SUMMARY REPORT
Aerial Photograph Anomaly (APHO) 38
Marine Corps Air Station
El Toro, California

Environmental Remedial Action
Contract No. N62474-98-D-2076
Contract Task Order 0024

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Acronyms and Abbreviations

APHO	Aerial Photograph Anomaly
BNI	Bechtel National
BRAC	Base Realignment and Closure Act
BTEX	Benzene, toluene, ethylbenzene, total xylenes
CA	California
CDM	Camp Dresser and McKee
CTO	contract task order
DHS	Department of Health Services
DTSC	Department of Toxic Substances Control
EM	electromagnetic
EPA	U.S. Environmental Protection Agency
GPR	ground penetrating radar
HI	hazard index
HRA	Historical Radiological Assessment
INEL	Idaho National Engineering Laboratory
JEG	Jacobs Engineering Group, Inc.
LUFT	Leaking Underground Fuel Tank
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
msl	mean sea level
NBC	Nuclear Biological Chemical
OHM	OHM Remediation Services Corp.
OWS	oil water separator
PID	photoionization detector
ppm	parts per million
PRG	Preliminary Remediation Goal
QA	quality assurance
TPH	total petroleum hydrocarbons
SAIC	Science Applications International Corporation
STL	Svern Trent Laboratory
SVOCs	semivolatile organic compounds
SWDIV	Southwest Division Naval Facilities Engineering Command
TPH-Diesel	total petroleum hydrocarbons as diesel
TPH-Gas	total petroleum hydrocarbons as gasoline
VOC	volatile organic compounds
µg/kg	micrograms per kilogram

1.0 Introduction

This Summary Report presents an evaluation of the shallow soil underlying to the aerial photograph anomaly 38 designated as APHO 38 at the former Marine Corps Air Station (MCAS), El Toro (herein after referred to as the Station). This report includes a description of the geophysical surveys, sampling strategy, soil and soil vapor sampling methods, laboratory analytical methods, analytical results, interpretation of results, screening level risk assessment, and conclusions and recommendations.

Shaw Environmental, Inc. conducted these site assessment activities under the Southwest Division Naval Facilities Engineering Command (SWDIV), Remedial Action Contract No. N62474-98-D-2076, Contract Task Order (CTO) 0024. These activities were implemented to ascertain if a release occurred during training operations (vehicle washing/decontamination activities) at the impoundments area.

1.1 Site Location

The former Marine Corps Air Station, El Toro, also known as the Station, is composed of approximately 4,700 acres located in eastern Orange County, between the towns of Irvine and Lake Forrest, approximately 45 miles southeast of Los Angeles, California. The location of Station and APHO 38 is shown in Figure 1.

APHO 38 site is located in the southeastern section of the Station, north of the golf course, as shown in Figure 2, Site Location Map. The APHO 38 site is located near Building 1789, within a fenced area formerly used for nuclear, biological, and chemical (NBC) warfare decontamination training. The study area encompasses approximately 2.7 acres, located northeast of the intersection of El Toro Boulevard, N 2nd Street and East Marine Way.

1.1.1 Planned Land Use

The Station closed in July 1999 in accordance with the Base Realignment and Closure Act of 1993 (BRAC III). APHO 38 is located within a parcel designated for future use as Open Space: Golf with Residential Overlay according to the Great Park Land Use Plan that was issued by the City of Irvine in June 2002. The Great Park Land Use Plan map is provided in Appendix A.

1.2 Site History/Background

Science Applications International Corporation (SAIC, 1993) identified APHO 38 as anomaly SAIC No. 252 based on interpretation of an aerial photograph taken in 1973 (aerial photograph series number 73-999-194). SAIC described the anomaly as a "probable excavation adjacent to Building 1789, northeast of the intersection of El Toro Boulevard, N 2nd Street, and East Marine

Way." SAIC recommended additional investigation of the site history as a possible disposal area. The United States Environmental Protection Agency (USEPA) identified a similar anomaly (EPA number 229) as pits in the same vicinity as SAIC number 252 on an aerial photograph taken in 1970.

Following features occupy and are adjacent to the APHO 38 site.

- Two aircraft decontamination pads and concrete-lined drainage "V" ditches draining the pads.
- Two bridged concrete-lined collection ponds.
- A driveway with grated and drained wash area.
- A concrete-lined trough to run vehicle through water and
- A concrete-lined collection pond to collect drainage from the all the features at the facility.

The large impoundments are lined with shotcrete, and the wash ramp appears to be constructed of reinforced concrete. The shotcrete and concrete structures were constructed in the late 1980's. The impoundments discharged to the sanitary sewer system. It is reported that training for the decontamination (washing) of motor vehicles was practiced at these impoundments, and the liquid wastes were discharged to the sanitary sewer system. It is assumed that similar activities were conducted prior to construction of the shotcrete-lined impoundments and concrete wash ramp, and the former structures, unlined pits or excavations, caused the appearance of anomalies on the historical aerial photographs. The excavation observed in the 1973 photograph may have been an unlined pit to collect water that was later converted to the lined pond near Building 1789.

Per review of SAIC report, a geophysical investigation was conducted in the area adjacent to Building 1789 in October 2000 to locate any potential buried materials at APHO 38 potentially related to the excavation. The geophysical investigation encompassed an area of approximately 0.5 acres and included magnetic, electromagnetic (EM), and ground penetrating radar (GPR) methods. The results of the investigation indicated that the new concrete-lined pond encompasses the volume of the former unlined pit, and that there is no indication of buried material beneath the lined pond. A copy of the October 2000 geophysical report is provided in Appendix B.

Consequently, the soil vapor and soil sampling investigation strategy was prepared and finalized focusing on the four lined ponds and two aircraft wash racks near Building 1789. The strategy was submitted to the agencies, revised to incorporate Department of Toxic Substance Control (DTSC) comments in April 2001. A copy of the revised Soil and Soil Vapor Sampling

Procedures for APHO 38 site is enclosed as Appendix C. The following sections present a description of the field assessment as implemented and the findings.

1.3 Radiological Assessment

APHO 38 is under investigation as part of the historical radiological assessment (HRA)/radiological survey program. This radiological survey report has not been finalized as of December 2003.

Building 1789 is located with in the APHO 38 study area and was part of the former NBC warfare decontamination training facility. Building 1789 was constructed in 1959 with small concrete structure inside, reportedly used for storage of non-licensed radioactive sources. The concrete structure is now demolished but Building 1789 is intact. It is not known which type(s) of radioactive sources were stored inside the concrete structure (Weston 2000).

In addition to Building 1789, after the 1950s Building 787 and 1803 were constructed to support the NBC effort on the Station (Weston 2000). Based on information presented in the report, the NBC buildings and the surface impoundments (APHO 38) adjacent to the buildings were recommended to be surveyed for radioactivity (Weston 2000).

2.0 Environmental Setting

This section summarizes the environmental setting in the vicinity of APHO 38, and the general area surrounding the Station.

2.1 Site Topography

The former Station is located on the southeastern edge of the Tustin Plain and extends into the Santa Ana Mountains. Land surface slopes gently to the west-southwest, with elevations ranging from approximately 215 feet above mean sea level (msl) at the western corner to approximately 800 feet msl at the east corner of the Station. The topography in the immediate area of APHO 38 is relatively flat, with ground surface elevations ranging from 366-374 feet above msl.

2.2 Geology

The Station is situated on alluvial fan deposits derived mainly from the Santa Ana Mountains. These Holocene materials reach a maximum thickness of approximately 300 feet (Herndon and Reilly, 1989), and consist of isolated coarse-grained stream-channel deposits, incised into fine-grained overbank deposits.

The Holocene alluvium conformably overlies the Pleistocene sediments. Pleistocene materials are composed of interlayered fine-grained lagoonal and near-shore marine deposits. These materials become increasingly mixed with beach sands, terrace deposits, and stream channel deposits in the eastern portion of the Tustin Plain and along the plain edges. The Quaternary deposits, as a whole, form a heterogeneous mixture of silts and clays, with interbedded sands and fine gravel's that are as much as 500 feet thick in the western portion of the Tustin Plain (Singer, 1973).

The shallow stratigraphy at APHO 38, based on boring logs from SB-01 through SB-06 advanced at the site, consists primarily of silts with lesser amounts of silty sand, typical of overbank deposits, see Section 3.7.

2.3 Hydrogeology

The former Station is situated within the Irvine groundwater subbasin. The Irvine subbasin comprises the southeast part of the main Orange County groundwater basin and is designated as beneficial for municipal and domestic uses. Regional groundwater flow in the subbasin has been to the west and northwest since the 1940s and is controlled locally by large pumping depressions. From 1969 to 1982, an average gradient of 0.0046 to the northwest was reported in the principal aquifer zone of the Irvine area (Banks, 1984). Phase I remedial investigation data indicated a

similar groundwater flow direction in the shallower groundwater zone, with a slightly higher gradient of 0.008 (JEG, 1993).

The depth to groundwater beneath the Station ranges from approximately 45 feet below ground surface in the foothills to 240 feet below ground surface in the deepest portion of the Irvine subbasin. The groundwater gradient averages from 0.004 to 0.008 ft/ft from the central portion to the western portion of the Station respectively. The direction of the groundwater flow in the shallow units is primarily to the northwest beneath the Station, and to the west in the downgradient area. The depth to groundwater in the vicinity of APHO 38 is approximately 164 feet below ground surface, at an approximate elevation of 210 feet above msl based on available water-level data presented in Final Groundwater Monitoring Report March 2002 Monitoring Round 17 (Camp Dresser & McKee, Inc., Federal Programs, 2003). Since there is no well at the site, the depth to groundwater was determined by subtracting the groundwater elevation (presented in CDM Report 2003, Figure A.2B) from the surveyed ground surface elevation.

3.0 Field Activities

3.1 Sample Strategy

An initial sampling strategy for APHO 38 area was presented to the regulatory agencies in March 2000, to evaluate potential impacts from petroleum hydrocarbons entrained in washwater from NBC warfare decontamination training facility (SWDIV 2000). A combined soil gas and soil sample investigation was proposed around the four lined ponds and two aircraft wash racks, with sample depths adjusted to compensate for the depths of the bottom of the ponds. DTSC responded on October 10, 2000 to the SWDIV sampling proposal with comments suggesting that borings be implemented in the bottom of the lined ponds and the aircraft washracks. The revised soil and soil vapor sampling strategy was submitted to the agencies on April 9, 2001 (IT 2001).

The revised sampling strategy included all the originally proposed soil gas sampling locations and added six borings, advanced in each of the four lined ponds and the two aircraft wash racks. Planed soil sample collection intervals were at depths 1-foot and 5-feet below the bottom of each pond and at depths 1-foot, 5-feet, and 10 feet below the bottom of the aircraft wash racks. The sample intervals at 5-feet and 10-feet collected under wash racks are approximately on the same soil horizon as the 1-foot and 5-feet samples collected under the ponds. A soil boring to 30-feet depth was also included to provide some information on the slightly deeper strata.

3.2 Utility Clearance and Oil Water Separator Inspection

A utility clearance was conducted on February 18, 2003. The survey included review of site-specific utility maps obtained from the Station, a geophysical survey conducted to detect underground utilities, and trace the sewer line connections. The geophysical survey located two buried manhole covers, electric and telephone utilities and water pipes.

The buried manhole covers, detected during the February 2003 geophysical survey, were further examined and opened for inspection by Shaw. Visual inspection indicated that the two covers were part of an Oil Water Separator (OWS) used to treat water discharged from the collection pond. The separator was observed to consist of two concrete chambers each 8 feet by 8 feet square and about 5-feet deep. The primary chamber received water discharged from the collection pond and the secondary chamber discharged water to the sanitary sewer on the west side of APHO 38. Approximately 8 inches of water were found in the primary chamber and 6 inches of water in the secondary chamber, for a total approximate volume of 60 gallons. No sheen or odor was observed. After discovery of OWS and discussion with the Navy OWS was designated as OWS 832.

A copy of the geophysical report and photographs of the OWS are enclosed in Appendix D.

3.3 Revised Sampling Plan

Based upon the discovery of the OWS, the April 2001 sampling strategy was modified to include soil vapor and soil sampling below and around the OWS, with sample depths and analysis tied to those collected at the ponds. A copy of the Draft Sampling and Analysis Plan – Addendum 1, Soil and Soil Vapor Sampling for APHO 38 site is included in Appendix E.

3.4 OWS 832 Content Sampling and Disposal

Two liquid content grab samples were collected (sample numbers 818655-3261 and 818655-3262) from the two chambers of OWS 832 on April 3, 2003. The samples were submitted for analysis using Environmental Protection Agency (EPA) Methods SW8260B for volatile organic compounds (VOCs), M8015V/M8015G for total petroleum hydrocarbons (TPH) as Gasoline, M8015E/M8015D for TPH as Diesel, 6010B/7470A for Metals, 9045B for pH, and 1010 for ignitability.

Laboratory analysis indicated that the OWS 832 liquid content was non-hazardous water. The analytical results are presented in Table 2. The accumulated water was removed from the OWS 832 by vacuum truck and transported by Island Environmental, Inc. to the Crosby and Overton disposal facility in Long Beach, California, for disposal as non-hazardous water. Laboratory analytical reports and a copy of the waste manifest are provided in Appendix F.

3.5 Field Assessment Activities

Shaw Environmental, Inc. implemented the proposed soil and soil vapor assessment at APHO 38 site in May 2003. Soil and soil vapor samples around and under three decontamination training pits/trough, one collection pond, two aircraft wash racks, and connecting drainage troughs. Additional soil vapor sample locations were implemented along the sewer alignment and around the OWS to delineate potential losses from the sewer line related to operations at the site. Surface grab samples were collected from the collection basin and the soil near Building 1789, to evaluate the possible presence of residual contaminants. The soil-sampling program is summarized below:

- On May 19 and 21, 2003, soil vapor and/or soil samples were collected from twenty-seven (27) locations. Samples from different depths were submitted for analysis as soil vapor and soil, summarized in Table 1.
- Soil vapor samples were collected from the following locations: SG-1, SG-2, SG-3, SG-4, SG-5, SG-7, SG-8, SG-9, SG-10, SG-11, SG-12, SG-14, SG-15, SG-16 SG-17, SG-18, SG-20, SG-21, SG-22, SG-23, and SG-24. Soil vapor samples were analyzed using a mobile laboratory, with quality assurance samples going to a fixed base laboratory.

- Soil samples were collected from soil borings numbered from SB-1 through SB-6, and from SG-1, SG-3, SG-5, SG-12, SG-17, SG-20, SG-21, SG-22, and SG-24. Soil samples were analyzed by a fixed base laboratory.
- Two grab samples, SS-04 and SS-24, were collected on May 21, 2003 at the bottom of collection pond and the other near Building 1789, respectively.
- Of the borings listed above SG-7, SG-16, and SG-20 were advanced in the vicinity if the OWS. Borings SG-17, SG-21, and SG-22 were advanced in the vicinity of the OWS discharge line and the main sewer line

All the soil and soil vapor sample locations are shown in Figure 3. Sampling activities were conducted in accordance with the following documents: *Closure for Various TAA, RFA and APHO Sites Draft Sampling and Analysis Plan* (Shaw Environmental, Inc., 2003), *DTSC comments to Supplement to March 2000 Proposed Sampling at APHO38* (DTSC, 2001), *Revised Soil and Soil Vapor Sampling Plan Technical Memorandum* (IT, 2001), *Draft Sampling and Analysis Plan – Addendum I, Soil and Soil Vapor Sampling for APHO 38 dated March 14, 2003* (IT 2003), and the *January 2003 joint Guidance for Active Soil Gas Investigations* from the DTSC and the Los Angeles Regional Water Quality Control Board.

3.6 Soil Vapor Sampling Activities

HP Mobile Laboratory collected and analyzed soil vapor samples on site under the direction of a Shaw Environmental, Inc. field geologist and field chemist. Soil vapor samples were collected at 5 and 10 feet below ground surface, with the exception of locations near the OWS and the sewer line, where the soil vapor samples were collected at 10 to 20 feet below ground surface. When the mobile laboratory detected VOCs, additional vapor samples were collected at deeper depths. Verification soil vapor samples were collected for every 10-soil vapor samples and were analyzed by an off-site laboratory. Verification soil vapor samples were collected with SUMMA® canisters at a flow rate of 150 to 200 milliliter per minute (ml/min). Soil vapor sample locations are shown in Figure 3.

Vapor probes were advanced to a predetermined depth using a drive rod and push technology. Nylaflow sample tubes (1/8-inch inside diameter) were installed into vapor probes, leaving tubing ends capped above ground, and the drive rod extracted. Hydrated bentonite was used to seal the tubing annulus and support the sampling tubes. Disposable syringes were attached to the sampling tubes to collect vapor samples. A total of 59 vapor samples (or 53 samples, and 6 duplicates from 21 probe locations) were collected with disposable syringes. After all the samples were collected, the exposed sampling tubes were cut at ground surface, leaving the vapor probe and tubing in the ground.

Sample handling, documentation, and packaging, were conducted in accordance with the procedures described in the approved revised Sampling and Analysis Plan (Shaw Environmental, Inc., 2003). Soil vapor samples were analyzed as follows:

- HP Mobile Laboratory: TPH as Gasoline by Department of Health Services (DHS) Leaking Underground Fuel Tanks (LUFT) Method 8015M and VOCs EPA Method 8260B
- Svern Trent Laboratory: TPH as Gasoline by EPA TO-3 and VOCs by EPA Method TO-15

Soil vapor analytical results for both laboratories are summarized in Table 3. Laboratory analytical reports are presented in Appendix G.

3.7 Soil Sampling Activities

Soil sampling activities were conducted simultaneously with the soil vapor survey from May 19 to May 23, 2003. Soil borings were advanced to depths ranging from ground surface to 30 feet below ground surface using direct push sampling techniques provided by Core Probe International. A total of 34 soil samples were collected using 1¾-inch diameter acrylic tube liners in the direct push macro-core sampler. Soil sampling was supervised by a Shaw Environmental, Inc., field geologist, who prepared boring logs and kept field records. Copies of the Boring Logs and Photographs of the field activities are included in Appendix H.

Soil samples were collected following the sampling strategy at:

- 1 and 5 feet beneath the concrete at the bridged ponds and the vehicle drive- through trough (which is approximately equivalent to 5 and 10-feet below nominal groundsurface),
- 1, 5, and 10 feet beneath the concrete in the driveway,
- 1, 5, 20 and 30 feet beneath the impoundment at the collection pond where the washwater gathered (which is approximately equivalent to 5, 10, 25, and 35-feet below nominal ground surface), and
- Two surface grab samples were collected: one located at the bottom of collection pond and the other near Building 1789.

Soil sample locations are shown in Figure 3.

Soil samples for volatile organic compounds (VOC) analysis were collected from the acetate liner using Encore® samplers. Following collection of the sample for VOC analysis, the ends of the acetate liner were covered with Teflon septum, capped, and submitted to EMAX Laboratory, Inc., for analysis for total petroleum hydrocarbons as gasoline and diesel (TPHg and TPHd),

semi-volatile organic compounds (SVOCs), and metals. After the soil samples were collected, the soil borings were backfilled with hydrated bentonite chips and the surface finished to match existing ground surface (typically concrete). Soil sample analytical results are presented in Table 4. Laboratory analytical reports are presented in Appendix I.

Sample handling, documentation, and packaging, were conducted in accordance with the procedures described in the approved Revised Sampling and Analysis Plan (Shaw Environmental Inc., 2003). The soil samples were analyzed for:

- TPH-purgeable (gasoline) by California leaking underground fuel tank (CA LUFT) Method 8015M
- TPH-extractable (diesel) by CA LUFT Method 8015M
- VOCs by EPA Method 8260B

Soil samples at 1 foot also included the following analysis:

- SVOCs with selected ion monitoring (SIM) by EPA Method 8270C
- Metals by EPA Method 6010B/7000A series

3.8 Land Surveying

The soil boring locations were surveyed on June 5, 2003 by Cal Vada Surveying, Inc., a California-registered land surveyor. The surveyed locations were measured to ±0.01 ft/ft horizontally and tied to the California State Plane Coordinate Systems, North American Datum 1983. The surveyed elevations were measured to ±0.01 foot vertically and tied to mean sea level datum. The survey map for APHO 38 is presented as Appendix J.

4.0 Site Assessment Analytical Results

The APHO 38 Site assessment investigation collected 53 soil vapor and 36 soil samples from 27 locations around the former NBC facility and along the sanitary sewer on the western edge of the site. The soils underlying the site are composed of predominantly silt and sandy silt with interbedded thin layers of silty sand, typical of overbank deposits, see boring logs Appendix G. The results of the investigation are described in the following sections.

4.1 Soil Vapor Analytical Results

HP Mobil Laboratory analyzed 53 soil vapor samples for 26 VOC analytes (using Method 8260B, not including acetone) and TPH as gasoline (using Method 8015M). The mobile laboratory also performed analysis on duplicate samples. Severn Trent Laboratory (STL) Inc., an off-site fixed base laboratory, analyzed four QA samples using Methods TO-15 and TO-3. A complete list of samples collected and analyses performed is summarized in Table 1. A complete listing of analytical results is provided in Table 3.

Freon 113 (reported as 1,1,2-Trichloro-1,2,2-Trifluoroethane), ethylbenzene, and xylene were detected in soil vapor above the reporting limit of 1 microgram per liter (µg/L) by the mobile laboratory and verified in the QA samples analyzed by the fixed base laboratory. Freon was detected in the vicinity of the OWS and the sanitary sewer line at locations:

- SG-12 at 10-feet depth (0.0086 µg/L),
- SG-15 at 5-feet (0.14 (0.29 µg/L),
- SG-17 at 5-feet (1.2 µg/L) and 10-feet (1.8 µg/L),
- SG-20 at 10-feet (1.1 µg/L) and 15-feet (0.29 µg/L), and
- SG-21 at 10-feet (3.6 µg/L) and 20-feet (4.8 µg/L).

Ethylbenzene and xylene were also detected at above 1 µg/L in samples analyzed by the mobile laboratory only at location SG-21 at 10-feet depth (ethyl benzene 1.9 µg/L, total xylenes 14.1 µg/L) and at 20-feet depth (ethylbenzene 0.14 µg/L, total xylenes 1.63 µg/L). Ethylbenzene was also detected by the fixed base laboratory along with other VOC analytes in concentrations less than 1 µg/L in borings SG-12, SG-15, SG-20, and SG-21. The soil vapor analytical results for the mobile laboratory and the fixed base laboratory are summarized in Table 2.

Comparison of the soil vapor analytical results from the mobile laboratory (HP Labs) and the fixed base laboratory (STL), using Table 2, indicates that compounds detected by the mobile were also detected (verified) by the fixed base laboratory; however, analytical result from the fixed base laboratory indicated concentrations that were much lower than the analytical results from the mobile laboratory. Additionally, the fixed base laboratory detected more compounds

than the mobile laboratory; however, the detection limits for the TO-15 analysis are much lower than the mobile laboratory 8260 method. A brief comparison of the results is presented in Table 5. The comparison table shows first the mobile lab data results (HPL) and then the fixed base lab results (STL). Where analytes were detected in one or the other analyses, the concentrations are shown in bold type. The comparison shows that the data are consistent with one another; however, the STL data shows more hits because of the very low detection limits.

Acetone was detected in the QA soil vapor samples SG-12 at 10-feet depth (0.030 µg/L), SG-15 at 5-feet depth (0.062 µg/L), SG-20 at 15-feet depth (0.063 µg/L), and SG-21 at 20-feet depth (0.066 µg/L). The samples were analyzed using EPA method TO15, with a detection limit well below 1 µg/L. Acetone was not detected by HP Labs using EPA method 8260B because the detection limit was 1 µg/L.

4.2 Soil Analytical Results

TPH as gasoline was not detected in any of the soil sample collected from APHO 38. TPH as diesel was detected at locations:

- SG-21 at 10', at a concentration of 55 milligrams per kilogram (mg/kg);
- SS-04, at a concentration of 150 mg/kg; and
- SS-24, at a concentration of 59 mg/kg.

Sample SG-21 is located near the road and sewer line. Surface grab sample SS-04 was from sediment accumulated from the settling pond and SS-24 was collected from barren ground near Building 1789.

Semivolatile organic compounds (SVOCs) were detected in the sample from location SS-04 at concentrations above the laboratory reporting limit: benzo(a)pyrene (91 µg/kg), benzo(b)fluoranthene (630 µg/kg), bis(2-ethylhexyl)phthalate (1,300 µg/kg), chrysene (950 µg/kg), fluoranthene (1,500 µg/kg), indeno(1,2,3-cd)pyrene (120 µg/kg), phenanthrene (590 µg/kg), and pyrene (960 µg/kg). Phenol, also a SVOC, was detected above laboratory reporting limit of 360 to 420 µg/kg in samples SB-01 (1,700 µg/kg), SB-02 (4,400 µg/kg), SB-03 (1,900 µg/kg) and SB-04 (690 µg/kg) at 1 foot depths. VOCs were not detected in the soil samples, with the exception of acetone, which was detected at concentrations below the laboratory reporting limits in soil samples from borings SB01, SB03, SB04, SB05, ranging in concentration from 6 J µg/kg to 75 J µg/kg, and well below the residential PRG for acetone of 1,600,000 µg/kg.

Acetone was reported as an estimated value and was found below the laboratory reporting limit in nearly all the soil samples. No acetone was found in the associated method blank or equipment rinsate. However, the concentrations were very low, all within the range from

6.4 J mg/kg to 47 J mg/kg and did not show a consistent concentration. Soil samples were collected at each sample location using En Core samplers, submitted to EMAX Laboratories, and then were preserved with sodium bisulfate prior to analysis. In an article from Environmental Testing and Analysis (Sept /Oct. 1999), Mr. Alan Hewitt discusses the potential problem caused by the preservation of soil samples with sodium bisulfate. Mr. Hewitt states that when "lowering the pH (with sodium bisulfate) of some matrices, the formation of acetone ... has been observed. Greater concentrations of acetone in laboratory soils were found to be associated with both lowering the pH and presence of sodium. While not conclusive, the source of acetone is likely to be the decomposition of natural biologically produced compounds in either low pH or reduced moisture conditions." The article by Mr. Hewitt, the lack of historical records indicating acetone usage at the site, and the relatively low concentrations at which acetone was detected in the APHO 38 samples suggest that the acetone may likely result from the use of sodium bisulfate preservation of the samples.

Although acetone in low concentrations has been reported as a by product of the preservative Sodium bisulfate, acetone was also detected in the duplicate soil vapor samples analyzed by the fixed base laboratory using EPA Method T0-15 in samples as described in Section 4.1. This suggests that acetone, in this sample, may be present from loss at the site. However, detected concentrations in the samples fall in a narrow concentration range, suggest influence by an outside factor, possibly the sample preservation method. In any case, detected acetone concentrations are very low, below residential PRG for soil. The results for acetone in soil are included in Tables 4. The risk evaluation, presented in Section 5.0, indicated that these concentrations do not present a threat to human health.

The metals aluminum, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc were detected above laboratory reporting limits; however, the concentrations were significantly less than the EPA PRGs for residential use. Arsenic was detected at levels (maximum concentration of 4.56 mg/kg) exceeding the PRG of 0.39 mg/kg, but below the MCAS El Toro established background level of 6.86mg/kg. See Table 2 for summary of analytical soil results.

4.3 Quality Assurance/Quality Control

To minimize the potential for cross-contamination, drilling and sampling equipments were decontaminated before initiating work at the site, between each soil boring, and at the completion of the work at the site. Decontamination consisted of using a pressure washer and/or brush with a non-phosphate detergent and water solution, rinsing with tap water, and rinsing with deionized water.

An equipment rinsate sample was collected to evaluate the effectiveness of the decontamination procedure and to check for potential cross-contamination during sampling events. One

equipment rinsate sample was collected. Analytical results of the equipment rinsate samples are summarized in Tables 3 and 4.

During the soil gas sampling duplicate and split samples were collected and analyzed to verify the validity of the field results. Duplicate gas samples were analyzed in the field by HP Mobile Laboratory while split samples were collected in Summa canisters and analyzed off site by STL Laboratories, Inc.

A total of four duplicate samples (10 percent of total) were collected during the site assessment field sampling effort. The results of all duplicate samples correspond to the results of initial samples. A total of four split samples were collected during the investigation. All split samples reported deviations from the initial sample results. The deviation in split sample results from the initials samples can be accounted for due to an increased number of compounds analyzed for (51 VOCs) in the split samples and lower detection limits achieved by the off site laboratory.

Purge volume testing was performed on sample location SG-16 at 10-feet below ground surface. All three purge volumes showed non-detect results. A purge volume of three volumes was used to collect all samples for the rest of the investigation.

Data Validation Group, Inc. reviewed the laboratory analytical reports generated by EMAX Laboratories Inc. for the soil analyses. The validation reports are included in Appendix I with the laboratory analytical reports. The results of the data validation are annotated in the data Table 4.

5.0 Risk Characterization and Hazard Index Calculation

This section briefly describes the approach used to estimate risk and summarizes the baseline screening level risk assessment results for APHO 38 site. A screening level risk assessment for human health was conducted following the guidance provided in the EPA Region 9 PRGs Memorandum dated November 1, 2002 (EPA, 2002). The analytical results of site assessment soil borings (SB-1 through SB-6, SS-04 and SS-24, and SG-1, SG-3, SG-5, SG-12, SG-17, SG-20, and SG-22) conducted at APHO 38 site were used to calculate risks.

5.1 Exposure Assessment

The Station officially closed on July 2, 1999 in accordance with the Base Closure and Realignment Act of 1993 (BRAC III). APHO 38 site is located within a parcel designated for future use as Open Space: Golf with Residential Overlay according to the Great Park Land Use Plan that was issued by the City of Irvine in June 2002.

For screening purposes, the ingestion, dermal contact, and inhalation exposure pathways are assumed to be complete for APHO 38 site, as if the area were unpaved. Should the screening fail, further evaluation of the exposure pathways would be required. Under a residential land use scenario at APHO 38 site, workers or humans could be potentially exposed to surrounding soil by ingestion, dermal contact, or inhalation of dust or volatilized contaminants. These are the same exposure pathways evaluated by the EPA PRGs (EPA, 2002).

For the purposes of this risk screening evaluation, the residential scenario is used as the worst-case scenario.

5.2 Toxicity Assessment

The PRGs incorporate the toxicity values from the Integrated Risk Information System, the Health Effects Assessment Summary Tables, and the National Center for Environmental Assessment. Cancer PRGs incorporate cancer toxicity values and the noncancer PRGs incorporate the toxicity values for chronic health affects other than cancer (EPA, 2002). Both cancer risk and noncancer hazards were evaluated in this screening risk assessment.

5.3 Risk Characterization

The PRGs are concentrations calculated using standard exposure factors that are protective of humans, including sensitive groups, over a lifetime. These PRG concentrations pose acceptable cancer risk or non-cancer hazard under the exposure scenarios evaluated.

Generally, a cancer risk of 10^{-6} or less and a non-cancer hazard index (HI) of 1.0 or less are considered acceptable levels of exposure. Therefore, the PRG concentrations are calculated to the lower end of the acceptable cancer risk range of 10^{-6} and to a non-cancer hazard index of 1.0.

Cancer risk is calculated by dividing the site concentration by the PRG for each chemical. The ratios are added and the sum is then multiplied by 10^{-6}. The hazard index is calculated by dividing the site concentration by the PRG for each chemical and adding the resultant ratios.

Although maximum concentrations for chemicals detected at the site are used for this risk screening, comparisons are not made to maximum detected background concentrations. To maintain a conservative estimate of background risk, the 95th quantile background concentrations calculated for the Station (BNI, 1996) are used to calculate background contributions to cancer risk.

At APHO 38 site, the detected carcinogens in soil were Benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, indeno(1,2,3-cd)pyrene, N-nitro-di-n-propylamine, arsenic, beryllium, cadmium, chromium, and cobalt. The summed cancer risk for soil under the potential future residential scenario after subtracting background is less than $1x10^{-6}$, shown in Table 6.

Compounds that were detected at APHO 38 site that contribute to the non-cancer HI include acetone, bis(2-ethylhexyl)phthalate, fluoranthene, phenol, pyrene, aluminum, antimony, barium, beryllium, cadmium, cobalt, copper, iron, lead, manganese, mercury, nickel, silver, vanadium, and zinc. The summed non-cancer hazard index for soil under the potential future residential scenario after subtracting background is 2.32, with background concentrations contributing 1.93 or approximately 80% of the risk, presented in Table 7. This is a conservative HI because it includes background contributions, assumes that maximum detected concentrations are representative of the entire site, and is summed across all toxicological endpoints.

5.3.1 Target Organ Evaluation

Because initial screening for residential scenario resulted in an HI greater than 1.0, a target organ evaluation was conducted for the potential contributors. The only significant contributors are those chemicals with maximum concentrations that could affect the HI or those that contribute 0.1 or greater to the HI are aluminum, arsenic, cadmium, iron, lead, and manganese as shown in Table 7.

The target organ hazard index using maximum values was less than 1.0 for all target organs. Results of the target organ evaluation using maximum concentrations are provided in Table 7.

5.3.2 Summary

The site-related incremental cancer risk and non-cancer hazard index at APHO 38 site are acceptable for the following reasons:

- The net carcinogenic risk is less than 1×10^{-6} for the residential scenario.
- The target organ hazard index using maximum values was less than 1.0 for all target organs.

6.0 Summary Discussion of Site Assessment

The following section provides a summary of events, interpretation of results, and recommendations for future activities at the site.

6.1 Summary of Oil Water Separator 832 Assessment

Residual water contained in the OWS 832, identified during the utility clearance, was sampled and analyzed. No sediment was found in the two OWS chambers. The two liquid grab samples, collected from the OWS chambers, were analyzed for TPH as gasoline, TPH as diesel, VOCs, metals, pH, and ignitability. The water was found to be non-hazardous. The water was removed by a vacuum truck and disposed as non-hazardous water at a disposal facility.

The utility clearance delineated the OWS 832, the influent and discharge lines from the OWS, and the connecting sewer line that received the discharged treated water from the OWS. During the site investigation, soil vapor samples were collected from borings SG-7, SG-16, SG-17, SG-20, SG-21, and SG-22, and soil samples were collected from SG-17, SG-20, SG-21, and SG-22 to evaluate potential losses related to these features.

The results indicate the presence of petroleum hydrocarbons at 10-feet depth at location SG-21 and the potential presence of very low concentrations of acetone at the other boring locations in the vicinity of the OWS 832 and sewer line. SG-21 data is close to the sewer line and thought to be more representative of conditions around the sewer line and may not be related to the OWS 832 or its discharge line. Freon was detected in very low concentrations, 0.29 to 4.8 μg/L in soil vapor in this location. The highest concentrations of Freon were detected in samples from SG-17, SG-20, and SG-21. No soil vapor analytes were detected in the samples from boring SG-7, evaluating the drain from the collection pond to the OWS.

The soil vapor and soil analytical results, listed in Tables 3 and 4, do not indicate a significant loss to the vadose zone soil that is attributable to the OWS 832. Risk evaluation of the detected analytes, Section 5.0, does not indicate a threat to human health. The residual liquid contents of the OWS 832 were removed and disposed, removing any potential source for future loss.

6.2 Summary of Ponds and Wash racks Assessment

Soil and soil vapor data was collected and analyzed around and in the trough, three ponds, and two wash racks. The only detected volatile organic compounds in concentrations greater than 1 μg/L (Freon and acetone) were found in boring SG-12, near a crack in the concrete liner of the northern most pond, and SG-15, near the drainage ditch associated with the southwestern wash rack, see Figure 3. No TPH as gasoline was detected in concentrations greater than the reporting

limits. No ethylbenzene or xylenes were detected in concentrations greater than 1 µg/L; however, a number of VOCs were detected at concentrations less than 0.01 µg/L.

Soil samples were collected from depth intervals of 0-, 1-, 5-, 10-, 20-, and 30-feet below ground surface from the center of the ponds and wash rack (SB0-1 through SB06) and from locations around the ponds (SG-1, SG-3, SG-5, SS-04 and SS-24), see Table 1. Selected soil samples, from borings SB-1 through SB-6 at depths of 1-foot, were analyzed for TPH as gasoline and diesel, VOCs, SVOCs, and metals. All other soil samples were analyzed for TPH as gasoline and diesel and VOCs. TPH as gasoline was not detected in any of the soil samples. TPH as diesel was detected in samples from SB-01 (6.5 J mg/kg), SB-03 (9.5 J mg/kg), and SB-04 (7.3 J mg/kg). Acetone was detected in 31 of 36 samples at low concentrations (below the reporting limit) throughout the site. The maximum concentration of acetone was 55 J µg/kg (SB-05), which is well below the residential PRG for acetone of 1,600,000 µg/kg.

SVOCs were detected in soil samples from locations SS-04, SB01, SB-02, SB-03, and SB-04. Sample SS-04 was a surface sample of sediments collected from the settling pond associated with the various wash racks. Of the nine SVOC analytes detected in the sample from SS-04, only benzo (a) pyrene (91 µg/L) and benzo (b) fluoranthene (630 µg/L) exceeded the EPA preliminary remedial goals (PRGs) of 62 and 620 µg/kg for residential use and the MCAS El Toro established background levels of 27 and 28 µg/kg. The presence of benzo (a) pyrene and benzo(b)fluoranthene above the residential PRG and other detected SVOCs below residential PRG but above the site background levels, a risk evaluation was performed and is described in detail in Section 6.0, and summarized in Table 3.

Metals were detected in soils at the site from all sample locations. Arsenic was detected at levels (maximum concentration of 4.56 mg/kg in sample SB-02, and average concentration of 2.99 mg/kg) exceeding the residential PRG of 0.39 mg/kg, but below the MCAS El Toro established background level of 6.86mg/kg in eight samples. The arsenic concentration detected at APHO 38 should not pose an elevated risk as compared to the MCAS El Toro site as a whole. No metal analyte exceeded both background and residential PRG concentrations. Detected metal analytes were included in the risk evaluation performed in Section 5.0.

6.3 Summary of Site Assessment

The soil vapor and soil analytical results indicate the occurrence apparent minor impacts to soil in the vicinity of the ponds and the wash rack and to sediment accumulated in the collection pond. The risk evaluation conducted to evaluate these impacts indicates that there is no unacceptable threat to human health, or the environment, from the residual concentrations of the detected analytes in soil. Although not presenting an unacceptable risk, the SVOC analytes

detected in the sediment accumulated in the final collection pond, before the OWS, are elevated and should be removed to prevent potential spreading.

7.0 Conclusions and Recommendations

The APHO 38 site was originally identified in the SAIC report that indicated a probable excavation near Building 1789, identified as photographic anomaly 252. The facilities at the site are composed of two concrete-lined ponds with bridges, a concrete-lined trough, two concrete aircraft wash racks, and associated concrete-lined drainage ditches and a collection pond. These facilities were used to support NBC warfare decontamination training conducted at the site. At the time of the 1973 photograph, the most easterly concrete pond near Building 1789 had not been constructed.

The APHO 38 site assessment is composed of several tasks conducted from the year 2000 through May 2003. These tasks include:

- Geophysical investigation of the Building 1789 area to evaluate potential presence of buried materials related to the photographic anomaly 252 identified in the SAIC report.
- Analyses, removal, and disposal of OWS 832 contents.
- Soil vapor and soil sampling conducted at 27 locations around the APHO 38 ponds, trough, wash racks, OWS 832, and sewer line.

The following observations are summarized form information provided by these tasks and presented in the preceding sections of this report.

- The initial geophysical survey to locate the potential excavation identified in the SAIC report, found no buried materials. The geophysical results suggested that the present concrete-lined pond near Building 1789 occupies the area of the photographic anomaly 252.
- Approximately 60 gallons of water was removed from the OWS 832 discovered during a geophysical survey in 2003, and was disposed off after testing the water as non-hazardous water at an approved facility. Soil/soil gas samples collected from the vicinity of the OWS 832 did not indicate that there had been a significant release of petroleum hydrocarbons to the subsurface.
- VOCs including Freon 113, benzene, acetone, toluene, and xylenes were detected at several soil vapor sample locations. The highest concentration of Freon 113 was detected at SG-17 and SG-21 located between the aircraft wash rack and the sewer line.
- Benzo(a)pyrene was detected in the collection pond sediment at concentration above the residential PRG and the established background levels for the former MCAS El Toro.

- A maximum concentration of diesel of 150 mg/kg was detected in the soil sample from the sediment sample SS-04 collected from the collection pond. The concentration of diesel is below the typical soil cleanup goal of 1,000 mg/kg.

- Acetone was detected in soil samples at relatively low concentrations and well below the residential PRG for acetone. The detected acetone may be a laboratory-introduced artifact and, in any case, is below action levels.

- All metals detected at the site, except for arsenic, are in concentrations below the residential PRGs. Although arsenic was detected above residential PRG, the average the maximum concentration, 4.56 mg/kg, it is below the MCAS El Toro site background average arsenic concentration of 6.86 mg/kg.

- A risk evaluation of all the analytes detected in soil at APHO 38, indicates that the Net Cancer risk is less than 1 X 10^{-6} and the target organ hazard index using maximum values was less than 1.0 for all target organs. The evaluation indicates that the residual analytes detected do not pose a threat to human health or the environment.

The results and observations developed from this site assessment indicate that the APHO 38 site is minimally impacted by the loss of petroleum hydrocarbons from operations at the site, and that the residual detected analytes are not a threat to human health or the environment. Based on the information in this report, it is recommended that "No Further Action" status be requested for the APHO 38 site and OWS 832, pending the report of the radiological survey results, which will be published separately.

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Figures

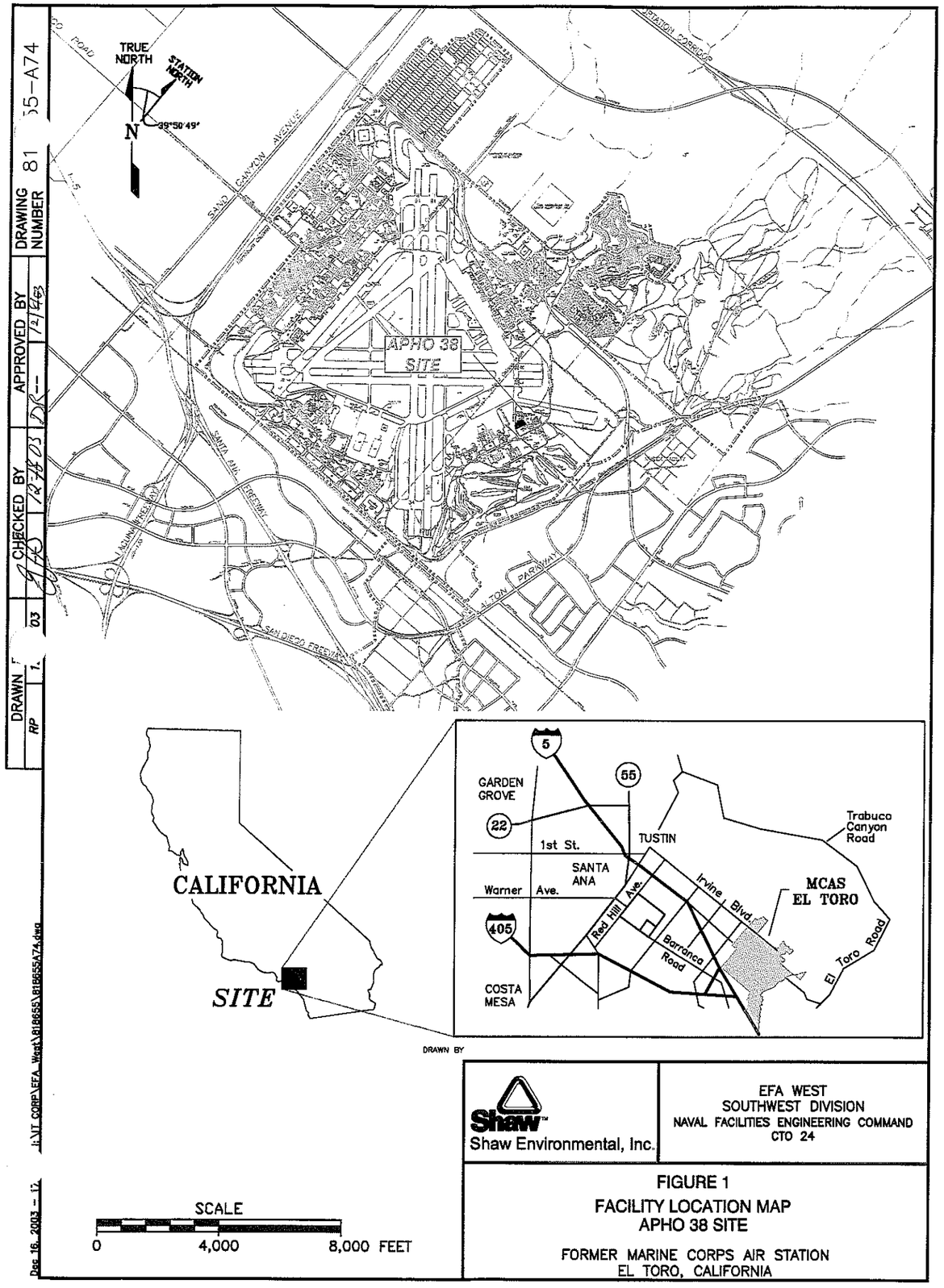

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FIGURE 1
FACILITY LOCATION MAP
APHO 38 SITE

FORMER MARINE CORPS AIR STATION
EL TORO, CALIFORNIA

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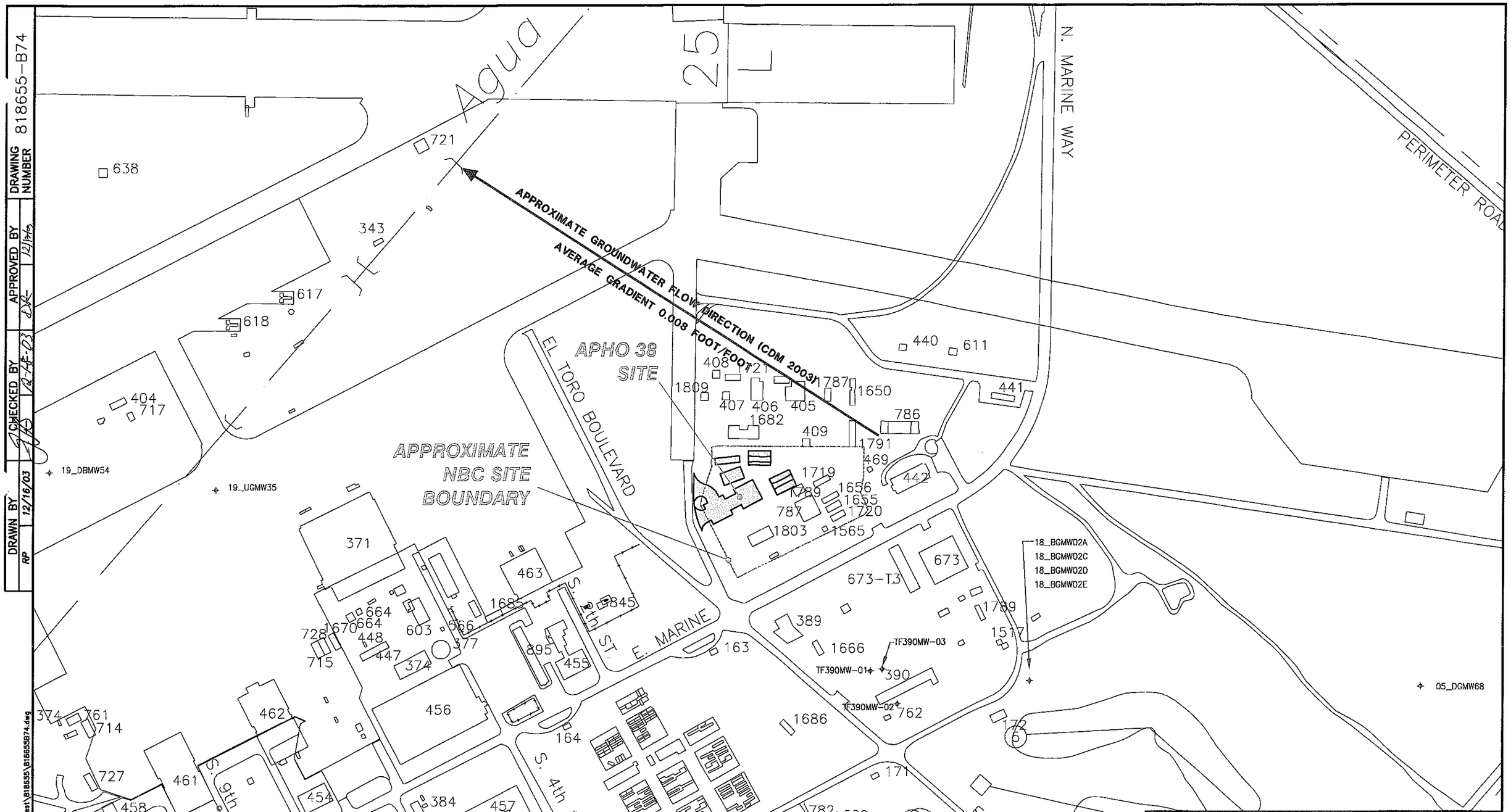

EXPLANATION:

- ○ UNDERGROUND STORAGE TANKS
- ⌖ GROUNDWATER MONITORING WELL

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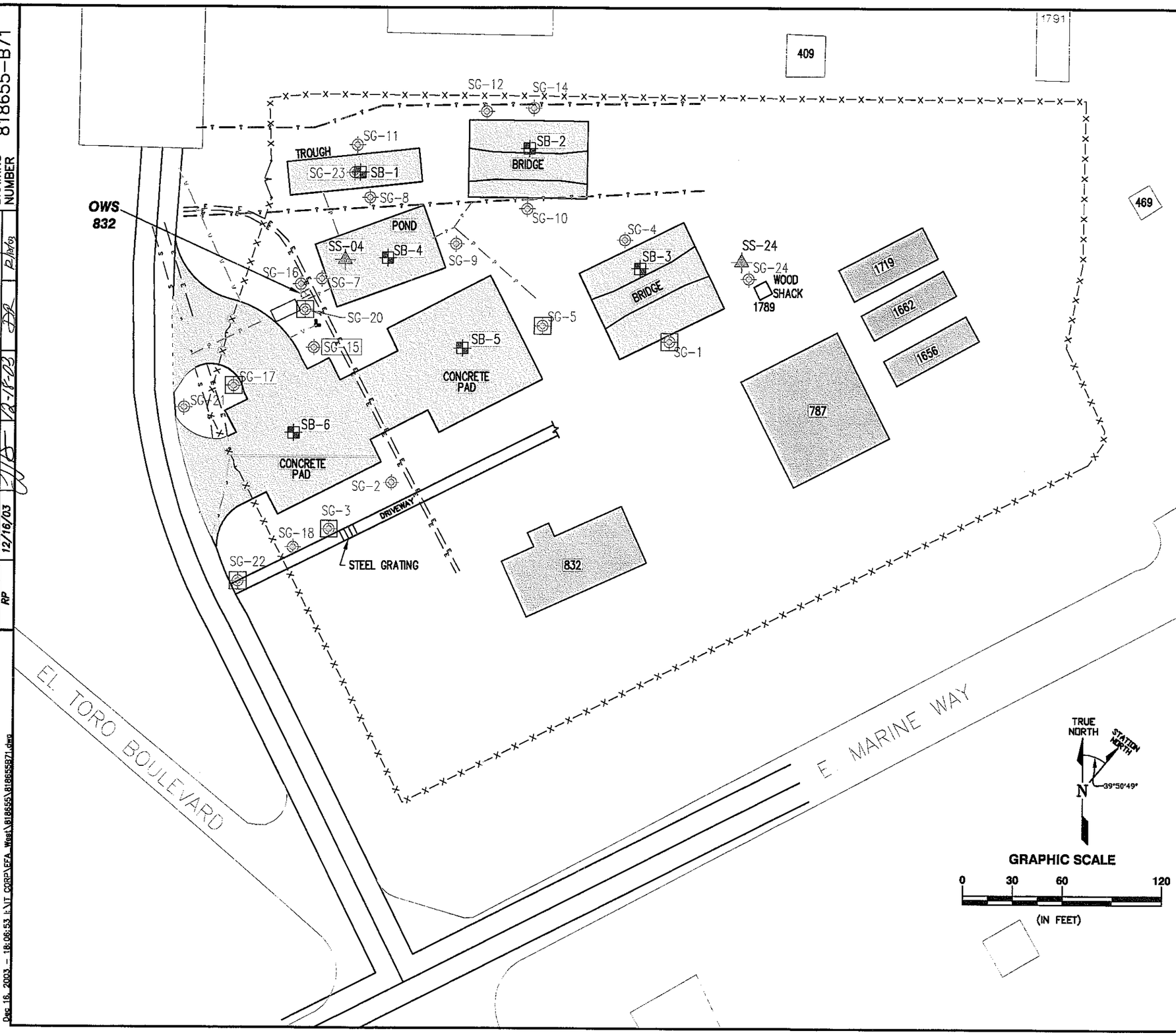
FIGURE 2

SITE LOCATION MAP

FORMER MARINE CORPS AIR STATION
EL TORO, CALIFORNIA



SAMPLE COORDINATE LISTING

NORTHING	EASTING	FS	DESCRIPTION
2189443.36	6114998.85	368.47	SB-1
2189457.74	6115100.68	367.53	SB-2
2189386.24	6115168.24	368.50	SB-3
2189392.28	6115015.97	366.21	SB-4
2189338.14	6115061.38	371.52	SB-5
2189286.89	6114959.90	371.18	SB-6
2189342.31	6115186.38	373.97	SG-1
2189257.33	6115019.24	371.46	SG-2
2189229.14	6114981.69	371.49	SG-3
2189403.40	6115158.95	373.75	SG-4
2189351.67	6115109.54	372.39	SG-5
2189379.68	6114976.23	368.95	SG-7
2189428.37	6115004.91	371.14	SG-8
2189400.71	6115057.06	371.43	SG-9
2189421.74	6115099.65	372.62	SG-10
2189459.76	6114997.09	371.18	SG-11
2189479.92	6115074.70	372.29	SG-12
2189481.96	6115103.11	372.89	SG-14
2189338.29	6114971.67	370.33	SG-15
2189376.37	6114963.63	370.12	SG-16
2189315.15	6114923.80	370.85	SG-17
2189218.06	6114960.11	371.45	SG-18
2189361.06	6114966.27	370.09	SG-20
2189302.14	6114894.24	369.07	SG-21
2189197.59	6114927.26	368.61	SG-22
2189443.32	6114995.64	368.39	SG-23
2189380.14	6115233.86	374.34	SG-24

EXPLANATION:

- SOIL VAPOR SAMPLE LOCATION
- SOIL SAMPLE LOCATION
- SOIL VAPOR AND SOIL SAMPLE LOCATION
- SURFACE SOIL SAMPLE LOCATION
- CHAIN LINK FENCE
- ELECTRICAL
- SEWER
- TELEPHONE
- PVC DRAIN
- WATER/FIRE
- FIRE HYDRANT
- OIL WATER SEPARATOR (OWS)

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FIGURE 3
SITE PLAN AND SAMPLE LOCATION MAP
APHO 38
FORMER MARINE CORPS AIR STATION
EL TORO, CALIFORNIA

