing (3rd MAW) and support operations are based at MCAS El Toro and covers approximately 4,700 acres. Former UST Site 11 was located on the south side of Building 11 and is depicted on Figure 2-2, Former UST Site 11 Location Map.

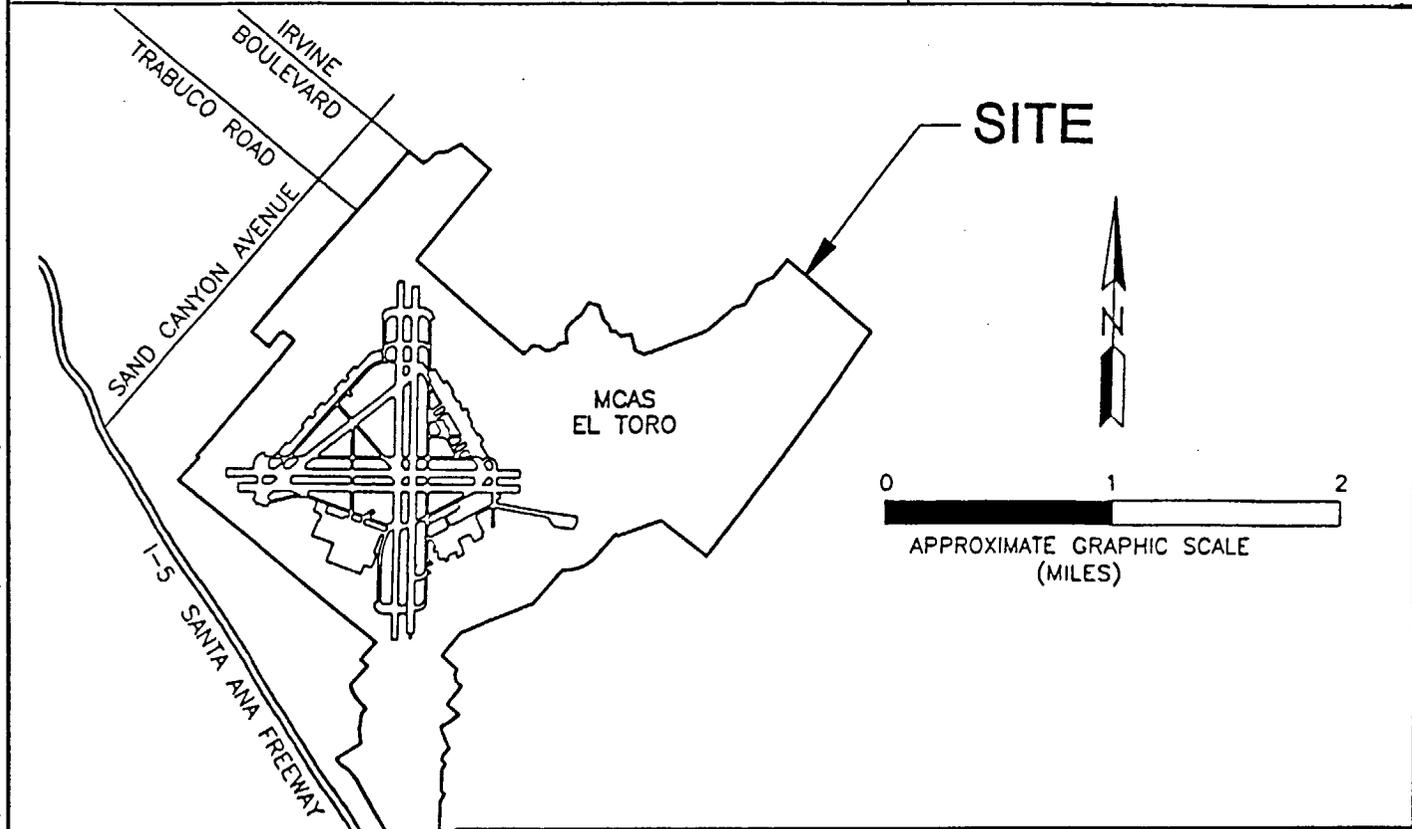
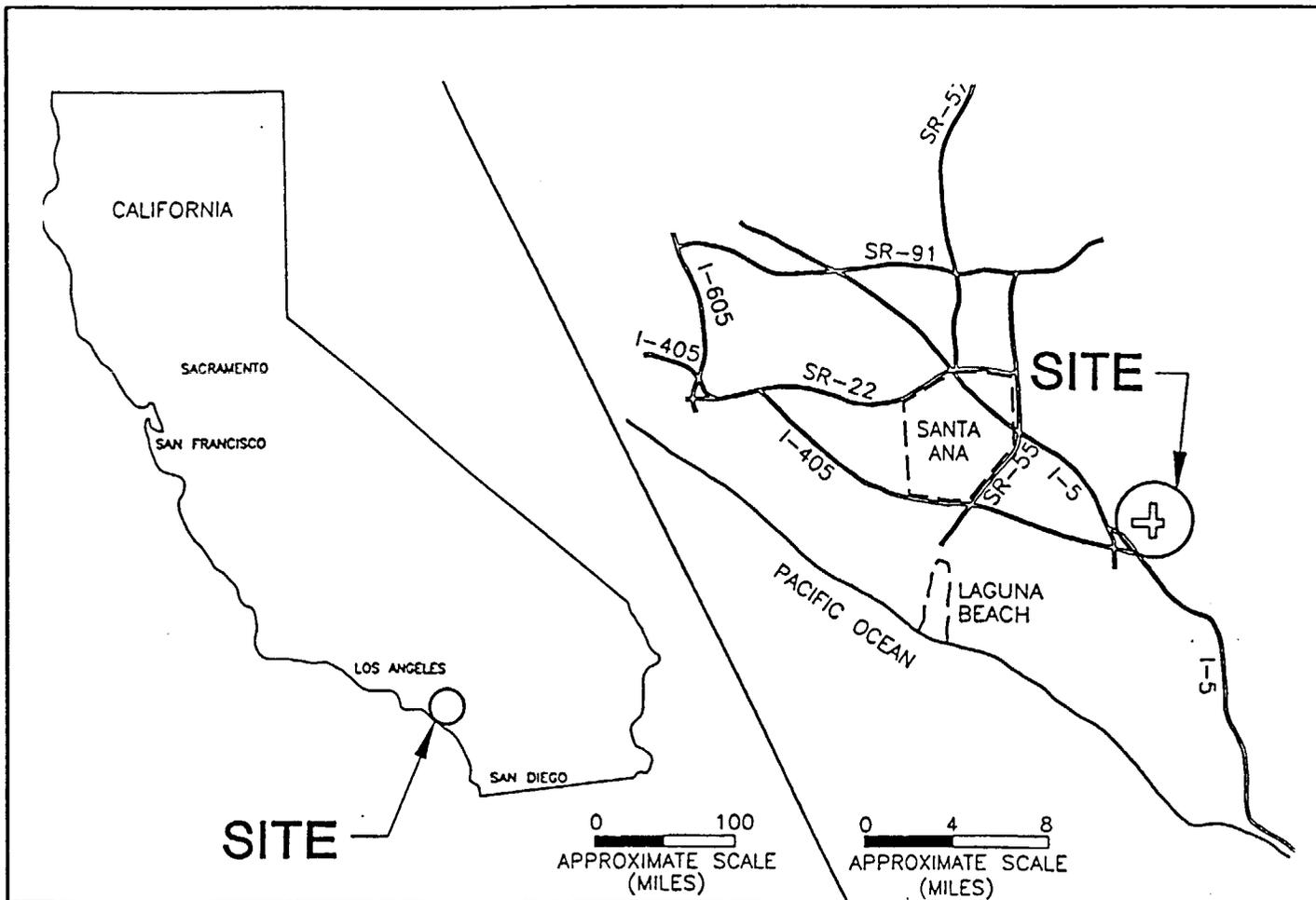
2.2 Geology

MCAS El Toro is situated on alluvial fan deposits derived mainly from the Santa Ana Mountains. These Holocene materials consist of isolated, coarse-grained, stream-channel deposits contained within a matrix of fine-grained overbank deposits that range in thickness up to 300 feet (Herndon and Reilly, 1989).

The Holocene alluvial materials conformably overlie Pleistocene Age sediments that are predominantly composed of interlayered fine-grained lagoonal and near shore marine deposits. These materials become increasingly mixed with beach sands, terrace, and stream-channeled deposits in the eastern portion of the Tustin Plain and along the plain edges. Thus, the Quaternary deposits form a heterogeneous mixture of silts and clays with interbedded sands and fine gravels that range in thickness up to 500 feet in the western portion of the Tustin Plain (Singer, 1973).

Information on the shallow subsurface geology in the general area of the former UST Site 11 was obtained by reviewing the boring logs for ground water monitoring wells 13_UGMW32 and 13_DBMW49 [Jacobs Engineering Group (JEG), 1993]. Ground water monitoring wells nearest to the site are located approximately 429 feet (13_UGMW32) and 960 feet (13_DBMW49) southeast of the site (Figure 2-2). The boring logs indicate that the stratigraphy consists predominantly of silty sand from land surface to first-encountered ground water at approximately 141 feet bgs. Copies of the Boring Logs for Monitoring Wells 13_UGMW32 and 13_DBMW49 are presented as Appendix A.

