SITE ASSESSMENT REPORT
FORMER OIL-WATER SEPERATOR (OWS) 759A/UNDERGROUND STORAGE TANK (UST) 759B SITE
FORMER MARINE CORPS AIR STATION
EL TORO, CALIFORNIA

Contract No. N68711-02-F-8210
Modification No 0005

Prepared for:

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Naval Facilities Engineering Command
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TABLE OF CONTENTS

Page

LIST OF FIGURES ..... **ii**

LIST OF TABLES ..... **ii**

LIST OF APPENDICES ..... **ii**

LIST OF ACRONYMS ..... **iii**

1.0 INTRODUCTION **1-1**

1.1 Site Description *1-1*

1.2 Site History *1-2*

1.3 Report Organization *1-2*

2.0 SITE BACKGROUND AND ENVIRONMENTAL SETTING **2-1**

2.1 Previous Investigations *2-1*

2.2 Environmental Setting *2-3*

2.2.1 Site Geology and Soils 2-3

2.2.2 Hydrogeology 2-3

2.2.3 Surface Hydrology 2-4

2.2.4 Topography 2-4

3.0 OBJECTIVES **3-1**

4.0 SUMMARY OF SITE ASSESSMENT FIELD ACTIVITIES **4-1**

4.1 Underground Utility Clearance *4-1*

4.2 Soil Boring Location and Sampling Strategy *4-1*

4.3 Drilling and Soil Sampling Methodology *4-1*

4.3.1 Sampling Equipment Decontamination Procedures 4-2

4.3.2 Sample Handling, Packaging, and Shipment 4-3

4.4 Surveying of Soil Boring *4-3*

4.5 Management of Investigation-Derived Waste *4-3*

5.0 LABORATORY ANALYSES **5-1**

6.0 LABORATORY ANALYTICAL RESULTS AND DISCUSSION **6-1**

TABLE OF CONTENTS

Page

7.0 CONCLUSIONS AND RECOMMENDATIONS 7-1

8.0 REFERENCE SOURCES 8-1

LIST OF FIGURES

Figure 1 Project Vicinity Map
Figure 2 Site Location Map-Former MCAS El Toro
Figure 3 Site Map with Soil Boring Locations-Former OWS 759A/UST 759B
Figure 4 TPH-D and SPLP Concentrations Map

LIST OF TABLES

Table 1 Summary of Laboratory Analytical Results for Total Petroleum Hydrocarbons and Volatile Organic Compounds Analysis
Table 2 Summary of Laboratory Analytical Results for SPLP Analysis
Table 3 Summary of Geotechnical Analysis Results

LIST OF APPENDICES

Appendix A: Previous RFA and Soil Gas Samples Laboratory Results Summary
Appendix B: OWS 759A/UST 759B Removal Report
Appendix C: Soil Boring Logs
Appendix D: Soil Borings Survey Data and Map
Appendix E: Laboratory Reports and Chain-of-Custody Records

LIST OF ACRONYMS

AROICC	Navy Assistant Resident Officer in Charge of Construction
BRAC	Base Realignment and Closure
BTEX	benzene, toluene, ethylbenzene, xylene
°C	degrees Celsius
CIH	Certified Industrial Hygienist
CO	Contracting Officer
CSO	Caretaker Site Office
DHS	California Department of Heath Services
DO	delivery order
DOT	Department of Transportation
DQOs	data quality objectives
DTSC	Department of Toxic Substance Control
EDD	electronic data deliverable
EPA	U S Environmental Protection Agency
GEOFON	GEOFON, Inc
HAZMAT	hazardous materials
HCl	hydrochloric acid
HSA	hollow stem auger
IDW	Investigation-Derived Waste
LUFT	leaking underground fuel tank
MCAS	Marine Corps Air Station
MCX	Marine Corps Exchange
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
msl	mean sea level
MTBE	methyl tertiary butyl ether
NAD83	North American Datum of 1983
NEDTS	Navy Environmental Data Transfer Standard
NFESC	Naval Facilities Engineering Service Center

LIST OF ACRONYMS (CONT.)

OCHCA	Orange County Health Care Agency
OWS	oil/water separator
PCE	tetrachloroethene
PPE	personal protective equipment
PID	photoionization detector
PQLs	Practical Quantitation Limits
PRGs	Preliminary Remediation Goals
QA	quality assurance
QC	quality control
QCR	quality control report
RCRA	Resource Conservation and Recovery Act
RI/FS	remedial investigation/feasibility study
RPM	remedial project manager
RWQCB	Regional Water Quality Control Board
SAP	Sampling and Analysis Plan
SHSP	Site Health and Safety Plan
SOPs	standard operating procedures
SWDIV	Southwest Division
SWMU	solid waste management unit
TPH	total petroleum hydrocarbons
TRPH	total recoverable petroleum hydrocarbons
USTs	underground storage tanks
VOA	volatile organic analysis
VOCs	volatile organic compounds

1.0 INTRODUCTION

This report summarizes the findings of a site assessment work performed at the former oil water separator (OWS) 759A/underground storage tank (UST) 759B Site (herein after referred to as the former OWS 759A/UST 759B Site), located at the former Marine Corps Air Station (MCAS) El Toro, California. The Department of the Navy, Southwest Division Naval Facilities Engineering Command (SWDIV), under Contract No N68711-02-F-8210, retained GEOFON, INC. (GEOFON) to perform site assessment at the former OWS 759A/UST 759B Site and prepare this report The field activities associated with this site assessment were performed on July 15, 2003 in accordance with the Work Plan for Site Assessments at Various Former Underground Storage Tank Sites, dated July 2, 2003, which was approved by the Regional Water Quality Control Board-Santa Ana Region (RWQCB).

The purpose of the site assessment was to define the vertical extent of petroleum hydrocarbon and volatile organic compounds (VOCs)-impacted soil in the vicinity of the former OWS 759A/UST 759B location. This report documents and summarizes the site assessment activities, including methods and procedures used during the site assessment, management and disposal of investigation-derived waste (IDW), summary of analytical results, findings, conclusions, and recommendations.

1.1 Site Description

The former MCAS El Toro was a master jet air station supporting the operations and combat readiness of Pacific Fleet Marine Forces MCAS El Toro provided materials and support for aviation activities of the United States Marine Corps (USMC)

MCAS El Toro is located in a semi-urban agricultural area in Southern California. The station is situated about 8 miles southeast of the City of Santa Ana and 12 miles northeast of the city of Laguna Beach (Figure 1). Most of the land northwest of MCAS El Toro was historically used to grow oranges and other agricultural crops. Land to the south and northwest of the station has been developed as commercial, light industrial, and residential

MCAS El Toro consists of approximately 4,700 acres in central Orange County adjacent to the convergence of Interstate Freeways I-5 and I-405 and the Eastern Transportation Corridor. Most of the MCAS El Toro site is in unincorporated territory over which the County of Orange has direct land use planning and development authority. The southernmost portion of the MCAS El Toro site, approximately 342 acres south of the existing Burlington Northern and Santa Fe railroad tracks, which border the base, is within the incorporated boundary of the City of Irvine. El Toro has two 10,000 ft and two 8,000 ft runways.

The majority of the land immediately surrounding MCAS is used to raise oranges, strawberries, asparagus, and other agricultural crops. Portions of the station are leased for nursery use and agriculture use. The University of California, Irvine, has an agricultural field station directly north of MCAS. Located just northeast of the MCAS is a large nursery where fruit trees are grown. Until 10 years ago, the entire area surrounding MCAS was agricultural land; since then, urbanization has brought development closer to MCAS. About one-half mile northwest of the MCAS boundary are the main residential areas of the city of Irvine. The land farther north and northeast of MCAS in the Santa Ana Mountains and the San Joaquin Hills remains essentially undeveloped.

1.2 Site History

In March 1943, MCAS El Toro was commissioned as a Marine Corps pilot fleet operation training facility. In 1950, MCAS El Toro was selected for development as a master jet station and permanent center for Marine Corps aviation on the west coast to support the operations and combat readiness of Pacific Fleet Marine Forces. Since commissioning, MCAS El Toro has been utilized for aviation activities. Other activities that have been performed on the base include aircraft maintenance and refurbishing operations, metal plating, sewage treatment, and incineration of trash. These activities have generated waste oils, paint residues, hydraulic fluid, used batteries, and other wastes.

In March 1993, MCAS El Toro was placed on the Base Closure and Realignment Act (BRAC) list of proposed military facilities considered for base closure and was formally selected for closure in September of that year. During 1998 and early 1999, all of the aircraft squadrons were transferred to other Marine Corps and Naval Air Stations. All remaining military operations ceased when MCAS El Toro formally closed on 02 July 1999.

1.3 Report Organization

This report includes discussions of the site background; objectives, summary of site assessment field activities, laboratory analytical test methods used, summary of analytical results, conclusion and recommendations.

The report is organized as follows:

Section 2.0	Site Background and Environmental Setting
Section 3.0	Objectives
Section 4.0	Summary of Site Assessment Field Activities

Section 5.0 Laboratory Analysis

Section 6.0 Laboratory Analytical Results and Discussion

Section 7.0 Conclusions and Recommendations

Section 8.0 Reference Sources

The following five appendices are attached:

Appendix A: Previous RFA and Soil Gas Samples Laboratory Results Summary

Appendix B: OWS 759A/UST 759B Removal Report

Appendix C: Soil Boring Logs

Appendix D: Soil Borings Survey Data and Map

Appendix E: Laboratory Reports and Chain-of-Custody Records

2.0 SITE BACKGROUND AND ENVIRONMENTAL SETTING

Soil and groundwater contamination at MCAS El Toro is a result of several past operations that were accepted practices (for example, in the 1940s, aircraft refurbishing included the use solvents during degreasing activities). Between 1943 and 1955, municipal-type solid waste was generated by station housing (typical residential activities). Early disposal activities included incineration. Later, solid waste disposal was conducted at cut-and-fill landfill sites. Four landfills received solid waste, paint residues, oily wastes, industrial solvents, and incinerator ash. Fire-fighting training exercises were conducted at two burn pit areas and included the use of various flammable liquids such as jet fuel, aviation gasoline, and other waste liquids.

In addition to being part of the Installation Restoration Program, MCAS El Toro is included on the U.S. Environmental Protection Agency's National Priorities List of hazardous waste sites requiring cleanup. The Marine Corps/Navy and state and federal environmental regulatory agencies work in cooperation as the Base Realignment and Closure Cleanup Team to ensure compliance with environmental laws, rules, and regulations.

2.1 Previous Investigations

The OWS 759A/UST 759B is located in the south-central portion of the facility, north of S. Marine Way as shown in Figure 2, Site Location Map of MCAS El Toro. Former OWS 759A and UST 759B were located approximately 30 feet southwest of Building 759 and 100 feet northwest of Building 655 as shown in Figure 3. OWS 759A was a steel unit measuring 3 ½ feet in length, 1 foot 3 inches in width and 2 feet 4 inches in height, and had a capacity of approximately 100 gallons. The OWS received rinse water from the adjacent wash rack north of Building 655 via a sanitary sewer line (see Figure 3). UST 759B was located immediately west of OWS 759A. The UST was a 500-gallon steel tank measuring approximately 6 feet in length and 4 feet in diameter. The tank was used for the storage of waste oil received from the OWS.

OWS 759A was investigated as solid waste management unit (SWMU) 199 and UST 759B was investigated as SWMU 200 during the Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA). One soil boring (199B1) was drilled at the UST/OWS location (see Figure 3) as part of the RFA that was performed by Jacobs Engineering Group, Inc. in 1993 (JEG, 1993). The boring was drilled to a depth of 27 feet and samples were collected for laboratory analysis at depths of 5, 10, 15, 20, and 27 feet below ground surface (bgs). Total petroleum hydrocarbons (TPH) were detected at a concentration of 669 milligrams per kilogram (mg/kg) in the sample collected at a depth of 15 feet bgs. TPH was not detected above the laboratory reporting limit in the remaining four samples. Very low concentrations (6 micrograms

per kilogram [µg/kg] to 8 µg/kg) of methylene chloride were detected in all five samples and acetone (6 µg/kg to 10 µg/kg) was detected in four of the five samples These results were flagged with a "BJ" or "B" qualifier during validation, indicating that the compounds were also detected in the laboratory method blank and could be the result of laboratory contaminants. Based on these findings, it was recommended that a leak test/inspection of the OWS be performed A summary of the results of the RFA for this site is included in Appendix A.

In 1994, JEG collected soil gas samples from two (2) sampling locations in the vicinity of OWS 759A and UST 759B (see Figure 3) as part of a remedial investigation/feasibility study (RI/FS) performed at the site (JEG, 1994). Soil gas samples collected from SG 153 at a depth of 12 feet reported tetrachloroethene (PCE) concentrations ranging from 4.9 micrograms per liter (µg/L) to 5 µg/L, trichloroethene (TCE) at 1µg/L and 2.1 µg/L, C12DCE at 2.4 µg/L, TPH at 18 µg/L, and toluene ranging from 2.3 µg/L to 4.3 µg/L. Soil gas samples collected from SG 155 at depths of 12 and 20 feet bgs reported PCE concentrations of 4.6 µg/L and 5.1 µg/L, respectively. A summary of the soil gas laboratory results is included in Appendix A.

GEOFON was contracted to remove the UST and OWS in 1999 (GEOFON, 1999). After the approval of the UST removal permit application by the Orange County Health Care Agency (OCHCA) Environmental Health Division, Hazardous Materials Section, OWS 759A, UST 759B, and 10 feet of associated piping were removed on August 5, 1999 UST and OWS removal and soil sampling activities were performed under the supervision of OCHCA and the Navy Assistant Resident Officer in Charge of Construction (AROICC). The single excavation for UST and OWS was approximately 8 feet in length, 10 feet in width, and 10 feet in depth. Approximately, 30 cubic yards of soil were excavated around the UST and OWS

Following the removal of the UST and OWS, two (2) soil samples were collected from the bottom of the excavation Sample No. 759A-OWS-10' was collected beneath OWS 759A at a depth of 10 feet bgs and 759B-T-9' was collected beneath UST 759B at a depth of 9 feet bgs. The soil sample locations are shown in Figure 3 The soil samples were analyzed for total recoverable petroleum hydrocarbons (TRPH) by EPA Method 418 1; TPH quantified as gasoline (TPH-G), TPH quantified as diesel (TPH-D), and TPH-HC (full screen) by EPA Method 8015-Modified; and benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl-tertiary butyl ether (MTBE) by EPA Method 8020.

Sample No. 759A-OWS-10', collected at the south end of the OWS, reported concentrations of TRPH at 11,300 mg/kg, TPH-D at 7,510 mg/kg and TPH-HC at 1,310 mg/kg TPH-G was not detected above the practical quantitation limit (PQL) VOCs detected include concentrations of acetone at 71.8 µg/kg, sec-butylbenzene at 22.2 µg/kg, ethylbenzene at 19.4 µg/kg, naphthalene

at 47.1 µg/kg, n-propylbenzene at 13.8 µg/kg, tetrachloroethene at 19.6 µg/kg, 1,2,4-trimethylbenzene at 17.5 µg/kg, and 1,3,5-trimethylbenzene at 10.4 µg/kg.

Sample No. 759B-T-9', collected near the center of the UST 759B, reported concentrations of only TRPH at 46 mg/kg. VOCs, TPH-G, and TPH-D were not detected above the respective PQLs. The OWS 759A/UST 759B Removal Report (prepared by GEOFON) is included as Appendix B.

The UST/OWS excavation was backfilled with the existing soil stockpile generated during the excavation to expose the UST and OWS. The excavation was backfilled in one-foot lifts and compacted to achieve 90% or better relative compaction with a backhoe-mounted sheepsfoot roller and a dual drum-vibrating roller. Asphalted concrete was then placed over the compacted material to match the existing grade.

2.2 Environmental Setting

The local geology and soils, hydrogeology, surface hydrology and topography are discussed in the following subsections.

2.2.1 Site Geology and Soils

MCAS El Toro is underlain chiefly by Tertiary sedimentary rocks overlain by Holocene and Pleistocene surficial units (Fife 1974). The 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 predominantly composed of interlayed fine-grained lagoonal and near-shore marine deposits (Singer 1973). The deeper Quaternary sediments may be equivalent to the lower Pleistocene San Pedro Formation, which consists of semi consolidated silt, clays, and sands with interbedded limestone. These lagoonal and shallow marine deposits are considered to be a major water bearing unit in the region.

The Pleistocene deposits unconformably overlie older semi consolidated marine sandstones, siltstones, and conglomerates of late Miocene to late Pliocene age; these units make up the Niguel, Fernando, and Capistrano Formations. These semi consolidated sediments are considered to be the bedrock near MCAS El Toro. The lower Pliocene Fernando Formation is the base of the water bearing units at MCAS El Toro (Herndon and Reilly 1989).

2.2.2 Hydrogeology

MCAS El Toro lies within the Irvine Groundwater Sub Basin (Irvine Sub Basin). The Irvine Sub Basin and the main basin underline the Tustin Plain and Downey Plain (DWR 1967), which are surficial physiographic features

2.2.3 Surface Hydrology

Surface drainage near MCAS El Toro generally flows southwest, following the slope of the land perpendicular to the trend of the Santa Ana Mountains. Several washes originate in the hills northeast of MCAS El Toro and flow through or adjacent to the base en route to San Diego Creek Off-base drainage from the hills and from upgradient irrigated farmlands combines with base runoff at MCAS El Toro and flows into four main drainage channels: Borrego Canyon, Agua Chinon, Bee Canyon, and Marshburn Channel The southernmost wash is Borrego Canyon Wash, which flows along the southeast boundary of MCAS El Toro. Both Agua Chinon and Bee Canyon washes cross the central portion of MCAS El Toro Marshburn Channel is a lined drainage channel that runs along the northwestern boundary of MCAS El Toro.

2.2.4 Topography

MCAS El Toro is situated on the southern edge of the Tustin Plain, a gently sloping surface of alluvial fan deposits derived mainly from the Santa Ana Mountains and on the south by the San Joaquin Hills, is at the southeast end of the Los Angeles Basin, a large sedimentary basin in the Peninsular Ranges Geologic Province At the west corner of MCAS El Toro, the elevation is approximately 215 feet above mean sea level (MSL) and rises to approximately 800 feet above MSL at the east corner, in the foothills of the Santa Ana Mountains.

3.0 OBJECTIVES

The objectives of this site assessment were to:

- Install boring and collect soil samples in the immediate vicinity of the former OWS 759A/UST 759B to assess the vertical extent of petroleum hydrocarbon and VOCs-impacted soil
- Obtain the subsurface soil condition data (i.e. soil type, geotechnical data, depth to groundwater, petroleum hydrocarbon concentration levels in the soil, etc.) to support site closure and compliance with the RWQCB requirements.
- Prepare site assessment report with a summary of findings, conclusions and recommendation for site closure, if appropriate.

4.0 SUMMARY OF SITE ASSESSMENT FIELD ACTIVITIES

Site assessment activities were performed at the former OWS 759A/UST 759B Site on July 15, 2003. Site assessment activities included a geophysical utility clearance; drilling one (1) soil boring; collecting soil samples, laboratory analyses, management of IDW, and surveying of soil borings. Work was performed in accordance with the following documents: Work Plan for Site Assessments, Sampling and Analysis Plan, and Site-Specific Health and Safety Plan.

The following subsections describe the soil sampling strategy, and methods and procedures used during the site assessment of the former OWS 759A/UST 759B Site with respect to utility clearance, sample collection, sample handling, packaging, shipment and documentation, sampling equipment decontamination procedures, and management of IDW.

4.1 Underground Utility Clearance

The utility clearance consisted of reviewing site-specific utility maps, conducting a field reconnaissance, performing geophysical survey of the site, notifying Underground Service Alert of the intent to drill and clear the boring locations and utility lines. A Utility Clearance Request application was also prepared and submitted to the Navy Caretaker Site Office for review and approval prior to the initiation of field activities. Prior to drilling, hand augering was performed to approximately 5 feet bgs to further evaluate the potential presence of underground utilities.

No underground utilities were detected in the immediate vicinity of the soil boring locations.

4.2 Soil Boring Location and Sampling Strategy

In order to determine the vertical extent of petroleum hydrocarbon and VOCs-impacted soil in the vicinity of the former OWS 759A/UST 759B location, one (1) soil boring (759-SB-1) was installed. The location of the soil boring is shown in Figure 3. Soil boring 759-SB-1 was drilled on the south end of the former OWS, near the location of the confirmation sample collected after the OWS and UST were removed in 1999. Since the preliminary field screening for VOCs with a photo ionization detector (PID) established a clean zone for VOCs by three appropriate "non-detects" from 15 to 25 feet bgs, drilling of soil boring 759-SB-1 was terminated at 25 feet bgs. Soil samples were collected at 5-foot intervals starting at 5 feet bgs and continued to the total depth drilled.

4.3 Drilling and Soil Sampling Methodology

The soil boring was drilled using a truck-mounted hollow-stem auger (HSA) drill rig. Soil samples were collected from each soil boring at 5-foot intervals using split-spoon sampling

method. Preliminary field screening for VOCs was conducted on soil samples from each sampling interval (i.e., at 5-foot intervals) using a PID calibrated to an isobutylene standard. If PID reading established a clean zone for VOCs by at least three appropriate "non-detects" from 15 to 25 feet bgs, drilling of the boring was terminated at 25 feet bgs. Soil boring 759-SB-1 was drilled to a depth of 25 feet bgs. A total of five depth-discrete soil samples were collected at 5-foot intervals (i.e., at 5-, 10-, 15-, 20-, and 25-feet bgs) from boring 759-SB-1.

As drilling progressed, depth-discrete soil samples were collected from the boring at 5-foot intervals starting at 5 feet bgs and continued to the total depth drilled for chemical analysis using a steel split-spoon sampler. When a specified sampling depth is reached, multiple 2 1/2–inch diameter by 6-inch long stainless steel or brass sleeves were loaded into a decontaminated split-spoon sampler. The split-spoon sampler was lowered to the sampling depth and driven into the soil to collect the sample. When the split-spoon sampler was brought to the surface, the two bottom sleeves were removed immediately. The sleeves were then capped with Teflon™ squares and plastic end caps. The outer surface of the sample containers was wiped clean with a fresh paper towel and properly labeled. The sleeves were placed in individual self-sealing plastic bags and immediately packed into a thermally insulated ice chilled cooler maintained at 4° C prior to and during transportation of the samples to the laboratory. The split-spoon sampler was decontaminated between each sample location using standard detergent and deionized water rinse procedures.

In addition, soil samples were collected from each soil type encountered during drilling activities for the following geotechnical analyses; dry bulk density, effective porosity, volumetric water content, recharge rate, and carbon organic content.

Prosonic Corporation of Signal Hill, California, performed drilling at the site. The soil borings were drilled under the supervision of a California-registered Geologist. A GEOFON Geologist visually logged each boring in accordance with the Unified Soil Classification System (USCS, Appendix C, Figure C-1), collected soil samples, and monitored all field activities. Log of boring 759-SB-1 is shown on Figure C-2 (Appendix C). Soil boring log indicates that subsurface soils consist primarily of sand and clayey sand.

4.3.1 Sampling Equipment Decontamination Procedures

The following procedure for decontamination of sampling equipment was performed:

1. Wash with non-phosphate detergent.
2. Rinse with tap-water.
3. Deionized/distilled water rinse

4. Deionized/distilled water rinse (twice).

Equipment rinsates were collected daily, but analyzed every other day unless contamination was detected.

4.3.2 Sample Handling, Packaging, and Shipment

Each sample was identified by a unique number, coded to indicate the sampling location and depth. Sample labels were completed and affixed to the appropriate sample containers. The labels were secured with waterproof tape and included the sample identification number, the parameter(s) to be analyzed, the sampler's initials, and the preservative used. At the time of sample collection, a member of the field team added the date and time of sample collection.

After all labeling and custody information had been verified, samples were placed in coolers for shipment to the analytical laboratory. Adequate ice was used to maintain cooler temperatures at 4° C during shipment. A chain-of-custody form accompanied each cooler, listing the samples inside the cooler, the desired analyses, and other necessary information. The chain-of-custody form was placed in a self-sealing plastic bag and placed inside the cooler. The cooler was adequately sealed, and a signed custody seal was applied to the opposite sides of the cooler lid for security and accountability.

4.4 Surveying of Soil Boring

Calvada Surveying, Inc., a land surveyor registered in the State of California, surveyed the location of soil boring 759-SB-1 on August 6, 2003 after the conclusion of field activities. The surveyed location was measured to +/- 0.01 feet vertically and +/- 0.1 feet horizontally and referenced to the California State Plane Coordinate System, North American Datum 1983. A copy of the survey data and map of this boring is included as Appendix D.

4.5 Management of Investigation-Derived Waste

Soil cuttings, personal protective equipment, and rinsate water generated during drilling, sampling, and decontamination operations were containerized in DOT-approved 55-gallon drums and appropriately labeled. Upon completion of work at the site, investigation-derived waste (IDW) was transported to a designated storage area at MCAS El Toro until final disposition of the IDW is determined. Before transporting the IDW to the storage area, each 55-gallon drum was inventoried, given a unique designation for tracking purposes, and logged on IDW tracking forms.

5.0 LABORATORY ANALYSES

On July 15, 2003, the samples were transported to BC Laboratories, Inc. in Bakersfield, California for analysis, under proper chain-of-custody protocols. BC Laboratories, Inc. is certified by the California Department of Health Services (DHS) Environmental Laboratory Accreditation Program (ELAP) for analysis of hazardous materials for each method required for this project, and has successfully completed the Naval Facilities Engineering Service Center (NFESC) Laboratory Evaluation Program.

All soil samples were analyzed using the following EPA SW-846 methods:

- EPA Method 8015 Modified for Total Petroleum Hydrocarbons (TPH-D and TPH-G) and
- EPA Method 8260B for VOCs (including BTEX, MTBE, and other fuel oxygenates)

Soil samples with the highest reported TPH concentrations from each soil boring were also analyzed by the Synthetic Precipitation Leaching Procedure (SPLP) by EPA Method 1312.