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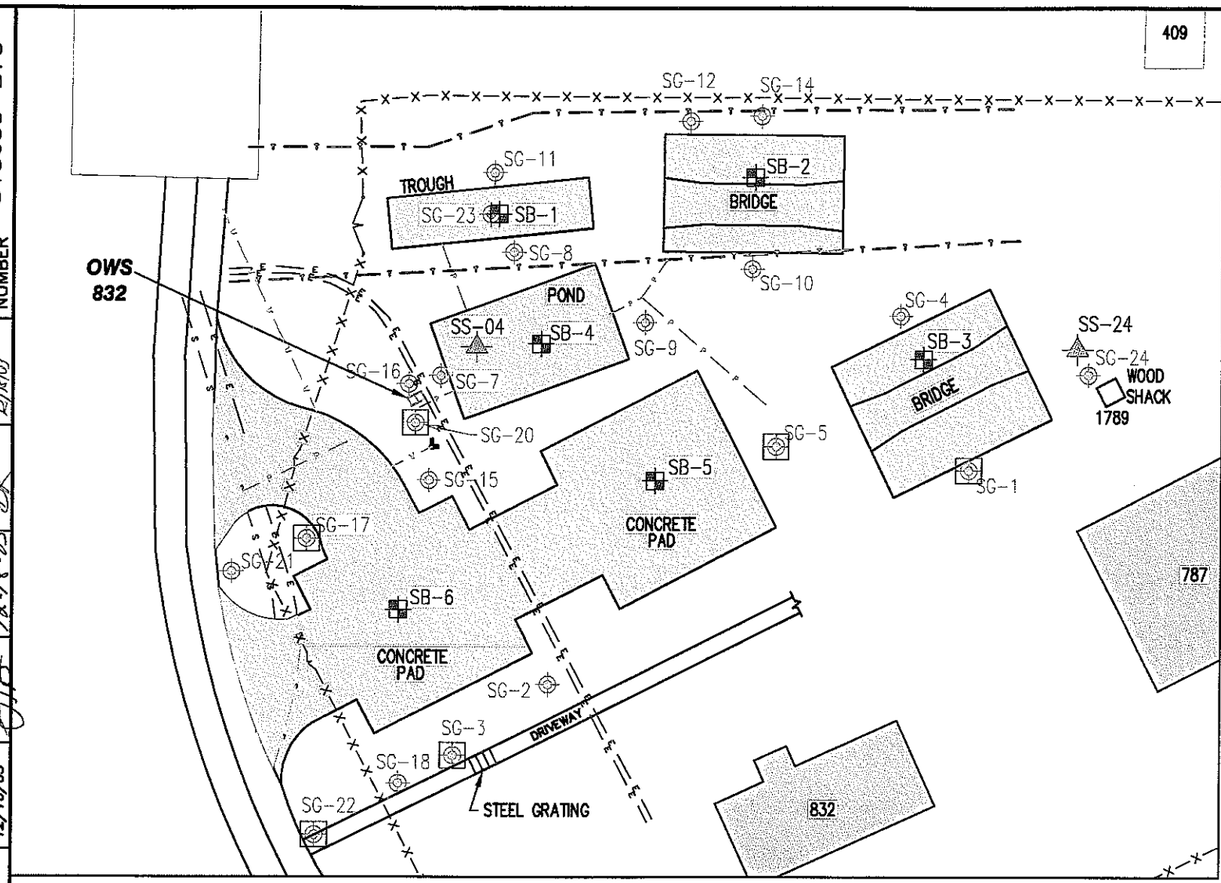

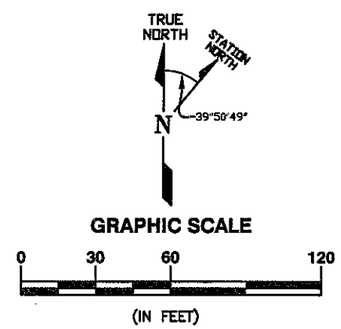

EXPLANATION:

- SOIL VAPOR SAMPLE LOCATION
- SOIL SAMPLE LOCATION
- SOIL VAPOR AND SOIL SAMPLE LOCATION
- SURFACE SOIL SAMPLE LOCATION
- CHAIN LINK FENCE
- ELECTRICAL
- SEWER
- TELEPHONE
- PVC DRAIN
- WATER/FIRE
- FIRE HYDRANT
- OIL WATER SEPARATOR (OWS)

B – RESULT EXCEEDS BACKGROUND
J – ESTIMATED VALUE
M – MODIFIED
MCAS – MARINE CORPS AIR STATION
mg/kg – MILLIGRAMS PER KILOGRAM
NE – NOT ESTABLISHED
TPH – TOTAL PETROLEUM HYDROCARBONS
U – NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
UJ – ESTIMATED REPORTING LIMIT
Y – RESULT EXCEEDS RESIDENTIAL PRGS
µg/kg – MICROGRAMS PER KILOGRAM
<> – CALIFORNIA PRELIMINARY REMEDIATION GOAL
* – BACKGROUND LEVEL @ MCAS EL TORO
ft bgl – FEET BELOW GROUND LEVEL
ug/L – MICROGRAMS PER LITER
ND – NOT DETECTED AT CONCENTRATIONS EQUAL TO OR LESS THAN THE LABORATORY REPORTING LIMIT
NA – NOT ANALYZED
* – ACETONE INCLUDED BECAUSE OF DETECTIONS IN SOIL

Detected Petroleum Hydrocarbons and Volatile Organic Compounds in Soil Vapor Concentrations

Location Code	Depth (ft bgl)	TPH-g µg/L	Freons µg/L	Acetone µg/L	Ethylbenzene µg/L	m,p-Xylenes µg/L	o-Xylene µg/L
SG-12	5	ND	ND	NA	ND	ND	ND
	10	ND	0 0086	0.030	ND	ND	ND
	10	ND	ND	NA	ND	ND	ND
SG-15	5	ND	0 14	0.062	0 0025	0.011	0 0045
	5	ND	ND	NA	ND	ND	ND
	10	ND	ND	NA	ND	ND	ND
SG-20	10	ND	1 1	NA	ND	ND	ND
	15	ND	ND	NA	ND	ND	ND
	15	ND	0.29	0.063	0.00066 J	0.0020 J	0.00084 J
SG-21	10	ND	3 6	NA	1 9	11	3 1
	20	ND	4 8	NA	2 2	11	2.8
	20	ND	1 9	0.066	0 14	1 2	0 43
	30	ND	N D	NA	ND	ND	1.0
SG-22	10	ND	ND	NA	ND	1.4	1 0
	20	ND	ND	NA	ND	ND	1.0

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FIGURE 4
SOIL VAPOR ANALYTICAL RESULTS
APHO 38 SITE
FORMER MARINE CORPS AIR STATION
EL TORO, CALIFORNIA

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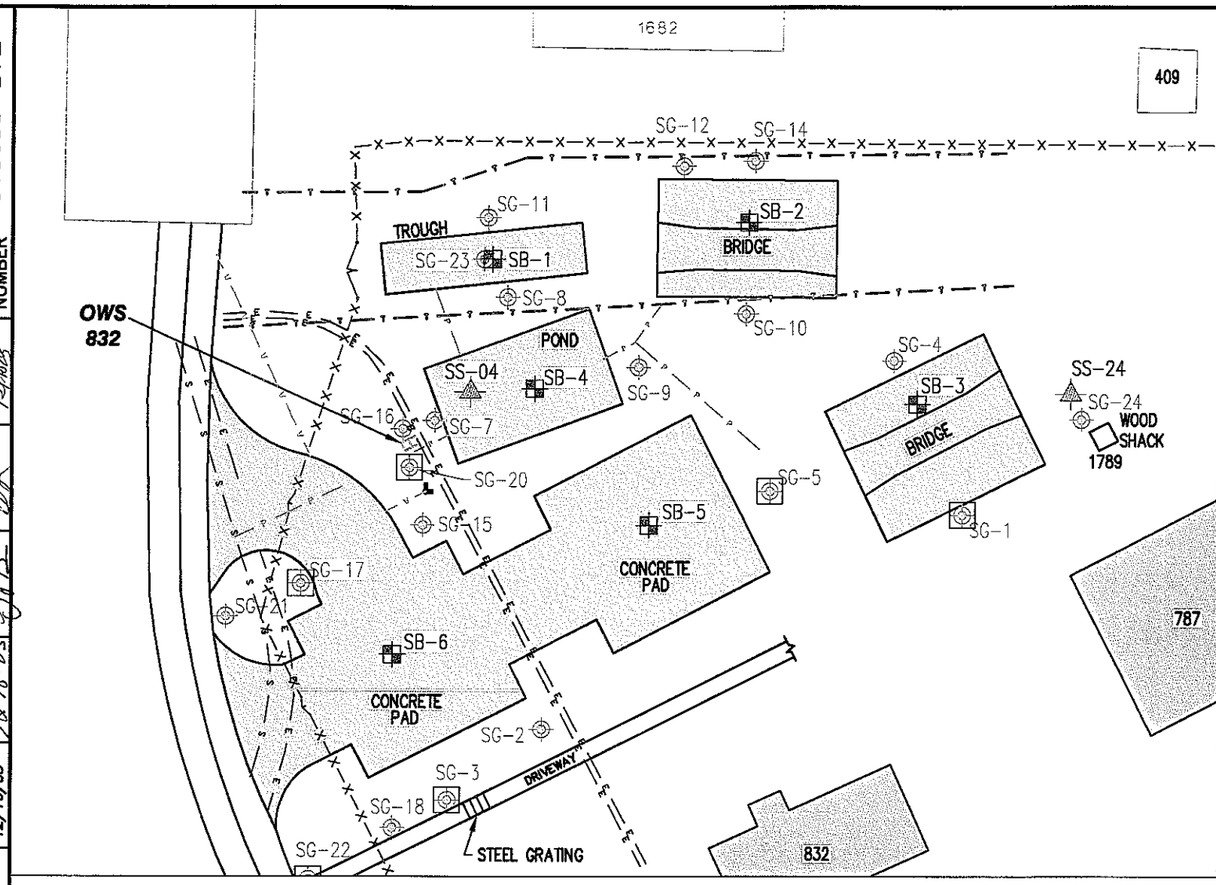
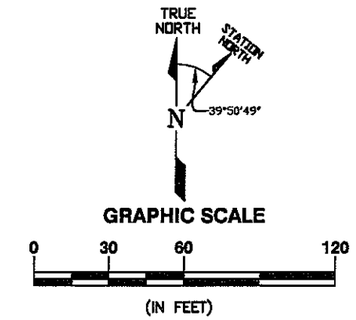




DETECTED PETROLEUM HYDROCARBONS AND VOCs

Location Code	Depth (ft bgl)	TPH DIESEL mg/kg	Acetone µg/kg
SB-01	1	ND	47 J
SB-01	5	6.5 J	15 J
SB-02	1	ND	18 J
SB-02	5	ND	25 J
SB-03	1	ND	13 J
SB-03	5	9.5 J	30 J
SB-04	1	ND	19 J
SB-04	20	ND	6.4 J
SB-04	30	ND	ND
SB-04	5	7.3 J	ND
SB-05	1	ND	55 J
SB-05	10	ND	20 J
SB-05	5	ND	11 J
SB-06	1	ND	31 J
SB-06	10	ND	12 J
SB-06	5	ND	24 J
SG-01	10	ND	10 J
SG-01	5	ND	19 J
SG-03	10	ND	12 J
SG-03	5	ND	42 J
SG-05	10	ND	9.4 J
SG-05	5	ND	10 J
SG-12	10	ND	10 J
SG-12	5	ND	7.5 J
SG-17	10	ND	17 J
SG-17	5	ND	33 J
SG-20	10	ND	19 J
SG-20	15	ND	11 J
SG-21	10	55	14 J
SG-21	20	ND	9.9 J
SG-22	10	ND	ND
SG-22	20	ND	11 J
SG-24	10	ND	15 J
SG-24	5	ND	17 J
SS-04	0	150	ND
SS-24	0	59	ND

DETECTED METALS

Location Code	Depth	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Vanadium	Zinc
	(ft bgl)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SB-01	1	17200 B	5.65 U	3.07 Y	97.3	.632	.507 J	13.4	7.58 B	8.05	14200	4.33	234	.113 U	7.91	37.9	43
SB-01	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-02	1	23900 B	2.7 J	4.56 Y	143	.797 B	1.07	16.7	8.67 B	10.8 B	20500 B	9.24	276	.127 U	10.2	50.5	92.8 B
SB-02	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-03	1	14200	5.72 U	2.33 Y	74.8	.504	.512 J	10.5	7.35 B	5.75	11600	2.95	183	.114 U	6.42	31	33
SB-03	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-04	1	15700 B	5.45 U	3.16 Y	83.3	.562	.611	12.1	14.3 B	8.23	13600	3.09	214	.109 U	7.32	35.8	40.1
SB-05	1	11800	6.24 U	1.81 Y	97.7	.471	.565 J	9.94	20.6 B	6.38	10800	3.66	216	.125 U	6.74	27.6	33.1
SB-06	1	15400 JB	6.26 U	2.58 Y	86.9	.57	.717	12.2	4.86	8.3	12400 J	9.57	154	.0503 J	7.64	34.5	63.5
SS-04	0	22500 B	6.45 U	3.75 Y	139	.847 B	6.65 B	24.3	8.56 B	28.3 B	21500 B	34.5 B	340 B	.0445 J	14.1	49.7	252 B
SS-24	0	13300 J	2.28 J	2.64 Y	77	.484	.814	11.2	4.68	8.15	11500 J	30.2 B	192 J	.102 U	7.07	30.5	296 JB

DETECTED SVOCs

Location Code	Depth	Benzo(a) Pyrene	Benzo(b) Fluoranthene	bis(2-ethylhexyl) phthalate	Chrysene	Fluoranthene	Indeno(1,2,3-cd)Pyrene	N-Nitroso-di-n-propylamine	Phenanthrene	Phenol	Pyrene
	(ft bgl)	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
SB01		ND	ND	ND	ND	ND	ND	ND	ND	1700	ND
SB03		ND	ND	ND	ND	ND	ND	ND	ND	4400	ND
SB-06	1	ND	31 J	ND	ND	ND	ND	ND	ND	ND	ND
SS-04	0	91 BY	630 BY	1300	950 B	1500 B	120 B	43 U	590 B	ND	960
SS-24	0	ND	ND	ND	ND	ND	ND	11 J	ND	ND	ND

EXPLANATION:

- SOIL VAPOR SAMPLE LOCATION
- SOIL SAMPLE LOCATION
- SOIL VAPOR AND SOIL SAMPLE LOCATION
- SURFACE SOIL SAMPLE LOCATION
- CHAIN LINK FENCE
- ELECTRICAL
- SEWER
- TELEPHONE
- PVC DRAIN
- WATER/FIRE
- FIRE HYDRANT
- OIL WATER SEPARATOR (OWS)

B – RESULT EXCEEDS BACKGROUND
J – ESTIMATED VALUE
M – MODIFIED
MCAS – MARINE CORPS AIR STATION
mg/kg – MILLIGRAMS PER KILOGRAM
NE – NOT ESTABLISHED
TPH – TOTAL PETROLEUM HYDROCARBONS
U – NOT DETECTED AT OR ABOVE THE STATED REPORTING LIMIT
UJ – ESTIMATED REPORTING LIMIT
Y – RESULT EXCEEDS RESIDENTIAL PRGS
µg/kg – MICROGRAMS PER KILOGRAM
* – BACKGROUND LEVEL @ MCAS EL TORO

Shaw Environmental, Inc.

EFA WEST
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CTO 24

FIGURE 5

SOIL ANALYTICAL RESULTS
APHO 38 SITE

FORMER MARINE CORPS AIR STATION
EL TORO, CALIFORNIA

DRAWN BY RP 12/16/03
CHECKED BY 12-18-03
APPROVED BY
DRAWING NUMBER 818655-B72

Dec 16, 2003 – 18:10:10 J:\IT_CORP\EFA_West\818655\818655B72.dwg

Tables

Table 1
Summary of Samples and Analyses, APHO 38 Investigation (Vapor and Soil)

Location	Depth	Matrix	Sample Number	6010B	7470A	8260B	8270C	Diesel	Gasoline	TO-15	TO-3
APHO38-SB-01	1	Soil	818655-3352	X	X	X	X	X	X		
	5	Soil	818655-3353			X		X	X		
APHO38-SB-02	1	Soil	818655-3360	X	X	X	X	X	X		
	5	Soil	818655-3355			X		X	X		
APHO38-SB-03	1	Soil	818655-3356	X	X	X	X	X	X		
	5	Soil	818655-3357			X		X	X		
APHO38-SB-04	1	Soil	818655-3350	X	X	X	X	X	X		
	5	Soil	818655-3351			X		X	X		
	20	Soil	818655-3365			X		X	X		
	30	Soil	818655-3366			X		X	X		
APHO38-SB-05	1	Soil	818655-3380	X	X	X	X	X	X		
	5	Soil	818655-3376			X		X	X		
	10	Soil	818655-3378			X		X	X		
APHO38-SB-06	1	Soil	818655-3384	X	X	X	X	X	X		
	5	Soil	818655-3382			X		X	X		
	10	Soil	818655-3383			X		X	X		
APHO38-SG-01	5	Vapor	SG1-5			X			X		
	10	Vapor	SG1-10			X			X		
	5	Soil	818655-3361			X		X	X		
	10	Soil	818655-3364			X		X	X		
APHO38-SG-02	5	Vapor	SG2-5			X			X		
	10	Vapor	SG2-10			X			X		
APHO38-SG-03	5	Vapor	SG3-5			X			X		
	10	Vapor	SG3-10			X			X		
	5	Soil	818655-3381			X		X	X		
	10	Soil	818655-3374			X		X	X		
APHO38-SG-04	5	Vapor	SG4-5			X			X		
	10	Vapor	SG4-10			X			X		
APHO38-SG-05	5	Vapor	SG5-5			X			X		
	10	Vapor	SG5-10			X			X		
	5	Soil	818655-3375			X		X	X		
	10	Soil	818655-3367			X		X	X		
APHO38-SG-07	5	Vapor	SG7-5			X			X		
	10	Vapor	SG7-10			X			X		
APHO38-SG-08	5	Vapor	SG8-5			X			X		
	10	Vapor	SG8-10			X			X		
	10	Vapor	SG8-10 DUP			X			X		
APHO38-SG-09	5	Vapor	SG9-5			X			X		
	10	Vapor	SG9-10			X			X		
APHO38-SG-10	5	Vapor	SG10-5			X			X		
	10	Vapor	SG10-10			X			X		
APHO38-SG-11	5	Vapor	SG11-5			X			X		
	10	Vapor	SG11-10			X			X		

Table 1
Summary of Samples and Analyses, APHO 38 Investigation (Vapor and Soil)

Location	Depth	Matrix	Sample Number	6010B	7470A	8260B	8270C	Diesel	Gasoline	TO-15	TO-3
APHO38-SG-12	5	Vapor	SG12-5			X			X		
	10	Vapor	SG12-10			X			X		
	5	Soil	818655-3362			X		X	X		
	10	Soil	818655-3363			X		X	X		
	10	Vapor	818655-3306							X	X
APHO38-SG-14	5	Vapor	SG14-5			X			X		
	10	Vapor	SG14-10			X			X		
APHO38-SG-15	5	Vapor	SG15-5			X			X		
	10	Vapor	SG15-10			X			X		
	5	Vapor	818655-3304							X	X
APHO38-SG-16	10	Vapor	SG16-10 1 PV			X			X		
	10	Vapor	SG16-10 3 PV			X			X		
	10	Vapor	SG16-10 7 PV			X			X		
	15	Vapor	SG16-15			X			X		
APHO38-SG-17	5	Vapor	SG17-5			X			X		
	10	Vapor	SG17-10			X			X		
	10	Vapor	SG17-10 DUP			X			X		
	15	Vapor	SG17-15			X			X		
	5	Soil	818655-3373			X		X	X		
	10	Soil	818655-3379			X		X	X		
APHO38-SG-18	5	Vapor	SG18-5			X			X		
	5	Vapor	SG18-5 DUP			X			X		
	10	Vapor	SG18-10			X			X		
APHO38-SG-20	10	Vapor	SG20-10			X			X		
	15	Vapor	SG20-15			X			X		
	10	Soil	818655-3371			X		X	X		
	15	Soil	818655-3377			X		X	X		
	15	Vapor	818655-3305							X	X
APHO38-SG-21	10	Vapor	SG21-10			X			X		
	20	Vapor	SG21-20			X			X		
	30	Vapor	SG21-30			X			X		
	10	Soil	818655-3370			X		X	X		
	20	Soil	818655-3372			X		X	X		
	20	Vapor	818655-3307							X	X

Table 1
Summary of Samples and Analyses, APHO 38 Investigation (Vapor and Soil)

Location	Depth	Matrix	Sample Number	6010B	7470A	8260B	8270C	Diesel	Gasoline	TO-15	TO-3
APHO38-SG-22	10	Vapor	SG22-10			X			X		
	20	Vapor	SG22-20			X			X		
	10	Soil	818655-3368			X		X	X		
	20	Soil	818655-3369			X		X	X		
APHO38-SG-23	5	Vapor	SG23-5			X			X		
APHO38-SG-24	5	Vapor	SG24-5			X			X		
	10	Vapor	SG24-10			X			X		
	10	Vapor	SG24-10 DUP			X			X		
	5	Soil	818655-3358			X		X	X		
	10	Soil	818655-3359			X		X	X		
APHO38-SS-04		Soil	818655-3386	X	X	X	X	X	X		
APHO38-SS-24		Soil	818655-3387	X	X	X	X	X	X		
APHO38-Sump1		water	818655-3261								
APHO38-Sump2		water	818655-3262	X	X	X		X	X		

Table 2
Analytical Results, OWS 832 Sump Water Samples, APHO 38, Former MCAS El Toro

Sample Identification		818655-3261	818655-3262
Location Code		APHO38-SUMP-1	APHO38-SUMP2
Date Sampled		04/03/03	04/03/03
	Unit		
TPH			
Diesel	mg/L	0.2 J	0.4 J
Gasoline	mg/L	0 01 J	0 02 J
VOLATILES			
1 1.1-Trichloroethane	ug/L	5 U	5 U
1.1 2,2-Tetrachloroethane	ug/L	5 U	5 U
1,1,2-Trichloroethane	ug/L	5 U	5 U
1 1-Dichloroethane	ug/L	5 U	5 U
1.1-Dichloroethene	ug/L	5 U	5 U
1.2,4-Trichlorobenzene	ug/L	10 U	10 U
1,2-Dichloroethane	ug/L	5 U	5 U
1 2-Dichloropropane	ug/L	5 U	5 U
2-Butanone	ug/L	50 U	50 U
2-Chloroethyl Vinyl Ether	ug/L	50 U	50 U
2-Hexanone	ug/L	50 U	50 U
4-Methyl-2-Pentanone	ug/L	3 J	2 J
Acetone	ug/L	50 U	50 U
Benzene	ug/L	5 U	5 U
Bromodichloromethane	ug/L	5 U	5 U
Bromoform	ug/L	5 U	5 U
Bromomethane	ug/L	5 U	5 U
Carbon Disulfide	ug/L	5 U	5 U
Carbon Tetrachloride	ug/L	5 U	5 U
Chlorobenzene	ug/L	5 U	5 U
Chloroethane	ug/L	5 U	5 U
Chloroform	ug/L	5 U	5 U
Chloromethane	ug/L	5 U	5 U
Cis-1.2-Dichloroethene	ug/L	5 U	5 U
Cis-1 3-Dichloropropene	ug/L	5 U	5 U
Dibromochloromethane	ug/L	5 U	5 U
Ethylbenzene	ug/L	5 U	5 U
Methyl Tert-Butyl Ether	ug/L	10 U	10 U
Methylene Chloride	ug/L	5 U	5 U
Styrene	ug/L	5 U	5 U
Tetrachloroethene	ug/L	5 U	5 U
Toluene	ug/L	5 U	0 4 J
Trans-1,2-Dichloroethene	ug/L	5 U	5 U
Trans-1.3-Dichloropropene	ug/L	5 U	5 U
Trichloroethene	ug/L	5 U	5 U
Vinyl Acetate	ug/L	50 U	50 U
Vinyl Chloride	ug/L	5 U	5 U
Xylene, (Total)	ug/L	5 U	5 U
METALS			
Antimony	ug/L	10 UP	6 9 BP
Arsenic	ug/L	5 UP	34 8 P
Barium	ug/L	305 P	1600 P
Beryllium	ug/L	2 UP	2 UP
Cadmium	ug/L	3 1 P	285 P
Chromium	ug/L	11 6 P	340 P
Cobalt	ug/L	3.4 BP	69.0 P
Copper	ug/L	21 7 P	622 P
Lead	ug/L	20.6 P	356 P
Mercury	ug/L	0.39 BCV	0 56 CV
Molybdenum	ug/L	1 4 BP	16.2 P
Nickel	ug/L	11 4 P	222 P
Selenium	ug/L	10 UP	7 6 BP
Silver	ug/L	1 1 BP	2.7 BP
Thallium	ug/L	10 UP	10 UP
Vanadium	ug/L	14 4 P	327 P
Zinc	ug/L	87 5 P	4110 P
WET CHEMISTRY			
Ignitability	C	100	100
Ph	pH_units	7.55	7.48

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification		SG1-5	SG1-10	SG2-5	SG2-10	SG3-5	SG3-10	SG4-5
Location Code		APHO38-SG-01	APHO38-SG-01	APHO38-SG-02	APHO38-SG-02	APHO38-SG-03	APHO38-SG-03	APHO38-SG-04
Date Sampled		05/19/03	05/19/03	05/19/03	05/19/03	05/19/03	05/19/03	05/19/03
Depth (feet below ground surface)		5	10	5	10	5	10	5
	Unit							
TPH VOLATILES								
Gasoline	µg/L	500 U	500 U	500 U	500 U	500 U	500 U	500 U
C4	µg/L	NA	NA	NA	NA	NA	NA	NA
C10+	µg/L	NA	NA	NA	NA	NA	NA	NA
C2	µg/L	NA	NA	NA	NA	NA	NA	NA
C7	µg/L	NA	NA	NA	NA	NA	NA	NA
C6	µg/L	NA	NA	NA	NA	NA	NA	NA
C9	µg/L	NA	NA	NA	NA	NA	NA	NA
C8	µg/L	NA	NA	NA	NA	NA	NA	NA
C5	µg/L	NA	NA	NA	NA	NA	NA	NA
C3	µg/L	NA	NA	NA	NA	NA	NA	NA
VOLATILES								
1,1,1,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Difluoroethane	µg/L	20 U	20 U	20 U	20 U	20 U	20 U	NA
1,2,4-Trichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
2-Butanone	µg/L	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	µg/L	NA	NA	NA	NA	NA	NA	NA
4-Ethyltoluene	µg/L	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	µg/L	NA	NA	NA	NA	NA	NA	NA
Acetone	µg/L	NA	NA	NA	NA	NA	NA	NA

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification		SG1-5	SG1-10	SG2-5	SG2-10	SG3-5	SG3-10	SG4-5
Location Code		APHO38-SG-01	APHO38-SG-01	APHO38-SG-02	APHO38-SG-02	APHO38-SG-03	APHO38-SG-03	APHO38-SG-04
Date Sampled		05/19/03	05/19/03	05/19/03	05/19/03	05/19/03	05/19/03	05/19/03
Depth (feet below ground surface)		5	10	5	10	5	10	5
	Unit							
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzyl chloride	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromoform	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromomethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	µg/L	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cis-1,3-Dichloropropene	µg/L	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Freon 114	µg/L	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	µg/L	NA	NA	NA	NA	NA	NA	NA
Isobutane	µg/L	NA	NA	NA	NA	NA	NA	NA
m,p-Xylenes	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert-butyl ether	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	µg/L	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trans-1,3-Dichloropropene	µg/L	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl acetate	µg/L	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)	Unit	SG4-10 APHO38-SG-04 05/19/03 10	SG5-5 APHO38-SG-05 05/19/03 5	SG5-10 APHO38-SG-05 05/19/03 10	SG7-5 APHO38-SG-07 05/20/03 5	SG7-10 APHO38-SG-07 05/20/03 10	SG8-5 APHO38-SG-08 05/20/03 5	SG8-10 APHO38-SG-08 05/20/03 10
TPH VOLATILES								
Gasoline	µg/L	500 U	500 U	500 U	500 U	500 U	500 U	500 U
C4	µg/L	NA	NA	NA	NA	NA	NA	NA
C10+	µg/L	NA	NA	NA	NA	NA	NA	NA
C2	µg/L	NA	NA	NA	NA	NA	NA	NA
C7	µg/L	NA	NA	NA	NA	NA	NA	NA
C6	µg/L	NA	NA	NA	NA	NA	NA	NA
C9	µg/L	NA	NA	NA	NA	NA	NA	NA
C8	µg/L	NA	NA	NA	NA	NA	NA	NA
C5	µg/L	NA	NA	NA	NA	NA	NA	NA
C3	µg/L	NA	NA	NA	NA	NA	NA	NA
VOLATILES								
1,1,1,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Difluoroethane	µg/L	NA	NA	NA	NA	NA	20 U	20 U
1,2,4-Trichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
2-Butanone	µg/L	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	µg/L	NA	NA	NA	NA	NA	NA	NA
4-Ethyltoluene	µg/L	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	µg/L	NA	NA	NA	NA	NA	NA	NA
Acetone	µg/L	NA	NA	NA	NA	NA	NA	NA

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification		SG4-10	SG5-5	SG5-10	SG7-5	SG7-10	SG8-5	SG8-10
Location Code		APHO38-SG-04	APHO38-SG-05	APHO38-SG-05	APHO38-SG-07	APHO38-SG-07	APHO38-SG-08	APHO38-SG-08
Date Sampled		05/19/03	05/19/03	05/19/03	05/20/03	05/20/03	05/20/03	05/20/03
Depth (feet below ground surface)		10	5	10	5	10	5	10
	Unit							
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzyl chloride	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromoform	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromomethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	µg/L	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cis-1,3-Dichloropropene	µg/L	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Freon 114	µg/L	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	µg/L	NA	NA	NA	NA	NA	NA	NA
Isobutane	µg/L	NA	NA	NA	NA	NA	NA	NA
m,p-Xylenes	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert-butyl ether	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	µg/L	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trans-1,3-Dichloropropene	µg/L	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl acetate	µg/L	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification		SG8-10 DUP	SG9-5	SG9-10	SG10-5	SG10-10	SG11-5	SG11-10
Location Code		APHO38-SG-08	APHO38-SG-09	APHO38-SG-09	APHO38-SG-10	APHO38-SG-10	APHO38-SG-11	APHO38-SG-11
Date Sampled		05/20/03	05/19/03	05/19/03	05/19/03	05/19/03	05/20/03	05/20/03
Depth (feet below ground surface)		10	5	10	5	10	5	10
	Unit							
TPH VOLATILES								
Gasoline	µg/L	500 U	500 U	500 U	500 U	500 U	500 U	500 U
C4	µg/L	NA	NA	NA	NA	NA	NA	NA
C10+	µg/L	NA	NA	NA	NA	NA	NA	NA
C2	µg/L	NA	NA	NA	NA	NA	NA	NA
C7	µg/L	NA	NA	NA	NA	NA	NA	NA
C6	µg/L	NA	NA	NA	NA	NA	NA	NA
C9	µg/L	NA	NA	NA	NA	NA	NA	NA
C8	µg/L	NA	NA	NA	NA	NA	NA	NA
C5	µg/L	NA	NA	NA	NA	NA	NA	NA
C3	µg/L	NA	NA	NA	NA	NA	NA	NA
VOLATILES								
1,1,1,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Difluoroethane	µg/L	20 U	20 U	20 U	20 U	20 U	20 U	20 U
1,2,4-Trichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
2-Butanone	µg/L	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	µg/L	NA	NA	NA	NA	NA	NA	NA
4-Ethyltoluene	µg/L	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	µg/L	NA	NA	NA	NA	NA	NA	NA
Acetone	µg/L	NA	NA	NA	NA	NA	NA	NA

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification		SG8-10 DUP	SG9-5	SG9-10	SG10-5	SG10-10	SG11-5	SG11-10
Location Code		APHO38-SG-08	APHO38-SG-09	APHO38-SG-09	APHO38-SG-10	APHO38-SG-10	APHO38-SG-11	APHO38-SG-11
Date Sampled		05/20/03	05/19/03	05/19/03	05/19/03	05/19/03	05/20/03	05/20/03
Depth (feet below ground surface)		10	5	10	5	10	5	10
	Unit							
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzyl chloride	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromoform	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromomethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	µg/L	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cis-1,3-Dichloropropene	µg/L	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Freon 114	µg/L	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	µg/L	NA	NA	NA	NA	NA	NA	NA
Isobutane	µg/L	NA	NA	NA	NA	NA	NA	NA
m,p-Xylenes	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert-butyl ether	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	µg/L	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trans-1,3-Dichloropropene	µg/L	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl acetate	µg/L	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification		SG12-5	818655-3306	SG12-10	SG14-5	SG14-10	818655-3304	SG15-5
Location Code		APHO38-SG-12	APHO38-SG-12	APHO38-SG-12	APHO38-SG-14	APHO38-SG-14	APHO38-SG-15	APHO38-SG-15
Date Sampled		05/19/03	05/19/03	05/19/03	05/19/03	05/19/03	05/20/03	05/20/03
Depth (feet below ground surface)		5	10	10	5	10	5	5
	Unit							
TPH VOLATILES								
Gasoline	µg/L	500 U	NA	500 U	500 U	500 U	NA	500 U
C4	µg/L	NA	0.47 U	NA	NA	NA	0.51 U	NA
C10+	µg/L	NA	5.9 U	NA	NA	NA	6.4 U	NA
C2	µg/L	NA	0.24 U	NA	NA	NA	1.3 U	NA
C7	µg/L	NA	0.81 U	NA	NA	NA	0.87 U	NA
C6	µg/L	NA	0.69 U	NA	NA	NA	0.74 U	NA
C9	µg/L	NA	1.0 U	NA	NA	NA	1.1 U	NA
C8	µg/L	NA	0.93 U	NA	NA	NA	1.0 U	NA
C5	µg/L	NA	0.57 U	NA	NA	NA	0.61 U	NA
C3	µg/L	NA	0.35 U	NA	NA	NA	0.38 U	NA
VOLATILES								
1,1,1,2-Tetrachloroethane	µg/L	1.0 U	NA	1.0 U	1.0 U	1.0 U	NA	1.0 U
1,1,1-Trichloroethane	µg/L	1.0 U	0.0011 U	1.0 U	1.0 U	1.0 U	0.0011 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	0.0014 U	1.0 U	1.0 U	1.0 U	0.0014 U	1.0 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	1.0 U	0.0086	1.0 U	1.0 U	1.0 U	0.14	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	0.0011 U	1.0 U	1.0 U	1.0 U	0.0011 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	0.00081 U	1.0 U	1.0 U	1.0 U	0.00081 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	0.00079 U	1.0 U	1.0 U	1.0 U	0.00079 U	1.0 U
1,1-Difluoroethane	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	µg/L	NA	0.0059 U	NA	NA	NA	0.0059 U	NA
1,2,4-Trimethylbenzene	µg/L	NA	0.0020 U	NA	NA	NA	0.0065	NA
1,2-Dibromoethane	µg/L	NA	0.0015 U	NA	NA	NA	0.0015 U	NA
1,2-Dichlorobenzene	µg/L	NA	0.0012 U	NA	NA	NA	0.0012 U	NA
1,2-Dichloroethane	µg/L	1.0 U	0.00081 U	1.0 U	1.0 U	1.0 U	0.00081 U	1.0 U
1,2-Dichloropropane	µg/L	NA	0.00092 U	NA	NA	NA	0.00092 U	NA
1,3,5-Trimethylbenzene	µg/L	NA	0.0020 U	NA	NA	NA	0.0016 J	NA
1,3-Dichlorobenzene	µg/L	NA	0.0012 U	NA	NA	NA	0.0012 U	NA
1,4-Dichlorobenzene	µg/L	NA	0.0012 U	NA	NA	NA	0.0012 U	NA
2-Butanone	µg/L	NA	0.0062	NA	NA	NA	0.015	NA
2-Hexanone	µg/L	NA	0.0016 U	NA	NA	NA	0.0022	NA
4-Ethyltoluene	µg/L	NA	0.0020 U	NA	NA	NA	0.0045	NA
4-Methyl-2-pentanone	µg/L	NA	0.0016 U	NA	NA	NA	0.0016 U	NA
Acetone	µg/L	NA	0.030	NA	NA	NA	0.062	NA

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification		SG12-5	818655-3306	SG12-10	SG14-5	SG14-10	818655-3304	SG15-5
Location Code		APHO38-SG-12	APHO38-SG-12	APHO38-SG-12	APHO38-SG-14	APHO38-SG-14	APHO38-SG-15	APHO38-SG-15
Date Sampled		05/19/03	05/19/03	05/19/03	05/19/03	05/19/03	05/20/03	05/20/03
Depth (feet below ground surface)		5	10	10	5	10	5	5
	Unit							
Benzene	µg/L	1.0 U	0.00091	1.0 U	1.0 U	1.0 U	0.0020	1.0 U
Benzyl chloride	µg/L	NA	0.0064 U	NA	NA	NA	0.0064 U	NA
Bromodichloromethane	µg/L	NA	0.0013 U	NA	NA	NA	0.0013 U	NA
Bromoform	µg/L	NA	0.0021 U	NA	NA	NA	0.0021 U	NA
Bromomethane	µg/L	NA	0.00078 U	NA	NA	NA	0.00078 U	NA
Carbon disulfide	µg/L	NA	0.0041	NA	NA	NA	0.0010 J	NA
Carbon tetrachloride	µg/L	1.0 U	0.00027 J	1.0 U	1.0 U	1.0 U	0.0010 J	1.0 U
Chlorobenzene	µg/L	NA	0.00092 U	NA	NA	NA	0.00049 J	NA
Chloroethane	µg/L	1.0 U	0.0011 U	1.0 U	1.0 U	1.0 U	0.0011 U	1.0 U
Chloroform	µg/L	1.0 U	0.00097 U	1.0 U	1.0 U	1.0 U	0.00048 J	1.0 U
Chloromethane	µg/L	NA	0.0014	NA	NA	NA	0.00092	NA
Cis-1,2-Dichloroethene	µg/L	1.0 U	0.00079 U	1.0 U	1.0 U	1.0 U	0.00079 U	1.0 U
Cis-1,3-Dichloropropene	µg/L	NA	0.00091 U	NA	NA	NA	0.00091 U	NA
Dibromochloromethane	µg/L	NA	0.0017 U	NA	NA	NA	0.0017 U	NA
Dichlorodifluoromethane	µg/L	1.0 U	0.0030	1.0 U	1.0 U	1.0 U	0.0030	1.0 U
Ethylbenzene	µg/L	1.0 U	0.00087 U	1.0 U	1.0 U	1.0 U	0.0025	1.0 U
Freon 114	µg/L	NA	0.0014 U	NA	NA	NA	0.0014 U	NA
Hexachlorobutadiene	µg/L	NA	0.0043 U	NA	NA	NA	0.0043 U	NA
Isobutane	µg/L	10 U	NA	NA	NA	NA	NA	10 U
m,p-Xylenes	µg/L	1.0 U	0.0022 U	1.0 U	1.0 U	1.0 U	0.011	1.0 U
Methyl tert-butyl ether	µg/L	1.0 U	0.0036 U	1.0 U	1.0 U	1.0 U	0.00064 J	1.0 U
Methylene chloride	µg/L	1.0 U	0.00066 J	1.0 U	1.0 U	1.0 U	0.0011	1.0 U
o-Xylene	µg/L	1.0 U	0.00087 U	1.0 U	1.0 U	1.0 U	0.0045	1.0 U
Styrene	µg/L	NA	0.00085 U	NA	NA	NA	0.00045 J	NA
Tetrachloroethene	µg/L	1.0 U	0.0011 J	1.0 U	1.0 U	1.0 U	0.00073 J	1.0 U
Toluene	µg/L	1.0 U	0.0038	1.0 U	1.0 U	1.0 U	0.010	1.0 U
Trans-1,2-Dichloroethene	µg/L	1.0 U	0.00079 U	1.0 U	1.0 U	1.0 U	0.00079 U	1.0 U
Trans-1,3-Dichloropropene	µg/L	NA	0.00091 U	NA	NA	NA	0.00091 U	NA
Trichloroethene	µg/L	1.0 U	0.0011 U	1.0 U	1.0 U	1.0 U	0.0011 U	1.0 U
Trichlorofluoromethane	µg/L	1.0 U	0.0013 J	1.0 U	1.0 U	1.0 U	0.0015 J	1.0 U
Vinyl acetate	µg/L	NA	0.0035 U	NA	NA	NA	0.0035 U	NA
Vinyl chloride	µg/L	1.0 U	0.00051 U	1.0 U	1.0 U	1.0 U	0.00051 U	1.0 U

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)		SG15-10 APHO38-SG-15 05/20/03 10	SG16-10 1 PV APHO38-SG-16 05/19/03 10	SG16-10 3 PV APHO38-SG-16 05/19/03 10	SG16-10 7 PV APHO38-SG-16 05/19/03 10	SG16-15 APHO38-SG-16 05/19/03 15	SG17-5 APHO38-SG-17 05/19/03 5	SG17-10 APHO38-SG-17 05/19/03 10
	Unit							
TPH VOLATILES								
Gasoline	µg/L	500 U	500 U	500 U	500 U	500 U	500 U	500 U
C4	µg/L	NA	NA	NA	NA	NA	NA	NA
C10+	µg/L	NA	NA	NA	NA	NA	NA	NA
C2	µg/L	NA	NA	NA	NA	NA	NA	NA
C7	µg/L	NA	NA	NA	NA	NA	NA	NA
C6	µg/L	NA	NA	NA	NA	NA	NA	NA
C9	µg/L	NA	NA	NA	NA	NA	NA	NA
C8	µg/L	NA	NA	NA	NA	NA	NA	NA
C5	µg/L	NA	NA	NA	NA	NA	NA	NA
C3	µg/L	NA	NA	NA	NA	NA	NA	NA
VOLATILES								
1,1,1,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.8
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Difluoroethane	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
2-Butanone	µg/L	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	µg/L	NA	NA	NA	NA	NA	NA	NA
4-Ethyltoluene	µg/L	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	µg/L	NA	NA	NA	NA	NA	NA	NA
Acetone	µg/L	NA	NA	NA	NA	NA	NA	NA

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)		SG15-10 APHO38-SG-15 05/20/03 10	SG16-10 1 PV APHO38-SG-16 05/19/03 10	SG16-10 3 PV APHO38-SG-16 05/19/03 10	SG16-10 7 PV APHO38-SG-16 05/19/03 10	SG16-15 APHO38-SG-16 05/19/03 15	SG17-5 APHO38-SG-17 05/19/03 5	SG17-10 APHO38-SG-17 05/19/03 10
	Unit							
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzyl chloride	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromoform	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromomethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	µg/L	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cis-1,3-Dichloropropene	µg/L	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Freon 114	µg/L	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	µg/L	NA	NA	NA	NA	NA	NA	NA
Isobutane	µg/L	NA	NA	NA	NA	10 U	NA	NA
m,p-Xylenes	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert-butyl ether	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	µg/L	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trans-1,3-Dichloropropene	µg/L	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl acetate	µg/L	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)	Unit	SG17-10 DUP APHO38-SG-17 05/19/03 10	SG17-15 APHO38-SG-17 05/20/03 15	SG18-5 APHO38-SG-18 05/19/03 5	SG18-5 DUP APHO38-SG-18 05/19/03 5	SG18-10 APHO38-SG-18 05/19/03 10	SG20-10 APHO38-SG-20 05/20/03 10	SG20-15 APHO38-SG-20 05/20/03 15
TPH VOLATILES								
Gasoline	µg/L	500 U	500 U	500 U	500 U	500 U	500 U	500 U
C4	µg/L	NA	NA	NA	NA	NA	NA	NA
C10+	µg/L	NA	NA	NA	NA	NA	NA	NA
C2	µg/L	NA	NA	NA	NA	NA	NA	NA
C7	µg/L	NA	NA	NA	NA	NA	NA	NA
C6	µg/L	NA	NA	NA	NA	NA	NA	NA
C9	µg/L	NA	NA	NA	NA	NA	NA	NA
C8	µg/L	NA	NA	NA	NA	NA	NA	NA
C5	µg/L	NA	NA	NA	NA	NA	NA	NA
C3	µg/L	NA	NA	NA	NA	NA	NA	NA
VOLATILES								
1,1,1,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	1.6	1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Difluoroethane	µg/L	NA	20 U	20 U	20 U	20 U	NA	20 U
1,2,4-Trichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
2-Butanone	µg/L	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	µg/L	NA	NA	NA	NA	NA	NA	NA
4-Ethyltoluene	µg/L	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	µg/L	NA	NA	NA	NA	NA	NA	NA
Acetone	µg/L	NA	NA	NA	NA	NA	NA	NA

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification		SG17-10 DUP	SG17-15	SG18-5	SG18-5 DUP	SG18-10	SG20-10	SG20-15
Location Code		APHO38-SG-17	APHO38-SG-17	APHO38-SG-18	APHO38-SG-18	APHO38-SG-18	APHO38-SG-20	APHO38-SG-20
Date Sampled		05/19/03	05/20/03	05/19/03	05/19/03	05/19/03	05/20/03	05/20/03
Depth (feet below ground surface)		10	15	5	5	10	10	15
	Unit							
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzyl chloride	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromoform	µg/L	NA	NA	NA	NA	NA	NA	NA
Bromomethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	µg/L	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	NA	NA	NA	NA	NA	NA	NA
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cis-1,3-Dichloropropene	µg/L	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	µg/L	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Freon 114	µg/L	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	µg/L	NA	NA	NA	NA	NA	NA	NA
Isobutane	µg/L	NA	NA	NA	NA	NA	NA	NA
m,p-Xylenes	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert-butyl ether	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	µg/L	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trans-1,3-Dichloropropene	µg/L	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl acetate	µg/L	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification		818655-3305	SG21-10	SG21-20	818655-3307	SG21-30	SG22-10	SG22-20
Location Code		APHO38-SG-20	APHO38-SG-21	APHO38-SG-21	APHO38-SG-21	APHO38-SG-21	APHO38-SG-22	APHO38-SG-22
Date Sampled		05/20/03	05/20/03	05/20/03	05/21/03	05/21/03	05/20/03	05/20/03
Depth (feet below ground surface)		15	10	20	20	30	10	20
	Unit							
TPH VOLATILES								
Gasoline	µg/L	NA	500 U	500 U	NA	500 U	500 U	500 U
C4	µg/L	0.56 U	NA	NA	0.42 U	NA	NA	NA
C10+	µg/L	7.0 U	NA	NA	5.2 U	NA	NA	NA
C2	µg/L	1.4 U	NA	NA	0.21 U	NA	NA	NA
C7	µg/L	0.95 U	NA	NA	0.72 U	NA	NA	NA
C6	µg/L	0.81 U	NA	NA	0.61 U	NA	NA	NA
C9	µg/L	1.2 U	NA	NA	1.1 U	NA	NA	NA
C8	µg/L	1.1 U	NA	NA	0.82 U	NA	NA	NA
C5	µg/L	0.67 U	NA	NA	0.51 U	NA	NA	NA
C3	µg/L	0.42 U	NA	NA	0.32 U	NA	NA	NA
VOLATILES								
1,1,1,2-Tetrachloroethane	µg/L	NA	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	µg/L	0.0011 U	1.0 U	1.0 U	0.012 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	0.0014 U	1.0 U	1.0 U	0.015 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	0.29	3.6	4.8	1.9	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	0.0011 U	1.0 U	1.0 U	0.012 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	0.00081 U	1.0 U	1.0 U	0.0089 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	0.00079 U	1.0 U	1.0 U	0.0087 U	1.0 U	1.0 U	1.0 U
1,1-Difluoroethane	µg/L	NA	NA	NA	NA	20 U	20 U	20 U
1,2,4-Trichlorobenzene	µg/L	0.0059 U	NA	NA	0.065 U	NA	NA	NA
1,2,4-Trimethylbenzene	µg/L	0.0024	NA	NA	0.022 U	NA	NA	NA
1,2-Dibromoethane	µg/L	0.0015 U	NA	NA	0.016 U	NA	NA	NA
1,2-Dichlorobenzene	µg/L	0.0012 U	NA	NA	0.013 U	NA	NA	NA
1,2-Dichloroethane	µg/L	0.00081 U	1.0 U	1.0 U	0.0089 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	0.00092 U	NA	NA	0.010 U	NA	NA	NA
1,3,5-Trimethylbenzene	µg/L	0.00047 J	NA	NA	0.022 U	NA	NA	NA
1,3-Dichlorobenzene	µg/L	0.0012 U	NA	NA	0.013 U	NA	NA	NA
1,4-Dichlorobenzene	µg/L	0.0012 U	NA	NA	0.013 U	NA	NA	NA
2-Butanone	µg/L	0.018	NA	NA	0.032 U	NA	NA	NA
2-Hexanone	µg/L	0.0021	NA	NA	0.018 U	NA	NA	NA
4-Ethyltoluene	µg/L	0.0014 J	NA	NA	0.022 U	NA	NA	NA
4-Methyl-2-pentanone	µg/L	0.0016 U	NA	NA	0.018 U	NA	NA	NA
Acetone	µg/L	0.063	NA	NA	0.066	NA	NA	NA

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification		818655-3305	SG21-10	SG21-20	818655-3307	SG21-30	SG22-10	SG22-20
Location Code		APHO38-SG-20	APHO38-SG-21	APHO38-SG-21	APHO38-SG-21	APHO38-SG-21	APHO38-SG-22	APHO38-SG-22
Date Sampled		05/20/03	05/20/03	05/20/03	05/21/03	05/21/03	05/20/03	05/20/03
Depth (feet below ground surface)		15	10	20	20	30	10	20
	Unit							
Benzene	µg/L	0.0013	1.0 U	1.0 U	0.0070 U	1.0 U	1.0 U	1.0 U
Benzyl chloride	µg/L	0.0064 U	NA	NA	0.070 U	NA	NA	NA
Bromodichloromethane	µg/L	0.0013 U	NA	NA	0.014 U	NA	NA	NA
Bromoform	µg/L	0.0021 U	NA	NA	0.023 U	NA	NA	NA
Bromomethane	µg/L	0.00078 U	NA	NA	0.0085 U	NA	NA	NA
Carbon disulfide	µg/L	0.0011 J	NA	NA	0.034 U	NA	NA	NA
Carbon tetrachloride	µg/L	0.00096 J	1.0 U	1.0 U	0.014 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	0.00092 U	NA	NA	0.010 U	NA	NA	NA
Chloroethane	µg/L	0.0011 U	1.0 U	1.0 U	0.012 U	1.0 U	1.0 U	1.0 U
Chloroform	µg/L	0.00097 U	1.0 U	1.0 U	0.011 U	1.0 U	1.0 U	1.0 U
Chloromethane	µg/L	0.00099	NA	NA	0.0090 U	NA	NA	NA
Cis-1,2-Dichloroethene	µg/L	0.00079 U	1.0 U	1.0 U	0.0087 U	1.0 U	1.0 U	1.0 U
Cis-1,3-Dichloropropene	µg/L	0.00091 U	NA	NA	0.010 U	NA	NA	NA
Dibromochloromethane	µg/L	0.0017 U	NA	NA	0.019 U	NA	NA	NA
Dichlorodifluoromethane	µg/L	0.0033	1.0 U	1.0 U	0.011 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	0.00066 J	1.9	2.2	0.14	1.0 U	1.0 U	1.0 U
Freon 114	µg/L	0.0014 U	NA	NA	0.015 U	NA	NA	NA
Hexachlorobutadiene	µg/L	0.0043 U	NA	NA	0.047 U	NA	NA	NA
Isobutane	µg/L	NA	NA	NA	NA	NA	NA	NA
m,p-Xylenes	µg/L	0.0020 J	11	11	1.2	1.0 U	1.4	1.0 U
Methyl tert-butyl ether	µg/L	0.00044 J	1.0 U	1.0 U	0.039 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	0.0012	1.0 U	1.0 U	0.0030 J	1.0 U	1.0 U	1.0 U
o-Xylene	µg/L	0.00084 J	3.1	2.8	0.43	1.0 U	1.0 U	1.0 U
Styrene	µg/L	0.00085 U	NA	NA	0.0093 U	NA	NA	NA
Tetrachloroethene	µg/L	0.0011 J	1.0 U	1.0 U	0.015 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	0.0044	1.0 U	1.0 U	0.012 U	1.0 U	1.0 U	1.0 U
Trans-1,2-Dichloroethene	µg/L	0.00079 U	1.0 U	1.0 U	0.0087 U	1.0 U	1.0 U	1.0 U
Trans-1,3-Dichloropropene	µg/L	0.00091 U	NA	NA	0.010 U	NA	NA	NA
Trichloroethene	µg/L	0.0011 U	1.0 U	1.0 U	0.012 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	µg/L	0.0015 J	1.0 U	1.0 U	0.024 U	1.0 U	1.0 U	1.0 U
Vinyl acetate	µg/L	0.0035 U	NA	NA	0.038 U	NA	NA	NA
Vinyl chloride	µg/L	0.00051 U	1.0 U	1.0 U	0.0056 U	1.0 U	1.0 U	1.0 U

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)		SG23-5 APHO38-SG-23 05/20/03 5	SG24-5 APHO38-SG-24 05/20/03 5	SG24-10 APHO38-SG-24 05/20/03 10	SG24-10 DUP APHO38-SG-24 05/20/03 10
	Unit				
TPH VOLATILES					
Gasoline	µg/L	500 U	500 U	500 U	500 U
C4	µg/L	NA	NA	NA	NA
C10+	µg/L	NA	NA	NA	NA
C2	µg/L	NA	NA	NA	NA
C7	µg/L	NA	NA	NA	NA
C6	µg/L	NA	NA	NA	NA
C9	µg/L	NA	NA	NA	NA
C8	µg/L	NA	NA	NA	NA
C5	µg/L	NA	NA	NA	NA
C3	µg/L	NA	NA	NA	NA
VOLATILES					
1,1,1,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Difluoroethane	µg/L	20 U	NA	NA	NA
1,2,4-Trichlorobenzene	µg/L	NA	NA	NA	NA
1,2,4-Trimethylbenzene	µg/L	NA	NA	NA	NA
1,2-Dibromoethane	µg/L	NA	NA	NA	NA
1,2-Dichlorobenzene	µg/L	NA	NA	NA	NA
1,2-Dichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	NA	NA	NA	NA
1,3,5-Trimethylbenzene	µg/L	NA	NA	NA	NA
1,3-Dichlorobenzene	µg/L	NA	NA	NA	NA
1,4-Dichlorobenzene	µg/L	NA	NA	NA	NA
2-Butanone	µg/L	NA	NA	NA	NA
2-Hexanone	µg/L	NA	NA	NA	NA
4-Ethyltoluene	µg/L	NA	NA	NA	NA
4-Methyl-2-pentanone	µg/L	NA	NA	NA	NA
Acetone	µg/L	NA	NA	NA	NA

Table 3
Analytical Results, Soil Vapor Investigation, APHO 38, Former MCAS El Toro