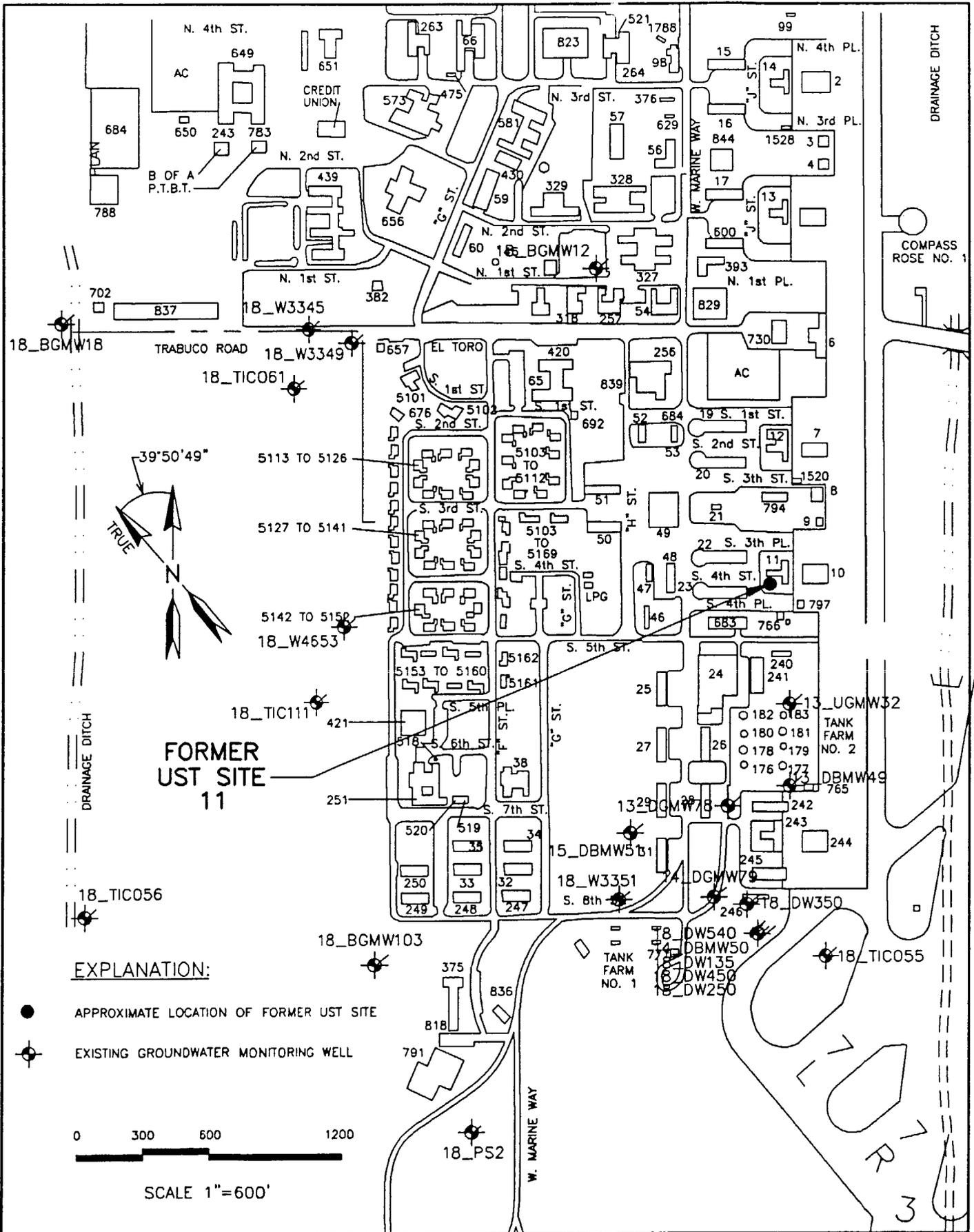
RO 0:0:58:50 7/8/96 12:06:33 C:\PROJECTS\17486\174860BLK.DWG



	FACILITY LOCATION MAP MCAS EL TORO, CALIFORNIA		DRAWN BY R.P.	DATE 7/8/96
			CHECK'D BY <i>BB</i>	APP'D BY <i>DD</i>
OHM Remediation Services Corp. A SUBSIDIARY OF OHM CORPORATION SAN DIEGO, CA			SCALE: AS NOTED	DCN SW1504
PROJECT SWDIV	OHM PROJECT NO. 17486	DRAWING NO. FIG 2-1	SHEET 1	OF 1

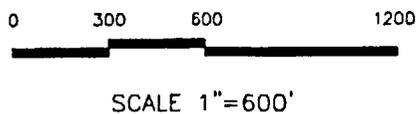
2-2

RO 0:0:58:50 6/25/96 12:06:33 C:\PROJECTS\17486\17486028.DWG



EXPLANATION:

- APPROXIMATE LOCATION OF FORMER UST SITE
- ⊕ EXISTING GROUNDWATER MONITORING WELL



OTH Remediation Services Corp.
A SUBSIDIARY OF OTH CORPORATION
SAN DIEGO, CA

**FORMER UST SITE 11
LOCATION MAP
MCAS EL TORO, CALIFORNIA**

DRAWN BY R. PIRMORADIAN	DATE 6/25/96
CHK'D BY -	DCN SW1504
SCALE: 1"=600'	PLOT SCALE 1=1

PROJECT SWDIV	OTHM PROJECT NO. 17486	DRAWING NO. FIG 2-2	SHEET 1	OF 1	REV. 1
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3-3

2.3 Hydrogeology

MCAS El Toro is situated within the Irvine ground water Sub Basin (Irvine Sub Basin). The Irvine Sub Basin is southeast of and adjacent to the Main Orange County ground water Basin.

Regional ground water flow has been to the west and northwest since the 1940s. The gradient has been influenced locally by large ground water withdrawal depressions. From 1969 to 1982, an average gradient of 0.0046 to the northwest was reported in the principal aquifer zone of the Irvine area (Banks, 1984). Phase I Remedial Investigation data indicates similar ground water flow direction and a slightly higher gradient of 0.008 (JEG, 1993).

The depth to ground water beneath MCAS El Toro ranges from approximately 45 feet bgs in the foothills, to 240 feet bgs in the deepest portion of the Irvine Sub Basin on the Base. The depth to ground water in the vicinity of the former UST Site 11 is estimated from available water level data from the monitoring wells nearest to the site. The nearest monitoring wells, 13_UGMW32 and 13_DBMW49, are used for measuring ground water depth. Table 2-1, Monitoring Well Data Summary Former UST 11 Vicinity, summarizes the data for these wells. The well locations are shown in Figure 2-2. Based on these data, the depth to ground water at UST Site 11 is approximately 141 feet bgs.

Table 2-1
Monitoring Well Data Summary Former UST Site 11 Vicinity

Monitoring Well Identification Number	Distance from Site 11 (feet)	Direction from Site 11	Surface* Elevation (feet MSL)	Screened* Interval Top (feet MSL)	Screened Interval Base (feet MSL)	Well* Total Depth (feet bgs)	January 1993 Water Level Elevation (feet MSL)	Depth ^b to Ground Water (feet bgs)
13_UGMW32	429	Southeast	288.9	145	105	190.0	147.8	141.1
13_DBMW49	900	Southeast	283.9	145	105	190.0	135.8	153.1

Explanation:

MSL - mean sea level

bgs - below ground surface

^asurface and screened internal elevation (JEG, 1993, Appendix E)

^bwell total depth and depth to ground water (JEG, 1993, Appendix K)

Section 3

Previous Work and Background

This section describes the previous work and background information relevant to the former UST Site 11.

3.1 Underground Storage Tank History

A review of the historical information for UST 11, performed by the Idaho National Engineering Laboratory (INEL) in 1990, indicated that the UST was installed in 1943 to supply heating oil to Building 11, the Squadron Headquarters. The UST was constructed of carbon steel with no spill-containment. The UST was cylindrical, positioned horizontally and had a capacity of approximately 500 gallons (INEL, 1990).

3.2 Underground Storage Tank Removal and Soil Sampling Results

The UST 11 and associated piping were removed in December 1991 by JTL (OCHCA, 1991), under Navy Contract No. N62474-90-D-5661. The UST removal and sampling activities were witnessed by an OCHCA Inspector (Hendron, 1991). A copy of the OCHCA field notes is presented in Appendix B, Orange County Health Care Agency Report and Field Notes. Information contained in the field notes are summarized below:

- A 500-gallon steel tank was removed from the site in December of 1991.
- Five soil samples were collected during UST and piping removal operations.

Five soil samples were collected on December 13, 1991: one soil sample from below the center of the former UST estimated at 9 feet bgs; one soil sample north and one soil sample south of the former UST location; one soil sample from the stockpiled soil; and one soil sample at 20 feet from the tank at approximately 2 feet below the fill pipe. Soil sampling locations are shown in Figure 3-1, Former UST Site 11 Soil Sampling Location, and a cross section of the sampling locations is shown in Figure 3-2, Former UST Site 11 Soil Sampling Location Cross Section A-A'.

Soil samples were submitted to Centrum Analytical Laboratories for analysis of TPH using Environmental Protection Agency (EPA) Method 8015 modified as gas, diesel, and kerosene and BTEX using EPA Method 8020. Copies of the laboratory data are presented in Appendix C, Centrum Analytical Results. The analytical results are summarized in Table 3-1, JTL Soil Sample Analytical Results Former UST Site 11.

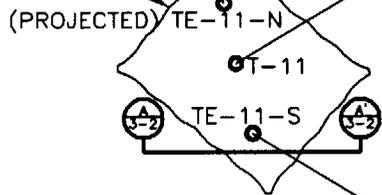
OCHCA concluded that "Based on inspections and field tests conducted on December 13, 1991, it has been determined that fuel oil #2 contaminated soil is present at the referenced location" (OCHCA, 1991).



SAMPLE ID	DEPTH (FEET)	TPH-D (PPM)	BTEX (PPB)
TE-11-N	9	580	ND/ND/ND/ND

SAMPLE ID	DEPTH (FEET)	TPH-D (PPM)	BTEX (PPB)
T-11	9	1,300	ND/6/ND/6

APPROXIMATE LIMITS OF UST EXCAVATION



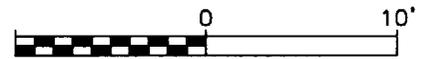
SAMPLE ID	DEPTH (FEET)	TPH-D (PPM)	BTEX (PPB)
P-11	3	13	ND/ND/ND/ND

SAMPLE ID	DEPTH (FEET)	TPH-D (PPM)	BTEX (PPB)
TE-11-S	9	ND	ND/ND/ND/ND

EXPLANATION:

- PREVIOUS INVESTIGATION SOIL SAMPLES
- TPH-D TOTAL PETROLEUM HYDROCARBON AS DIESEL
- BTEX BENZENE, TOLUENE, ETHYLBENZENE, XYLENES
- ND NOT DETECTED ABOVE LABORATORY REPORTING LIMITS AS SHOWN IN TABLE 2-3
- PPM PARTS PER MILLION
- PPB PARTS PER BILLION
- ID IDENTIFICATION