6.0 LABORATORY ANALYTICAL RESULTS AND DISCUSSION

Laboratory analysis of soil samples collected between 5 to 15 feet bgs from soil boring 759-SB-1 detected TPH-D and TPH-G at concentrations ranging from 3.5 to 50 mg/kg and 0.025 to 0.054 mg/kg, respectively. TPH-D was not detected above the laboratory's practical quantitation limit (PQL) in the soil samples collected at depths of 20 and 25 feet bgs.

Benzene and toluene were detected in only one soil sample collected at a depth of 15 feet bgs at concentrations of 0.91 µg/kg and 0.94 µg/kg, respectively. Ethylbenzene, xylenes, MTBE were not detected above their respective laboratory's PQLs in any of the soil sample collected from boring 759-SB-1

PCE was detected in two soil samples collected at depths of 5 and 10 feet bgs at concentrations of 0.47 µg/kg and 0.86 µg/kg, respectively PCE was not detected above the laboratory's PQL in the soil samples collected between 15 to 25 feet bgs TCE was not detected above the laboratory's PQL in any of the soil sample collected from boring 759-SB-1. Methyl ethyl ketone (MEK) and acetone were detected at concentrations ranging from 1.80 to 8.0 µg/kg and 5.60 to 59 µg/kg, respectively.

A summary of laboratory analytical results of TPH-D, TPH-G and VOCs analysis is shown in Table 1 and SPLP analysis is shown in Table 2. A copy of the laboratory reports and chain-of-custody records are provided in Appendix E.

Evaluation of the Extent of the Release:

A minor petroleum hydrocarbon release has been identified beneath the former OWS 759A/UST 759B Site. Based on the significant decline in TPH-D, TPH-G, benzene, toluene, and PCE concentrations with increasing depth of the soil boring and since these constituents were not detected beyond 15 feet bgs; the vertical extent of impacted soil appears to be located between approximately 5 to 15 feet bgs and the release does not appear to extend beyond 15 feet bgs and to the groundwater.

Evaluation of the SPLP Analysis Results:

Soil samples with the highest reported TPH concentrations were analyzed for leachability by the SPLP The maximum TPH-D concentrations and their associated SPLP concentrations are presented in Figure 4 for comparison purpose. The maximum TPH-D concentration of 50 mg/kg was detected in a soil sample collected from boring 759-SB-1 at a depth of 10 feet bgs and the associated SPLP (leachate) concentration was not detected above the laboratory's PQL. The SPLP concentrations for benzene, toluene, and PCE were not detected above their respective laboratory's PQLs

Comparison of VOCs Concentrations with Preliminary Remediation Goals (PRGs)

The VOCs detected in soil samples collected from the boring 759-SB-1 include benzene, toluene, PCE, MEK, and acetone. The maximum concentrations of benzene, toluene, PCE, MEK, and acetone were 0.91 µg/kg, 0.94 µg/kg, 0.86 µg/kg, 8.0 µg/kg, and 59 µg/kg, respectively. These detected VOCs maximum concentrations were compared to their respective USEPA Region 9 PRGs for residential soil (USEPA, 2002). The PRGs for each VOC are presented in Table 1. The PRGs for benzene, toluene, PCE, MEK, and acetone are 600 µg/kg, 520,000 µg/kg, 1,500 µg/kg, 7,300,000 µg/kg, and 1,600,000 µg/kg, respectively. The concentrations of benzene, toluene, PCE, MEK, and acetone are significantly below their respective PRGs.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions are based on the data collected during this site assessment activities (as well as previous site investigations), laboratory analytical results of the soil samples, and professional judgment:

- OWS 759A was investigated as SWMU 199 and UST 759B was investigated as SWMU 200 during the RFA. Soil samples collected during the RFA in 1993 exhibited very low concentrations of TPH, methylene chloride, and acetone. The methylene chloride and acetone concentrations were below their respective PRGs. The soil gas samples collected during the RI/FS study in 1994 exhibited very low concentrations of TPH, TCE, and PCE.
- OWS 759A and UST759B were removed from the site in August 1999. Confirmation soil samples collected during OWS 759A/UST 759B removal exhibited very low concentrations of ethylbenzene, acetone, sec-butylbenzene, naphthalene, n-propylbenzene, PCE, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. The concentrations of these detected VOCs were below their respective PRGs.
- Five (5) soil samples were collected from one (1) boring located within the former OWS/UST excavation during site assessment activities conducted in July 2003. Based upon the evaluation of the field and laboratory data, a minor release of petroleum hydrocarbon was identified at the excavated area and release extends 5 to 15 feet bgs vertically. The concentrations of TPH-D and TPH-G were significantly low.
- Significant decline in TPH-D, TPH-G benzene, toluene, and PCE concentrations were noted with increasing depth of the soil boring and the concentrations decreased to non-detect levels from15 to 25 feet bgs.
- Concentrations of benzene, toluene, PCE, MEK, and acetone detected in the soil samples were significantly low and were below their respective PRGs. MTBE was not detected in the soil samples collected during the site assessment.
- The residual petroleum hydrocarbons and VOCs at former OWS 759A/UST 759B Site have limited mobility based upon the evaluation of leachate concentrations reported from the SPLP analysis. Leachate concentrations were non-detect compared to the concentrations in the associated soil samples, and consequently, the residual petroleum hydrocarbons and VOCs are considered to have a low migration potential.
- Since the groundwater is located at approximately 100 feet bgs and based on the low leaching potential for residual hydrocarbons and VOCs (SPLP analysis), the potential for remaining

petroleum hydrocarbons and VOCs at former OWS 759A/UST 759B Site to significantly impact groundwater quality is considered to be low.

Based upon the limited vertical extent of the release of petroleum hydrocarbons and VOCs, the low leaching potential for residual petroleum hydrocarbons and VOCs, the absence of significant levels of benzene, the absence of MTBE, since detected VOCs are below their respective PRGs, and since there is no potential impact to groundwater quality from remaining petroleum hydrocarbons and/or VOCs at former OWS 759A/UST 759B Site, it is recommended that this unauthorized release case be closed.

8.0 REFERENCE SOURCES

GEOFON, 2003. Work Plan for Site Assessments at Various Underground Storage Tank Sites, Marine Corps Air Station (MCAS), El Toro, California, July 2003.

GEOFON, 1999. Underground Storage Tank and Oil/Water Separator Removal Report, UST 759B and OWS 759A, Marine Corps Air Station (MCAS), El Toro, California, October 26, 1999.

Jacobs Engineering Group, Inc (JEG, 1993). Marine Corps Air Station El Toro, California, Installation Restoration Program Final Resource Conservation and Recovery Act (RCRA) Facility Assessment Report, July 1993.

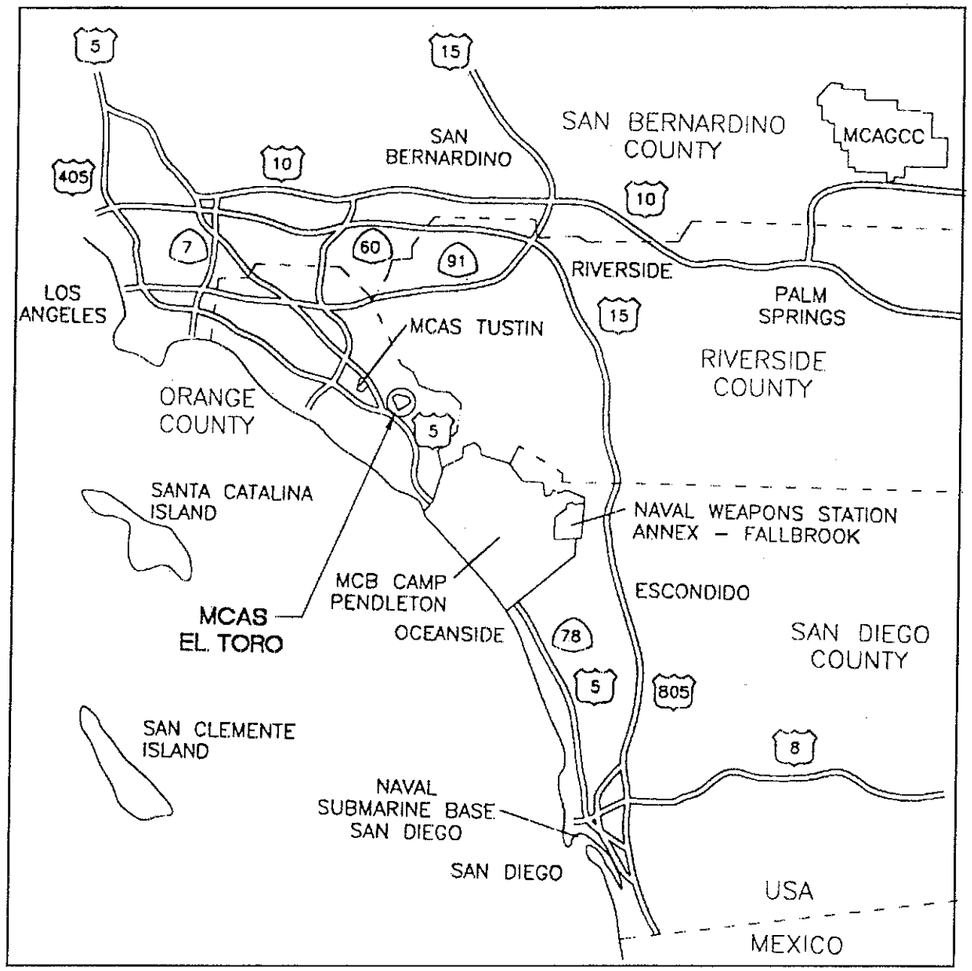
Jacobs Engineering Group, Inc (JEG, 1994). Marine Corps Air Station El Toro, California, Installation Restoration Program Remedial Investigation/Feasibility Study Final Soil Gas Survey Technical Memorandum, Sites 24 and 25, October 1994.

USEPA, 2002. United States Environmental Protection Agency Region 9 Preliminary Remediation Goals (PRGs) for Residential Soil.

RWQCB, 1996. Interim Site Assessment & Cleanup Guidebook, California Regional Water Quality Control Board-Los Angeles Region, May 1996.

U.S. Environmental Protection Agency, 1996, *Test Methods for Evaluating Solid Waste, Physical Chemical Methods, SW-846, Update III*. September

FIGURES



Scale in Miles

0 2 4

Reference: Map Prepared by Klienfelder

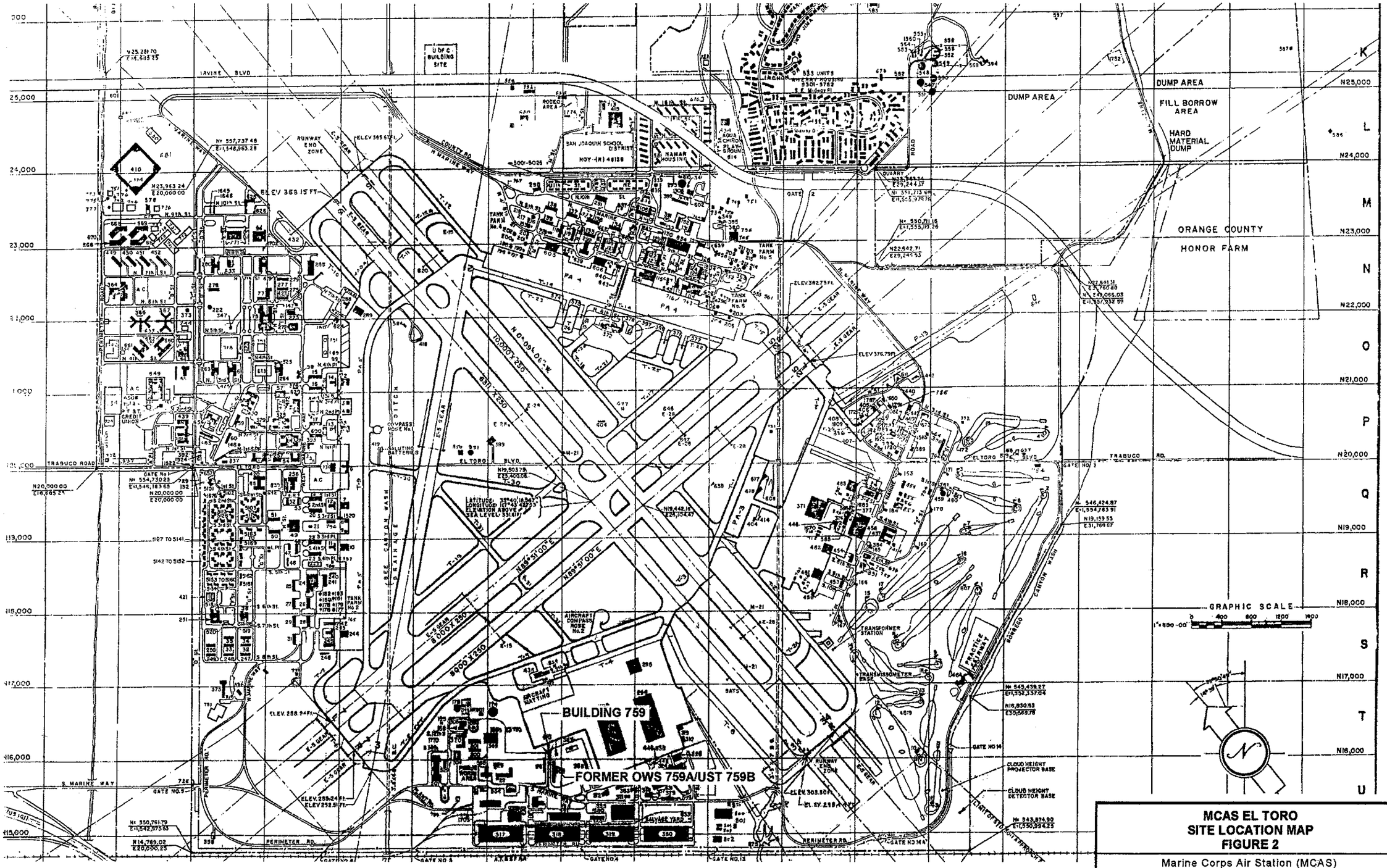
N

PROJECT VICINITY MAP
FIGURE 1

Marine Corps Air Station (MCAS)
El Toro, California

GEOFON INCORPORATED

Date: October, 2003
Contract No : N68711-02-F-8210

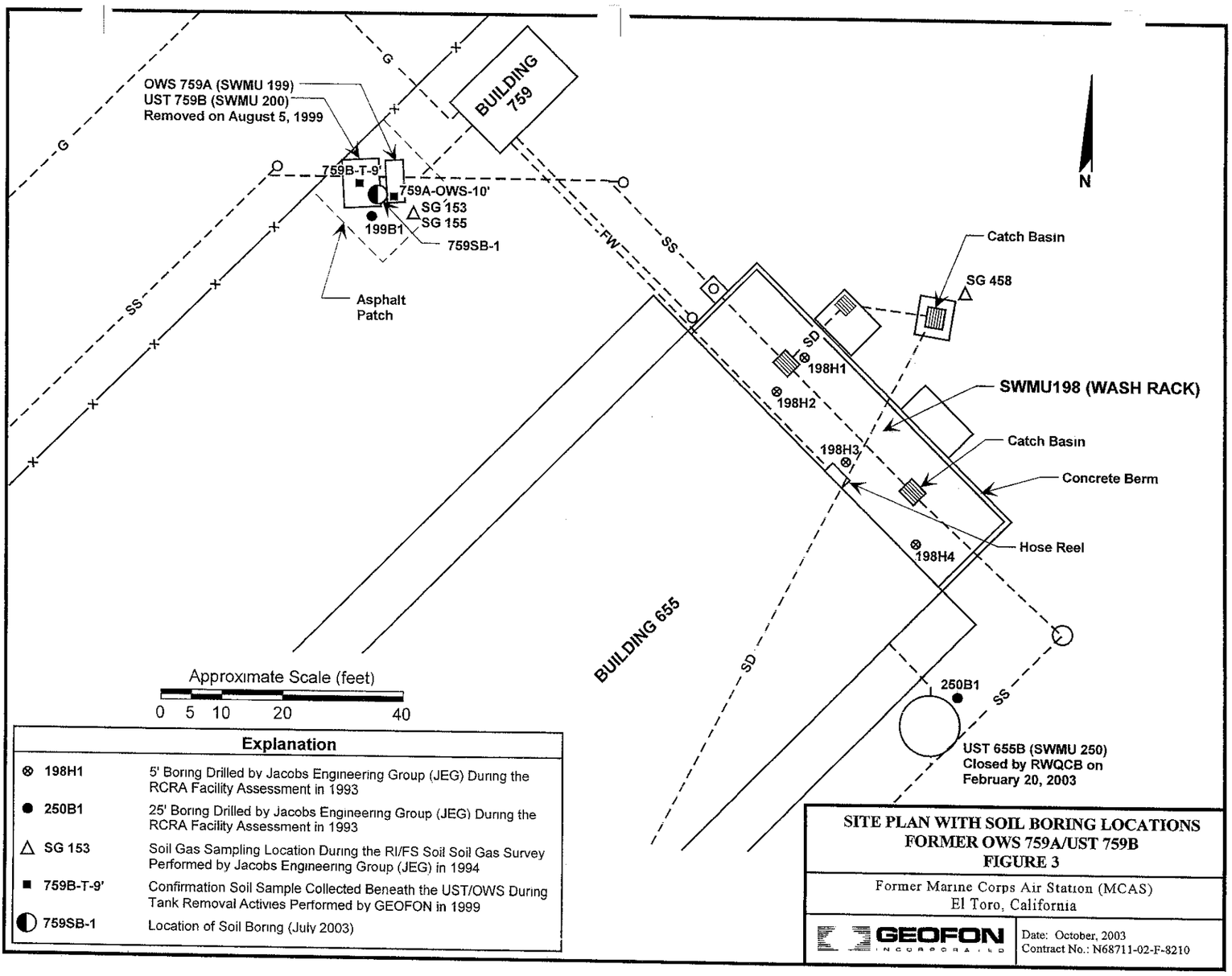


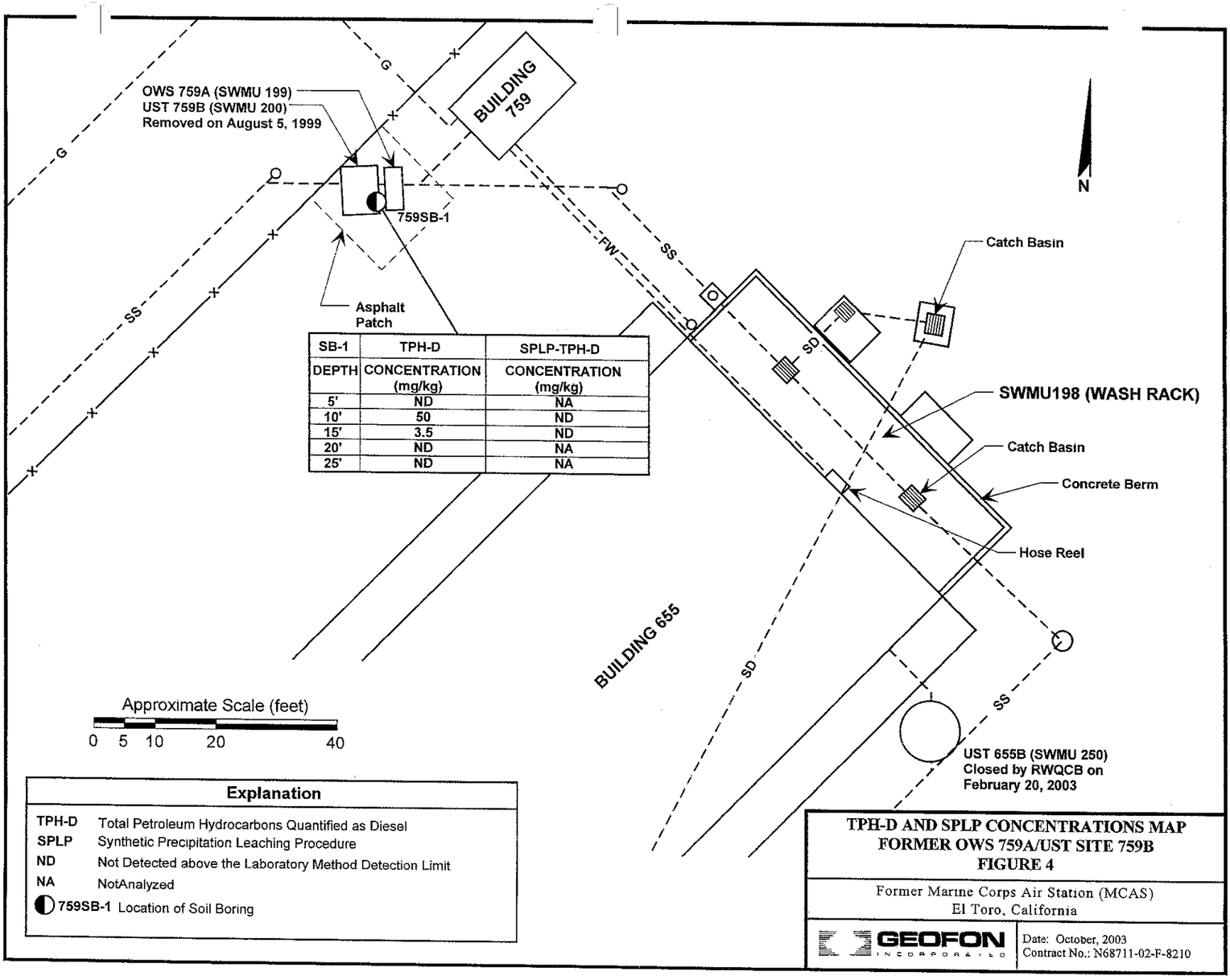
MCAS EL TORO
SITE LOCATION MAP
FIGURE 2

Marine Corps Air Station (MCAS)
El Toro, California

GEOFON INCORPORATED

Date: October, 2003
Contract No.: N68711-02-F-8210


OWS 759A (SWMU 199)
UST 759B (SWMU 200)
Removed on August 5, 1999
BUILDING 759
759B-T-9'
759A-OWS-10'
SG 153
SG 155
199B1
759SB-1
Asphalt Patch
G
SS
FW
SD
N
Catch Basin
SG 458
198H1
198H2
198H3
198H4
SWMU198 (WASH RACK)
Catch Basin
Concrete Berm
Hose Reel
BUILDING 655
250B1
UST 655B (SWMU 250)
Closed by RWQCB on
February 20, 2003
Approximate Scale (feet)
0 5 10 20 40
Explanation
198H1 — 5' Boring Drilled by Jacobs Engineering Group (JEG) During the RCRA Facility Assessment in 1993
250B1 — 25' Boring Drilled by Jacobs Engineering Group (JEG) During the RCRA Facility Assessment in 1993
SG 153 — Soil Gas Sampling Location During the RI/FS Soil Soil Gas Survey Performed by Jacobs Engineering Group (JEG) in 1994
759B-T-9' — Confirmation Soil Sample Collected Beneath the UST/OWS During Tank Removal Activies Performed by GEOFON in 1999
759SB-1 — Location of Soil Boring (July 2003)
SITE PLAN WITH SOIL BORING LOCATIONS
FORMER OWS 759A/UST 759B
FIGURE 3
Former Marine Corps Air Station (MCAS)
El Toro, California
GEOFON INCORPORATED
Date: October, 2003
Contract No.: N68711-02-F-8210



SB-1	TPH-D	SPLP-TPH-D
DEPTH	CONCENTRATION (mg/kg)	CONCENTRATION (mg/kg)
5'	ND	NA
10'	50	ND
15'	3.5	ND
20'	ND	NA
25'	ND	NA

Explanation

TPH-D	Total Petroleum Hydrocarbons Quantified as Diesel
SPLP	Synthetic Precipitation Leaching Procedure
ND	Not Detected above the Laboratory Method Detection Limit
NA	NotAnalyzed
◐ 759SB-1	Location of Soil Boring

TPH-D AND SPLP CONCENTRATIONS MAP
FORMER OWS 759A/UST SITE 759B
FIGURE 4

Former Marine Corps Air Station (MCAS)
El Toro, California

GEOFON INCORPORATED

Date: October, 2003
Contract No.: N68711-02-F-8210

TABLES

Table 1: Summary of Laboratory Analytical Results of TPH- D, TPH- G, and VOCs Analysis
Former OWS 759A/ UST 759B Site, Former MCAS El Toro, California