Sample Identification		SG23-5	SG24-5	SG24-10	SG24-10 DUP
Location Code		APHO38-SG-23	APHO38-SG-24	APHO38-SG-24	APHO38-SG-24
Date Sampled		05/20/03	05/20/03	05/20/03	05/20/03
Depth (feet below ground surface)		5	5	10	10
	Unit				
Benzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Benzyl chloride	µg/L	NA	NA	NA	NA
Bromodichloromethane	µg/L	NA	NA	NA	NA
Bromoform	µg/L	NA	NA	NA	NA
Bromomethane	µg/L	NA	NA	NA	NA
Carbon disulfide	µg/L	NA	NA	NA	NA
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	NA	NA	NA	NA
Chloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	µg/L	NA	NA	NA	NA
Cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Cis-1,3-Dichloropropene	µg/L	NA	NA	NA	NA
Dibromochloromethane	µg/L	NA	NA	NA	NA
Dichlorodifluoromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Freon 114	µg/L	NA	NA	NA	NA
Hexachlorobutadiene	µg/L	NA	NA	NA	NA
Isobutane	µg/L	NA	NA	NA	NA
m,p-Xylenes	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert-butyl ether	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	µg/L	NA	NA	NA	NA
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Trans-1,3-Dichloropropene	µg/L	NA	NA	NA	NA
Trichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl acetate	µg/L	NA	NA	NA	NA
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3352	818655-3353	818655-3360	818655-3355	818655-3356
Location Code				APHO38-SB-01	APHO38-SB-01	APHO38-SB-02	APHO38-SB-02	APHO38-SB-03
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				1	5	1	5	1
	Unit	**Background**	**Residential PRG**					
TPH								
Diesel	mg/kg	NE	NE	11 U	6.5 J	13 U	11 U	11 U
Gasoline	mg/kg	NE	NE	11 U	9.1 U	11 U	9.1 U	12 U
VOLATILES								
1,1,1-Trichloroethane	µg/kg	NE	1200000	5 U	5.1 U	5.8 U	6.4 U	4.7 U
1,1,2,2-Tetrachloroethane	µg/kg	NE	410	5 U	5.1 U	5.8 U	6.4 U	4.7 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/kg	NE	5600000	5 U	5.1 U	5.8 U	6.4 U	4.7 U
1,1,2-Trichloroethane	µg/kg	NE	730	5 U	5.1 U	5.8 U	6.4 U	4.7 U
1,1-Dichloroethane	µg/kg	NE	510000 <2800>	5 U	5.1 U	5.8 U	6.4 U	4.7 U
1,1-Dichloroethene	µg/kg	NE	120000	5 U	5.1 U	5.8 U	6.4 U	4.7 U
1,2-Dichloroethane	µg/kg	NE	280	5 U	5.1 U	5.8 U	6.4 U	4.7 U
1,2-Dichloropropane	µg/kg	NE	340	5 U	5.1 U	5.8 U	6.4 U	4.7 U
2-Butanone	µg/kg	NE	7300000	50 U	51 U	58 U	64 U	47 U
2-Chloroethyl Vinyl Ether	µg/kg	NE	NE	50 U	51 U	58 UJ	64 U	47 U
2-Hexanone	µg/kg	NE	NE	50 U	51 U	58 U	64 U	47 U
4-Methyl-2-Pentanone	µg/kg	NE	790000	50 U	51 U	58 U	64 U	47 U
Acetone	µg/kg	NE	1600000	47 J	15 J	18 J	25 J	13 J
Benzene	µg/kg	NE	600	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Bromodichloromethane	µg/kg	NE	820	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Bromoform	µg/kg	NE	62000	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Bromomethane	µg/kg	NE	3900	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Carbon Disulfide	µg/kg	NE	360000	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Carbon Tetrachloride	µg/kg	NE	250	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Chlorobenzene	µg/kg	NE	150000	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Chloroethane	µg/kg	NE	3000	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Chloroform	µg/kg	NE	3600 <940>	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Chloromethane	µg/kg	NE	1200	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Cis-1,2-Dichloroethene	µg/kg	NE	43000	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Cis-1,3-Dichloropropene	µg/kg	NE	780	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Dibromochloromethane	µg/kg	NE	1100	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Ethylbenzene	µg/kg	NE	8900	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Methyl tert-butyl Ether	µg/kg	NE	62000 <17000>	9.9 U	10 U	12 U	13 U	9.5 U
Methylene Chloride	µg/kg	NE	9100	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Styrene	µg/kg	NE	1700000	5 U	5.1 U	5.8 U	6.4 U	4.7 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3352	818655-3353	818655-3360	818655-3355	818655-3356
Location Code				APHO38-SB-01	APHO38-SB-01	APHO38-SB-02	APHO38-SB-02	APHO38-SB-03
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				1	5	1	5	1
	Unit	**Background**	**Residential PRG**					
Tetrachloroethene	µg/kg	NE	1500	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Toluene	µg/kg	NE	520000	5 U	5.1 U	5.8 U	6.4 U	4.7 U
trans-1,2-Dichloroethene	µg/kg	NE	69000	5 U	5.1 U	5.8 U	6.4 U	4.7 U
trans-1,3-Dichloropropene	µg/kg	NE	780	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Trichloroethene	µg/kg	NE	53	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Vinyl Acetate	µg/kg	NE	430000	50 U	51 U	58 U	64 U	47 U
Vinyl Chloride	µg/kg	NE	79	5 U	5.1 U	5.8 U	6.4 U	4.7 U
Xylene, (Total)	µg/kg	NE	270000	5 U	5.1 U	5.8 U	6.4 U	4.7 U
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	µg/kg	NE	650000	370 U	NA	420 U	NA	380 U
1,2-Dichlorobenzene	µg/kg	NE	370000	370 U	NA	420 U	NA	380 U
1,3-Dichlorobenzene	µg/kg	NE	16000	370 U	NA	420 U	NA	380 U
1,4-Dichlorobenzene	µg/kg	NE	3400	370 U	NA	420 U	NA	380 U
2,4,5-Trichlorophenol	µg/kg	NE	6100000	940 U	NA	1100 U	NA	950 U
2,4,6-Trichlorophenol	µg/kg	NE	6100 <6900>	370 U	NA	420 U	NA	380 U
2,4-Dichlorophenol	µg/kg	NE	180000	370 U	NA	420 U	NA	380 U
2,4-Dimethylphenol	µg/kg	NE	1200000	370 U	NA	420 U	NA	380 U
2,4-Dinitrophenol	µg/kg	NE	120000	940 UJ	NA	1100 UJ	NA	950 UJ
2,4-Dinitrotoluene	µg/kg	NE	120000	370 U	NA	420 U	NA	380 U
2,6-Dinitrotoluene	µg/kg	NE	61000	370 U	NA	420 U	NA	380 U
2-Chloronaphthalene	µg/kg	NE	4900000	370 U	NA	420 U	NA	380 U
2-Chlorophenol	µg/kg	NE	63000	370 U	NA	420 U	NA	380 U
2-Methylnaphthalene	µg/kg	NE	NE	370 U	NA	420 U	NA	380 U
2-Methylphenol	µg/kg	NE	3000000	370 U	NA	420 U	NA	380 U
2-Nitroaniline	µg/kg	NE	1700	940 U	NA	1100 U	NA	950 U
2-Nitrophenol	µg/kg	NE	NE	370 U	NA	420 U	NA	380 U
3,3'-Dichlorobenzidine	µg/kg	NE	1100	370 U	NA	420 U	NA	380 U
3-Nitroaniline	µg/kg	NE	NE	940 U	NA	1100 U	NA	950 U
4,6-Dinitro-2-Methylphenol	µg/kg	NE	NE	940 U	NA	1100 U	NA	950 U
4-Bromophenyl Phenyl Ether	µg/kg	NE	NE	370 U	NA	420 U	NA	380 U
4-Chloro-3-Methylphenol	µg/kg	NE	NE	370 U	NA	420 U	NA	380 U
4-Chloroaniline	µg/kg	NE	240000	370 U	NA	420 U	NA	380 U
4-Chlorophenyl Phenyl Ether	µg/kg	NE	NE	370 U	NA	420 U	NA	380 U
4-Methylphenol	µg/kg	NE	310000	370 U	NA	420 U	NA	380 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3352	818655-3353	818655-3360	818655-3355	818655-3356
Location Code				APHO38-SB-01	APHO38-SB-01	APHO38-SB-02	APHO38-SB-02	APHO38-SB-03
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				1	5	1	5	1
	Unit	Background	Residential PRG					
4-Nitroaniline	µg/kg	NE	NE	940 U	NA	1100 U	NA	950 U
4-Nitrophenol	µg/kg	NE	NE	940 UJ	NA	1100 UJ	NA	950 UJ
Acenaphthene	µg/kg	NE	3700000	370 U	NA	420 U	NA	380 U
Acenaphthylene	µg/kg	NE	NE	370 U	NA	420 U	NA	380 U
Anthracene	µg/kg	NE	22000000	370 U	NA	420 U	NA	380 U
Benzo(a)Anthracene	µg/kg	22	620	370 U	NA	420 U	NA	380 U
Benzo(a)Pyrene	µg/kg	27	62	37 U	NA	42 U	NA	38 U
Benzo(b)Fluoranthene	µg/kg	28	620	370 U	NA	420 U	NA	380 U
Benzo(ghi)Perylene	µg/kg	29	NE	370 U	NA	420 U	NA	380 U
Benzo(k)Fluoranthene	µg/kg	24	6200 <380>	370 U	NA	420 U	NA	380 U
bis(2-chloroethoxy)methane	µg/kg	NE	NE	370 U	NA	420 U	NA	380 U
bis(2-chloroethyl)ether	µg/kg	NE	210	37 U	NA	42 U	NA	38 U
bis(2-chloroisopropyl)ether	µg/kg	NE	2900	370 UJ	NA	420 UJ	NA	380 UJ
bis(2-ethylhexyl)phthalate	µg/kg	NE	35000	370 U	NA	420 U	NA	380 U
Butyl benzyl phthalate	µg/kg	NE	12000000	370 U	NA	420 U	NA	380 U
Chrysene	µg/kg	31	62000 <3800>	370 U	NA	420 U	NA	380 U
Di-n-butyl phthalate	µg/kg	NE	6100000	370 U	NA	420 U	NA	380 U
Di-n-octyl phthalate	µg/kg	NE	2400000	370 U	NA	420 U	NA	380 U
Dibenzo(a,h)Anthracene	µg/kg	8	62	37 U	NA	42 U	NA	38 U
Dibenzofuran	µg/kg	NE	290000	370 U	NA	420 U	NA	380 U
Diethyl Phthalate	µg/kg	NE	49000000	370 U	NA	420 U	NA	380 U
Dimethyl Phthalate	µg/kg	NE	100000000	370 U	NA	420 U	NA	380 U
Fluoranthene	µg/kg	45	2300000	370 U	NA	420 U	NA	380 U
Fluorene	µg/kg	NE	2700000	370 U	NA	420 U	NA	380 U
Hexachlorobenzene	µg/kg	NE	300	85 U	NA	96 U	NA	86 U
Hexachlorobutadiene	µg/kg	NE	6200	370 U	NA	420 U	NA	380 U
Hexachlorocyclopentadiene	µg/kg	NE	370000	370 U	NA	420 U	NA	380 U
Hexachloroethane	µg/kg	NE	35000	370 U	NA	420 U	NA	380 U
Indeno(1,2,3-cd)Pyrene	µg/kg	21	620	40 U	NA	45 U	NA	40 U
N-Nitroso-di-n-propylamine	µg/kg	NE	69	37 U	NA	42 U	NA	38 U
N-Nitrosodiphenylamine	µg/kg	NE	99000	370 U	NA	420 U	NA	380 U
Naphthalene	µg/kg	NE	56000	370 U	NA	420 U	NA	380 U
Nitrobenzene	µg/kg	NE	20000	370 U	NA	420 U	NA	380 U
Pentachlorophenol	µg/kg	NE	3000	230 U	NA	250 U	NA	230 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3352	818655-3353	818655-3360	818655-3355	818655-3356
Location Code				APHO38-SB-01	APHO38-SB-01	APHO38-SB-02	APHO38-SB-02	APHO38-SB-03
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				1	5	1	5	1
	Unit	Background	Residential PRG					
Phenanthrene	µg/kg	18	NE	370 U	NA	420 U	NA	380 U
Phenol	µg/kg	NE	37000000	1700	NA	4400	NA	1900
Pyrene	µg/kg	41	2300000	370 U	NA	420 U	NA	380 U
METALS								
Aluminum	mg/kg	14800	76000	17200 B	NA	23900 B	NA	14200
Antimony	mg/kg	3.06	31	5.65 U	NA	2.7 J	NA	5.72 U
Arsenic	mg/kg	6.86	0.39	3.07 Y X	NA	4.56 Y X	NA	2.33 Y X
Barium	mg/kg	173	5400	97.3	NA	143	NA	74.8
Beryllium	mg/kg	0.669	150	.632	NA	.797 B	NA	.504
Cadmium	mg/kg	2.35	37 <1.7>	.507 J	NA	1.07	NA	.512 J
Calcium	mg/kg	46000	NE	3870	NA	14600	NA	5560
Chromium	mg/kg	26.9	210	13.4	NA	16.7	NA	10.5
Cobalt	mg/kg	6.98	900	7.58 B	NA	8.67 B	NA	7.35 B
Copper	mg/kg	10.5	3100	8.05	NA	10.8 B	NA	5.75
Iron	mg/kg	18400	23000	14200	NA	20500 B	NA	11600
Lead	mg/kg	15.1	400 <150>	4.33	NA	9.24	NA	2.95
Magnesium	mg/kg	8370	NE	5570	NA	9060 B	NA	5110
Manganese	mg/kg	291	1800	234	NA	276	NA	183
Mercury	mg/kg	0.22	NE	.113 U	NA	.127 U	NA	.114 U
Molybdenum	mg/kg	NE	390	5.65 U	NA	6.37 U	NA	5.72 U
Nickel	mg/kg	15.3	1600	7.91	NA	10.2	NA	6.42
Potassium	mg/kg	4890	NE	3680	NA	4660	NA	2770
Selenium	mg/kg	0.32	390	.655 U	NA	.689 U	NA	.627 U
Silver	mg/kg	0.539	390	2.26 U	NA	2.55 U	NA	2.29 U
Sodium	mg/kg	405	NE	172	NA	140	NA	198
Thallium	mg/kg	0.42	5.2	.384 U	NA	.486 U	NA	1.02 U
Vanadium	mg/kg	71.8	550	37.9	NA	50.5	NA	31
Zinc	mg/kg	77.9	23000	43	NA	92.8 B	NA	33

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)				818655-3357 APHO38-SB-03 05/21/03 5	818655-3350 APHO38-SB-04 05/21/03 1	818655-3365 APHO38-SB-04 05/21/03 20	818655-3366 APHO38-SB-04 05/21/03 30	818655-3351 APHO38-SB-04 05/21/03 5
	Unit	**Background**	**Residential PRG**					
TPH								
Diesel	mg/kg	NE	NE	9.5 J	11 U	13 U	11 U	7.3 J
Gasoline	mg/kg	NE	NE	9.9 U	10 U	14 U	11 U	12 U
VOLATILES								
1,1,1-Trichloroethane	µg/kg	NE	1200000	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
1,1,2,2-Tetrachloroethane	µg/kg	NE	410	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/kg	NE	5600000	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
1,1,2-Trichloroethane	µg/kg	NE	730	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
1,1-Dichloroethane	µg/kg	NE	510000 <2800>	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
1,1-Dichloroethene	µg/kg	NE	120000	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
1,2-Dichloroethane	µg/kg	NE	280	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
1,2-Dichloropropane	µg/kg	NE	340	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
2-Butanone	µg/kg	NE	7300000	47 U	53 U	59 U	52 U	52 U
2-Chloroethyl Vinyl Ether	µg/kg	NE	NE	47 U	53 U	59 UJ	52 U	52 U
2-Hexanone	µg/kg	NE	NE	47 U	53 U	59 U	52 U	52 U
4-Methyl-2-Pentanone	µg/kg	NE	790000	47 U	53 U	59 U	52 U	52 U
Acetone	µg/kg	NE	1600000	30 J	19 J	6.4 J	52 U	52 U
Benzene	µg/kg	NE	600	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Bromodichloromethane	µg/kg	NE	820	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Bromoform	µg/kg	NE	62000	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Bromomethane	µg/kg	NE	3900	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Carbon Disulfide	µg/kg	NE	360000	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Carbon Tetrachloride	µg/kg	NE	250	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Chlorobenzene	µg/kg	NE	150000	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Chloroethane	µg/kg	NE	3000	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Chloroform	µg/kg	NE	3600 <940>	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Chloromethane	µg/kg	NE	1200	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Cis-1,2-Dichloroethene	µg/kg	NE	43000	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Cis-1,3-Dichloropropene	µg/kg	NE	780	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Dibromochloromethane	µg/kg	NE	1100	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Ethylbenzene	µg/kg	NE	8900	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Methyl tert-butyl Ether	µg/kg	NE	62000 <17000>	9.3 U	11 U	12 U	10 U	10 U
Methylene Chloride	µg/kg	NE	9100	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Styrene	µg/kg	NE	1700000	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3357	818655-3350	818655-3365	818655-3366	818655-3351
Location Code				APHO38-SB-03	APHO38-SB-04	APHO38-SB-04	APHO38-SB-04	APHO38-SB-04
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				5	1	20	30	5
	Unit	**Background**	**Residential PRG**					
Tetrachloroethene	µg/kg	NE	1500	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Toluene	µg/kg	NE	520000	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
trans-1,2-Dichloroethene	µg/kg	NE	69000	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
trans-1,3-Dichloropropene	µg/kg	NE	780	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Trichloroethene	µg/kg	NE	53	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Vinyl Acetate	µg/kg	NE	430000	47 U	53 U	59 U	52 U	52 U
Vinyl Chloride	µg/kg	NE	79	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
Xylene, (Total)	µg/kg	NE	270000	4.7 U	5.3 U	5.9 U	5.2 U	5.2 U
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	µg/kg	NE	650000	NA	360 U	NA	NA	NA
1,2-Dichlorobenzene	µg/kg	NE	370000	NA	360 U	NA	NA	NA
1,3-Dichlorobenzene	µg/kg	NE	16000	NA	360 U	NA	NA	NA
1,4-Dichlorobenzene	µg/kg	NE	3400	NA	360 U	NA	NA	NA
2,4,5-Trichlorophenol	µg/kg	NE	6100000	NA	910 U	NA	NA	NA
2,4,6-Trichlorophenol	µg/kg	NE	6100 <6900>	NA	360 U	NA	NA	NA
2,4-Dichlorophenol	µg/kg	NE	180000	NA	360 U	NA	NA	NA
2,4-Dimethylphenol	µg/kg	NE	1200000	NA	360 U	NA	NA	NA
2,4-Dinitrophenol	µg/kg	NE	120000	NA	910 UJ	NA	NA	NA
2,4-Dinitrotoluene	µg/kg	NE	120000	NA	360 U	NA	NA	NA
2,6-Dinitrotoluene	µg/kg	NE	61000	NA	360 U	NA	NA	NA
2-Chloronaphthalene	µg/kg	NE	4900000	NA	360 U	NA	NA	NA
2-Chlorophenol	µg/kg	NE	63000	NA	360 U	NA	NA	NA
2-Methylnaphthalene	µg/kg	NE	NE	NA	360 U	NA	NA	NA
2-Methylphenol	µg/kg	NE	3000000	NA	360 U	NA	NA	NA
2-Nitroaniline	µg/kg	NE	1700	NA	910 U	NA	NA	NA
2-Nitrophenol	µg/kg	NE	NE	NA	360 U	NA	NA	NA
3,3'-Dichlorobenzidine	µg/kg	NE	1100	NA	360 U	NA	NA	NA
3-Nitroaniline	µg/kg	NE	NE	NA	910 U	NA	NA	NA
4,6-Dinitro-2-Methylphenol	µg/kg	NE	NE	NA	910 U	NA	NA	NA
4-Bromophenyl Phenyl Ether	µg/kg	NE	NE	NA	360 U	NA	NA	NA
4-Chloro-3-Methylphenol	µg/kg	NE	NE	NA	360 U	NA	NA	NA
4-Chloroaniline	µg/kg	NE	240000	NA	360 U	NA	NA	NA
4-Chlorophenyl Phenyl Ether	µg/kg	NE	NE	NA	360 U	NA	NA	NA
4-Methylphenol	µg/kg	NE	310000	NA	360 U	NA	NA	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)				818655-3357 APHO38-SB-03 05/21/03 5	818655-3350 APHO38-SB-04 05/21/03 1	818655-3365 APHO38-SB-04 05/21/03 20	818655-3366 APHO38-SB-04 05/21/03 30	818655-3351 APHO38-SB-04 05/21/03 5
	Unit	Background	Residential PRG					
4-Nitroaniline	µg/kg	NE	NE	NA	910 U	NA	NA	NA
4-Nitrophenol	µg/kg	NE	NE	NA	910 UJ	NA	NA	NA
Acenaphthene	µg/kg	NE	3700000	NA	360 U	NA	NA	NA
Acenaphthylene	µg/kg	NE	NE	NA	360 U	NA	NA	NA
Anthracene	µg/kg	NE	22000000	NA	360 U	NA	NA	NA
Benzo(a)Anthracene	µg/kg	22	620	NA	360 U	NA	NA	NA
Benzo(a)Pyrene	µg/kg	27	62	NA	36 U	NA	NA	NA
Benzo(b)Fluoranthene	µg/kg	28	620	NA	360 U	NA	NA	NA
Benzo(ghi)Perylene	µg/kg	29	NE	NA	360 U	NA	NA	NA
Benzo(k)Fluoranthene	µg/kg	24	6200 <380>	NA	360 U	NA	NA	NA
bis(2-chloroethoxy)methane	µg/kg	NE	NE	NA	360 U	NA	NA	NA
bis(2-chloroethyl)ether	µg/kg	NE	210	NA	36 U	NA	NA	NA
bis(2-chloroisopropyl)ether	µg/kg	NE	2900	NA	360 UJ	NA	NA	NA
bis(2-ethylhexyl)phthalate	µg/kg	NE	35000	NA	360 U	NA	NA	NA
Butyl benzyl phthalate	µg/kg	NE	12000000	NA	360 U	NA	NA	NA
Chrysene	µg/kg	31	62000 <3800>	NA	360 U	NA	NA	NA
Di-n-butyl phthalate	µg/kg	NE	6100000	NA	360 U	NA	NA	NA
Di-n-octyl phthalate	µg/kg	NE	2400000	NA	360 U	NA	NA	NA
Dibenzo(a,h)Anthracene	µg/kg	8	62	NA	36 U	NA	NA	NA
Dibenzofuran	µg/kg	NE	290000	NA	360 U	NA	NA	NA
Diethyl Phthalate	µg/kg	NE	49000000	NA	360 U	NA	NA	NA
Dimethyl Phthalate	µg/kg	NE	100000000	NA	360 U	NA	NA	NA
Fluoranthene	µg/kg	45	2300000	NA	360 U	NA	NA	NA
Fluorene	µg/kg	NE	2700000	NA	360 U	NA	NA	NA
Hexachlorobenzene	µg/kg	NE	300	NA	82 U	NA	NA	NA
Hexachlorobutadiene	µg/kg	NE	6200	NA	360 U	NA	NA	NA
Hexachlorocyclopentadiene	µg/kg	NE	370000	NA	360 U	NA	NA	NA
Hexachloroethane	µg/kg	NE	35000	NA	360 U	NA	NA	NA
Indeno(1,2,3-cd)Pyrene	µg/kg	21	620	NA	38 U	NA	NA	NA
N-Nitroso-di-n-propylamine	µg/kg	NE	69	NA	14 J	NA	NA	NA
N-Nitrosodiphenylamine	µg/kg	NE	99000	NA	360 U	NA	NA	NA
Naphthalene	µg/kg	NE	56000	NA	360 U	NA	NA	NA
Nitrobenzene	µg/kg	NE	20000	NA	360 U	NA	NA	NA
Pentachlorophenol	µg/kg	NE	3000	NA	220 U	NA	NA	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3357	818655-3350	818655-3365	818655-3366	818655-3351
Location Code				APHO38-SB-03	APHO38-SB-04	APHO38-SB-04	APHO38-SB-04	APHO38-SB-04
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				5	1	20	30	5
	Unit	**Background**	**Residential PRG**					
Phenanthrene	µg/kg	18	NE	NA	360 U	NA	NA	NA
Phenol	µg/kg	NE	37000000	NA	690	NA	NA	NA
Pyrene	µg/kg	41	2300000	NA	360 U	NA	NA	NA
METALS								
Aluminum	mg/kg	14800	76000	NA	15700 B	NA	NA	NA
Antimony	mg/kg	3.06	31	NA	5.45 U	NA	NA	NA
Arsenic	mg/kg	6.86	0.39	NA	3.16 Y X	NA	NA	NA
Barium	mg/kg	173	5400	NA	83.3	NA	NA	NA
Beryllium	mg/kg	0.669	150	NA	.562	NA	NA	NA
Cadmium	mg/kg	2.35	37 <1.7>	NA	.611	NA	NA	NA
Calcium	mg/kg	46000	NE	NA	6630	NA	NA	NA
Chromium	mg/kg	26.9	210	NA	12.1	NA	NA	NA
Cobalt	mg/kg	6.98	900	NA	14.3 B	NA	NA	NA
Copper	mg/kg	10.5	3100	NA	8.23	NA	NA	NA
Iron	mg/kg	18400	23000	NA	13600	NA	NA	NA
Lead	mg/kg	15.1	400 <150>	NA	3.09	NA	NA	NA
Magnesium	mg/kg	8370	NE	NA	5970	NA	NA	NA
Manganese	mg/kg	291	1800	NA	214	NA	NA	NA
Mercury	mg/kg	0.22	NE	NA	.109 U	NA	NA	NA
Molybdenum	mg/kg	NE	390	NA	5.45 U	NA	NA	NA
Nickel	mg/kg	15.3	1600	NA	7.32	NA	NA	NA
Potassium	mg/kg	4890	NE	NA	3020	NA	NA	NA
Selenium	mg/kg	0.32	390	NA	.563 U	NA	NA	NA
Silver	mg/kg	0.539	390	NA	2.13 J B	NA	NA	NA
Sodium	mg/kg	405	NE	NA	194	NA	NA	NA
Thallium	mg/kg	0.42	5.2	NA	1.09 U	NA	NA	NA
Vanadium	mg/kg	71.8	550	NA	35.8	NA	NA	NA
Zinc	mg/kg	77.9	23000	NA	40.1	NA	NA	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)				818655-3380 APHO38-SB-05 05/21/03 1	818655-3378 APHO38-SB-05 05/21/03 10	818655-3376 APHO38-SB-05 05/21/03 5	818655-3384 APHO38-SB-06 05/21/03 1	818655-3383 APHO38-SB-06 05/21/03 10
	Unit	**Background**	**Residential PRG**					
TPH								
Diesel	mg/kg	NE	NE	12 U	12 U	11 U	13 U	12 U
Gasoline	mg/kg	NE	NE	12 U	11 U	9.1 U	12 U	11 U
VOLATILES								
1,1,1-Trichloroethane	µg/kg	NE	1200000	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
1,1,2,2-Tetrachloroethane	µg/kg	NE	410	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/kg	NE	5600000	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
1,1,2-Trichloroethane	µg/kg	NE	730	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
1,1-Dichloroethane	µg/kg	NE	510000 <2800>	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
1,1-Dichloroethene	µg/kg	NE	120000	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
1,2-Dichloroethane	µg/kg	NE	280	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
1,2-Dichloropropane	µg/kg	NE	340	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
2-Butanone	µg/kg	NE	7300000	61 U	49 U	45 U	58 U	71 U
2-Chloroethyl Vinyl Ether	µg/kg	NE	NE	61 UJ	49 UJ	45 UJ	58 UJ	71 UJ
2-Hexanone	µg/kg	NE	NE	61 U	49 U	45 U	58 U	71 U
4-Methyl-2-Pentanone	µg/kg	NE	790000	61 U	49 U	45 U	58 U	71 U
Acetone	µg/kg	NE	1600000	55 J	20 J	11 J	31 J	12 J
Benzene	µg/kg	NE	600	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Bromodichloromethane	µg/kg	NE	820	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Bromoform	µg/kg	NE	62000	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Bromomethane	µg/kg	NE	3900	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Carbon Disulfide	µg/kg	NE	360000	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Carbon Tetrachloride	µg/kg	NE	250	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Chlorobenzene	µg/kg	NE	150000	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Chloroethane	µg/kg	NE	3000	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Chloroform	µg/kg	NE	3600 <940>	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Chloromethane	µg/kg	NE	1200	6.1 UJ	4.9 UJ	4.5 UJ	5.8 UJ	7.1 UJ
Cis-1,2-Dichloroethene	µg/kg	NE	43000	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Cis-1,3-Dichloropropene	µg/kg	NE	780	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Dibromochloromethane	µg/kg	NE	1100	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Ethylbenzene	µg/kg	NE	8900	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Methyl tert-butyl Ether	µg/kg	NE	62000 <17000>	12 U	9.8 U	9 U	12 U	14 U
Methylene Chloride	µg/kg	NE	9100	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Styrene	µg/kg	NE	1700000	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3380	818655-3378	818655-3376	818655-3384	818655-3383
Location Code				APHO38-SB-05	APHO38-SB-05	APHO38-SB-05	APHO38-SB-06	APHO38-SB-06
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				1	10	5	1	10
	Unit	Background	Residential PRG					
Tetrachloroethene	µg/kg	NE	1500	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Toluene	µg/kg	NE	520000	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
trans-1,2-Dichloroethene	µg/kg	NE	69000	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
trans-1,3-Dichloropropene	µg/kg	NE	780	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Trichloroethene	µg/kg	NE	53	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Vinyl Acetate	µg/kg	NE	430000	61 U	49 U	45 U	58 U	71 U
Vinyl Chloride	µg/kg	NE	79	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
Xylene, (Total)	µg/kg	NE	270000	6.1 U	4.9 U	4.5 U	5.8 U	7.1 U
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	µg/kg	NE	650000	410 U	NA	NA	410 U	NA
1,2-Dichlorobenzene	µg/kg	NE	370000	410 U	NA	NA	410 U	NA
1,3-Dichlorobenzene	µg/kg	NE	16000	410 U	NA	NA	410 U	NA
1,4-Dichlorobenzene	µg/kg	NE	3400	410 U	NA	NA	410 U	NA
2,4,5-Trichlorophenol	µg/kg	NE	6100000	1000 U	NA	NA	1000 U	NA
2,4,6-Trichlorophenol	µg/kg	NE	6100 <6900>	410 U	NA	NA	410 U	NA
2,4-Dichlorophenol	µg/kg	NE	180000	410 U	NA	NA	410 U	NA
2,4-Dimethylphenol	µg/kg	NE	1200000	410 U	NA	NA	410 U	NA
2,4-Dinitrophenol	µg/kg	NE	120000	1000 UJ	NA	NA	1000 UJ	NA
2,4-Dinitrotoluene	µg/kg	NE	120000	410 U	NA	NA	410 U	NA
2,6-Dinitrotoluene	µg/kg	NE	61000	410 U	NA	NA	410 U	NA
2-Chloronaphthalene	µg/kg	NE	4900000	410 U	NA	NA	410 U	NA
2-Chlorophenol	µg/kg	NE	63000	410 U	NA	NA	410 U	NA
2-Methylnaphthalene	µg/kg	NE	NE	410 U	NA	NA	410 U	NA
2-Methylphenol	µg/kg	NE	3000000	410 U	NA	NA	410 U	NA
2-Nitroaniline	µg/kg	NE	1700	1000 U	NA	NA	1000 U	NA
2-Nitrophenol	µg/kg	NE	NE	410 U	NA	NA	410 U	NA
3,3'-Dichlorobenzidine	µg/kg	NE	1100	410 U	NA	NA	410 U	NA
3-Nitroaniline	µg/kg	NE	NE	1000 U	NA	NA	1000 U	NA
4,6-Dinitro-2-Methylphenol	µg/kg	NE	NE	1000 U	NA	NA	1000 U	NA
4-Bromophenyl Phenyl Ether	µg/kg	NE	NE	410 U	NA	NA	410 U	NA
4-Chloro-3-Methylphenol	µg/kg	NE	NE	410 U	NA	NA	410 U	NA
4-Chloroaniline	µg/kg	NE	240000	410 U	NA	NA	410 U	NA
4-Chlorophenyl Phenyl Ether	µg/kg	NE	NE	410 U	NA	NA	410 U	NA
4-Methylphenol	µg/kg	NE	310000	410 U	NA	NA	410 U	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)				818655-3380 APHO38-SB-05 05/21/03 1	818655-3378 APHO38-SB-05 05/21/03 10	818655-3376 APHO38-SB-05 05/21/03 5	818655-3384 APHO38-SB-06 05/21/03 1	818655-3383 APHO38-SB-06 05/21/03 10
	Unit	Background	Residential PRG					
4-Nitroaniline	µg/kg	NE	NE	1000 U	NA	NA	1000 U	NA
4-Nitrophenol	µg/kg	NE	NE	1000 UJ	NA	NA	1000 UJ	NA
Acenaphthene	µg/kg	NE	3700000	410 U	NA	NA	410 U	NA
Acenaphthylene	µg/kg	NE	NE	410 U	NA	NA	410 U	NA
Anthracene	µg/kg	NE	22000000	410 U	NA	NA	410 U	NA
Benzo(a)Anthracene	µg/kg	22	620	410 U	NA	NA	410 U	NA
Benzo(a)Pyrene	µg/kg	27	62	41 U	NA	NA	41 U	NA
Benzo(b)Fluoranthene	µg/kg	28	620	410 U	NA	NA	410 U	NA
Benzo(ghi)Perylene	µg/kg	29	NE	410 U	NA	NA	410 U	NA
Benzo(k)Fluoranthene	µg/kg	24	6200 <380>	410 U	NA	NA	410 U	NA
bis(2-chloroethoxy)methane	µg/kg	NE	NE	410 U	NA	NA	410 U	NA
bis(2-chloroethyl)ether	µg/kg	NE	210	41 U	NA	NA	41 U	NA
bis(2-chloroisopropyl)ether	µg/kg	NE	2900	410 UJ	NA	NA	410 UJ	NA
bis(2-ethylhexyl)phthalate	µg/kg	NE	35000	410 U	NA	NA	410 U	NA
Butyl benzyl phthalate	µg/kg	NE	12000000	410 U	NA	NA	410 U	NA
Chrysene	µg/kg	31	62000 <3800>	410 U	NA	NA	410 U	NA
Di-n-butyl phthalate	µg/kg	NE	6100000	410 U	NA	NA	410 U	NA
Di-n-octyl phthalate	µg/kg	NE	2400000	410 U	NA	NA	410 U	NA
Dibenzo(a,h)Anthracene	µg/kg	8	62	41 U	NA	NA	41 U	NA
Dibenzofuran	µg/kg	NE	290000	410 U	NA	NA	410 U	NA
Diethyl Phthalate	µg/kg	NE	49000000	410 U	NA	NA	410 U	NA
Dimethyl Phthalate	µg/kg	NE	100000000	410 U	NA	NA	410 U	NA
Fluoranthene	µg/kg	45	2300000	410 U	NA	NA	410 U	NA
Fluorene	µg/kg	NE	2700000	410 U	NA	NA	410 U	NA
Hexachlorobenzene	µg/kg	NE	300	94 U	NA	NA	94 U	NA
Hexachlorobutadiene	µg/kg	NE	6200	410 U	NA	NA	410 U	NA
Hexachlorocyclopentadiene	µg/kg	NE	370000	410 U	NA	NA	410 U	NA
Hexachloroethane	µg/kg	NE	35000	410 U	NA	NA	410 U	NA
Indeno(1,2,3-cd)Pyrene	µg/kg	21	620	44 U	NA	NA	44 U	NA
N-Nitroso-di-n-propylamine	µg/kg	NE	69	41 U	NA	NA	41 U	NA
N-Nitrosodiphenylamine	µg/kg	NE	99000	410 U	NA	NA	410 U	NA
Naphthalene	µg/kg	NE	56000	410 U	NA	NA	410 U	NA
Nitrobenzene	µg/kg	NE	20000	410 U	NA	NA	410 U	NA
Pentachlorophenol	µg/kg	NE	3000	250 U	NA	NA	250 U	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3380	818655-3378	818655-3376	818655-3384	818655-3383
Location Code				APHO38-SB-05	APHO38-SB-05	APHO38-SB-05	APHO38-SB-06	APHO38-SB-06
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				1	10	5	1	10
	Unit	Background	Residential PRG					
Phenanthrene	µg/kg	18	NE	410 U	NA	NA	410 U	NA
Phenol	µg/kg	NE	37000000	410 U	NA	NA	410 U	NA
Pyrene	µg/kg	41	2300000	410 U	NA	NA	410 U	NA
METALS								
Aluminum	mg/kg	14800	76000	11800	NA	NA	15400 J B	NA
Antimony	mg/kg	3.06	31	6.24 U	NA	NA	6.26 U	NA
Arsenic	mg/kg	6.86	0.39	1.81 Y X	NA	NA	2.58 Y X	NA
Barium	mg/kg	173	5400	97.7	NA	NA	86.9	NA
Beryllium	mg/kg	0.669	150	.471	NA	NA	.57	NA
Cadmium	mg/kg	2.35	37 <1.7>	.565 J	NA	NA	.717	NA
Calcium	mg/kg	46000	NE	2850	NA	NA	4020	NA
Chromium	mg/kg	26.9	210	9.94	NA	NA	12.2	NA
Cobalt	mg/kg	6.98	900	20.6 B	NA	NA	4.86	NA
Copper	mg/kg	10.5	3100	6.38	NA	NA	8.3	NA
Iron	mg/kg	18400	23000	10800	NA	NA	12400 J	NA
Lead	mg/kg	15.1	400 <150>	3.66	NA	NA	9.57	NA
Magnesium	mg/kg	8370	NE	3980	NA	NA	4960	NA
Manganese	mg/kg	291	1800	216	NA	NA	154	NA
Mercury	mg/kg	0.22	NE	.125 U	NA	NA	.0503 J	NA
Molybdenum	mg/kg	NE	390	6.24 U	NA	NA	6.26 U	NA
Nickel	mg/kg	15.3	1600	6.74	NA	NA	7.64	NA
Potassium	mg/kg	4890	NE	3260	NA	NA	3470	NA
Selenium	mg/kg	0.32	390	.99 U	NA	NA	1.25 U	NA
Silver	mg/kg	0.539	390	2.5 U	NA	NA	2.5 U	NA
Sodium	mg/kg	405	NE	137	NA	NA	129	NA
Thallium	mg/kg	0.42	5.2	.788 U	NA	NA	1.25 U	NA
Vanadium	mg/kg	71.8	550	27.6	NA	NA	34.5	NA
Zinc	mg/kg	77.9	23000	33.1	NA	NA	63.5	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)				818655-3382 APHO38-SB-06 05/21/03 5	818655-3364 APHO38-SG-01 05/21/03 10	818655-3361 APHO38-SG-01 05/21/03 5	818655-3374 APHO38-SG-03 05/21/03 10	818655-3381 APHO38-SG-03 05/21/03 5
	Unit	Background	Residential PRG					
TPH								
Diesel	mg/kg	NE	NE	12 U	12 U	11 U	11 U	12 U
Gasoline	mg/kg	NE	NE	9.9 U	11 U	11 U	10 U	9.9 U
VOLATILES								
1,1,1-Trichloroethane	µg/kg	NE	1200000	7 U	5 U	5.3 U	4.9 U	5.8 U
1,1,2,2-Tetrachloroethane	µg/kg	NE	410	7 U	5 U	5.3 U	4.9 U	5.8 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/kg	NE	5600000	7 U	5 U	5.3 U	4.9 U	5.8 U
1,1,2-Trichloroethane	µg/kg	NE	730	7 U	5 U	5.3 U	4.9 U	5.8 U
1,1-Dichloroethane	µg/kg	NE	510000 <2800>	7 U	5 U	5.3 U	4.9 U	5.8 U
1,1-Dichloroethene	µg/kg	NE	120000	7 U	5 U	5.3 U	4.9 U	5.8 U
1,2-Dichloroethane	µg/kg	NE	280	7 U	5 U	5.3 U	4.9 U	5.8 U
1,2-Dichloropropane	µg/kg	NE	340	7 U	5 U	5.3 U	4.9 U	5.8 U
2-Butanone	µg/kg	NE	7300000	70 U	50 U	53 U	49 U	58 U
2-Chloroethyl Vinyl Ether	µg/kg	NE	NE	70 UJ	50 UJ	53 UJ	49 UJ	58 UJ
2-Hexanone	µg/kg	NE	NE	70 U	50 U	53 U	49 U	58 U
4-Methyl-2-Pentanone	µg/kg	NE	790000	70 U	50 U	53 U	49 U	58 U
Acetone	µg/kg	NE	1600000	24 J	10 J	19 J	12 J	42 J
Benzene	µg/kg	NE	600	7 U	5 U	5.3 U	4.9 U	5.8 U
Bromodichloromethane	µg/kg	NE	820	7 U	5 U	5.3 U	4.9 U	5.8 U
Bromoform	µg/kg	NE	62000	7 U	5 U	5.3 U	4.9 U	5.8 U
Bromomethane	µg/kg	NE	3900	7 U	5 U	5.3 U	4.9 U	5.8 U
Carbon Disulfide	µg/kg	NE	360000	7 U	5 U	5.3 U	4.9 U	5.8 U
Carbon Tetrachloride	µg/kg	NE	250	7 U	5 U	5.3 U	4.9 U	5.8 U
Chlorobenzene	µg/kg	NE	150000	7 U	5 U	5.3 U	4.9 U	5.8 U
Chloroethane	µg/kg	NE	3000	7 U	5 U	5.3 U	4.9 U	5.8 U
Chloroform	µg/kg	NE	3600 <940>	7 U	5 U	5.3 U	4.9 U	5.8 U
Chloromethane	µg/kg	NE	1200	7 UJ	5 U	5.3 U	4.9 UJ	5.8 UJ
Cis-1,2-Dichloroethene	µg/kg	NE	43000	7 U	5 U	5.3 U	4.9 U	5.8 U
Cis-1,3-Dichloropropene	µg/kg	NE	780	7 U	5 U	5.3 U	4.9 U	5.8 U
Dibromochloromethane	µg/kg	NE	1100	7 U	5 U	5.3 U	4.9 U	5.8 U
Ethylbenzene	µg/kg	NE	8900	7 U	5 U	5.3 U	4.9 U	5.8 U
Methyl tert-butyl Ether	µg/kg	NE	62000 <17000>	14 U	10 U	11 U	9.7 U	12 U
Methylene Chloride	µg/kg	NE	9100	7 U	5 U	5.3 U	4.9 U	5.8 U
Styrene	µg/kg	NE	1700000	7 U	5 U	5.3 U	4.9 U	5.8 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3382	818655-3364	818655-3361	818655-3374	818655-3381
Location Code				APHO38-SB-06	APHO38-SG-01	APHO38-SG-01	APHO38-SG-03	APHO38-SG-03
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				5	10	5	10	5
	Unit	Background	Residential PRG					
Tetrachloroethene	µg/kg	NE	1500	7 U	5 U	5.3 U	4.9 U	5.8 U
Toluene	µg/kg	NE	520000	7 U	5 U	5.3 U	4.9 U	5.8 U
trans-1,2-Dichloroethene	µg/kg	NE	69000	7 U	5 U	5.3 U	4.9 U	5.8 U
trans-1,3-Dichloropropene	µg/kg	NE	780	7 U	5 U	5.3 U	4.9 U	5.8 U
Trichloroethene	µg/kg	NE	53	7 U	5 U	5.3 U	4.9 U	5.8 U
Vinyl Acetate	µg/kg	NE	430000	70 U	50 U	53 U	49 U	58 U
Vinyl Chloride	µg/kg	NE	79	7 U	5 U	5.3 U	4.9 U	5.8 U
Xylene, (Total)	µg/kg	NE	270000	7 U	5 U	5.3 U	4.9 U	5.8 U
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	µg/kg	NE	650000	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	µg/kg	NE	370000	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	µg/kg	NE	16000	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	µg/kg	NE	3400	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	µg/kg	NE	6100000	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	µg/kg	NE	6100 <6900>	NA	NA	NA	NA	NA
2,4-Dichlorophenol	µg/kg	NE	180000	NA	NA	NA	NA	NA
2,4-Dimethylphenol	µg/kg	NE	1200000	NA	NA	NA	NA	NA
2,4-Dinitrophenol	µg/kg	NE	120000	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	µg/kg	NE	120000	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	µg/kg	NE	61000	NA	NA	NA	NA	NA
2-Chloronaphthalene	µg/kg	NE	4900000	NA	NA	NA	NA	NA
2-Chlorophenol	µg/kg	NE	63000	NA	NA	NA	NA	NA
2-Methylnaphthalene	µg/kg	NE	NE	NA	NA	NA	NA	NA
2-Methylphenol	µg/kg	NE	3000000	NA	NA	NA	NA	NA
2-Nitroaniline	µg/kg	NE	1700	NA	NA	NA	NA	NA
2-Nitrophenol	µg/kg	NE	NE	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	µg/kg	NE	1100	NA	NA	NA	NA	NA
3-Nitroaniline	µg/kg	NE	NE	NA	NA	NA	NA	NA
4,6-Dinitro-2-Methylphenol	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Chloroaniline	µg/kg	NE	240000	NA	NA	NA	NA	NA
4-Chlorophenyl Phenyl Ether	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Methylphenol	µg/kg	NE	310000	NA	NA	NA	NA	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)				818655-3382 APHO38-SB-06 05/21/03 5	818655-3364 APHO38-SG-01 05/21/03 10	818655-3361 APHO38-SG-01 05/21/03 5	818655-3374 APHO38-SG-03 05/21/03 10	818655-3381 APHO38-SG-03 05/21/03 5
	Unit	Background	Residential PRG					
4-Nitroaniline	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Nitrophenol	µg/kg	NE	NE	NA	NA	NA	NA	NA
Acenaphthene	µg/kg	NE	3700000	NA	NA	NA	NA	NA
Acenaphthylene	µg/kg	NE	NE	NA	NA	NA	NA	NA
Anthracene	µg/kg	NE	22000000	NA	NA	NA	NA	NA
Benzo(a)Anthracene	µg/kg	22	620	NA	NA	NA	NA	NA
Benzo(a)Pyrene	µg/kg	27	62	NA	NA	NA	NA	NA
Benzo(b)Fluoranthene	µg/kg	28	620	NA	NA	NA	NA	NA
Benzo(ghi)Perylene	µg/kg	29	NE	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene	µg/kg	24	6200 <380>	NA	NA	NA	NA	NA
bis(2-chloroethoxy)methane	µg/kg	NE	NE	NA	NA	NA	NA	NA
bis(2-chloroethyl)ether	µg/kg	NE	210	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	µg/kg	NE	2900	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	µg/kg	NE	35000	NA	NA	NA	NA	NA
Butyl benzyl phthalate	µg/kg	NE	12000000	NA	NA	NA	NA	NA
Chrysene	µg/kg	31	62000 <3800>	NA	NA	NA	NA	NA
Di-n-butyl phthalate	µg/kg	NE	6100000	NA	NA	NA	NA	NA
Di-n-octyl phthalate	µg/kg	NE	2400000	NA	NA	NA	NA	NA
Dibenzo(a,h)Anthracene	µg/kg	8	62	NA	NA	NA	NA	NA
Dibenzofuran	µg/kg	NE	290000	NA	NA	NA	NA	NA
Diethyl Phthalate	µg/kg	NE	49000000	NA	NA	NA	NA	NA
Dimethyl Phthalate	µg/kg	NE	100000000	NA	NA	NA	NA	NA
Fluoranthene	µg/kg	45	2300000	NA	NA	NA	NA	NA
Fluorene	µg/kg	NE	2700000	NA	NA	NA	NA	NA
Hexachlorobenzene	µg/kg	NE	300	NA	NA	NA	NA	NA
Hexachlorobutadiene	µg/kg	NE	6200	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	µg/kg	NE	370000	NA	NA	NA	NA	NA
Hexachloroethane	µg/kg	NE	35000	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)Pyrene	µg/kg	21	620	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	µg/kg	NE	69	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	µg/kg	NE	99000	NA	NA	NA	NA	NA
Naphthalene	µg/kg	NE	56000	NA	NA	NA	NA	NA
Nitrobenzene	µg/kg	NE	20000	NA	NA	NA	NA	NA
Pentachlorophenol	µg/kg	NE	3000	NA	NA	NA	NA	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3382	818655-3364	818655-3361	818655-3374	818655-3381
Location Code				APHO38-SB-06	APHO38-SG-01	APHO38-SG-01	APHO38-SG-03	APHO38-SG-03
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				5	10	5	10	5
	Unit	Background	Residential PRG					
Phenanthrene	µg/kg	18	NE	NA	NA	NA	NA	NA
Phenol	µg/kg	NE	37000000	NA	NA	NA	NA	NA
Pyrene	µg/kg	41	2300000	NA	NA	NA	NA	NA
METALS								
Aluminum	mg/kg	14800	76000	NA	NA	NA	NA	NA
Antimony	mg/kg	3.06	31	NA	NA	NA	NA	NA
Arsenic	mg/kg	6.86	0.39	NA	NA	NA	NA	NA
Barium	mg/kg	173	5400	NA	NA	NA	NA	NA
Beryllium	mg/kg	0.669	150	NA	NA	NA	NA	NA
Cadmium	mg/kg	2.35	37 <1.7>	NA	NA	NA	NA	NA
Calcium	mg/kg	46000	NE	NA	NA	NA	NA	NA
Chromium	mg/kg	26.9	210	NA	NA	NA	NA	NA
Cobalt	mg/kg	6.98	900	NA	NA	NA	NA	NA
Copper	mg/kg	10.5	3100	NA	NA	NA	NA	NA
Iron	mg/kg	18400	23000	NA	NA	NA	NA	NA
Lead	mg/kg	15.1	400 <150>	NA	NA	NA	NA	NA
Magnesium	mg/kg	8370	NE	NA	NA	NA	NA	NA
Manganese	mg/kg	291	1800	NA	NA	NA	NA	NA
Mercury	mg/kg	0.22	NE	NA	NA	NA	NA	NA
Molybdenum	mg/kg	NE	390	NA	NA	NA	NA	NA
Nickel	mg/kg	15.3	1600	NA	NA	NA	NA	NA
Potassium	mg/kg	4890	NE	NA	NA	NA	NA	NA
Selenium	mg/kg	0.32	390	NA	NA	NA	NA	NA
Silver	mg/kg	0.539	390	NA	NA	NA	NA	NA
Sodium	mg/kg	405	NE	NA	NA	NA	NA	NA
Thallium	mg/kg	0.42	5.2	NA	NA	NA	NA	NA
Vanadium	mg/kg	71.8	550	NA	NA	NA	NA	NA
Zinc	mg/kg	77.9	23000	NA	NA	NA	NA	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3367	818655-3375	818655-3363	818655-3362	818655-3379
Location Code				APHO38-SG-05	APHO38-SG-05	APHO38-SG-12	APHO38-SG-12	APHO38-SG-17
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				10	5	10	5	10
	Unit	**Background**	**Residential PRG**					
TPH								
Diesel	mg/kg	NE	NE	11 U	11 U	12 U	11 U	12 U
Gasoline	mg/kg	NE	NE	11 U	9.6 U	12 U	9.7 U	13 U
VOLATILES								
1,1,1-Trichloroethane	µg/kg	NE	1200000	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
1,1,2,2-Tetrachloroethane	µg/kg	NE	410	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/kg	NE	5600000	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
1,1,2-Trichloroethane	µg/kg	NE	730	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
1,1-Dichloroethane	µg/kg	NE	510000 <2800>	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
1,1-Dichloroethene	µg/kg	NE	120000	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
1,2-Dichloroethane	µg/kg	NE	280	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
1,2-Dichloropropane	µg/kg	NE	340	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
2-Butanone	µg/kg	NE	7300000	66 U	56 U	56 U	47 U	67 U
2-Chloroethyl Vinyl Ether	µg/kg	NE	NE	66 UJ	56 UJ	56 UJ	47 UJ	67 UJ
2-Hexanone	µg/kg	NE	NE	66 U	56 U	56 U	47 U	67 U
4-Methyl-2-Pentanone	µg/kg	NE	790000	66 U	56 U	56 U	47 U	67 U
Acetone	µg/kg	NE	1600000	9.4 J	10 J	10 J	7.5 J	17 J
Benzene	µg/kg	NE	600	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Bromodichloromethane	µg/kg	NE	820	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Bromoform	µg/kg	NE	62000	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Bromomethane	µg/kg	NE	3900	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Carbon Disulfide	µg/kg	NE	360000	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Carbon Tetrachloride	µg/kg	NE	250	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Chlorobenzene	µg/kg	NE	150000	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Chloroethane	µg/kg	NE	3000	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Chloroform	µg/kg	NE	3600 <940>	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Chloromethane	µg/kg	NE	1200	6.6 U	5.6 UJ	5.6 U	4.7 U	6.7 UJ
Cis-1,2-Dichloroethene	µg/kg	NE	43000	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Cis-1,3-Dichloropropene	µg/kg	NE	780	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Dibromochloromethane	µg/kg	NE	1100	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Ethylbenzene	µg/kg	NE	8900	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Methyl tert-butyl Ether	µg/kg	NE	62000 <17000>	13 U	11 U	11 U	9.4 U	13 U
Methylene Chloride	µg/kg	NE	9100	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Styrene	µg/kg	NE	1700000	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3367	818655-3375	818655-3363	818655-3362	818655-3379
Location Code				APHO38-SG-05	APHO38-SG-05	APHO38-SG-12	APHO38-SG-12	APHO38-SG-17
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				10	5	10	5	10
	Unit	**Background**	**Residential PRG**					
Tetrachloroethene	µg/kg	NE	1500	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Toluene	µg/kg	NE	520000	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
trans-1,2-Dichloroethene	µg/kg	NE	69000	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
trans-1,3-Dichloropropene	µg/kg	NE	780	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Trichloroethene	µg/kg	NE	53	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Vinyl Acetate	µg/kg	NE	430000	66 U	56 U	56 U	47 U	67 U
Vinyl Chloride	µg/kg	NE	79	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
Xylene, (Total)	µg/kg	NE	270000	6.6 U	5.6 U	5.6 U	4.7 U	6.7 U
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	µg/kg	NE	650000	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	µg/kg	NE	370000	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	µg/kg	NE	16000	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	µg/kg	NE	3400	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	µg/kg	NE	6100000	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	µg/kg	NE	6100 <6900>	NA	NA	NA	NA	NA
2,4-Dichlorophenol	µg/kg	NE	180000	NA	NA	NA	NA	NA
2,4-Dimethylphenol	µg/kg	NE	1200000	NA	NA	NA	NA	NA
2,4-Dinitrophenol	µg/kg	NE	120000	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	µg/kg	NE	120000	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	µg/kg	NE	61000	NA	NA	NA	NA	NA
2-Chloronaphthalene	µg/kg	NE	4900000	NA	NA	NA	NA	NA
2-Chlorophenol	µg/kg	NE	63000	NA	NA	NA	NA	NA
2-Methylnaphthalene	µg/kg	NE	NE	NA	NA	NA	NA	NA
2-Methylphenol	µg/kg	NE	3000000	NA	NA	NA	NA	NA
2-Nitroaniline	µg/kg	NE	1700	NA	NA	NA	NA	NA
2-Nitrophenol	µg/kg	NE	NE	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	µg/kg	NE	1100	NA	NA	NA	NA	NA
3-Nitroaniline	µg/kg	NE	NE	NA	NA	NA	NA	NA
4,6-Dinitro-2-Methylphenol	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Chloroaniline	µg/kg	NE	240000	NA	NA	NA	NA	NA
4-Chlorophenyl Phenyl Ether	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Methylphenol	µg/kg	NE	310000	NA	NA	NA	NA	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)				818655-3367 APHO38-SG-05 05/21/03 10	818655-3375 APHO38-SG-05 05/21/03 5	818655-3363 APHO38-SG-12 05/21/03 10	818655-3362 APHO38-SG-12 05/21/03 5	818655-3379 APHO38-SG-17 05/21/03 10
	Unit	Background	Residential PRG					
4-Nitroaniline	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Nitrophenol	µg/kg	NE	NE	NA	NA	NA	NA	NA
Acenaphthene	µg/kg	NE	3700000	NA	NA	NA	NA	NA
Acenaphthylene	µg/kg	NE	NE	NA	NA	NA	NA	NA
Anthracene	µg/kg	NE	22000000	NA	NA	NA	NA	NA
Benzo(a)Anthracene	µg/kg	22	620	NA	NA	NA	NA	NA
Benzo(a)Pyrene	µg/kg	27	62	NA	NA	NA	NA	NA
Benzo(b)Fluoranthene	µg/kg	28	620	NA	NA	NA	NA	NA
Benzo(ghi)Perylene	µg/kg	29	NE	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene	µg/kg	24	6200 <380>	NA	NA	NA	NA	NA
bis(2-chloroethoxy)methane	µg/kg	NE	NE	NA	NA	NA	NA	NA
bis(2-chloroethyl)ether	µg/kg	NE	210	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	µg/kg	NE	2900	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	µg/kg	NE	35000	NA	NA	NA	NA	NA
Butyl benzyl phthalate	µg/kg	NE	12000000	NA	NA	NA	NA	NA
Chrysene	µg/kg	31	62000 <3800>	NA	NA	NA	NA	NA
Di-n-butyl phthalate	µg/kg	NE	6100000	NA	NA	NA	NA	NA
Di-n-octyl phthalate	µg/kg	NE	2400000	NA	NA	NA	NA	NA
Dibenzo(a,h)Anthracene	µg/kg	8	62	NA	NA	NA	NA	NA
Dibenzofuran	µg/kg	NE	290000	NA	NA	NA	NA	NA
Diethyl Phthalate	µg/kg	NE	49000000	NA	NA	NA	NA	NA
Dimethyl Phthalate	µg/kg	NE	100000000	NA	NA	NA	NA	NA
Fluoranthene	µg/kg	45	2300000	NA	NA	NA	NA	NA
Fluorene	µg/kg	NE	2700000	NA	NA	NA	NA	NA
Hexachlorobenzene	µg/kg	NE	300	NA	NA	NA	NA	NA
Hexachlorobutadiene	µg/kg	NE	6200	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	µg/kg	NE	370000	NA	NA	NA	NA	NA
Hexachloroethane	µg/kg	NE	35000	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)Pyrene	µg/kg	21	620	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	µg/kg	NE	69	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	µg/kg	NE	99000	NA	NA	NA	NA	NA
Naphthalene	µg/kg	NE	56000	NA	NA	NA	NA	NA
Nitrobenzene	µg/kg	NE	20000	NA	NA	NA	NA	NA
Pentachlorophenol	µg/kg	NE	3000	NA	NA	NA	NA	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3367	818655-3375	818655-3363	818655-3362	818655-3379
Location Code				APHO38-SG-05	APHO38-SG-05	APHO38-SG-12	APHO38-SG-12	APHO38-SG-17
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				10	5	10	5	10
	Unit	**Background**	**Residential PRG**					
Phenanthrene	µg/kg	18	NE	NA	NA	NA	NA	NA
Phenol	µg/kg	NE	37000000	NA	NA	NA	NA	NA
Pyrene	µg/kg	41	2300000	NA	NA	NA	NA	NA
METALS								
Aluminum	mg/kg	14800	76000	NA	NA	NA	NA	NA
Antimony	mg/kg	3.06	31	NA	NA	NA	NA	NA
Arsenic	mg/kg	6.86	0.39	NA	NA	NA	NA	NA
Barium	mg/kg	173	5400	NA	NA	NA	NA	NA
Beryllium	mg/kg	0.669	150	NA	NA	NA	NA	NA
Cadmium	mg/kg	2.35	37 <1.7>	NA	NA	NA	NA	NA
Calcium	mg/kg	46000	NE	NA	NA	NA	NA	NA
Chromium	mg/kg	26.9	210	NA	NA	NA	NA	NA
Cobalt	mg/kg	6.98	900	NA	NA	NA	NA	NA
Copper	mg/kg	10.5	3100	NA	NA	NA	NA	NA
Iron	mg/kg	18400	23000	NA	NA	NA	NA	NA
Lead	mg/kg	15.1	400 <150>	NA	NA	NA	NA	NA
Magnesium	mg/kg	8370	NE	NA	NA	NA	NA	NA
Manganese	mg/kg	291	1800	NA	NA	NA	NA	NA
Mercury	mg/kg	0.22	NE	NA	NA	NA	NA	NA
Molybdenum	mg/kg	NE	390	NA	NA	NA	NA	NA
Nickel	mg/kg	15.3	1600	NA	NA	NA	NA	NA
Potassium	mg/kg	4890	NE	NA	NA	NA	NA	NA
Selenium	mg/kg	0.32	390	NA	NA	NA	NA	NA
Silver	mg/kg	0.539	390	NA	NA	NA	NA	NA
Sodium	mg/kg	405	NE	NA	NA	NA	NA	NA
Thallium	mg/kg	0.42	5.2	NA	NA	NA	NA	NA
Vanadium	mg/kg	71.8	550	NA	NA	NA	NA	NA
Zinc	mg/kg	77.9	23000	NA	NA	NA	NA	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)				818655-3373 APHO38-SG-17 05/21/03 5	818655-3371 APHO38-SG-20 05/21/03 10	818655-3377 APHO38-SG-20 05/21/03 15	818655-3370 APHO38-SG-21 05/21/03 10	818655-3372 APHO38-SG-21 05/21/03 20
	Unit	**Background**	**Residential PRG**					
TPH								
Diesel	mg/kg	NE	NE	12 U	10 U	11 U	55	10 U
Gasoline	mg/kg	NE	NE	10 U	9.5 U	11 U	11 U	11 U
VOLATILES								
1,1,1-Trichloroethane	µg/kg	NE	1200000	5.1 U	5 U	5 U	5.3 U	5.1 U
1,1,2,2-Tetrachloroethane	µg/kg	NE	410	5.1 U	5 U	5 U	5.3 U	5.1 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/kg	NE	5600000	5.1 U	5 U	5 U	5.3 U	5.1 U
1,1,2-Trichloroethane	µg/kg	NE	730	5.1 U	5 U	5 U	5.3 U	5.1 U
1,1-Dichloroethane	µg/kg	NE	510000 <2800>	5.1 U	5 U	5 U	5.3 U	5.1 U
1,1-Dichloroethene	µg/kg	NE	120000	5.1 U	5 U	5 U	5.3 U	5.1 U
1,2-Dichloroethane	µg/kg	NE	280	5.1 U	5 U	5 U	5.3 U	5.1 U
1,2-Dichloropropane	µg/kg	NE	340	5.1 U	5 U	5 U	5.3 U	5.1 U
2-Butanone	µg/kg	NE	7300000	51 U	50 U	50 U	53 U	51 U
2-Chloroethyl Vinyl Ether	µg/kg	NE	NE	51 UJ	50 UJ	50 UJ	53 UJ	51 UJ
2-Hexanone	µg/kg	NE	NE	51 U	50 U	50 U	53 U	51 U
4-Methyl-2-Pentanone	µg/kg	NE	790000	51 U	50 U	50 U	53 U	51 U
Acetone	µg/kg	NE	1600000	33 J	19 J	11 J	14 J	9.9 J
Benzene	µg/kg	NE	600	5.1 U	5 U	5 U	5.3 U	5.1 U
Bromodichloromethane	µg/kg	NE	820	5.1 U	5 U	5 U	5.3 U	5.1 U
Bromoform	µg/kg	NE	62000	5.1 U	5 U	5 U	5.3 U	5.1 U
Bromomethane	µg/kg	NE	3900	5.1 U	5 U	5 U	5.3 U	5.1 U
Carbon Disulfide	µg/kg	NE	360000	5.1 U	5 U	5 U	5.3 U	5.1 U
Carbon Tetrachloride	µg/kg	NE	250	5.1 U	5 U	5 U	5.3 U	5.1 U
Chlorobenzene	µg/kg	NE	150000	5.1 U	5 U	5 U	5.3 U	5.1 U
Chloroethane	µg/kg	NE	3000	5.1 U	5 U	5 U	5.3 U	5.1 U
Chloroform	µg/kg	NE	3600 <940>	5.1 U	5 U	5 U	5.3 U	5.1 U
Chloromethane	µg/kg	NE	1200	5.1 UJ	5 UJ	5 UJ	5.3 U	5.1 UJ
Cis-1,2-Dichloroethene	µg/kg	NE	43000	5.1 U	5 U	5 U	5.3 U	5.1 U
Cis-1,3-Dichloropropene	µg/kg	NE	780	5.1 U	5 U	5 U	5.3 U	5.1 U
Dibromochloromethane	µg/kg	NE	1100	5.1 U	5 U	5 U	5.3 U	5.1 U
Ethylbenzene	µg/kg	NE	8900	5.1 U	5 U	5 U	5.3 U	5.1 U
Methyl tert-butyl Ether	µg/kg	NE	62000 <17000>	10 U	10 U	10 U	11 U	10 U
Methylene Chloride	µg/kg	NE	9100	5.1 U	5 U	5 U	5.3 U	5.1 U
Styrene	µg/kg	NE	1700000	5.1 U	5 U	5 U	5.3 U	5.1 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3373	818655-3371	818655-3377	818655-3370	818655-3372
Location Code				APHO38-SG-17	APHO38-SG-20	APHO38-SG-20	APHO38-SG-21	APHO38-SG-21
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				5	10	15	10	20
	Unit	**Background**	**Residential PRG**					
Tetrachloroethene	µg/kg	NE	1500	5.1 U	5 U	5 U	5.3 U	5.1 U
Toluene	µg/kg	NE	520000	5.1 U	5 U	5 U	5.3 U	5.1 U
trans-1,2-Dichloroethene	µg/kg	NE	69000	5.1 U	5 U	5 U	5.3 U	5.1 U
trans-1,3-Dichloropropene	µg/kg	NE	780	5.1 U	5 U	5 U	5.3 U	5.1 U
Trichloroethene	µg/kg	NE	53	5.1 U	5 U	5 U	5.3 U	5.1 U
Vinyl Acetate	µg/kg	NE	430000	51 U	50 U	50 U	53 U	51 U
Vinyl Chloride	µg/kg	NE	79	5.1 U	5 U	5 U	5.3 U	5.1 U
Xylene, (Total)	µg/kg	NE	270000	5.1 U	5 U	5 U	5.3 U	5.1 U
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	µg/kg	NE	650000	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	µg/kg	NE	370000	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	µg/kg	NE	16000	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	µg/kg	NE	3400	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	µg/kg	NE	6100000	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	µg/kg	NE	6100 <6900>	NA	NA	NA	NA	NA
2,4-Dichlorophenol	µg/kg	NE	180000	NA	NA	NA	NA	NA
2,4-Dimethylphenol	µg/kg	NE	1200000	NA	NA	NA	NA	NA
2,4-Dinitrophenol	µg/kg	NE	120000	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	µg/kg	NE	120000	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	µg/kg	NE	61000	NA	NA	NA	NA	NA
2-Chloronaphthalene	µg/kg	NE	4900000	NA	NA	NA	NA	NA
2-Chlorophenol	µg/kg	NE	63000	NA	NA	NA	NA	NA
2-Methylnaphthalene	µg/kg	NE	NE	NA	NA	NA	NA	NA
2-Methylphenol	µg/kg	NE	3000000	NA	NA	NA	NA	NA
2-Nitroaniline	µg/kg	NE	1700	NA	NA	NA	NA	NA
2-Nitrophenol	µg/kg	NE	NE	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	µg/kg	NE	1100	NA	NA	NA	NA	NA
3-Nitroaniline	µg/kg	NE	NE	NA	NA	NA	NA	NA
4,6-Dinitro-2-Methylphenol	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Bromophenyl Phenyl Ether	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Chloro-3-Methylphenol	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Chloroaniline	µg/kg	NE	240000	NA	NA	NA	NA	NA
4-Chlorophenyl Phenyl Ether	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Methylphenol	µg/kg	NE	310000	NA	NA	NA	NA	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)				818655-3373 APHO38-SG-17 05/21/03 5	818655-3371 APHO38-SG-20 05/21/03 10	818655-3377 APHO38-SG-20 05/21/03 15	818655-3370 APHO38-SG-21 05/21/03 10	818655-3372 APHO38-SG-21 05/21/03 20
	Unit	Background	Residential PRG					
4-Nitroaniline	µg/kg	NE	NE	NA	NA	NA	NA	NA
4-Nitrophenol	µg/kg	NE	NE	NA	NA	NA	NA	NA
Acenaphthene	µg/kg	NE	3700000	NA	NA	NA	NA	NA
Acenaphthylene	µg/kg	NE	NE	NA	NA	NA	NA	NA
Anthracene	µg/kg	NE	22000000	NA	NA	NA	NA	NA
Benzo(a)Anthracene	µg/kg	22	620	NA	NA	NA	NA	NA
Benzo(a)Pyrene	µg/kg	27	62	NA	NA	NA	NA	NA
Benzo(b)Fluoranthene	µg/kg	28	620	NA	NA	NA	NA	NA
Benzo(ghi)Perylene	µg/kg	29	NE	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene	µg/kg	24	6200 <380>	NA	NA	NA	NA	NA
bis(2-chloroethoxy)methane	µg/kg	NE	NE	NA	NA	NA	NA	NA
bis(2-chloroethyl)ether	µg/kg	NE	210	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	µg/kg	NE	2900	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	µg/kg	NE	35000	NA	NA	NA	NA	NA
Butyl benzyl phthalate	µg/kg	NE	12000000	NA	NA	NA	NA	NA
Chrysene	µg/kg	31	62000 <3800>	NA	NA	NA	NA	NA
Di-n-butyl phthalate	µg/kg	NE	6100000	NA	NA	NA	NA	NA
Di-n-octyl phthalate	µg/kg	NE	2400000	NA	NA	NA	NA	NA
Dibenzo(a,h)Anthracene	µg/kg	8	62	NA	NA	NA	NA	NA
Dibenzofuran	µg/kg	NE	290000	NA	NA	NA	NA	NA
Diethyl Phthalate	µg/kg	NE	49000000	NA	NA	NA	NA	NA
Dimethyl Phthalate	µg/kg	NE	100000000	NA	NA	NA	NA	NA
Fluoranthene	µg/kg	45	2300000	NA	NA	NA	NA	NA
Fluorene	µg/kg	NE	2700000	NA	NA	NA	NA	NA
Hexachlorobenzene	µg/kg	NE	300	NA	NA	NA	NA	NA
Hexachlorobutadiene	µg/kg	NE	6200	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	µg/kg	NE	370000	NA	NA	NA	NA	NA
Hexachloroethane	µg/kg	NE	35000	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)Pyrene	µg/kg	21	620	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	µg/kg	NE	69	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	µg/kg	NE	99000	NA	NA	NA	NA	NA
Naphthalene	µg/kg	NE	56000	NA	NA	NA	NA	NA
Nitrobenzene	µg/kg	NE	20000	NA	NA	NA	NA	NA
Pentachlorophenol	µg/kg	NE	3000	NA	NA	NA	NA	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)				818655-3373 APHO38-SG-17 05/21/03 5	818655-3371 APHO38-SG-20 05/21/03 10	818655-3377 APHO38-SG-20 05/21/03 15	818655-3370 APHO38-SG-21 05/21/03 10	818655-3372 APHO38-SG-21 05/21/03 20
	Unit	**Background**	**Residential PRG**					
Phenanthrene	µg/kg	18	NE	NA	NA	NA	NA	NA
Phenol	µg/kg	NE	37000000	NA	NA	NA	NA	NA
Pyrene	µg/kg	41	2300000	NA	NA	NA	NA	NA
METALS								
Aluminum	mg/kg	14800	76000	NA	NA	NA	NA	NA
Antimony	mg/kg	3.06	31	NA	NA	NA	NA	NA
Arsenic	mg/kg	6.86	0.39	NA	NA	NA	NA	NA
Barium	mg/kg	173	5400	NA	NA	NA	NA	NA
Beryllium	mg/kg	0.669	150	NA	NA	NA	NA	NA
Cadmium	mg/kg	2.35	37 <1.7>	NA	NA	NA	NA	NA
Calcium	mg/kg	46000	NE	NA	NA	NA	NA	NA
Chromium	mg/kg	26.9	210	NA	NA	NA	NA	NA
Cobalt	mg/kg	6.98	900	NA	NA	NA	NA	NA
Copper	mg/kg	10.5	3100	NA	NA	NA	NA	NA
Iron	mg/kg	18400	23000	NA	NA	NA	NA	NA
Lead	mg/kg	15.1	400 <150>	NA	NA	NA	NA	NA
Magnesium	mg/kg	8370	NE	NA	NA	NA	NA	NA
Manganese	mg/kg	291	1800	NA	NA	NA	NA	NA
Mercury	mg/kg	0.22	NE	NA	NA	NA	NA	NA
Molybdenum	mg/kg	NE	390	NA	NA	NA	NA	NA
Nickel	mg/kg	15.3	1600	NA	NA	NA	NA	NA
Potassium	mg/kg	4890	NE	NA	NA	NA	NA	NA
Selenium	mg/kg	0.32	390	NA	NA	NA	NA	NA
Silver	mg/kg	0.539	390	NA	NA	NA	NA	NA
Sodium	mg/kg	405	NE	NA	NA	NA	NA	NA
Thallium	mg/kg	0.42	5.2	NA	NA	NA	NA	NA
Vanadium	mg/kg	71.8	550	NA	NA	NA	NA	NA
Zinc	mg/kg	77.9	23000	NA	NA	NA	NA	NA