SOURCE: JTL 1992



GRAPHIC SCALE

RO 7/1/96 C:\PROJECTS\17486\17486051.DWG

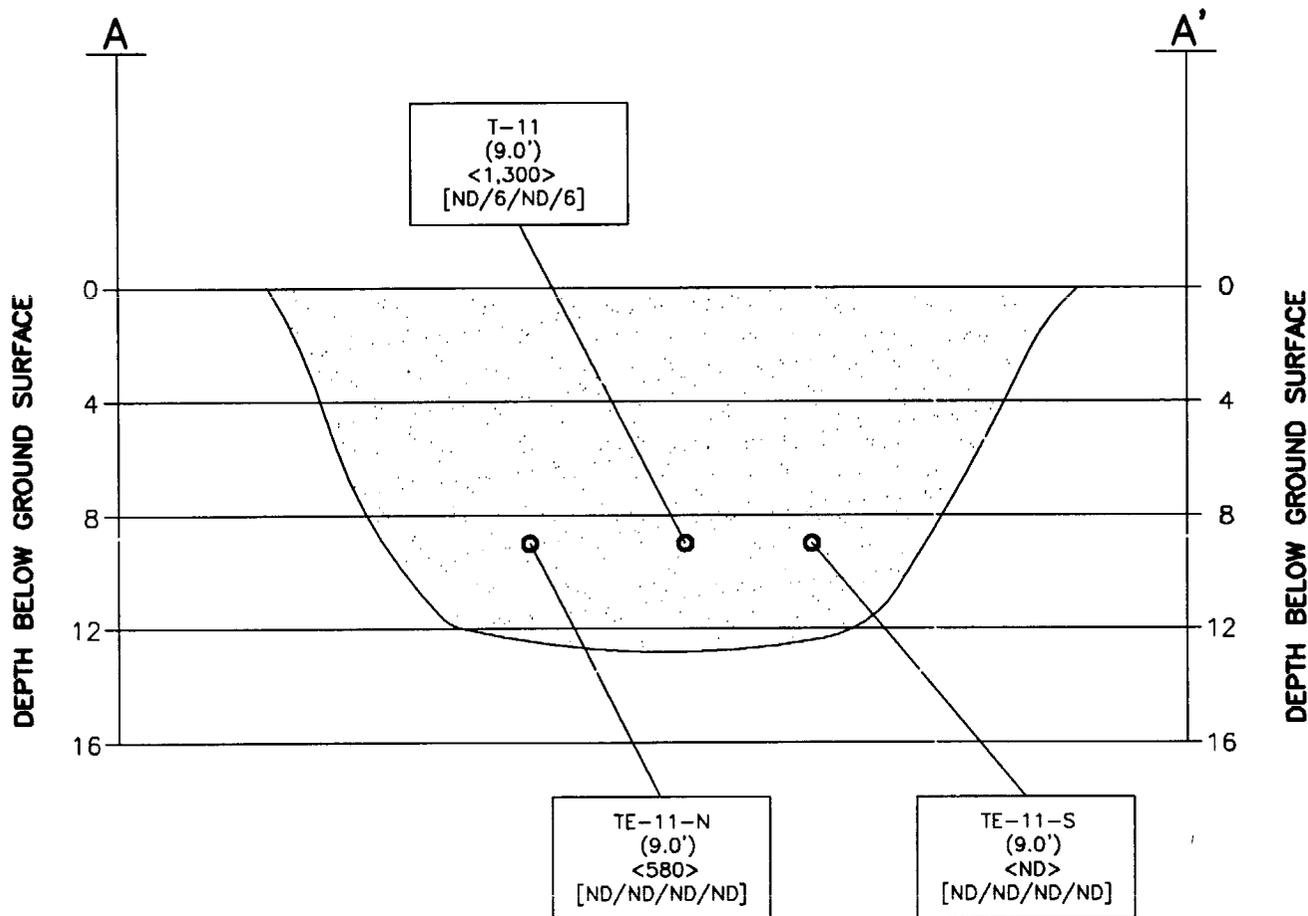


OHM Remediation Services Corp.
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SAN DIEGO, CA.

**FORMER UST SITE 11
SOIL SAMPLING LOCATIONS
MCAS EL TORO, CALIFORNIA**

DRAWN BY R. PIRMORADIAN	DATE 7/1/96
CHK'D BY -	APP'D BY
SCALE: 1"=10'	DCN SW1504

PROJECT SWDIV	OHM PROJECT NO. 17486	DRAWING NO. FIG 3-1	SHEET 1	OF 1	REV. 1
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EXPLANATION:

TE-11-S
(10.0')
<ND>
[ND/ND/ND/ND]

SAMPLE IDENTIFIER
(SAMPLE DEPTH (IN FEET))
<TPH-DIESEL CONCENTRATION PPM>
[BTEX CONCENTRATION PPB]

- PREVIOUS INVESTIGATION SOIL SAMPLES
- TPH-D TOTAL PETROLEUM HYDROCARBON AS DIESEL
- BTEX BENZENE, TOLUENE, ETHYLBENZENE, XYLENES
- ND NOT DETECTED ABOVE LABORATORY REPORTING LIMITS AS SHOWN IN TABLE 3-2
- ▨ APPROXIMATE LIMITS OF FORMER UST 11 EXCAVATION

NOTE: ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE

SOURCE: JTL 1992

R0 7/1/96 C:\PROJECTS\17486\17486052.DWG



OHM Remediation Services Corp.
A SUBSIDIARY OF OHM CORPORATION
SAN DIEGO, CA

**FORMER UST SITE 11
CROSS SECTION A-A'
MCAS EL TORO, CALIFORNIA**

DRAWN BY R. PIRMORADIAN	DATE 7/1/96
CHK'D BY	APP'D BY
SCALE: NTS	DCN SW1504

PROJECT SWDIV	OHM PROJECT NO. 17486	DRAWING NO. FIG 3-2	SHEET 1	OF 1	REV. 1
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Table 3-1
JTL Soil Sample Analytical Results
Former UST Site 11 (December 1991)

Sample Identifier	Sample Location Depth	Concentration (mg/kg)				
		TPH as diesel	Benzene	Toluene	Ethylbenzene	Xylenes
T-11	below tank, 9 feet bgs	1,300	ND (0.003) ^a	0.006 (0.005)	ND (0.005)	0.006 (0.005)
TE-11-N	north of the excavation area, 9 feet bgs	580(10)	ND (0.003)	ND (0.005)	ND (0.005)	ND (0.005)
TE-11-S	south of the excavation area, 9 feet bgs	ND (10)	ND (0.003)	ND (0.005)	ND (0.005)	ND (0.005)
P-11	fill pipe end 20' from tank, 3 feet bgs	13 (10)	ND (0.003)	ND (0.005)	ND (0.005)	ND (0.005)
SP-11	stockpile sample	ND (10)	ND (0.003)	0.007 (0.005)	ND (0.005)	ND (0.005)

Explanation:()^a - analyte detection limit in parenthesis

bgs - below ground surface

mg/kg - milligrams per kilograms

ND - not detected above the method detection limit for that compound

Section 4

General Risk Appraisal

The target cleanup levels for the petroleum hydrocarbon contaminants at the various UST sites at MCAS El Toro have been proposed in the *Final Work Plan for the Remediation of Various Underground Storage Tanks at MCAS El Toro* (OHM, 1995), in accordance with the guidelines of the California LUFT Field Manual, dated October 1989 (LUFT, 1989). Table 2-1 of the California LUFT Field Manual was used to estimate the site-specific concentrations of TPH and BTEX that may remain in the subsurface soil at the site without posing a threat to ground water quality. The table uses a numerical scoring approach based on assigning a point score (10, 9, 5 or 0) for a particular site feature. Lower scores indicate a greater risk to ground water. The point score is summed for all site features to give a final score. The maximum possible score is 50 points, demonstrating a minimal threat to ground water resources. Based on the final score, the maximum allowable levels for TPH and BTEX in the soil are provided.

The former UST Site 11 scored a total of 49 points, out of a possible 50 points, using this approach. Table 2-1 from the LUFT Field Manual presents scoring results for former UST Site 11. Based on this score, the maximum allowable levels are as follows:

- benzene - 1 part per million (ppm)
- toluene- 50 ppm
- ethylbenzene- 50 ppm
- xylenes - 50 ppm
- TPH as gasoline - 1,000 ppm
- TPH as diesel - 10,000 ppm

Note: 1 ppm is equivalent to 1 mg/kg.

TPH detected in soil samples from the former UST Site 11 were reported to be in the diesel range. The diesel range of TPH falls within the "heavier" hydrocarbon range: the majority of diesel components range from C₁₀ to C₂₅ hydrocarbons and the majority of gasoline components range from C₄ to C₁₂ hydrocarbons. Therefore, the maximum allowable level of TPH for the former UST Site 11 is interpreted to be 10,000 ppm, corresponding to the maximum allowable level for TPH as diesel.

Analytical results from soil samples collected during tank removal at the UST Site 11 indicated that TPH as diesel and BTEX are below the California LUFT Field Manual guidelines for maximum allowable levels in all the soil samples. Table 2-1 from the California LUFT Field Manual has been modified to include the scoring results. The results are presented in Table 4-1, Leaking Underground Fuel Tank Field Manual.

**Table 4-1
Leaking Underground Fuel Tank (LUFT) Field Manual**

Former UST Site 11
**Leaching Potential Analysis for Gasoline and Diesel
Using Total Petroleum Hydrocarbons (TPH)
and Benzene, Toluene, Xylenes, and Ethylbenzene (BTX&E)**

Table 4-1 was designed to permit estimating the concentrations of TPH and BTX&E that can be left in place without threatening ground water. Three levels of TPH and BTX&E concentrations were derived (from modeling) for sites which fall into categories of low, medium, or high leaching potential. To use the table, find the appropriate description for each of the features. Score each feature using the weighting system shown at the top of each column. Sum the points for each column and total them. Match the total points to the allowable TPH and BTX&E levels.

Site Feature	S	Score 10 Pts. if Condition is Met	S	Score 9 Pts. if Condition is Met	S	Score 5 Pts. if Condition is Met
	C O R E		C O R E		C O R E	
Minimum depth to ground water from the soil sample (feet) ⁴	10	>100	--	51-100	--	25-50 ¹
Fractures in subsurface (applies to foothills or mountain ranges)	10	None	--	Unknown	--	Present
Average annual precipitation (inches)	--	<10	9	10-25	--	26-40 ²
Manmade conduits which increase vertical migration of leachate	10	None	--	Unknown	--	Present
Unique site features: recharge area, coarse soil, nearby wells, etc.	10	None	--	At least one	--	More than one
COLUMN TOTALS TOTAL POINTS	40	+	9	+	=	49
RANGE OF TOTAL POINTS	49 pts or more		41-48 pts		40 pts or less	
MAXIMUM ALLOWABLE B/T/X/E LEVELS (PPM)	1/50/50/50		.3/.3/1/1		NA ³	
MAX. ALLOWED TPH LEVELS (PPM)	GASOLINE	1,000		100		10
	DIESEL	10,000		1,000		100

Explanation:

- ¹ If depth is greater than 5 feet but less than 25 feet, score 0 points. If depth is 5 feet or less, this table should not be used.
- ² If precipitation is over 40 inches, score 0 points.
- ³ Levels for BTX&E are not applicable at a TPH concentration of 10 ppm (gasoline), or 100 ppm diesel. [For explanation see step 6, page 27 of October 1989 Leaking Underground Fuel Tank (LUFT) Manual.]
- ⁴ The nearest monitoring wells are 13_UGMW32 and 13_DBMW49; the ground water depth of 141 feet bgs was used as a reference for the depth to ground water at this site.