Chemical Analyte	EPA Method	Units	PRGs	PQL	Soil Boring Samples					
					Sample ID 759-SB-1-5'	Sample ID 759-SB-1-10'	Sample ID 759-SB-1-15'	Sample ID 759-SB-1-20'	Sample ID 759-DUPE-9 (Dup Of SB-1-20')	Sample ID 759-SB-1-25'
Total Petroleum Hydrocarbons										
TPH -D (C12-C24)	8015M	mg/kg	--	10	ND	50	3.5	ND	ND	ND
TPH -G	8015M	mg/kg	--	see sample ID	(PQL-0.7) ND	(PQL-0.7) 0.054	(PQL-0.6) ND	(PQL-0.6) 0.025	(PQL-0.6) ND	(PQL-0.5) 0.029
Volatile Organic Compounds										
Benzene	8260B	ug/kg	600	10.00	ND	ND	0.91	ND	ND	ND
Bromodichloromethane	8260B	ug/kg	820	10.00	ND	ND	ND	ND	ND	ND
Bromoform	8260B	ug/kg	620	50.00	ND	ND	ND	ND	ND	ND
Bromomethane	8260B	ug/kg	3,900	30.00	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	8260B	ug/kg	250	10.00	ND	ND	ND	ND	ND	ND
Chlorobenzene	8260B	ug/kg	150,000	10.00	ND	ND	ND	ND	ND	ND
Chloroethane	8260B	ug/kg	3,000	30.00	ND	ND	ND	ND	ND	ND
Chloroform	8260B	ug/kg	940	10.00	ND	ND	ND	ND	ND	ND
Chloromethane	8260B	ug/kg	1,200	30.00	ND	ND	ND	ND	ND	ND
Dibromochlromethane	8260B	ug/kg	1,100	10.00	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	8260B	ug/kg	2,800	10.00	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	8260B	ug/kg	280	10.00	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	8260B	ug/kg	120,000	10.00	ND	ND	ND	ND	ND	ND
cis-1,2-Dicloroethene	8260B	ug/kg	43,000	10.00	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	8260B	ug/kg	69,000	10.00	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	8260B	ug/kg	340	10.00	ND	ND	ND	ND	ND	ND
cis-1,3-Dicloropropene	8260B	ug/kg	--	10.00	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	8260B	ug/kg	--	10.00	ND	ND	ND	ND	ND	ND
Ethylbenzene	8260B	ug/kg	8,900	10.00	ND	ND	ND	ND	ND	ND
Methylene Chloride	8260B	ug/kg	9,100	50.00	0.90	ND	ND	ND	ND	ND
Styrene	8260B	ug/kg	1,700,000	10.00	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	8260B	ug/kg	410	10.00	ND	ND	ND	ND	ND	ND
Tetrachloroethene	8260B	ug/kg	1,500	10.00	0.47	0.86	ND	ND	ND	ND
Toluene	8260B	ug/kg	520,000	10.00	ND	ND	0.94	ND	ND	ND
1,1,1-Trichloroethane	8260B	ug/kg	1,200,000	10.00	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	8260B	ug/kg	730	10.00	ND	ND	ND	ND	ND	ND
Trichloroethene	8260B	ug/kg	53	10.00	ND	ND	ND	ND	ND	ND
Vinyl Chloride	8260B	ug/kg	79	30.00	ND	ND	ND	ND	ND	ND
Xylenes (Total)	8260B	ug/kg	270,000	10.00	ND	ND	ND	ND	ND	ND
Acetone	8260B	ug/kg	1,600,000	30.00	14.00	59.00	16.00	11.00	16.00	5.60
t-Amyl Methyl ether	8260B	ug/kg	--	3.00	ND	ND	ND	ND	ND	ND
t-Butyl alcohol	8260B	ug/kg	--	200.00	ND	4.50	ND	ND	4.00	ND
Carbon disulfide	8260B	ug/kg	360,000	50.00	ND	ND	ND	ND	ND	ND
Di-Isopropyl Ether	8260B	ug/kg	--	3.00	ND	ND	ND	ND	ND	ND
Ethyl Tertiary-Butyl Ether	8260B	ug/kg	--	3.00	ND	ND	ND	ND	ND	ND
2-Hexanone	8260B	ug/kg	--	50.00	ND	ND	ND	ND	ND	ND
Methyl ethyl ketone	8260B	ug/kg	7,300,000	6.00	2.20	8.00	2.00	1.80	2.40	ND
Methyl isobutyl ketone	8260B	ug/kg	790,000	6.00	ND	ND	ND	ND	ND	ND
Methyl-Tertiary Butyl Ether	8260B	ug/kg	62,000	10.00	ND	ND	ND	ND	ND	ND
Vinyl acetate	8260B	ug/kg	430,000	6.00	ND	ND	ND	ND	ND	ND

Definitions:

All analyte concentrations are in the same units as the PQL

TPH-D: Total Petroleum Hydrocarbons as Diesel

TPH-G: Total Petroleum Hydrocarbons as Gasoline

VOC 8260B: The units have been changed from mg/kg (units reported in original lab data) to ug/kg for report convenience purposes (GEOFON)

PRGs: Preliminary Remediation Goals (for residential soil according to the 2002 USEPA Region 9 PRGs Table)

NA: Not Analyzed

PQL: Practical Quantitation Limit

ND : Not Detected

mg/kg: Milligrams per Kilograms

µg/kg: Micrograms per Kilograms

--: No Set PRG

Table 2: Summary of Laboratory Analytical Results of SPLP Analysis
Former OWS 759A/ UST 759B Site, Former MCAS El Toro, California

Chemical Analyte	EPA Method	Units	PQL	Soil Boring Samples	
				Sample ID 759-SB-1-10'	Sample ID 759-SB-1-15'
Total Petroleum Hydrocarbons					
TPH -D (C12-C24)	8015M	mg/L	2	ND	ND
TPH -G	8015M	mg/L	0.050	NA	ND
Volatile Organic Compounds					
Benzene	8260B	ug/L	0.50	NA	ND
Bromodichloromethane	8260B	ug/L	0.50	NA	ND
Bromoform	8260B	ug/L	50.00	NA	ND
Bromomethane	8260B	ug/L	1.00	NA	ND
Carbon Tetrachloride	8260B	ug/L	0.50	NA	ND
Chlorobenzene	8260B	ug/L	0.50	NA	ND
Chloroethane	8260B	ug/L	0.50	NA	ND
Chloroform	8260B	ug/L	0.50	NA	ND
Chloromethane	8260B	ug/L	0.50	NA	ND
Dibromochlromethane	8260B	ug/L	0.50	NA	ND
1,1-Dichloroethane	8260B	ug/L	0.50	NA	ND
1,2-Dichloroethane	8260B	ug/L	0.50	NA	ND
1,1-Dichloroethene	8260B	ug/L	0.50	NA	ND
cis-1,2-Dicloroethene	8260B	ug/L	0.50	NA	ND
trans-1,2-Dichloroethene	8260B	ug/L	0.50	NA	ND
1,2-Dichloropropane	8260B	ug/L	0.50	NA	ND
cis-1,3-Dicloropropene	8260B	ug/L	0.50	NA	ND
trans-1,3-Dichloropropene	8260B	ug/L	0.50	NA	ND
Ethylbenzene	8260B	ug/L	0.50	NA	ND
Methylene Chloride	8260B	ug/L	1.00	NA	2.5
Styrene	8260B	ug/L	0.50	NA	ND
1,1,2,2-Tetrachloroethane	8260B	ug/L	0.50	NA	ND
Tetrachloroethene	8260B	ug/L	0.50	NA	ND
Toluene	8260B	ug/L	0.50	NA	ND
1,1,1-Trichloroethane	8260B	ug/L	0.50	NA	ND
1,1,2-Trichloroethane	8260B	ug/L	0.50	NA	ND
Trichloroethene	8260B	ug/L	0.50	NA	ND
Vinyl Chloride	8260B	ug/L	0.50	NA	ND
Xylenes (Total)	8260B	ug/L	1.00	NA	ND
Acetone	8260B	ug/L	20.00	NA	ND
t-Amyl Methyl ether	8260B	ug/L	1.00	NA	ND
t-Butyl alcohol	8260B	ug/L	12.00	NA	ND
Carbon disulfide	8260B	ug/L	1.00	NA	ND
Di-Isopropyl Ether	8260B	ug/L	1.00	NA	ND
Ethyl Tertiary-Butyl Ether	8260B	ug/L	1.00	NA	ND
2-Hexanone	8260B	ug/L	20.00	NA	ND
Methyl ethyl ketone	8260B	ug/L	20.00	NA	ND
Methyl isobutyl ketone	8260B	ug/L	20.00	NA	ND
Methyl-Tertiary Butyl Ether	8260B	ug/L	0.50	NA	ND
Vinyl acetate	8260B	ug/L	20.00	NA	ND

Definitions:

All analyte concentrations are in the same units as the PQL

TPH-D: Total Petroleum Hydrocarbons as Diesel

TPH-G: Total Petroleum Hydrocarbons as Gasoline

SPLP: Synthetic Precipitation Leaching Procedure

VOC 8260B: The units have been changed from mg/kg (units reported in original lab data) to ug/kg for report convenience purposes (GEOFON)

PRG: Preliminary Remedial Goals

NA: Not Analyzed

PQL : Practical Quantitation Limit

ND : Not Detected

mg/L : Milligrams per Liter

µg/L : Micrograms per Liter

--: No Set PRG

Table 3: Summary of Geotechnical Analysis Results
Former UST Site 759
Former MCAS El Toro, California

Water Content by Weight (%)	Specific Gravity	Volumetric Water Content (%)	Dry Bulk Density (lbs/cu.ft)	Total Organic Carbon (mg/kg)	Total Porosity	Effective Porosity	Recharge Rate (m3/m2/day)	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
9.00	2.63	17.41	120.79	ND	0.26	0.20	0.03460	127.00	9.00

Definitions:

%- Percent

lbs/cu.ft- Pounds per Cubit Feet

mg/kg- Miligrams per Kilograms

m3/m2/day- Meters Cubed per Meters Squared per Day

pcf- Pounds per Cubit Foot

APPENDICES

APPENDIX A

PREVIOUS RFA AND SOIL GAS SAMPLES LABORATORY RESULTS SUMMARY

Summary of Laboratory Analytical Results
1993 RFA Sampling Visit
SWMU 199 (Oil/Water Separator))

Soil Sampling at the OWS 759A/UST 759B Location							
Chemical Analyte	**Units**	**PRGs**	**Sample ID B1-5'**	**Sample ID B1-10'**	**Sample ID B1-15'**	**Sample ID B1-20'**	**Sample ID B1-27'**
TPH	mg/kg	--	ND	ND	669	ND	ND
Methylene Chloride	ug/kg	9,100	7 BJ	6 BJ	6 BJ	3 BJ	6 BJ
Acetone	ug/kg	1,600,00	15 B	ND	10 BJ	7 BJ	6 BJ
Toluene	ug/kg	520,000	ND	ND	ND	ND	ND
PCE	ug/kg	1,500	ND	ND	ND	ND	ND

Notes:

RFA: RCRA Facility Assessment

SWMU: Solid Waste Management Unit

PRGs: Preliminary Remediation Goals (for residential soil according to the 2002 USEPA Region 9 PRGs Table)

TPH: Total petroleum hydrocarbons

PCE: Tetrachloroethene

B1-5': Boring number and sample depth

mg/kg: Milligrams per Kilogram

µg/kg: Micrograms per Kilogram

--: No set PRG

BJ: Estimated value between PQL and MDL

MCAS EL TORO RCRA FACILITY ASSESSMENT -- SAMPLING VISIT RESULTS

SWMU/AOC NUMBER	SWMU/AOC TYPE (FIGURE)	BORING NUMBER	SAMPLE DEPTH (FEET)	ANALYTICAL TEST RESULTS							RECOMMENDATIONS	
				TPH (mg/kg)	TPH (mg/kg)		VOCs (ug/kg)	SVOCs (ug/kg)	PESTICIDES/PCBs (ug/kg)	METALS (mg/kg)	Action	Rationale
					Gasoline	Diesel						
199	Oil/Water Separator (61)	81	5	ND	NA	NA	Methylene Chloride-7 BJ * Acetone-15 B *	NA	NA	NA	Leak test/ inspection of separator.	Moderate petroleum hydrocarbon contamination at 15-foot depth.
			10	ND	NA	NA	Methylene Chloride-6 BJ *	NA	NA	NA		
			15	669	NA	NA	Methylene Chloride-6 BJ * Acetone-10 BJ *	NA	NA	NA		
			20	ND	NA	NA	Methylene Chloride-3 BJ * Acetone-7 BJ *	NA	NA	NA		
			27	ND	NA	NA	Methylene Chloride-6 BJ * Acetone-6 BJ *	NA	NA	NA		
			27 (Duplicate)	ND	NA	NA	Methylene Chloride-8 BJ * Acetone-7 BJ *	NA	NA	NA		

SWMU199.XLS

Table 3-6
Concentrations Detected in Soil Gas
MCAS El Toro Soil Gas Survey Technical Memorandum

(1) Key to Full Parameter names in Legend.

Concentration in ug/L

Station_ID	Depth	Sample_ID	PCE	TCE	C12DCE	T12DCE	11DCA	11DCE	VC	111TCA	112TCA	TCTFA	CT	CHCL3	TPH	Benzene	Toluene	Ethylbenzene	Total Xylenes
24_SG131	12	S145G1131		7.8 FI															
24_SG131	20	S145G1431		12.5 FI															
24_SG131	20	S145G3034		14.4 FI															
24_SG139	12	S145G1139				1		2.5 FI	5.2						160		7.9		2.2
24_SG139	12	S145G2017															1.7		
24_SG139	12	S145G2018															2.7		
24_SG139	12	S145G2019						2.6											
24_SG139	12	S145G2020													10.2		3.6		
24_SG143	12	S145G1143																	5.9
24_SG151	15	S145G1151	1.8 FI																
24_SG153	12	S145G1153	5 FI														4.3		
24_SG153	12	S145G2033	5.2 FI																
24_SG153	12	S145G2034	5.9 FI												18		2.6		
24_SG153	12	S145G2036	4.9	1													2.3		
24_SG153	12	S145G2039		2.1	2.4														
24_SG154	12	S145G2035	5.8 FI	1.3															
24_SG154	12	S145G2038			3.4														
24_SG155	12	S145G1155	4.6 FI																
24_SG155	20	S145G1455	5.1 FI																
24_SG156	15	S145G1156	1.1		2.7	1													
24_SG157	15	S145G1157						2.2 FI											
24_SG157	15	S145G3145						2.6 FI											
24_SG160	12	S145G1160	1.5	27.9 FI				10.6 FI											
24_SG160	20	S145G1460	2.2	63.9 FI			1.8	24.3 FI											
24_SG161	12	S145G1161	1.7 FI	37.7 FI				12.1 FI						3.9					
24_SG161	20	S145G1461	2 FI	45.8 FI				14.6 FI						4.1					
24_SG162	12	S145G1162		4.6															
24_SG162	20	S145G1462		1.8	1.1														
24_SG162	20	S145G3049		2.4	1.3														
24_SG163	12	S145G1163	2.9 FI	73.6 FI				5 FI						5.7					
24_SG163	20	S145G1463	2.4 FI	68.1 FI				4.4 FI											
24_SG166	12	S145G1166		5.7															
24_SG166	20	S145G1466		7.6 FI				1.1 FI											
24_SG167	12	S145G1167		3.2															
24_SG167	20	S145G1467		1.2															
24_SG168	12	S145G1168	4.3	101.9 FI				3.1 FI		1.6			1.5						
24_SG168	20	S145G1468	4.6 FI	117.8 FI				3.8 FI		1.6			2.1						

Table 3-6
Concentrations Detected in Soil Gas
MCAS El Toro Soil Gas Survey Technical Memorandum

(1) Key to Full Parameter names in Legend.

Concentration in ug/L

Station_ID	Depth	Sample_ID	PCE	TCE	C12DCE	T12DCE	11DCA	11DCE	VC	111TCA	112TCA	TCTFA	CT	CHCL3	TPH	Benzene	Toluene	Ethylbenzene	Total Xylenes
24_SG408	30	S145G1908		28.6 FI				3.3 FI					2.4						
24_SG409	15	S145G1709		2.7		1.3		1 FI	5.1										
24_SG412	15	S145G1712		2.8															
24_SG412	15	S145G3178		2.5															
24_SG412	30	S145G1912		4.4															
24_SG413	15	S145G1713		6.2															
24_SG413	30	S145G1913		9.9															2
24_SG414	30	S145G1914		3.3															
24_SG416	30	S145G1916							5.4										2.1
24_SG417	15	S145G1717		1															
24_SG418	16	S145G1718																	
24_SG419	15	S145G1719		1.6								3.5 J							
24_SG421	15	S145G1721										1.8 J							
24_SG421	15	S145G3513																	1.1
24_SG422	15	S145G1722						3.1											1.3
24_SG423	15	S145G1723	2.5																1.2
24_SG425	15	S145G1725		8															
24_SG431	15	S145G1731						2 FI											
24_SG432	15	S145G1732																	
24_SG433	15	S145G1733		1.7															1
24_SG436	15	S145G1736		1.8															
24_SG437	15	S145G1737		1.4															
24_SG439	15	S145G1739		1.1															
24_SG442	15	S145G1742										4.3 J							
24_SG443	15	S145G1743		59.6 FI											21.8				
24_SG444	15	S145G1744										12 J							
24_SG445	15	S145G1745	7 FI										2.2						
24_SG447	15	S145G1747										3.1 J							
24_SG447	15	S145G3519										3.1 J							
24_SG448	15	S145G1748						15.8							150	1.8	1	3.3	13
24_SG453	15	S145G1753	1.2																
24_SG453	15	S145G3184	1																
24_SG454	15	S145G1754	18.3 FI																
24_SG455	15	S145G1755	34.9 FI																
24_SG456	15	S145G1756						8.2 FI											
24_SG457	15	S145G1757						20.5 FI											
24_SG458	15	S145G1758	10.5 FI																

APPENDIX B

OWS 759A/UST 759B REMOVAL REPORT

UNDERGROUND STORAGE TANK
AND OIL/WATER SEPARATOR REMOVAL REPORT

UST 759B and OWS 759A
Marine Corps Air Station (MCAS)
El Toro, California

Contract No. N68711-97-D-8702
Delivery Order No. 0028

Prepared for:

Department of the Navy,
Southwest Division
Naval Facilities Engineering Command
BRAC Operations Office
1420 Kettner Boulevard, Suite 507
San Diego, California 92101-2404

Prepared by:

GEOFON, INC.
22632 Golden Springs Dr., Suite 270
Diamond Bar, CA 91765

GEOFON Project No. 04-4304-280 October 26, 1999

CERTIFICATION

To the best of our knowledge, all statements and information provided in this report are true and correct

Asrar Faheem, REA
Registered Environmental Assessor

Charles K. Duckworth, P.E
Registered Civil Engineer

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	SUMMARY OF WORK AT UST 759B and OWS759A	1
	2.1 Observations during UST/OWS Removals	1
	2.2 Investigative Findings	2
	2.3 Waste Management of Rinsate	3
3.0	SITE RESTORATION	3
4.0	CONCLUSIONS	3
5.0	LIMITATIONS	3

LIST OF FIGURES

Figure 1	Project Vicinity Map
Figure 2	Site Location Map, UST 759B and OWS759A
Figure 3	Sampling Location Map

LIST OF TABLES

Table 1	Summary of Laboratory Analytical Data

LIST OF APPENDICES

Appendix A	UST Removal Summary
Appendix B	Removal Permit, Waste Manifest and Tank Destruction Certificate
Appendix C	Laboratory Reports and Chain-of-Custody Forms
Appendix D	Miscellaneous Information: Compaction Tests-Field Data, and Modified Proctor Test Data and the Asphalt Mix Designs

1.0 INTRODUCTION

GEOFON, Inc. has been retained by the Department of the Navy, Southwest Division (SWDIV), under Contract No. N68711-97-D-8702, Delivery Order No. 0028 to remove and dispose of inactive underground storage tank (UST) and oil-water separator (OWS) at the Marine Corps Air Station (MCAS), El Toro, California (Figure 1). The work involved the removal and disposal of one (1) UST (759B) and one (1) OWS (759A) adjacent to Building 655.

This report documents and summarizes work performed at the site of UST 759B and OWS 759A, observations during the UST and OWS removals, investigative findings, waste management, site restoration, and conclusions. Analytical results for soil samples are presented in Table 1. The UST Removal Summary is presented in Appendix A. The removal permit and tank destruction certificate is included in Appendix B. Laboratory reports and chain-of-custody forms are included in Appendix C. Miscellaneous information including field density tests, asphalt mix design, and modified proctor test data is presented in Appendix D.

2.0 SUMMARY OF WORK AT UST 759B AND OWS 759A

One (1) 500-gallon steel UST and one (1) 100-gallon steel OWS, identified as UST 759B and OWS 759A, historically containing waste oil, with approximately 10 feet of associated piping were removed on August 5, 1999. The operation of removal and disposal of the UST and OWS including the soil sampling of the excavations was performed under the supervision of the Orange County Health Care Agency (OCHCA) and the Assistant Resident Officer in Charge of Construction (AROICC).

2.1 Observations during UST and OWS Removals

UST 759B and OWS 759A were located on the south side of MCAS El Toro, approximately 48 feet southeast of the northeast corner of Building 655. Both the UST and OWS were contained within a CMU vault bounded by a chain-link fence to the south and Building 655 to the east as shown on Figure 2. UST 759B, a 500-gallon steel tank, historically received waste oil from OWS 759A, which was used to collect rinsate generated from the adjacent wash pad. OWS 759A was a steel unit with a capacity of 100 gallons.

The excavation for UST 759B and OWS 759A was approximately 8 feet in length, 10 feet in width, and 10 feet in depth. It was observed that the UST was constructed of steel and measured approximately 4 feet in diameter and 6 feet in length. Approximately 30 cubic yard of soil was excavated around the tank and placed near the excavation on 10-mil polyethylene sheeting/visqueen. Approximately 10 feet of piping was associated with the UST/OWS and was removed and disposed. Groundwater was not encountered during excavation.

2.2 Investigative Findings

Following the UST and OWS removals, GEOFON collected a total of 2 soil samples: one (1) from the bottom of the excavation at 9 feet below ground surface (bgs) (UST759B-S1-9', [OCHCA No. 759B-T-9']) and one (1) from the OWS location (OWS759A-S2-10', [OCHCA No. 759A-OWS-10']) at 10 feet bgs. Soil sample locations and depths were determined by the OCHCA representative (Figure 3).

The sampling was conducted in accordance with the sampling protocol outlined in the approved Work Plan Addendum dated June 22, 1999 and in coordination with the OCHCA and the AROICC. The soil samples were collected following an environmental protocol and transported following standard chain-of-custody procedures to a California-certified laboratory.

The sampling procedures were as follows:

1. All sampling equipment was thoroughly cleaned prior to use.
2. The soil samples were collected from the backhoe bucket. Approximately three inches of soil was removed from the surface prior to collecting the soil sample in a steel sleeve.
3. The sleeve was covered on both ends with three-inch square Teflon sheets, sealed with plastic caps, and care was taken to assure that no headspace was present in the sampling tube.
4. The sleeves were labeled; an evidence tape was placed around them and placed immediately into a refrigerated ice chest.
5. The samples were sent to a California-certified laboratory under the proper chain of custody.

Soil samples collected were analyzed by American Environmental Testing Laboratories (AETL), Inc., a California-certified analytical laboratory. The samples were analyzed for Total Recoverable Petroleum Hydrocarbons (TRPH) using the Environmental Protection Agency (EPA) Method 418.1 and for Volatile Organic Compounds (VOCs) using EPA Method 8260B (OCHCA C-O-C).

Soil sample 759A-OWS-10' detected concentrations of TRPH at 46 mg/kg but did not report concentrations of VOCs over the PQLs. Soil sample 759B-T-9' reported concentrations of TRPH at 11,300 mg/kg and detected eight VOCs over the PQLs (Table 1).

Additional EPA analytical methods 8015M (TPH-g and TPH-D) were performed on the soil samples (GEOFON C-O-C). Soil sample 759B-T-10' did not report concentrations of gasoline or diesel hydrocarbons above their PQLs. Soil sample 759B-T-9' reported a concentration of TPH-D at 7,510 mg/kg and TPH-HC at 1,310 mg/kg. Laboratory reports and chain-of-custody forms are included in Appendix C.

2.3 Waste Management of Rinsate

Approximately 200 gallons of rinsate from UST 759B and OWS 759A was transported on August 5, 1999 by EFR Environmental Services (EFR), a state-certified waste hauler, to DRI, a recycling facility.

The UST and OWS were removed on August 5, 1999 and transported by EFR to Pacific Coast Recycling located in San Diego, California. The tank destruction certificate is included in Appendix B.

3.0 SITE RESTORATION

The area of UST 759B and OWS 759A was restored by August 11, 1999. Restoration began by backfilling the excavations in one-foot lifts with the excavated material compacted with a backhoe-mounted sheepsfoot roller. Field density tests were performed using a Nuclear Gauge (ASTM D 2922) to achieve 90% or better relative compaction. Asphaltic concrete was then placed over the compacted material to match the existing grade. Field density tests and the modified proctor test data are presented in Appendix D.

4.0 CONCLUSIONS

Based on our sampling, analysis, and observations, we conclude that:

- One (1) UST and one (1) OWS were removed and disposed in accordance with the approved Work Plan Addendum dated June 22, 1999.
- Post removal investigation of the UST and OWS showed no deterioration in the material of the UST and OWS.
- There was evidence of spillage (odor and moderate PID readings) and areas of stains observed in the excavation and in the stockpile material. There was no groundwater encountered in the excavation.
- The soil samples obtained from the bottom of the excavation and the piping trenches detected concentrations of TPH-D from non-detect to 7,510 mg/kg, TPH-HC from non-detect to 1,310 mg/kg, TRPH from non-detect to 11,300 mg/kg and eight VOCs over the PQLs (Table 1).
- Verbal approvals were accorded by the RPM and the AROICC to backfill the excavation.