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)				818655-3368 APHO38-SG-22 05/21/03 10	818655-3369 APHO38-SG-22 05/21/03 20	818655-3359 APHO38-SG-24 05/21/03 10	818655-3358 APHO38-SG-24 05/21/03 5	818655-3386 APHO38-SS-04 05/21/03 0
	Unit	**Background**	**Residential PRG**					
TPH								
Diesel	mg/kg	NE	NE	11 U	11 U	11 U	12 U	150
Gasoline	mg/kg	NE	NE	17 U	11 U	8.8 U	10 U	13 U
VOLATILES								
1,1,1-Trichloroethane	µg/kg	NE	1200000	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
1,1,2,2-Tetrachloroethane	µg/kg	NE	410	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/kg	NE	5600000	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
1,1,2-Trichloroethane	µg/kg	NE	730	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
1,1-Dichloroethane	µg/kg	NE	510000 <2800>	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
1,1-Dichloroethene	µg/kg	NE	120000	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
1,2-Dichloroethane	µg/kg	NE	280	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
1,2-Dichloropropane	µg/kg	NE	340	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
2-Butanone	µg/kg	NE	7300000	59 U	51 U	41 U	48 U	65 U
2-Chloroethyl Vinyl Ether	µg/kg	NE	NE	59 UJ	51 UJ	41 UJ	48 U	65 UJ
2-Hexanone	µg/kg	NE	NE	59 U	51 U	41 U	48 U	65 U
4-Methyl-2-Pentanone	µg/kg	NE	790000	59 U	51 U	41 U	48 U	65 U
Acetone	µg/kg	NE	1600000	59 U	11 J	15 J	17 J	65 U
Benzene	µg/kg	NE	600	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Bromodichloromethane	µg/kg	NE	820	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Bromoform	µg/kg	NE	62000	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Bromomethane	µg/kg	NE	3900	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Carbon Disulfide	µg/kg	NE	360000	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Carbon Tetrachloride	µg/kg	NE	250	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Chlorobenzene	µg/kg	NE	150000	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Chloroethane	µg/kg	NE	3000	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Chloroform	µg/kg	NE	3600 <940>	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Chloromethane	µg/kg	NE	1200	5.9 U	5.1 U	4.1 U	4.8 U	6.5 UJ
Cis-1,2-Dichloroethene	µg/kg	NE	43000	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Cis-1,3-Dichloropropene	µg/kg	NE	780	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Dibromochloromethane	µg/kg	NE	1100	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Ethylbenzene	µg/kg	NE	8900	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Methyl tert-butyl Ether	µg/kg	NE	62000 <17000>	12 U	10 U	8.2 U	9.6 U	13 U
Methylene Chloride	µg/kg	NE	9100	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Styrene	µg/kg	NE	1700000	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3368	818655-3369	818655-3359	818655-3358	818655-3386
Location Code				APHO38-SG-22	APHO38-SG-22	APHO38-SG-24	APHO38-SG-24	APHO38-SS-04
Date Sampled				05/21/03	05/21/03	05/21/03	05/21/03	05/21/03
Depth (feet below ground surface)				10	20	10	5	0
	Unit	**Background**	**Residential PRG**					
Tetrachloroethene	µg/kg	NE	1500	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Toluene	µg/kg	NE	520000	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
trans-1,2-Dichloroethene	µg/kg	NE	69000	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
trans-1,3-Dichloropropene	µg/kg	NE	780	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Trichloroethene	µg/kg	NE	53	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Vinyl Acetate	µg/kg	NE	430000	59 U	51 U	41 U	48 U	65 U
Vinyl Chloride	µg/kg	NE	79	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
Xylene, (Total)	µg/kg	NE	270000	5.9 U	5.1 U	4.1 U	4.8 U	6.5 U
SEMI-VOLATILES								
1,2,4-Trichlorobenzene	µg/kg	NE	650000	NA	NA	NA	NA	430 U
1,2-Dichlorobenzene	µg/kg	NE	370000	NA	NA	NA	NA	430 U
1,3-Dichlorobenzene	µg/kg	NE	16000	NA	NA	NA	NA	430 U
1,4-Dichlorobenzene	µg/kg	NE	3400	NA	NA	NA	NA	430 U
2,4,5-Trichlorophenol	µg/kg	NE	6100000	NA	NA	NA	NA	1100 U
2,4,6-Trichlorophenol	µg/kg	NE	6100 <6900>	NA	NA	NA	NA	430 U
2,4-Dichlorophenol	µg/kg	NE	180000	NA	NA	NA	NA	430 U
2,4-Dimethylphenol	µg/kg	NE	1200000	NA	NA	NA	NA	430 U
2,4-Dinitrophenol	µg/kg	NE	120000	NA	NA	NA	NA	1100 UJ
2,4-Dinitrotoluene	µg/kg	NE	120000	NA	NA	NA	NA	430 U
2,6-Dinitrotoluene	µg/kg	NE	61000	NA	NA	NA	NA	430 U
2-Chloronaphthalene	µg/kg	NE	4900000	NA	NA	NA	NA	430 U
2-Chlorophenol	µg/kg	NE	63000	NA	NA	NA	NA	430 U
2-Methylnaphthalene	µg/kg	NE	NE	NA	NA	NA	NA	430 U
2-Methylphenol	µg/kg	NE	3000000	NA	NA	NA	NA	430 U
2-Nitroaniline	µg/kg	NE	1700	NA	NA	NA	NA	1100 U
2-Nitrophenol	µg/kg	NE	NE	NA	NA	NA	NA	430 U
3,3'-Dichlorobenzidine	µg/kg	NE	1100	NA	NA	NA	NA	430 U
3-Nitroaniline	µg/kg	NE	NE	NA	NA	NA	NA	1100 U
4,6-Dinitro-2-Methylphenol	µg/kg	NE	NE	NA	NA	NA	NA	1100 U
4-Bromophenyl Phenyl Ether	µg/kg	NE	NE	NA	NA	NA	NA	430 U
4-Chloro-3-Methylphenol	µg/kg	NE	NE	NA	NA	NA	NA	430 U
4-Chloroaniline	µg/kg	NE	240000	NA	NA	NA	NA	430 U
4-Chlorophenyl Phenyl Ether	µg/kg	NE	NE	NA	NA	NA	NA	430 U
4-Methylphenol	µg/kg	NE	310000	NA	NA	NA	NA	430 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)				818655-3368 APHO38-SG-22 05/21/03 10	818655-3369 APHO38-SG-22 05/21/03 20	818655-3359 APHO38-SG-24 05/21/03 10	818655-3358 APHO38-SG-24 05/21/03 5	818655-3386 APHO38-SS-04 05/21/03 0
	Unit	Background	Residential PRG					
4-Nitroaniline	µg/kg	NE	NE	NA	NA	NA	NA	1100 U
4-Nitrophenol	µg/kg	NE	NE	NA	NA	NA	NA	1100 UJ
Acenaphthene	µg/kg	NE	3700000	NA	NA	NA	NA	430 U
Acenaphthylene	µg/kg	NE	NE	NA	NA	NA	NA	430 U
Anthracene	µg/kg	NE	22000000	NA	NA	NA	NA	430 U
Benzo(a)Anthracene	µg/kg	22	620	NA	NA	NA	NA	430 U
Benzo(a)Pyrene	µg/kg	27	62	NA	NA	NA	NA	91 B Y
Benzo(b)Fluoranthene	µg/kg	28	620	NA	NA	NA	NA	630 B Y
Benzo(ghi)Perylene	µg/kg	29	NE	NA	NA	NA	NA	430 U
Benzo(k)Fluoranthene	µg/kg	24	6200 <380>	NA	NA	NA	NA	430 U
bis(2-chloroethoxy)methane	µg/kg	NE	NE	NA	NA	NA	NA	430 U
bis(2-chloroethyl)ether	µg/kg	NE	210	NA	NA	NA	NA	43 U
bis(2-chloroisopropyl)ether	µg/kg	NE	2900	NA	NA	NA	NA	430 UJ
bis(2-ethylhexyl)phthalate	µg/kg	NE	35000	NA	NA	NA	NA	1300
Butyl benzyl phthalate	µg/kg	NE	12000000	NA	NA	NA	NA	430 U
Chrysene	µg/kg	31	62000 <3800>	NA	NA	NA	NA	950 B
Di-n-butyl phthalate	µg/kg	NE	6100000	NA	NA	NA	NA	430 U
Di-n-octyl phthalate	µg/kg	NE	2400000	NA	NA	NA	NA	430 U
Dibenzo(a,h)Anthracene	µg/kg	8	62	NA	NA	NA	NA	43 U
Dibenzofuran	µg/kg	NE	290000	NA	NA	NA	NA	430 U
Diethyl Phthalate	µg/kg	NE	49000000	NA	NA	NA	NA	430 U
Dimethyl Phthalate	µg/kg	NE	100000000	NA	NA	NA	NA	430 U
Fluoranthene	µg/kg	45	2300000	NA	NA	NA	NA	1500 B
Fluorene	µg/kg	NE	2700000	NA	NA	NA	NA	430 U
Hexachlorobenzene	µg/kg	NE	300	NA	NA	NA	NA	97 U
Hexachlorobutadiene	µg/kg	NE	6200	NA	NA	NA	NA	430 U
Hexachlorocyclopentadiene	µg/kg	NE	370000	NA	NA	NA	NA	430 U
Hexachloroethane	µg/kg	NE	35000	NA	NA	NA	NA	430 U
Indeno(1,2,3-cd)Pyrene	µg/kg	21	620	NA	NA	NA	NA	120 B
N-Nitroso-di-n-propylamine	µg/kg	NE	69	NA	NA	NA	NA	43 U
N-Nitrosodiphenylamine	µg/kg	NE	99000	NA	NA	NA	NA	430 U
Naphthalene	µg/kg	NE	56000	NA	NA	NA	NA	430 U
Nitrobenzene	µg/kg	NE	20000	NA	NA	NA	NA	430 U
Pentachlorophenol	µg/kg	NE	3000	NA	NA	NA	NA	260 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification Location Code Date Sampled Depth (feet below ground surface)				818655-3368 APHO38-SG-22 05/21/03 10	818655-3369 APHO38-SG-22 05/21/03 20	818655-3359 APHO38-SG-24 05/21/03 10	818655-3358 APHO38-SG-24 05/21/03 5	818655-3386 APHO38-SS-04 05/21/03 0
	Unit	Background	Residential PRG					
Phenanthrene	µg/kg	18	NE	NA	NA	NA	NA	590 B
Phenol	µg/kg	NE	37000000	NA	NA	NA	NA	430 U
Pyrene	µg/kg	41	2300000	NA	NA	NA	NA	960 B
METALS								
Aluminum	mg/kg	14800	76000	NA	NA	NA	NA	22500 B
Antimony	mg/kg	3.06	31	NA	NA	NA	NA	6.45 U
Arsenic	mg/kg	6.86	0.39	NA	NA	NA	NA	3.75 Y X
Barium	mg/kg	173	5400	NA	NA	NA	NA	139
Beryllium	mg/kg	0.669	150	NA	NA	NA	NA	.847 B
Cadmium	mg/kg	2.35	37 <1.7>	NA	NA	NA	NA	6.65 B
Calcium	mg/kg	46000	NE	NA	NA	NA	NA	6530
Chromium	mg/kg	26.9	210	NA	NA	NA	NA	24.3
Cobalt	mg/kg	6.98	900	NA	NA	NA	NA	8.56 B
Copper	mg/kg	10.5	3100	NA	NA	NA	NA	28.3 B
Iron	mg/kg	18400	23000	NA	NA	NA	NA	21500 B
Lead	mg/kg	15.1	400 <150>	NA	NA	NA	NA	34.5 B
Magnesium	mg/kg	8370	NE	NA	NA	NA	NA	8160
Manganese	mg/kg	291	1800	NA	NA	NA	NA	340 B
Mercury	mg/kg	0.22	NE	NA	NA	NA	NA	.0445 J
Molybdenum	mg/kg	NE	390	NA	NA	NA	NA	6.45 U
Nickel	mg/kg	15.3	1600	NA	NA	NA	NA	14.1
Potassium	mg/kg	4890	NE	NA	NA	NA	NA	6750 B
Selenium	mg/kg	0.32	390	NA	NA	NA	NA	.864 U
Silver	mg/kg	0.539	390	NA	NA	NA	NA	2.58 U
Sodium	mg/kg	405	NE	NA	NA	NA	NA	423 B
Thallium	mg/kg	0.42	5.2	NA	NA	NA	NA	1.29 U
Vanadium	mg/kg	71.8	550	NA	NA	NA	NA	49.7
Zinc	mg/kg	77.9	23000	NA	NA	NA	NA	252 B

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3387
Location Code				APHO38-SS-24
Date Sampled				05/21/03
Depth (feet below ground surface)				0
	Unit	**Background**	**Residential PRG**	
TPH				
Diesel	mg/kg	NE	NE	59
Gasoline	mg/kg	NE	NE	10 U
VOLATILES				
1,1,1-Trichloroethane	µg/kg	NE	1200000	5.1 U
1,1,2,2-Tetrachloroethane	µg/kg	NE	410	5.1 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/kg	NE	5600000	5.1 U
1,1,2-Trichloroethane	µg/kg	NE	730	5.1 U
1,1-Dichloroethane	µg/kg	NE	510000 <2800>	5.1 U
1,1-Dichloroethene	µg/kg	NE	120000	5.1 U
1,2-Dichloroethane	µg/kg	NE	280	5.1 U
1,2-Dichloropropane	µg/kg	NE	340	5.1 U
2-Butanone	µg/kg	NE	7300000	51 U
2-Chloroethyl Vinyl Ether	µg/kg	NE	NE	51 UJ
2-Hexanone	µg/kg	NE	NE	51 U
4-Methyl-2-Pentanone	µg/kg	NE	790000	51 U
Acetone	µg/kg	NE	1600000	51 U
Benzene	µg/kg	NE	600	5.1 U
Bromodichloromethane	µg/kg	NE	820	5.1 U
Bromoform	µg/kg	NE	62000	5.1 U
Bromomethane	µg/kg	NE	3900	5.1 U
Carbon Disulfide	µg/kg	NE	360000	5.1 U
Carbon Tetrachloride	µg/kg	NE	250	5.1 U
Chlorobenzene	µg/kg	NE	150000	5.1 U
Chloroethane	µg/kg	NE	3000	5.1 U
Chloroform	µg/kg	NE	3600 <940>	5.1 U
Chloromethane	µg/kg	NE	1200	5.1 UJ
Cis-1,2-Dichloroethene	µg/kg	NE	43000	5.1 U
Cis-1,3-Dichloropropene	µg/kg	NE	780	5.1 U
Dibromochloromethane	µg/kg	NE	1100	5.1 U
Ethylbenzene	µg/kg	NE	8900	5.1 U
Methyl tert-butyl Ether	µg/kg	NE	62000 <17000>	10 U
Methylene Chloride	µg/kg	NE	9100	5.1 U
Styrene	µg/kg	NE	1700000	5.1 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3387
Location Code				APHO38-SS-24
Date Sampled				05/21/03
Depth (feet below ground surface)				0
	Unit	**Background**	**Residential PRG**	
Tetrachloroethene	µg/kg	NE	1500	5.1 U
Toluene	µg/kg	NE	520000	5.1 U
trans-1,2-Dichloroethene	µg/kg	NE	69000	5.1 U
trans-1,3-Dichloropropene	µg/kg	NE	780	5.1 U
Trichloroethene	µg/kg	NE	53	5.1 U
Vinyl Acetate	µg/kg	NE	430000	51 U
Vinyl Chloride	µg/kg	NE	79	5.1 U
Xylene, (Total)	µg/kg	NE	270000	5.1 U
SEMI-VOLATILES				
1,2,4-Trichlorobenzene	µg/kg	NE	650000	340 U
1,2-Dichlorobenzene	µg/kg	NE	370000	340 U
1,3-Dichlorobenzene	µg/kg	NE	16000	340 U
1,4-Dichlorobenzene	µg/kg	NE	3400	340 U
2,4,5-Trichlorophenol	µg/kg	NE	6100000	850 U
2,4,6-Trichlorophenol	µg/kg	NE	6100 <6900>	340 U
2,4-Dichlorophenol	µg/kg	NE	180000	340 U
2,4-Dimethylphenol	µg/kg	NE	1200000	340 U
2,4-Dinitrophenol	µg/kg	NE	120000	850 UJ
2,4-Dinitrotoluene	µg/kg	NE	120000	340 U
2,6-Dinitrotoluene	µg/kg	NE	61000	340 U
2-Chloronaphthalene	µg/kg	NE	4900000	340 U
2-Chlorophenol	µg/kg	NE	63000	340 U
2-Methylnaphthalene	µg/kg	NE	NE	340 U
2-Methylphenol	µg/kg	NE	3000000	340 U
2-Nitroaniline	µg/kg	NE	1700	850 U
2-Nitrophenol	µg/kg	NE	NE	340 U
3,3'-Dichlorobenzidine	µg/kg	NE	1100	340 U
3-Nitroaniline	µg/kg	NE	NE	850 U
4,6-Dinitro-2-Methylphenol	µg/kg	NE	NE	850 U
4-Bromophenyl Phenyl Ether	µg/kg	NE	NE	340 U
4-Chloro-3-Methylphenol	µg/kg	NE	NE	340 U
4-Chloroaniline	µg/kg	NE	240000	340 U
4-Chlorophenyl Phenyl Ether	µg/kg	NE	NE	340 U
4-Methylphenol	µg/kg	NE	310000	340 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3387
Location Code				APHO38-SS-24
Date Sampled				05/21/03
Depth (feet below ground surface)				0
	Unit	Background	Residential PRG	
4-Nitroaniline	µg/kg	NE	NE	850 U
4-Nitrophenol	µg/kg	NE	NE	850 UJ
Acenaphthene	µg/kg	NE	3700000	340 U
Acenaphthylene	µg/kg	NE	NE	340 U
Anthracene	µg/kg	NE	22000000	340 U
Benzo(a)Anthracene	µg/kg	22	620	340 U
Benzo(a)Pyrene	µg/kg	27	62	34 U
Benzo(b)Fluoranthene	µg/kg	28	620	340 U
Benzo(ghi)Perylene	µg/kg	29	NE	340 U
Benzo(k)Fluoranthene	µg/kg	24	6200 <380>	340 U
bis(2-chloroethoxy)methane	µg/kg	NE	NE	340 U
bis(2-chloroethyl)ether	µg/kg	NE	210	34 U
bis(2-chloroisopropyl)ether	µg/kg	NE	2900	340 UJ
bis(2-ethylhexyl)phthalate	µg/kg	NE	35000	340 U
Butyl benzyl phthalate	µg/kg	NE	12000000	340 U
Chrysene	µg/kg	31	62000 <3800>	340 U
Di-n-butyl phthalate	µg/kg	NE	6100000	340 U
Di-n-octyl phthalate	µg/kg	NE	2400000	340 U
Dibenzo(a,h)Anthracene	µg/kg	8	62	34 U
Dibenzofuran	µg/kg	NE	290000	340 U
Diethyl Phthalate	µg/kg	NE	49000000	340 U
Dimethyl Phthalate	µg/kg	NE	100000000	340 U
Fluoranthene	µg/kg	45	2300000	340 U
Fluorene	µg/kg	NE	2700000	340 U
Hexachlorobenzene	µg/kg	NE	300	77 U
Hexachlorobutadiene	µg/kg	NE	6200	340 U
Hexachlorocyclopentadiene	µg/kg	NE	370000	340 U
Hexachloroethane	µg/kg	NE	35000	340 U
Indeno(1,2,3-cd)Pyrene	µg/kg	21	620	36 U
N-Nitroso-di-n-propylamine	µg/kg	NE	69	11 J
N-Nitrosodiphenylamine	µg/kg	NE	99000	340 U
Naphthalene	µg/kg	NE	56000	340 U
Nitrobenzene	µg/kg	NE	20000	340 U
Pentachlorophenol	µg/kg	NE	3000	200 U

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Sample Identification				818655-3387
Location Code				APHO38-SS-24
Date Sampled				05/21/03
Depth (feet below ground surface)				0
	Unit	Background	Residential PRG	
Phenanthrene	µg/kg	18	NE	340 U
Phenol	µg/kg	NE	37000000	340 U
Pyrene	µg/kg	41	2300000	340 U
METALS				
Aluminum	mg/kg	14800	76000	13300 J
Antimony	mg/kg	3.06	31	2.28 J
Arsenic	mg/kg	6.86	0.39	2.64 Y X
Barium	mg/kg	173	5400	77
Beryllium	mg/kg	0.669	150	.484
Cadmium	mg/kg	2.35	37 <1.7>	.814
Calcium	mg/kg	46000	NE	3770
Chromium	mg/kg	26.9	210	11.2
Cobalt	mg/kg	6.98	900	4.68
Copper	mg/kg	10.5	3100	8.15
Iron	mg/kg	18400	23000	11500 J
Lead	mg/kg	15.1	400 <150>	30.2 B
Magnesium	mg/kg	8370	NE	4390
Manganese	mg/kg	291	1800	192 J
Mercury	mg/kg	0.22	NE	.102 U
Molybdenum	mg/kg	NE	390	5.12 U
Nickel	mg/kg	15.3	1600	7.07
Potassium	mg/kg	4890	NE	3470
Selenium	mg/kg	0.32	390	.524 U
Silver	mg/kg	0.539	390	2.05 U
Sodium	mg/kg	405	NE	242
Thallium	mg/kg	0.42	5.2	1.02 U
Vanadium	mg/kg	71.8	550	30.5
Zinc	mg/kg	77.9	23000	296 J B

Table 4
Analytical Results, Soil Investigation — APHO 38, Former MCAS El Toro

Explanations :

B - result exceeds background
J - estimated value
M - modified **Residential PRG 2002**
MCAS - Marine Corps Air Station
mg/kg - milligrams per kilogram
NE - not established
PRG - preliminary remediatin goal (2002)
TPH - total petroleum hydrocarbons
U - not detected at or above the stated reporting limit
UJ - estimated reporting limit
X - result exceeds industrial PRGs
Y - result exceeds residential PRGs
µg/kg - micrograms per kilogram
< > - California Modified preliminary remediation goal
* - Background level @ MCAS El Toro

TABLE 5
Comparison of Soil Vapor Results, Fixd Base Versus Mobile Lab Analyses

Sample Identification		HPL	STL	HPL	STL	HPL	STL	HPL	STL
		SG-12-10	818655-3306	SG15-5	818655-3304	SG20-15	818655-3305	SG21-20	818655-3307
Location Code		APHO38-SG-12	APHO38-SG-12	APHO38-SG-15	APHO38-SG-15	APHO38-SG-20	APHO38-SG-20	APHO38-SG-21	APHO38-SG-21
Date Sampled		05/19/03	05/19/03	05/20/03	05/20/03	05/20/03	05/20/03	05/20/03	05/21/03
Depth (feet below ground surface)		10	10	5	5	15	15	20	20
	Unit								
VOLATILES									
1,1,1-Trichloroethane	µg/L	1.0 U	0.0011 U	1.0 U	0.0011 U	1.0 U	0.0011 U	1.0 U	0.012 U
1,1,2,2-Tetrachloroethane	µg/L	1.0 U	0.0014 U	1.0 U	0.0014 U	1.0 U	0.0014 U	1.0 U	0.015 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/L	**1.0 U**	**0.0086**	**1.0 U**	**0.14**	**1.0 U**	**0.29**	**4.8**	**1.9**
1,1,2-Trichloroethane	µg/L	1.0 U	0.0011 U	1.0 U	0.0011 U	1.0 U	0.0011 U	1.0 U	0.012 U
1,1-Dichloroethane	µg/L	1.0 U	0.00081 U	1.0 U	0.00081 U	1.0 U	0.00081 U	1.0 U	0.0089 U
1,1-Dichloroethene	µg/L	1.0 U	0.00079 U	1.0 U	0.00079 U	1.0 U	0.00079 U	1.0 U	0.0087 U
1,2-Dichloroethane	µg/L	1.0 U	0.00081 U	1.0 U	0.00081 U	1.0 U	0.00081 U	1.0 U	0.0089 U
Acetone	µg/L	NA	0.030	NA	0.062	NA	0.063	NA	0.066
Benzene	µg/L	**1.0 U**	**0.00091**	**1.0 U**	**0.0020**	1.0 U	0.0013	1.0 U	0.0070 U
Carbon tetrachloride	µg/L	**1.0 U**	**0.00027 J**	**1.0 U**	**0.0010 J**	1.0 U	0.00096 J	1.0 U	0.014 U
Chloroethane	µg/L	1.0 U	0.0011 U	1.0 U	0.0011 U	1.0 U	0.0011 U	1.0 U	0.012 U
Chloroform	µg/L	1.0 U	0.00097 U	1.0 U	0.00048 J	1.0 U	0.00097 U	1.0 U	0.011 U
Cis-1,2-Dichloroethene	µg/L	1.0 U	0.00079 U	1.0 U	0.00079 U	1.0 U	0.00079 U	1.0 U	0.0087 U
Dichlorodifluoromethane	µg/L	**1.0 U**	**0.0030**	**1.0 U**	**0.0030**	**1.0 U**	**0.0033**	1.0 U	0.011 U
Ethylbenzene	µg/L	1.0 U	0.00087 U	**1.0 U**	**0.0025**	**1.0 U**	**0.00066 J**	**2.2**	**0.14**
m,p-Xylenes	µg/L	1.0 U	0.0022 U	**1.0 U**	**0.011**	**1.0 U**	**0.0020 J**	**11**	**1.2**
Methyl tert-butyl ether	µg/L	1.0 U	0.0036 U	**1.0 U**	**0.00064 J**	**1.0 U**	**0.00044 J**	1.0 U	0.039 U
Methylene chloride	µg/L	**1.0 U**	**0.00066 J**	**1.0 U**	**0.0011**	**1.0 U**	**0.0012**	**1.0 U**	**0.0030 J**
o-Xylene	µg/L	1.0 U	0.00087 U	**1.0 U**	**0.0045**	**1.0 U**	**0.00084 J**	**2.8**	**0.43**
Tetrachloroethene	µg/L	**1.0 U**	**0.0011 J**	**1.0 U**	**0.00073 J**	**1.0 U**	**0.0011 J**	1.0 U	0.015 U
Toluene	µg/L	**1.0 U**	**0.0038**	**1.0 U**	**0.010**	**1.0 U**	**0.0044**	1.0 U	0.012 U
Trans-1,2-Dichloroethene	µg/L	1.0 U	0.00079 U	1.0 U	0.00079 U	1.0 U	0.00079 U	1.0 U	0.0087 U
Trichloroethene	µg/L	1.0 U	0.0011 U	1.0 U	0.0011 U	1.0 U	0.0011 U	1.0 U	0.012 U
Trichlorofluoromethane	µg/L	**1.0 U**	**0.0013 J**	**1.0 U**	**0.0015 J**	**1.0 U**	**0.0015 J**	1.0 U	0.024 U
Vinyl chloride	µg/L	1.0 U	0.00051 U	1.0 U	0.00051 U	1.0 U	0.00051 U	1.0 U	0.0056 U

HPL- HP Labs, mobile laboratory
STL- Svern Trent Laboaratory, fixed-base laboaratory
µg/L- micro-grams per liter
U- not detected at a concentration equal to or less than the reporting limit
J- estimated value
***Red Bold-** Data compared*

Table 6
Residential Risk Screening Worksheet for Soil
APHO 38

Chemical of Potential Concern	Maximum APHO 38 Soil Concentration (mg/kg)	MCAS El Toro Background Concentration[A] (mg/kg)	CANCER			NON-CANCER		
			Residential PRG[B] (mg/kg)	APHO 38 Maximum Ratio[C]	MCAS El Toro Background Ratio[C]	Residential PRG[D] (mg/kg)	APHO 38 Maximum Ratio[E]	MCAS El Toro Background Ratio[F]
Acetone	0.055	NE	NE	NE	NE	1.6E+03	3.44E-05	NE
Benzo(a)pyrene	0.091	0.027	6.2E-02	1.47E+00	4.35E-01	NE	NE	NE
Benzo(b)fluoranthene	0.63	0.028	6.2E-01	1.02E+00	4.52E-02	NE	NE	NE
Bis(2-ethylhexyl)phthalate	1.3	NE	3.5E+01	3.71E-02	NE	1.2E+03	1.08E-03	NE
*Chrysene	0.95	0.031	3.8E+00	2.50E-01	8.16E-03	NE	NE	NE
Fluoranthene	1.5	NE	NE	NE	NE	2.3E+03	6.52E-04	NE
Indeno(1,2,3-cd)Pyrene	0.12	0.021	6.2E-01	1.94E-01	3.39E-02	NE	NE	NE
N-Nitroso-di-n-propylamine	0.011	NE	6.9E-02	1.59E-01	NE	NE	NE	NE
Phenanthrene	0.59	0.018	NE	NE	NE	NE	NE	NE
Phenol	4.4	NE	NE	NE	NE	3.7E+04	1.19E-04	NE
Pyrene	0.96	0.041	NE	NE	NE	2.3E+03	4.17E-04	1.78E-05
Aluminum	23900	14800	NE	NE	NE	7.6E+04	3.14E-01	1.95E-01
Antimony	2.7	3.06	NE	NE	NE	3.1E+01	8.71E-02	9.87E-02
Arsenic	4.56	6.86	3.9E-01	1.17E+01	1.76E+01	2.2E+01	2.07E-01	3.12E-01
Barium	143	173	NE	NE	NE	5.4E+03	2.65E-02	3.20E-02
Beryllium	0.847	0.669	1.1E+03	7.70E-04	6.08E-04	1.5E+02	5.65E-03	4.46E-03
Cadmium	6.65	2.35	1.4E+03	4.75E-03	1.68E-03	3.7E+01	1.80E-01	6.35E-02
Chromium	24.3	26.9	2.1E+02	1.16E-01	1.28E-01	NE	NE	NE
Cobalt	20.6	6.98	9.0E+02	2.29E-02	7.76E-03	1.4E+03	1.47E-02	4.99E-03
Copper	28.3	10.5	NE	NE	NE	3.1E+03	9.13E-03	3.39E-03
Iron	21500	18400	NE	NE	NE	2.3E+04	9.35E-01	8.00E-01
Lead*	34.5	15.1	NE	NE	NE	1.5E+02	2.30E-01	1.01E-01
Manganese	340	291	NE	NE	NE	1.8E+03	1.89E-01	1.62E-01
Mercury	0.0503	0.22	NE	NE	NE	2.3E+01	2.19E-03	9.57E-03
Nickel	14.1	15.3	NE	NE	NE	1.6E+03	8.81E-03	9.56E-03
Silver	2.13	0.539	NE	NE	NE	3.9E+02	5.46E-03	1.38E-03
Vanadium	50.5	71.8	NE	NE	NE	5.5E+02	9.18E-02	1.31E-01
Zinc	296	77.9	NE	NE	NE	2.3E+04	1.29E-02	3.39E-03
Subtotal sum of ratios				1.50E+01	1.83E+01		2.32E+00	1.93E+00
MCAS EL TORO BACKGROUND RISK RATIOS			**CANCER RISK**		**1.83E-05**	**NON-CANCER HAZARD INDEX**		**1.93**
APHO 38 SUMMED RISK			**CANCER RISK**	**1.50E-05**		**NON-CANCER HAZARD INDEX**	**2.32**	
APHO 38 RISK LESS BACKGROUND RISK (NET RISK)			**NET CANCER RISK**	**<1 X 10^{-6}**				

[A] *MCAS El Toro Background upper threshold limit concentrations from Final Technical Memorandum Background and Reference Levels, Bechtel National, Inc. 1996.*

[B] *Residential soil PRG for cancer from the EPA Region 9, October 1, 2002 list.*

[C] *The Ratio is determined by dividing the Concentration by the respective PRG.*

[D] *Residential soil PRG for non-cancer from the EPA Region 9, November, 2002 list.*

[E] *The Ratio is determined by dividing the Concentration by the respective PRG.*

mg/kg - Milligrams per kilogram.

NE - Not established/No entry.

PRG - Preliminary remediation goal.

Maximum detected values used were obtained from Shaw 2003 sampling events.

MCAS - Marine Corps Air Station

** - Cal-modified PRG*

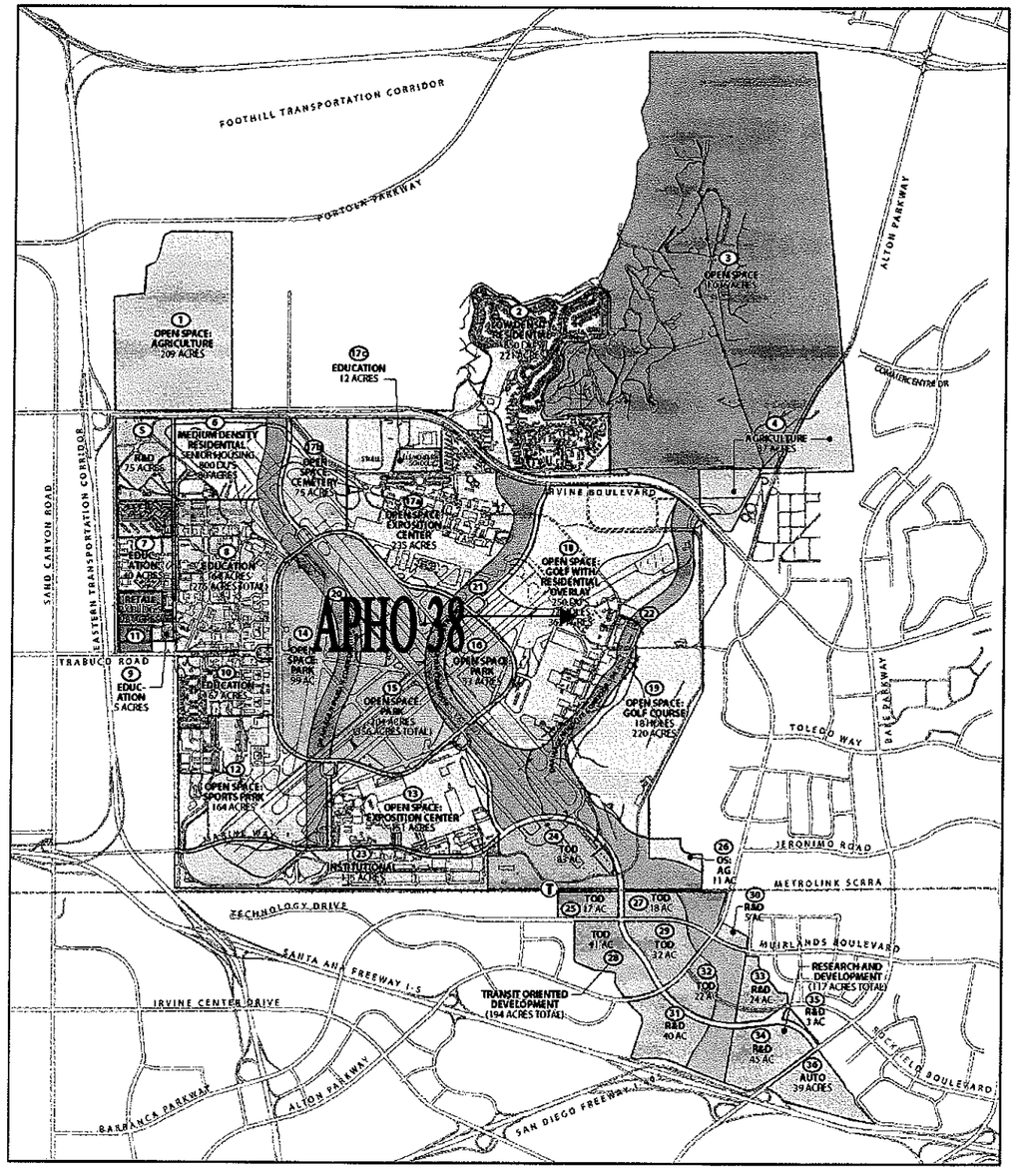
Contributors to risk were all detected analytes from 2003 confirmation sampling.

Table 7
Hazard Index Worksheet, Target Organ System Endpoint, APHO 38

Chemical of Potential Concern	Maximum APHO 38 Soil Concentration (mg/kg)	MCAS El Toro Background Concentration[A] (mg/kg)	Residential PRG[B] (mg/kg)	APHO 38 Maximum Ratio[C]	Target Organ[C] Hazard Index[D]						
					Skin	Iron Overload[E]	Gastro-intestinal	Kidney	Cardio-vascular system	Central nervous system	Repro-ductive system
METAL CONTRIBUTORS											
Aluminum	23900	14800	7.60E+04	3.14E-01						3.14E-01	
Arsenic	4.56	6.86	2.20E+01	2.07E-01	2.07E-01				2.07E-01	2.07E-01	
Cadmium	6.65	2.35	3.70E+01	1.80E-01			1.80E-01	1.80E-01			
Iron	21500	18400	2.30E+04	9.35E-01		9.35E-01					
Lead*	34.5	15.1	1.50E+02	2.30E-01				2.30E-01	2.30E-01	2.30E-01	
Manganese	340	291	1.80E+03	1.89E-01						1.89E-01	1.89E-01
Subtotal sum of ratios				7.01E-01	2.07E-01	9.35E-01	1.80E-01	4.10E-01	4.37E-01	9.41E-01	1.89E-01
			NON-CANCER HAZARD INDEX	**0.70**	**0.21**	**0.93**	**0.18**	**0.41**	**0.44**	**0.94**	**0.19**

[A] MCAS El Toro Background upper threshold limit concentrations from Final Technical Memorandum Background and Reference Levels, Bechtel National, Inc. 1996b.
[B] Residential soil PRGs for non-cancer from the EPA Region 9, October 1, 2002 list.
[C] The primary target organs were identified from toxicity profiles available on the IRIS website. Information was obtained from the Risk Assessment Information System website when information from the IRIS website was limited.
[D] The Ratio is determined by dividing the maximum concentration by the respective PRG.
[E] Klaasen, Curtis D., Watkins, John B. III, 1999, Casarett and Doull's Toxicology, The Basis Science of Poisons; 5th Edition, Companion Handbook, McGraw Hill, United States of America.
mg/kg - Milligrams per kilogram.
PRG - Preliminary remediation goal.
Concentrations that contribute an HI of 0.1 or greater are used in target organ calculations.
MCAS - Marine Corps Air Station

Appendix A
Great Park Land Use



GREAT PARK LAND USE PLAN

The Orange County Great Park

Prepared for the City of Irvine by ROMA Design Group and Associated Consultants

JUNE 12 2002

Appendix B
Geophysical Report, 2000

GEOVision
geophysical services
a division of Blackhawk Geometrics

GEOPHYSICAL INVESTIGATION

Aerial Photographic Anomaly Area 38
Marine Corps Air Station, El Toro, California

GEOVision Project No. 0260

Prepared for

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October 12, 2000

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FIGURE 2 SITE MAP WITH GEOPHYSICAL INTERPRETATION
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FIGURE 5 CONTOUR MAP OF GEONICS EM-31 CONDUCTIVITY RESPONSE

1 INTRODUCTION

A geophysical investigation was conducted on October 5, 2000 in an approximate 0.5-acre area encompassing part of Aerial Photographic Anomaly Area 38, Marine Corps Air Station (MCAS), El Toro, California. The purpose of the investigation was to screen the site for buried metallic and/or construction debris.

The geophysical survey area consisted on an open dirt field bound to the north by a chain link fence, south by Buildings 1719 and 787, and west by several concrete lined ponds. The location of the survey area is shown on Figure 1.

There was no surficial evidence of disposal activities at the site and it is possible that anomalous zones identified on historical aerial photographs were related to construction of the ponds west of the survey area. Surficial cultural features within the survey area that could adversely affect the geophysical data included fences, buildings, reinforced concrete ponds, and scattered surface debris.

Geophysical techniques used during this investigation included the magnetic, electromagnetic (EM), and ground penetrating radar (GPR) methods. These techniques complement one another as each responds to different physical properties and has different strengths and limitations.

Geophysical techniques used during the investigation are discussed in Section 2. Field procedures are described in Section 3. Data processing and interpretation are discussed in Section 4. The results of the geophysical survey are presented in Section 5, and our professional certification is presented in Section 6.