Section 5

Discussion

Soil sampling conducted by JTL during the UST removal at the subject site indicated TPH as diesel and BTEX had impacted the soil beneath the former UST. Three samples (T-11, TE-11-N, and TE-11-S) were collected at the bottom of the excavation. Sample T-11 was reported to contain 1,300 mg/kg of TPH as diesel; sample TE-11-N was reported to contain 580 mg/kg of diesel and sample TE-11-S reported TPH as diesel below its respective detection limit. A fourth sample (P-11), which was collected from the fill pipe end at a 20 foot distance from the tank, was reported to contain 13 mg/kg of TPH as diesel. A soil sample from the stockpile was reported to contain less than the detection limit of TPH as diesel. BTEX was below the detection limits for all samples except T-11 and SP-11; sample T-11 detected a concentration of 0.006 mg/kg for toluene and xylene, and sample SP-11 detected a concentration of 0.007 mg/kg for toluene. All other analytes were reported as non-detect. A cross section of the former excavation, showing analytical results and depth of the soil samples collected during the tank removal, is presented in Figure 3-2.

As presented in Section 4, the California LUFT Field Manual - General Risk Appraisal was used to evaluate the potential risk to ground water. It is not likely that soil contaminated with diesel from the former UST Site 11 poses a threat to ground water quality. TPH and BTEX concentrations reported for soil samples collected during UST removal are below the California LUFT maximum allowable level of TPH as diesel (10,000 ppm) and BTEX (1, 50, 50, 50 ppm BTEX, respectively).

Section 6

Conclusions and Recommendations

The potential for the petroleum hydrocarbons at the former UST Site 11 to impact the ground water has been evaluated using the LUFT Field Manual - General Risk Appraisal Method. The following conclusions are based on the existing tank removal data obtained in December of 1991:

- The depth to ground water is estimated to be 141 feet.
- All soil samples, collected at the site by JTL Environmental Engineering Corp., from approximately 3 to 10 feet bgs on December 13, 1991, were below the California LUFT Field Manual maximum allowable level for TPH as diesel (10,000 ppm) and BTEX (1, 50, 50, 50 ppm, respectively).

Based on the information provided in this report, OHM on behalf of the MCAS, El Toro, recommends that this report be submitted to the California Regional Water Quality Control Board, Santa Ana Region, and that closure of the former UST Site 11 unauthorized release case (#92UT16) be requested.

Section 7

References

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- LUFT. See State of California Leaking Underground Fuel Tank Task Force.
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Appendix A
Boring Logs for Monitoring Wells
13_UGMW32 and 13_DBMW49



PROJECT NUMBER LAO31981	BORING NUMBER MW-32
SHEET 1 OF 7	
SOIL BORING LOG	

PROJECT MCAS El Toro R/VFS Phase I LOCATION Site 13
 ELEVATION 285.4 ft. DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT Failing F-10 HSA 6 1/4" I.D. 10'8" O.D.
 WATER LEVEL AND DATE 141.1 ft. 1/20/93 START 7/20/92 FINISH 7/21/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS	SOIL DESCRIPTION	FID/IPID READING	COMMENTS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)				
5.0					0-6 in.: asphalt		3 in. split spoon sampler lined with stainless steel 2" x 3" liners, downhole hammer 140 lbs.
9.5					From about 50.0 ft., Cuttings: <u>POORLY GRADED SAND WITH GRAVEL</u> , (SP), brown, dry		
10.0	11.0	C-1	0.9	8-10-13	<u>SILT</u> (ML), brown, dry, trace fine sand	F: 2.0 ppm P: 0.0 ppm	
15.0							
20.0	21.0	C-2	1.2	7-8-13	<u>SILT WITH SAND</u> (ML), brown, slightly moist, medium stiff, trace clay, fine sand	F: 1.0 ppm P: 0.0 ppm	
25.0							
29.5							
30.0							



PROJECT NUMBER LAO31981	BORING NUMBER MW-32	SHEET 2 OF 7
SOIL BORING LOG		

PROJECT MCAS El Toro RVFS Phase I LOCATION Site 13
 ELEVATION 285.4 ft. DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT Failing F-10 HSA 6 1/4" I.D. 10'8" O.D.
 WATER LEVEL AND DATE 141.1 ft. 1/20/93 START 7/20/92 FINISH 7/21/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS	SOIL DESCRIPTION	FID/RID READING	COMMENTS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)				
				6"-6"-6"	SOIL NAME, USGS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	31.0	C-3	1.4	9-14-17	<u>SILT WITH SAND (ML)</u> , brown, dry, soft, fine sand		
35.0							
	39.5						
40.0		C-4	0.8	7-11-14	<u>WELL GRADED SAND (SW)</u> , brown, dry, soft, with minor fine gravel	F: 2.0 ppm P: 0.0 ppm	
	41.0						
45.0							
	49.5						
50.0		C-5	1.0	17-25-38	<u>SILT (ML)</u> , brown, moist, stiff, trace fine sand	F: 1.0 ppm P: 0.0 ppm	
	51.0						
55.0							
	59.5						
60.0							



PROJECT NUMBER LAO31981	BORING NUMBER MW-32
SHEET 3 OF 7	
SOIL BORING LOG	

PROJECT MCAS El Toro R/FS Phase I LOCATION Site 13
 ELEVATION 285.4 ft. DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT Failing F-10 HSA 6 1/4" I.D. 10'8" O.D.
 WATER LEVEL AND DATE 141.1 ft. 1/20/93 START 7/20/92 FINISH 7/21/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS	SOIL DESCRIPTION	FID/RID READING	COMMENTS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)	6"-6"-6"	SOIL NAME, USGS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
65.0	61.0	C-6	1.5	10-22-31	<u>SILT (ML)</u> , brown, dry, soft, trace fine sand and fine gravel	F: 0.5 ppm P: 0.0 ppm	
70.0							Slower drilling with depth
75.0							
80.0	79.5 81.0	C-7	1.5	18-40-50/5"	<u>SILT (ML)</u> , brown, moist, stiff, trace fine sand	F: 0.0 ppm P: 0.0 ppm	
85.0							
90.0							



PROJECT NUMBER LAO31981	BORING NUMBER MW-32	SHEET 4 OF 7
SOIL BORING LOG		

PROJECT MCAS El Toro RI/FS Phase I LOCATION Site 13
 ELEVATION 285.4 ft. DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT Failing F-10 HSA 6 1/4" I.D. 10'8" O.D.
 WATER LEVEL AND DATE 141.1 ft. 1/20/93 START 7/20/92 FINISH 7/21/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS 6"-6"-6"	SOIL DESCRIPTION SOIL NAME, USGS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	FID/PID READING	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)				
95.0	99.5						
100.0	101.0	C-8	1.4	29-45-50/4"	SILT (ML), mottled brown with iron oxide spots and black stringers, moist, hard, trace of white calcareous material, trace fine sand	F: 0.0 ppm P: 0.0 ppm	
115.0							
120.0	119.5						



PROJECT NUMBER LAO31981	BORING NUMBER MW-32
SHEET 5 OF 7	
SOIL BORING LOG	

PROJECT MCAS El Toro R/FS Phase I LOCATION Site 13
 ELEVATION 285.4 ft. DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT Failing F-10 HSA 6 1/4" I.D. 10'8" O.D.
 WATER LEVEL AND DATE 141.1 ft. 1/20/93 START 7/20/92 FINISH 7/21/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS	SOIL DESCRIPTION	FID/ID READING	COMMENTS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)				
	120.0	C-9	1.4	29-50-50/4"	SILT (ML), brown, moist, stiff, trace of fine sand, extensive white carbonate vein, few black stringers	F: 0.0 ppm P: 0.0 ppm	
	121.0						
125.0							
	129.5				SILT (ML), brown, moist, soft, trace fine sand, minor carbonate veins up to 2 mm wide	F: 0.0 ppm P: 2.0 ppm	
130.0	130.0	C-10	1.5	22-35-45			
135.0							
	139.5				SILT (ML), brown, moist, hard, trace fine to medium sand, minor carbonate	F: 0.0 ppm P: 2.0 ppm	
140.0	140.0	C-11	1.25	24-50-50/5"			
	144.5				SILT (ML), brown, soft, wet, trace sand and fine gravel		See free water below 144.5
145.0	146.0	C-12	1.6	20-28-36			
150.0							



PROJECT NUMBER LAO31981	BORING NUMBER MW-32
SHEET 6 OF 7	
SOIL BORING LOG	

PROJECT MCAS El Toro RI/FS Phase I LOCATION Site 13
 ELEVATION 285.4 ft. DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT Failing F-10 HSA 6 1/4" I.D. 10'8" O.D.
 WATER LEVEL AND DATE 141.1 ft. 1/20/93 START 7/20/92 FINISH 7/21/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS	SOIL DESCRIPTION	FID/PID READING	COMMENTS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)				
				6"-6"-6"	SOIL NAME, USGS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
155.0					From about 150 to 165 ft., Cuttings: <u>SILT WITH GRAVEL (ML)</u> , brown, wet, soft, trace sand, fine subangular gravel up to 7 mm diameter		Driller adds water to inside of augers to prevent sand heaving
160.0							
165.0							
170.0					From about 170 ft., Cuttings: <u>WELL GRADED SAND WITH SILT (SW-SM)</u> , brown, wet, very soft		
175.0							
180.0					From about 175 ft., Cuttings: <u>SILT WITH SAND (ML)</u> , brown, soft, wet, trace fine gravel		



PROJECT NUMBER LAO31981	BORING NUMBER MW-32
SHEET 7 OF 7	
SOIL BORING LOG	

PROJECT MCAS El Toro RI/FS Phase I LOCATION Site 13
 ELEVATION 285.4 ft. DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT Failing F-10 HSA 6 1/4" I.D. 10'8" O.D.
 WATER LEVEL AND DATE 141.1 ft. 1/20/93 START 7/20/92 FINISH 7/21/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS	SOIL DESCRIPTION	FID/PID READING	COMMENTS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)				
				6"-6"-6"	SOIL NAME, USGS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
185.0					From about 180 ft., Cuttings: <u>SILT WITH SAND (ML)</u> , brown, moist, medium stiff, well graded sand, trace fine gravel		
					From about 185 ft., Cuttings: <u>SILT (ML)</u> , brown, moist, medium stiff, trace fine sand		
190.0					At about 190 ft., Cuttings: <u>SILT (ML)</u> , brown, wet, soft, trace sand		
					Total depth - 190 ft		
195.0							
200.0							
205.0							
210.0							