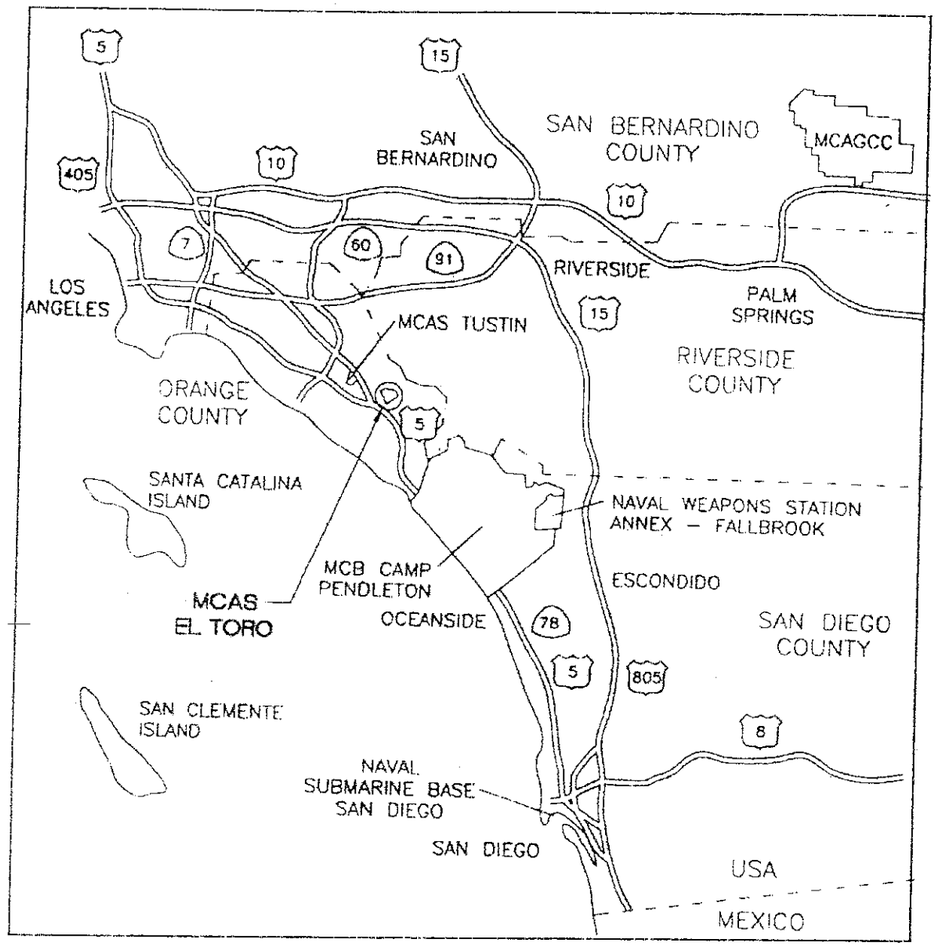
5.0 LIMITATIONS

The investigative results of this report represent conditions at the specific time and location at which soil and tank content samples were obtained and for the parameters analyzed for by the

independent laboratory The laboratory data presented in this report was prepared under the direction and management of the independent laboratory and it is solely responsible for the contents and conclusions of the data presented

The work described herein has been performed by GEOFON, Inc , and its licensed or certified subcontractors The work has been performed in accordance with the professional standards and practices currently accepted in the Environmental Industry No other representations, expressed or implied, and no warranty or guarantee is included in this report

FIGURES



Reference: UST Removal Plans prepared by Klienfelder

Scale in Feet

0 20 40

N

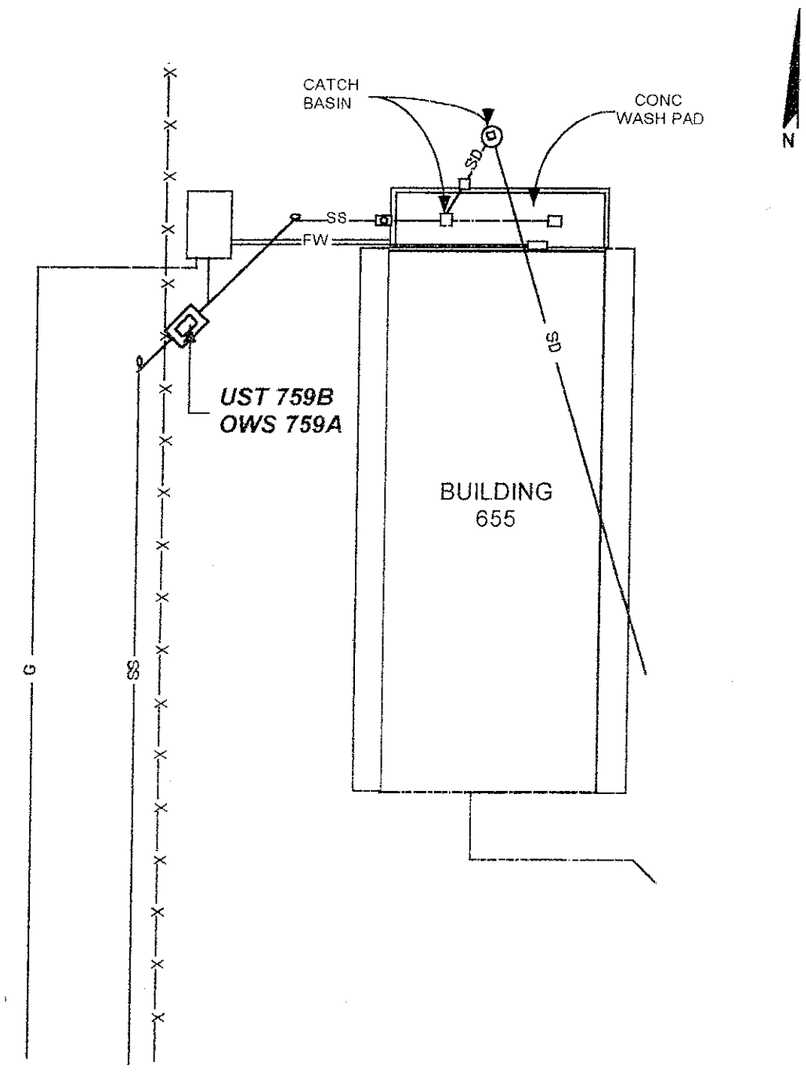
GEOFON INCORPORATED

PROJECT NO : 04-4304 280

PROJECT VICINITY MAP

9/99

Figure 1



GEOFON INCORPORATED

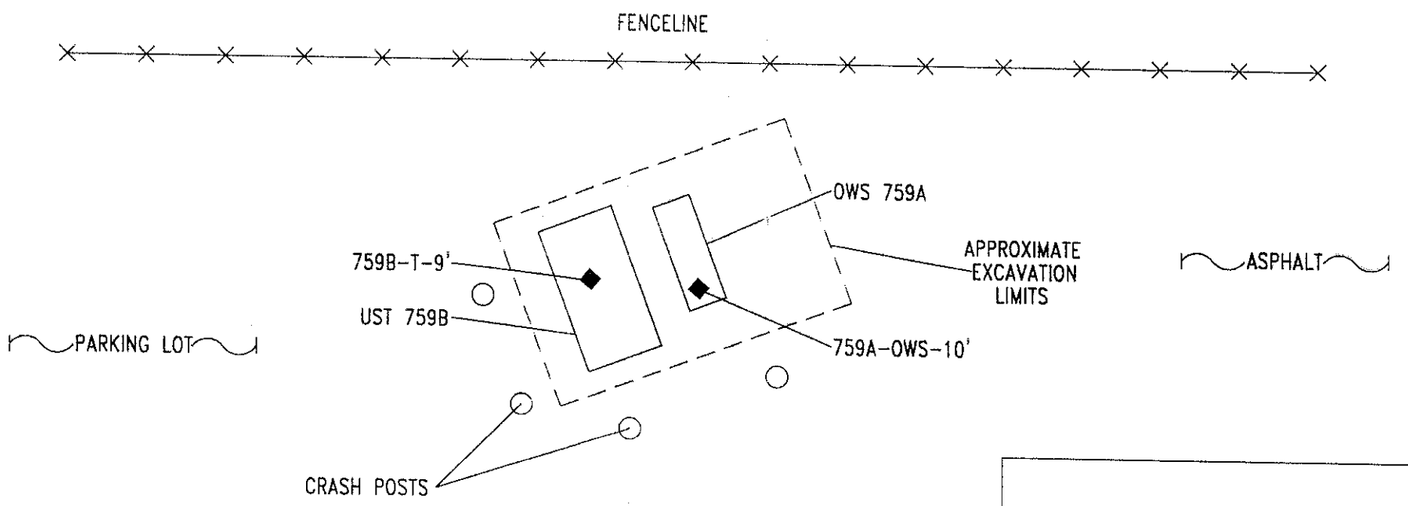
PROJECT NO :
04-4304 280

SITE LOCATION MAP
UST 759B AND OWS 759A

Scale in Feet
0 40 80

9/99

Figure 2



◆ DENOTES SOIL SAMPLES COLLECTED ON 8/5/99
NOTE: DRAWING NOT TO SCALE
PROJECT NO: 04-4304.280

SOIL SAMPLE LOCATION MAP
UST 759B / OWS 759A
8/99 FIGURE 3

TABLES

TABLE 1 - UST 759B/OWS 759A

Summary of Laboratory Analytical Data

UST 759B and OWS 759A Excavation Soil Sampling						
Chemical Analyte	**EPA Method**	**PQL/Units**	**PRGs**	**Date Sampled**	**Sample ID 759B-T-9'**	**Sample ID 759A-OWS-10'**
TPH-G (C_4 - C_{12})	8015	1 mg/kg	--	8/5/99	ND	ND
TPH-D (C_{12}- C_{23})	8015	10 mg/kg	--	8/5/99	ND	7,510.0
TPH-D (C_{23+})	8015	10 mg/kg	--	8/5/99	ND	1,310.0
TRPH	418.1	10 mg/kg	--	8/5/99	46.0	11,300.0
Benzene	8260B	10 µg/kg	600	8/5/99	ND	ND
Toluene	8260B	10 µg/kg	520,000	8/5/99	ND	ND
Ethylbenzene	8260B	10 µg/kg	8,900	8/5/99	ND	19.4
(total) Xylenes	8260B	10 µg/kg	270,000	8/5/99	ND	ND
MtBE	8260B	10 µg/kg	62,000	8/5/99	ND	ND
Acetone	8260B	50 µg/kg	1,600,000	8/5/99	ND	71.8
sec-Butylbenzene	8260B	10 µg/kg	220	8/5/99	ND	22.2
Naphthalene	8260B	10 µg/kg	56	8/5/99	ND	47.1
n-Propylbenzene	8260B	10 µg/kg	240	8/5/99	ND	13.8
Tetrachloroethene	8260B	10 µg/kg	1,500	8/5/99	ND	19.6
1,2,4-Trimethylbenzene	8260B	10 µg/kg	52	8/5/99	ND	17.5
1,3,5-Trimethylbenzene	8260B	10 µg/kg	21	8/5/99	ND	10.4

Note: Analyte concentrations are in the same units as the PQL

TPH-G: Total Petroleum Hydrocarbons as Gasoline

TPH-D: Total Petroleum Hydrocarbons as Diesel

759B-T-9' also reffered to as UST759B-S-1-9'

PRGs: Preliminary Remediation Goals (for residential soil according to the 2002 USEPA Region 9 PRGs Table)

--: No set PRG

mg/kg: Milligrams per Kilogram

µg/kg: Micrograms per Kilogram

TPH-HC: Total Petroleum Hydrocarbons as Heavy Chains

759A-OWS-10' also referred to as OWS759A-S-2-10'

APPENDIX A

UST REMOVAL SUMMARY

GEOFON
INCORPORATED

UST REMOVAL SUMMARY

PROJECT LOCATION: MCAS EL TORO
DELIVERY ORDER NO: 028
TANK NO: 759A & B
PROJECT NO: 04-4304.280
Date Tank Removed: 8/5/99

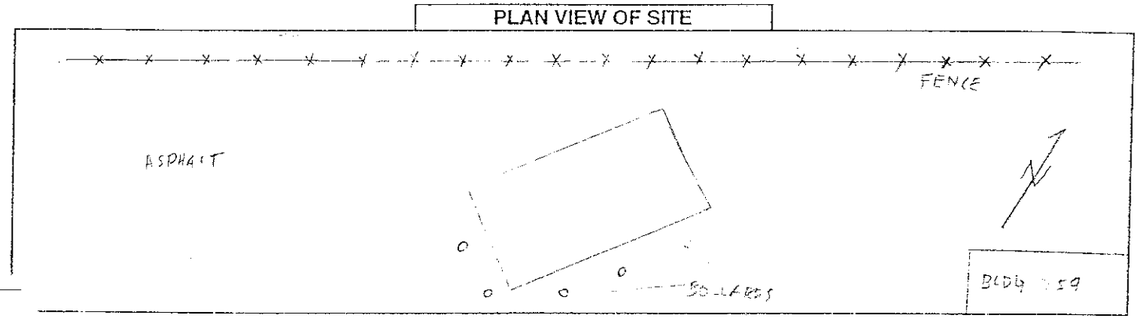
1) TANK CONTENT (gl): Oil/Water
2) EX. DIMENSISION (lf): 8'x10'x10'
3) UST DIMENSIONS (lf): *
4) VOLUME EX. SOIL (cu yd): ____
6) TRENCH (lf): —
7) NO. OF TESTS STK PILE (ea): Ø
5) MISC WORK: ____

NO. OF TESTS (ea): 1
EX. VOLUME (cu yd): ____
UST VOLUME (gl): A: 100 B: 500
EX. SOIL UNDER UST (cu yd): ____
NO. OF PIPE IN TRENCH (ea): 2
NO. OF TESTS IN TRENCH(ea): Ø

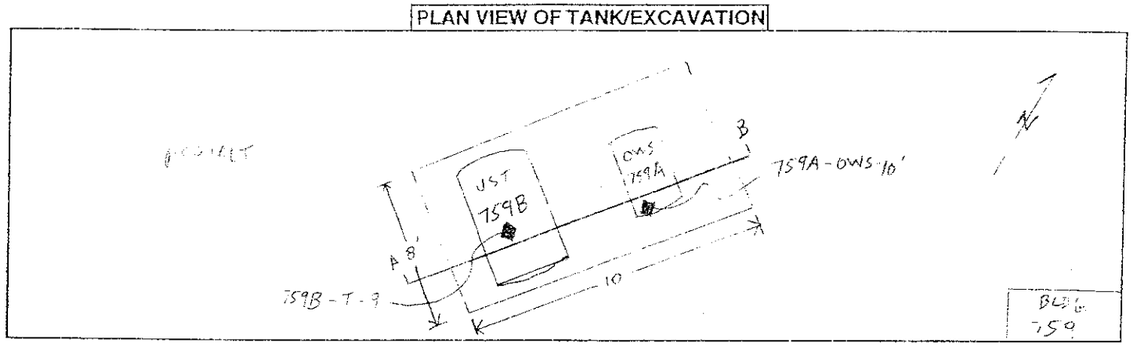
* A: 44" x 15" x 28"
B: 51" x 39"

UST VOLUME (cu yd): 2.8
TOTAL EX. SOIL (cu yd): 30
TOTAL PIPE REMOVED (lf): 10'

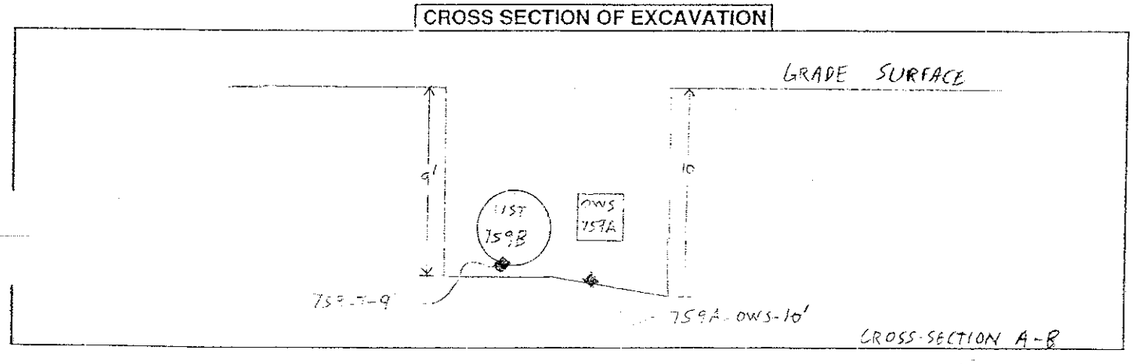
PLAN VIEW OF SITE



PLAN VIEW OF TANK/EXCAVATION



CROSS SECTION OF EXCAVATION



APPENDIX B

REMOVAL PERMIT, WASTE MANIFEST AND TANK DESTRUCTION CERTIFICATE

COUNTY OF ORANGE

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

TOM U
DIRE

HUGH F. STALLWORTH,
HEALTH OFI

ENVIRONMENTAL HEALTH DIV
ROBERT E. MERRYMAN, REHS,
DEPUTY DIRE

PAID

FACILITY MODIFICATION APPLICATION (INSTALLATION/REMOVAL/REPAIR) (COMPLETE PAGES 1 & 2)

DATE: 6/10/99

FACILITY INFORMATION

NAME: MARINE CORPS AIR STATION (MCAS) EL TORO

STREET ADDRESS: BLDG T-2006 (P.O. BOX 94004)

CITY: SANTA ANA

TOTAL NUMBER OF TANKS (AFTER INSTALLATION/REMOVAL) AT THIS LOCATION: _____

TYPE OF BUSINESS:
- ☐ GASOLINE STATION
- ☒ GOVERNMENT
- ☐ FARM
- ☐ OTHER

TANK OWNER NAME (CORP., INDIVIDUAL, PUBLIC AGENCY):
MCAS EL TORO (DEPARTMENT OF THE NAVY / SOUTHWEST DIVISION)

STREET ADDRESS: BLDG T-2006

CITY: SANTA ANA

STATE: CA. ZIP 92709-4004

TELEPHONE NO: _____

BILLING ADDRESS INFORMATION

BILL TO NAME: GEDEON, INC.

BILL TO ADDRESS: 5552 CERRITOS AVE, STE F

CITY: CYPRESS

STATE: CA. ZIP 90630

TELEPHONE NO.: (714) 220-2777

TYPE OF CONSTRUCTION

INDICATE NO. OF TANK(S) BEING REMOVED/REPAIRED/INSTALLED BELOW: (COMPLETI PAGE 2 - INDICATING THE TANKS TO BE INSTALLED/REMOVED, OR AFFECTED BY THE REPAIR

- ☐ INSTALLATION(S)
- ☐ REPAIR(S)/RELINE(S) TO USTS
- ☒ CLOSURE(S)/REMOVAL(S) (19)
- ☐ SYSTEM MODIFICATION (E.G. REPIPE, REPAIR TO PIPING
- ☐ OTHER (SPECIFY) _____

24 HOUR EMERGENCY CONTACT PERSON

DAYS: JANAKA JAYAMAHA (714) 220-27
NAME TELEPHON

NIGHTS: ASPAL FAHEEM (714) 219-63
NAME TELEPHON

APPLICANT

NAME: JANAKA JAYAMAHA
PLEASE PRINT

SIGNATURE: [signature]

COMPANY NAME: GEDEON, INC.

TELEPHONE NO: (714) 220-2777

FACILITY OPERATOR (CONTACT PERSON)

NAME: SCOTT KEHE

BUSINESS TELEPHONE NO.: (949) 726-2506

NOTES: NEW INSTALLATIONS, CLOSURES, REPAIRS AND SYSTEM MODIFICATIONS OF UNDERGROUND STORAGE TANKS REQUIRE SUBMITTAL OF (4) SETS OF PLANS TO THIS DIVISION. THESE PLANS MUST BE APPROVED PRIOR TO THE INITIATION OF CONSTRUCTION OR MODIFICATION. ALL PLANS OR REPORTS REQUIRED MUST ACCOMPANY THIS FORM AT THE TIME SUBMITTAL.

PLAN APPROVAL AND FEES ARE VALID FOR ONE YEAR. IF TANKS HAVE NOT BEEN REMOVED, INSTALLED OR MODIFIED WITHIN YEAR OF THE APPROVAL DATE, NEW PLANS AND FEES MUST BE SUBMITTED.

OFFICE USE ONLY

PLAN CHECK NO.: PM99-054
PLAN APPROVAL DATE: 6/23/99
FEES PAID: $1861.00
BY: NE
RCVD. BY: Pgc 6-16-99
NSO: 156838 CR. 1398
NUMBER OF TANKS TO RECEIVE A SUBMITTAL OF

TANK INFORMATION

PROVIDE THE INFORMATION BELOW FOR ALL TANKS AND PIPING SYSTEMS TO BE INSTALLED, REMOVED OR REPAIRED. ALSO INDICATE THE UPGRADE/CHANGES TO BE MADE TO EACH TANK SYSTEM.

TANK I.D.			UST 758B	OWS 758A	UST 759B	OWS 759A
MATERIAL STORED	MATERIAL OR WASTE STORED	CURRENTLY	WASTE OIL	OIL/WATER	WASTE OIL	OIL/WATER
		PROPOSED	—	—	—	—
		PREVIOUSLY	—	—	—	—
	FUEL TYPE, I.E., UNLEADED					
TANK	TYPE (TANK, SUMP, OTHERS)		UST	OWS	UST	OWS
	DOUBLE WALL/SINGLE WALL					
	UL NUMBER					
	YEAR INSTALLED		1982	1982	1982	1982
	VAULTED/NOT VAULTED		VAULTED	VAULTED	VAULTED	VAULTED
	PRIMARY	MANUFACTURER				
		CAPACITY (GALLONS)	500			100
		CONSTRUCTION MATERIAL	STEEL			STEEL
		THICKNESS (UNITS)				
		INTERIOR LINING				
	SECONDARY	MANUFACTURER				
		CAPACITY (GALLONS)				
		CONSTRUCTION MATERIAL				
		THICKNESS (UNITS)				
	CORROSION PROTECTION					
	TYPE OF LEAK DETECTION FOR USTs (LIQUID, PROBE, ETC.)					
	MANUFACTURER OF LEAK DETECTOR					
	LOCATION (UNDER/ABOVE GROUND)		UNDER	UNDER	UNDER	UNDER
	SUCTION/PRESSURE GRAVITY/UNKNOWN		GRAVITY	GRAVITY	GRAVITY	GRAVITY
PIPING	PRIMARY	CONSTRUCTION MATERIAL				
		MANUFACTURER				
	SECONDARY	CONSTRUCTION MATERIAL				
		MANUFACTURER				
	TYPE OF LEAK DETECTION FOR PIPING (PRESSURE LOSS DEVICE, ETC.)					
	MANUFACTURER OF LEAK DETECTOR					
OVERFILL PROTECTION (TYPE)						
SPILL CONTAINMENT (TYPE)						

APPROVED
ORANGE COUNTY HEALTH CARE AGENCY
ENVIRONMENT HEALTH DIVISION
HAZARDOUS MATERIALS MANAGEMENT SECTION
THIS APPROVAL IS VALID FOR 12 MONTHS FROM THE APPROVAL DATE

AR 6/23/99 99PM54
Plan Reviewed By Date Plan #

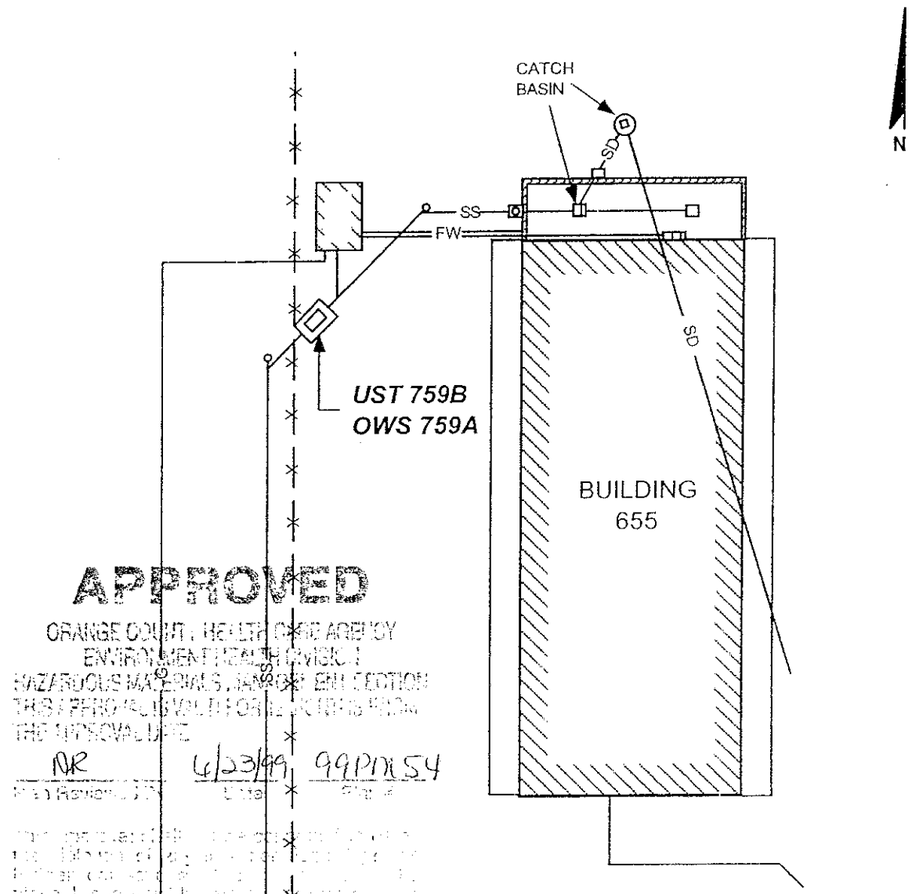
This approval shall not be construed to permit the violation of any law, nor does it permit further corrections of errors found on the plans. Plans must be resubmitted for approval if any additional changes are made by the applicant.

In addition to this approval, all applicable permits required by the local fire department, building department, and the Air Quality Management District must be obtained.

Underground tank installation, removal, and repair inspections are required and must be scheduled 48 hours in advance. Contact (714) 667 - 3800 for an appointment.

A copy of these approved plans must be available at the site at all times.

All piping associated with underground storage tanks shall be removed and properly disposed



APPROVED

ORANGE COUNTY HEALTH CARE AGENCY
ENVIRONMENTAL HEALTH DIVISION
HAZARDOUS MATERIALS MANAGEMENT SECTION
THIS APPROVAL IS VALID FOR 12 MONTHS FROM
THE APPROVAL DATE

NR 6/23/99 99PM154
Plan Reviewer Date Plan #

[illegible]
approval.

[illegible]
(714) 667-5600 for an appointment.

A copy of these approved plans must be available at the site at all times.