2 GEOPHYSICAL TECHNIQUES

This section presents background information on the magnetic, EM and GPR methods used during this investigation. A description of the geophysical methods used during this investigation, common applications of the methods, photographs of the instruments, and example applications are included in Appendix A.

The magnetometer used during this investigation consisted of a Geometrics G858 optically pumped cesium-vapor magnetometer (G858). This instrument measures the intensity of the earth's magnetic field in nanoteslas (nT) and, optionally, the vertical gradient of the earth's magnetic field in nanoteslas per meter (nT/m). The vertical magnetic gradient is calculated by measuring the total magnetic field with two sensors at different heights, subtracting the top sensor reading from the bottom sensor reading, and dividing by the sensor separation. Buried ferrous metallic objects give rise to anomalies in the earth's magnetic field. These anomalies are generally dipolar with a positive response south and a negative response north of the object. The dimensions and amplitude of a magnetic anomaly are a function of the size, mass, depth, and magnetic properties of the source. Magnetometers can typically locate a 550-gallon tank to depths of about 10 feet providing background noise levels are not too high and the tank is not extensively corroded. Larger metallic objects can be located to greater depths. The vertical magnetic gradient anomaly due to an object the size of a 550-gallon tank is expected to have dimensions of about 15- by 15-feet. Magnetometers are not able to detect nonferrous metals such as aluminum or brass.

EM equipment used during this investigation consisted of a Geonics EM-61 high-resolution digital metal detector (EM-61), Geonics EM-31 terrain conductivity meter (EM-31), Fisher TW-6 metal detector and a Metrotech 9890 EM utility locator. The EM-61 is a high-resolution, deep sensing, time domain EM metal detector. The EM-61 has a single transmitter and two receiver coils. The bottom coil is the transmitter during the current on-time and receiver during current off-time. The top-coil, mounted 40-cm above the bottom coil, is a receiver coil only. The transmitter and receiver electronics controls are mounted in a backpack and a hand-held data logger is used to store field measurements. During operation a half-duty cycle waveform is applied to the transmitter coil. During the off-time the receiver coils measure the decay of eddy currents, in millivolts (mV), produced in subsurface metallic objects by the pulsed primary EM field. The top coil is gained in such a manner that the instrument response to a metallic object lying on the surface will be approximately equal at both the top and bottom coils. The effects of surface debris can, therefore, be suppressed by calculating the differential response (subtraction of the bottom coil from top coil response). Positive EM-61 anomalies centered over the source are typically observed over buried metallic objects. Above ground metallic objects will often give rise to a negative differential response, as the top coil response is larger than the bottom coil response. The dimensions of an EM-61 anomaly over an object the size of a 550-gallon tank should be about 10-feet by 10-feet.

The EM-31 consists of a transmitter and receiver coil, one at each end of 12-foot long boom. An alternating current is applied to the transmitter coil, causing the coil to radiate a primary EM field. This primary EM field generates eddy currents in subsurface materials, which give

rise to a secondary EM field. The EM-31 measures the components of the secondary EM field both in-phase and 90-degrees out-of-phase with the primary EM field. The out-of-phase component is converted to apparent conductivity in millisiemens per meter (mS/m) and the in-phase component is measured as parts per thousand of the primary EM field. A negative EM-31 response with positive shoulders is generally observed over shallow, buried metallic objects. When the instrument boom is orientated parallel to a long, linear conductor such as a pipe a positive response centered over the conductor is typically observed. The EM-31 can locate both ferrous and nonferrous metallic objects and can locate a 550-gallon tank to a maximum depth of about 5 feet. The EM-31 must pass directly over or immediately adjacent to a buried metallic object to detect it. Because of the 12-foot separation between the transmitter and receiver coils, the EM-31 cannot detect very small, buried metallic objects.

The Fisher TW-6 deep-search metal detector operates under similar principles as the EM-31. The instrument operates at a frequency of 82 kHz and transmitter-receiver separation of about 4 feet. The Fisher is useful for locating pipes and buried metallic objects, such as USTs. If is often used to relocate magnetic, EM-61, and EM-31 anomalies and determine the approximate lateral dimensions of the source of the anomaly.

The Metrotech EM utility locator consists of a separate EM transmitter and receiver and is designed to accurately trace pipes and utility lines. The transmitter can be directly connected to pipes that surface and the pipes traced in conductive mode. Alternatively, the transmitter can be positioned on the surface over a pipe and the pipe traced in inductive mode. The system is operated at frequencies of 982 Hz, 9.82 kHz or 81 kHz and can also be operated in a passive 60-Hz mode to locate live electrical lines.

GPR equipment used during this investigation consisted of a Geophysical Survey Systems Inc. (GSSI) SIR-2 GPR system with a 500 or 300-MHz antenna (SIR2). A GPR antenna transmits high-frequency EM waves into the ground. A portion of the energy is reflected back to the surface at the interface of two materials with different electrical properties and it is received at the antenna. High-amplitude, hyperbolic reflections are generally observed on GPR records over buried metallic objects. GPR depth penetration is a function of the electrical conductivity of subsurface soils and the center frequency of the antenna. Depth penetration is very limited in fine-grained soils such as clay. Low frequency antennas achieve greater depth penetration than high frequency antennas at the expense of resolution. At typical sites in Southern California, depth penetration of a 300-MHz antenna is limited to about 3 to 5 feet.

3 FIELD PROCEDURES

This section describes the field procedures used during the investigation, including site preparation, magnetic, EM-61 and EM-31 survey procedures, and verification of geophysical anomalies.

3.1 Site Preparation

Before conducting the geophysical investigation, a 10- by 10-foot survey grid was established and marked with surveyor paint. The grid was established parallel and perpendicular to the buildings along the southern boundary of the survey area. The geophysical survey grid was not tied to the State Plane Coordinate System and is estimated to have an accuracy of about 2 feet. Obvious surface cultural features that could potentially affect the geophysical data (i.e. metallic fences, buildings, and other surface metallic objects) were identified in the field and plotted onto a scaled, hand-drawn site map. A site map, transcribed from the field drawings, showing the location of the geophysical survey area, geophysical survey coordinate system, and surficial features is presented as Figure 2.

3.2 Magnetic Survey

Prior to data acquisition, the G858 was programmed with the appropriate line number, direction, sampling interval, and control point spacing. Changes in these parameters were made as necessary during the survey. Measurements of the earth's total magnetic field and vertical magnetic gradient were made at 0.1-second intervals as the operator walked along southwest to northeast (SW-NE) survey lines spaced 5 feet apart. The 10-foot grid points were used for spatial control. A marker key on the instrument was depressed every time a 10-foot control point was crossed and linear interpolation was used to assign station positions to the intermediate readings. The 0.1-second sampling interval resulted in an average station spacing of about 0.5 feet. The magnetic data were stored in the internal memory of the magnetometer, along with line and station number, and time of measurement. If a location error was made on a survey line (station mark skipped, etc.) the line was deleted from the magnetometer's internal memory and reacquired. Magnetic data were downloaded to a laptop computer at the end of the survey using the program MAGMAP by Geometrics Inc.

3.3 Geonics EM-61 Survey

The EM-61 was assembled and battery levels were checked and found to be within acceptable levels. The EM-61 digital data logger was then programmed with the appropriate file name, line number, start station, station increment, and direction. Changes in these parameters were made as necessary throughout the survey. EM-61 measurements were made at 2.5-foot intervals along SW-NE survey lines spaced 5 feet apart using the 10-foot grid points for spatial control. The EM-61 data were stored in a digital data logger along with line and station number. If an error was made acquiring a line, a note was made in the field log and the line repeated. EM-61 data were downloaded to a laptop computer at the end of the survey using the computer program DAT61 by Geonics Ltd.

3.4 Geonics EM-31 Survey

The EM-31 was assembled and battery levels were checked and found to be within acceptable levels. The in-phase component was then set to zero in a portion of the site with no buried metallic objects. The EM-31 digital data logger was then programmed with the appropriate file name, line number, start station, station increment, and direction. Changes in these parameters were made as necessary throughout the survey. EM-31 measurements of conductivity and in-phase component were made at 5-foot intervals along SW-NE survey lines spaced 5 feet apart using the 10-foot grid points for spatial control. The EM-31 data were stored in a digital data logger along with line and station number. If an error was made acquiring a line, a note was made in the field log and the line repeated. EM-31 data were downloaded to a laptop computer at the end of the survey using the computer program DAT31 by Geonics Ltd.

3.5 Field Verification and GPR Survey

The verification phase of the investigation was conducted after preliminary processing of the magnetic, EM-31 and EM-61 data. A discussion of data processing procedures is provided in the following section. Significant magnetic, EM-61 and EM-31 anomalies interpreted from contour maps of the data were field checked to verify that they had subsurface sources. The EM utility locator and Fisher metal detector were used in an attempt to trace buried pipes and utilities interpreted from the geophysical data. The locations of these pipes were plotted on the site map.

GPR data were collected with the SIR2 over the more significant magnetic, EM-61 and EM-31 anomalies in an attempt to better characterize their source, dimensions, and depth. GPR data were acquired semi-continuously (32 scans per second), as a 400-MHz antenna was hand-towed along the survey lines. Control points were placed on the GPR records at 10-foot intervals using a marker switch on the antenna. GPR data were viewed in real time on the SIR-2's color monitor, plotted in the field on a gray-scale printer, and saved to the SIR-2's hard disk for later processing. The locations of all GPR profiles are shown in Figure 2. All field copies of GPR data are retained in the project files. The GPR data was found to be of limited use because of poor depth penetration in the fine-grained, cemented soils located at the site.

4 DATA PROCESSING AND INTERPRETATION

This section presents the data processing procedures and interpretation of the geophysical data.

4.1 Data Processing

Color-enhanced contour maps of magnetic, EM-61 and EM-31 data were generated using the GEOSOFT® geophysical mapping system. The maps were color-enhanced to aid in the interpretation of subtle anomalies. Prior to map generation, a number of preprocessing steps were completed and included:

- Backup of all original field data files to floppy disk.
- Correcting of all data acquisition errors (typically only deleting the first portion of a reacquired line, renaming lines incorrectly labeled, deleting additional readings outside the grid, etc.)
- Reformatting field data files to free format XYZ files containing line number, station, time (if applicable), and field measurements.
- Applying small adjustments to EM-61 and EM-31 station locations to compensate for data being recorded while the operator was walking.
- Merging of multiple data files into a single file and sorting, if necessary.

The output of the data preprocessing was a data file containing line and station number and the top coil, bottom coil, and differential response. These data files were imported into the GEOSOFT® mapping system and the following data processing steps applied:

- Reformatting of data files to GEOSOFT® format.
- Generating final map scale.
- Gridding data using down- and cross-line splines or minimum curvature.
- Masking grid in areas where data not acquired (i.e. around site perimeter or building).
- Applying Hanning filter to smooth the data, as necessary.
- Generating color zone file describing color for different data ranges.
- Contouring the data.
- Generating map surrounds (title block, legend, scale, color bar, north arrow, etc.)
- Annotating anomalies.
- Merging various plot files and plotting final map.

The names of the files generated and the processing parameters used were recorded on data processing forms. All completed data processing forms are retained in project files. All files generated during the processing sequence were archived on digital tape or CD-ROM.

GPR data acquired during this investigation were not processed, rather interpretation was conducted using field printouts of the data. GPR data are not presented in the report, as it did not provide additional information. Field printouts and digital copies of the GPR data are however retained in project files.

4.2 Interpretation

Color-enhanced contour maps of total magnetic field intensity, EM-61 bottom coil response, and EM-31 conductivity response are presented as Figures 3 to 5, respectively. The coordinates shown in these figures reference the relative geophysical coordinate system shown in Figure 2. The color bar indicates the amplitude of the measured quantity with the magenta and cyan colors representing high and low amplitudes, respectively. The light orange, yellow and light green colors indicate average "background" values of the measured quantity. The vertical or horizontal parallel lines or tick marks show the survey lines or stations along which data were acquired. EM-61 differential response, and EM-31 in-phase component data were also acquired. These data are not presented as they did not provide additional information and were, therefore, considered redundant. Contour maps of these data are, however, retained in project files. A combined interpretation of the geophysical data is presented in Figure 2.

Anomalies in the magnetic, EM-61 and EM-31 data were field checked to determine if a source of metal at the surface caused the anomaly. A number of surface metallic features; such as the fences, sign posts and other metallic surface objects/debris caused anomalies in the geophysical data. These anomalies are labeled as "SM" on the contour maps.

There are several anomalies on the contour maps interpreted as being caused by possible buried pipes or utility lines. These anomalies are labeled as "P" on the contour maps with locations shown on Figure 1. All pipes identified within the survey area were traced with the EM utility locator and accurately plotted on the site map.

There are several very small EM-61 anomalies interpreted as being caused by very small, buried metallic objects or debris. These anomalies are labeled as "B" on the contour maps and are probably caused by very small pieces of metallic debris at shallow depth.

There is one anomaly in the geophysical data, labeled as A-1 on Figure 3 to 5, warranting further discussion. The source of anomaly A-1 is centered at station 125S, 165E and gives rise to a high amplitude, dipolar magnetic anomaly, positive EM-61 anomaly, and negative EM-31 anomaly. Several electrical lines converge at this anomaly and review of base utility maps indicated that a utility vault(s) is located in this area. The anomaly is therefore interpreted as a buried utility vault. Several GPR traverses conducted over this anomaly appear to confirm this interpretation.

5 SUMMARY

A magnetic, Geonics EM-61 (EM-61) and Geonics EM-31 (EM-31) survey was conducted in the approximate 0.5-acre Aerial Photographic Anomaly Area 38 at MCAS EL Toro, California to screen the site for buried metallic and/or construction debris. Interpretation of the geophysical data is presented in Figure 2. Contour maps of total magnetic field intensity, EM-61 bottom coil response and EM-31 conductivity response are presented as Figures 3 to 5, respectively.

The geophysical data revealed the presence of several pipes transecting the survey area, a possible buried utility vault, and several very small pieces of shallow, buried metallic debris. There is no evidence in the geophysical data of the disposal of metallic and/or construction debris at this site.

The geophysical survey was designed to map small accumulations of metallic debris in the subsurface. It was assumed that any debris buried at the site would contain enough metallic components (i.e. rebar, pipe segments, steel plates, etc.) to be mappable using the magnetic and EM methods. Areas containing only nonmetallic debris at depth (i.e. concrete without rebar and wood) would not have been detected by this geophysical survey.

6 CERTIFICATION

All geophysical data, analysis, interpretations, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by a **GEO***Vision* California Registered Geophysicist.

REGISTERED GEOPHYSICIST
ANTONY JEFFREY MARTIN
GP 989
Exp. 3/31/01
STATE OF CALIFORNIA

10/13/00

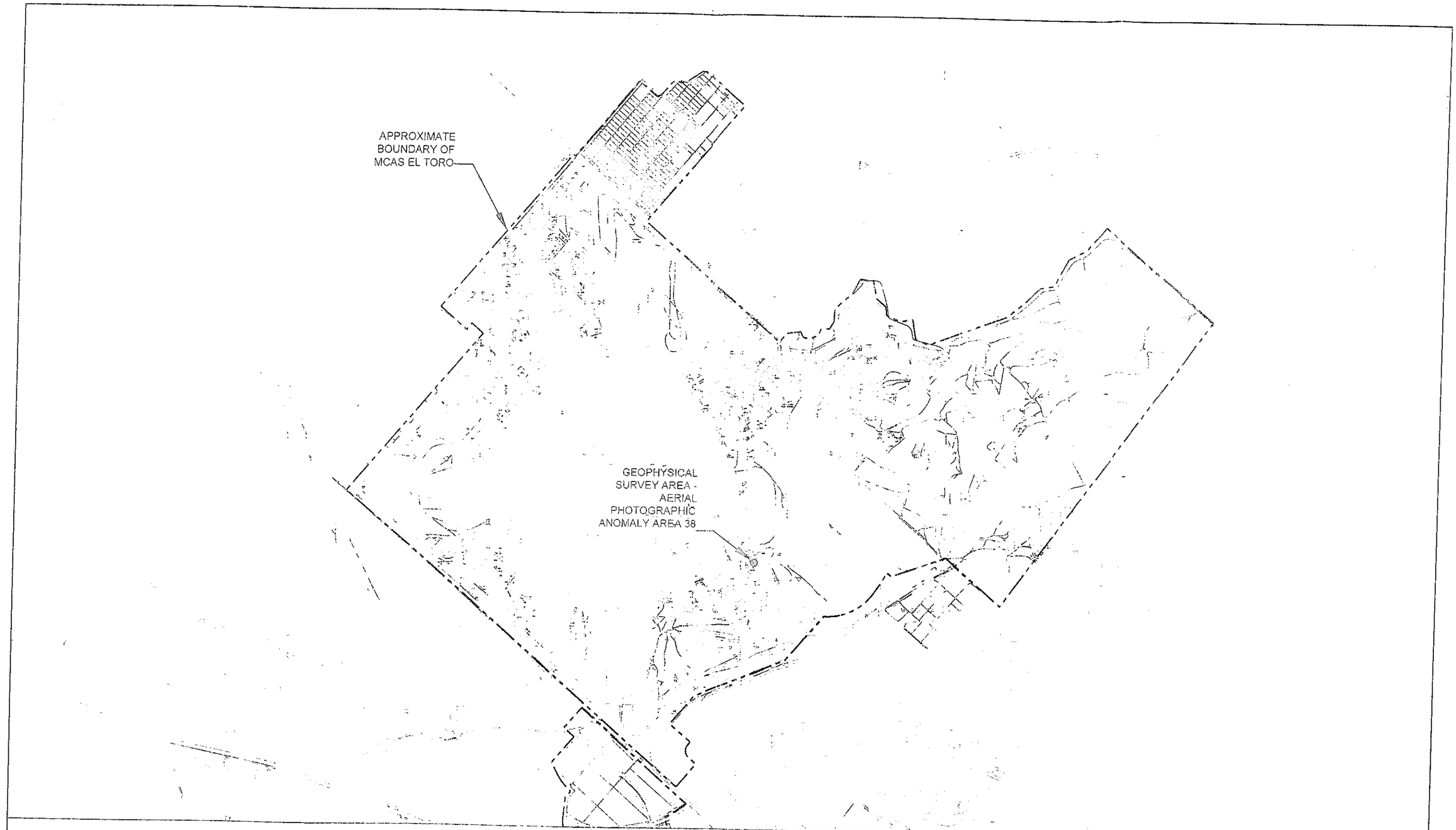
Antony J. Martin
California Registered Geophysicist GP989
GEO*Vision* Geophysical Services

Date

* This geophysical investigation was conducted under the supervision of a California Registered Geophysicist using industry standard methods and equipment. A high degree of professionalism was maintained during all aspects of the project from the field investigation and data acquisition, through data processing interpretation and reporting. All original field data files, field notes and observations, and other pertinent information are maintained in the project files and are available for the client to review for a period of at least one year.

  A registered geophysicist's certification of interpreted geophysical conditions comprises a declaration of his/her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations or ordinances.

FIGURES



NOTES:
1. BASE MAP PROVIDED BY THE IT GROUP
2. ESTIMATED MAP ACCURACY = 10-30 FEET

0 1250 2500 5000
(feet)

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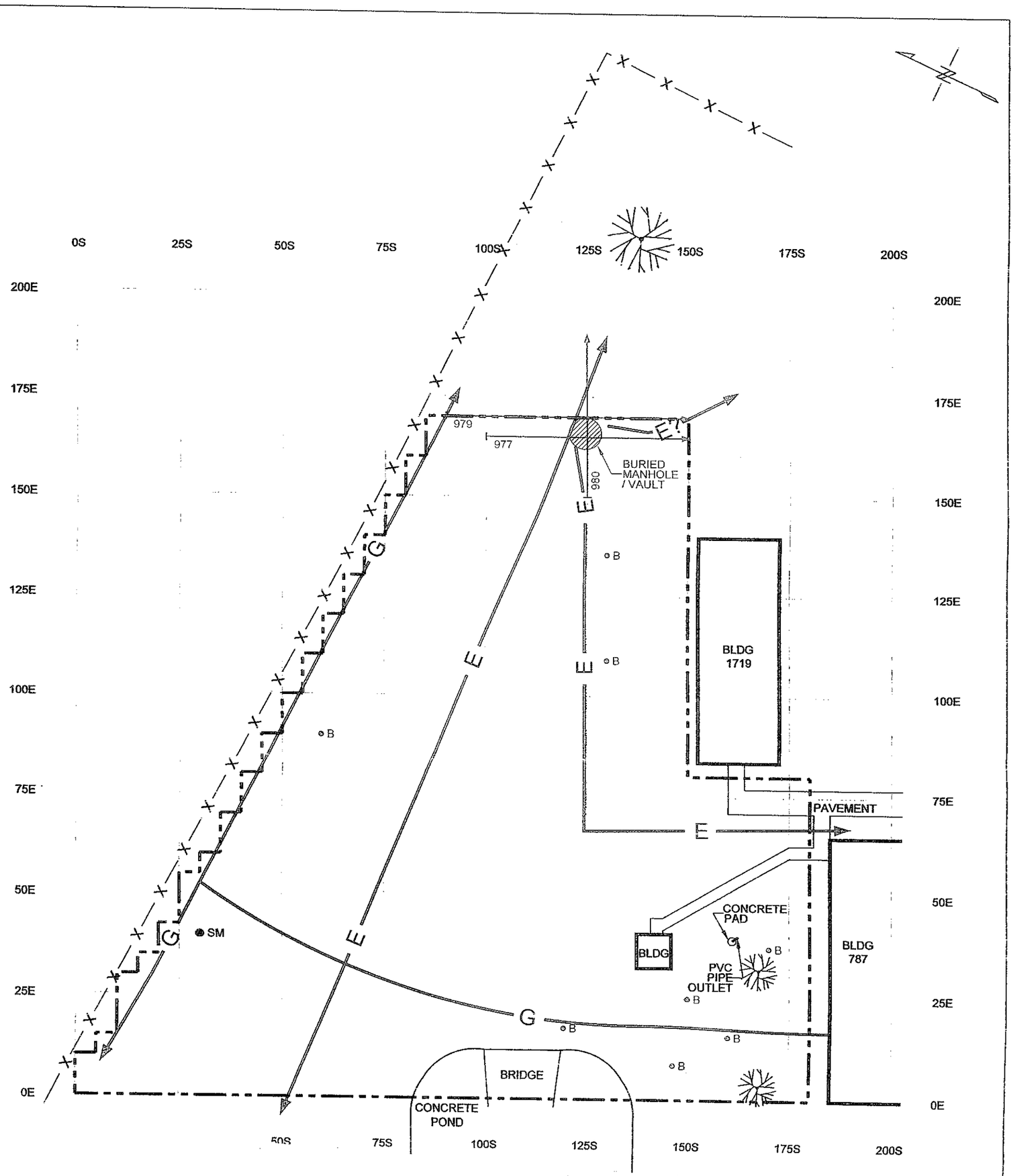
a division of Blackhawk Geometrics

Project No 0260-38	Date Oct 12,2000
Developed by	A MARTIN
Drawn by	T RODRIGUEZ
Approved by	
File	C:\AcadMap2K\0260\S3810260-38-1.dwg

FIGURE - 1
SITE LOCATION MAP

MARINE CORPS AIR STATION, EL TORO
ORANGE COUNTY, CALIFORNIA

PREPARED FOR
THE IT GROUP



LEGEND

0N, 0E	RELATIVE COORDINATE SYSTEM OF GEOPHYSICAL SURVEY
—x—x—x—	BOUNDARY OF GEOPHYSICAL SURVEY AREA
	CHAIN LINK FENCE
979	GPR LINE AND FILE NUMBER
SM	SURFACE METALLIC OBJECT / DEBRIS
Ø	POWER POLE
B	TREE
E	VERY SMALL BURIED METALLIC OBJECT / DEBRIS
	PIPE (E=ELECTRIC, G=GAS)

0 12.5 25 50 (feet)

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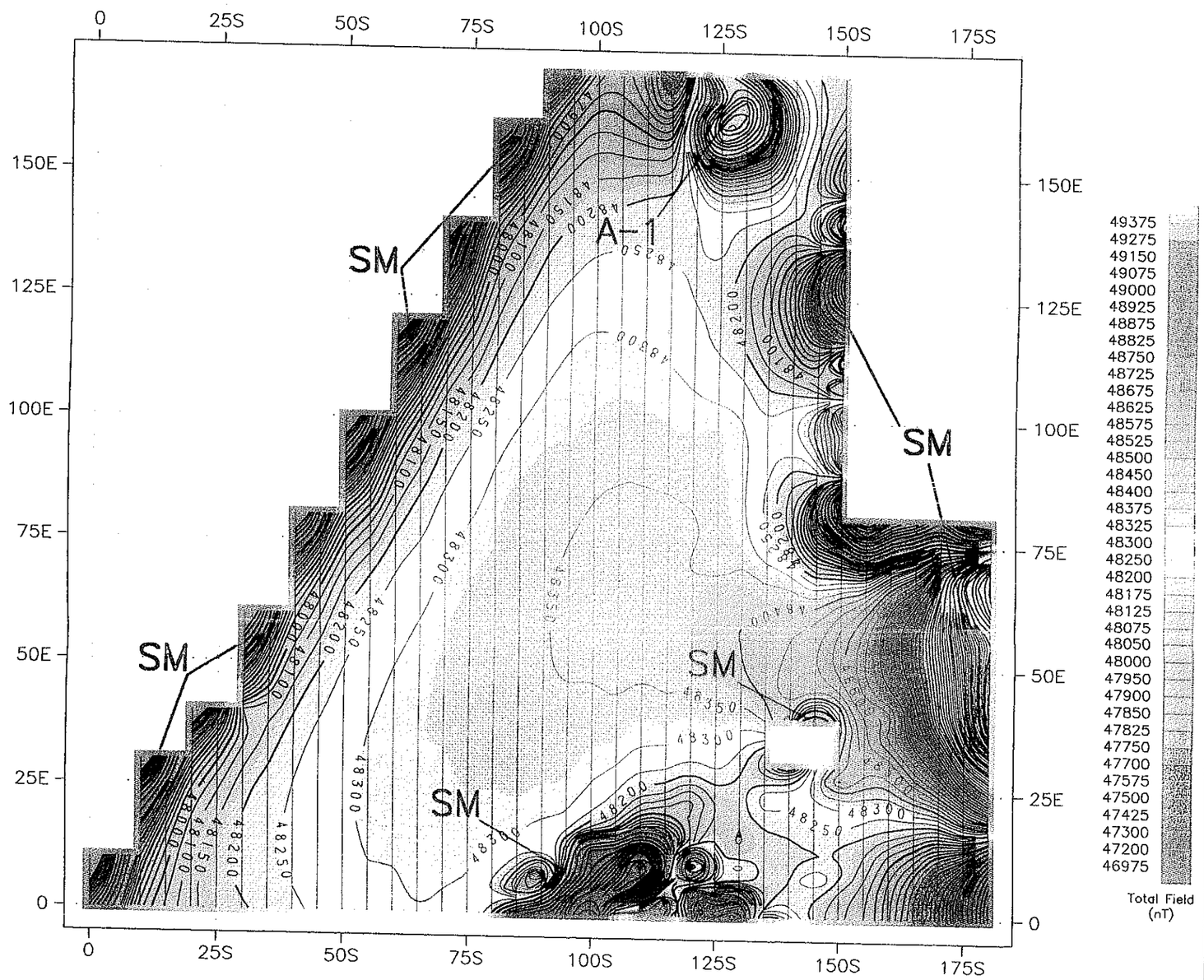
a division of Blackhawk Geometrics

Project #	0260
Date	Oct 12,2000
Developed by	A MARTIN
Drawn by	T RODRIGUEZ
Approved by	
File	C:\AcadMap2K\0260\S38\0260-38-2.dwg

FIGURE - 2
SITE MAP WITH GEOPHYSICAL INTERPRETATION

AERIAL PHOTOGRAPHIC ANOMALY AREA 38
MCAS EL TORO
ORANGE COUNTY, CALIFORNIA

PREPARED FOR
THE IT GROUP



CONTOUR INTERVAL = 50 NANOTESLAS

LEGEND

25E,25N	RELATIVE COORDINATE SYSTEM OF GEOPHYSICAL SURVEY
———	MAGNETIC SURVEY LINE
A-1	ANOMALY DISCUSSED IN REPORT
B	ANOMALY CAUSED BY A VERY SMALL BURIED METALLIC OBJECT
P	ANOMALY CAUSED BY BURIED PIPE
SM	ANOMALY CAUSED BY SURFACE OBJECT (BUILDING, REINFORCED CONCRETE, FENCE, LIGHT POST, etc.)

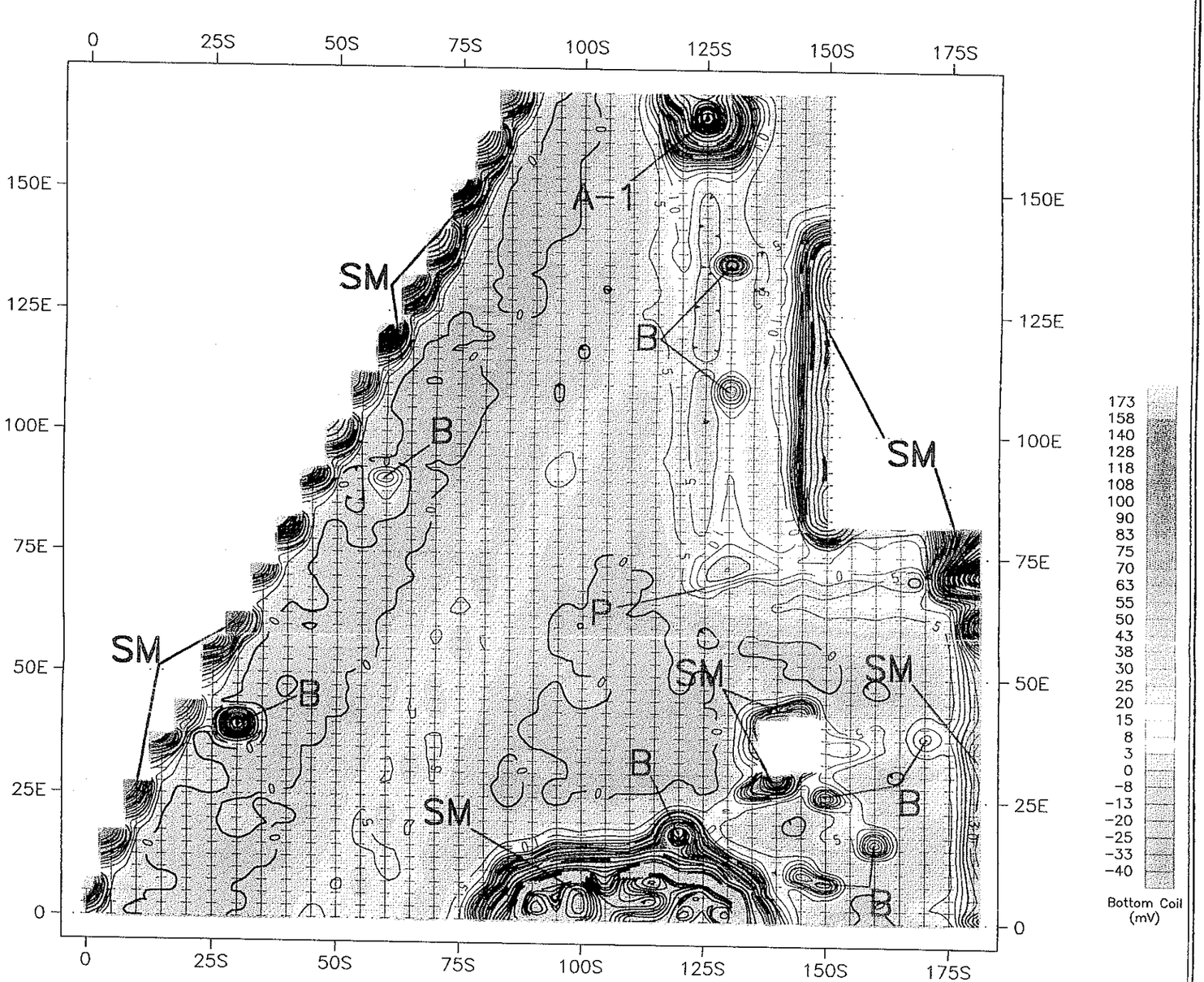
12.5 0 12.5 25
(feet)

FIGURE 3
CONTOUR MAP OF TOTAL MAGNETIC FIELD INTENSITY

AERIAL PHOTOGRAPHIC ANOMALY AREA 38
MCAS EL TORO, CALIFORNIA

PREPARED FOR
THE IT GROUP

GEOVISION GEOPHYSICAL SERVICES



CONTOUR INTERVAL = 5 MILLIVOLTS

LEGEND

25E,25N	RELATIVE COORDINATE SYSTEM OF GEOPHYSICAL SURVEY
⊢+++⊣	GEONICS EM-61 SURVEY LINE
A-1	ANOMALY DISCUSSED IN REPORT
B	ANOMALY CAUSED BY A VERY SMALL BURIED METALLIC OBJECT
P	ANOMALY CAUSED BY BURIED PIPE
SM	ANOMALY CAUSED BY SURFACE OBJECT (BUILDING, REINFORCED CONCRETE, FENCE, LIGHT POST, etc.)

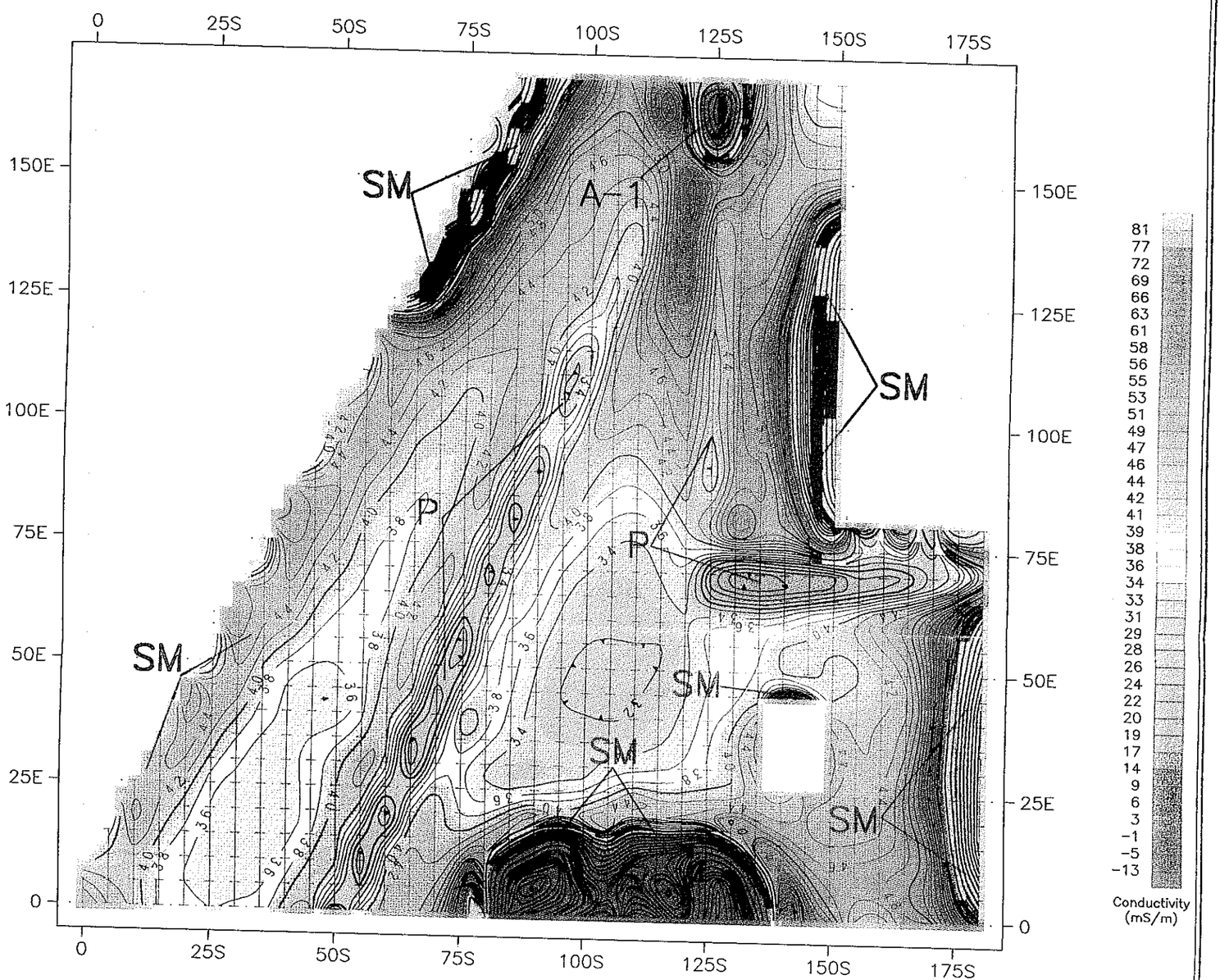
12.5 0 12.5 25
(feet)

FIGURE 4
CONTOUR MAP OF GEONICS EM-61 BOTTOM COIL RESPONSE

AERIAL PHOTOGRAPHIC ANOMALY AREA 38
MCAS EL TORO, CALIFORNIA

PREPARED FOR
THE IT GROUP

GEOVISION GEOPHYSICAL SERVICES



CONTOUR INTERVAL = 2 MILLISIEMENS PER METER

LEGEND

25E,25N	RELATIVE COORDINATE SYSTEM OF GEOPHYSICAL SURVEY
⊢+++⊣	GEONICS EM-31 SURVEY LINE
A-1	ANOMALY DISCUSSED IN REPORT
B	ANOMALY CAUSED BY A VERY SMALL BURIED METALLIC OBJECT
P	ANOMALY CAUSED BY BURIED PIPE
SM	ANOMALY CAUSED BY SURFACE OBJECT (BUILDING, REINFORCED CONCRETE, FENCE, LIGHT POST, etc.)

12.5 0 12.5 25
(feet)

FIGURE 5
CONTOUR MAP OF GEONICS EM-31 CONDUCTIVITY RESPONSE

AERIAL PHOTOGRAPHIC ANOMALY AREA 38
MCAS EL TORO, CALIFORNIA

PREPARED FOR
THE IT GROUP

GEOVISION GEOPHYSICAL SERVICES

APPENDIX A

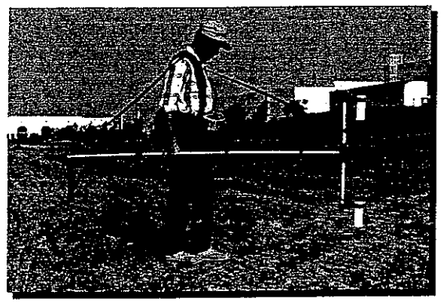
GEOPHYSICAL TECHNIQUES FOR SHALLOW ENVIRONMENTAL INVESTIGATIONS

GEOPHYSICAL TECHNIQUES FOR SHALLOW ENVIRONMENTAL INVESTIGATIONS

GEOVision
geophysical services
a division of Blackhawk Geometrics

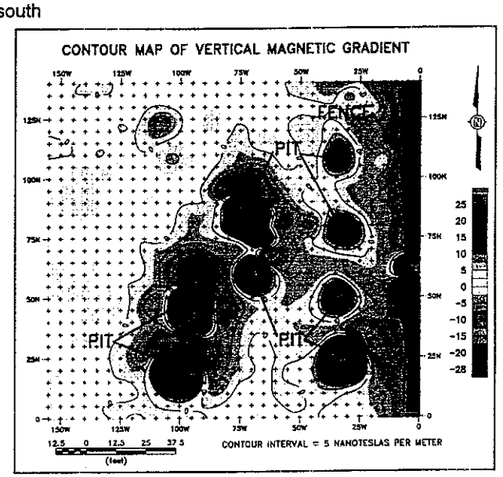
MAGNETIC METHOD

The magnetic method generally involves the measurement of the earth's magnetic field intensity or vertical gradient of the earth's magnetic field. Anomalies in the earth's magnetic field are caused by induced or remanent magnetism. Induced magnetic anomalies are the result of secondary magnetization induced in a ferrous body by the earth's magnetic field. The shape and amplitude of an induced magnetic anomaly is a function of the orientation, geometry, size, depth, and magnetic susceptibility of the body as well as the intensity and inclination of the earth's magnetic field in the survey area. The magnetic method is an effective way to search for small metallic objects, such as buried ordnance and drums, because magnetic anomalies have spatial dimensions much larger than those of the objects themselves. Typically, a single buried drum can be detected to a depth of about 10 feet. Larger metallic objects can often be located to greater depths. Induced magnetic anomalies over buried objects such as drums, pipes, tanks, and buried metallic debris generally exhibit an asymmetrical, south up/north down signature (positive response south of the object and negative response to the north).

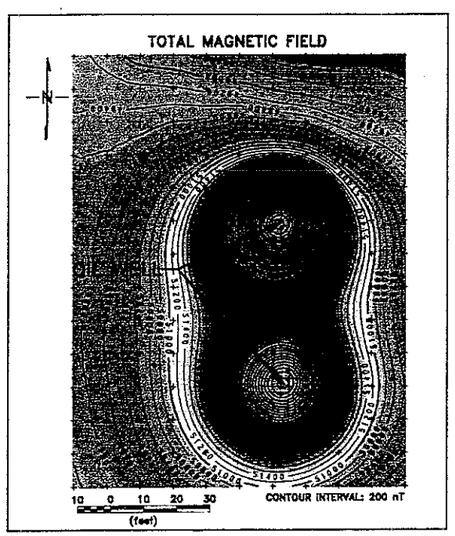


Geometrics G858 Cesium Magnetic Gradiometer

Magnetic data is typically acquired along a grid with results being presented as color-enhanced contour maps generated by the Geosoft™ Mapping System or OASIS montaj. The approximate location and depth of magnetic objects can be calculated using the Geosoft™ UXO System.



Magnetic Survey to Locate Pits Containing Buried Metallic Containers



Magnetic Survey to Locate Abandoned Oil Wells

Magnetic surveys are typically conducted to:

- Locate abandoned steel well casings
- Locate buried tanks and pipes
- Locate pits and trenches containing buried metallic debris
- Detect buried unexploded ordnance (UXO)
- Map old waste sites and landfill boundaries
- Clear drilling locations
- Map basement faults and geology
- Investigate archaeological sites

TDEM Metal Detection Methods

A Geonics EM-61 (EM-61) is a high sensitivity, time-domain, digital metal detector which is often used to detect both ferrous and non-ferrous metallic objects. It is designed specifically to locate buried metallic objects such as drums, tanks, pipes, UXO, and metallic debris and to be relatively insensitive to above ground structures such as fences, buildings, and vehicles

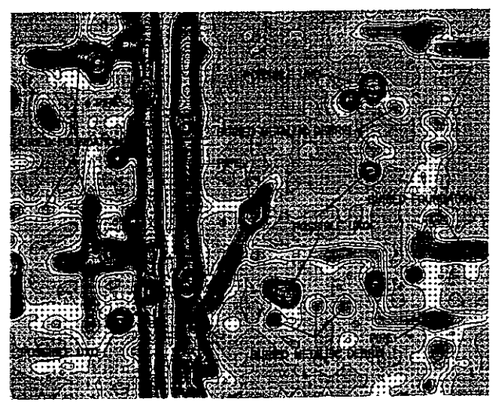
The EM-61 consists of two square, 1-meter coils, one mounted over the other and arranged on a hand-towed cart The bottom coil acts as both a transmitter and receiver while the top coil is a receiver only. While transmitting the bottom coil generates a pulsed primary magnetic field, which induces eddy currents into nearby metallic objects When the transmitter is in its off cycle both coils measure the decay of these eddy currents in millivolts (mV) with the results being stored in a digital data logger along with position information.

The decay of the eddy currents is proportional to the size and depth of the metallic target. A symmetrical positive anomaly is recorded over metallic objects with the peak centered over the object The signal from the top coil is amplified in such a way that both coils record effectively the same response for a metallic object on the surface and the top coil records a larger response for buried metallic objects The response of near surface objects can, therefore, be suppressed by subtracting the lower coil response from the upper coil response (differential response)

In practice, the usable depth of investigation of the EM-61 depends on the size and shape of the object and the amount of above ground interference encountered at the site A single buried drum can often be detected at a depth of about 10 feet

Geonics EM-61 Digital Metal Detector

Geonics EM-61 Survey to Map Subsurface Infrastructure and Potential UXO ➡



GSSI SIR-10A GPR Unit

GPR Methods

Ground-penetrating radar (GPR) is a high-frequency electro-magnetic method commonly applied to a number of engineering and environmental problems

A GPR system radiates short pulses of high-frequency EM energy into the ground from a transmitting antenna. This EM wave propagates into the ground at a velocity that is primarily a function of the relative dielectric permittivity of subsurface materials. When this wave encounters the interface of two materials having different dielectric properties, a portion of the energy is reflected back to the surface, where it is detected by a receiver antenna and transmitted to a control unit for processing and display.

Depth penetration is a function of antenna frequency and the electrical conductivity of the soils in the survey area Lower frequency antennas achieve greater depth penetration than higher frequency antennas, but have poorer spatial resolution Conductive soils, such as clays, attenuate the radar waves much more rapidly than resistive dry sand and rock In many environments in California, depth penetration of 500 and 300 MHz

ELECTROMAGNETIC METHODS

Electromagnetic (EM) methods typically applied to shallow environmental investigations include frequency domain EM methods, such as EM induction and EM utility location methods, time domain electromagnetic (TDEM) metal detection methods, and ground penetrating radar (GPR) methods.

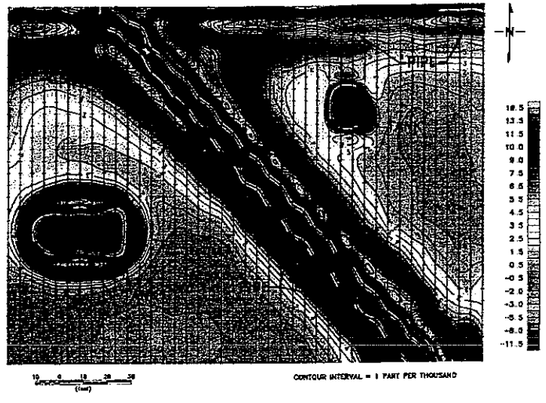
EM Induction Method

EM induction surveys are often conducted using the Geonics EM-31 terrain conductivity meter (EM-31). The EM-31 consists of a transmitter coil mounted at one end and a receiver coil mounted at the other end of a 3.7-meter long plastic boom. Electrical conductivity and in-phase component field strength are measured and stored along with line and station numbers in a digital data logger. In-phase component measurements generally only respond to buried metallic objects; whereas conductivity measurements also respond to conductivity variations caused by changes in soil type, moisture or salinity and the presence of nonmetallic bulk wastes. The EM-31 must pass over or immediately adjacent to a buried metallic object to detect it. Typical EM-31 anomalies over small, buried metallic objects consist of a negative response centered over the object and a lower amplitude positive response to the sides of the object. When the instrument boom is oriented parallel to long, linear conductors such as pipelines a strong positive response is observed. The EM-31 can explore to depths of about 6 meters, but is most sensitive to materials about 1 meter below ground surface. Single buried drums can typically be detected to depths of about 5 feet

Geonics EM-31 Terrain Conductivity Meter

EM-31 surveys are typically conducted to:

- Locate buried tanks and pipes
- Locate pits and trenches containing metallic and/or nonmetallic debris
- Delineate landfill boundaries
- Delineate oil production sumps and mud pits
- Map conductive soil and groundwater contamination
- Map soil salinity in agricultural areas
- Characterize shallow subsurface hydrogeology
  - Map buried channel deposits
  - Locate sand and gravel deposits
  - Locate conductive fault and fracture zones



Geonics EM-31 Survey to Locate Underground Storage Tanks

EM Utility Location Methods

EM utility locators; such as the Metrotech 810, Metrotech 9890 and Radiodetection RD400, are designed to accurately trace metallic pipes and utility cables and clear drilling/excavation locations. These utility locators consist of a separate transmitter and a receiver. The transmitter emits a radio frequency EM field that induces secondary fields in nearby metallic pipes and cables. The receiver detects these fields and is used to accurately locate and trace the pipes, often to distances over 200 feet from the transmitter. Many of the utility locators have a passive 60Hz mode to locate live electrical lines. Modern utility locators are also capable of providing rough depth estimates of the pipes.

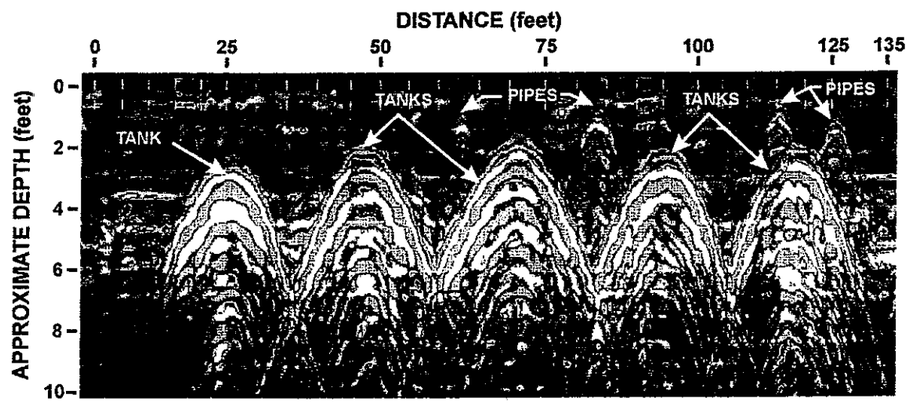
Metrotech EM Utility Locator

antennas is limited to 3 to 5 feet. Depth penetration may be greater if shallow soils consist of clean sands and less if shallow soils consist of clay.

GPR surveys are typically conducted to:

- Locate and delineate underground storage tanks (metallic and non-metallic)
- Locate metallic and nonmetallic pipes and utility cables
- Map rebar in concrete structures
- Map landfill boundaries
- Delineate pits and trenches containing metallic and nonmetallic debris
- Delineate leach fields and industrial cribs
- Delineate previously excavated and backfilled areas
- Map shallow groundwater tables
- Map shallow soil stratigraphy
- Map shallow bedrock topography
- Map shallow subsurface voids and cavities
- Characterize archaeological sites

Geophysical Survey Systems Inc. (GSSI) SIR-2 or SIR-10 GPR systems with antennas in the frequency range of 50 to 1,000 MHz are often used during GPR investigations. Mala Geoscience and Sensors and Software, Ltd also manufacture GPR systems. GPR data is processed using a variety of software including the RADAN™ or GRADIX software packages by GSSI and Interpex Ltd , respectively.



GPR Survey to Locate Underground Storage Tanks

Appendix C
Revised Sample Strategy

SOUTHWESTNAVFACENGCOM
BRAC PROGRAMS OFFICE
Code 06CC.LMH
(619) 532-0783/Fax (619) 532-0780

File: etdtscapho38ltr2.doc

TRANSMITTAL

Date: 9 April 2001

From: Lynn Marie Hornecker LMH

To: **Ms. Triss Chesney**
State of California Environmental Protection Agency
Department of Toxic Substances Control, Region 4
Site Mitigation Branch
Base Closure Unit
5796 Corporate Avenue
Cypress, CA 90630

Subj: Supplement to March 2000 Sampling Strategy
Aerial Photograph Anomaly APHO 38
Marine Corps Air Station, El Toro

Provided for your review as the attachment are two copies of the Revised Soil and Soil Vapor Sampling Plan and Procedures for APHO 38 at the Marine Corps Air Station, El Toro. The information is provided in response to California Department of Toxic Substances Control (DTSC) comments dated 10 October 2000.

If we do not receive comments from you within sixty (60) days of receipt of this document, then we will assume that you concur with our plan and procedures. A formal transmittal letter may follow.

Attachment:
Memorandum, APHO 38, Revised Soil and Soil Vapor Sampling Plan and Procedures (The IT Group, March 2001)

CF: (w/o attachment)
Dean Gould (MCAS El Toro BEC)
Dhananjay Rawal (IT/OHM)
Project File (MCAS El Toro)

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Date: 9 April 2001

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State of California Environmental Protection Agency
Department of Toxic Substances Control, Region 4
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Dean Gould (MCAS El Toro BEC)
Dhananjay Rawal (IT/OHM)
Project File (MCAS El Toro)

OHM Remediation Services Corp.
3347 Michelson Drive, Suite 200
Irvine, CA 92612-1692
Tel 949 261 6441
Fax 949 474 8309

A Member of The IT Group

the IT group

April 9, 2001

Ms. Michelle Crook, Code 02R1.MC
Contracting Officer
Naval Facilities Engineering Command
Southwest Division
1220 Pacific Highway
San Diego, California 92132-5187

Attn: Ms. Lynn Marie Hornecker

Re: ***Technical Memorandum***
Revised Soil and Soil Vapor Sampling Plan Procedure
Aerial Photograph Anomaly APHO 38
Marine Corps Air Station El Toro, California
SWDIV Contract No. N68711-93-D-1459
DCN SW 9705, Delivery Order No. 0070

Aerial Photograph Anomaly APHO 38 was identified by Science Applications International Corporation (SAIC) as anomaly SAIC No. 252 on an aerial photograph taken in 1973. The anomaly was described as a probable excavation adjacent to Building 1789, located in the area used for training decontamination of motor vehicles used in nuclear, biological, and chemical warfare. It is suspected that the excavation observed in the 1973 photograph may have been an unlined pit to collect water that was later converted to the lined pond near Building 1789.

At present, the following features occupy or are adjacent to the APHO 38 area:

- two aircraft decontamination pads,
- several concrete lined drainage "v" ditches draining the pads,
- two bridged ponds,
- a driveway with a grated and drained wash area,
- a trough to run vehicles through water, and
- a collection pond for the decontamination pads and other features.

The water from the collection pond drains into the sanitary sewer system

SAIC identified a possible excavation on the north side of storage Building 1789. The report appeared to indicate that the location of the lined ponds to the north of Bldg. 1789 was coincident with the apparent excavation. After review of the SAIC report, IT/OHM conducted a geophysical survey of the area north of Bldg. 1789 to locate any potential buried materials indicating the presence of the apparent excavation. The geophysical

survey did not detect any indication of buried pits. A copy of the geophysical survey is enclosed as Attachment A.

We proposed a sampling strategy for APHO 38 area in a letter addressed to Department of Toxic Substances Control (DTSC), in March 2000, enclosed as Attachment B, to evaluate potential loss of hydrocarbons from the impoundments. DTSC responded on October 10, 2000 to the SWDIV proposal with comments, enclosed as Attachment C, suggesting that the aircraft washracks be included in the investigation and that borings be implemented in the bottom of the lined ponds.

Therefore, we propose that one boring be advanced in each of the four lined ponds and the two aircraft washracks. Soil samples would be collected at depths 1-foot and 5-feet below the bottom of each pond and at depths 1-foot, 5-feet, and 10 feet below the bottom of the aircraft wash racks. A combined soil gas and soil sample investigation would also be implemented around the features, with sample depths tied to those collected at the ponds.

Sampling Strategy

Petroleum hydrocarbons may have been entrained in the wash water produced at the facility. Potential loss may have occurred from the ponds and trough, particularly from cracks in the liner and from the formerly unlined pit in the vicinity of Building 1789. The initial sampling will be conducted at the point of maximum potential for loss, at the bottom of the pits where the greatest hydraulic head would have existed when the pits were full, and adjacent to cracks in the concrete liner. Additionally, a sample of the sediment in the final drainage collection pond will be collected to evaluate possible presence of residual petroleum hydrocarbons.

The planned soil vapor and soil sample investigation will evaluate the areas surrounding the ponds, drainage channels, trough, and sanitary sewer. Accessible locations have been selected in down slope side of the open "v" ditches, near the sides of the ponds, and near observed cracks in the concrete ponds and trough. At selected locations, both soil samples and soil vapor samples will be collected at the same depth intervals and analyzed to provide a comparison of the results and aide in the data evaluation. Sample depths collected from the margins of the lined ponds are planed to match the sample depths of the samples collected below the bottom of the ponds. The proposed locations, sample types, and sample depths are listed in Table 1 and the locations are indicated in Figure 1.