PROJECT NUMBER LAO31981	BORING NUMBER MW-49
SHEET 1 OF 7	
SOIL BORING LOG	

PROJECT MCAS El Toro RI/FS Phase I LOCATION Site 13, El Toro, CA.
 ELEVATION 280.1 ft DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT F10 HSA 6 1/4" I.D., 10 1/8" O.D.
 WATER LEVEL AND DATE 135.8 ft, 1/20/93 START 7/13/92 FINISH 7/17/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS	SOIL DESCRIPTION	FID/PID READING	COMMENTS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)				
4.5							
5.0	6.0	1-C	1.25	10-9-11	<u>SILT</u> , (ML), brown, dry, trace fine and medium sand, and fine gravel.	F: 9 ppm	140 lb. down hole sampling hammer. Headspace measured after 30 min.
10.0	9.5				<u>SILT</u> , (ML), brown, dry.	F: 21 ppm	
	11.0	2-C	1.25	14-10-18			
15.0	14.5				<u>SILT</u> , (ML), brown, dry, trace fine sand.	F: 13 ppm	
	16.0	3-C	1.5	13-16-29			
20.0	19.5				<u>SILT</u> , (ML), brown, moist, stiff, trace fine and medium sand, increase in clay content with depth to minor amount, moist, some small calcareous veinlets.	F: 7 ppm	
	21.0	4-C	1.5	15-16-19			
25.0	24.5				<u>SILT</u> , (ML), similar to sample 4-C only clay content constant ~2-3%.	F: 12 ppm	
	26.0	5-C	1.5	9-15-19			
30.0	29.5				Continued next page.		



PROJECT NUMBER LAO31981	BORING NUMBER MW-49
SHEET 2 OF 7	
SOIL BORING LOG	

PROJECT MCAS El Toro RI/FS Phase I LOCATION Site 13, El Toro, CA.
 ELEVATION 280.1 ft DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT F10 HSA 6 1/4" I.D., 10 1/8" O.D.
 WATER LEVEL AND DATE 135.8 ft, 1/20/93 START 7/13/92 FINISH 7/17/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS	SOIL DESCRIPTION	FID/ID READING	COMMENTS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)				
				-6'-6"-6"	SOIL NAME, USGS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
35.0	31	6-C	1.5	9-12-13	SILT, (ML), grading to <u>WELL GRADED SAND</u> , (SW) with depth, dry brown to light brown, dry, minor gravel.	F: 5 ppm	
40.0	39.5						
45.0	41	7-C	1.5	13-18-22	SILT, (ML), brown, dry, trace fine sand and clay, trace mica.	F: 3.5 ppm	
50.0	49.5				SILT, (ML), brown, moist, hard, trace fine and medium sand & minor clay seams, more poorly graded with depth and softer.	F: 3 ppm	
55.0	51	8-C	1.5	11-19-22			
60.0	59.5				Continued next page.		



PROJECT NUMBER LAO31981	BORING NUMBER MW-49
SHEET 3 OF 7	
SOIL BORING LOG	

PROJECT MCAS El Toro RI/FS Phase I LOCATION Site 13, El Toro, CA.
 ELEVATION 280.1 ft DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT F10 HSA 6 1/4" I.D., 10 1/8" O.D.
 WATER LEVEL AND DATE 135.8 ft, 1/20/93 START 7/13/92 FINISH 7/17/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS	SOIL DESCRIPTION	FID/RID READING	COMMENTS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)				DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
				- 6"-6"-6"			
	61	9-C	1.5	16-17-27	<u>SILT, (ML), brown, top 6" is grey-brown and has slight odor, dry, stiff, trace fine sand.</u>	F: 2.5 ppm	
65.0							
	69.5						
70.0	71	10-C	1.5	25-40-46	<u>SILT, (ML), brown, dry, very stiff, containing - 1% calcareous veins up to 2mm wide.</u>	F: 3 ppm	
75.0							
	79.5						
80.0	81	11-C	1.5	10-25-35	<u>SILT - (ML), dry, brown, stiff, traces of clay fine and medium sand and gravel, more poorly graded with depth.</u>	F: 7 ppm	
85.0							
	89.5						
90.0							

Continued next page.



PROJECT NUMBER LAO31981	BORING NUMBER MW-49
SHEET 4 OF 7	
SOIL BORING LOG	

PROJECT MCAS El Toro RI/FS Phase I LOCATION Site 13, El Toro, CA.
 ELEVATION 280.1 ft DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT F10 HSA 6 1/4" I.D., 10 1/8" O.D.
 WATER LEVEL AND DATE 135.8 ft, 1/20/93 START 7/13/92 FINISH 7/17/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS	SOIL DESCRIPTION	FID/PID READING	COMMENTS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)				
	91	12-C	1.5	5-21-25	SILT, (ML), brown, dry, stiff, trace fine medium to coarse sand, few fine gravels.	F: 0 ppm	
95.0							
	99.5						
100.0	101	13-C	1.25	21-33-43	SILT, (ML), brown, dry, stiff, trace clay.	F: 10 ppm	Driller notes very few cuttings coming up because it's so dry.
105.0							
	109.5						
110.0	111	14-C	2	32-52-12	SILT, (ML), brown, moist, very stiff to hard, some fine and medium sand (~10%) with minor clay.	F: 0 ppm	Added ~ 5 gallons H2O at 112'(outside auger). Drilling easier.
115.0							
	119.5						
120.0							

Continued next page.



PROJECT NUMBER LAO31981	BORING NUMBER MW-49
SHEET 5 OF 7	
SOIL BORING LOG	

PROJECT MCAS El Toro RI/FS Phase I LOCATION Site 13, El Toro, CA.
 ELEVATION 280.1 ft DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT F10 HSA 6 1/4" I.D., 10 1/8" O.D.
 WATER LEVEL AND DATE 135.8 ft, 1/20/93 START 7/13/92 FINISH 7/17/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS	SOIL DESCRIPTION	FID/RID READING	COMMENTS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)				
				-6"-6"-6"			
	121	15-C	1.25	9-11-24	POORLY GRADED SAND WITH SILT (SP - SM), light brown, moist, medium dense, contains about 5% subangular gravel.	F: 13 ppm	
125.0							
	129.5				SILT, (ML), light brown, moist, soft, trace of fine sand.	F: 477 ppm	Driller adds ~4 gal. water to outside of augers @ 130'.
130.0	131	16-C	1.25	10-12-50			
					SANDY SILT, (ML), brown, moist, stiff, trace gravel, with ~5% clay.	F: 0 ppm	Driller adds ~10 gal. water to outside of augers.
135.0							
	139.5						
	141	17-C	2	20-30-34	SILT, (ML), brown to medium grey - brown. wet, moderately stiff, trace fine to med. sand.	F: 0 ppm	Driller overpoured sample to ensure recovery.
140.0							
	147						Sounded very wet soil at 143'. Some slough in sampler.
145.0							
	148.5	18-C	2	16-33-50			
150.0							



PROJECT NUMBER LAO31981	BORING NUMBER MW-49
SHEET 6 OF 7	
SOIL BORING LOG	

PROJECT MCAS El Toro RI/FS Phase I LOCATION Site 13, El Toro, CA.
 ELEVATION 280.1 ft DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT F10 HSA 6 1/4" I.D., 10 1/8" O.D.
 WATER LEVEL AND DATE 135.8 ft, 1/20/93 START 7/13/92 FINISH 7/17/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS	SOIL DESCRIPTION	FID/PID READING	COMMENTS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)				DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
				-6"-6"-6"			
155.0					From about 155.0 ft, Cuttings: SILT, (ML), brown, moist to wet, soft with slightly varying proportions of clay and fine to medium sand.	F: 0 ppm	Sample 18-C OVA. Cuttings: logged after augers pulled out of hole.
160.0							
165.0							
170.0							
175.0					From 175-190 ft, Cuttings: SILT, (ML) - As above, except soil is slightly finer grained with more clay.		
180.0					Continued next page.		

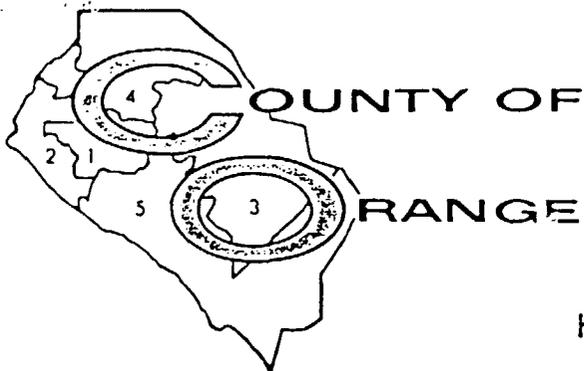


PROJECT NUMBER LAO31981	BORING NUMBER MW-49
SHEET 7 OF 7	
SOIL BORING LOG	

PROJECT MCAS El Toro R/FS Phase I LOCATION Site 13, El Toro, CA.
 ELEVATION 280.1 ft DRILLING CONTRACTOR Beylik Drilling Inc.
 DRILLING METHOD AND EQUIPMENT F10 HSA 6 1/4" I.D., 10 1/8" O.D.
 WATER LEVEL AND DATE 135.8 ft, 1/20/93 START 7/13/92 FINISH 7/17/92 LOGGER J. Little

DEPTH BELOW SURFACE (FT)	SAMPLE			PENETRATION TEST RESULTS	SOIL DESCRIPTION	FID/RID READING	COMMENTS
	INTERVAL	TYPE AND NUMBER	RECOVERY (FT)				
				6"-6"-6"	SOIL NAME, USGS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
185.0					Same as above		
190.0					Total depth - 190.0 ft		

Appendix B
Orange County Health Care Agency Report
and Field Notes



TOM URAM
DIRECTOR

L. REX EHRLING, M.D.
HEALTH OFFICER

ENVIRONMENTAL HEALTH DIVISION
ROBERT E. MERRYMAN, R. S. MPH
DEPUTY DIRECTOR

MAILING ADDRESS: P.O. BOX 355
SANTA ANA, CA 92702

HEALTH CARE AGENCY
PUBLIC HEALTH SERVICES
ENVIRONMENTAL HEALTH DIVISION
2009 E. EDINGER AVENUE
SANTA ANA, CALIFORNIA 92705
(714) 667-3700

February 10, 1992

Captain J.R. Faunce, CEC, USN
Director, Facilities Management Department
MCAS-E1 Toro (1JG)
Santa Ana, CA 92709-5001

Subject: Soil Contamination

RE: MCAS-E1 Toro
Building 11
Santa Ana, CA 92709
O.C.H.C.A. Case #92UT16

Dear Captain Faunce:

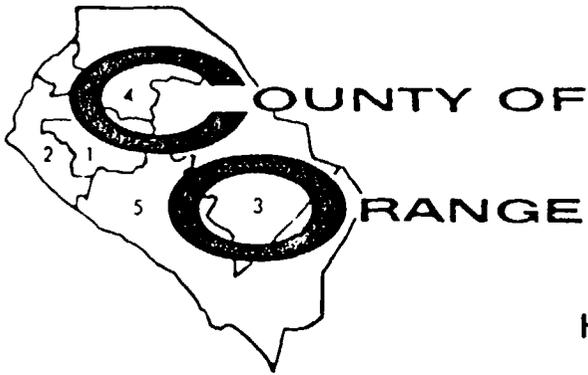
Based on inspections and field tests conducted on December 13, 1991 it has been determined that fuel oil #2 contaminated soil is present at the above referenced location. According to our records, the company you represent is identified as the responsible party for this site.