All piping associated with underground storage tanks shall be removed and properly disposed

Scale in Feet

0 40 80

GEOFON INCORPORATED

PROJECT NO : 04-4304.260

SITE LOCATION MAP
UST 759B AND OWS 759A

6/99

Figure 5

State of California—Environmental Protection Agency
Form Approved OMB No. 2050-0039 (Expires 9-30-99)
Please print or type. Form designed for use on elite (12-pitch) typewriter

See Instructions on back (page 6)

Department of Toxic Substances Control
Sacramento, California

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No: 0 0 0 0 0 0 0 0 0 0 0 0 | Manifest Document No: 1 1 4 0 5 | 2. Page 1 of

Information in the shaded areas is not required by federal law

3. Generator's Name and Mailing Address: MCAS MIRAMAR (CA) 3 1 5 5 9
[redacted] CODE 5411/MM BLDG [redacted]
[redacted] SAN DIEGO CA 92145-5013

4. Generator's Phone: 45244 Miramar Way P.O.Box 452013

A. State Manifest Document Number: 99319714

B. State Generator's ID: 0 3 5 0 3 8 9 1 4

5. Transporter 1 Company Name: [redacted] | US EPA ID Number

C. State Transporter's ID (Reserved)

D. Transporter's Phone

6. Transporter 2 Company Name: ENVIRONMENTAL SERVICES | US EPA ID Number: 1 2 2 0 3

E. State Transporter's ID (Reserved): 392-6300

F. Transporter's Phone

9. Designated Facility Name and Site Address: DOME ROCK INDUSTRIES, 3125 [illegible] ROAD, [illegible] AZ 85340 | 10. US EPA ID Number

G. State Facility's ID

H. Facility's Phone

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Number
a. NON-RCRA HAZARDOUS WASTE LIQUID (CONTAMINATED WATER)	001	T,T	901400		State; EPA/Other 34
b.					State: NON-RCRA; EPA/Other
c.					State; EPA/Other
d.					State; EPA/Other

J. Additional Descriptions for Materials Listed Above
11A.ACCEPTANCE# D0270 (DIESEL/GASOLINE CONTAMINATED WATER)
SITE ADDRESS: EL TORO, SANTA ANA

K. Handling Codes for Wastes Listed Above: a. | b. | d.

15. Special Handling Instructions and Additional Information
ALWAYS WEAR APPROPRIATE PPE AND USE OVER REPELLENT MOVELLS
24 HOUR EMERGENCY NUMBER (800) 424-[illegible] (CHEM TECH)

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: Eric Yeselavier | Signature: [signature] | Month 0 7 Day 2 2 Year 9 9

GENERATOR

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Doug Ford | Signature: Doug Ford | Month 0 7 Day 2 2 Year 9 9

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Month | Day | Year

TRANSPORTER

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: JERRY R. [illegible] | Signature: [signature] | Month 0 7 Day 2 6 Year 9 9

FACILITY

DO NOT WRITE BELOW THIS LINE.

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

99319714

DTSC 8022A (1/99)
EPA 8700—22

Green TRANSPORTER RETAINS

State of California—Environmental Protection Agency
Form Approved OMB No. 1220-0027 (Expires 7-30-99)
Please print or type. Form designed for use on elite (12 pitch) typewriter.

See Instructions on back of page 6

Department of Toxic Substances Control
Sacramento, California

UNIFORM HAZARDOUS WASTE MANIFEST

Generator's US EPA ID No.: CA6170023208 | Manifest Document No.: 16605 | Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: MCAS MIRAMAR 6311 & 16605
~~MCAS EL TORO, CODE 5AU/WM, BLDG. M-311~~
~~PO BOX 452013, SAN DIEGO, CA 92145-2013~~
~~SANTA ANA, CA 92709~~ MIRAMAR WAY P.O. BOX 452013

4. Generator's Phone: 949 559-8229 RICK PHILLIPS (GEOFON)

5. Transporter 1 Company Name: ~~GRAYSON TRANSPORTATION~~
6. US EPA ID Number: CAL000018037

7. Transporter 2 Company Name:
8. US EPA ID Number:

9. Designated Facility Name and Site Address: DOME ROCK INDUSTRIES
3175 W. DOME ROCK ROAD
QUARTZSITE, AZ 85346
10. US EPA ID Number: AZC980813022

9. State Manifest Document Number: 99319721
B. State Generator's ID: HAH 03603891 6
C. State Transporter's ID [Reserved]:
D. Transporter's Phone: ~~(661) 399-6300~~
E. State Transporter's ID [Reserved]:
F. Transporter's Phone:
G. State Facility's ID:
H. Facility's Phone: (520) 927-7688

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste Number
NON-RCRA HAZARDOUS WASTE LIQUID (CONTAMINATED WATER)	001	TT	04700	G	State: 134; EPA/Other: NON-RCRA
					State: ; EPA/Other:
					State: ; EPA/Other:
					State: ; EPA/Other:

J. Additional Descriptions for Materials Listed Above:
11A: ACCEPTANCE# D0270 (DIESEL/GASOLINE CONTAMINATED WATER)
SITE ADDRESS: EL TORO, SANTA ANA

K. Handling Codes for Wastes Listed Above: a. b. c. d.

15. Special Handling Instructions and Additional Information:
ALWAYS WEAR APPROPRIATE PPE AND USE SAFE HANDLING METHODS.
24 HOUR EMERGENCY NUMBER (800) 424-9300:*CHEM TECH*

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/placarded, and are in all respects in proper condition for transport 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: Eric Teschaniu | Signature: [signature] | Month 01 Day 22 Year 99

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: GREG FLIPPEN | Signature: [signature] | Month 01 Day 22 Year 99

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 the manifest except as noted in Item 19.
Printed/Typed Name: [illegible] | Signature: [signature] | Month 01 Day 23 Year 99

DO NOT WRITE BELOW THIS LINE.

IN CASE OF EMERGENCY OR SPILL CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7550

GENERATOR | TRANSPORTER | FACILITY

EFR ENVIRONMENTAL SERVICES
CERTIFICATE OF DESTRUCTION

1-800-244-1202 760-735-9602
Fax 760-735-9653

EFR ENVIRONMENTAL SERVICES certifies that the waste accepted from the generator described below was recycled in accordance with the United States EPA and State Regulations:

GENERATOR: MCAS-EL TORO/SANTA ANA, CA
C/0 MCAS MIRAMAR
CODE: 5AU/WM, BLDG. M-311
PO BOX 452013
SAN DIEGO, CA 92145-2013

DATE:	MANIFEST #(s)	DESCRIPTION:	QUANTITY:
07/22/99	99319714 &	100 Gallon Steel	5
	99319721	500 Gallon Steel	5

The above listed tank(s) were taken to Pacific Coast Recycling.

If this information does not agree with your records, please notify us within 10 days so we can resolve any discrepancies.

Thank you for using EFR ENVIRONMENTAL SERVICES for your recycling needs!

APPENDIX C

LABORATORY REPORTS AND CHAIN-OF-CUSTODY FORMS

CHAIN OF CUSTODY
Orange County Health Care Agency
Environmental Health Division
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: HCAS [illegible] Bldg T
TS1A(US), Point TS1B Santa Ana

DATE OF COLLECTION: 8-5-99

SAMPLE COLLECTOR/COMPANY: [illegible]
GROUP

TELEPHONE NO.: _____

HCA REPRESENTATIVE: A Rodriguez

6.

SAMPLE NUMBER	DETERMINATION REQUESTED	SAMPLE DESCRIPTION/COMMENTS	TIME OF COLLECTION
TS1B_T-9'	TRPH (418.1) STEX	DTBA + SOIL DA (8260)	
TS1A_US1B	↓ ↓	↓ ↓ ↓	

7. CHAIN OF CUSTODY

	SIGNATURE	COMPANY/AGENCY	INCLUSIVE DATES/TIMES
1.	Urghawan Rashid Jud	Haz. Waste	8-5-99 . 12:40pm
2.	[illegible] Williams	GROUP, INC.	8-[illegible]-99 . 1240
3.	[illegible]	AETL	8/10/99 . 1:20
4.			
5.			
6.			

F272-9 1531.1(R8/89)

WHITE-RETURN THIS COPY TO ENVIRONMENTAL HEALTH, CANARY-LABORATORY COPY
PINK-CONTRACTOR/CONSULTANT COPY, GOLDENROD-OFFICE COPY

American Environmental Testing Laboratory Inc.
2834 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541 LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840

Geofon Inc.
5552 Cerritos Ave. Suite F
Cypress, CA 90630

Number of Pages: 9
Date Received : 08/05/99
Date Reported : 08/12/99

Attn : Leo W. Williamson
Phone: 714/220-2777

AEIL Job Number: 12917

Site: MCAS El Toro
Bldg 759, 759A(OWS) + Tank 759B
Santa Ana

Enclosed please find results of analyses of 2 soil samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: Joel Serran

Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.
2834 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541 LACSD NO: 10181
Tel (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840

SUMMARY OF RESULTS

CLIENT NAME: Geofon, Inc
5552 Cerritos Ave , Suite F
Cypress, CA 90630

AETL JOB NO.: 12917

PROJECT:
SITE: MCAS El Toro-Bldg 759, 759A(OWS) + Tank 759B, Santa Ana
DATE SAMPLED: 08-05-99
DATE SUBMITTED: 08-05-99
DATE ANALYSIS COMPLETED: 08-10-99
SAMPLE DESCRIPTION: Grab soil samples (For details, please see COC)
SAMPLE MATRIX: Soil
NOTE: Samples were collected by client.

	ANALYTE	TRPH
	UNITS	mg/Kg
	METHOD OF ANALYSIS	418.1
	DETECTION LIMIT	10
LAB ID	FIELD ID	RESULTS
AE62670	759B-T-9'	46
AE62671	759A-OWS-10'	11,300
AE62672	M. BLANK	ND

ND = Not Detected at the detection limit

Cyrus Razmara, Ph D
Laboratory Director

American Environmental Testing Laboratory Inc.
2834 North Naomi Street Burbank, CA 91504 • DOHS NO. 1541, LACSD NO. 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840

SUMMARY OF RESULTS

CLIENT NAME: Geofon, Inc.
5552 Cerritos Ave., Suite F
Cypress, CA 90630

AETL JOB NO.: 12917

PROJECT:
SITE: MCAS El Toro-Bldg. 759, 759A(OWS) + Tank 759B, Santa Ana
DATE SAMPLED: 08-05-99
DATE SUBMITTED: 08-05-99
DATE ANALYSIS COMPLETED: 08-09-99
SAMPLE DESCRIPTION: Grab soil samples (For details, please see COC)
SAMPLE MATRIX: Soil
NOTE: Samples were collected by client

EPA Method 8260B

Lab ID		AE62670	AE62671	AE62672
Client ID		759B-T-9'	759A-OWS-10'	M. Blank
Date Sampled		08-05-99	08-05-99	08-05-99
Date Extracted		08-09-99	08-09-99	08-09-99
Date Analyzed		08-09-99	08-09-99	08-09-99
Matrix		Soil	Soil	Soil
Units		µg/Kg	µg/Kg	µg/Kg
Dilution Factor		1	1	1
Analyte	**DL**	**Results**	**Results**	**Results**
Acetone	50	ND	71.8	ND
Benzene	10	ND	ND	ND
Bromobenzene	10	ND	ND	ND
Bromochloromethane	10	ND	ND	ND
Bromodichloromethane	10	ND	ND	ND
Bromoform	50	ND	ND	ND
Bromomethane	30	ND	ND	ND
2-Butanone	50	ND	ND	ND
n-Butylbenzene	10	ND	ND	ND
sec-Butylbenzene	10	ND	22.2	ND
tert-Butylbenzene	10	ND	ND	ND
Carbon Disulfide	50	ND	ND	ND
Carbon Tetrachloride	10	ND	ND	ND
Chlorobenzene	10	ND	ND	ND
Chloroethane	30	ND	ND	ND
2-Chloroethyl Vinyl ether	50	ND	ND	ND
Chloroform	10	ND	ND	ND
Chloromethane	30	ND	ND	ND
2-Chlorotoluene	10	ND	ND	ND
4-Chlorotoluene	10	ND	ND	ND
1,2-Dibromo-3-Chloropropane	50	ND	ND	ND
Dibromochloromethane	10	ND	ND	ND
1,2-Dibromoethane	10	ND	ND	ND
Dibromomethane	10	ND	ND	ND
1,2-Dichlorobenzene	10	ND	ND	ND
1,3-Dichlorobenzene	10	ND	ND	ND
1,4-Dichlorobenzene	10	ND	ND	ND
Dichlorodifluoromethane	30	ND	ND	ND
1,1-Dichloroethane	10	ND	ND	ND
1,2-Dichloroethane	10	ND	ND	ND
1,1-Dichloroethene	10	ND	ND	ND

ND = Not Detected at the detection limit
DL = Detection Limit

American Environmental Testing Laboratory Inc.
2834 North Naomi Street Burbank CA 91504 • DOHS NO: 1541 LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840

SUMMARY OF RESULTS (Cont..)

CLIENT NAME: Geofon, Inc
5552 Cerritos Ave., Suite F
Cypress, CA 90630

AETL JOB NO.: 12917

EPA Method 8260B

	Lab ID	AE62670	AE62671	AE62672
	Client ID	759B-T-9'	759A-OWS-10'	M. Blank
	Date Sampled	08-05-99	08-05-99	08-05-99
	Date Extracted	08-09-99	08-09-99	08-09-99
	Date Analyzed	08-09-99	08-09-99	08-09-99
	Matrix	Soil	Soil	Soil
	Units	µg/Kg	µg/Kg	µg/Kg
	Dilution Factor	1	1	1
Analyte	DL	Results	Results	Results
cis-1,2-Dichloroethene	10	ND	ND	ND
trans-1,2-Dichloroethene	10	ND	ND	ND
1,2-Dichloropropane	10	ND	ND	ND
1,3-Dichloropropane	10	ND	ND	ND
2,2-Dichloropropane	10	ND	ND	ND
1,1-Dichloropropene	10	ND	ND	ND
cis-1,3-Dichloropropene	10	ND	ND	ND
trans-1,3-Dichloropropene	10	ND	ND	ND
Ethylbenzene	10	ND	19.4	ND
Hexachlorobutadiene	50	ND	ND	ND
2-Hexanone	50	ND	ND	ND
Isopropylbenzene	10	ND	ND	ND
p- Isopropyltoluene	10	ND	ND	ND
MTBE	10	ND	ND	ND
4-Methyl-2-Pentanone	50	ND	ND	ND
Methylene Chloride	50	ND	ND	ND
Naphthalene	10	ND	47.1	ND
n- Propylbenzene	10	ND	13.8	ND
Styrene	10	ND	ND	ND
1,1,1,2-Tetrachloroethane	10	ND	ND	ND
1,1,2,2-Tetrachloroethane	10	ND	ND	ND
Tetrachloroethene	10	ND	19.6	ND
Toluene	10	ND	ND	ND
1,2,3-Trichlorobenzene	10	ND	ND	ND
1,2,4-Trichlorobenzene	10	ND	ND	ND
1,1,1-Trichloroethane	10	ND	ND	ND
1,1,2-Trichloroethane	10	ND	ND	ND
Trichloroethene	10	ND	ND	ND
Trichlorofluoromethane	10	ND	ND	ND
1,2,3-Trichloropropane	10	ND	ND	ND
1,2,4-Trimethylbenzene	10	ND	17.5	ND
1,3,5-Trimethylbenzene	10	ND	10.4	ND
Vinyl Acetate	10	ND	ND	ND
Vinyl Chloride	50	ND	ND	ND
o-Xylene	10	ND	ND	ND
m-& p-Xylenes	20	ND	ND	ND

ND = Not Detected at the detection limit
DL = Detection Limit

Cyrus Razmara, Ph.D
Laboratory Director

American Environmental Testing Laboratory Inc.
2834 North Naomi Street Burbank CA 91504 • DOHS NO: 1541 LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840

ANALYTICAL RESULTS

AETL Job No: 12917

Report To: (GEOFON)
Geofon Inc.
5552 Cerritos Ave. Suite F
Cypress, CA 90630

Site:
MCAS El Toro
Bldg 759, 759A(OWS) + Iank 759B
Santa Ana

Attn: Leo W. Williamson

Phone: 714/220-2777

Matrix: Soil
Method: (418.1)
Iotal Recoverable Petroleum Hydrocarbons
Units: mg/Kg

Lab ID:	AE62670	
Sample No:	759B-I-9'	
Date Sampled:	08/05/99	
Date Extracted:	08/10/99	Detection
Date Analyzed:	08/10/99	Limit
IRPH	46	10

QUALIIY CONTROL SUMMARY

	Spike %REC.	Spike DUP. %REC.	AVG. RPD
IRPH	92	94	2 2

ND - Not Detected at The Detection Limit

American Environmental Testing Laboratory Inc.
2834 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541 LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840

ANALYTICAL RESULTS

AETL Job No: 12917

Report To: (GEOFON)
Geofon Inc.
5552 Cerritos Ave. Suite F
Cypress, CA 90630

Attn: Leo W. Williamson

Site:
MCAS El Toro
Bldg 759, 759A(OWS) + Tank 759B
Santa Ana

Phone: 714/220-2777

Matrix: Soil
Method: (418.1)
Total Recoverable Petroleum Hydrocarbons
Units: mg/Kg

Lab ID:	AE62671	
Sample No:	759A-OWS-10'	
Date Sampled:	08/05/99	
Date Extracted:	08/10/99	Detection Limit
Date Analyzed:	08/10/99	
IRPH	11300	3000

QUALITY CONTROL SUMMARY

	Spike %REC.	Spike DUP. %REC.	AVG. RPD
IRPH	92	94	2.2

ND - Not Detected at the Detection Limit

American Environmental Testing Laboratory Inc.
2834 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541 LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840

ANALYTICAL RESULTS

AETL Job No: 12917

Report To: (GEOFON)
Geofon Inc.
5552 Cerritos Ave. Suite F
Cypress, CA 90630

Site:
MCAS El Toro
Bldg 759, 759A(OWS) + Tank 759B
Santa Ana

Attn: Leo W. Williamson

Phone: 714/220-2777

Matrix: Soil
Method: (418.1)
Total Recoverable Petroleum Hydrocarbons
Units: mg/Kg

Lab ID:	AE62672	
Sample No:	METHOD BLANK	
Date Sampled:	08/05/99	
Date Extracted:	08/10/99	Detection Limit
Date Analyzed:	08/10/99	
TRPH	ND	10

QUALITY CONTROL SUMMARY

	Spike %REC.	Spike DUP. %REC.	AVG. RPD
TRPH	92	94	2.2

ND - Not Detected at The Detection Limit

American Environmental Testing Laboratory Inc.
2834 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840

ANALYTICAL RESULTS

AETL Job No: 12917

Report To: (GEOFON)
Geofon Inc.
5552 Cerritos Ave Suite F
Cypress, CA 90630

Site:
MCAS El Toro
Bldg 759, 759A(OWS) + Tank 759B
Santa Ana

Attn: Leo W. Williamson

Phone: 714/220-2777

Matrix: Soil
Method: (8260B)
Purgeable Volatile Organics by GC/MS
Units: ug/Kg

Lab ID:	AE62670	AE62671	AE62672	
Sample No:	759B-T-9'	759A-OWS-10'	METHOD BLANK	
Date Sampled:	08/05/99	08/05/99	08/05/99	
Date Extracted:	08/09/99	08/09/99	08/09/99	Detection
Date Analyzed:	08/09/99	08/09/99	08/09/99	Limit
Acetone	ND	71.8	ND	50
Benzene	ND	ND	ND	10
Bromobenzene	ND	ND	ND	10
Bromochloromethane	ND	ND	ND	10
Bromodichloromethane	ND	ND	ND	10
Bromoform	ND	ND	ND	50
Bromomethane	ND	ND	ND	30
2 Butanone	ND	ND	ND	50
N Butylbenzene	ND	ND	ND	10
SEC Butylbenzene	ND	22.2	ND	10
TERT Butylbenzene	ND	ND	ND	10
Carbon Disulfide	ND	ND	ND	10
Carbon Tetrachloride	ND	ND	ND	10
Chlorobenzene	ND	ND	ND	10
Chloroethane	ND	ND	ND	30
2 Chloroethyl Vinylether	ND	ND	ND	50
Chloroform	ND	ND	ND	10
Chloromethane	ND	ND	ND	30
2 Chlorotoluene	ND	ND	ND	10
4 Chlorotoluene	ND	ND	ND	10
1,2 Dibromo-3-Chloropropane	ND	ND	ND	50
Dibromochloromethane	ND	ND	ND	10
1,2 Dibromoethane	ND	ND	ND	10
Dibromomethane	ND	ND	ND	10
1,2 Dichlorobenzene	ND	ND	ND	10
1,3 Dichlorobenzene	ND	ND	ND	10
1,4 Dichlorobenzene	ND	ND	ND	10
Dichlorodifluoromethane	ND	ND	ND	30
1,1 Dichloroethane	ND	ND	ND	10
1,2 Dichloroethane	ND	ND	ND	10
1,1 Dichloroethene	ND	ND	ND	10
CIS 1,2 Dichloroethene	ND	ND	ND	10
TRNS 1,2 Dichloroethene	ND	ND	ND	10
1,2 Dichloropropane	ND	ND	ND	10
1,3 Dichloropropane	ND	ND	ND	10
2,2 Dichloropropane	ND	ND	ND	10
1,1 Dichloropropene	ND	ND	ND	10
CIS 1,3 Dichloropropene	ND	ND	ND	10
TRNS 1,3 Dichloropropene	ND	ND	ND	10
Ethylbenzene	ND	19.4	ND	10
Hexachlorobutadiene	ND	ND	ND	30
2 Hexanone	ND	ND	ND	50
Isopropylbenzene	ND	ND	ND	10
P- Isopropyltoluene	ND	ND	ND	10

(Continued)

ND - Not Detected at The Detection Limit

American Environmental Testing Laboratory Inc.
2834 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541 LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840

ANALYTICAL RESULTS

AETL Job No: 12917

Units: ug/Kg

Lab ID: **Sample No:**	AE62670 759B-T-9'	AE62671 759A-OWS-10'	AE62672 METHOD BLANK	**Detection Limit**
MTBE	ND	ND	ND	10
4 Methyl-2-Pentanone	ND	ND	ND	50
Methylene Chloride	ND	ND	ND	50
Naphthalene	ND	47.1	ND	10
N- Propylbenzene	ND	13.8	ND	10
Styrene	ND	ND	ND	10
1,1,1,2 Tetrachloroethane	ND	ND	ND	10
1,1,2,2 Tetrachloroethane	ND	ND	ND	10
Tetrachloroethene	ND	19.6	ND	10
Toluene	ND	ND	ND	10
1,2,3 Trichlorobenzene	ND	ND	ND	10
1,2,4 Trichlorobenzene	ND	ND	ND	10
1,1,1 Trichloroethane	ND	ND	ND	10
1,1,2 Trichloroethane	ND	ND	ND	10
Trichloroethene	ND	ND	ND	10
Trichlorofluoromethane	ND	ND	ND	10
1,2,3 Trichloropropane	ND	ND	ND	10
1,2,4 Trimethylbenzene	ND	17.5	ND	10
1,3,5 Trimethylbenzene	ND	10.4	ND	10
Vinyl Acetate	ND	ND	ND	50
Vinyl Chloride	ND	ND	ND	30
O- Xylene	ND	ND	ND	10
M-& P- Xylenes	ND	ND	ND	20

QUALITY CONTROL SUMMARY

Lab ID:	AE62670	AE62671	AE62672
Surrogate Percent Recovery			
Bromofluorobenzene	90	108	91
Dibromofluoromethane	83	86	102
Toluene-d8	110	115	105

	Spike %REC.	**Spike DUP. %REC.**	**AVG. RPD**
Benzene	92	97	4
Chlorobenzene	88	91	3
1,1 Dichloroethene	101	107	6
Toluene	84	84	<1
Trichloroethene	92	93	1

ND - Not Detected at the Detection Limit

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AETL JOB# _____ PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

CLIENT: GEOTUN INC
TELEPHONE: (714) [illegible] - 2777
FAX: [illegible] 1509
ADDRESS: [illegible]
SITE: [illegible]
CONTACT PERSON: [illegible]
PROJECT NAME: [illegible]
PROJECT NUMBER: [illegible] 4 9 7 0 9 7 6 0

ANALYSIS REQUESTED: GRO (EPA 8) / DRO (EPA D)

SAMPLE ID	LAB ID	DATE	TIME	CONTAINER SIZE/TYPE	SAMPLE TYPE: SOIL	WATER	SOLID WASTE	LIQUID WASTE	OTHER	PRES.	GRO (EPA 8)	DRO (EPA D)	REMARKS
FT-[illegible]-S-1-10		8/5/99	940	[illegible]	X					None	X	X	
FT-UWS[illegible]-S-2-9'			950		X						X	X	
FT-UST 7[illegible]-S-1-10'			1100		X						X	X	
FT-UWS 7[illegible]B-S-2-9'			1105		X						X	X	
FT-UST 7[illegible]-S-1-9'			1020		X						X	X	
FT-UWS 7[illegible]A-S-2-8'			1030		X						X	X	
FT-UST 7[illegible]B-S-1-9'			1135		X						X	X	
FT-UWS 7[illegible]A-S-2-10'			1155		X						X	X	
FT-UST 7[illegible]A-S-1-10'			1225		X						X	X	
FT-UWS 7[illegible]B-S-2-9'			1230		X						X	X	

Collected By: [illegible] Date 8/5/99 Time 1500
Delivered By: [illegible] Date 8/5/99 Time 3:20
Relinquished By: [illegible] Date 8/5/99 Time 1500
Received For Laboratory Date Time

Turn Around Time ☐ Normal ☒ Rush 72 HR

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Geofon Inc.
5552 Cerritos Ave. Suite F
Cypress, CA 90630

Number of Pages: 12
Date Received : 08/05/99
Date Reported : 08/10/99

Attn : Leo W. Williamson
Phone: 714/220-2777

AETL Job Number: 12899

Project Name : UST Removals
Project Number : 04-4304.280

Site: El Toro - USTs/OWSs

Enclosed please find results of analyses of 10 soil samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____

Approved By: _____
Cyrus Razmara, Ph.D.
Laboratory Director

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SUMMARY OF RESULTS

CLIENT NAME: Geofon Inc.
5552 Cerritos Ave., Suite F
Cypress, CA 90630

AETL JOB NO.: 12899

PROJECT: UST Removals-04-4304.280
SITE: El Toro – USTs/OWSs
DATE SAMPLED: 08-05-99
DATE SUBMITTED: 08-05-99
DATE ANALYSIS COMPLETED: 08-06-99
SAMPLE DESCRIPTION: Grab soil samples (For details, please see COC)
SAMPLE MATRIX: Soil
NOTE: Samples were collected by client

	ANALYTE	GASOLINE $C_4 - C_9$	DIESEL $C_9 - C_{23}$	HEAVY HC C_{23+}
	UNITS	mg/Kg	mg/Kg	mg/Kg
	METHOD OF ANALYSIS	M8015G	M8015D	M8015D
	DETECTION LIMIT	10	10	10
LAB ID	FIELD ID	RESULTS	RESULTS	RESULTS
AE62586	UST298D-S1-10	ND	ND	ND
AE62587	OWS298C-S2-9	ND	ND	ND
AE62588	UST386C-S1-10	ND	ND	ND
AE62589	OWS386B-S2-9	ND	ND	ND
AE62590	UST758B-S1-9	ND	ND	ND
AE62591	OWS758A-S2-8	ND	ND	ND
AE62592	UST759B-S1-9	ND	ND	ND
AE62593	OWS759A-S2-10	ND	7,510	1,310
AE62594	UST760A-S1-10	ND	ND	ND
AE62595	OWS760B-S2-9	ND	ND	ND
AE62596	M BLANK	ND	ND	ND

ND = Not Detected at the detection limit

Cyrus Razmara, Ph.D.
Laboratory Director

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ANALYTICAL RESULTS

AETL Job No: 12899
Project ID: 04-4304.280
Project Name: UST Removals

Report To: (GEOFON)
Geofon Inc.
5552 Cerritos Ave. Suite F
Cypress, CA 90630

Site:
El Toro - USIs/OWSs

Attn: Leo W. Williamson

Phone: 714/220-2777

Matrix: Soil
Method: 8015MOD.
TPH as Gasoline
Units: mg/Kg

Lab ID:	AE62586	AE62587	AE62588	AE62589	
Sample No:	USI298DS1-10	OWS298C-S2-9	USI386CS1-10	OWS386B-S2-9	
Date Sampled:	08/05/99	08/05/99	08/05/99	08/05/99	
Date Extracted:	08/06/99	08/06/99	08/06/99	08/06/99	Detection
Date Analyzed:	08/06/99	08/06/99	08/06/99	08/06/99	Limit
IPH as Gasoline or Light HCs	ND	ND	ND	ND	1.0

QUALITY CONTROL SUMMARY

Lab ID:	AE62586	AE62587	AE62588	AE62589
Surrogate Percent Recovery				
Bromofluorobenzene	68	69	74	73
Trifluorotoluene	70	72	70	74

	Spike %REC.	Spike DUP. %REC.	AVG. RPD
Benzene	86	96	11
Ethylbenzene	92	100	8
Toluene	86	96	11
M- Xylene	87	93	7
O- Xylene	98	104	6

Comment to Sample(s)
AE62586: AE62587: Low surrogate recovery due to matrix interference.