Soil Sample Collection

The soil samples will be collected at the locations indicated on the map. Soil samples will be collected using hand auger techniques and push technology. All non-disposable equipment will be decontaminated before use at the site, between each sample collection, and after sampling is completed before leaving the site.

Samples from the center of the ponds will be collected within 1-foot of the bottom of the lined ponds (approximately 5-feet below ground surface) and 5-feet below the bottom of the lined ponds (approximately 10-feet below ground surface) Soil samples collected at the margins of the impoundments will be collected at nominal depths 5-feet and 10-feet below the ground surface, Table 1. The one sediment sample collected from the final drainage pond will be a surface grab sample.

Soil samples will be submitted to an approved laboratory for analysis of petroleum hydrocarbons using California Leaking Underground Fuel Tank (CA LUFT) Modified Method 8015 and for benzene, toluene, ethylbenzene, total xylenes, and methyl tert-butyl ether (MTBE) using United States Environmental Protection Agency (US EPA) method 8260.

If soil vapor sampling indicates the presence of petroleum hydrocarbons at 10-feet depth at any location, then additional soil samples may be collected depending on the evaluation of the field geologist.

Soil Vapor Sample Collection and Analysis

The soil vapor investigation will be implemented at the locations indicated on Figure 1, using the IT Corporation Standard Operating Procedure 10.1 (SOP 10.1), enclosed as Attachment D. If petroleum hydrocarbons are detected, then additional samples will be collected at offsetting locations to better delineate the aerial extent of contamination.

TEG/HP Labs, an IT/OHM subcontractor, will supply the sampling rig and onsite laboratory to conduct soil-gas sampling. Approximately thirty-three soil vapor sample sets, including quality assurance (QA) duplicates, will be collected at fifteen planned locations within the facility from 5-foot and 10-foot depths, as shown in Figure 1. These depth intervals are approximately equal to the bottom depth of the ponds (5-feet) and 5-feet below the bottom of the ponds. Approximately 3 sample locations will be sampled along the sanitary sewer at a depth approximately 15-feet below the surface and approximately 2-feet below the bottom of the sewer line. If contaminants are detected in the deep sample either at the facility or along the sewer line, and it is practicable, then the soil vapor sampling may be extended as much as 10-feet deeper.

At each sample depth, the soil vapor sample will be collected in duplicate in two 1liter-Tedlar bags. The first bag will be analyzed on site with a field GC using modified method 8015 for total petroleum hydrocarbons (TPH) and EPA modified method 8020 for benzene, toluene, ethylbenzene and total xylenes (BTEX) and MTBE. Approximately 10 percent of the duplicate samples, and all of the duplicate samples with detected petroleum hydrocarbons will be sent to an off site laboratory for analysis with a GC/MS using EPA methods TO-3 for TPH and TO-14 for the Volatile Organic Compounds.

If petroleum hydrocarbons are detected, then additional soil vapor sample borings may be implemented in an increment of 15-feet offset from the detected boring location. Additional locations may be sampled in increments of fifteen feet, until analysis indicates

that petroleum hydrocarbons are no longer present and the extent of the petroleum hydrocarbons delineated with the soil vapor-screening tool.

Non-disposable sampling equipment will be decontaminated between each boring location. Tubing between the soil vapor probe and the surface will be replaced between borings. Between sample depth, tubing, probe, and valves will be purged 3 volumes to minimize the potential for cross contamination with the shallower sample.

Report of Data

After completion of fieldwork, soil sample locations will be land surveyed. All sampling analytical results, land survey data, and geophysical survey data will be included in a Summary Report for submittal to Base Realignment and Closure Cleanup Team (BCT) members following evaluation of the data.

Should you have any questions or comments, please feel free to contact the undersigned at (949) 660-7576.

Sincerely,

IT Corporation/OHM Remediation Services Corporation

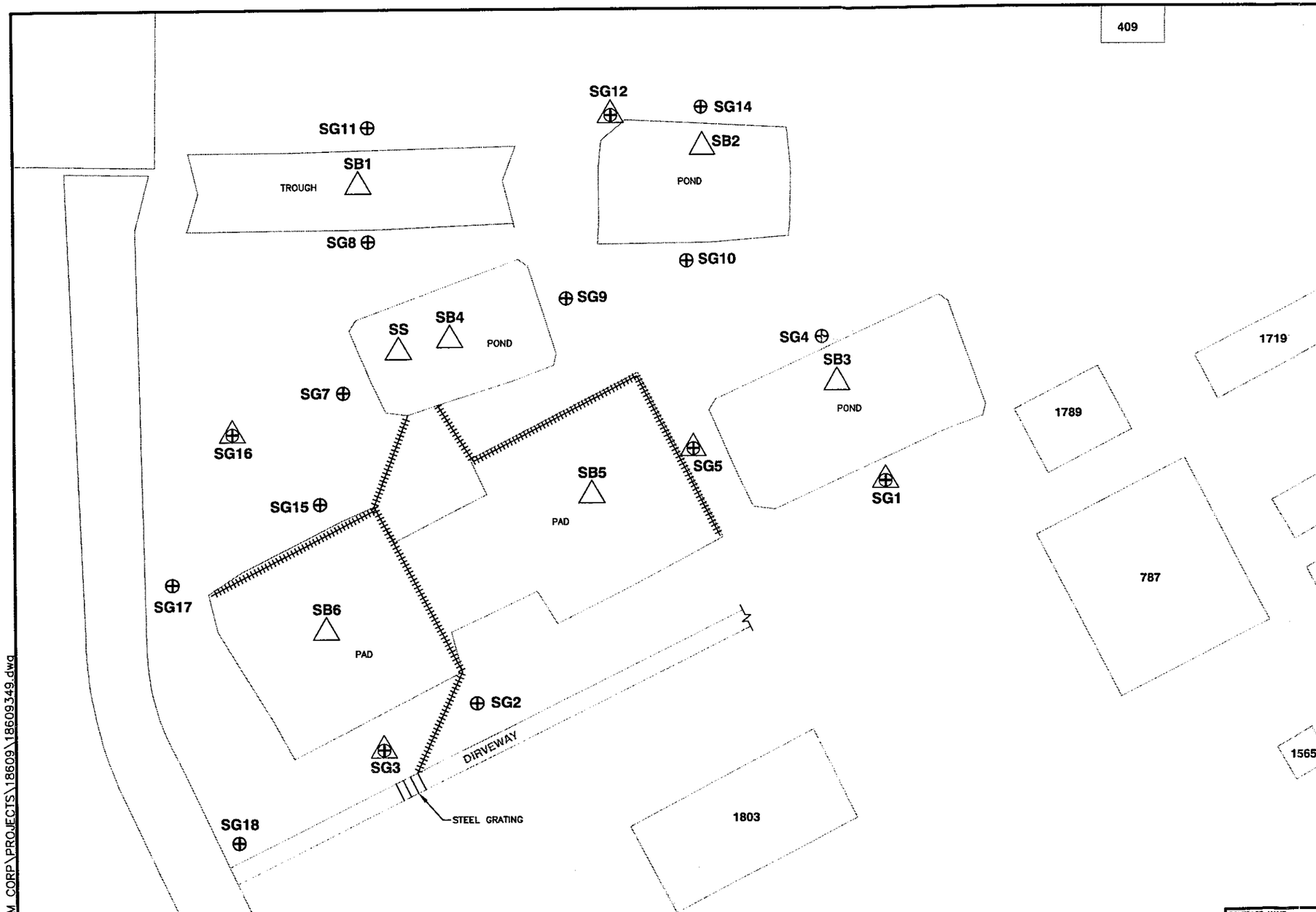
Dhananjay Rawal
Project Manager

Guy Berger
Project Geologist

Attachments: Figure 1, Proposed Soil and Soil Vapor Sample Locations
Table 1, Sample Location and Justification
Attachment A, Geophysical Survey
Attachment B, SWDIV Sampling Plan, dated March 2000
Attachment C, DTSC Comments, dated October 2000
Attachment D, IT Standard Operating Procedures 10.1

Copies to: IT/OHM PMO (1 Copy)
Project File (1 Copy)

Figure



Sample Location	Sample Matrix	Sample Depth	Comments
SB-1	Soil Soil	1-foot 5-feet	Sample at crack crossing trough
SB-2	Soil Soil	1-foot 5-feet	Sample at crack crossing north edge of the pond
SB-3	Soil Soil	1-foot 5-feet	Sample in pond bottom
SB-4	Soil Soil	1-foot 5-feet	Sample in pond bottom, possible additional sample of sediment in pond
SB-5	Soil Soil Soil	1-foot 5-feet 10-feet	Sample as appropriate in pad
SB-6	Soil Soil Soil	1-foot 5-feet 10-feet	Sample as appropriate in pad
SG-1	Soil and vapor Soil and vapor	5-feet 10-feet	Investigates pond liner
SG-2	vapor vapor	5-feet 10-feet	Investigates v ditch
SG-3	Soil and vapor Soil and vapor	5-feet 10-feet	Investigates small wash rack
SG-4	vapor vapor	5-feet 10-feet	Investigates pond liner
SG-5	Soil and vapor Soil and vapor	5-feet 10-feet	Investigates pond liner and v ditch
SG-7	vapor vapor	5-feet 10-feet	Investigates pond liner
SG-8	vapor vapor	5-feet 10-feet	Investigate crack in trough
SG-9	vapor vapor	5-feet 10-feet	Investigates pond liner
SG-10	vapor vapor	5-feet 10-feet	Investigates pond liner
SG-11	vapor vapor	5-feet 10-feet	Investigate crack in trough
SG-12	Soil and vapor Soil and vapor	5-feet 10-feet	investigate crack in pond
SG-14	vapor vapor	5-feet 10-feet	Investigates pond liner
SG-15	vapor vapor	5-feet 10-feet	Investigate v ditch and pad
SG-16	Soil and vapor Soil and vapor	5-feet 10-feet	Investigate large sewer line
SG-17	vapor vapor	5-feet 10-feet	Investigate large sewer line
SG-18	vapor vapor	5-feet 10-feet	Investigate large sewer line
SS	Soil	grab	This sample would be taken at the same pond as sample SB-4

EXPLANATION:

SG3 ⊕ PLANNED SOIL VAPOR SAMPLING LOCATION

SG5 ⊕ PLANNED SOIL VAPOR AND SOIL SAMPLING LOCATION

SB5 △ PLANNED SOIL SAMPLING LOCATION

CONCRETE LINED DRAINAGE CHANNEL

TRUE NORTH
STATION NORTH
N
39°50'49"

GRAPHIC SCALE

0 20 40 80

(IN FEET)

REVISIONS

REV. No.	DESCRIPTION	DATE	APPROVED

CONTRACT NAME: SWDIV

DRAWN BY: R. PIRMORADIAN DATE: 4/9/01

CHECKED BY: J. Erwin DATE: 4/9/01

APPROVED BY: DATE:

PROJECT MANAGER: DATE:

AUTOCAD FILE No.: 18609349.DWG

OHM Remediation Services Corp.
A Subsidiary of OHM Corporation
IRVINE, CA

PROPOSED SOIL AND SOIL VAPOR SAMPLE LOCATIONS
APHO 38

MARINE CORPS AIR STATION
EL TORO, CALIFORNIA

SCALE	SHEET	OF	DOCUMENT CONTROL No.	OHM PROJECT No.	DRAWING No.
1"=40'	1	1	SW9705	18609	FIG 1

Apr 09, 2001 - 13:38:21 I:\OHM CORP\PROJECTS\18609\18609349.dwg

Table

Table 1, Sample Location and Justification

Sample Location	*Sample Matrix*	*Sample Depth*	*Comments*
SB-1	Soil	1-foot	Sample at crack crossing trough
	Soil	5-feet	
SB-2	Soil	1-foot	
	Soil	5-feet	Sample at crack crossing north edge of the pond
SB-3	Soil	1-foot	Sample in pond bottom
	Soil	5-feet	
SB-4	Soil	1-foot	Sample in pond bottom, possible additional sample of sediment in pond
	Soil	5-feet	
SB-5	Soil	1-foot	
	Soil	5-feet	Sample as appropriate in pad
	Soil	10-feet	
SB-6	Soil	1-foot	
	Soil	5-feet	Sample as appropriate in pad
	Soil	10-feet	
SG-1	Soil and vapor	5-feet	Investigates pond liner
	Soil and vapor	10-feet	
SG-2	vapor	5-feet	Investigates v ditch
	vapor	10-feet	
SG-3	Soil and vapor	5-feet	Investigates small wash rack
	Soil and vapor	10-feet	
SG-4	vapor	5-feet	Investigates pond liner
	vapor	10-feet	
SG-5	Soil and vapor	5-feet	Investigates pond liner and
	Soil and vapor	10-feet	v ditch
SG-7	vapor	5-feet	Investigates pond liner
	vapor	10-feet	
SG-8	vapor	5-feet	Investigate crack in trough
	vapor	10-feet	
SG-9	vapor	5-feet	Investigates pond liner
	vapor	10-feet	
SG-10	vapor	5-feet	Investigates pond liner
	vapor	10-feet	
SG-11	vapor	5-feet	Investigate crack in trough
	vapor	10-feet	
SG-12	Soil and vapor	5-feet	investigate crack in pond
	Soil and vapor	10-feet	
SG-14	vapor	5-feet	Investigates pond liner
	vapor	10-feet	
SG-15	vapor	5-feet	Investigate v ditch and pad
	vapor	10-feet	
SG-16	Soil and vapor	5-feet	Investigate large sewer line
	Soil and vapor	10-feet	
SG-17	vapor	5-feet	Investigate large sewer line
	vapor	10-feet	
SG-18	vapor	5-feet	Investigate large sewer line
	vapor	10-feet	
SS	Soil	grab	This sample would be taken at the same pond as sample SB-4

Attachment A
Geophysical Survey

GEOVision
geophysical services
a division of Blackhawk Geometrics

GEOPHYSICAL INVESTIGATION

Aerial Photographic Anomaly Area 38
Marine Corps Air Station, El Toro, California

GEOVision Project No. 0260

Prepared for

The IT Group
3347 Michelson Drive, Suite 200
Irvine, California 92612-1692

Prepared by

GEO*Vision* Geophysical Services
1785 Pomona Rd, Suite B
Corona, CA 92880
(909) 549-1234

October 12, 2000

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1 INTRODUCTION 1

2 GEOPHYSICAL TECHNIQUES 2

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1 INTRODUCTION

A geophysical investigation was conducted on October 5, 2000 in an approximate 0.5-acre area encompassing part of Aerial Photographic Anomaly Area 38, Marine Corps Air Station (MCAS), El Toro, California. The purpose of the investigation was to screen the site for buried metallic and/or construction debris.

The geophysical survey area consisted on an open dirt field bound to the north by a chain link fence, south by Buildings 1719 and 787, and west by several concrete lined ponds. The location of the survey area is shown on Figure 1.

There was no surficial evidence of disposal activities at the site and it is possible that anomalous zones identified on historical aerial photographs were related to construction of the ponds west of the survey area. Surficial cultural features within the survey area that could adversely affect the geophysical data included fences, buildings, reinforced concrete ponds, and scattered surface debris.

Geophysical techniques used during this investigation included the magnetic, electromagnetic (EM), and ground penetrating radar (GPR) methods. These techniques complement one another as each responds to different physical properties and has different strengths and limitations.

Geophysical techniques used during the investigation are discussed in Section 2. Field procedures are described in Section 3. Data processing and interpretation are discussed in Section 4. The results of the geophysical survey are presented in Section 5, and our professional certification is presented in Section 6.

2 GEOPHYSICAL TECHNIQUES

This section presents background information on the magnetic, EM and GPR methods used during this investigation. A description of the geophysical methods used during this investigation, common applications of the methods, photographs of the instruments, and example applications are included in Appendix A.

The magnetometer used during this investigation consisted of a Geometrics G858 optically pumped cesium-vapor magnetometer (G858). This instrument measures the intensity of the earth's magnetic field in nanoteslas (nT) and, optionally, the vertical gradient of the earth's magnetic field in nanoteslas per meter (nT/m). The vertical magnetic gradient is calculated by measuring the total magnetic field with two sensors at different heights, subtracting the top sensor reading from the bottom sensor reading, and dividing by the sensor separation. Buried ferrous metallic objects give rise to anomalies in the earth's magnetic field. These anomalies are generally dipolar with a positive response south and a negative response north of the object. The dimensions and amplitude of a magnetic anomaly are a function of the size, mass, depth, and magnetic properties of the source. Magnetometers can typically locate a 550-gallon tank to depths of about 10 feet providing background noise levels are not too high and the tank is not extensively corroded. Larger metallic objects can be located to greater depths. The vertical magnetic gradient anomaly due to an object the size of a 550-gallon tank is expected to have dimensions of about 15- by 15-feet. Magnetometers are not able to detect nonferrous metals such as aluminum or brass.

EM equipment used during this investigation consisted of a Geonics EM-61 high-resolution digital metal detector (EM-61), Geonics EM-31 terrain conductivity meter (EM-31), Fisher TW-6 metal detector and a Metrotech 9890 EM utility locator. The EM-61 is a high-resolution, deep sensing, time domain EM metal detector. The EM-61 has a single transmitter and two receiver coils. The bottom coil is the transmitter during the current on-time and receiver during current off-time. The top-coil, mounted 40-cm above the bottom coil, is a receiver coil only. The transmitter and receiver electronics controls are mounted in a backpack and a hand-held data logger is used to store field measurements. During operation a half-duty cycle waveform is applied to the transmitter coil. During the off-time the receiver coils measure the decay of eddy currents, in millivolts (mV), produced in subsurface metallic objects by the pulsed primary EM field. The top coil is gained in such a manner that the instrument response to a metallic object lying on the surface will be approximately equal at both the top and bottom coils. The effects of surface debris can, therefore, be suppressed by calculating the differential response (subtraction of the bottom coil from top coil response). Positive EM-61 anomalies centered over the source are typically observed over buried metallic objects. Above ground metallic objects will often give rise to a negative differential response, as the top coil response is larger than the bottom coil response. The dimensions of an EM-61 anomaly over an object the size of a 550-gallon tank should be about 10-feet by 10-feet.

The EM-31 consists of a transmitter and receiver coil, one at each end of 12-foot long boom. An alternating current is applied to the transmitter coil, causing the coil to radiate a primary EM field. This primary EM field generates eddy currents in subsurface materials, which give

rise to a secondary EM field. The EM-31 measures the components of the secondary EM field both in-phase and 90-degrees out-of-phase with the primary EM field. The out-of-phase component is converted to apparent conductivity in millisiemens per meter (mS/m) and the in-phase component is measured as parts per thousand of the primary EM field. A negative EM-31 response with positive shoulders is generally observed over shallow, buried metallic objects. When the instrument boom is orientated parallel to a long, linear conductor such as a pipe a positive response centered over the conductor is typically observed. The EM-31 can locate both ferrous and nonferrous metallic objects and can locate a 550-gallon tank to a maximum depth of about 5 feet. The EM-31 must pass directly over or immediately adjacent to a buried metallic object to detect it. Because of the 12-foot separation between the transmitter and receiver coils, the EM-31 cannot detect very small, buried metallic objects.

The Fisher TW-6 deep-search metal detector operates under similar principles as the EM-31. The instrument operates at a frequency of 82 kHz and transmitter-receiver separation of about 4 feet. The Fisher is useful for locating pipes and buried metallic objects, such as USTs. If is often used to relocate magnetic, EM-61, and EM-31 anomalies and determine the approximate lateral dimensions of the source of the anomaly.

The Metrotech EM utility locator consists of a separate EM transmitter and receiver and is designed to accurately trace pipes and utility lines. The transmitter can be directly connected to pipes that surface and the pipes traced in conductive mode. Alternatively, the transmitter can be positioned on the surface over a pipe and the pipe traced in inductive mode. The system is operated at frequencies of 982 Hz, 9.82 kHz or 81 kHz and can also be operated in a passive 60-Hz mode to locate live electrical lines.

GPR equipment used during this investigation consisted of a Geophysical Survey Systems Inc. (GSSI) SIR-2 GPR system with a 500 or 300-MHz antenna (SIR2). A GPR antenna transmits high-frequency EM waves into the ground. A portion of the energy is reflected back to the surface at the interface of two materials with different electrical properties and it is received at the antenna. High-amplitude, hyperbolic reflections are generally observed on GPR records over buried metallic objects. GPR depth penetration is a function of the electrical conductivity of subsurface soils and the center frequency of the antenna. Depth penetration is very limited in fine-grained soils such as clay. Low frequency antennas achieve greater depth penetration than high frequency antennas at the expense of resolution. At typical sites in Southern California, depth penetration of a 300-MHz antenna is limited to about 3 to 5 feet.

3 FIELD PROCEDURES

This section describes the field procedures used during the investigation, including site preparation, magnetic, EM-61 and EM-31 survey procedures, and verification of geophysical anomalies.

3.1 Site Preparation

Before conducting the geophysical investigation, a 10- by 10-foot survey grid was established and marked with surveyor paint. The grid was established parallel and perpendicular to the buildings along the southern boundary of the survey area. The geophysical survey grid was not tied to the State Plane Coordinate System and is estimated to have an accuracy of about 2 feet. Obvious surface cultural features that could potentially affect the geophysical data (i.e. metallic fences, buildings, and other surface metallic objects) were identified in the field and plotted onto a scaled, hand-drawn site map. A site map, transcribed from the field drawings, showing the location of the geophysical survey area, geophysical survey coordinate system, and surficial features is presented as Figure 2.

3.2 Magnetic Survey

Prior to data acquisition, the G858 was programmed with the appropriate line number, direction, sampling interval, and control point spacing. Changes in these parameters were made as necessary during the survey. Measurements of the earth's total magnetic field and vertical magnetic gradient were made at 0.1-second intervals as the operator walked along southwest to northeast (SW-NE) survey lines spaced 5 feet apart. The 10-foot grid points were used for spatial control. A marker key on the instrument was depressed every time a 10-foot control point was crossed and linear interpolation was used to assign station positions to the intermediate readings. The 0.1-second sampling interval resulted in an average station spacing of about 0.5 feet. The magnetic data were stored in the internal memory of the magnetometer, along with line and station number, and time of measurement. If a location error was made on a survey line (station mark skipped, etc.) the line was deleted from the magnetometer's internal memory and reacquired. Magnetic data were downloaded to a laptop computer at the end of the survey using the program MAGMAP by Geometrics Inc.

3.3 Geonics EM-61 Survey

The EM-61 was assembled and battery levels were checked and found to be within acceptable levels. The EM-61 digital data logger was then programmed with the appropriate file name, line number, start station, station increment, and direction. Changes in these parameters were made as necessary throughout the survey. EM-61 measurements were made at 2.5-foot intervals along SW-NE survey lines spaced 5 feet apart using the 10-foot grid points for spatial control. The EM-61 data were stored in a digital data logger along with line and station number. If an error was made acquiring a line, a note was made in the field log and the line repeated. EM-61 data were downloaded to a laptop computer at the end of the survey using the computer program DAT61 by Geonics Ltd.

3.4 Geonics EM-31 Survey

The EM-31 was assembled and battery levels were checked and found to be within acceptable levels. The in-phase component was then set to zero in a portion of the site with no buried metallic objects. The EM-31 digital data logger was then programmed with the appropriate file name, line number, start station, station increment, and direction. Changes in these parameters were made as necessary throughout the survey. EM-31 measurements of conductivity and in-phase component were made at 5-foot intervals along SW-NE survey lines spaced 5 feet apart using the 10-foot grid points for spatial control. The EM-31 data were stored in a digital data logger along with line and station number. If an error was made acquiring a line, a note was made in the field log and the line repeated. EM-31 data were downloaded to a laptop computer at the end of the survey using the computer program DAT31 by Geonics Ltd.

3.5 Field Verification and GPR Survey

The verification phase of the investigation was conducted after preliminary processing of the magnetic, EM-31 and EM-61 data. A discussion of data processing procedures is provided in the following section. Significant magnetic, EM-61 and EM-31 anomalies interpreted from contour maps of the data were field checked to verify that they had subsurface sources. The EM utility locator and Fisher metal detector were used in an attempt to trace buried pipes and utilities interpreted from the geophysical data. The locations of these pipes were plotted on the site map.

GPR data were collected with the SIR2 over the more significant magnetic, EM-61 and EM-31 anomalies in an attempt to better characterize their source, dimensions, and depth. GPR data were acquired semi-continuously (32 scans per second), as a 400-MHz antenna was hand-towed along the survey lines. Control points were placed on the GPR records at 10-foot intervals using a marker switch on the antenna. GPR data were viewed in real time on the SIR-2's color monitor, plotted in the field on a gray-scale printer, and saved to the SIR-2's hard disk for later processing. The locations of all GPR profiles are shown in Figure 2. All field copies of GPR data are retained in the project files. The GPR data was found to be of limited use because of poor depth penetration in the fine-grained, cemented soils located at the site.

4 DATA PROCESSING AND INTERPRETATION

This section presents the data processing procedures and interpretation of the geophysical data.

4.1 Data Processing

Color-enhanced contour maps of magnetic, EM-61 and EM-31 data were generated using the GEOSOFT® geophysical mapping system. The maps were color-enhanced to aid in the interpretation of subtle anomalies. Prior to map generation, a number of preprocessing steps were completed and included:

- Backup of all original field data files to floppy disk.
- Correcting of all data acquisition errors (typically only deleting the first portion of a reacquired line, renaming lines incorrectly labeled, deleting additional readings outside the grid, etc.)
- Reformatting field data files to free format XYZ files containing line number, station, time (if applicable), and field measurements.
- Applying small adjustments to EM-61 and EM-31 station locations to compensate for data being recorded while the operator was walking.
- Merging of multiple data files into a single file and sorting, if necessary.

The output of the data preprocessing was a data file containing line and station number and the top coil, bottom coil, and differential response. These data files were imported into the GEOSOFT® mapping system and the following data processing steps applied:

- Reformatting of data files to GEOSOFT® format.
- Generating final map scale.
- Gridding data using down- and cross-line splines or minimum curvature.
- Masking grid in areas where data not acquired (i.e. around site perimeter or building).
- Applying Hanning filter to smooth the data, as necessary.
- Generating color zone file describing color for different data ranges.
- Contouring the data.
- Generating map surrounds (title block, legend, scale, color bar, north arrow, etc.)
- Annotating anomalies.
- Merging various plot files and plotting final map.

The names of the files generated and the processing parameters used were recorded on data processing forms. All completed data processing forms are retained in project files. All files generated during the processing sequence were archived on digital tape or CD-ROM.

GPR data acquired during this investigation were not processed, rather interpretation was conducted using field printouts of the data. GPR data are not presented in the report, as it did not provide additional information. Field printouts and digital copies of the GPR data are however retained in project files.

4.2 Interpretation

Color-enhanced contour maps of total magnetic field intensity, EM-61 bottom coil response, and EM-31 conductivity response are presented as Figures 3 to 5, respectively. The coordinates shown in these figures reference the relative geophysical coordinate system shown in Figure 2. The color bar indicates the amplitude of the measured quantity with the magenta and cyan colors representing high and low amplitudes, respectively. The light orange, yellow and light green colors indicate average "background" values of the measured quantity. The vertical or horizontal parallel lines or tick marks show the survey lines or stations along which data were acquired. EM-61 differential response, and EM-31 in-phase component data were also acquired. These data are not presented as they did not provide additional information and were, therefore, considered redundant. Contour maps of these data are, however, retained in project files. A combined interpretation of the geophysical data is presented in Figure 2.

Anomalies in the magnetic, EM-61 and EM-31 data were field checked to determine if a source of metal at the surface caused the anomaly. A number of surface metallic features; such as the fences, sign posts and other metallic surface objects/debris caused anomalies in the geophysical data. These anomalies are labeled as "SM" on the contour maps.

There are several anomalies on the contour maps interpreted as being caused by possible buried pipes or utility lines. These anomalies are labeled as "P" on the contour maps with locations shown on Figure 1. All pipes identified within the survey area were traced with the EM utility locator and accurately plotted on the site map.

There are several very small EM-61 anomalies interpreted as being caused by very small, buried metallic objects or debris. These anomalies are labeled as "B" on the contour maps and are probably caused by very small pieces of metallic debris at shallow depth.

There is one anomaly in the geophysical data, labeled as A-1 on Figure 3 to 5, warranting further discussion. The source of anomaly A-1 is centered at station 125S, 165E and gives rise to a high amplitude, dipolar magnetic anomaly, positive EM-61 anomaly, and negative EM-31 anomaly. Several electrical lines converge at this anomaly and review of base utility maps indicated that a utility vault(s) is located in this area. The anomaly is therefore interpreted as a buried utility vault. Several GPR traverses conducted over this anomaly appear to confirm this interpretation.

5 SUMMARY

A magnetic, Geonics EM-61 (EM-61) and Geonics EM-31 (EM-31) survey was conducted in the approximate 0.5-acre Aerial Photographic Anomaly Area 38 at MCAS EL Toro, California to screen the site for buried metallic and/or construction debris. Interpretation of the geophysical data is presented in Figure 2. Contour maps of total magnetic field intensity, EM-61 bottom coil response and EM-31 conductivity response are presented as Figures 3 to 5, respectively.

The geophysical data revealed the presence of several pipes transecting the survey area, a possible buried utility vault, and several very small pieces of shallow, buried metallic debris. There is no evidence in the geophysical data of the disposal of metallic and/or construction debris at this site.

The geophysical survey was designed to map small accumulations of metallic debris in the subsurface. It was assumed that any debris buried at the site would contain enough metallic components (i.e. rebar, pipe segments, steel plates, etc.) to be mappable using the magnetic and EM methods. Areas containing only nonmetallic debris at depth (i.e. concrete without rebar and wood) would not have been detected by this geophysical survey.

6 CERTIFICATION

All geophysical data, analysis, interpretations, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by a **GEO***Vision* California Registered Geophysicist.

REGISTERED GEOPHYSICIST
ANTONY JEFFREY MARTIN
GP 989
Exp. 3/31/01
STATE OF CALIFORNIA

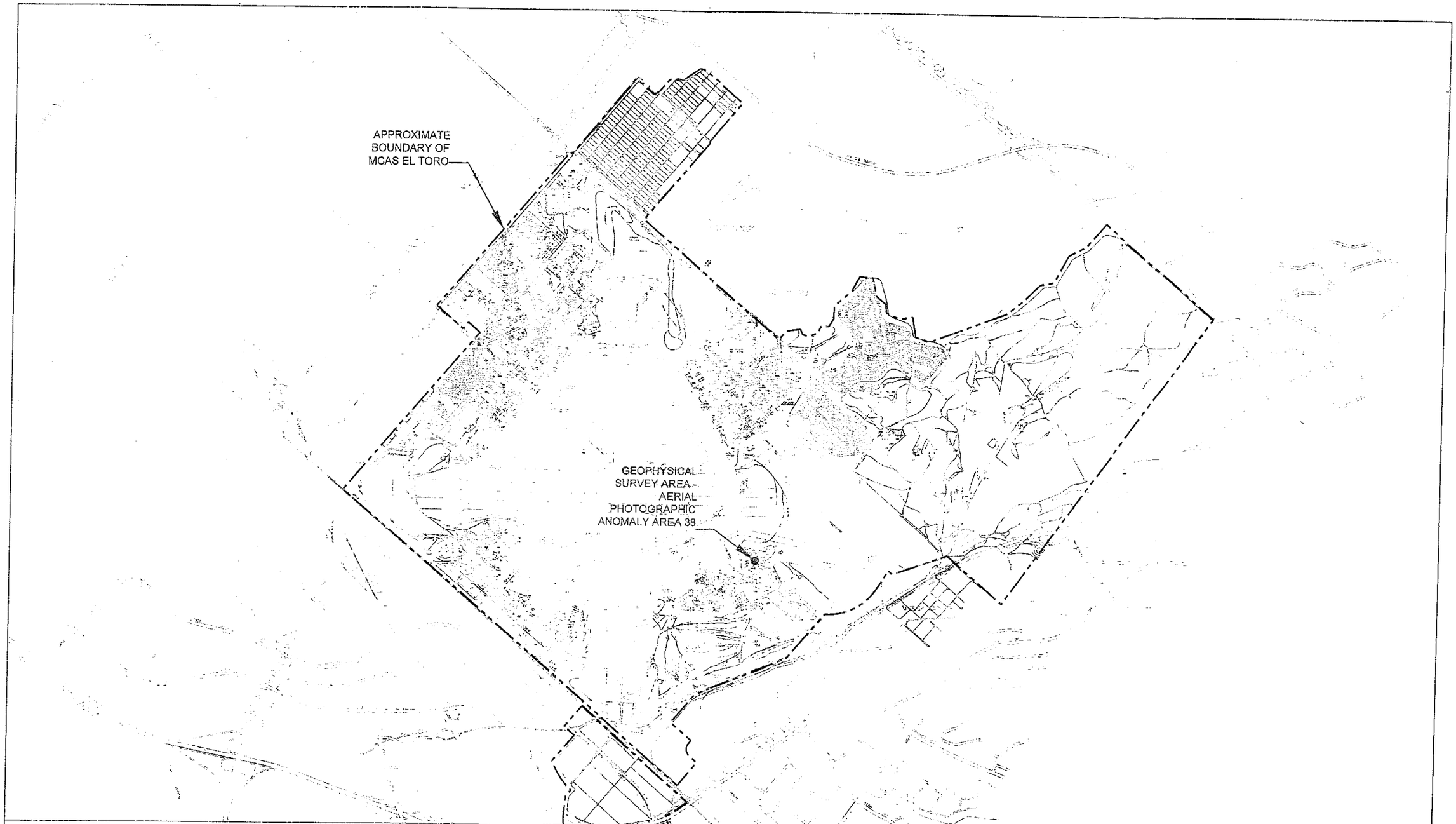
10/13/00
Date

Antony J. Martin
California Registered Geophysicist GP989
GEO*Vision* Geophysical Services

* This geophysical investigation was conducted under the supervision of a California Registered Geophysicist using industry standard methods and equipment. A high degree of professionalism was maintained during all aspects of the project from the field investigation and data acquisition, through data processing interpretation and reporting. All original field data files, field notes and observations, and other pertinent information are maintained in the project files and are available for the client to review for a period of at least one year.

A registered geophysicist's certification of interpreted geophysical conditions comprises a declaration of his/her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations or ordinances.

FIGURES



NOTES:
1. BASE MAP PROVIDED BY THE IT GROUP
2. ESTIMATED MAP ACCURACY = 10-30 FEET

0 1250 2500 5000
(feet)

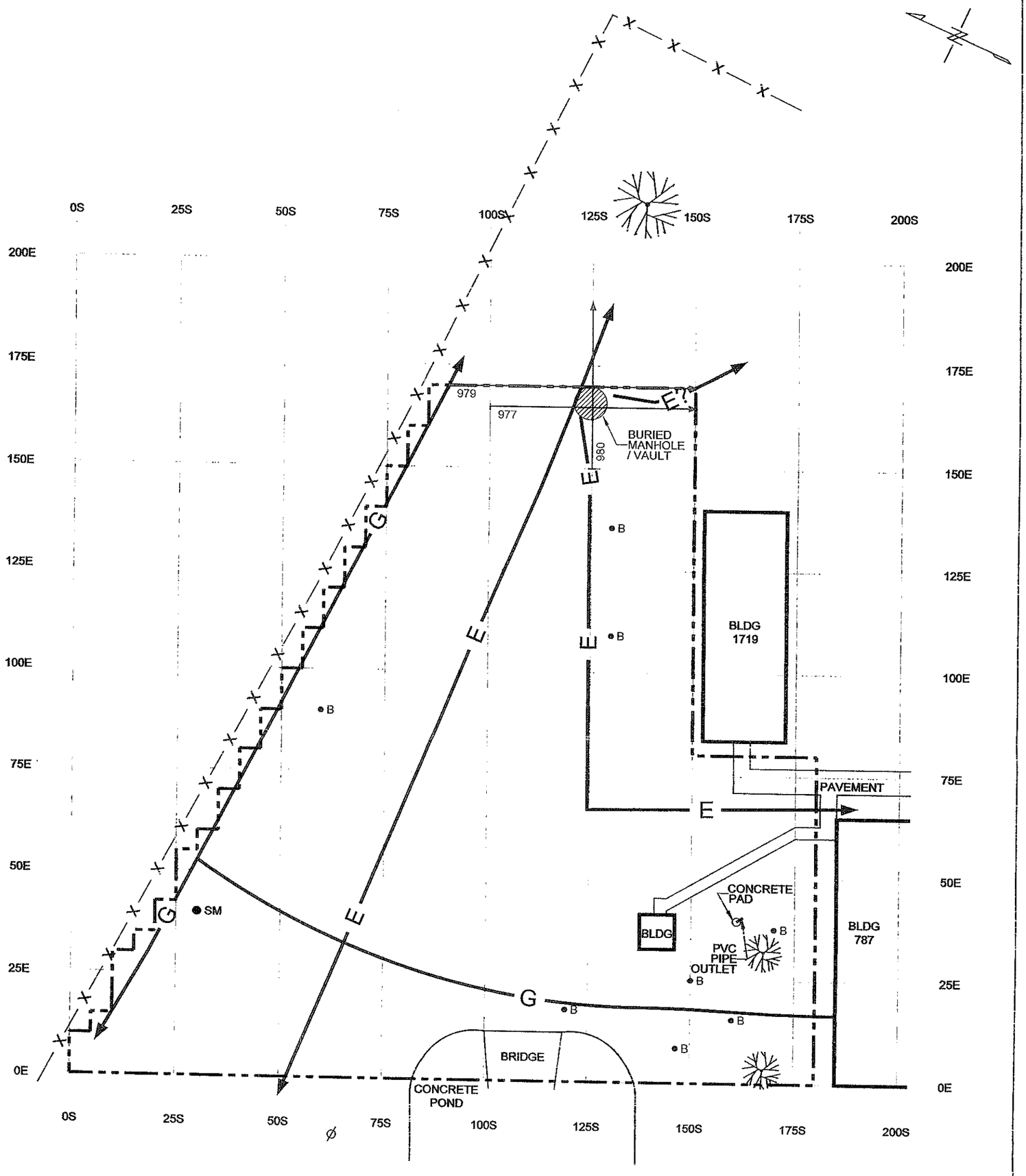
GEOVision
geophysical services
a division of Blackhawk Geometrics

Project No. 0260-38	Date Oct 12,2000
Developed by	A MARTIN
Drawn by	T RODRIGUEZ
Approved by	
File	C:\AcadMap2K\0260\S38\0260-38-1.dwg

FIGURE - 1
SITE LOCATION MAP

MARINE CORPS AIR STATION, EL TORO
ORANGE COUNTY, CALIFORNIA

PREPARED FOR
THE IT GROUP



0 12.5 25 50
(feet)

LEGEND

0N, 0E	RELATIVE COORDINATE SYSTEM OF GEOPHYSICAL SURVEY
	BOUNDARY OF GEOPHYSICAL SURVEY AREA
—x—x—x—	CHAIN LINK FENCE
979	GPR LINE AND FILE NUMBER
SM	SURFACE METALLIC OBJECT / DEBRIS
Ø	POWER POLE
	TREE
B	VERY SMALL BURIED METALLIC OBJECT / DEBRIS
E	PIPE (E=ELECTRIC, G=GAS)

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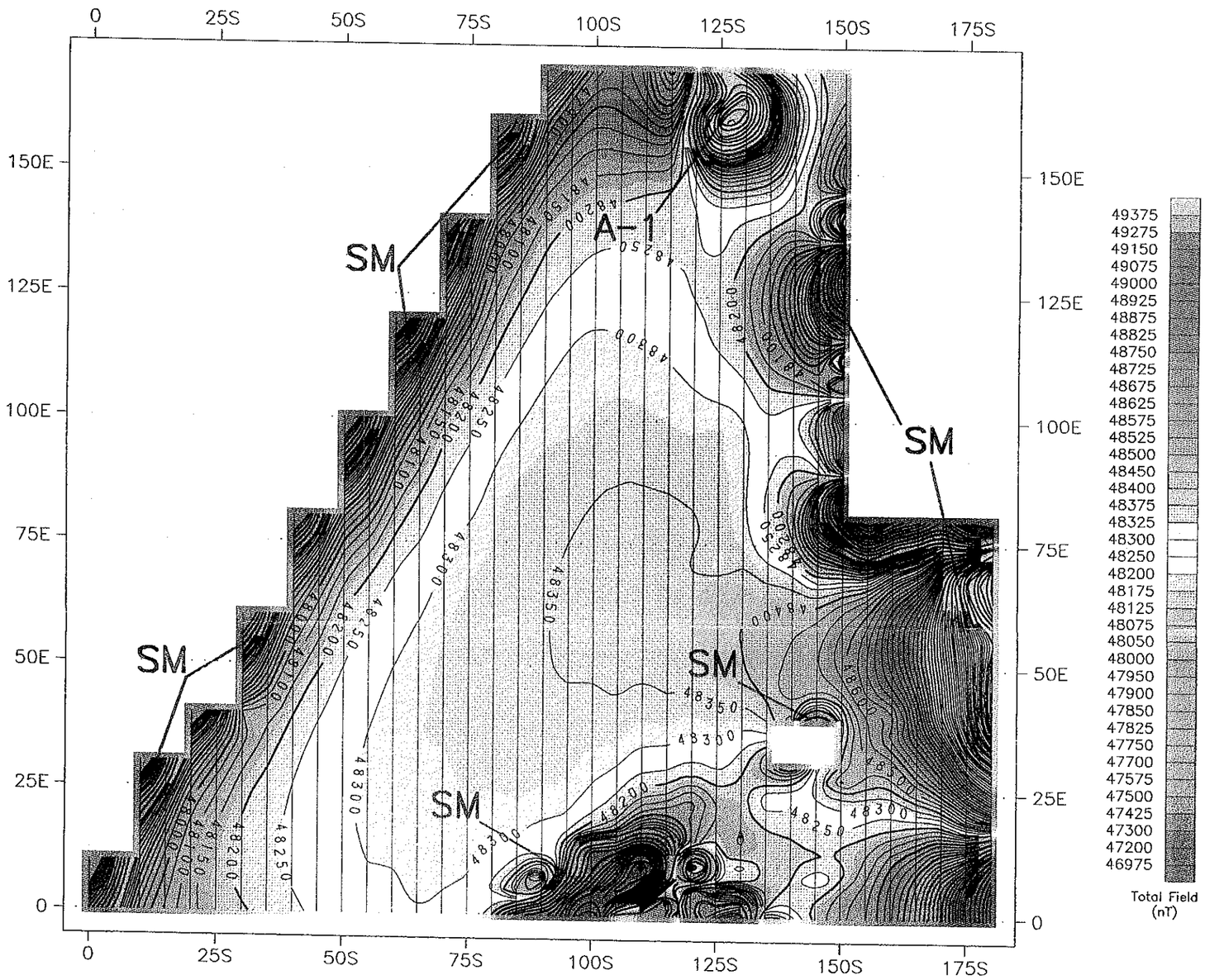
Project #	0260
Date	Oct 12,2000
Developed by	A MARTIN
Drawn by	T RODRIGUEZ
Approved by	
File	C:\Acad\Map2K\0260\S38\0260-38-2.dwg

FIGURE - 2
SITE MAP WITH GEOPHYSICAL INTERPRETATION

AERIAL PHOTOGRAPHIC ANOMALY AREA 38
MCAS EL TORO
ORANGE COUNTY, CALIFORNIA

PREPARED FOR
THE IT GROUP



CONTOUR INTERVAL = 50 NANOTESLAS

LEGEND

25E,25N	RELATIVE COORDINATE SYSTEM OF GEOPHYSICAL SURVEY
———	MAGNETIC SURVEY LINE
A-1	ANOMALY DISCUSSED IN REPORT
B	ANOMALY CAUSED BY A VERY SMALL BURIED METALLIC OBJECT
P	ANOMALY CAUSED BY BURIED PIPE
SM	ANOMALY CAUSED BY SURFACE OBJECT (BUILDING, REINFORCED CONCRETE, FENCE, LIGHT POST, etc.)

12.5 0 12.5 25
(feet)

FIGURE 3
CONTOUR MAP OF TOTAL MAGNETIC FIELD INTENSITY

AERIAL PHOTOGRAPHIC ANOMALY AREA 38
MCAS EL TORO, CALIFORNIA

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THE IT GROUP

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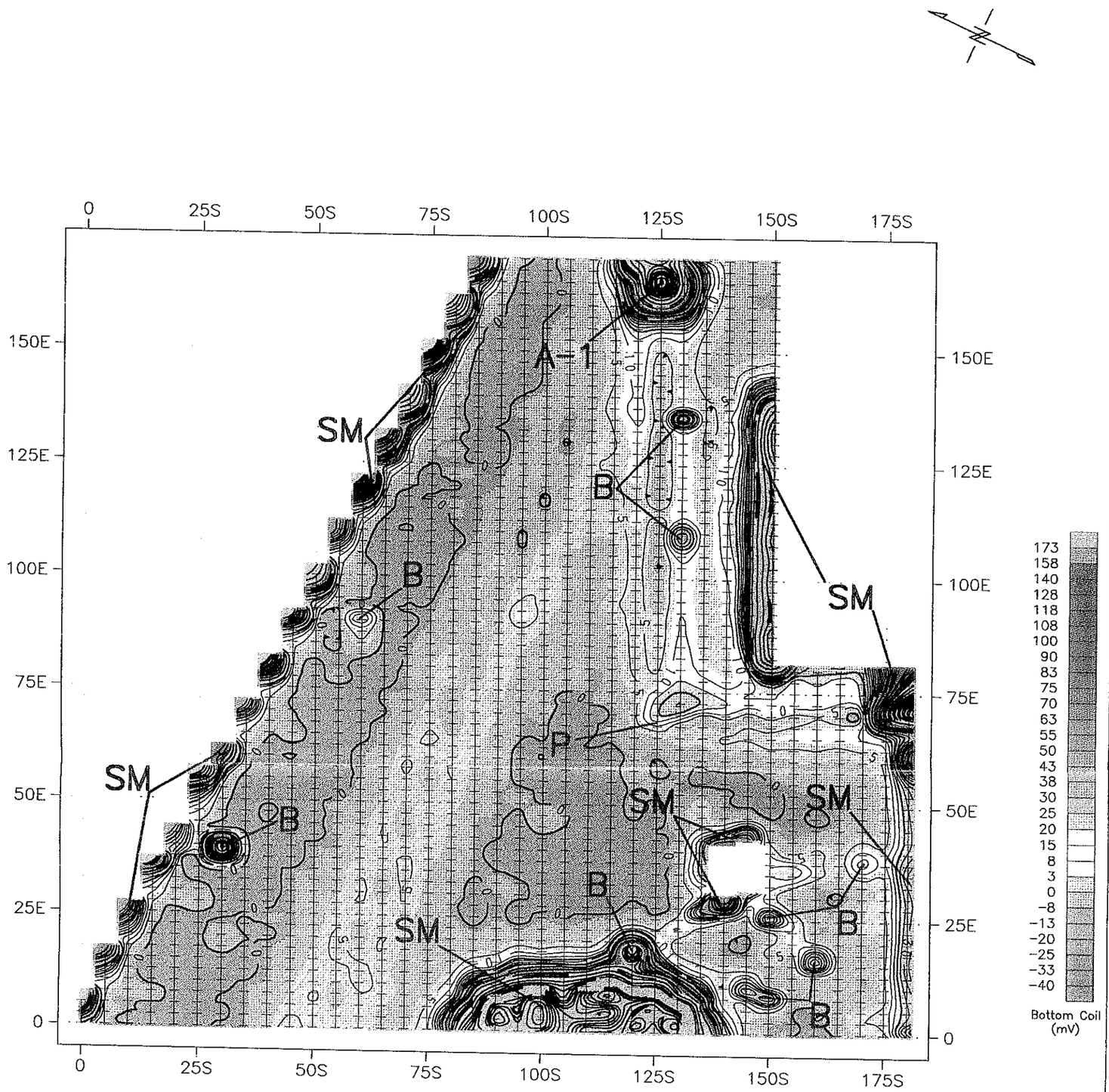

CONTOUR INTERVAL = 5 MILLIVOLTS

LEGEND

25E,25N	RELATIVE COORDINATE SYSTEM OF GEOPHYSICAL SURVEY
⊢+++⊣	GEONICS EM-61 SURVEY LINE
A-1	ANOMALY DISCUSSED IN REPORT
B	ANOMALY CAUSED BY A VERY SMALL BURIED METALLIC OBJECT
P	ANOMALY CAUSED BY BURIED PIPE
SM	ANOMALY CAUSED BY SURFACE OBJECT (BUILDING, REINFORCED CONCRETE, FENCE, LIGHT POST, etc.)

12.5 0 12.5 25
(feet)

FIGURE 4
CONTOUR MAP OF GEONICS EM-61 BOTTOM COIL RESPONSE

AERIAL PHOTOGRAPHIC ANOMALY AREA 38
MCAS EL TORO, CALIFORNIA

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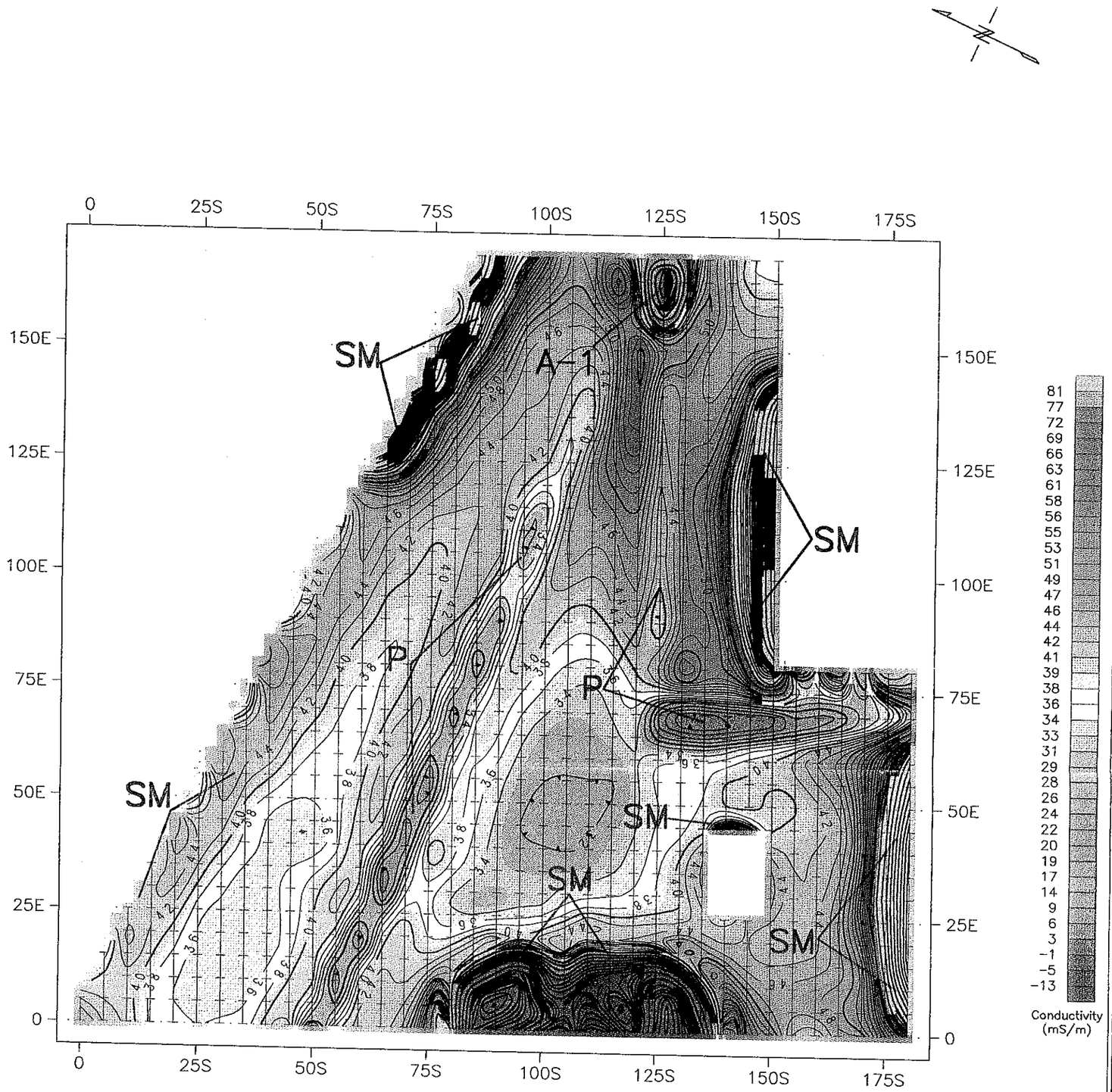

CONTOUR INTERVAL = 2 MILLISIEMENS PER METER

LEGEND

25E,25N	RELATIVE COORDINATE SYSTEM OF GEOPHYSICAL SURVEY
⊢+++⊣	GEONICS EM-31 SURVEY LINE
A-1	ANOMALY DISCUSSED IN REPORT
B	ANOMALY CAUSED BY A VERY SMALL BURIED METALLIC OBJECT
P	ANOMALY CAUSED BY BURIED PIPE
SM	ANOMALY CAUSED BY SURFACE OBJECT (BUILDING, REINFORCED CONCRETE, FENCE, LIGHT POST, etc.)

12.5 0 12.5 25
(feet)

FIGURE 5
CONTOUR MAP OF GEONICS EM-31 CONDUCTIVITY RESPONSE

AERIAL PHOTOGRAPHIC ANOMALY AREA 38
MCAS EL TORO, CALIFORNIA

PREPARED FOR
THE IT GROUP

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APPENDIX A

GEOPHYSICAL TECHNIQUES FOR SHALLOW ENVIRONMENTAL INVESTIGATIONS

GEOPHYSICAL TECHNIQUES FOR SHALLOW ENVIRONMENTAL INVESTIGATIONS

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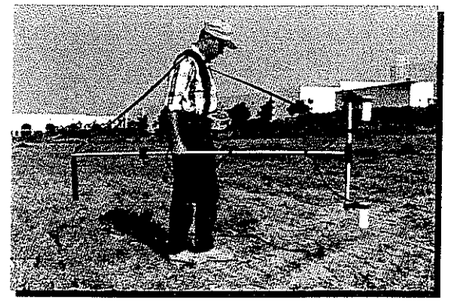
MAGNETIC METHOD

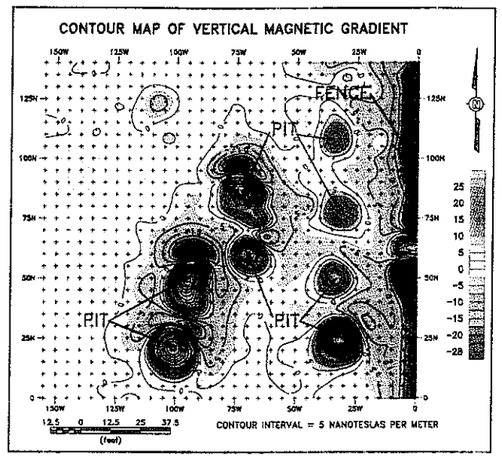
The magnetic method generally involves the measurement of the earth's magnetic field intensity or vertical gradient of the earth's magnetic field Anomalies in the earth's magnetic field are caused by induced or remanent magnetism Induced magnetic anomalies are the result of secondary magnetization induced in a ferrous body by the earth's magnetic field The shape and amplitude of an induced magnetic anomaly is a function of the orientation, geometry, size, depth, and magnetic susceptibility of the body as well as the intensity and inclination of the earth's magnetic field in the survey area The magnetic method is an effective way to search for small metallic objects, such as buried ordnance and drums, because magnetic anomalies have spatial dimensions much larger than those of the objects themselves Typically, a single buried drum can be detected to a depth of about 10 feet



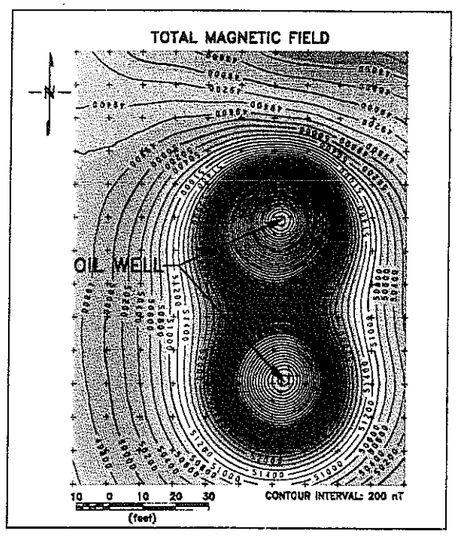
Geometrics G858 Cesium Magnetic Gradiometer

Larger metallic objects can often be located to greater depths Induced magnetic anomalies over buried objects such as drums, pipes, tanks, and buried metallic debris generally exhibit an asymmetrical, south up/north down signature (positive response south of the object and negative response to the north)

Magnetic data is typically acquired along a grid with results being presented as color-enhanced contour maps generated by the Geosoft™ Mapping System or OASIS montaj The approximate location and depth of magnetic objects can be calculated using the Geosoft™ UXO System



Magnetic Survey to Locate Pits Containing Buried Metallic Containers



Magnetic Survey to Locate Abandoned Oil Wells

Magnetic surveys are typically conducted to:

- Locate abandoned steel well casings
- Locate buried tanks and pipes
- Locate pits and trenches containing buried metallic debris
- Detect buried unexploded ordnance (UXO)
- Map old waste sites and landfill boundaries
- Clear drilling locations
- Map basement faults and geology
- Investigate archaeological sites

TDEM Metal Detection Methods

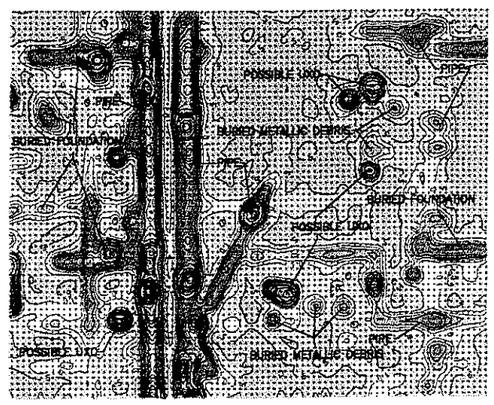
A Geonics EM-61 (EM-61) is a high sensitivity, time-domain, digital metal detector which is often used to detect both ferrous and non-ferrous metallic objects. It is designed specifically to locate buried metallic objects such as drums, tanks, pipes, UXO, and metallic debris and to be relatively insensitive to above ground structures such as fences, buildings, and vehicles.