This Agency is authorized to enforce the State Hazardous Waste and Underground Storage Tank Laws and Regulations and is under contract with the State Water Resources Control Board to oversee the cleanup of soil and groundwater contamination resulting from unauthorized releases of petroleum hydrocarbons from underground storage tanks. The California Health and Safety Code, Section 25299.37 (a) requires that each owner, operator, or other responsible party shall take specified corrective actions in response to an unauthorized release from an underground storage tank system.

By this letter, you are directed to conduct an investigation to assess the extent and significance of contamination at the subject site. The objective of this site investigation is to provide sufficient information to evaluate 1) the sensitivity of the site, 2) the potential threat of exposure to humans, and 3) remedial actions and/or alternative mitigation strategies.

At a minimum, this investigation must include:

1. A clear delineation of the nature and extent of soil and groundwater contamination.
2. A hydrogeological characterization utilizing available information and, if necessary, the installation of groundwater monitoring wells. If groundwater is contaminated, site specific determination of the groundwater gradient is necessary.



COUNTY OF
ORANGE

L. REX
III

ENVIRONMENTAL
ROBERT E. MERRYMAN
DEP.

MAILING ADDRESS
SANTA ANA

HEALTH CARE AGENCY
PUBLIC HEALTH SERVICES
ENVIRONMENTAL HEALTH DIVISION
2009 E. EDINGER AVENUE
SANTA ANA, CALIFORNIA 92705
(714) 667-3700

CERTIFIED
RETURN RECEIPT
REQUR: TED

February 18, 1992

*Corrected
before
being sent*

Captain J.R. Faounce, CEC, USN
Director Facilities Management Department
MCAS El Toro (1JG)
Santa Ana, CA 92709-5001

SUBJECT: Notification Of Responsibility For Reimbursement For Costs
Incurred In Administering The Underground Storage Tank Cleanup
Program For MCAS El Toro, Bldg. 16, Santa Ana, CA - O.C.H.C.A.
Case #92UT16

The purpose of this letter is to inform responsible parties that the Orange County Health Care Agency has entered into an agreement with the State of California to oversee the cleanup of contaminated sites resulting from the unauthorized release of hazardous substances from underground storage tanks. The cleanup of these sites is necessary to protect the public and environment from unnecessary exposure to hazardous chemicals.

The cleanup program developed by Orange County is funded by State and Federal monies and is subject to the Reimbursement requirements associated with the use of these funds. In order to comply with the reimbursement requirement, it will be necessary to account for all time and materials expended by County staff at each cleanup site. On a routine basis, site specific amounts detailing the time and expenses expended for each site will be provided to the State. The State will then invoice the responsible party for all direct and indirect costs associated with the cleanup of the site.

For your information, please find the attached Notice of Reimbursement. This is your formal notification concerning reimbursement requirements for the responsible party. If any of the information contained in the Notice of Reimbursement is incorrect, or if you have any questions regarding the reimbursement requirements, please contact the Underground Storage Tank Cleanup Program at (714) 667-3700.

AR:cr

Attachment

CC: State Water Quality Control Board

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CHAIN OF CUSTODY
 Orange County Health Care Agency
 Environmental Health Division
 Mailing Address: P.O. Box 355, Santa Ana, CA 92702
 Office: 2009 E. Edinger Ave., Santa Ana, CA 92705
 Telephone: (714) 667-3700

- ALL SAMPLES ARE TO BE HANDLED AS COURT EVIDENCE, AND ARE TO BE PROPERLY STORED IN A SECURE LOCATION.
- PLEASE WRITE LEGIBLY.
- ATTACH THIS FORM TO THE ORIGINAL REPORT OF THE ANALYTICAL RESULTS AND RETURN THEM TO THIS OFFICE. LABORATORY RESULTS RECEIVED WITHOUT PROPER CHAIN OF CUSTODY DOCUMENTATION WILL NOT BE ACCEPTED.

4. TO BE COMPLETED BY LABORATORY ANALYST

LAB NO.: ^(mobile) 1431 / 1184 (Stationary)

DATE RECEIVED: 12/13/91

SAMPLE(S) CONDITION (PLEASE CHECK):

CHILLED: _____ COUNTY SEAL(S) INTACT: yes

CONTAINER IN GOOD CONDITION: yes

DATE ANALYSIS COMPLETED: 12-23-91

ANALYST: (Signature)

5. TO BE COMPLETED BY SAMPLE COLLECTOR

SITE NAME/ADDRESS: USMCAS
El Toro

DATE OF COLLECTION: 12-13-91

SAMPLE COLLECTOR/COMPANY: JTL
Ron Edward

TELEPHONE NO.: (714) 246-2075

HCA REPRESENTATIVE: JRHenderson
(714) 667-3708

6.

SAMPLE NUMBER	DETERMINATION REQUESTED	SAMPLE DESCRIPTION/COMMENTS	TIME OF COLLECTION
SP-53	DOHS Approved Method TPH (#2 Fuel Oil)	EPA 8020	12:30
T-11	" " "	" " "	1:00
P-11	" " "	" " "	12:45
SP-11	" " "	" " "	12:45
T-12	" " "	" " "	1:30
P-12	" " "	" " "	1:30
SP-12	" " "	" " "	1:30

7.

CHAIN OF CUSTODY		
1. <u>(Signature)</u> SIGNATURE	<u>OCHCA/EnviroHealth</u> COMPANY/AGENCY	<u>12-13-91 - 7:20 PM</u> INCLUSIVE DATES/TIMES
2. <u>(Signature)</u> SIGNATURE	<u>Chlorine Anal Lab</u> COMPANY/AGENCY	<u>12/13/91 - 2:20 PM</u> INCLUSIVE DATES/TIMES
3. _____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES
4. _____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES
5. _____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES
6. _____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES



CENTRUM ANALYTICAL LABORATORIES

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

Client: JTL Environmental
P.O. Box 17246
Anaheim Hills, CA 92817

Date: 12/17/91
J.N.: M-053

Project: USMCAS El Toro

Date Received: 12/13/91
Date Analyzed: 12/16-17/91
Samples Rcv'd: 38 Soil, 3 Water

=====

LABORATORY RESULTS

=====

METHOD: Modified 8015 (Total Extractable Petroleum Hydrocarbons)

MATRIX: Soil

CONCENTRATION: mg/kg (parts per million)

Sample No.	Diesel (#2 Fuel Oil)	Detection Limit
SP-53	19	10
T-11	1300	100
P-11	13	10
SP-11	ND	10
T-12	240	10
P-12	34	10
SP-12	ND	10
SP-13	ND	10
T-13	31	10
P-14	ND	10
SP-14	ND	10

ND - Not Detected

Respectfully Submitted,

CENTRUM ANALYTICAL LABORATORIES

Ida Wallace
Ida Wallace
Laboratory Supervisor

Doug Mather
Doug Mather, Ph.D.
Technical Director



CENTRUM ANALYTICAL LABORATORIES

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

Client: JTL Environmental
P.O. Box 17246
Anaheim Hills, CA 92817

Date: 12/18/91
J.N.: M-053

Project: US MCAS - El Torro

Date Received: 12/13/91
Date Analyzed: 12/16-17/91
Samples Rcv'd: 38 Soil, 3 Water

LABORATORY RESULTS

METHOD: EPA 8020/602 (B-T-E-X)

MATRIX: Soil

CONCENTRATION: ug/kg (parts per billion)

Sample No.	Benzene	Toluene	Xylenes	Ethylbenzene
SP-53	ND	ND	ND	ND
T-11	ND	6	6	ND
P-11	ND	ND	ND	ND
SP-11	ND	7	ND	ND
T-12	ND	11	46	6
P-12	ND	9	10	ND
SP-12	ND	ND	ND	ND
SP-13	ND	ND	ND	ND
T-13	ND	ND	ND	ND
P-14	ND	ND	ND	ND
SP-14	ND	ND	ND	ND

DETECTION LIMIT: 3 5 5 5
ND - Not Detected

Respectfully Submitted,

CENTRUM ANALYTICAL LABORATORIES

Ida Wallace
Ida Wallace
Laboratory Supervisor

Doug Mather
Doug Mather, Ph.D.
Technical Director

CHAIN OF CUSTODY
 Orange County Health Care Agency
 Environmental Health Division
 Mailing Address: P.O. Box 355, Santa Ana, CA 92702
 Office: 2009 E. Edinger Ave., Santa Ana, CA 92705
 Telephone: (714) 667-3700

1. ALL SAMPLES ARE TO BE HANDLED AS COURT EVIDENCE, AND ARE TO BE PROPERLY STORED IN A SECURE LOCATION.
2. PLEASE WRITE LEGIBLY.
3. ATTACH THIS FORM TO THE ORIGINAL REPORT OF THE ANALYTICAL RESULTS AND RETURN THEM TO THIS OFFICE. LABORATORY RESULTS RECEIVED WITHOUT PROPER CHAIN OF CUSTODY DOCUMENTATION WILL NOT BE ACCEPTED.

4. TO BE COMPLETED BY LABORATORY ANALYST

LAB NO.: _____

DATE RECEIVED: _____

SAMPLE(S) CONDITION (PLEASE CHECK):

CHILLED: _____ COUNTY SEAL(S) INTACT: _____

CONTAINER IN GOOD CONDITION: _____

DATE ANALYSIS COMPLETED: _____

ANALYST: _____

5. TO BE COMPLETED BY SAMPLE COLLECTOR

SITE NAME/ADDRESS: USNA 25
FL T...