ND - Not Detected at The Detection Limit

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ANALYTICAL RESULTS

AETL Job No: 12899
Project ID: 04-4304.280
Project Name: UST Removals

Report To: (GEOFON)
Geofon Inc.
5552 Cerritos Ave. Suite F
Cypress, CA 90630

Site:
El Toro - USIs/OWSs

Attn: Leo W. Williamson

Phone: 714/220-2777

Matrix: Soil
Method: 8015MOD.
TPH as Gasoline
Units: mg/Kg

Lab ID:	AE62590	AE62591	AE62592	AE62593	
Sample No:	UST758B-S1-9	OWS758A-S2-8	USI759B-S1-9	OWS759AS2-10	
Date Sampled:	08/05/99	08/05/99	08/05/99	08/05/99	
Date Extracted:	08/06/99	08/06/99	08/06/99	08/06/99	Detection
Date Analyzed:	08/06/99	08/06/99	08/06/99	08/06/99	Limit
IPH as Gasoline or Light HCs	ND	ND	ND	ND	1.0

QUALITY CONTROL SUMMARY

Lab ID:	AE62590	AE62591	AE62592	AE62593
Surrogate Percent Recovery				
Bromofluorobenzene	70	84	68	109
Trifluorotoluene	73	80	77	101

	Spike %REC.	Spike DUP. %REC.	AVG. RPD
Benzene	86	96	11
Ethylbenzene	92	100	8
Toluene	86	96	11
M- Xylene	87	93	7
O- Xylene	98	104	6

Comment to Sample(s)
AE62592: Low surrogate recovery due to matrix interference.
AE62593: (C4-C9)= ND.

ND - Not Detected at Ihe Detection Limit

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ANALYTICAL RESULTS

AETL Job No: 12899
Project ID: 04-4304.280
Project Name: USI Removals

Report To: (GEOFON)
Geofon Inc.
5552 Cerritos Ave. Suite F
Cypress, CA 90630

Attn: Leo W. Williamson

Site:
El Toro - USIs/OWSs

Phone: 714/220-2777

Matrix: Soil
Method: 8015MOD
TPH as Gasoline
Units: mg/Kg

Lab ID:	AE62594	AE62595	AE62596	
Sample No:	USI760AS1-10	OWS760B-S2-9	MEIHOD BLANK	
Date Sampled:	08/05/99	08/05/99	08/05/99	
Date Extracted:	08/06/99	08/06/99	08/06/99	Detection
Date Analyzed:	08/06/99	08/06/99	08/06/99	Limit
IPH as Gasoline or Light HCs	ND	ND	ND	1 0

QUALITY CONIROL SUMMARY

Lab ID:	AE62594	AE62595	AE62596
Surrogate Percent Recovery			
Bromofluorobenzene	69	70	94
Trifluorotoluene	73	72	98

	Spike %REC.	Spike DUP. %REC.	AVG. RPD
Benzene	86	96	11
Ethylbenzene	92	100	8
Toluene	86	96	11
M- Xylene	87	93	7
O- Xylene	98	104	6

Comment to Sample(s)
AE62594: Low surrogate recovery due to matrix interference

ND - Not Detected at Ihe Detection Limit

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ANALYTICAL RESULTS

AETL Job No: 12899
Project ID: 04-4304.280
Project Name: USI Removals

Report To: (GEOFON)
Geofon Inc.
5552 Cerritos Ave. Suite F
Cypress, CA 90630

Site:
El Toro - USTs/OWSs

Attn: Leo W. Williamson

Phone: 714/220-2777

Matrix: Soil
Method: 8015M{DHS-LUFT}
IPH as Diesel and Heavier HCs (Extended Run)
Units: mg/kg

Lab ID:	AE62586	AE62587	AE62588	AE62589	
Sample No:	USI298DS1-10	OWS298C-S2-9	UST386CS1-10	OWS386B-S2-9	
Date Sampled:	08/05/99	08/05/99	08/05/99	08/05/99	
Date Extracted:	08/06/99	08/06/99	08/06/99	08/06/99	Detection
Date Analyzed:	08/06/99	08/06/99	08/06/99	08/06/99	Limit
IPH as Diesel and Heavier HC	ND	ND	ND	ND	10

QUALITY CONTROL SUMMARY

Lab ID:	AE62586	AE62587	AE62588	AE62589
Surrogate Percent Recovery				
Chlorobenzene	82	99	92	93

	Spike %REC.	Spike DUP. %REC.	AVG. RPD
Diesel	90	90	<1

ND - Not Detected at the Detection Limit

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ANALYTICAL RESULTS

AETL Job No: 12899
Project ID: 04-4304.280
Project Name: USI Removals

Report To: (GEOFON)
Geofon Inc.
5552 Cerritos Ave. Suite F
Cypress, CA 90630

Site:
El Toro - USIs/OWSs

Attn: Leo W. Williamson

Phone: 714/220-2777

Matrix: Soil
Method: 8015M{DHS-LUFT}
IPH as Diesel and Heavier HCs (Extended Run)
Units: mg/kg

Lab ID:	AE62590	
Sample No:	UST758B-S1-9	
Date Sampled:	08/05/99	
Date Extracted:	08/06/99	
Date Analyzed:	08/06/99	
		Detection Limit
IPH as Diesel and Heavier HC	ND	10

QUALITY CONTROL SUMMARY

Lab ID: AE62590

Surrogate Percent Recovery	
Chlorobenzene	106

	Spike %REC.	Spike DUP. %REC.	AVG. RPD
Diesel	90	90	<1

ND - Not Detected at Ihe Detection Limit

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ANALYTICAL RESULTS

AETL Job No: 12899
Project ID: 04-4304.280
Project Name: UST Removals

Report To: (GEOFON)
Geofon Inc.
5552 Cerritos Ave. Suite F
Cypress, CA 90630

Site:
El Toro - USTs/OWSs

Attn: Leo W. Williamson

Phone: 714/220-2777

Matrix: Soil
Method: 8015M{DHS-LUFT}
IPH as Diesel and Heavier HCs (Extended Run)
Units: mg/kg

Lab ID:	AE62591	
Sample No:	OWS758A-S2-8	
Date Sampled:	08/05/99	
Date Extracted:	08/10/99	**Detection Limit**
Date Analyzed:	08/10/99	
IPH as Diesel and Heavier HC	ND	10

QUALITY CONTROL SUMMARY

Lab ID: AE62591

Surrogate Percent Recovery
Chlorobenzene 97

	Spike %REC.	**Spike DUP. %REC.**	**AVG. RPD**
Diesel	84	85	1.2

ND - Not Detected at The Detection Limit

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ANALYTICAL RESULTS

AETL Job No: 12899
Project ID: 04-4304.280
Project Name: UST Removals

Report To: (GEOFON)
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5552 Cerritos Ave. Suite F
Cypress, CA 90630

Site:
El Toro - USTs/OWSs

Attn: Leo W. Williamson

Phone: 714/220-2777

Matrix: Soil
Method: 8015M{DHS-LUFT}
IPH as Diesel and Heavier HCs (Extended Run)
Units: mg/kg

Lab ID:	AE62592	
Sample No:	UST759B-S1-9	
Date Sampled:	08/05/99	
Date Extracted:	08/06/99	
Date Analyzed:	08/06/99	
		Detection Limit
IPH as Diesel and Heavier HC	ND	10

QUALITY CONTROL SUMMARY

Lab ID: AE62592

Surrogate Percent Recovery
Chlorobenzene 105

	Spike %REC.	Spike DUP. %REC.	AVG. RPD
Diesel	90	90	<1

ND - Not Detected at the Detection Limit

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ANALYTICAL RESULTS

AETL Job No: 12899
Project ID: 04-4304.280
Project Name: UST Removals

Report To: (GEOFON)
Geofon Inc.
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Cypress, CA 90630

Attn: Leo W. Williamson

Site:
El Toro - USTs/OWSs

Phone: 714/220-2777

Matrix: Soil
Method: 8015M(DHS-LUFI)
IPH as Diesel and Heavier HCs (Extended Run)
Units: mg/kg

Lab ID:	AE62593	
Sample No:	OWS759AS2-10	
Date Sampled:	08/05/99	
Date Extracted:	08/06/99	
Date Analyzed:	08/06/99	
		Detection Limit
IPH as Diesel and Heavier HC	8820	100

QUALITY CONTROL SUMMARY

Lab ID: AE62593

Surrogate Percent Recovery
Chlorobenzene 92

	Spike %REC	Spike DUP %REC	AVG RPD
Diesel	90	90	<1

Comment to Sample(s)
AE62593: (C9-C23)= 7510mg/Kg; (C23+)= 1310mg/Kg

ND - Not Detected at The Detection Limit

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ANALYTICAL RESULTS

AETL Job No: 12899
Project ID: 04-4304.280
Project Name: UST Removals

Report To: (GEOFON)
Geofon Inc.
5552 Cerritos Ave. Suite F
Cypress, CA 90630

Attn: Leo W. Williamson

Site:
El Toro - USIs/OWSs

Phone: 714/220-2777

Matrix: Soil
Method: 8015M{DHS-LUFT}
IPH as Diesel and Heavier HCs (Extended Run)
Units: mg/kg

Lab ID:	AE62594	AE62595	AE62596	
Sample No:	UST760AS1-10	OWS760B-S2-9	MEIHOD BLANK	
Date Sampled:	08/05/99	08/05/99	08/05/99	
Date Extracted:	08/06/99	08/06/99	08/06/99	Detection
Date Analyzed:	08/06/99	08/06/99	08/06/99	Limit
TPH as Diesel and Heavier HC	ND	ND	ND	10

QUALITY CONTROL SUMMARY

Lab ID:	AE62594	AE62595	AE62596
Surrogate Percent Recovery			
Chlorobenzene	99	105	89
	Spike %REC.	Spike DUP %REC.	AVG. RPD
Diesel	90	90	<1

ND - Not Detected at The Detection Limit

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ANALYTICAL RESULTS

AETL Job No: 12899
Project ID: 04-4304.280
Project Name: UST Removals

Report To: (GEOFON)
Geofon Inc.
5552 Cerritos Ave. Suite F
Cypress, CA 90630

Site:
El Toro - USTs/OWSs

Attn: Leo W. Williamson

Phone: 714/220-2777

Matrix: Soil
Method: 8015M{DHS-LUFT}
TPH as Diesel and Heavier HCs (Extended Run)
Units: mg/kg

Lab ID:	AE62596	
Sample No:	MEIHOD BLANK	
Date Sampled:	08/05/99	
Date Extracted:	08/10/99	**Detection Limit**
Date Analyzed:	08/10/99	
TPH as Diesel and Heavier HC	ND	10

QUALITY CONTROL SUMMARY

Lab ID: AE62596

Surrogate Percent Recovery	
Chlorobenzene	98

	Spike %REC.	Spike DUP. %REC.	AVG. RPD
Diesel	84	85	1.2

ND - Not Detected at The Detection Limit

APPENDIX D

MISCELLANEOUS INFORMATION: COMPACTION TESTS-FIELD DATA, AND MODIFIED PROCTOR TEST DATA AND THE ASPHALT MIX DESIGNS

GEOFON

FIELD DENSITY TEST

PROJECT NAME MCAS El Toro PROJECT NUMBER 01-4204-28

TEST NO.		1	2	3					
DATE		8-10-99	8-10-99	8-10-99					
ELEVATION									
DEPTH BELOW FINISHED GRADE		3'	1'	GRADE					
LOCATION		759	759	759					
SAND CONE METHOD ASTM D1556-82	SAND	Initial weight of sand and tare (lbs)							
		Final weight of sand and tare (lbs)							
		Gross sand used (lbs)							
		Correction for cone (lbs)							
		Net sand used (lbs)							
		Density of sand (lbs)							
	SOIL	Wet weight of soil and tare (lbs)							
		Weight tare (lbs)							
		Wet weight of soil (lbs)							
		Wet density of soil (pcf)							
NUCLEAR GAUGE ASTM D2922-81		Depth of measurement	6"	6"	6"				
		Measurment speed	Norm	Norm	Norm				
		Density count							
		Moisture count							
		Wet density (lb/ft^3)	133.7	131.8	129.8				
MOISTURE		Wet weight + cup (gms)							
		Dry weight + cup (gms)							
		Weight of cup (gms)							
		Weight of dry soil (gms)							
		Weight of water (gms)							
		Moisture content (percent)	11.7	10.7	12.3				
RESULTS		Dry density (lb/ft3)	122	123	120.4				
		Curve number							
		Maximum dry density	134.0	134.0	134.0				
		Compaction (percent)	98%	97%	96%				

Job No. 13193

Location El Toro

Date 7-27-99

Tested by: R.C

Sampled by:

Associated Soils Engineering

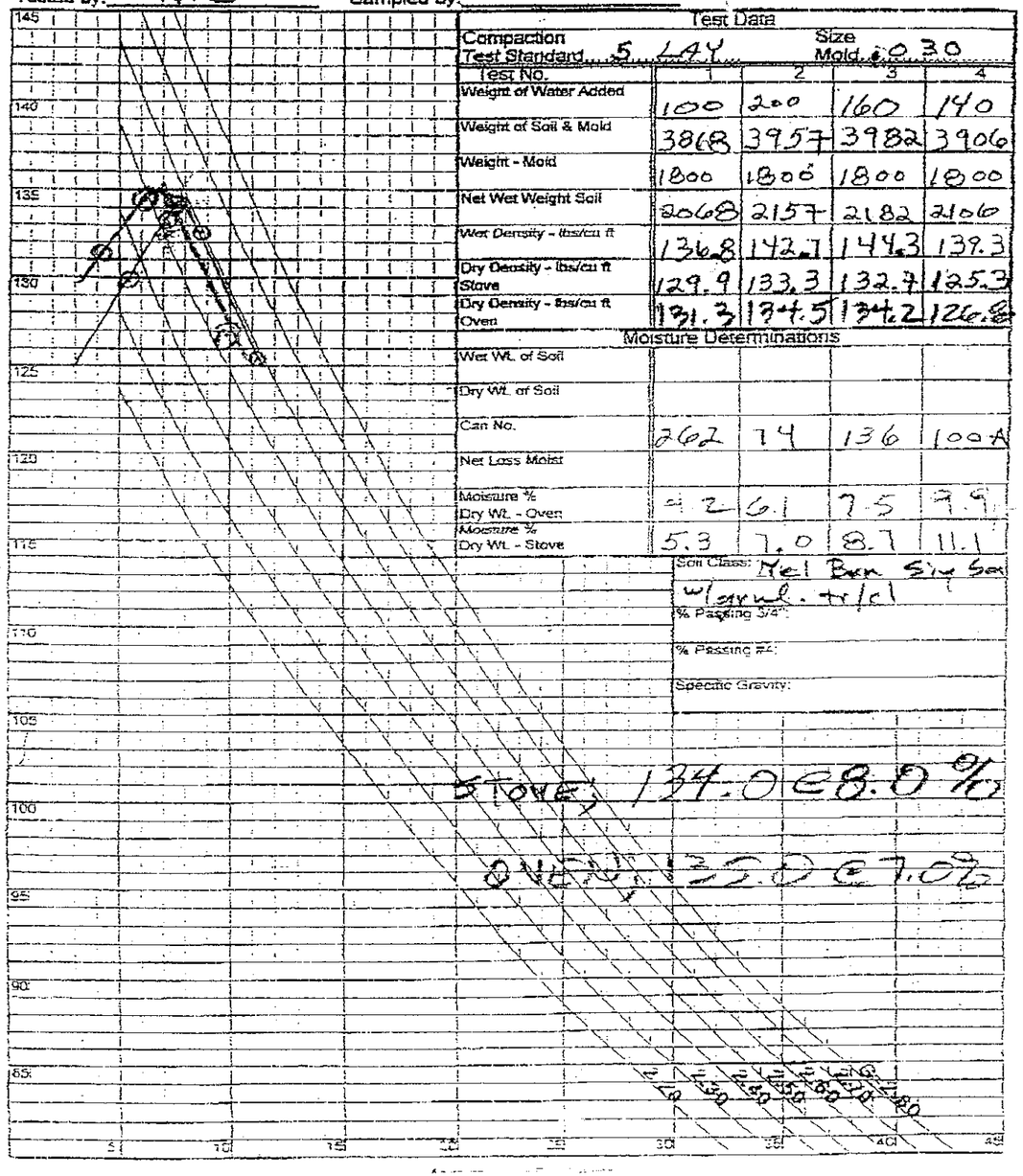
Max. Density and Moisture Curves

ASTM D1557 or D698

Sample No. 1 @ - 7/27

Elevation

Sta.



Test Data

Compaction Test Standard 5 LAY

Size Mold .0.30

Test No.	1	2	3	4
Weight of Water Added	100	200	160	140
Weight of Soil & Mold	3868	3957	3982	3906
Weight - Mold	1800	1800	1800	1800
Net Wet Weight Soil	2068	2157	2182	2106
Wet Density - lbs/cu ft	136.8	142.7	144.3	139.3
Dry Density - lbs/cu ft Stove	129.9	133.3	132.7	125.3
Dry Density - lbs/cu ft Oven	131.3	134.5	134.2	126.8
Moisture Determinations				
Wet Wt. of Soil				
Dry Wt. of Soil				
Can No.	262	74	136	100A
Net Loss Moist				
Moisture % Dry Wt. - Oven	4.2	6.1	7.5	9.9
Moisture % Dry Wt. - Stove	5.3	7.0	8.7	11.1

Soil Class: Med Brn Sily Sa w/gravel. tr/cl

% Passing 3/4":

% Passing #4:

Specific Gravity:

STOVE, 134.0 @ 8.0 %

OVEN, 132.0 @ 7.0%

APPENDIX C

SOIL BORING LOGS

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

FIGURE C-1
SOIL CLASSIFICATION CHART AND KEY TO BORING LOGS

GEOFON INCORPORATED

<<TemplateID>> <<Format(<<Now>>,<<dNumSlash>>)>>

BORING LOG KEY

☒	2-inch split spoon soil sample location
▨	Composite sample interval
NAO	No apparent odor
NAS	No apparent staining
- - -	Inferred contact
———	Well-defined contact
SPT	Standard Penetration Test
PID	Reading in PPMV
▽	First encountered water table

FIGURE C-1a
SOIL CLASSIFICATION CHART
AND KEY TO BORING LOGS

GEOFON INCORPORATED

BORING LOG

Depth (Feet)	Time	PID	SPT Blows	Sample ID	Description
0	1130				Asphalt and rock base
5	1140	1 7	7-7-8	759-SB-1-5'	Sandy gravel (fill) (GM): medium-dark brown, loosely consolidated, common clay, moist, NAO, NAS, subangular-angular, well graded, 50% gravel, 25% sand, 15% silt, 10% clay, occasional potassium feldspar coarse pebbles
10	1145	0.4	5-5-8	759-SB-1-10'	Clayey sand (SC): medium reddish brown, loosely consolidated to slightly firm, NAO, NAS
15	1150	0 2	5-7-7	759-SB-1-15'	Clay (CL): medium reddish brown, firm. moist, soft-slightly firm, blocky, well hydrated, moderate dry strength, trace white decomposed plagioclase, NAO, NAS.
20	1155	0 0	5-6-6	759-SB-1-20'	Clayey sand (SC): light-medium brown, soft, blocky, NAO, NAS, very fine-medium, poorly sorted, common clay, 65% sand, 30% clay, 5% silt.
25	1210	0 4	12-12-17	759-SB-1-25'	Sand (SP): light brown-buff, loosely consolidated, poorly graded, poorly sorted very fine-coarse, NAO, NAS, subangular-subround, predominately quartz with white and pink feldspar, 95% sand, 5% silt
	1215			759-SB-1-26-29'	
30	1220	0 0	14-14-14	759-SB-1-30	

DEPTH BELOW GROUND SURFACE (FEET)

Total depth = 31'

Inch Radius 0 4

Facility:	MCAS - El Toro	Driller:	Reynaldo Vaca	Rig Type:	CME 75
Contractor:	Prosonic Corp.	Geologist:	D. Marks	Drill Method:	8" HSA
Date Start:	7/15/03	Date Completed:	7/15/03		

FIGURE C-2
BORING LOG 759-SB-1
MCAS - El Toro
Irvine, California

GEOFON INCORPORATED

DRAWN: J. Gierek | DATE: 9/15/03
FILE: Projects\04-4432.10\Boring759_1.dwg

04-4432

APPENDIX D

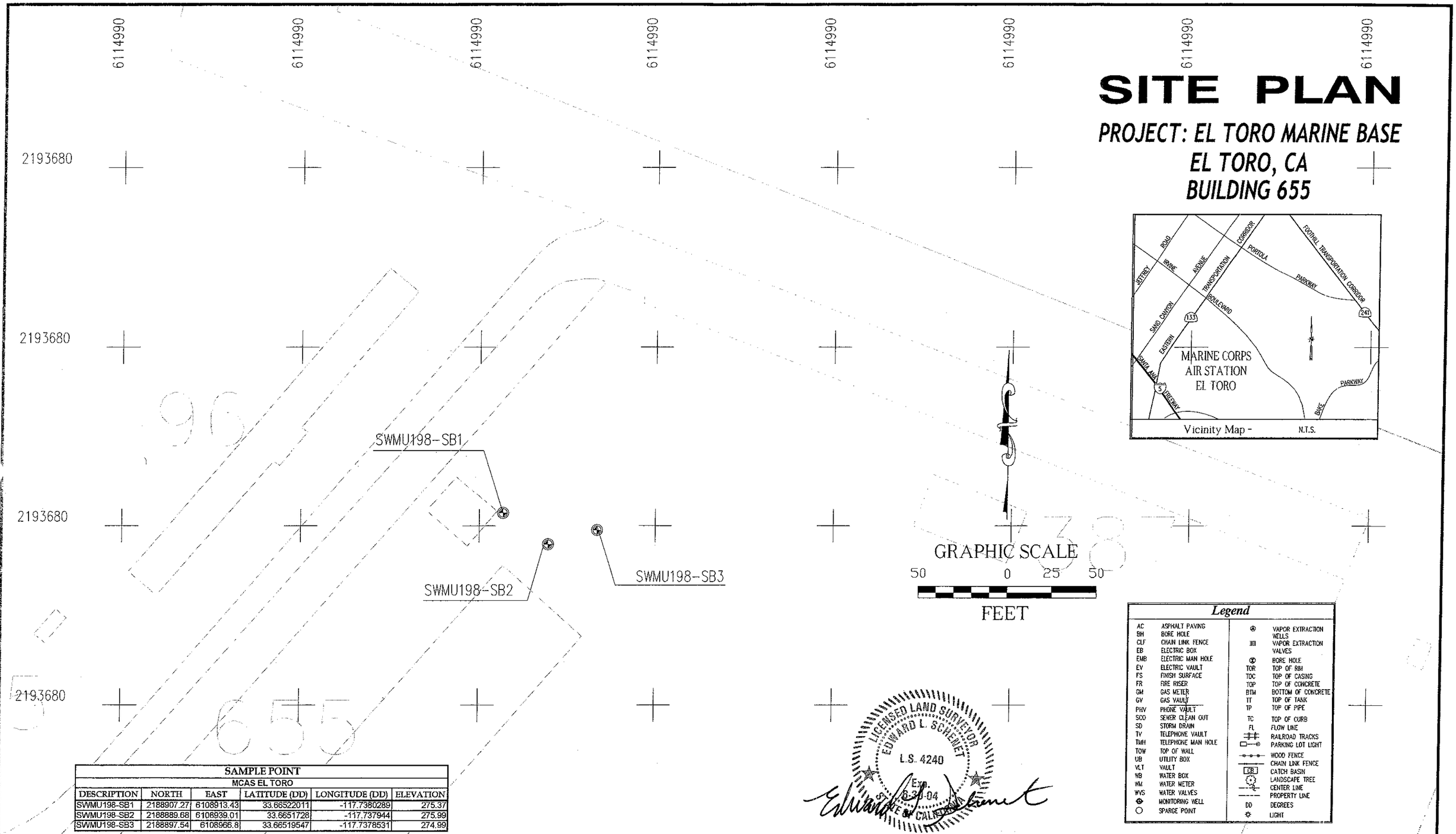
SOIL BORINGS SURVEY DATA AND MAP

SAMPLE POINT					
MCAS EL TORO					
DESCRIPTION	NORTH	EAST	LATITUDE (DD)	LONGITUDE (DD)	ELEVATION
SWMU198-SB1	2188907.27	6108913.43	33.6652201	-117.7380289	275.37
SWMU198-SB2	2188889.68	6108939.01	33.6651728	-117.7379440	275.99
SWMU198-SB3	2188897.54	6108966.80	33.6651955	-117.7378531	274.99

02359-655ACAD.xls

SITE PLAN

PROJECT: EL TORO MARINE BASE
EL TORO, CA
BUILDING 655



SAMPLE POINT					
MCAS EL TORO					
DESCRIPTION	NORTH	EAST	LATITUDE (DD)	LONGITUDE (DD)	ELEVATION
SWMU198-SB1	2188907.27	6108913.43	33.66522011	-117.7380289	275.37
SWMU198-SB2	2188889.68	6108939.01	33.6651728	-117.737944	275.99
SWMU198-SB3	2188897.54	6108966.8	33.66519547	-117.7378531	274.99

Legend

AC	ASPHALT PAVING		VAPOR EXTRACTION WELLS
BH	BORE HOLE		VAPOR EXTRACTION VALVES
CLF	CHAIN LINK FENCE		BORE HOLE
EB	ELECTRIC BOX	TOR	TOP OF RIM
EMB	ELECTRIC MAN HOLE	TOC	TOP OF CASING
EV	ELECTRIC VAULT	TOP	TOP OF CONCRETE
FS	FINISH SURFACE	BTM	BOTTOM OF CONCRETE
FR	FIRE RISER	TT	TOP OF TANK
GM	GAS METER	TP	TOP OF PIPE
GV	GAS VAULT		
PHV	PHONE VAULT		
SCO	SEWER CLEAN OUT	TC	TOP OF CURB
SD	STORM DRAIN	FL	FLOW LINE
TV	TELEPHONE VAULT		RAILROAD TRACKS
TMH	TELEPHONE MAN HOLE		PARKING LOT LIGHT
TOW	TOP OF WALL		WOOD FENCE
UB	UTILITY BOX		CHAIN LINK FENCE
VLT	VAULT	CB	CATCH BASIN
WB	WATER BOX		LANDSCAPE TREE
WM	WATER METER		CENTER LINE
WVS	WATER VALVES		PROPERTY LINE
	MONITORING WELL	DD	DEGREES
	SPARGE POINT		LIGHT

LICENSED LAND SURVEYOR
EDWARD L. SCHENET
L.S. 4240
Exp. 6-30-04
STATE OF CALIFORNIA

DATE OF SURVEY
AUGUST 6 2003

BENCH MARK
THE ELEVATIONS SHOWN HEREON ARE BASED UPON ORANGE COUNTY SURVEYORS MONUMENT NO.: 3E-113-90 ELEVATION = 410.860 Feet (NGVD 29)

COORDINATES
THE COORDINATES SHOWN HEREON ARE BASED UPON THE STATE PLANE COORDINATE SYSTEM (NAD83), CALIFORNIA ZONE VI.