DATE OF COLLECTION: 11/15/11

SAMPLE COLLECTOR/COMPANY: ATL
R...

TELEPHONE NO.: 714 241 2000

HCA REPRESENTATIVE: JRH
11/15/11

6.

SAMPLE NUMBER	DETERMINATION REQUESTED	SAMPLE DESCRIPTION/COMMENTS	TIME OF COLLECTION
SP-3	D-11-A	1/1/11 (2/1/11) 11/15/11	11:30
T-11	"	"	11:30
P-11	"	"	12:15
SP-11	"	"	12:15
T-12	"	"	11:30
P-12	"	"	11:30
SP-12	"	"	11:30

7.

CHAIN OF CUSTODY

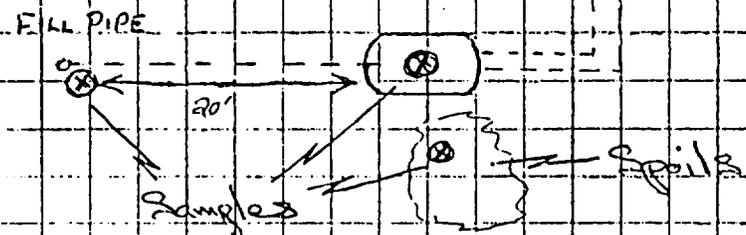
1.	_____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES
2.	_____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES
3.	_____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES
4.	_____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES
5.	_____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES
6.	_____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES

4th St.

Kth St.

Bldg #11

1/2" SUPPLY
&
RETURN



Abandoned 500 gal fuel tank #2 fuel oil
 Bldg #11 So. 4th St. & Kth St.
 USMCAS El Toro
 El Toro, CA

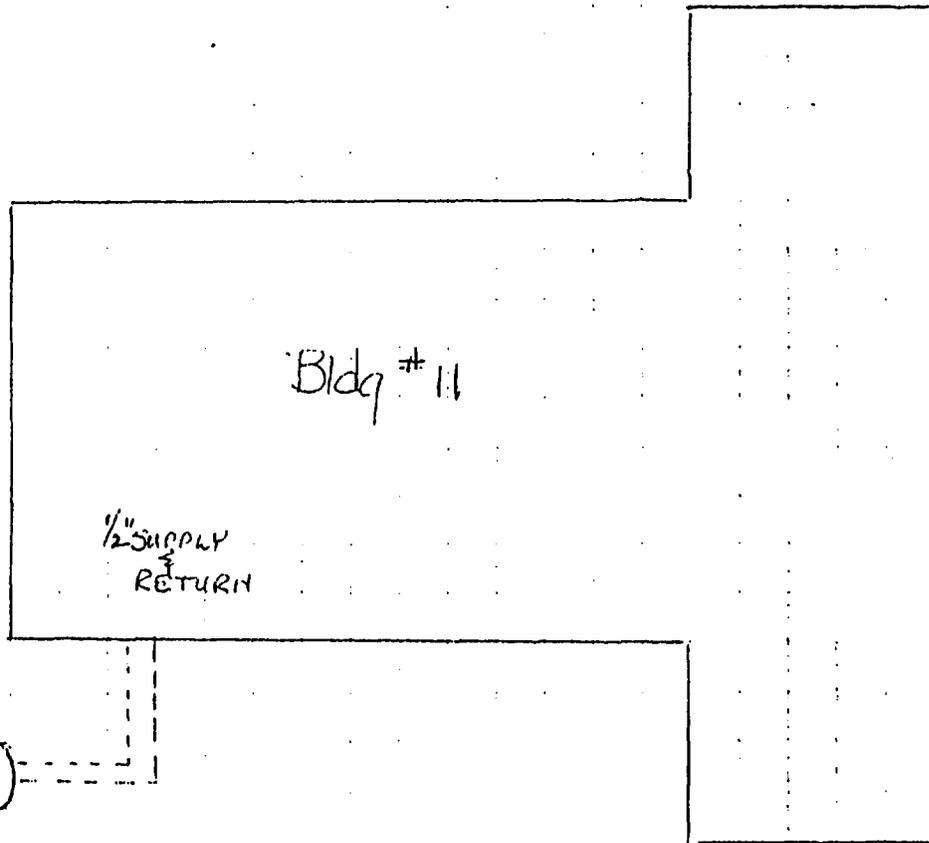
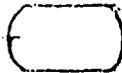
RECEIVED
 DEC 11 1991

HEALTH CARE AGENCY
 ENVIRONMENTAL HEALTH

4th St. —————

FILL PIPE

o



4th
"K" St.

Abandoned 500 gal fuel tank #2 fuel oil
Bldg #11 So. 4th St. & "K" St.
USMCAS El Toro
El Toro, CA

Form designed for use on 8 1/2 x 11 inch typewriter

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. CA 61170023208	Manifest Document No. 000016	2. Page 1 of 1	information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address MCAS EL TON COOE (JTG) SANTA ANA, CA 92709 4. Generator's Phone (714) 726-2821			A. State Manifest Document Number 91539074		B. State Generator's ID HYHO36020982	
5. Transporter 1 Company Name HAEMAT TRANS.		6. US EPA ID Number CA1080012800		C. State Transporter's ID 203769 / 210422		D. Transporter's Phone 714-780-9336
7. Transporter 2 Company Name		8. US EPA ID Number		E. State Transporter's ID		F. Transporter's Phone
9. Designated Facility Name and Site Address CHEMICAL WASTE MGMT 35251 OLD SKYLINE RD KETTLEMAN CITY, CA 93239			10. US EPA ID Number CA101010646117		G. State Facility's ID CA101010646117	
			H. Facility's Phone 800-222-2964			
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers No. Type	13. Total Quantity	14. Unit WT/Vol	15. Waste Number	
HAZARDOUS WASTE SUBSTANCE SOLID NOS ORM-E (NON RCRA)		0011 CM	001007	TN	State EPA/Other	
b.					State EPA/Other	
c.					State EPA/Other	
d.					State EPA/Other	
3. Additional Descriptions for Materials Listed Above 3 TANKS # 11 SAND FILLED #13 SAND FILLED #12 SAND FILLED			K. Handling Codes for Wastes Listed Above a. 03 b. c. d.			
15. Special Handling Instructions and Additional Information GLOVES, Goggles, Longsleeves PROFILE #J72331 APT. # 053						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name DOUGLAS CHILDERS		Signature 		Month Day Year 12 11 69 1		
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name TIMOTHY D MCGEE		Signature Timothy P. Mc Gee		Month Day Year 12 11 69 1		
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Month Day Year		
19. Discrepancy Indication Space						
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.						
Printed/Typed Name Ernest J Archuleta		Signature 		Month Day Year 12 11 79 1		

GENERATOR
TRANSPORTER
FACILITY

COUNTY OF ORANGE
HCA/ENVIRONMENTAL HEALTH
2009 E. EDINGER AVENUE
SANTA ANA, CA 92705

Groundwater Cleanup/Local Oversight Program
Case Invalidation/Transfer Form

BGN55

LUST Site Number Inventory

1. Site No. 92 UT 11a
2. Site Name MCAS EL TORO
3. Street No. Bldg. 11
4. Street Dir. _____
5. Street Name _____
6. City Code ~~Santa Ana~~ 20
7. Zip Code 92709
8. Status (I/T) I
9. *Comments Transferred to
the SAPWDCB

*sample verbage: transferred to OC UST
transferred to ICU
duplicate of Existing Case No. _____
transferred to City of Anaheim

 ENTERED
JUL 8 1993

Summary - Tank removal
Bldg. 11

2/7/92

One 500 gallon fuel tank removed. The tank contained
Fuel Oil #2..

	<u>TPH</u>	<u>B</u>	<u>I</u>	<u>E</u>	
T-11 (below tank)	1300	ND	.006	ND	.0
P-11 (fill pipe end - 20' from tank)	13	ND	ND	ND	N
SP-11 (spoils)	ND	ND	.007	ND	N

- Detection limit for T-11, TPH was 100 ppm

3. The proximity to existing wells, the surrounding land uses and the future use of the site itself.

The project site must be properly secured to eliminate safety hazards and prevent public contact with contaminants present at the site. Any site activity which involves the excavation, disruption, collection, treatment, or removal of contaminated soil or groundwater must be conducted in a manner that precludes public exposure to chemical vapors above background levels. Recoverable "free" product must be removed as soon as possible by the most efficient method available.

Documents and reports required to be submitted to this Agency are:

1. An initial workplan or study design is to be submitted to this Agency for review and approval prior to site assessment activity.
2. After completion of the site investigation, a report of findings to include proposals for site mitigation or mitigation alternatives for review and approval prior to initiation of remediation activity.
3. Documentation of approved disposition of contaminated water or soil transferred to an off-site location.
4. Quarterly reports, to include a brief description of activities which have occurred and/or are planned for the site. Any problems which may delay site corrective action must be described in this report.
5. For projects where contamination is to be left in place beneath an existing building or involving a change in land use, a health risk assessment for exposure to benzene or other volatile hazardous substance may be required by this Agency.

Guidelines providing further information relating to site assessment and the site investigation objectives are available from this office upon request.

Please note that clearance of site investigation, remediation or other mitigation activities by any other agency does not constitute clearance from the Orange County Health Care Agency.

For sites with possible or confirmed groundwater contamination, copies of correspondence, work plans, and reports should be routinely provided to the appropriate Regional Water Quality Control Board.

If you have any questions, please contact me at (714) 667-3713.

Sincerely,


Arghavan Rashidi-Fard
Hazardous Waste Specialist
Hazardous Materials Management Section
Environmental Health Division

AR:cr

cc: Orange County Fire Department
Ken Williams, Santa Ana Regional Water Quality Control Board
Environmental Health, Water Quality Section

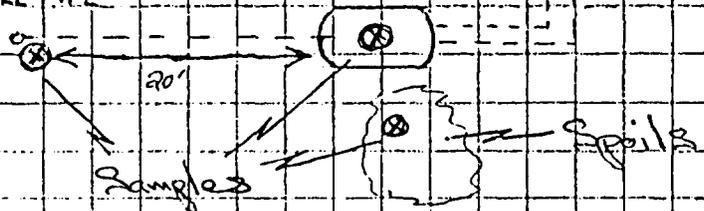
4th St.

"K" St.