PREPARED FOR
GEOFON
22632 GOLDEN SPRINGS DR
SUITE 270
DIAMOND BAR CA 91765
PHONE: (909) 396-7662
FAX: (909) 396-1455

NO.	DATE	REVISIONS	BY
0	7-8-03	SUBMITTAL	HBC

CAL VADA SURVEYING, INC.
Los Angeles · San Francisco · Denver · Phoenix
108 Business Center Drive Phone: (909) 280-9960
Corona, CA 92880-1782 Fax: (909) 280-9746
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JOB NO. 02359-655

SHEET 1 OF 1

APPENDIX E

LABORATORY REPORTS AND CHAIN-OF-CUSTODY RECORDS

GEOFON INCORPORATED
22632 GOLDEN SPRINGS DR., SUITE 270
DIAMOND BAR, CA 91765 • (909) 396-7662 • FAX (909) 396-1455

CHAIN-OF-CUSTODY RECORD

759-SB-1
BI 759

PROJECT DATA MANAGER'S COPY

GEOFON's LAB COORDINATOR: Leo W. Williamson	LAB COORDINATOR'S PHONE: (909) 396-7662	LAB COORDINATOR'S FAX: (909) 396-1455	LABORATORY SERVICE ID: 03-06564	LABORATORY CONTACT: Tina Green	MAIL REPORT (COMPANY NAME): GEOFON INC
PROJECT NAME: UST Site Investigation	PROJECT LOCATION: UST S.10 759	PROJECT NUMBER: 04-4432.10	LABORATORY PHONE: (661) 327-9911	LABORATORY FAX: (661) 327-1918	RECIPIENT NAME: Leo W. Williamson
PROJECT CONTACT: Leo W. Williamson	PROJECT PHONE NUMBER: (714) 920-8729	PROJECT FAX: (909) 396-1455	LABORATORY ADDRESS: 4100 Atlas Ct.		ADDRESS: 22632 Golden Springs Dr. #270
PROJECT ADDRESS: MCAS-El Toro	CITY, STATE AND ZIPCODE: Irvine, CA	CLIENT: US NAVY SWDIV	CITY, STATE AND ZIPCODE: Bakersfield, CA 93308		CITY, STATE AND ZIPCODE: Diamond Bar, CA 91765
PROJECT MANAGER: Asim Faheem	PROJECT MANAGER'S PHONE: (909) 396-7662	PROJECT MANAGER'S FAX: (909) 396-1455			

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	T.A.T.	Analyses: 5035/8260B (VOC)	Analyses: 8015 mod (TPH-G)	Analyses: 8310 (SPCP)	Comments
1	759-SB-1-5'	SOIL	7/15/03	1140	X KNAE	3-1 -1	III	NORMAL	X	X		*: 5035 Kit
2	759-SB-1-10'			1145					X	X		1: 2"x6" SOIL TUBE
3	759-SB-1-15'			1150					X	X		NOTE: Run the ~~highest~~ sample with the highest concentration with 8015 (SPCP) Method for this chain ONLY!
4	759-SB-1-20'			1155					X	X		
5	759-SB-1-25'			1210					X	X		
6	~~759-SB-1-30'~~								~~X~~	~~X~~		
7												
8	759-DUPE-#9	SOIL	7/15/03	—	X KNAE	3-1 -1	IV	NORMAL	X	X		DUPLICATE SAMPLE
9												
10												

SAMPLES COLLECTED BY: Leo W. Williamson
COURIER AND AIR BILL NUMBER:
COOLER TEMPERATURE UPON RECEIPT:

RELINQUISHED BY	RECEIVED BY	DATE	TIME	SAMPLE'S CONDITION UPON RECEIPT
Leo W. Williamson	[illegible], Lee	7/15/03	1545	

Distribution: White - Laboratory (To be returned with Analytical Report); Goldenrod - Project File; Yellow - Project Data Manager

Project Information Section
For Project Personnel Only
Do Not Submit to Laboratory

Sample Point Location	Sample Type: G	C	F	QC
			X	
			X	
			X	
			X	
			X	
			X	
759-DUPE-9 is a dupe of 759-SB-1-20'				X

Comments

Sample Type: G - Grab, C - Composite, F - Field Sample, QC - Quality Control Sample

BC Laboratories, Inc

GEOFON
22632 GOLDEN SPRINGS DRIVE, SUITE 270
DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Volatile Organic Analysis (EPA Method 8260)

COC Number	---		
Project Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Sampling Location	MCAS EL TORO	**Sampling Date/Time**	07/15/2003 @ 11:40
Sampling Point	759-SB-1-5'	**Sample Depth**	---
Sampled By	LEO W. WILLIAMSON	**Sample Matrix**	Soil
		BCL Sample ID	03-06564-1

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	None Detected	mg/kg	0.01	0.00043	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Bromodichloromethane	None Detected	mg/kg	0.01	0.00043	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Bromoform	None Detected	mg/kg	0.05	0.00020	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Bromomethane	None Detected	mg/kg	0.03	0.00097	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Carbon tetrachloride	None Detected	mg/kg	0.01	0.00030	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Chlorobenzene	None Detected	mg/kg	0.01	0.00034	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Chloroethane	None Detected	mg/kg	0.03	0.00090	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Chloroform	None Detected	mg/kg	0.01	0.00033	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Chloromethane	None Detected	mg/kg	0.03	0.00067	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Dibromochloromethane	None Detected	mg/kg	0.01	0.00038	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
1,1-Dichloroethane	None Detected	mg/kg	0.01	0.00032	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
1,2-Dichloroethane	None Detected	mg/kg	0.01	0.00029	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
1,1-Dichloroethene	None Detected	mg/kg	0.01	0.00042	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
cis-1,2-Dichloroethene	None Detected	mg/kg	0.01	0.00032	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
trans-1,2-Dichloroethene	None Detected	mg/kg	0.01	0.00059	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
1,2-Dichloropropane	None Detected	mg/kg	0.01	0.00030	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
cis-1,3-Dichloropropene	None Detected	mg/kg	0.01	0.00021	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
trans-1,3-Dichloropropene	None Detected	mg/kg	0.01	0.00020	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Ethylbenzene	None Detected	mg/kg	0.01	0.00036	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Methylene chloride	0.00090	mg/kg	0.05	0.00077	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Styrene	None Detected	mg/kg	0.01	0.00035	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	R01
1,1,2,2-Tetrachloroethane	None Detected	mg/kg	0.01	0.00034	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Tetrachloroethene	0.00047	mg/kg	0.01	0.00032	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	R01

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BC Laboratories, Inc

Volatile Organic Analysis (EPA Method 8260)

Sample Description MCAS EL TORO, 759-SB-1-5', 07/15/2003 @ 11:40, LEO W. WILLIAMSON

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Toluene	None Detected	mg/kg	0.01	0.00048	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
1,1,1-Trichloroethane	None Detected	mg/kg	0.01	0.00029	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
1,1,2-Trichloroethane	None Detected	mg/kg	0.01	0.00036	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Trichloroethene	None Detected	mg/kg	0.01	0.00051	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Vinyl chloride	None Detected	mg/kg	0.03	0.0011	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Total Xylenes	None Detected	mg/kg	0.01	0.0013	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Acetone	0.014	mg/kg	0.03	0.0014	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
t-Amyl Methyl ether	None Detected	mg/kg	0.003	0.00014	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	377-100344	0.013	R11,R01,V11
t-Butyl alcohol	None Detected	mg/kg	0.2	0.0036	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	377-100344	ND	
Carbon disulfide	None Detected	mg/kg	0.05	0.00017	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	377-100344	ND	
Diisopropyl ether	None Detected	mg/kg	0.003	0.00011	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	377-100344	ND	
Ethyl t-butyl ether	None Detected	mg/kg	0.003	0.00018	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	377-100344	ND	
2-Hexanone	None Detected	mg/kg	0.05	0.0011	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	377-100344	ND	
Methyl ethyl ketone	0.0022	mg/kg	0.006	0.00056	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	377-100344	ND	V11
Methyl isobutyl ketone	None Detected	mg/kg	0.006	0.00040	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	377-100344	ND	R11,R01
Methyl t-butyl ether	None Detected	mg/kg	0.01	0.00047	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	377-100344	ND	R11
Vinyl acetate	None Detected	mg/kg	0.006	0.00078	8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373	ND	
Surrogate Compounds	**Result**	**Units**	**Control Limits**		**Method**	**Prep Date**	**Run Date**	**Run Time**	**Analyst**	**Instrument ID**	**Dilution**	**QC Batch ID**	**MB Bias**	**Lab Quals**
1,2-Dichloroethane-d4	116	%	70-121		8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	377-100344	ND	R11
Toluene-d8	103	%	81-117		8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373		
4-Bromofluorobenzene	100	%	74-121		8260	07/22/03	07/22/03	23:33	SNM	MS-V8	0.54	376-100373		

Flag	Explanations
R01	The sample result is between the MDL and PQL.
R11	Per client request the reported PQL is less than the laboratory PQL but above the laboratory MDL.
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Comments

Prepared by EPA Method 5035.

California DOHS Certification #1186

All results listed in this report are for the exclusive use of the submitting party. BC Laboratories, Inc. assumes no responsibility for report alteration, separation, detachment or third party interpretation.

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BC Laboratories, Inc
GEOFON
22632 GOLDEN SPRINGS DRIVE, SUITE 270
DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Volatile Organic Analysis (EPA Method 8260)

COC Number	---		
Project Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Sampling Location	MCAS EL TORO	**Sampling Date/Time**	07/15/2003 @ 11:45
Sampling Point	759-SB-1-10'	**Sample Depth**	---
Sampled By	LEO W. WILLIAMSON	**Sample Matrix**	Soil
		BCL Sample ID	03-06564-2

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	None Detected	mg/kg	0.01	0.00046	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Bromodichloromethane	None Detected	mg/kg	0.01	0.00045	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Bromoform	None Detected	mg/kg	0.05	0.00021	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Bromomethane	None Detected	mg/kg	0.03	0.0011	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Carbon tetrachloride	None Detected	mg/kg	0.01	0.00031	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Chlorobenzene	None Detected	mg/kg	0.01	0.00036	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Chloroethane	None Detected	mg/kg	0.03	0.00095	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Chloroform	None Detected	mg/kg	0.01	0.00035	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Chloromethane	None Detected	mg/kg	0.03	0.00071	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Dibromochloromethane	None Detected	mg/kg	0.01	0.00040	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
1,1-Dichloroethane	None Detected	mg/kg	0.01	0.00034	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
1,2-Dichloroethane	None Detected	mg/kg	0.01	0.00030	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
1,1-Dichloroethene	None Detected	mg/kg	0.01	0.00044	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
cis-1,2-Dichloroethene	None Detected	mg/kg	0.01	0.00034	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
trans-1,2-Dichloroethene	None Detected	mg/kg	0.01	0.00062	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
1,2-Dichloropropane	None Detected	mg/kg	0.01	0.00032	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
cis-1,3-Dichloropropene	None Detected	mg/kg	0.01	0.00022	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
trans-1,3-Dichloropropene	None Detected	mg/kg	0.01	0.00021	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Ethylbenzene	None Detected	mg/kg	0.01	0.00038	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Methylene chloride	None Detected	mg/kg	0.05	0.00082	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Styrene	None Detected	mg/kg	0.01	0.00037	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
1,1,2,2-Tetrachloroethane	None Detected	mg/kg	0.01	0.00036	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Tetrachloroethene	0.00086	mg/kg	0.01	0.00034	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	R01

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BC Laboratories, Inc

Volatile Organic Analysis (EPA Method 8260)

Sample Description MCAS EL TORO, 759-SB-1-10', 07/15/2003 @ 11:45, LEO W. WILLIAMSON

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Toluene	None Detected	mg/kg	0.01	0.00051	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
1,1,1-Trichloroethane	None Detected	mg/kg	0.01	0.00030	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
1,1,2-Trichloroethane	None Detected	mg/kg	0.01	0.00038	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Trichloroethene	None Detected	mg/kg	0.01	0.00054	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Vinyl chloride	None Detected	mg/kg	0.03	0.0012	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Total Xylenes	None Detected	mg/kg	0.01	0.0014	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Acetone	0.059	mg/kg	0.03	0.0015	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
t-Amyl Methyl ether	None Detected	mg/kg	0.003	0.00014	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	377-100344	0.014	R11,V11
t-Butyl alcohol	0.0045	mg/kg	0.2	0.0038	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	377-100344	ND	
Carbon disulfide	None Detected	mg/kg	0.05	0.00018	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	377-100344	ND	R01
Diisopropyl ether	None Detected	mg/kg	0.003	0.00011	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	377-100344	ND	
Ethyl t-butyl ether	None Detected	mg/kg	0.003	0.00019	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	377-100344	ND	
2-Hexanone	None Detected	mg/kg	0.05	0.0012	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	377-100344	ND	
Methyl ethyl ketone	0.0080	mg/kg	0.006	0.00059	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	377-100344	ND	V11
Methyl isobutyl ketone	None Detected	mg/kg	0.006	0.00042	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	377-100344	ND	R11
Methyl t-butyl ether	None Detected	mg/kg	0.01	0.00050	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	377-100344	ND	R11
Vinyl acetate	None Detected	mg/kg	0.006	0.00082	8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373	ND	
Surrogate Compounds	**Result**	**Units**	**Control Limits**		**Method**	**Prep Date**	**Run Date**	**Run Time**	**Analyst**	**Instrument ID**	**Dilution**	**QC Batch ID**	**MB Bias**	**Lab Quals**
1,2-Dichloroethane-d4	119	%	70-121		8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373		
Toluene-d8	100	%	81-117		8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373		
4-Bromofluorobenzene	90	%	74-121		8260	07/23/03	07/23/03	00:01	SNM	MS-V8	0.57	376-100373		

Flag	Explanations
R01	The sample result is between the MDL and PQL.
R11	Per client request the reported PQL is less than the laboratory PQL but above the laboratory MDL.
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Comments

Prepared by EPA Method 5035.

California DOHS Certification #1186

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BC Laboratories, Inc

GEOFON
22632 GOLDEN SPRINGS DRIVE, SUITE 270
DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Volatile Organic Analysis (EPA Method 8260)

COC Number	---		
Project Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Sampling Location	MCAS EL TORO	**Sampling Date/Time**	07/15/2003 @ 11:50
Sampling Point	759-SB-1-15'	**Sample Depth**	---
Sampled By	LEO W. WILLIAMSON	**Sample Matrix**	Soil
		BCL Sample ID	03-06564-3

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	0.00091	mg/kg	0.01	0.00043	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	R01
Bromodichloromethane	None Detected	mg/kg	0.01	0.00043	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Bromoform	None Detected	mg/kg	0.05	0.00020	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Bromomethane	None Detected	mg/kg	0.03	0.00097	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Carbon tetrachloride	None Detected	mg/kg	0.01	0.00030	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Chlorobenzene	None Detected	mg/kg	0.01	0.00034	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Chloroethane	None Detected	mg/kg	0.03	0.00090	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Chloroform	None Detected	mg/kg	0.01	0.00033	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Chloromethane	None Detected	mg/kg	0.03	0.00067	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Dibromochloromethane	None Detected	mg/kg	0.01	0.00038	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
1,1-Dichloroethane	None Detected	mg/kg	0.01	0.00032	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
1,2-Dichloroethane	None Detected	mg/kg	0.01	0.00029	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
1,1-Dichloroethene	None Detected	mg/kg	0.01	0.00042	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
cis-1,2-Dichloroethene	None Detected	mg/kg	0.01	0.00032	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
trans-1,2-Dichloroethene	None Detected	mg/kg	0.01	0.00059	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
1,2-Dichloropropane	None Detected	mg/kg	0.01	0.00030	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
cis-1,3-Dichloropropene	None Detected	mg/kg	0.01	0.00021	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
trans-1,3-Dichloropropene	None Detected	mg/kg	0.01	0.00020	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Ethylbenzene	None Detected	mg/kg	0.01	0.00036	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Methylene chloride	None Detected	mg/kg	0.05	0.00077	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Styrene	None Detected	mg/kg	0.01	0.00035	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
1,1,2,2-Tetrachloroethane	None Detected	mg/kg	0.01	0.00034	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Tetrachloroethene	None Detected	mg/kg	0.01	0.00032	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	

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Volatile Organic Analysis (EPA Method 8260)

Sample Description MCAS EL TORO, 759-SB-1-15', 07/15/2003 @ 11:50, LEO W. WILLIAMSON

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Toluene	0.00094	mg/kg	0.01	0.00048	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	R01
1,1,1-Trichloroethane	None Detected	mg/kg	0.01	0.00029	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
1,1,2-Trichloroethane	None Detected	mg/kg	0.01	0.00036	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Trichloroethene	None Detected	mg/kg	0.01	0.00051	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Vinyl chloride	None Detected	mg/kg	0.03	0.0011	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Total Xylenes	None Detected	mg/kg	0.01	0.0013	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Acetone	0.016	mg/kg	0.03	0.0014	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	377-100344	0.013	R11,R01,V11
t-Amyl Methyl ether	None Detected	mg/kg	0.003	0.00014	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	377-100344	ND	
t-Butyl alcohol	None Detected	mg/kg	0.2	0.0036	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	377-100344	ND	
Carbon disulfide	None Detected	mg/kg	0.05	0.00017	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	377-100344	ND	
Diisopropyl ether	None Detected	mg/kg	0.003	0.00011	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	377-100344	ND	
Ethyl t-butyl ether	None Detected	mg/kg	0.003	0.00018	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	377-100344	ND	
2-Hexanone	None Detected	mg/kg	0.05	0.0011	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	377-100344	ND	
Methyl ethyl ketone	0.0020	mg/kg	0.006	0.00056	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	377-100344	ND	V11
Methyl isobutyl ketone	None Detected	mg/kg	0.006	0.00040	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	377-100344	ND	R11,R01
Methyl t-butyl ether	None Detected	mg/kg	0.01	0.00047	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	377-100344	ND	R11
Vinyl acetate	None Detected	mg/kg	0.006	0.00078	8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373	ND	
Surrogate Compounds	**Result**	**Units**	**Control Limits**		**Method**	**Prep Date**	**Run Date**	**Run Time**	**Analyst**	**Instrument ID**	**Dilution**	**QC Batch ID**	**MB Bias**	**Lab Quals**
1,2-Dichloroethane-d4	119	%	70-121		8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	377-100344	ND	R11
Toluene-d8	104	%	81-117		8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373		
4-Bromofluorobenzene	102	%	74-121		8260	07/23/03	07/23/03	00:30	SNM	MS-V8	0.54	376-100373		

Flag	Explanations
R01	The sample result is between the MDL and PQL.
R11	Per client request the reported PQL is less than the laboratory PQL but above the laboratory MDL.
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Comments

Prepared by EPA Method 5035.

California DOHS Certification #1186

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22632 GOLDEN SPRINGS DRIVE, SUITE 270
DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Volatile Organic Analysis (EPA Method 8260)

COC Number	---		
Project Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Sampling Location	MCAS EL TORO	**Sampling Date/Time**	07/15/2003 @ 11:55
Sampling Point	759-SB-1-20'	**Sample Depth**	---
Sampled By	LEO W. WILLIAMSON	**Sample Matrix**	Soil
		BCL Sample ID	03-06564-4

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	None Detected	mg/kg	0.01	0.00043	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Bromodichloromethane	None Detected	mg/kg	0.01	0.00042	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Bromoform	None Detected	mg/kg	0.05	0.00019	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Bromomethane	None Detected	mg/kg	0.03	0.00095	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Carbon tetrachloride	None Detected	mg/kg	0.01	0.00029	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Chlorobenzene	None Detected	mg/kg	0.01	0.00033	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Chloroethane	None Detected	mg/kg	0.03	0.00089	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Chloroform	None Detected	mg/kg	0.01	0.00032	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Chloromethane	None Detected	mg/kg	0.03	0.00066	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Dibromochloromethane	None Detected	mg/kg	0.01	0.00037	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
1,1-Dichloroethane	None Detected	mg/kg	0.01	0.00032	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
1,2-Dichloroethane	None Detected	mg/kg	0.01	0.00028	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
1,1-Dichloroethene	None Detected	mg/kg	0.01	0.00041	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
cis-1,2-Dichloroethene	None Detected	mg/kg	0.01	0.00031	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
trans-1,2-Dichloroethene	None Detected	mg/kg	0.01	0.00058	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
1,2-Dichloropropane	None Detected	mg/kg	0.01	0.00030	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
cis-1,3-Dichloropropene	None Detected	mg/kg	0.01	0.00020	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
trans-1,3-Dichloropropene	None Detected	mg/kg	0.01	0.00020	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Ethylbenzene	None Detected	mg/kg	0.01	0.00035	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Methylene chloride	None Detected	mg/kg	0.05	0.00076	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Styrene	None Detected	mg/kg	0.01	0.00034	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
1,1,2,2-Tetrachloroethane	None Detected	mg/kg	0.01	0.00033	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Tetrachloroethene	None Detected	mg/kg	0.01	0.00032	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	

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BC Laboratories, Inc

Volatile Organic Analysis (EPA Method 8260)

Sample Description MCAS EL TORO, 759-SB-1-20', 07/15/2003 @ 11:55, LEO W. WILLIAMSON

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Toluene	None Detected	mg/kg	0.01	0.00047	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
1,1,1-Trichloroethane	None Detected	mg/kg	0.01	0.00028	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
1,1,2-Trichloroethane	None Detected	mg/kg	0.01	0.00035	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Trichloroethene	None Detected	mg/kg	0.01	0.00050	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Vinyl chloride	None Detected	mg/kg	0.03	0.0011	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Total Xylenes	None Detected	mg/kg	0.01	0.0013	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	
Acetone	0.011	mg/kg	0.03	0.0014	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	377-100344	0.013	R11,R01,V11
t-Amyl Methyl ether	None Detected	mg/kg	0.003	0.00013	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	377-100344	ND	
t-Butyl alcohol	None Detected	mg/kg	0.2	0.0036	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	377-100344	ND	
Carbon disulfide	None Detected	mg/kg	0.05	0.00017	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	377-100344	ND	
Diisopropyl ether	None Detected	mg/kg	0.003	0.000099	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	377-100344	ND	
Ethyl t-butyl ether	None Detected	mg/kg	0.003	0.00018	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	377-100344	ND	
2-Hexanone	None Detected	mg/kg	0.05	0.0011	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	377-100344	ND	
Methyl ethyl ketone	0.0018	mg/kg	0.006	0.00055	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	377-100344	ND	V11
Methyl isobutyl ketone	None Detected	mg/kg	0.006	0.00039	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	377-100344	ND	R11,R01
Methyl t-butyl ether	None Detected	mg/kg	0.01	0.00047	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373	ND	R11
Vinyl acetate	None Detected	mg/kg	0.006	0.00077	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	377-100344	ND	R11

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
1,2-Dichloroethane-d4	120	%	70-121	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373		
Toluene-d8	104	%	81-117	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373		
4-Bromofluorobenzene	105	%	74-121	8260	07/23/03	07/23/03	00:59	SNM	MS-V8	0.53	376-100373		

Flag	Explanations
R01	The sample result is between the MDL and PQL.
R11	Per client request the reported PQL is less than the laboratory PQL but above the laboratory MDL.
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Comments

Prepared by EPA Method 5035.