Bldg #11

1/2" SUPPLY
RETURN

FILL PIPE



RECEIVED
DEC 1 1991

HEALTH CARE AGENCY
ENVIRONMENTAL HEALTH

Abandoned 500 gal fuel tank #2 fuel oil
Bldg #11, So. 4th St. & "K" St.
USMCAS El Toro
El Toro, CA

CL
4th St. —————

FILL PIPE



Bldg #11

1/2" SUPPLY
RETURN

CL
"K" St

Abandoned 500 gal fuel tank #2 fuel oil
Bldg #11 So. 4th St. & "K" St.
USMCAS El Toro
El Toro, CA

COUNTY OF ORANGE
HCA/ENVIRONMENTAL HEALTH
2009 E. EDINGER AVENUE
SANTA ANA, CA 92705

Groundwater Cleanup/Local Oversight Program
Case Invalidation/Transfer Form

BGW55

LUST Site Number Inventory

1. Site No. 92 UT 11a
2. Site Name MCAS EL TORO
3. Street No. Bldg. 11
4. Street Dir. _____
5. Street Name _____
6. City Code ~~Santa Ana~~ 20
7. Zip Code 92709
8. Status (I/T) I
9. *Comments Transferred to
the SAEWOCB

*sample verbage: transferred to OC UST
transferred to ICU
duplicate of Existing Case No. _____
transferred to City of Anaheim

 JUL 8 1993
ENTERED

Appendix C
Centrum Analytical Laboratories Results



CENTRUM ANALYTICAL LABORATORIES

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

Client: JTL Environmental
P.O. Box 17246
Anaheim Hills, CA 92817

Date: 12/17/91
J.N.: M-053

Project: USMCAS El Toro

Date Received: 12/13/91
Date Analyzed: 12/16-17/91
Samples Rcv'd: 38 Soil, 3 Water

=====

LABORATORY RESULTS

=====

METHOD: Modified 8015 (Total Extractable Petroleum Hydrocarbons)

MATRIX: Soil

CONCENTRATION: mg/kg (parts per million)

Sample No.	Diesel (#2 Fuel Oil)	Detection Limit
-----	-----	-----
SP-53	19	10
T-11	1300	100
P-11	13	10
SP-11	ND	10
T-12	240	10
P-12	34	10
SP-12	ND	10
SP-13	ND	10
T-13	31	10
P-14	ND	10
SP-14	ND	10

ND - Not Detected

Respectfully Submitted,

CENTRUM ANALYTICAL LABORATORIES

Ida Wallace
Ida Wallace
Laboratory Supervisor

Doug Mather
Doug Mather, Ph.D.
Technical Director



CENTRUM ANALYTICAL LABORATORIES

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

Client: JTL Environmental
P.O. Box 17246
Anaheim Hills, CA 92817

Date: 12/18/91
J.N.: M-053

Project: US MCAS - El Torro

Date Received: 12/13/91
Date Analyzed: 12/16-17/91
Samples Rcv'd: 38 Soil, 3 Water

=====

LABORATORY RESULTS

=====

METHOD: EPA 8020/602 (B-T-E-X)

MATRIX: Soil

CONCENTRATION: ug/kg (parts per billion)

Sample No.	Benzene	Toluene	Xylenes	Ethylbenzene
SP-53	ND	ND	ND	ND
T-11	ND	6	6	ND
P-11	ND	ND	ND	ND
SP-11	ND	7	ND	ND
T-12	ND	11	46	6
P-12	ND	9	10	ND
SP-12	ND	ND	ND	ND
SP-13	ND	ND	ND	ND
T-13	ND	ND	ND	ND
P-14	ND	ND	ND	ND
SP-14	ND	ND	ND	ND

DETECTION LIMIT: 3 5 5 5
ND - Not Detected

Respectfully Submitted,

CENTRUM ANALYTICAL LABORATORIES

Ida Wallace
Ida Wallace
Laboratory Supervisor

Doug Mather
Doug Mather, Ph.D.
Technical Director



CENTRUM ANALYTICAL LABORATORIES

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

Client: JTL Environmental
P.O. Box 17246
Anaheim Hills, CA 92817

Date: 12/31/91
J.N.: 3134

Project: USMCAS - El Toro

Date Received: 12/19/91
Date Analyzed: 12/30-31/91
Samples Rcv'd: 10 Soil

=====

LABORATORY RESULTS

=====

METHOD: Modified 8015 (Total Extractable Petroleum Hydrocarbons)

MATRIX: Soil

CONCENTRATION: mg/kg (parts per million)

<u>Sample No.</u>	<u>Diesel (#2 Fuel Oil)</u>	<u>Detection Limit</u>
TE-53-N	1300	20
TE-53-S	ND	10
TE-11-N	580	10
TE-11-S	ND	10
TE-12-S	ND	10
TE-12-N	ND	10
TE-13-N	ND	10
TE-13-S	ND	10
TE-14-N	ND	10
TE-14-S	ND	10

ND - Not Detected

Respectfully Submitted,

CENTRUM ANALYTICAL LABORATORIES

Ida Wallace
Ida Wallace
Laboratory Supervisor

Doug Mather
Doug Mather, Ph.D.
Technical Director



CENTRUM ANALYTICAL LABORATORIES

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

Client: JTL Environmental
P.O. Box 17246
Anaheim Hills, CA 92817

Date: 01/02/92
J.N.: 3134

Project: US MCAS - El Torro

Date Received: 12/19/91
Date Analyzed: 12/30/91
Samples Rcv'd: 10 Soil

=====

LABORATORY RESULTS

=====

METHOD: EPA 8020/602 (B-T-E-X)

MATRIX: Soil

CONCENTRATION: ug/kg (parts per billion)

Sample No.	Benzene	Toluene	Xylenes	Ethylbenzene
TE-53-N	ND	ND	ND	ND
TE-53-S	ND	ND	ND	ND
TE-11-N	ND	ND	ND	ND
TE-11-S	ND	ND	ND	ND
TE-12-S	ND	ND	ND	ND
TE-12-N	ND	ND	ND	ND
TE-13-N	ND	ND	ND	ND
TE-13-S	ND	ND	ND	ND
TE-14-N	ND	ND	ND	ND
TE-14-S	ND	ND	ND	ND

DETECTION LIMIT: 3 5 5 5
ND - Not Detected

Respectfully Submitted,

CENTRUM ANALYTICAL LABORATORIES

Ida Wallace
Ida Wallace
Laboratory Supervisor

Doug Mather
Doug Mather, Ph.D.
Technical Director

CHAIN OF CUSTODY RECORD

ADDED 12/20/91
 per James Linn

Job No.		Project Name			Analyses required														
Sampler		Phone:			SOILS SOCC (12)														
Client Name		Address:																	
Date/Time Sampled		Sample Type										Site Location		# and type of containers		Hazardous sample Special handling Sample preserved Y / N			
TE-53-N	12/14/91	✓			Excavation Bldg #53		1-4oz	X	X										
TE-53-S	"	✓			" " "		"												
TE-11-N	"	✓			Excav. Bldg #11		"												
TE-11-S	"	✓			" " "		"												
TE-12-S	12/17/91	✓			Excav. Bldg #12		"												
TE-12-N	"	✓			" " "		"												
TE-13-N	12/18/91	✓			Excav. Bldg #13		"												
TE-13-S	"	✓			" " "		"												
TE-14-N	"	✓			Excav. Bldg #14		"												
TE-14-S	"	✓			" " "		"												
Relinquished by (Signature)		Date/Time		Received by (Signature)		Relinquished by (Signature)		Date/Time		Received by (Signature)									
L.W. Edwards		12/19/91		[Signature]		[Signature]		12/19/91		[Signature]									
Relinquished by (Signature)		Date/Time		Received for Laboratory by (Signature)		Date/Time		Samples chilled		Samples sealed									
[Signature]		12/19/91		Jumbo		12/19/91		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Method of Shipment <input checked="" type="checkbox"/> Courier <input type="checkbox"/> UPS/Fed-x <input type="checkbox"/> Mail <input type="checkbox"/> Hand Carried									

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

CHAIN OF CUSTODY
 Orange County Health Care Agency
 Environmental Health Division
 Mailing Address: P.O. Box 355, Santa Ana, CA 92702
 Office: 2009 E. Edinger Ave., Santa Ana, CA 92705
 Telephone: (714) 667-3700

- ALL SAMPLES ARE TO BE HANDLED AS COURT EVIDENCE, AND ARE TO BE PROPERLY STORED IN A SECURE LOCATION.
- PLEASE WRITE LEGIBLY.
- ATTACH THIS FORM TO THE ORIGINAL REPORT OF THE ANALYTICAL RESULTS AND RETURN THEM TO THIS OFFICE. LABORATORY RESULTS RECEIVED WITHOUT PROPER CHAIN OF CUSTODY DOCUMENTATION WILL NOT BE ACCEPTED.

4. TO BE COMPLETED BY LABORATORY ANALYST

LAB NO.: ^(mobile) 1431 / 1184 (stationary)

DATE RECEIVED: 12/13/91

SAMPLE(S) CONDITION (PLEASE CHECK):

CHILLED: _____ COUNTY SEAL(S) INTACT: yes

CONTAINER IN GOOD CONDITION: yes

DATE ANALYSIS COMPLETED: 12-23-91

ANALYST: (signature)

5. TO BE COMPLETED BY SAMPLE COLLECTOR

SITE NAME/ADDRESS: USMCAS
El Toro

DATE OF COLLECTION: 12-13-91

SAMPLE COLLECTOR/COMPANY: JTL
Ron Edwards

TELEPHONE NO.: (714) 246-2075

HCA REPRESENTATIVE: JRHenderson
(714) 667-3708

6.

SAMPLE NUMBER	DETERMINATION REQUESTED	SAMPLE DESCRIPTION/COMMENTS	TIME OF COLLECTION
SP-53	DHHS Approved Method TPH (#2 Fuel Oil)	EPA 8020	12:30
T-11	" " "	" " "	1:00
P-11	" " "	" " "	12:45
SP-11	" " "	" " "	12:45
T-12	" " "	" " "	1:30
P-12	" " "	" " "	1:30
SP-12	" " "	" " "	1:30

7.

CHAIN OF CUSTODY

1.	<u>(signature)</u> SIGNATURE	<u>OCHA/EnviroHealth</u> COMPANY/AGENCY	<u>12-13-91 - 2:20 PM</u> INCLUSIVE DATES/TIMES
2.	<u>(signature)</u> SIGNATURE	<u>Chlorine Anal Lab</u> COMPANY/AGENCY	<u>12/13/91 - 2:20 PM</u> INCLUSIVE DATES/TIMES
3.	_____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES
4.	_____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES
5.	_____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES
6.	_____ SIGNATURE	_____ COMPANY/AGENCY	_____ INCLUSIVE DATES/TIMES