California DOHS Certification #1186

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GEOFON
22632 GOLDEN SPRINGS DRIVE, SUITE 270
DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Volatile Organic Analysis (EPA Method 8260)

COC Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Project Number	---	**Sampling Date/Time**	07/15/2003 @ 12:10
Sampling Location	MCAS EL TORO	**Sample Depth**	---
Sampling Point	759-SB-1-25'	**Sample Matrix**	Soil
Sampled By	LEO W. WILLIAMSON	**BCL Sample ID**	03-06564-5

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	None Detected	mg/kg	0.01	0.00042	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
Bromodichloromethane	None Detected	mg/kg	0.01	0.00041	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
Bromoform	None Detected	mg/kg	0.05	0.00019	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	
Bromomethane	None Detected	mg/kg	0.03	0.00093	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
Carbon tetrachloride	None Detected	mg/kg	0.01	0.00028	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
Chlorobenzene	None Detected	mg/kg	0.01	0.00033	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	
Chloroethane	None Detected	mg/kg	0.03	0.00087	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
Chloroform	None Detected	mg/kg	0.01	0.00032	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
Chloromethane	None Detected	mg/kg	0.03	0.00064	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
Dibromochloromethane	None Detected	mg/kg	0.01	0.00037	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	
1,1-Dichloroethane	None Detected	mg/kg	0.01	0.00031	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
1,2-Dichloroethane	None Detected	mg/kg	0.01	0.00028	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
1,1-Dichloroethene	None Detected	mg/kg	0.01	0.00041	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
cis-1,2-Dichloroethene	None Detected	mg/kg	0.01	0.00031	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
trans-1,2-Dichloroethene	None Detected	mg/kg	0.01	0.00057	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
1,2-Dichloropropane	None Detected	mg/kg	0.01	0.00029	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
cis-1,3-Dichloropropene	None Detected	mg/kg	0.01	0.00020	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	
trans-1,3-Dichloropropene	None Detected	mg/kg	0.01	0.00019	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	
Ethylbenzene	None Detected	mg/kg	0.01	0.00035	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	
Methylene chloride	None Detected	mg/kg	0.05	0.00074	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
Styrene	None Detected	mg/kg	0.01	0.00034	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	
1,1,2,2-Tetrachloroethane	None Detected	mg/kg	0.01	0.00033	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	
Tetrachloroethene	None Detected	mg/kg	0.01	0.00031	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	

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Volatile Organic Analysis (EPA Method 8260)

Sample Description MCAS EL TORO, 759-SB-1-25', 07/15/2003 @ 12:10, LEO W. WILLIAMSON

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Toluene	None Detected	mg/kg	0.01	0.00046	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	
1,1,1-Trichloroethane	None Detected	mg/kg	0.01	0.00028	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
1,1,2-Trichloroethane	None Detected	mg/kg	0.01	0.00034	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	
Trichloroethene	None Detected	mg/kg	0.01	0.00049	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
Vinyl chloride	None Detected	mg/kg	0.03	0.0011	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
Total Xylenes	None Detected	mg/kg	0.01	0.0013	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	
Acetone	0.0056	mg/kg	0.03	0.0014	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	377-100344	0.013	R11,R01,S09,V11
t-Amyl Methyl ether	None Detected	mg/kg	0.003	0.00013	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	377-100344	ND	S09
t-Butyl alcohol	None Detected	mg/kg	0.2	0.0035	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	377-100344	ND	S09
Carbon disulfide	None Detected	mg/kg	0.05	0.00017	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	377-100344	ND	S09
Diisopropyl ether	None Detected	mg/kg	0.003	0.000097	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	377-100344	ND	S09
Ethyl t-butyl ether	None Detected	mg/kg	0.003	0.00017	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	377-100344	ND	S09
2-Hexanone	None Detected	mg/kg	0.05	0.0011	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	377-100344	ND	V11
Methyl ethyl ketone	None Detected	mg/kg	0.006	0.00054	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	377-100344	ND	R11,S09
Methyl isobutyl ketone	None Detected	mg/kg	0.006	0.00039	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	377-100344	ND	R11
Methyl t-butyl ether	None Detected	mg/kg	0.01	0.00046	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373	ND	S09
Vinyl acetate	None Detected	mg/kg	0.006	0.00075	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	377-100344	ND	R11,S09

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
1,2-Dichloroethane-d4	122	%	70-121	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373		S09
Toluene-d8	105	%	81-117	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373		
4-Bromofluorobenzene	104	%	74-121	8260	07/23/03	07/23/03	01:27	SNM	MS-V8	0.52	376-100373		

Flag	Explanations
R01	The sample result is between the MDL and PQL.
R11	Per client request the reported PQL is less than the laboratory PQL but above the laboratory MDL.
S09	The surrogate recovery on the sample for this compound was not within the control limits.
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Comments

Prepared by EPA Method 5035.

California DOHS Certification #1186

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DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Volatile Organic Analysis (EPA Method 8260)

COC Number	---		
Project Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Sampling Location	MCAS EL TORO	**Sampling Date/Time**	07/15/2003
Sampling Point	759-DUPE-9	**Sample Depth**	---
Sampled By	LEO W. WILLIAMSON	**Sample Matrix**	Soil
		BCL Sample ID	03-06564-6

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	None Detected	mg/kg	0.01	0.00047	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Bromodichloromethane	None Detected	mg/kg	0.01	0.00046	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Bromoform	None Detected	mg/kg	0.05	0.00021	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Bromomethane	None Detected	mg/kg	0.03	0.0011	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Carbon tetrachloride	None Detected	mg/kg	0.01	0.00032	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Chlorobenzene	None Detected	mg/kg	0.01	0.00036	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Chloroethane	None Detected	mg/kg	0.03	0.00097	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Chloroform	None Detected	mg/kg	0.01	0.00035	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Chloromethane	None Detected	mg/kg	0.03	0.00072	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Dibromochloromethane	None Detected	mg/kg	0.01	0.00041	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
1,1-Dichloroethane	None Detected	mg/kg	0.01	0.00035	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
1,2-Dichloroethane	None Detected	mg/kg	0.01	0.00031	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
1,1-Dichloroethene	None Detected	mg/kg	0.01	0.00045	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
cis-1,2-Dichloroethene	None Detected	mg/kg	0.01	0.00034	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
trans-1,2-Dichloroethene	None Detected	mg/kg	0.01	0.00063	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
1,2-Dichloropropane	None Detected	mg/kg	0.01	0.00032	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
cis-1,3-Dichloropropene	None Detected	mg/kg	0.01	0.00022	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
trans-1,3-Dichloropropene	None Detected	mg/kg	0.01	0.00021	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Ethylbenzene	None Detected	mg/kg	0.01	0.00038	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Methylene chloride	None Detected	mg/kg	0.05	0.00083	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Styrene	None Detected	mg/kg	0.01	0.00038	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
1,1,2,2-Tetrachloroethane	None Detected	mg/kg	0.01	0.00036	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Tetrachloroethene	None Detected	mg/kg	0.01	0.00035	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	

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Volatile Organic Analysis (EPA Method 8260)

Sample Description MCAS EL TORO, 759-DUPE-9, 07/15/2003, LEO W. WILLIAMSON

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Toluene	None Detected	mg/kg	0.01	0.00052	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
1,1,1-Trichloroethane	None Detected	mg/kg	0.01	0.00031	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
1,1,2-Trichloroethane	None Detected	mg/kg	0.01	0.00038	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Trichloroethene	None Detected	mg/kg	0.01	0.00055	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Vinyl chloride	None Detected	mg/kg	0.03	0.0012	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Total Xylenes	None Detected	mg/kg	0.01	0.0014	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Acetone	0.016	mg/kg	0.03	0.0015	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	377-100344	0.014	R11,R01,V11
t-Amyl Methyl ether	None Detected	mg/kg	0.003	0.00015	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	377-100344	ND	
t-Butyl alcohol	0.0040	mg/kg	0.2	0.0039	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	377-100344	ND	R01
Carbon disulfide	None Detected	mg/kg	0.05	0.00019	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	377-100344	ND	
Diisopropyl ether	None Detected	mg/kg	0.003	0.00011	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	377-100344	ND	
Ethyl t-butyl ether	None Detected	mg/kg	0.003	0.00019	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	377-100344	ND	
2-Hexanone	None Detected	mg/kg	0.05	0.0012	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	377-100344	ND	V11
Methyl ethyl ketone	0.0024	mg/kg	0.006	0.00060	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	377-100344	ND	R11,R01
Methyl isobutyl ketone	None Detected	mg/kg	0.006	0.00043	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	377-100344	ND	R11
Methyl t-butyl ether	None Detected	mg/kg	0.01	0.00051	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373	ND	
Vinyl acetate	None Detected	mg/kg	0.006	0.00084	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	377-100344	ND	R11

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
1,2-Dichloroethane-d4	116	%	70-121	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373		
Toluene-d8	105	%	81-117	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373		
4-Bromofluorobenzene	102	%	74-121	8260	07/23/03	07/23/03	01:56	SNM	MS-V8	0.58	376-100373		

Flag	Explanations
R01	The sample result is between the MDL and PQL.
R11	Per client request the reported PQL is less than the laboratory PQL but above the laboratory MDL.
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Comments

Prepared by EPA Method 5035.

California DOHS Certification #1186

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Attn: LEO W. WILLIAMSON

Volatile Organic Analysis (EPA Method 8260)

COC Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Project Number	---	**Sampling Date/Time**	07/15/2003 @ 11:50
Sampling Location	MCAS EL TORO	**Sample Depth**	---
Sampling Point	759-SB-1-15'	**Sample Matrix**	Soil
Sampled By	LEO W. WILLIAMSON	**BCL Sample ID**	03-06564-3SPLP

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Benzene	None Detected	mg/L	0.00050	0.00018	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Bromodichloromethane	None Detected	mg/L	0.00050	0.00018	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Bromoform	None Detected	mg/L	0.00050	0.00018	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Bromomethane	None Detected	mg/L	0.0010	0.00040	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	V11
Carbon tetrachloride	None Detected	mg/L	0.00050	0.00021	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Chlorobenzene	None Detected	mg/L	0.00050	0.00021	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Chloroethane	None Detected	mg/L	0.00050	0.00017	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Chloroform	None Detected	mg/L	0.00050	0.00016	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Chloromethane	None Detected	mg/L	0.00050	0.00019	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Dibromochloromethane	None Detected	mg/L	0.00050	0.00014	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
1,1-Dichloroethane	None Detected	mg/L	0.00050	0.00018	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
1,2-Dichloroethane	None Detected	mg/L	0.00050	0.00018	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
1,1-Dichloroethene	None Detected	mg/L	0.00050	0.00017	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
cis-1,2-Dichloroethene	None Detected	mg/L	0.00050	0.00017	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
trans-1,2-Dichloroethene	None Detected	mg/L	0.00050	0.00018	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
1,2-Dichloropropane	None Detected	mg/L	0.00050	0.00014	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
cis-1,3-Dichloropropene	None Detected	mg/L	0.00050	0.00015	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
trans-1,3-Dichloropropene	None Detected	mg/L	0.00050	0.00013	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Ethylbenzene	None Detected	mg/L	0.00050	0.00018	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Methylene chloride	0.0025	mg/L	0.0010	0.00011	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Styrene	None Detected	mg/L	0.00050	0.00021	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
1,1,2,2-Tetrachloroethane	None Detected	mg/L	0.00050	0.00026	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Tetrachloroethene	None Detected	mg/L	0.00050	0.00017	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	

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BC Laboratories, Inc

Volatile Organic Analysis (EPA Method 8260)

Sample Description MCAS EL TORO, 759-SB-1-15', 07/15/2003 @ 11:50, LEO W. WILLIAMSON

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Toluene	None Detected	mg/L	0.00050	0.00018	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
1,1,1-Trichloroethane	None Detected	mg/L	0.00050	0.00016	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
1,1,2-Trichloroethane	None Detected	mg/L	0.00050	0.00018	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Trichloroethene	None Detected	mg/L	0.00050	0.00015	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Vinyl chloride	None Detected	mg/L	0.00050	0.00024	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Total Xylenes	None Detected	mg/L	0.0010	0.00062	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Acetone	None Detected	mg/L	0.020	0.0069	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
t-Amyl Methyl ether	None Detected	mg/L	0.0010	0.00029	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	320-100439	ND	
t-Butyl alcohol	None Detected	mg/L	0.012	0.0031	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	320-100439	ND	
Carbon disulfide	None Detected	mg/L	0.0010	0.00068	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	320-100439	ND	
Diisopropyl ether	None Detected	mg/L	0.0010	0.00023	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	320-100439	ND	
Ethyl t-butyl ether	None Detected	mg/L	0.0010	0.00032	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	320-100439	ND	
2-Hexanone	None Detected	mg/L	0.020	0.0071	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	320-100439	ND	
Methyl ethyl ketone	None Detected	mg/L	0.020	0.0039	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	320-100439	ND	
Methyl isobutyl ketone	None Detected	mg/L	0.020	0.0032	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	320-100439	ND	
Methyl t-butyl ether	None Detected	mg/L	0.00050	0.00017	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470	ND	
Vinyl acetate	None Detected	mg/L	0.020	0.0071	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	320-100439	ND	V11,S05

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
1,2-Dichloroethane-d4	111	%	76-114	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470		
Toluene-d8	102	%	88-110	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470		
4-Bromofluorobenzene	99	%	86-115	8260	07/28/03	07/31/03	20:50	LAM	MS-V4	1	319-100470		

Flag	Explanations
S05	The sample holding time was exceeded.
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Comments

Methylene Chloride in SPLP PB at 0.0014mg/L.

California DOHS Certification #1186

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GEOFON
22632 GOLDEN SPRINGS DRIVE, SUITE 270
DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Purgeable Aromatics and Total Petroleum Hydrocarbons

COC Number	---		
Project Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Sampling Location	MCAS EL TORO	**Sampling Date/Time**	07/15/2003 @ 11:40
Sampling Point	759-SB-1-5'	**Sample Depth**	---
Sampled By	LEO W. WILLIAMSON	**Sample Matrix**	Soil
		BCL Sample ID	03-06564-1

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics	None Detected	mg/kg	0.7	0.029	8015M	07/25/03	07/25/03	15:46	TLF	GC-V8	0.63	302-100398	ND	

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
a,a,a-Trifluorotoluene (8015 Surrogate)	93	%	70-130	8015M	07/25/03	07/25/03	15:46	TLF	GC-V8	0.63	302-100398		

Comments
Prepared by EPA Method 5035.

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Attn: LEO W. WILLIAMSON

Purgeable Aromatics and Total Petroleum Hydrocarbons

COC Number	---		
Project Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Sampling Location	MCAS EL TORO	**Sampling Date/Time**	07/15/2003 @ 11:45
Sampling Point	759-SB-1-10'	**Sample Depth**	---
Sampled By	LEO W. WILLIAMSON	**Sample Matrix**	Soil
		BCL Sample ID	03-06564-2

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics	0.054	mg/kg	0.7	0.031	8015M	07/26/03	07/26/03	00:24	TLF	GC-V8	0.66	302-100398	ND	R01,V11

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
a,a,a-Trifluorotoluene (8015 Surrogate)	98	%	70-130	8015M	07/26/03	07/26/03	00:24	TLF	GC-V8	0.66	302-100398		

Flag	Explanations
R01	The sample result is between the MDL and PQL.
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Comments

Prepared by EPA Method 5035.

California DOHS Certification #1186

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DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Purgeable Aromatics and Total Petroleum Hydrocarbons

COC Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Project Number	---	**Sampling Date/Time**	07/15/2003 @ 11:50
Sampling Location	MCAS EL TORO	**Sample Depth**	---
Sampling Point	759-SB-1-15'	**Sample Matrix**	Soil
Sampled By	LEO W. WILLIAMSON	**BCL Sample ID**	03-06564-3

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics	None Detected	mg/kg	0.6	0.028	8015M	07/26/03	07/26/03	00:53	TLF	GC-V8	0.6	302-100398	ND	V11

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
a,a,a-Trifluorotoluene (8015 Surrogate)	108	%	70-130	8015M	07/26/03	07/26/03	00:53	TLF	GC-V8	0.6	302-100398		

Flag	Explanations
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Comments

Prepared by EPA Method 5035.

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Attn: LEO W. WILLIAMSON

Purgeable Aromatics and Total Petroleum Hydrocarbons

COC Number	---		
Project Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Sampling Location	MCAS EL TORO	**Sampling Date/Time**	07/15/2003 @ 11:55
Sampling Point	759-SB-1-20'	**Sample Depth**	---
Sampled By	LEO W. WILLIAMSON	**Sample Matrix**	Soil
		BCL Sample ID	03-06564-4

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics	0.025	mg/kg	0.6	0.024	8015M	07/26/03	07/26/03	01:22	TLF	GC-V8	0.51	302-100398	ND	R01,V11

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
a,a,a-Trifluorotoluene (8015 Surrogate)	100	%	70-130	8015M	07/26/03	07/26/03	01:22	TLF	GC-V8	0.51	302-100398		

Flag	Explanations
R01	The sample result is between the MDL and PQL.
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Comments

Prepared by EPA Method 5035.

California DOHS Certification #1186

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GEOFON
22632 GOLDEN SPRINGS DRIVE, SUITE 270
DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Purgeable Aromatics and Total Petroleum Hydrocarbons

COC Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Project Number	---	**Sampling Date/Time**	07/15/2003 @ 12:10
Sampling Location	MCAS EL TORO	**Sample Depth**	---
Sampling Point	759-SB-1-25'	**Sample Matrix**	Soil
Sampled By	LEO W. WILLIAMSON	**BCL Sample ID**	03-06564-5

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics	0.029	mg/kg	0.5	0.023	8015M	07/26/03	07/26/03	02:19	TLF	GC-V8	0.49	302-100398	ND	R01,V11

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
a,a,a-Trifluorotoluene (8015 Surrogate)	92	%	70-130	8015M	07/26/03	07/26/03	02:19	TLF	GC-V8	0.49	302-100398		

Flag	Explanations
R01	The sample result is between the MDL and PQL.
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Comments

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Attn: LEO W. WILLIAMSON

Purgeable Aromatics and Total Petroleum Hydrocarbons

COC Number	---		
Project Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Sampling Location	MCAS EL TORO	**Sampling Date/Time**	07/15/2003
Sampling Point	759-DUPE-9	**Sample Depth**	---
Sampled By	LEO W. WILLIAMSON	**Sample Matrix**	Soil
		BCL Sample ID	03-06564-6

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics	None Detected	mg/kg	0.6	0.025	8015M	07/26/03	07/26/03	02:48	TLF	GC-V8	0.54	302-100398	ND	V11

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
a,a,a-Trifluorotoluene (8015 Surrogate)	96	%	70-130	8015M	07/26/03	07/26/03	02:48	TLF	GC-V8	0.54	302-100398		

Flag	Explanations
V11	The Continuing Calibration Verification (CCV) recovery is not within established control limits.

Comments

Prepared by EPA Method 5035.

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Attn: LEO W. WILLIAMSON

Purgeable Aromatics and Total Petroleum Hydrocarbons

COC Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Project Number	---	**Sampling Date/Time**	07/15/2003 @ 11:50
Sampling Location	MCAS EL TORO	**Sample Depth**	---
Sampling Point	759-SB-1-15'	**Sample Matrix**	Soil
Sampled By	LEO W. WILLIAMSON	**BCL Sample ID**	03-06564-3SPLP

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Gasoline Range Organics	None Detected	mg/L	0.050	0.0018	8015M	07/28/03	08/01/03	12:45	HKS	GC-V5	1	298-100366	ND	

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
a,a,a-Trifluorotoluene (8015 Surrogate)	112	%	70-130	8015M	08/01/03	08/01/03	12:45	HKS	GC-V5	1	298-100366		

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GEOFON
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Attn: LEO W. WILLIAMSON

Fuel Identification / Quantitation Summary (EPA Method 8015M)

COC Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Project Number	---	**Sampling Date/Time**	07/15/2003 @ 11:40
Sampling Location	MCAS EL TORO	**Sample Depth**	---
Sampling Point	759-SB-1-5'	**Sample Matrix**	Soil
Sampled By	LEO W. WILLIAMSON	**BCL Sample ID**	03-06564-1

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Diesel Range Organics (C12 - C24)	None Detected	mg/kg	10.	3.	8015M	07/19/03	07/23/03	02:47	JST	GC-12A	1			

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Tetracosane	90	%	45-137	8015M	07/19/03	07/23/03	02:47	JST	GC-12A	1			

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GEOFON
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DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Fuel Identification / Quantitation Summary (EPA Method 8015M)

COC Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Project Number	---	**Sampling Date/Time**	07/15/2003 @ 11:45
Sampling Location	MCAS EL TORO	**Sample Depth**	---
Sampling Point	759-SB-1-10'	**Sample Matrix**	Soil
Sampled By	LEO W. WILLIAMSON	**BCL Sample ID**	03-06564-2

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Diesel Range Organics (C12 - C24)	50	mg/kg	10.	3.	8015M	07/19/03	07/23/03	03:11	JST	GC-12A	1			A52

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Tetracosane	84	%	45-137	8015M	07/19/03	07/23/03	03:11	JST	GC-12A	1			

Flag	Explanations
A52	Chromatogram not typical of diesel.

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Attn: LEO W. WILLIAMSON

Fuel Identification / Quantitation Summary (EPA Method 8015M)

COC Number	---		
Project Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Sampling Location	MCAS EL TORO	**Sampling Date/Time**	07/15/2003 @ 11:50
Sampling Point	759-SB-1-15'	**Sample Depth**	---
Sampled By	LEO W. WILLIAMSON	**Sample Matrix**	Soil
		BCL Sample ID	03-06564-3

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Diesel Range Organics (C12 - C24)	3.5	mg/kg	10.	3.	8015M	07/19/03	07/23/03	03:36	JST	GC-12A	1.			A52,R01

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Tetracosane	87	%	45-137	8015M	07/19/03	07/23/03	03:36	JST	GC-12A	1			

Flag	Explanations
A52	Chromatogram not typical of diesel.
R01	The sample result is between the MDL and PQL.

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BC Laboratories, Inc

GEOFON
22632 GOLDEN SPRINGS DRIVE, SUITE 270
DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Fuel Identification / Quantitation Summary (EPA Method 8015M)

COC Number	---		
Project Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Sampling Location	MCAS EL TORO	**Sampling Date/Time**	07/15/2003 @ 11:55
Sampling Point	759-SB-1-20'	**Sample Depth**	---
Sampled By	LEO W. WILLIAMSON	**Sample Matrix**	Soil
		BCL Sample ID	03-06564-4

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Diesel Range Organics (C12 - C24)	None Detected	mg/kg	10.	3.	8015M	07/19/03	07/23/03	04:01	JST	GC-12A	1			

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Tetracosane	87	%	45-137	8015M	07/19/03	07/23/03	04:01	JST	GC-12A	1			

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GEOFON
22632 GOLDEN SPRINGS DRIVE, SUITE 270
DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Fuel Identification / Quantitation Summary (EPA Method 8015M)

COC Number	---		
Project Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Sampling Location	MCAS EL TORO	**Sampling Date/Time**	07/15/2003 @ 12:10
Sampling Point	759-SB-1-25'	**Sample Depth**	---
Sampled By	LEO W. WILLIAMSON	**Sample Matrix**	Soil
		BCL Sample ID	03-06564-5

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Diesel Range Organics (C12 - C24)	None Detected	mg/kg	10.	3.	8015M	07/19/03	07/23/03	04:26	JST	GC-12A	1			

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Tetracosane	79	%	45-137	8015M	07/19/03	07/23/03	04:26	JST	GC-12A	1			

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GEOFON
22632 GOLDEN SPRINGS DRIVE, SUITE 270
DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Fuel Identification / Quantitation Summary (EPA Method 8015M)

COC Number	---		
Project Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Sampling Location	MCAS EL TORO	**Sampling Date/Time**	07/15/2003
Sampling Point	759-DUPE-9	**Sample Depth**	---
Sampled By	LEO W. WILLIAMSON	**Sample Matrix**	Soil
		BCL Sample ID	03-06564-6

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Diesel Range Organics (C12 - C24)	None Detected	mg/kg	10.	3.	8015M	07/19/03	07/23/03	06:06	JST	GC-12A	1			

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Tetracosane	94	%	45-137	8015M	07/19/03	07/23/03	06:06	JST	GC-12A	1			

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22632 GOLDEN SPRINGS DRIVE, SUITE 270
DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Fuel Identification / Quantitation Summary (EPA Method 8015M)

COC Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Project Number	---	**Sampling Date/Time**	07/15/2003 @ 11:45
Sampling Location	MCAS EL TORO	**Sample Depth**	---
Sampling Point	759-SB-1-10'	**Sample Matrix**	Soil
Sampled By	LEO W. WILLIAMSON	**BCL Sample ID**	03-06564-2SPLP

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Diesel Range Organics (C12 - C24)	None Detected	mg/L	2	0.66	8015M	08/06/03	08/07/03	19:52	JST	GC-13A	1			

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Tetracosane	60	%	40-130	8015M	08/06/03	08/07/03	19:52	JST	GC-13A	1			

Comments
SPLP extract analyzed.

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BC Laboratories, Inc

GEOFON
22632 GOLDEN SPRINGS DRIVE, SUITE 270
DIAMOND BAR, CA 91765
Attn: LEO W. WILLIAMSON

Fuel Identification / Quantitation Summary (EPA Method 8015M)

COC Number	---	**Receive Date/Time**	07/16/2003 @ 19:50
Project Number	---	**Sampling Date/Time**	07/15/2003 @ 11:50
Sampling Location	MCAS EL TORO	**Sample Depth**	---
Sampling Point	759-SB-1-15'	**Sample Matrix**	Soil
Sampled By	LEO W. WILLIAMSON	**BCL Sample ID**	03-06564-3SPLP

Constituent	Result	Units	PQL	MDL	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Diesel Range Organics (C12 - C24)	None Detected	mg/L	2	0.66	8015M	08/06/03	08/07/03	20:19	JST	GC-13A	1			

Surrogate Compounds	Result	Units	Control Limits	Method	Prep Date	Run Date	Run Time	Analyst	Instrument ID	Dilution	QC Batch ID	MB Bias	Lab Quals
Tetracosane	73	%	40-130	8015M	08/06/03	08/07/03	20:19	JST	GC-13A	1			

Comments

SPLP extract analyzed.

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