The EM-61 consists of two square, 1-meter coils, one mounted over the other and arranged on a hand-towed cart. The bottom coil acts as both a transmitter and receiver while the top coil is a receiver only. While transmitting the bottom coil generates a pulsed primary magnetic field, which induces eddy currents into nearby metallic objects. When the transmitter is in its off cycle both coils measure the decay of these eddy currents in millivolts (mV) with the results being stored in a digital data logger along with position information. The decay of the eddy currents is proportional to the size and depth of the metallic target. A symmetrical positive anomaly is recorded over metallic objects with the peak centered over the object. The signal from the top coil is amplified in such a way that both coils record effectively the same response for a metallic object on the surface and the top coil records a larger response for buried metallic objects. The response of near surface objects can, therefore, be suppressed by subtracting the lower coil response from the upper coil response (differential response).

In practice, the usable depth of investigation of the EM-61 depends on the size and shape of the object and the amount of above ground interference encountered at the site. A single buried drum can often be detected at a depth of about 10 feet.

Geonics EM-61 Digital Metal Detector

Geonics EM-61 Survey to Map Subsurface Infrastructure and Potential UXO



GSSI SIR-10A GPR Unit

GPR Methods

Ground-penetrating radar (GPR) is a high-frequency electro-magnetic method commonly applied to a number of engineering and environmental problems.

A GPR system radiates short pulses of high-frequency EM energy into the ground from a transmitting antenna. This EM wave propagates into the ground at a velocity that is primarily a function of the relative dielectric permittivity of subsurface materials. When this wave encounters the interface of two materials having different dielectric properties, a portion of the energy is reflected back to the surface, where it is detected by a receiver antenna and transmitted to a control unit for processing and display.

Depth penetration is a function of antenna frequency and the electrical conductivity of the soils in the survey area. Lower frequency antennas achieve greater depth penetration than higher frequency antennas, but have poorer spatial resolution. Conductive soils, such as clays, attenuate the radar waves much more rapidly than resistive dry sand and rock. In many environments in California, depth penetration of 500 and 300 MHz

ELECTROMAGNETIC METHODS

Electromagnetic (EM) methods typically applied to shallow environmental investigations include frequency domain EM methods, such as EM induction and EM utility location methods, time domain electromagnetic (TDEM) metal detection methods, and ground penetrating radar (GPR) methods.

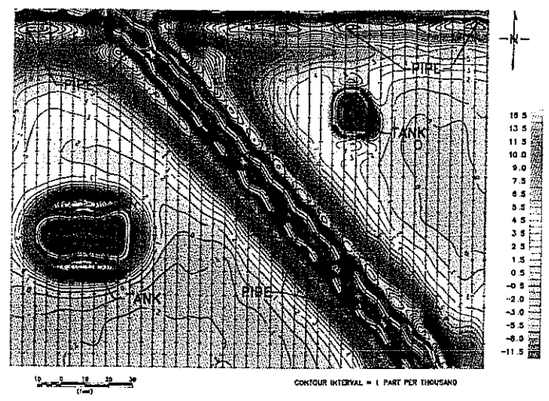
EM Induction Method

EM induction surveys are often conducted using the Geonics EM-31 terrain conductivity meter (EM-31). The EM-31 consists of a transmitter coil mounted at one end and a receiver coil mounted at the other end of a 3.7-meter long plastic boom. Electrical conductivity and in-phase component field strength are measured and stored along with line and station numbers in a digital data logger. In-phase component measurements generally only respond to buried metallic objects; whereas conductivity measurements also respond to conductivity variations caused by changes in soil type, moisture or salinity and the presence of nonmetallic bulk wastes. The EM-31 must pass over or immediately adjacent to a buried metallic object to detect it. Typical EM-31 anomalies over small, buried metallic objects consist of a negative response centered over the object and a lower amplitude positive response to the sides of the object. When the instrument boom is oriented parallel to long, linear conductors such as pipelines a strong positive response is observed. The EM-31 can explore to depths of about 6 meters, but is most sensitive to materials about 1 meter below ground surface. Single buried drums can typically be detected to depths of about 5 feet

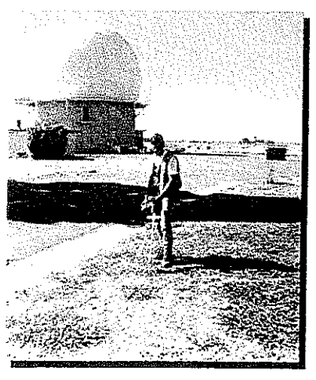
Geonics EM-31 Terrain Conductivity Meter

EM-31 surveys are typically conducted to:

- Locate buried tanks and pipes
- Locate pits and trenches containing metallic and/or nonmetallic debris
- Delineate landfill boundaries
- Delineate oil production sumps and mud pits
- Map conductive soil and groundwater contamination
- Map soil salinity in agricultural areas
- Characterize shallow subsurface hydrogeology
  - Map buried channel deposits
  - Locate sand and gravel deposits
  - Locate conductive fault and fracture zones



Geonics EM-31 Survey to Locate Underground Storage Tanks



EM Utility Location Methods

EM utility locators; such as the Metrotech 810, Metrotech 9890 and Radiodetection RD400, are designed to accurately trace metallic pipes and utility cables and clear drilling/excavation locations. These utility locators consist of a separate transmitter and a receiver. The transmitter emits a radio frequency EM field that induces secondary fields in nearby metallic pipes and cables. The receiver detects these fields and is used to accurately locate and trace the pipes, often to distances over 200 feet from the transmitter. Many of the utility locators have a passive 60Hz mode to locate live electrical lines. Modern utility locators are also capable of providing rough depth estimates of the pipes.

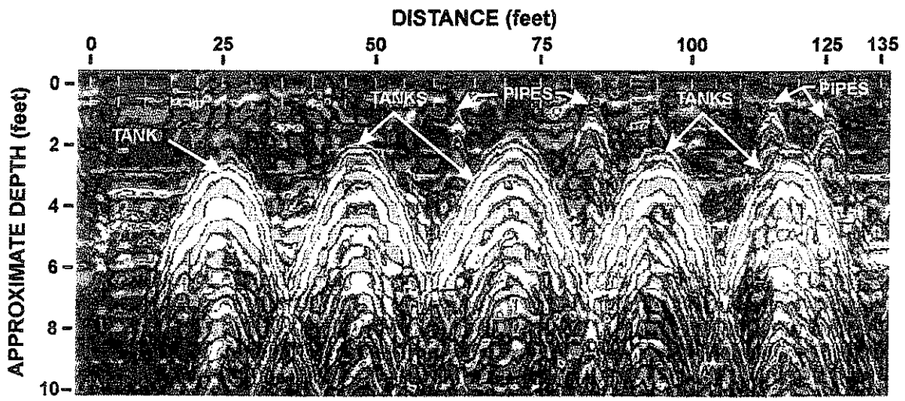
Metrotech EM Utility Locator

antennas is limited to 3 to 5 feet Depth penetration may be greater if shallow soils consist of clean sands and less if shallow soils consist of clay

GPR surveys are typically conducted to:

- Locate and delineate underground storage tanks (metallic and non-metallic)
- Locate metallic and nonmetallic pipes and utility cables
- Map rebar in concrete structures
- Map landfill boundaries
- Delineate pits and trenches containing metallic and nonmetallic debris
- Delineate leach fields and industrial cribs
- Delineate previously excavated and backfilled areas
- Map shallow groundwater tables
- Map shallow soil stratigraphy
- Map shallow bedrock topography
- Map shallow subsurface voids and cavities
- Characterize archaeological sites

Geophysical Survey Systems Inc. (GSSI) SIR-2 or SIR-10 GPR systems with antennas in the frequency range of 50 to 1,000 MHz are often used during GPR investigations Mala Geoscience and Sensors and Software, Ltd also manufacture GPR systems GPR data is processed using a variety of software including the RADAN™ or GRADIX software packages by GSSI and Interpex Ltd., respectively



GPR Survey to Locate Underground Storage Tanks

Attachment B
SWDIV Sampling Plan

SOUTHWESTNAVFACENGCOM
Code 06CC LMH
1220 Pacific Highway
San Diego, CA 92132
Telephone: (619) 532-0783/Fax: (619) 532-0780

File: aph38ltr2 doc

TRANSMITTAL

Date: 20 March 2000

From: Lynn Marie Hornecker

To: Glenn Kistner
Triss Chesney
Patricia Hannon

Subj: Proposed Sampling at Aerial Photograph Anomaly APHO 38
Marine Corps Air Station, El Toro

The purpose of this transmittal is to identify a sampling strategy for one of the historical aerial photograph anomaly sites at the Marine Corps Air Station, El Toro. The anomaly APHO 38 was identified by Science Applications International Corporation (SAIC) as SAIC number 252 on a photograph taken in 1973. SAIC described the anomaly as a "probable excavation adjacent to Building 1789, northeast of the intersection of El Toro Boulevard, N 2nd Street, and East Marine Way". SAIC recommended additional investigation of the site history as a possible disposal area. The United States Environmental Protection Agency (USEPA) identified a similar anomaly (EPA number 229) as pits in the same vicinity as SAIC number 252 on a photograph taken in 1970.

APHO 38 is located in the southeastern section of the Station north of the golf course as shown on Figure 1. The nearest ground water monitoring wells are located more than 1,000 feet west-northwest of APHO 38 at Installation Restoration Program (IRP) Site 19 – Aircraft Expeditionary Refueling (ACER) Site. Ground water is located approximately 145 feet below ground surface at Well 19_UGMW35 at IRP Site 19.

Currently, three surface impoundments and one small vehicle wash ramp are located in the vicinity of Building 1789 at APHO 38. The large impoundments are lined with shotcrete, and the wash ramp appears to be constructed of reinforced concrete. The shotcrete and concrete structures were constructed in the late 1980's. The impoundments discharge to the sanitary sewer system. It is reported that training for decontamination (washing) of motor vehicles was practiced at these impoundments, and the liquid wastes were discharged to the sanitary sewer system. It is assumed that similar training activities were conducted prior to the construction of the shotcrete-lined impoundments and concrete wash ramp, and the former structures, unlined pits or excavations, caused the appearance of anomalies on the historical aerial photographs. Photographs of the APHO 38 vicinity are presented as exhibits to this transmittal

SOUTHWESTNAVFACENGCOM
Code 06CC LMH
1220 Pacific Highway
San Diego, CA 92132
Telephone: (619) 532-0783/Fax: (619) 532-0780

We propose to collect soil samples and soil gas samples from selected locations along the perimeter of the impoundments and along the sewer alignment in order to ascertain whether or not a release occurred during training operations (vehicle washing/decontamination activities) at the impoundment area. We would also collect one or two samples of the soil/sludge located within the downstream impoundment which has the largest accumulation of sediment.

We propose to conduct the sampling in the April-June 2000 time period, and proposed sample locations and minimum numbers of sample points are described in Table 1 and are shown on Figure 1. We propose to analyze soil samples for the same chemicals identified for Anomaly Area 4 (the abandoned slurry beds (APHO 6 and APHO 11)). We incorporated comments from the California Department of Toxic Substances Control (DTSC letter of 22 June 1999) pertaining to Anomaly Area 4 for the soil analyses, and our responses to the DTSC letter of 22 June 1999 are presented as an exhibit. We also propose to analyze soil gas samples for petroleum hydrocarbons and volatile organic compounds.

Table. Proposed Sampling Locations.

Sample Location	Approximate Sampling Depths (Below Ground Surface (bgs))	Comments
Along perimeter of impoundments (minimum of 4 sample points)	7 feet (approximately 2 feet below base of impoundment) 15 feet 25 feet 50 feet	Soil gas samples may be collected at an approximate depth of 15 feet bgs
Along sewer alignment (minimum of 3 sample points)	10 feet (approximately 2 feet below estimated base of sewer pipe) 25 feet	Soil gas samples may be collected at an approximate depth of 15 feet bgs
Soil/sludge sample from within downstream impoundment	One or two samples from within impoundment	

We propose to conduct land surveying activities in order to better identify impoundment locations. Locations shown on Figure 1 are estimated based upon notes from field visits and from information on the current Station map. All field sampling and survey data would be published in a Summary Report for submittal to Base Realignment and Closure Cleanup Team (BCT) members following the evaluation of data.

CF:
Dean Gould (MCAS El Toro BEC)
Project File (MCAS El Toro)

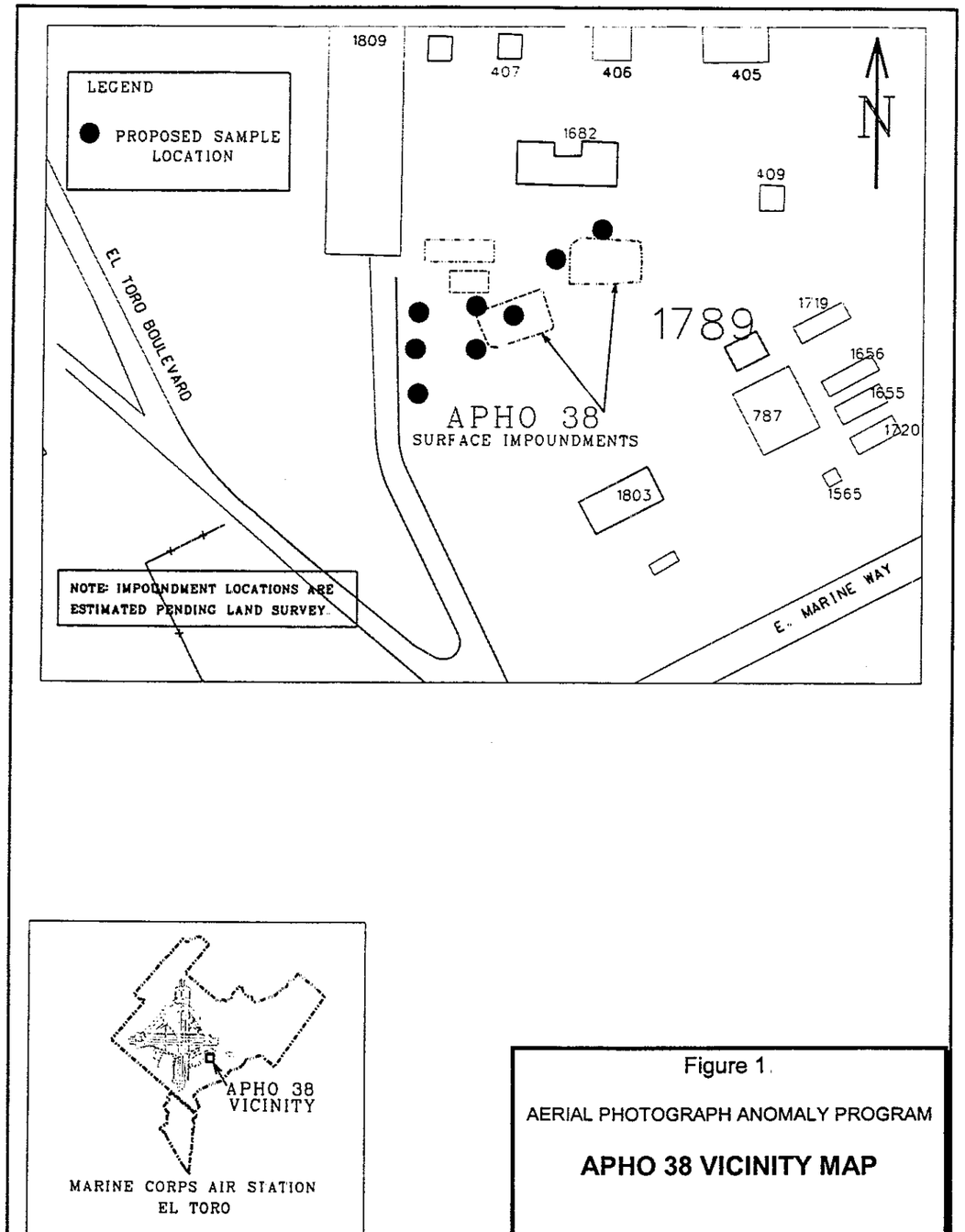


Figure 1.

AERIAL PHOTOGRAPH ANOMALY PROGRAM

APHO 38 VICINITY MAP

MARINE CORPS AIR STATION, EL TORO

SOUTHWESTNAVFACENGCOM
Code 06CC.LMH
1220 Pacific Highway
San Diego, CA 92132
Telephone: (619) 532-0783/Fax: (619) 532-0780

File: aph38ltr2.doc

EXHIBITS

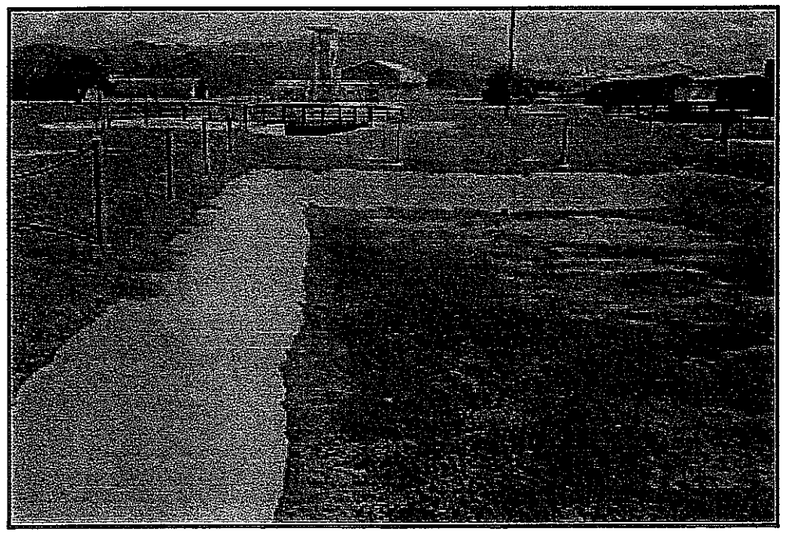
Photographs

Extracts from SAIC Report

Responses to DTSC Comments on Proposed Sampling Strategy for Anomaly Areas 4 and 5
(OHM, November 1999)

Aerial Photograph Anomaly Program, Marine Corps Air Station, El Toro

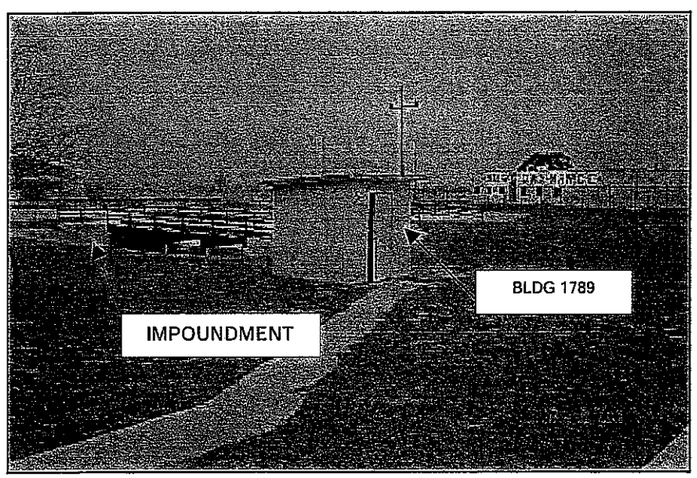
Photograph 1. APHO 38 (SAIC 252) Vicinity.
Surface Impoundments near Building 1789
Date of Photograph: 24 February 2000



Aerial Photograph Anomaly Program, Marine Corps Air Station, El Toro

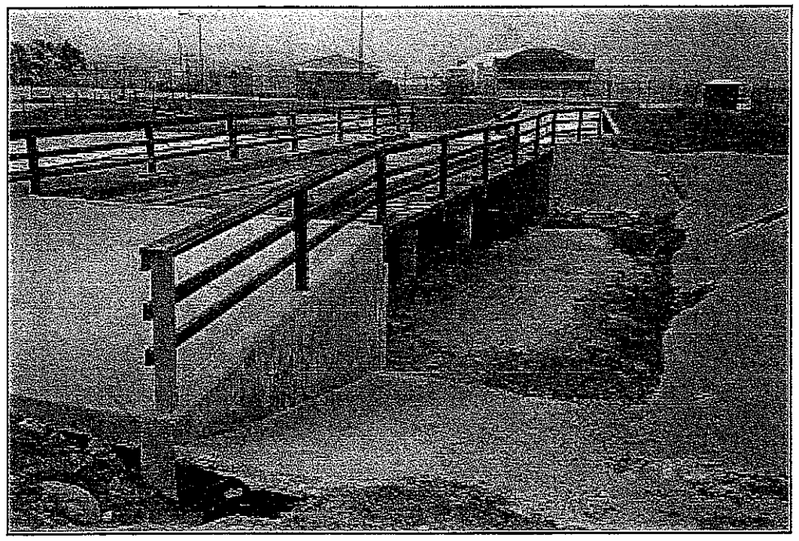
Photograph 2. APHO 38 (SAIC 252) Vicinity.
Building 1789 with Surface Impoundments in Background.

Date of Photograph: 8 February 2000



Aerial Photograph Anomaly Program, Marine Corps Air Station, El Toro

Photograph 3. APHO 38 (SAIC 252) Vicinity.
Surface Impoundment near Building 1789.
Date of Photograph: 8 February 2000

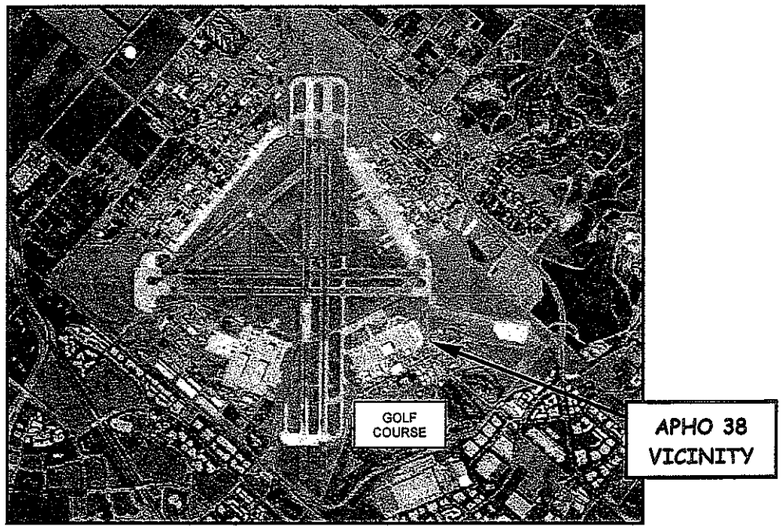


SOUTHWESTNAVFACENGCOM
Code 06CC LMH
Telephone: (619) 532-0783/Fax: (619) 532-0780

File: aph38ph2 doc

Photograph 4. APHO 38 (SAIC 252) Vicinity.
Aerial Photograph Anomaly Program
Marine Corps Air Station, El Toro

Date of Aerial Photograph: 1994



A.00050 000695

EXTRACTS

Final Report
Aerial Photograph Assessment
MCAS El Toro
Contract No. N68711-91-D-4658
Delivery Order 0002
SAIC Project No. 01-0892-02-0817

Submitted to:

Naval Facilities Engineering Command
Southwest Division
1220 Pacific Highway, Room 18
San Diego, CA 92132-5181

Submitted by:

Science Applications International Corporation
Engineering Sciences Division
10260 Campus Point Drive, MS F1
San Diego, CA 92121

October 25, 1993

c 249. Light-toned mounded material (MMLT) and disturbed ground (DG) can be seen easterly of the 90 degree bend in N 3rd Street, between East Marine Way and El Toro Boulevard. The mounds appear to be stockpiled soil. No additional investigation is recommended unless contamination is detected near site, or downgradient of the site, in areas of interest to the IR program.

c 250. Wet soil (WS) with a possibly-associated, light-toned, unidentified object (UO) are located on the northerly side of Z Street, about 200 feet southwest of El Toro Boulevard. An open storage (OS) area is located toward the southwest. Investigation of a possible association between the wet soil (WS) and unidentified object (UO), and investigation of potential contamination from open storage (OS) area are recommended.

c 251. The open storage (OS) area at Drop Tank Drainage Area No. 1 (Site 6) remains in use. The Site 6 IR program field investigation should be expanded to include this area.

APHO 38 →

c 252. There is a probable excavation (EX) adjacent to Building 1789, northeast of the intersection of El Toro Boulevard, N 2nd Street and East Marine Way. Investigation of site history as a possible disposal area is recommended.

c 253. There is a vertical tank (VT), Building 608, easterly of ACER (Site 19), near northeast end of the northern aircraft parking apron. Determination of tank contents is recommended. The current IR program field investigation of ACER should be expanded to include this area.

b 254. There are two (2) possible trenches (TR) and a horizontal tank (HT) at the EOD Range (Sitre 1). No other significant changes are noted. The current IR program field investigation of Site 1 appears to be adequate, relative to the features noted here.

b 255. There is a possible horizontal tank (HT) in the staging area north of the Magazine Road Landfill (Site 2). An open storage (OS) area is east of the staging area. There is a trench (TR) with probable refuse (R) and liquid (LQ) at north end of trench, and a probable excavation (EX) at the southeast corner of the landfill site. The current IR program field investigation of Site 2 appears adequate, relative to the features noted here.

b 256. There is possible refuse (R) in the central and northern portions of the Communication Station Landfill (Site 17). The current IR program field investigation of Site 17 appears to be adequate, relative to the features noted here.

c 257. Grading (GR) and construction of a paved (?) road is observed. Additional investigation is not recommended at this time.

c 258. There are wet soil (WS) or a stain (ST), and a possible horizontal tank (HT) adjacent to the intersection of Runways 7L and 16R. Verification of the tank and determination of its contents are recommended.

Aerial Photographic Interpretation
MCAS El Toro
Santa Ana, California
1973

Figure 12

Sheet 1 of 1
March 14, 1973
Photo Number 73-999-194
Source:
U.S. Geological Survey

Prepared for:

Southwest Division
Naval Facilities Engineering Command
Contract N68711-92-D-4658

LEGEND:

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
B	Building	IM	Impoundment
D	Drums	LQ	Liquid
DB	Debris	LT	Light-Toned
DG	Disturbed Ground	M	Material
DK	Dark-Toned	MM	Mounded Material
EX	Excavation	OS	Open Storage
EXT	Extraction	R	Refuse
FA	Fill Area	ST	Stain
FBR	Fuel Bladder Revetment	TR	Trench
GR	Graded Area	UO	Unidentified Object
GS	Ground Scar	VT	Vertical Tank
HT	Horizontal Tank	WS	Wet Soil

N

3000' 0 3000' 6000'

1" = 2667'

Science Applications International Corporation
An Employee-Owned Company

ET12-1R1.DWG

Attachment C
DTSC Comments

Department of Toxic Substances Control

Edwin F. Lowry, Director
5796 Corporate Avenue
Cypress, California 90630

Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Gray Davis
Governor

October 10, 2000

Mr. Dean Gould
BRAC Environmental Coordinator
Marine Corps Air Station El Toro
Base Realignment and Closure
P.O. Box 51718
Irvine, California 92619-1718

PROPOSED SAMPLING AT AERIAL PHOTOGRAPH ANOMALY APHO 38, MARINE CORPS AIR STATION (MCAS) EL TORO

Dear Mr. Gould:

The Department of Toxic Substances Control (DTSC) reviewed the above document dated March 20, 2000. The document identifies a sampling strategy for APHO 38. APHO 38 was identified by Science Applications International Corporation (SAIC) as SAIC 252 on a 1973 aerial photograph. The anomaly was described as a probable excavation adjacent to Building 1789. The United States Environmental Protection Agency also identified a similar anomaly (EPA 229) on a 1970 aerial photograph, which was described as pits in the same vicinity as SAIC 252.

Currently, three surface impoundments and a vehicle wash rack occupy the APHO 38 area. Based on an as-built drawing for the structures, it appears that they were constructed in approximately 1989. Although the construction and dimensions of the current structures are known, the construction and dimensions of the probable excavation identified as SAIC 252 and EPA 229 are not known.

DTSC understands that the objective of this sampling event is to obtain preliminary information regarding the chemical compounds associated with the site. Additionally, the Department of the Navy plans to perform more extensive sampling in the future. However, after review of the proposed sampling strategy, DTSC has the following comments.

1. The proposed sampling strategy appears to address the existing surface impoundments and vehicle wash rack by proposing preliminary sampling.

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received
10/13/01

However, the strategy should also address the existing aircraft decontamination pads and probable excavation/pits identified in aerial photographs from 1970 and 1973. These issues should be addressed by providing justification for recommending no further action or a description of proposed sampling.

2. To verify that a release did not occur from the existing impoundments, DTSC recommends that soil borings be located within the impoundments. DTSC recommends that two samples be collected from each location, one sample at a depth near the bottom of the impoundment and one sample five feet below the bottom of the impoundment. Additional samples may be required at deeper depth if contamination is discovered.

3. Soil gas samples should be collected from the same depths as the soil matrix samples to evaluate possible correlations between the results.

4. Please provide a reference for the collection of soil gas samples, including the appropriate test method and detection limits. The report should contain a narrative pertaining to the laboratory analyses that includes a description of sampling techniques, decontamination procedures, analytical methods and laboratory procedures, laboratory data quality, and data validation results.

APHO 38 and the adjacent Nuclear, Biological and Chemical Training Defense (NBCD) buildings were recommended for further investigation, including a radiological survey, in the *Final Historical Radiological Assessment* (Roy F. Weston, Inc., May 2000). Based on subsequent conversations with the DON, DTSC contacted the Department of Health Services (DHS) for recommendations regarding radiological analyses of soil samples. The following recommendations are based on information provided by DHS:

1. Prior to performing radiological analyses of soil samples, it is recommended that every effort be made to determine if there is a history of radioactive material use in the area which may have resulted in radiological contamination at depth.

2. If history indicates that radiological contamination may be present at depth, every effort should be made to obtain detailed historical information that might specify isotopes used at the area of concern. Then, contamination at depth will need to be monitored by sample collection.

3. If it is determined that radiological analyses of soil samples is needed, a detailed work plan, including data quality objectives, sampling and analysis plan, etc. should be drafted, reviewed by stakeholders and revised as necessary. The resulting work plan could be used for similar future sampling events.

If you have any questions, please contact me at (714) 484-5395.

Sincerely,

Triss M. Chesney

Triss M. Chesney, P.E.
Remedial Project Manager
Southern California Branch
Office of Military Facilities

cc: Mr. Glenn Kistner
Remedial Project Manager
U. S. Environmental Protection Agency Region IX
Superfund Division (SFD-8-2)
75 Hawthorne Street
San Francisco, California 94105-3901

Mr. John Broderick
Remedial Project Manager
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3339

Mr. Gregory F. Hurley
Restoration Advisory Board Co-chair
620 Newport Center Drive, Suite 450
Newport Beach, California 92660-8019

Ms. Polin Modanlou
MCAS El Toro Local Redevelopment Authority
10 Civic Center Plaza, 2nd Floor
Santa Ana, California 92703

Mr. Steven Sharp
Orange County Health Care Agency
2009 East Edinger Avenue
Santa Ana, California 92705

cc: Ms. Deirdre Dement
Department of Health Services
Environmental Management Branch
Mail Stop 396
P.O. Box 94732
Sacramento, California 94234-7320

Ms. Lynn Hornecker
Remedial Project Manager
Naval Facilities Engineering Command
Southwest Division - Code 06CC.LH
1220 Pacific Highway
San Diego, California 92132-5187

Attachment D
IT Standard Operating Procedures 10.1

SOIL ORGANIC VAPOR SAMPLING

STANDARD OPERATING PROCEDURE

1.0 Purpose

This Standard Operating Procedure (SOP) establishes guidelines for collecting soil organic vapor (SOV) samples and documenting the collection process. The details within this SOP should also be used in conjunction with project work plans.

2.0 References

2.1 Schuring, D G., 1989, Soil Gas Testing: A Possible Alternative to Conventional Monitoring Methods, Hazmat World - Feature Report: Water Issues.

2.2 Nadeau, R.J., T.S. Stone, and G.S. Klinger, March 1985, Sampling Soil Vapors to Detect Subsurface Contamination: A Technique and Case Study

2.3 Marrin, D L., and H.B. Kerfoot, 1988, Soil Gas Surveying Techniques, Environmental Science and Technology, Vol. 22, No. 7, pp. 740-745.

2.4 SOP 2.1 - Sample Handling, Packaging, and Shipping

2.5 SOP 6 1 - Sampling Equipment and Well Material Decontamination

2.6 SOP 13 1 - Indoor Air Quality Sampling

2.7 SQP 4.2 - Records Management

3.0 Definitions

3.1 None.

4.0 Procedure

4.1 Responsibilities

Compliance with this procedure is the responsibility of project management and field sampling personnel.

4.1.1 The Delivery Order Manager is responsible for ensuring that SOV samples are properly collected and the sampling event is properly documented This will be accomplished by staff training and by maintaining quality assurance/quality control (QA/QC).

4.1.2 The Contractor Quality Control Manager (CQCM) is responsible for periodic review of field generated documentation associated with SOV sampling. If perceived variances occur, the CQCM is also responsible for issuing notices of nonconformances and requests for corrective action.

4.2 Sample Collection

A number of devices are available for the collection of SOV samples. The analytical requirements, the sample depth, the material through which the sample probes are to be driven, and whether the sampling points are to be temporarily or permanently installed must be taken into account when determining the proper SOV sampling equipment to use. The project work plans will identify, as applicable:

- SOV sampling objectives
- Depths and locations of sampling points
- Sampling equipment to be used
- Numbers and volumes of samples to be collected
- Types of chemical analyses to be conducted for the samples
- Specific quality control (QC) sampling and procedures required
- Drilling or installation requirements (for permanent points), as required
- Specific procedures to be performed in addition to those covered in this SOP

The project work plans and this SOP should therefore be reviewed and understood before conducting SOV sampling at the site.

The standard procedure for field personnel to use in the collection of SOV samples is described below.

4.2.1 Prior to drilling or driving SOV sampling points, ensure that the sample locations have been appropriately cleared all underground per the project work plans. Review all forms and diagrams documenting the location of the cleared SOV points, as well as that of any underground utility lines or other obstructions.

4.2.2 Inspect all SOV sampling equipment to ensure that it is in good working order

4.2.3 Refer to the project work plans to determine the appropriate instrument(s) needed to screen the borehole for volatile organic compounds (VOCs). Calibrate all field analytical and health and safety monitoring equipment according to the instrument manufacturer's specifications. Calibration results will be documented on the appropriate form(s), as specified by the project work plans. Instruments that can not be calibrated according to the manufacturer's specifications will be removed from service and tagged.

4.2.4 Don the appropriate personal protective equipment as specified in the project-specific work plans

4.2.5 The sampling points should be surveyed or mapped and clearly marked prior to sampling The sample should be collected at the marked location. If the collection point must be moved, the new location must be approved by the Project Superintendent.

4.2.6 Clear the area to be sampled of surface debris and vegetation using appropriate equipment as specified in the project work plans. Sampling equipment should not be used for this purpose.

4.2.7 Prior to sampling and between sampling locations, decontaminate the sampling equipment according to the procedures outlined in SOP 6.1. Record the decontamination activities on the Field Activity Daily Log (FADL), Attachment 6.1, and/or the appropriate form(s) as specified by the project work plans.

Note: Some projects may require the collection of QC samples after decontamination of the sampling equipment. This sampling must be conducted as required by the project work plans.

4.2 8 Drive the sample probe to the appropriate depth (either hydraulically, electrically, or manually), as specified in the project work plan.

4 2 9 If probe refusal is encountered, document the time and depth of refusal on the FADL and report the refusal to the site superintendent, refer to the project work plans to determine the proper course of action.

4.2.10 Once the probe has been driven to the target depth, connect the sampling port on the probe to a low volume pump with a piece of dedicated Teflon™ tubing. Using the low volume pump, purge a measured volume of air from the probe (as specified in the project work plans).

4 2.11 Collect the sample by drawing a measured aliquot of air through the probe and into the designated sample container (as specified in the project work plans). Typical sample containers include Tedlar™ and Mylar® bags, glass bulbs, syringes, adsorption tubes, and SUMMA® canisters. (Refer to SOP 13 1 for guidelines on use of SUMMA® canisters.) Sample containers may be reused if they are decontaminated and analyzed for contaminants prior to use per the project work plans

4 2 12 Seal the sample container and handle the sample according to the procedures outlined in SOP 2.1.

4.2 13 Label the sample appropriately (date and time sample was collected, sample location, sample team members and signatures, etc.). For SUMMA® canisters, do not apply adhesive label to canister; use the tag provided. Document the sampling event on the Sample Collection Log (Attachment 6.2).

4.2.14 Handle the sample according to the procedures outlined in SOP 2 1, Sample Handling, Packaging, and Shipping. For samples submitted to a laboratory for analysis, an Analysis Request and

Chain-of-Custody Record (Attachment 6.3) shall be completed and maintained per the SOP and project work plans.

4.2.15 Remove the sample probe (if temporary) and abandon the hole in the manner specified in the project work plans. For permanent sampling installations, cap and secure the sample point as required in the project work plans.

5.0 Records

Records generated as a result of this SOP will be controlled and maintained in the project record files in accordance with SQP 4.2.

6.0 Attachments

6.1 Field Activity Daily Log
6.2 Sample Collection Log
6.3 Chain-of-Custody Record

ATTACHMENT 6.1

FIELD ACTIVITY DAILY LOG

ATTACHMENT 6.1

FIELD ACTIVITY DAILY LOG

INTERNATIONAL TECHNOLOGY CORPORATION

DAILY LOG
DATE:
NO.
SHEET OF

FIELD ACTIVITY DAILY LOG

PROJECT NAME	PROJECT NO.
FIELD ACTIVITY SUBJECT:	
DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:	
VISITORS ON SITE	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS
WEATHER CONDITIONS:	IMPORTANT TELEPHONE CALLS:
IT PERSONNEL ON SITE	
SIGNATURE	DATE:

ATTACHMENT 6.2

SAMPLE COLLECTION LOG

ATTACHMENT 6.2

SAMPLE COLLECTION LOG

SAMPLE COLLECTION LOG

INTERNATIONAL TECHNOLOGY CORPORATION

DATE	
TIME	
PAGE	OF
PAGE	
PROJECT NO.	

PROJECT NAME _____

SAMPLE NO. _____

SAMPLE LOCATION _____

SAMPLE TYPE _____

COMPOSITE _____ YES _____ NO

COMPOSITE TYPE _____

DEPTH OF SAMPLE _____

WEATHER _____

CONTAINERS USED	AMOUNT COLLECTED

COMMENTS:

PREPARED BY: _____

ATTACHMENT 6.3

CHAIN-OF-CUSTODY RECORD

SOP NO. 10.1
REVISION NO. 0
DATE: 03/16/95

ATTACHMENT 6.3

CHAIN-OF-CUSTODY RECORD

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

Reference Document No.
Page 1 of ____

Project Name/No. 1 _____
Sample Team Members 2 _____
Profit Center No. 3 _____
Project Manager 4 _____
Purchase Order No. 5 _____
Required Report Date 11 _____

Samples Shipment Date 7 _____
Lab Destination 8 _____
Lab Contact 9 _____
Project Contact/Phone 12 _____
Carrier/Waybill No. 13 _____

Bill to: 5 _____
Report to: 10 _____

ONE CONTAINER PER LINE

Sample 14 Number	Sample 15 Description/Type	Date/Time 16 Collected	Container 17 Type	Sample 18 Volume	Pre-servation 19	Requested Testing 20 Program	Condition on 21 Receipt	Disposal 22 Record No.
							FOR LAB USE ONLY	
							FOR LAB USE ONLY	

Special Instructions: 23

Possible Hazard Identification: 24
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

Sample Disposal: 25
Return to Client ☐ Disposal by Lab ☐ Archive _____ (mos.)

Turnaround Time Required: 26
Normal ☐ Rush ☐

QC Level: 27
I ☐ II ☐ III ☐ Project Specific (specify) _____

1. Relinquished by 28 (Signature/Affiliation)	Date: Time:	1. Received by 28 (Signature/Affiliation)	Date: Time:
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: 29

Write To accompany samples
Yellow Field copy
*See back of form for special instructions

Appendix D
Geophysical Survey, 2003 and Photographs

SPECTRUM GEOPHYSICS

1220 Destree Rd.
Escondido, CA 92027
760-738-8561
www.spectrum-geophysics.com

Los Angeles-Irvine-San Diego

Results of Subsurface Investigation

Marine Corp Air Station, El Toro
Biochemical Weapons Training Center
Irvine, California

Prepared for: **Shaw Environmental**
Irvine, California

Dates of Investigation: **February 18, 2003**
May 20, 2003

Prepared by:

Jim Ploser
Project Manager
Spectrum Geophysics
1220 Destree Road
Escondido, CA 92027

REGISTERED GEOPHYSICIST
LAURA L. CATHCART-DOOR
No 1017
Exp 12/03
STATE OF CALIFORNIA

Warranty:

Spectrum Geophysics was retained to conduct a subsurface investigation of the above facility to characterize the shallow subsurface. Our findings are subject to certain limitations due to site conditions and the instruments employed. We conducted this investigation in a manner consistent with our profession using similar methods. No other warranty as to the performance or deliverables is expressed or implied.

Contents

Introduction
Methods
Results and Conclusions

Appendix A Field maps for 22 Proposed Ground Intrusion Sites (PGIS) investigated on February 18, 2003

Results of Subsurface Investigation
Marine Corp Air Station, El Toro
Biochemical Weapons Training Center
Irvine, California

Introduction

On February 18 and May 20, 2003 Spectrum Geophysics conducted a subsurface investigation on a portion of Marine Corp Air Station, El Toro in Irvine, California. The purpose was to investigate 29 proposed ground intrusion sites (PGIS) for detectable subsurface utilities.

Methods

The equipment used in this investigation consisted of a Fisher TW-6 shallow-focus terrain conductivity meter, Dynatel 500A cable locator, Radiodetection RD400 utility locator, and a GSSI SIR-3 ground penetrating radar (GPR) unit coupled to a 500-MHz antenna

GPR and EM utility-locating methods were used on each PGIS to delineate the surface trace of detectable conduits and to identify buried objects having no surface expression. The following paragraphs discuss the methods used.

1.) The PGIS were investigated for detectable subsurface utilities or other buried features. Utilities that were exposed above ground in the vicinity of the area were directly connected to, traced out, and mapped on a site map.

2.) The PGIS were investigated using a shallow-focus terrain conductivity meter to detect buried metallic utilities that were not exposed above ground.

3.) The PGIS were investigated with a passive electromagnetic receiver tuned to 50/60 Hz, radio, and audio frequencies to detect buried utilities that might reradiate an electromagnetic field.

4.) GPR data from 58 traverses were collected. GPR data were produced in the form of vertical cross sections and interpreted in the field for anomalies whose signatures might indicate the presence of subsurface conduits or other features of interest.

Results and Conclusions

Field maps with geophysical interpretation are presented in Appendix A. The penetration depth of the GPR signal was approximately 1-2 feet in the areas investigated. As a consequence, some subsurface utilities may not have been detected due to the shallow penetration of the GPR. Because of this limitation, Spectrum cannot guarantee that all nonmetallic conduits, such as sewers and pvc water lines, have been identified within the areas of investigation.

Twenty-nine PGIS were investigated for the presence of detectable subsurface utilities. The PGIS were marked on the ground with white spray-painted circles and wooden stakes or survey whiskers.

The surface trace of detected utilities near each PGIS was marked on the ground with spray paint.

roposed Ground Intrusion Site (PGIS) Maps

SPECTRUM GEOPHYSICS
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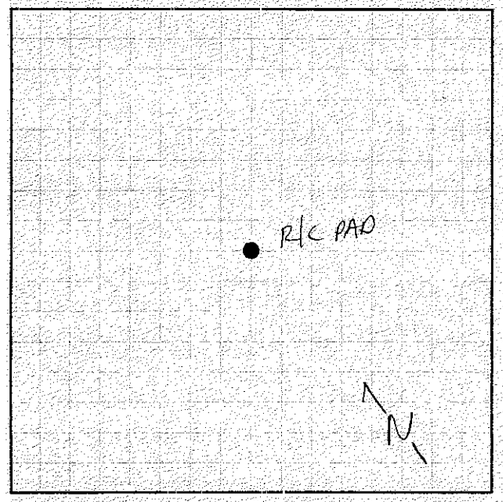
ject No. 0302181F
Staff JIM-JACOB
Weather
Date 2-18-03
Site Name MCAS EL TORO
Client SHAW

te No. SB-6 Scale 1" = 10'



truments: DYNATEL 500A, FISHER TW-6
I-SCOPE, GPR W/500 MHz ANTENNA, RD 400
omments:

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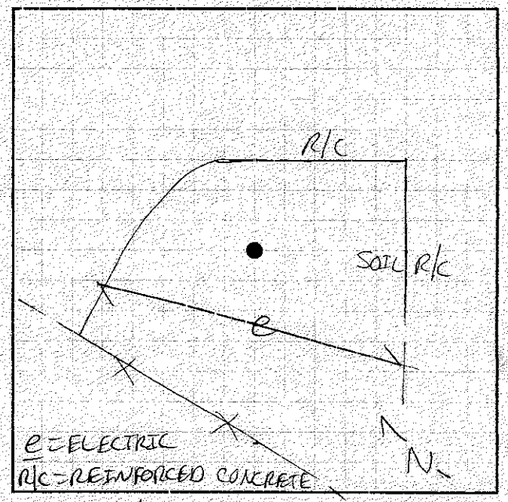

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Comments:

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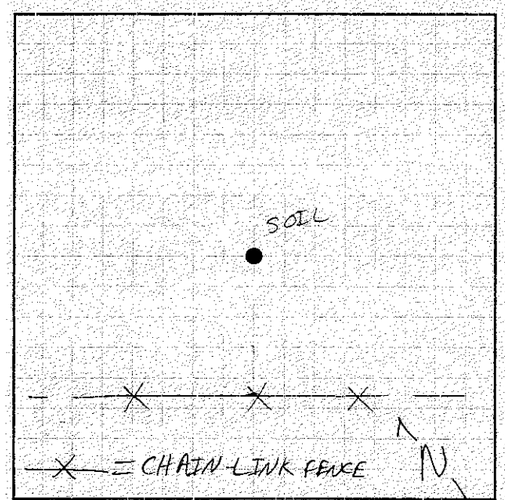

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omments:

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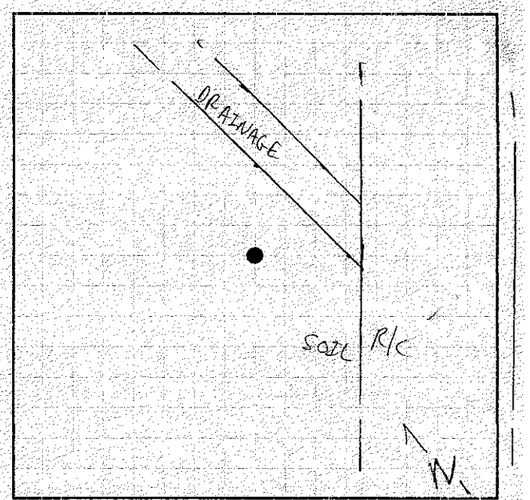

Instruments:

Comments:

Proposed Ground Intrusion Site (PGIS) Maps

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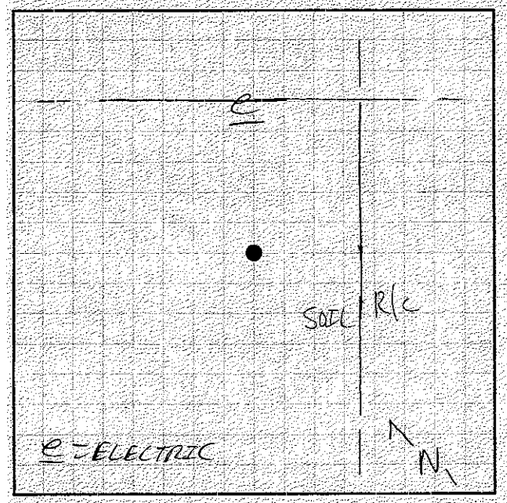
Project No. 0302181F
Date 2-18-03
Staff JIG - JACOB
Site Name MCAS EL TORO
Weather
Client SHAW

N

Site No. SG-2 Scale 1" = 10'



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Comments:

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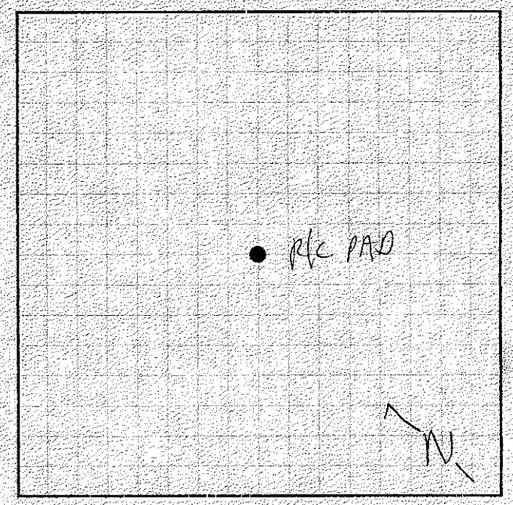

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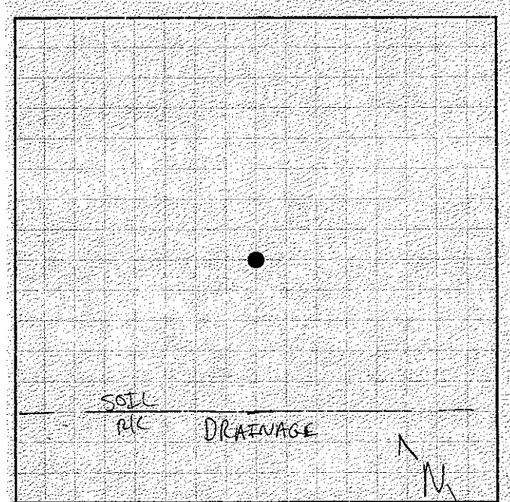

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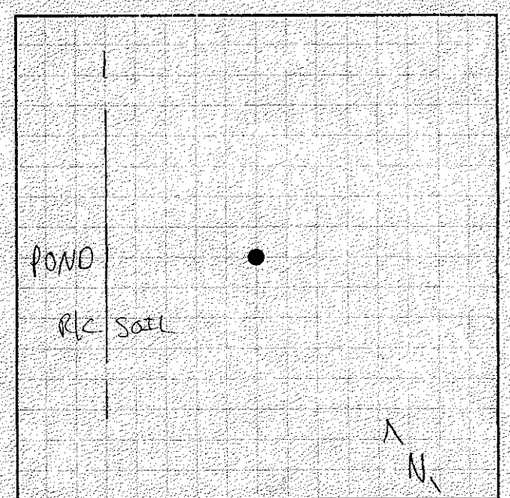

Instruments:

Comments:

'roposed Ground Intrusion Site (PGIS) Maps

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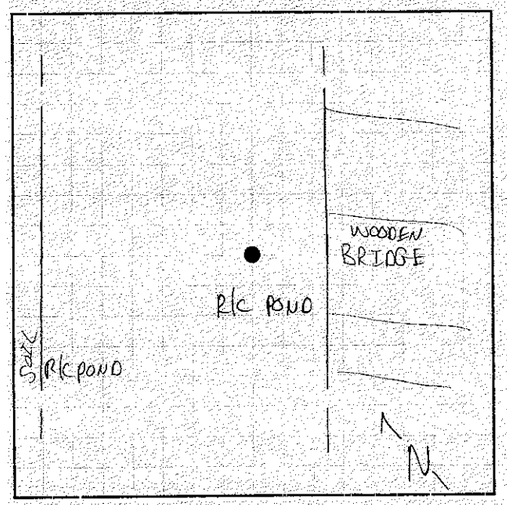
ject No. 0302181F
Staff JIM-JACOB
Weather
Date 2-18-03
Site Name MCAS EL TORO
Client SHAW

N

te No. SB-3 Scale 1"=10'



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omments:

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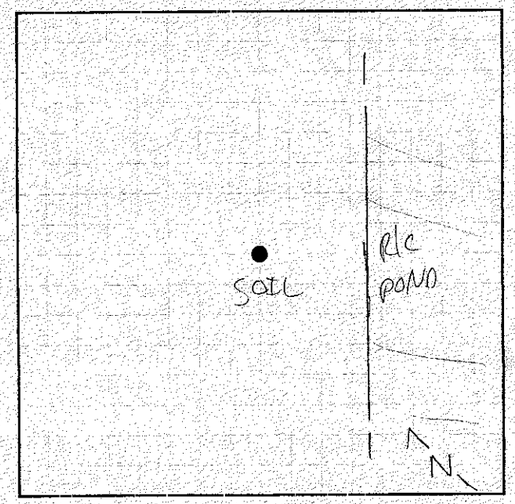

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Comments:

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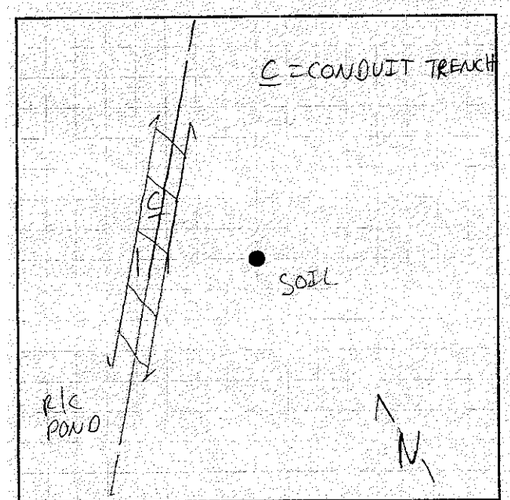

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omments:

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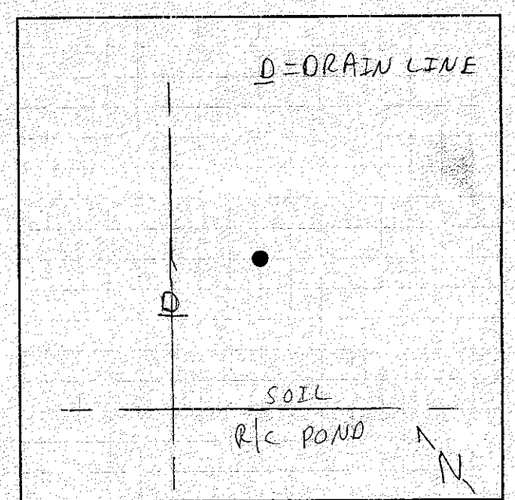

Instruments:

Comments:

Proposed Ground Intrusion Site (PGIS) Maps

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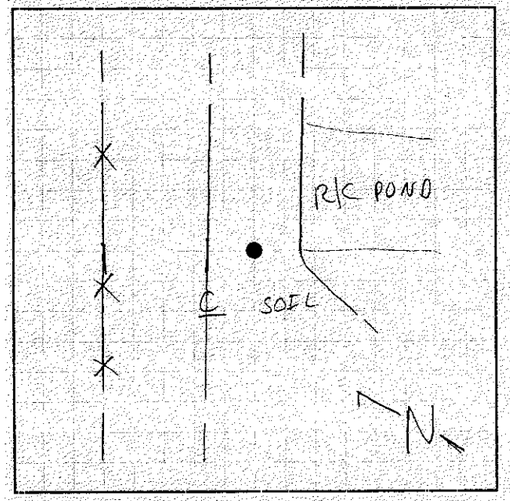
Date 2-18-03
Staff JIM-JACOB
Site Name MCAS EL TORO
Weather
Client SHAW

Site No SG-12 Scale 1"=10'



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—X— = CHAIN-LINK FENCE

Comments:

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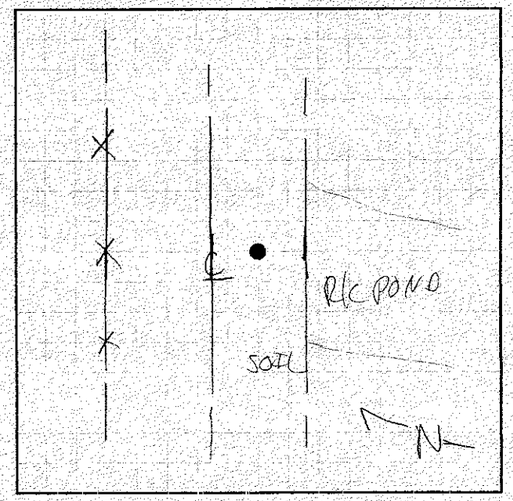

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Comments:

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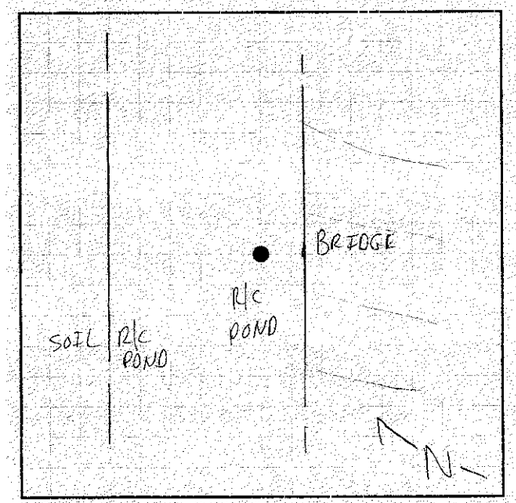

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Comments:

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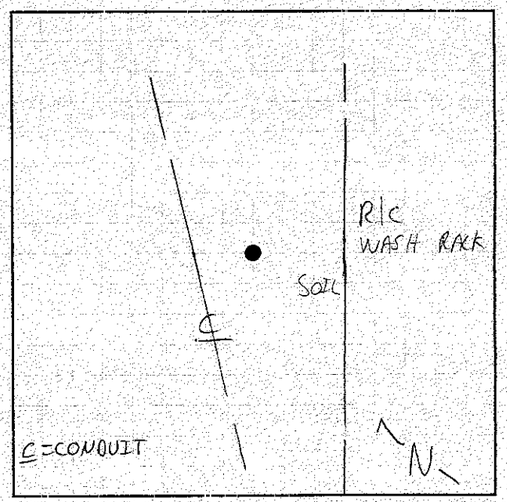

Instruments:

Comments:

Proposed Ground Intrusion Site (PGIS) Maps

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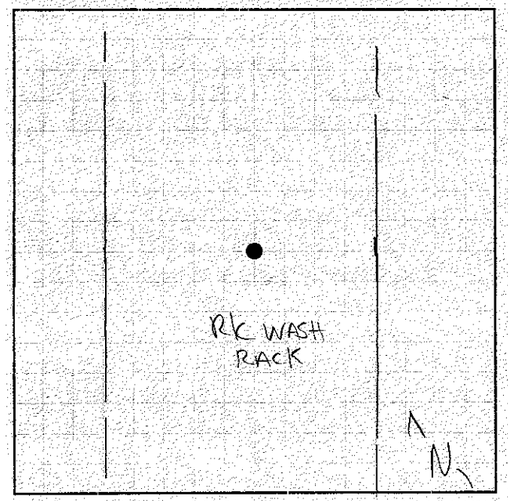
Project No. 0302181F
Date 2-18-03
Staff JIM-JACOB
Site Name MCAS EL TORO
Weather
Client SHAW

Site No. SB-1 Scale 1"=10'



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Comments:

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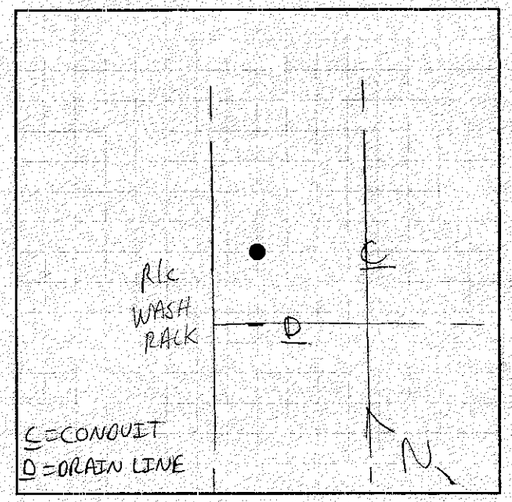

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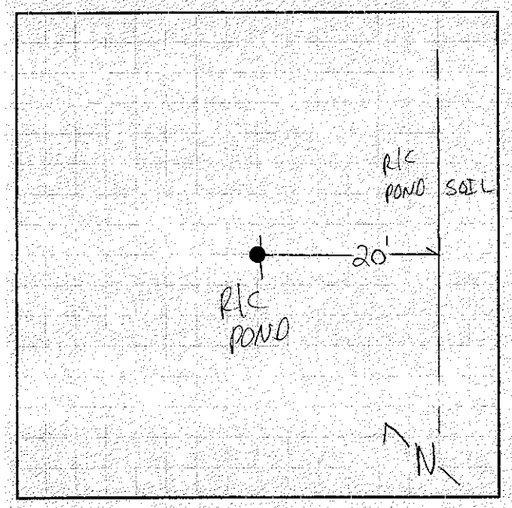

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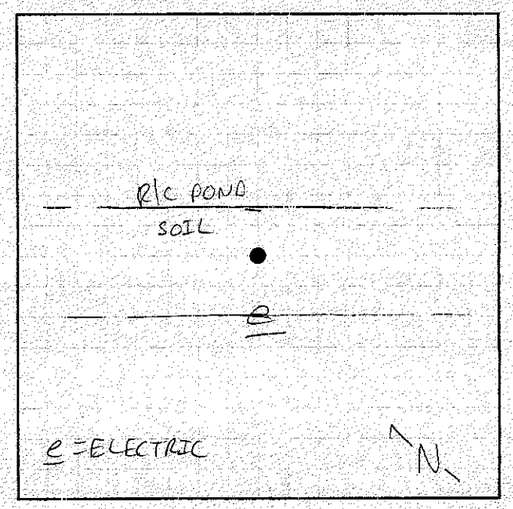

Instruments:

Comments:

Proposed Ground Intrusion Site (PGIS) Maps

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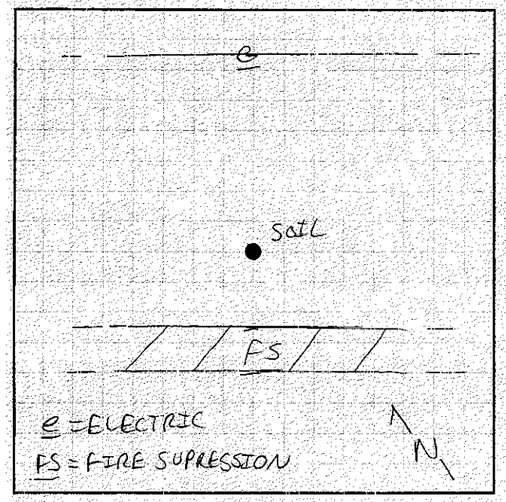
Staff JIM-JACOB
Weather
Date 2-18-03
Site Name MCAS EL TORO
Client SHAW

N

Site No SG-16 Scale 1"=10'



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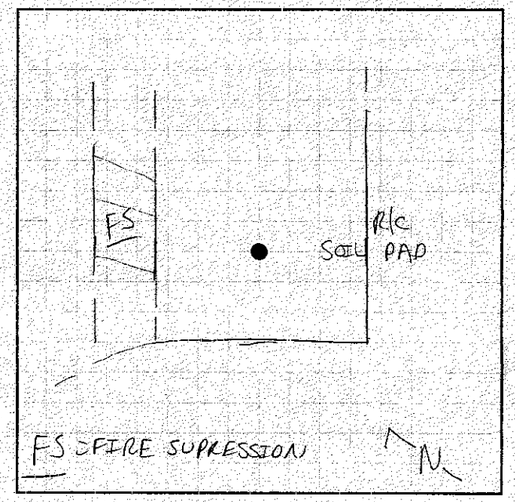

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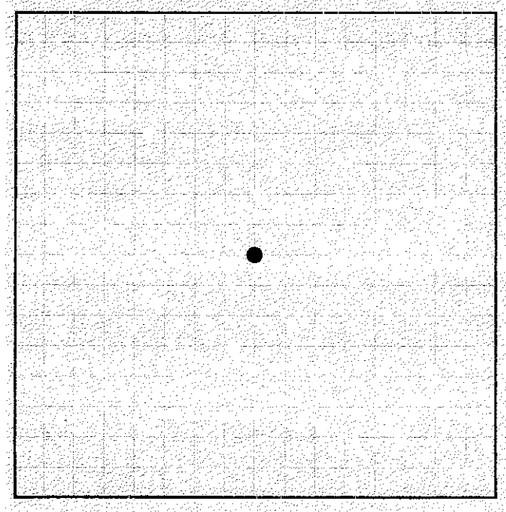
Comments:

Site No Scale



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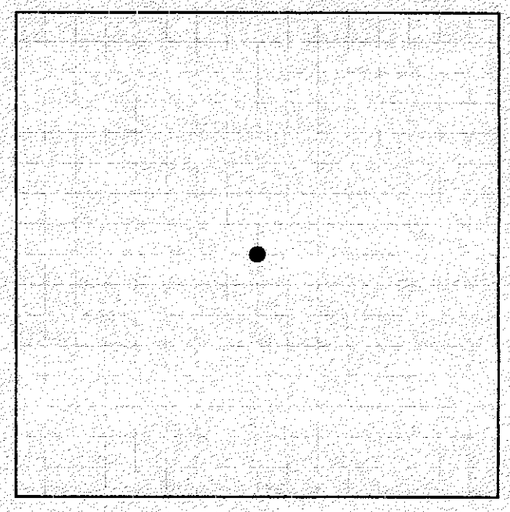

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Comments:

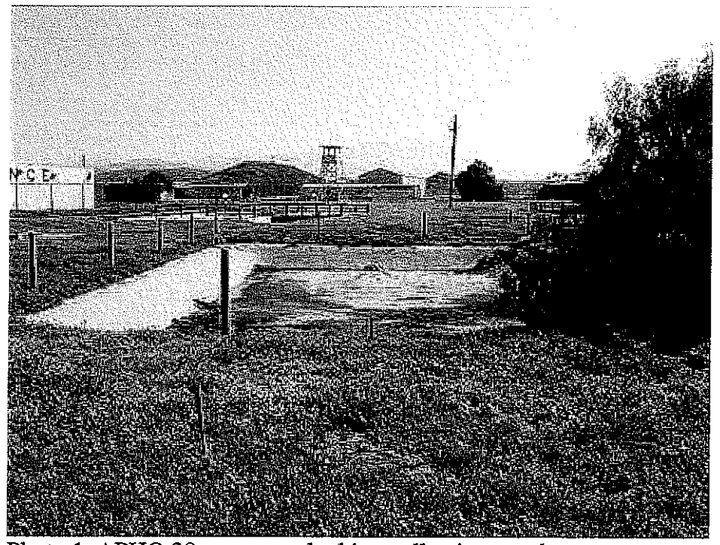

Photo 1, APHO 38 area, over looking collection pond.
Two stakes in the foreground delineate OWS 832 before excavation of the manhole covers.

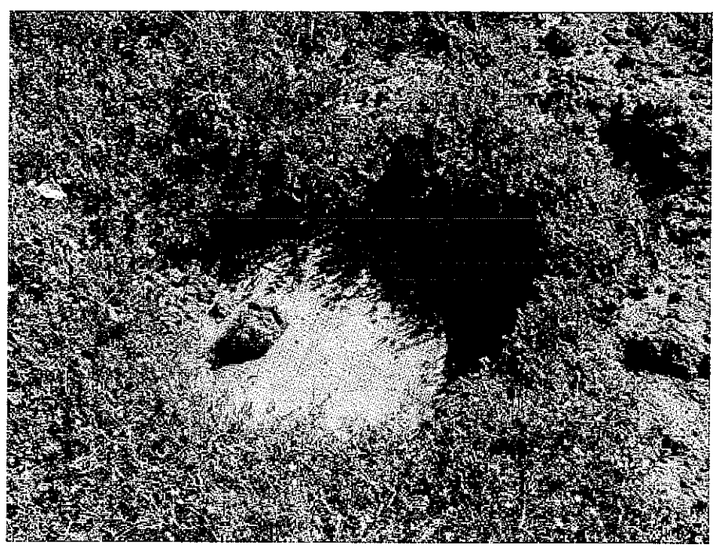

Photo 2, Oil-water separator, APHO 38 area. Excavated manhole cover.

Photo 3, Water in oil-water separator, APHO 38 area. View inside OWS 832.

Appendix E
Revised Sample Strategy, Addendum 1

IT CORPORATION
A Member of The IT Group

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TO: Administrative Contract Officer
Southwest Division
Naval Facilities Engineering Command
Michelle Crook, 02R1.MC
1230 Columbia St., Suite 870
San Diego, CA 92101-5817

Date : April 08, 2003

CTO : 0024

Location: MCAS El Toro

FROM:
Dhananjay Rawal
Project Manager

DESCRIPTION OF ENCLOSURE : ***Draft Sampling and Analysis Plan - Addendum I, Soil and Soil Vapor Sampling for APHO 38, dated March 14, 2003.***

TYPE : CTO Deliverable

VERSION : Draft **REVISION No :** 0

ADMIN RECORD : No

SCHEDULED DELIVERY DATE April 08, 2003 **ACTUAL DELIVERY DATE** April 08, 2003

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4005 Port Chicago Highway
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Soil and Soil Vapor Sampling For APHO 38
Marine Corps Air Station El Toro
Santa Ana, California

Contract No. N62474-98-D-2076 - Contract Task Order 0024
DCN 5625, Revision 0 - March 14, 2003

Draft Sampling and Analysis Plan - Addendum I

DRAFT SAMPLING AND ANALYSIS PLAN - ADDENDUM I

SOIL AND SOIL VAPOR SAMPLING FOR APHO 38
MARINE CORPS AIR STATION EL TORO
SANTA ANA, CALIFORNIA

Environmental Remedial Action
Contract Number N62474-98-D-2076
Contract Task Order 0024

Document Control Number 5625
Revision 0

March 14, 2003

Prepared for:

U. S. Department of the Navy
Southwest Division
Naval Facilities Engineering Command
Environmental Division
1220 Pacific Highway
San Diego, California 92132-5190

Prepared by:

IT Corporation
4005 Port Chicago Highway
Concord, California 94520

DRAFT SAMPLING AND ANALYSIS PLAN - ADDENDUM I

SOIL AND SOIL VAPOR SAMPLING FOR APHO 38
FORMER MARINE CORPS AIR STATION EL TORO
SANTA ANA, CALIFORNIA

Environmental Remedial Action
Contract Number N62474-98-D-2076
Contract Task Order 0024

Document Control Number 5625
Revision 0

March 14, 2003

Prepared by: Way-Lynn Jefferson — Date: 4/3/03
Way-Lynn Jefferson
IT Project Chemist

Reviewed by: [signature] — Date: 4/4/03
Dwayne Ishida
IT FAS Manager

Approved by: [signature] — Date: 4/7/03
Nars Ancog
US Navy Quality Assurance Officer

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Figure 1 Proposed Soil and Soil Vapor Sample Locations, APHO 38

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Table 1 Sample Location and Justification

Abbreviations and Acronyms

APHO	Aerial Photograph Anomaly Site
BCT	BRAC Closure Team
BNI	Bechtel National, Inc.
BRAC	Base Realignment and Closure Team
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CA LUFT	California Leaking Underground Fuel Tank
CTO	Contract Task Order
DQO	data quality objectives
DTSC	(Cal-EPA) Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
FSP	field sampling plan
GC	gas chromatography
GC/MS	gas chromatograph/mass spectrometer
IT	IT Corporation
JP	jet propellant
MCAS	Marine Corp Air Station
MTBE	methyl tert-butyl ether
NFESC	Naval Facilities Engineering Service Center
OHM	OHM Remediation Services Corp.
QA	quality assurance
PRG	preliminary remediation goal
RAC	Remedial Action Contract
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RWQCB	California Regional Water Quality Control Board
SAIC	Science Applications International Corporation
SAP	sampling and analysis plan
SWDIV	Southwest Division Naval Facilities Engineering Command
TAA	Temporary Accumulation Area
TPH	total petroleum hydrocarbons
VLEACH	Vadose zone Leaching modeling
VOA	volatile organic analysis
VOC	volatile organic compound

1.0 Introduction

This Addendum documents changes to the *Final Sampling and Analysis Plan (SAP), Closure for Various Temporary Accumulation Areas, RCRA Facility Assessment Sites, and Aerial Photograph Anomaly Sites, Marine Corps Air Station El Toro, Santa Ana, California,* dated March 4, 2003, Document Control No. 5498 that will be implemented for the investigation of aerial photograph anomaly site 38 (APHO 38). Only the sections with updated information regarding APHO 38 will be documented in this Addendum. The section numbers in the addendum corresponds to the section numbers in the SAP. The purpose of this Addendum is to provide background information, a site map and sample locations for APHO 38. Sections 4 through 10 of the SAP will not be changed.

1.1 Site History and Background

Former Marine Corps Air Station (MCAS) El Toro (Station) is located in southern California approximately 45 miles southeast of Los Angeles in Orange County approximately 1 mile north of the intersection of Interstates 5 and 405 and covers approximately 4,700 acres.

1.1.2 APHO Sites

APHO 38 was identified by Science Applications International Cooperation (SAIC) as anomaly SAIC No. 252 on an aerial photograph taken in 1973. Bechtel National Incorporated (BNI) described the anomaly in the Final Addendum to the RFA report, as a probable excavation adjacent to Building 1789, which is located in the area where motor vehicles used in nuclear, biological, and chemical warfare training were decontaminated. Nuclear, biological, and chemical agents were not used in this training. It is suspected that the excavation observed in the 1973 photograph may have been an unlined pit used to collect wash-water. The pit later was converted to the lined pond located near Building 1789.

At present, the following features occupy or are adjacent to the APHO 38 area:

- Two aircraft decontamination pads
- Several concrete lined drainage "v" ditches draining the pads
- Two bridged ponds
- A driveway with a grated and drainage wash area
- A trough to run vehicles through water
- A collection pond for the decontamination pads and other features.

The water from the collection pond drains into the sanitary sewer system.

SAIC also identified a possible excavation on the north side of Building 1789. The report appeared to indicate that the location of the lined ponds to the north of Bldg. 1789 was coincident with the apparent excavation (Figure 1). After reviewing the SAIC report, IT/OHM conducted a geophysical survey of the area north of Building 1789 to locate any potential buried materials indicating the presence of the apparent excavation. The geophysical survey did not detect any indication of buried pits.

2.0 Data Quality Objectives

2.1 Stating the Problem

Step 1. Identify the planning team members, including decision-makers, describe the problem, develop a conceptual model of the environmental hazard to be investigated, and determine resources such as budget, personnel, and schedule.

2.1.3 Site APHO 38

Petroleum hydrocarbons may have been entrained in the wash-water produced at the facility and may have impacted the soil and groundwater at Site APHO 38. It is believed that the petroleum hydrocarbon may have seeped through ponds and trough, particularly through the cracks and the formerly unlined pit to the groundwater and soil.

The planning team consists of representatives of the U.S. Navy and IT Corporation (IT), the prime contractor for the Navy Remedial Action Contract (RAC), with the participation of the Base Realignment and Closure (BRAC) Cleanup Team (BCT), which includes the U.S. Environmental Protection Agency (EPA); Department of Toxic Substances Control (DTSC); and the California Regional Water Quality Control Board (RWQCB), Santa Ana Region. The U.S. Navy is the decision-maker. The work will be conducted according to the Navy-approved budget and schedule.

2.2 Identifying the Decisions

Step 2. Identify the principal study question; define alternative decisions; develop a decision statement; and organize multiple decisions.

The principal study questions at Site APHO 38 are:

- Was the soil impacted by chemicals of potential concern as a result of previous operations?
- Do the contaminants in the impacted soil pose a risk to human health and the groundwater?
- Are these sites suitable for closure?

2.3 Identifying Inputs to the Decisions

Step 3. Identify the information needed; determine sources for this information; determine the basis for determining the action level; and identify sampling and analysis methods that can meet the data requirements.

The following factors will be considered in the decision-making process for Site APHO 38:

- Aerial photographs
- Site history
- Field observations and field measurements
- Analytical results.

2.4 Defining the Boundaries

Step 4. Define the target population of interest; specify the spatial boundaries that clarify what the data must represent; determine the time frame for collecting data and making decisions; and determine the practical constraints on collecting data.

2.4.3 Site APHO 38

The target population of interest is the concentration of petroleum hydrocarbons and volatile organic compounds (VOCs). Site APHO 38 is located near Building 1789 of the former MCAS El Toro. The spatial boundaries, where the samples will be collected, are shown in Figure 1 and are based upon SAIC reports, previous BNI investigation reports, and any nearby site investigation data that IT may have.

2.5 Developing a Decision Rule

Step 5. Specify an appropriate population parameter (mean, median, percentile); confirm that the action level exceeds measurement detection limits; and develop a decision rule (if . . . then statements).

2.5.2 Site APHO 38

- If the soil analysis results show that a chemical of potential concern impacted the soil, then more samples may be needed in order to characterize the site.
- If chemicals of concern did not impact the soil, then closure will be requested.
- If the soil at APHO 38 exceeds cleanup goals (Background, PRGs 2002, and Interim Site Assessment and Cleanup Guidebook), then excavation of the contaminated area or other remedial action will be considered.
- If the soil at APHO 38 does not pose a risk to human health or the environment based on cleanup goals, then closure will be requested.
- If, through modeling such as VLEACH, the project team determines that the impacted soil at the site poses a risk to groundwater, then further study and/or remediation will be recommended.
- If, through modeling such as VLEACH, it is determined that the impacted soil at the site poses no risk to groundwater, then closure will be requested.

The project-required reporting limits specified in Table 2-1 through 2-6 of the SAP.

2.6 Specifying Limits on Decision Error

Step 6. Determine the range of the parameter of interest, choose the null hypothesis, examine the consequences of making an incorrect decision, specify a range of values where the consequences are minor (gray region), and assign probability values to points above and below the action level that reflect tolerable probability for potential decision errors.

Statistically derived error limits cannot be established for this work. The sampling protocol focuses on the most likely areas of contamination and the most likely chemical of potential concerns. Sampling will be based on the judgment of field personnel. Samples will be collected from predetermined locations (at specific depth intervals based on site requirements, in the specified borings). For Site APHO 38, the analytical results will be used to determine if contaminates impacted soil and if contamination will impact groundwater.

2.7 Optimizing the Design for Obtaining Data

Step 7. Review the DQO outputs, develop data collection design alternatives, formulate mathematical expressions for each design, select sample size that satisfies the DQOs, decide on the most resource-effective design or agreed alternative, and document details in the SAP.

2.7.3 Site APHO 38

Sample locations will be selected based on nearby site data, SAIC reports, BNI reports, nearby site data and site inspections by IT along with the Navy and DTSC. The initial sampling will be conducted at the point of maximum potential for loss, which is located at the bottom of the pits where the greatest hydraulic head would have existed when the pits were full, and adjacent to cracks in the concrete liner. Additionally, a sample of the sediment in the final drainage collection pond will be collected to evaluate the possible presence of residual petroleum hydrocarbons.

The planned soil vapor and soil sample investigation will evaluate the areas surrounding the ponds, drainage channels, trough, and sanitary sewer. Accessible locations have been selected in down slope side of the open "v" ditches, near the sides of the ponds, and near observed cracks in the concrete ponds and trough. At selected locations, both soil samples and soil vapor samples will be collected at the same depth intervals and analyzed to provide a comparison of the results and aid in the data evaluation. Sample depths collected from the margins of the lined ponds are planned to match the sample depths of the samples collected below the bottom of the ponds. The

proposed locations, sample types, and sample depths are listed in Table 1 and the locations are indicated in Figure 1.

3.2 APHO Sites

Soil and soil vapor sample locations will be determined based on SAIC reports, BNI Reports, nearby site data, and site inspections. The soil samples will be collected in multiple depths at the locations indicated in Figure 1. Soil samples will be collected using a direct push drilling method at each of the four lined ponds and the two aircraft washracks according to the procedures in Section 4.4 of the SAP. Soil samples will be collected at 1 foot and 5 feet below the bottom of each pond and at 1 foot, 5 feet, and 10 feet below the bottom of the aircraft wash racks. A combined soil gas and soil sample investigation will also be implemented around the ponds, washracks, and troughs (Figure 1 and Table 1).

The soil vapor investigation will be implemented at the locations indicated on Figure 1. The soil vapor sampling procedures are described in Section 4.2 of the SAP. If petroleum hydrocarbons are detected, then additional samples may be requested to better delineate the extent of contamination.

An IT subcontractor will supply the sampling rig, conduct soil gas sampling and onsite laboratory. Approximately 33 soil vapor sample sets, including QA duplicates, will be collected at 15 locations within the facility at 5 feet and 10 feet depths (Figure 1 and Table 1). These depth intervals are approximately equal to the total depth of the ponds (5 feet) and 5 feet below the bottom of the ponds. Approximately three sample locations will be sampled along the sanitary sewer at a depth approximately 15 feet below the surface and approximately 2 feet below the bottom of the sewer line. If contaminants are detected in the deep sample either at the facility or along the sewer line, and it is practicable, then the soil vapor sampling may be extended as much as 10-feet deeper (25-feet total depth).

Each soil vapor sample will be analyzed on site with a field GC/MS using EPA modified method 8260B for TPH, BTEX, and MTBE. Approximately 10 percent of all the soil vapor samples, especially samples with detected petroleum hydrocarbons, will be sent to a fixed laboratory for TPH analysis using a GC Method (TO-3) and for VOCs analysis using a GC/MS Method (TO-15).

3.4 Analytical Requirements

The following analytical methods will be used for the analysis of soil collected in support of this project:

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

- TPH-purgeable (gasoline) by California leaking underground fuel tank (CA LUFT) Method 8015M
- TPH-extractable (diesel and JP5) by CA LUFT Method 8015M
- VOCs by EPA Method 8260B
- SVOCs with selected ion monitoring (SIM) by EPA Method 8270C
- Metals by EPA Method 6010B/7000A series.

The following analytical methods will be used for the analysis of soil vapor collected in support of this project:

U.S. Environmental Protection Agency Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition, 1999

- EPA TO-3
- EPA TO-15.

3.5 Cleanup Goals

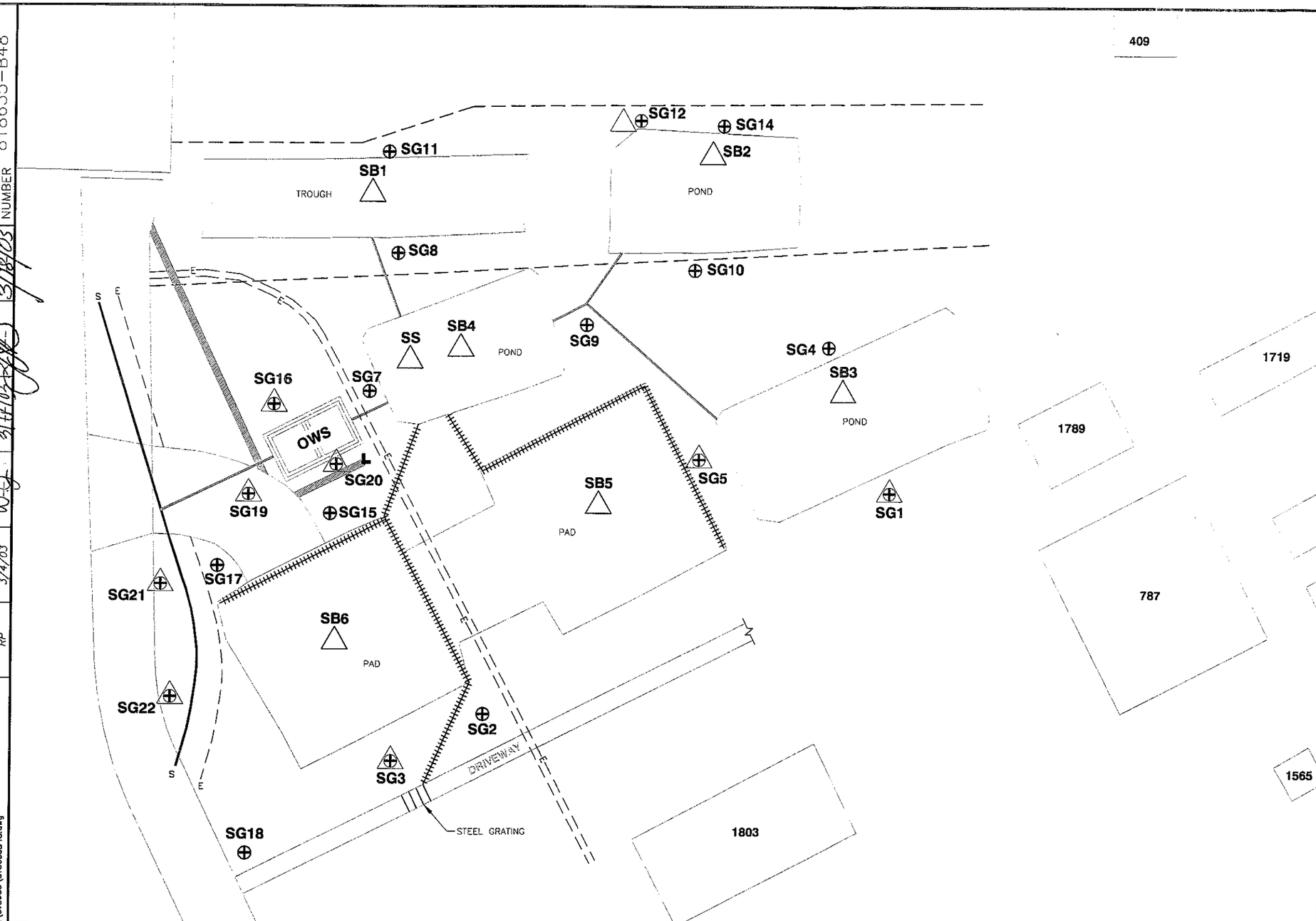
Cleanup goals for soil at Site APHO 38 will be based on:

- EPA Region IX preliminary remediation goals (PRGs) for residential use for organic contaminants (EPA, 2002) (Tables 2-2, 2-3, and 2-4 in the SAP)
- Interim Site Assessment and Cleanup Guidebook for total petroleum hydrocarbons (TPH)-purgeable (RWQCB, 1996) (Table 2-1 in the SAP)
- Interim Site Assessment and Cleanup Guidebook for TPH-extractable (RWQCB, 1996) (Table 2-1 in the SAP)
- Modeling software such as VLEACH to determine if there will be impact to groundwater
- Background concentrations (BNI, 1996b) or EPA Region IX PRG values, whichever is greater, for residential land use for metal contaminants (Table 2-5 in the SAP).

4.0 Reference

U.S. Environmental Protection Agency, 1999, *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, EPA/625/R-96/010b, Office of Research and Development, Cincinnati, OH, Second Edition,* January.

FIGURES



Sample Location	Sample Matrix	Sample Depth	Comments
SB-1	Soil Soil	1-foot 5-feet	Sample at crack crossing trough
SB-2	Soil Soil	1-foot 5-feet	Sample at crack crossing north edge of the pond
SB-3	Soil Soil	1-foot 5-feet	Sample in pond bottom
SB-4	Soil Soil	1-foot 5-feet	Sample in pond bottom, possible additional sample of sediment in pond
SB-5	Soil Soil Soil	1-foot 5-feet 10-feet	Sample as appropriate in pad
SB-6	Soil Soil Soil	1-foot 5-feet 10-feet	Sample as appropriate in pad
SG-1	Soil and vapor Soil and vapor	5-feet 10-feet	Investigates pond liner
SG-2	vapor vapor	5-feet 10-feet	Investigates v ditch
SG-3	Soil and vapor Soil and vapor	5-feet 10-feet	Investigates small wash rack
SG-4	vapor vapor	5-feet 10-feet	Investigates pond liner
SG-5	Soil and vapor Soil and vapor	5-feet 10-feet	Investigates pond liner and v ditch
SG-7	vapor vapor	5-feet 10-feet	Investigates pond liner
SG-8	vapor vapor	5-feet 10-feet	Investigate crack in trough
SG-9	vapor vapor	5-feet 10-feet	Investigates pond liner
SG-10	vapor vapor	5-feet 10-feet	Investigates pond liner
SG-11	vapor vapor	5-feet 10-feet	Investigate crack in trough
SG-12	Soil and vapor Soil and vapor	5-feet 10-feet	investigate crack in pond
SG-14	vapor vapor	5-feet 10-feet	Investigates pond liner
SG-15	vapor vapor	5-feet 10-feet	Investigate v ditch and pad
SG-16	Soil and vapor Soil and vapor	5-feet 10-feet	Investigate clarifier
SG-17	vapor vapor	5-feet 10-feet	Investigate large sewer line
SG-18	vapor vapor	5-feet 10-feet	Investigate large sewer line
SG-19	Soil and vapor Soil and vapor	10-feet 15-feet	Investigate OWS
SG-20	Soil and vapor Soil and vapor	10-feet 15-feet	Investigate OWS
SG-21	Soil and vapor Soil and vapor	10-feet 20-feet	Investigate Sewer Line
SG-22	Soil and vapor Soil and vapor	10-feet 20-feet	Investigate Sewer Line
SS	Soil	grab	This sample would be taken at the same pond as sample SB-4

EXPLANATION:

- SG3 — PLANNED SOIL VAPOR SAMPLING LOCATION
- SG5 — PLANNED SOIL VAPOR AND SOIL SAMPLING LOCATION
- SB5 — PLANNED SOIL SAMPLING LOCATION
- CONCRETE LINED DRAINAGE CHANNEL
- OIL WATER SEPARATOR (OWS)
- ELECTRICAL
- SEWER
- TELEPHONE
- PVC DRAIN
- WATER/FIRE
- FIRE HYDRANT

TRUE NORTH
STATION NORTH
N
39°50'49"

SCALE
0 40 80 FEET

IT CORPORATION

EFA WEST
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CONTRACT NO. N62474-98-D2076

FIGURE 1
PROPOSED SOIL AND SOIL VAPOR SAMPLE LOCATIONS
APHO 38
MARINE CORPS AIR STATION
EL TORO, CALIFORNIA

DRAWING NUMBER 818655-B48
APPROVED BY 3/18/03
CHECKED BY 3/14/03
DRAWN BY RP 3/4/03

Mar 18, 2003 - 08:05:01 I:\IT CORP\EFA_West\818655\818655B48.dwg

TABLES

Table 1
Sample Location and Justification

Sample Location	Sample Matrix	Sample Depth	Comments
SB-1	Soil	1-foot	Sample at crack crossing trough
	Soil	5-feet	
SB-2	Soil	1-foot	
	Soil	5-feet	Sample at crack crossing north edge of the pond
SB-3	Soil	1-foot	Sample in pond bottom
	Soil	5-feet	
SB-4	Soil	1-foot	Sample in pond bottom, possible additional sample of sediment in pond
	Soil	5-feet	
SB-5	Soil	1-foot	
	Soil	5-feet	Sample as appropriate in pad
	Soil	10-feet	
SB-6	Soil	1-foot	
	Soil	5-feet	Sample as appropriate in pad
	Soil	10-feet	
SG-1	Soil and vapor	5-feet	Investigates pond liner
	Soil and vapor	10-feet	
SG-2	Vapor	5-feet	Investigates v ditch
	Vapor	10-feet	
SG-3	Soil and vapor	5-feet	Investigates small wash rack
	Soil and vapor	10-feet	
SG-4	Vapor	5-feet	Investigates pond liner
	Vapor	10-feet	
SG-5	Soil and vapor	5-feet	Investigates pond liner and
	Soil and vapor	10-feet	v ditch
SG-7	Vapor	5-feet	Investigates pond liner
	Vapor	10-feet	
SG-8	Vapor	5-feet	Investigate crack in trough
	Vapor	10-feet	
SG-9	Vapor	5-feet	Investigates pond liner
	Vapor	10-feet	
SG-10	Vapor	5-feet	Investigates pond liner
	Vapor	10-feet	
SG-11	Vapor	5-feet	Investigate crack in trough
	Vapor	10-feet	
SG-12	Soil and vapor	5-feet	investigate crack in pond
	Soil and vapor	10-feet	
SG-14	Vapor	5-feet	Investigates pond liner
	Vapor	10-feet	
SG-15	Vapor	5-feet	Investigate v ditch and pad
	Vapor	10-feet	
SG-16	Soil and vapor	5-feet	Investigate large sewer line
	Soil and vapor	10-feet	
SG-17	Vapor	5-feet	Investigate large sewer line
	Vapor	10-feet	
SG-18	Vapor	5-feet	Investigate large sewer line
	Vapor	10-feet	
SS	Soil	grab	This sample would be taken at the same pond as sample SB-4

Appendix F
OWS Analytical Report and Waste Manifest

the IT group

IT Corporation
2790 Mosside Blvd.
Monroeville, PA 15146-2792
(412)372-7701

CHAIN-OF-CUSTODY RECORD

PROJECT DATA MANAGER'S COPY

A 12696

FORM 0019 REV. 9-99

APCL

IT'S LAB COORDINATOR	LAB COORDINATOR'S PHONE	LAB COORDINATOR'S FAX	LABORATORY SERVICE ID	LABORATORY CONTACT	MAIL REPORT (COMPANY NAME)
LYNN JEFFERSON	949-660-7537	949-475-5433	03-2531	Hon Yi Lee	Shaw E&I

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER	LABORATORY PHONE	LABORATORY FAX	RECIPIENT NAME
~~949-540-1278~~	~~949-540-1498~~ MCAS El Toro		949-540-1428	949-540-1498	Jacqueline Kaila

PROJECT CONTACT	PROJECT PHONE NUMBER	PROJECT FAX	LABORATORY ADDRESS	ADDRESS
LYNN JEFFERSON	949-660-7537	949-475-5433	13760 Magnolia Ave.	3347 Michelson #200

PROJECT ADDRESS	CITY, STATE AND ZIP CODE	CLIENT	CITY, STATE AND ZIP CODE	CITY, STATE AND ZIP CODE
MCAS El Toro	San Ana, CA	EPA West	Chino, CA 91710	Irvine CA 92612

PROJECT MANAGER	PROJECT MANAGER'S PHONE	PROJECT MANAGER'S FAX
Dhananjay Karnik	949-660-7576	949-474-5309

Item	Sample Identifier	Matrix	Date	Time	Preserved	# of Cont.	QC Level	T.A.T.	VOC - 8260	TPH-GRO	TPH - Diesel	Metals - 6010	Filt. Pb	Pb	Comments
1	818655-3261	W	4/3	0430	4°C	8	3	5 day	X	X	X	X	X	X	
2	818655-3262	W	4/3	0440	4°C	8	3	5 day	X	X	X	X	X	X	
3	818655-3263	W	4/3	1500	HCl	2	3	5 DAY	X						Cancelled 4/3/03
4															
5															
6							PK	04/08/03							
7															
8															
9															
10															

SAMPLES COLLECTED BY: M Reyes

COURIER AND AIR BILL NUMBER: APCL CARRIER

COOLER TEMPERATURE UPON RECEIPT:

RELINQUISHED BY	RECEIVED BY	DATE	TIME	SAMPLE'S CONDITION UPON RECEIPT
[illegible] 1500	[illegible]	4/3/03	1510	

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

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

Sample Point Location	Sample Type G	C	F	QC
(1) AOC 38 - Sump1	X		8	
(2) AOC 38 - Sump2	X		8	
(3) TRIP BLANK	/		8	8

Comments

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

Applied P & Ch Laboratory
13760 Magnolia Ave Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

Case Narrative

Project: MCAS El Toro/818655

For Shaw E & I

APCL Service No: 03-2531

1. Sample Identification

The sample identifications are listed in the following table:

Shaw E & I Sample ID	APCL Sample ID
818655-3261	03-02531-1
818655-3262	03-02531-2

2. Analytical Methodology

Samples are analyzed by EPA methods

SW8260B (Volatile organics)
M8015V/M8015G (Gasoline)
M8015E/M8015D (TPH: Diesel)
6010B/7470A (TTLC 17 Metals)
9045B (pH)
1010 (Ignitability (Flashpoint))

3. Holding Time

All samples were extracted digested and analyzed within the holding times defined by the appropriate EPA methods of the analyses

4. Preservation

All samples were preserved and stored according to the appropriate EPA methods

5. Tele-log

One e-mail requesting to cancel analysis on the sample 818655-3263

6. Anomaly

I certify that these data are technically accurate complete and in compliance with the terms and conditions of the contract for other than the conditions detailed above Release of the data contained in the hardcopy data package and its electronic data deliverable submitted on diskette had been authorized by the Laboratory Manager or her/his designee as verified by the following signature

Respectfully submitted,

Regina Kirakozova
Associate QA/QC Director
Applied P & Ch Laboratory

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	Shaw E & I	Project No:	818655	Collection Date:	04/03/2003
Project ID:	MCAS El Toro	Service ID:	032531	Collected by:	
		Lab Sample ID:	03-2531-1	Received Date:	04/03/2003
Sample ID:	**818655-3261**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Field Sample	Prep Method:	3510	Instrument ID:	GC: W
Anal Method:	M8015E	Prep Date:	04/04/03	Anal Date:	04/07/03
Batch No:	03G1927	Prep No:	1 of 1	Anal. Time:	11:31
Data File Name:	2531 101	Sample Amount:	1040 mL	Dilution Factor:	0 96
Extract Vol	1 0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH AS DIESEL	68334-30-5	mg/L	0.48	0.2 [b]	J

Surrogates			Control Limit, %	Surro Rec %
1	N-OCTACOSANE	630-02-4	26-152	78
# of out-of-control				0

[b] Unknown mixture in Diesel range

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e g for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	Shaw E & I	Project No:	818655	Collection Date:	04/03/2003
Project ID:	MCAS El Toro	Service ID:	032531	Collected by:	
		Lab Sample ID:	03-2531-2	Received Date:	04/03/2003
Sample ID:	**818655-3262**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep Method:	3510	Instrument ID:	GC: W
Anal Method:	M8015E	Prep Date:	04/04/03	Anal Date:	04/07/03
Batch No:	03G1927	Prep No:	1 of 1	Anal Time:	11:56
Data File Name:	2531 102	Sample Amount:	1040 mL	Dilution Factor:	0 96
Extract Vol.	1 0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	IPH AS DIESEL	68334-30-5	mg/L	0 48	0 4 [b]	J

Surrogates			Control Limit, %	Surro Rec %
1	N-OCTACOSANE	630-02-4	26-152	96
# of out-of-control				0

[b] Unknown mixture in Diesel range

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e g for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015E

Client Name:	Shaw E & I	Project No:	818655	Collection Date:	04/04/2003
Project ID:	MCAS El Toro	Service ID:	032531	Collected by:	
		Lab Sample ID:	03G1927-MB-01	Received Date:	04/04/2003
Sample ID:	**03G1927-MB-01**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Method Blank	Prep Method:	3510	Instrument ID:	GC: W
Anal Method:	M8015E	Prep Date:	04/04/03	Anal Date:	04/04/03
Batch No:	03G1927	Prep No:	1 of 1	Anal Time:	19:56
Data File Name:	1927G K01	Sample Amount:	1000 mL	Dilution Factor:	1
Extract Vol	1 0 mL				

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	TPH AS DIESEL	68334-30-5	mg/L	0 5	<0 5	U

Surrogates			Control Limit, %	Surro Rec %
1	N-OCTACOSANE	630-02-4	26-152	90
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

FORM-3C

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method M8015E

Client Name:	Shaw E & I	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	032531
Project ID:	MCAS El Toro	Project No:	818655	Sample Matrix:	Water
		Batch No:	03G1927		
LCS Filename:	1927G L01	Date Analyzed:	040403	Time Analyzed:	20:22
LCSD Filename:	1927G J01	Date Analyzed:	040403	Time Analyzed:	20:47

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
TPH AS DIESEL	mg/L	1	0	0 924	92	61-143
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
TPH AS DIESEL	mg/L	1	0 930	93	1	30	61-143
# of Out-of-control				0	0		

Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits D – Spiked components diluted out

Comments: _____

FORM-3C

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method M8015E

Client Name:	Shaw E & I	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	032531
Project ID:	MCAS El Toro	Project No:	818655	Sample Matrix:	Water
		Batch No:	03G1927		
MS Filename:	1927G M01	Date Analyzed:	040403	Time Analyzed:	21:12
MSD Filename:	1927G N01	Date Analyzed:	040403	Time Analyzed:	21:37
MS Sample No:	**32312GW042**	Sample Lab ID:	03-2521-5		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
TPH AS DIESEL	mg/L	0 962	1 7	2 24	56 *	61-143
# of Out-of-control					1	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
TPH AS DIESEL	mg/L	0 962	2.19	51 *	9	30	61-143
# of Out-of-control				1	0		

Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits D – Spiked components diluted out

Comments: _____

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015V

Client Name:	Shaw E & I	Project No:	818655	Collection Date:	04/03/2003
Project ID:	MCAS El Toro	Service ID:	032531	Collected by:	
		Lab Sample ID:	03-2531-1	Received Date:	04/03/2003
Sample ID:	**818655-3261**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep Method:	5030	Instrument ID:	GC: B
Anal. Method:	M8015V	Prep Date:	04/04/03	Anal Date:	04/04/03
Batch No:	03G1933	Prep No:	–	Anal Time:	17:26
Data File Name:	2531 001	Sample Amount:	5 0 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0 1	0 01	J

Surrogates		Control Limit, %	Surro Rec %
1	4-BROMO-FLUOROBENZENE (FID) 460-00-4	74-138	102
# of out-of-control			0

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e g for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method M8015V

Client Name:	Shaw E & I	Project No:	818655	Collection Date:	04/03/2003
Project ID:	MCAS El Toro	Service ID:	032531	Collected by:	
		Lab Sample ID:	03-2531-2	Received Date:	04/03/2003
Sample ID:	**818655-3262**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep Method:	5030	Instrument ID:	GC: B
Anal. Method:	M8015V	Prep Date:	04/04/03	Anal. Date:	04/04/03
Batch No:	03G1933	Prep No:	–	Anal Time:	17:52
Data File Name:	2531 002	Sample Amount:	5.0 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N) Y	

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.1	0.02	J

Surrogates		Control Limit, %	Surro Rec %
1	4-BROMO-FLUOROBENZENE (FID) 460-00-4	74-138	103
# of out-of-control			0

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

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Organic Analysis Results for Method M8015V

Client Name:	Shaw E & I	Project No:	818655	Collection Date:	04/04/2003
Project ID:	MCAS El Toro	Service ID:	032531	Collected by:	
		Lab Sample ID:	03G1933-MB-01	Received Date:	04/04/2003
Sample ID:	**03G1933-MB-01**	Sample Matrix	Water	Moisture %:	-
Sample Type:	Method Blank	Prep Method:	5030	Instrument ID:	GC: B
Anal Method:	M8015V	Prep Date:	04/04/03	Anal Date:	04/04/03
Batch No:	03G1933	Prep No:	-	Anal Time:	15:15
Data File Name:	1933G.K01	Sample Amount:	5 0 mL	Dilution Factor:	1
Methanol Vol	-				
Test Level:	Low	Sparge Size:	5 mL	Heated Purge: (Y/N)	Y

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	GASOLINE	8006-61-9	mg/L	0.1	0.006	J

Surrogates		Control Limit, %	Surro Rec.%
1	4-BROMO-FLUOROBENZENE (FID) 460-00-4	74-138	91
# of out-of-control			0

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

FORM-3A

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method M8015V

Client Name:	Shaw E & I	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	032531
Project ID:	MCAS El Toro	Project No:	818655	Sample Matrix:	Water
		Batch No:	03G1933		
LCS Filename:	1933G I01	Date Analyzed:	040403	Time Analyzed:	13:30
LCSD Filename:	1933G J01	Date Analyzed:	040403	Time Analyzed:	13:56

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
GASOLINE	mg/L	1	0	1 02	102	67-136
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
GASOLINE	mg/L	1	1 06	106	4	30	67-136
# of Out-of-control				0	0		

Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits D – Spiked components diluted out

Comments: _____

FORM-3A

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method M8015V

Client Name:	Shaw E & I	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	032531
Project ID:	MCAS El Toro	Project No:	818655	Sample Matrix:	Water
		Batch No:	03G1933		
MS Filename:	1933G M01	Date Analyzed:	040503	Time Analyzed:	01:43
MSD Filename:	1933G N01	Date Analyzed:	040503	Time Analyzed:	02:10
MS Sample No:	**32312GW042**	Sample Lab ID:	03-2521-5		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
GASOLINE	mg/L	1	0 05	1 21	116	67-136
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
GASOLINE	mg/L	1	1 24	119	3	30	67-136
# of Out-of-control				0	0		

Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits D – Spiked components diluted out

Comments: _____

Applied P & Ch Laboratory

Organic Analysis Results for Method SW8260B

Client Name:	Shaw E & I	Project No:	818655	Collection Date:	04/03/2003
Project ID:	MCAS El Toro	Service ID:	032531	Collected by:	
		Lab Sample ID:	03-2531-1	Received Date:	04/03/2003
Sample ID:	**818655-3261**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep Method:	5030	Instrument ID:	GC/MS: Q
Anal. Method:	SW8260B	Prep Date:	04/07/03	Anal. Date:	04/07/03
Batch No:	03G1944	Prep No:	–	Anal. Time:	21:58
Data File Name:	2531-01	Sample Amount:	25 mL	Dilution Factor:	1
Methanol Vol.	–				
Test Level:	Low	Sparge Size:	25 mL	Heated Purge: (Y/N)	N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	50	<50	U
2	BENZENE	71-43-2	µg/L	5	<5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	METHYL ETHYL KETONE (MEK)	78-93-3	µg/L	50	<50	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYLVINYLETHER	110-75-8	µg/L	50	<50	U
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	5	<5	U
19	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	5	<5	U
20	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
21	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
22	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
23	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
24	2-HEXANONE	591-78-6	µg/L	50	<50	U
25	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
26	METHYLISOBUTYL KETONE (MIBK)	108-10-1	µg/L	50	3	J
27	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	10	<10	U
28	STYRENE	100-42-5	µg/L	5	<5	U
29	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
30	TETRACHLOROETHENE (PCE)	127-18-4	µg/L	5	<5	U
31	TOLUENE	108-88-3	µg/L	5	<5	U
32	1,2,4-TRICHLOROBENZENE	120-82-1	µg/L	10	<10	U
33	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
34	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
35	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
36	VINYL ACETATE	108-05-4	µg/L	50	<50	U
37	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
38	XYLENES (TOTAL)	1330-20-7	µg/L	5	<5	U

Surrogates			Control Limit, %	Surro Rec.%
1	1-BROMO-4-FLUOROBENZENE (4-BROMOFL	460-00-4	75-125	92
2	DIBROMOFLUOROMETHANE	1868-53-7	75-125	104
3	1 2-DICHLOROETHANE-D4	17060-07-0	62-139	86
4	TOLUENE-D8	2037-26-5	75-125	108
# of out-of-control				0

Internal Standard			Control Limit, %	IS Rec.%
1	CHLOROBENZENE-D5	3114-55-4	50-200	104
2	1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	86
3	FLUOROBENZENE	462-06-6	50-200	96
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

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Organic Analysis Results for Method SW8260B

Client Name:	Shaw E & I	Project No:	818655	Collection Date:	04/03/2003
Project ID:	MCAS El Toro	Service ID:	032531	Collected by:	
		Lab Sample ID:	03-2531-2	Received Date:	04/03/2003
Sample ID:	**818655-3262**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample	Prep. Method:	5030	Instrument ID:	GC/MS: Q
Anal. Method:	SW8260B	Prep. Date:	04/08/03	Anal. Date:	04/08/03
Batch No:	03G1958	Prep. No:	–	Anal. Time:	14:24
Data File Name:	2531-02A	Sample Amount:	25.0 mL	Dilution Factor:	1
Methanol Vol	–				
Test Level:	Low	Sparge Size:	25 mL	Heated Purge: (Y/N) N	

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	50	<50	U
2	BENZENE	71-43-2	µg/L	5	<5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	METHYL ETHYL KETONE (MEK)	78-93-3	µg/L	50	<50	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYLVINYLETHER	110-75-8	µg/L	50	<50	U
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	5	<5	U
19	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	5	<5	U
20	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
21	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
22	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
23	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
24	2-HEXANONE	591-78-6	µg/L	50	<50	U
25	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
26	METHYLISOBUTYL KETONE (MIBK)	108-10-1	µg/L	50	2	J
27	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	10	<10	U
28	STYRENE	100-42-5	µg/L	5	<5	U
29	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
30	TETRACHLOROETHENE (PCE)	127-18-4	µg/L	5	<5	U
31	TOLUENE	108-88-3	µg/L	5	0.4	J
32	1,2,4-TRICHLOROBENZENE	120-82-1	µg/L	10	<10	U
33	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
34	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
35	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
36	VINYL ACETATE	108-05-4	µg/L	50	<50	U
37	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
38	XYLENES (TOTAL)	1330-20-7	µg/L	5	<5	U

Surrogates			Control Limit, %	Surro. Rec.%
1	1-BROMO-4-FLUOROBENZENE (4-BROMOFL	460-00-4	75-125	90
2	DIBROMOFLUOROMETHANE	1868-53-7	75-125	103
3	1,2-DICHLOROETHANE-D4	17060-07-0	62-139	85
4	TOLUENE-D8	2037-26-5	75-125	107
# of out-of-control				0

Internal Standard			Control Limit, %	IS Rec.%
1	CHLOROBENZENE-D5	3114-55-4	50-200	118
2	1,4-DICHLOROBENZENE-D4	3855-82-1	50-200	99
3	FLUOROBENZENE	462-06-6	50-200	106
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

Applied P & Ch Laboratory

Organic Analysis Results for Method SW8260B

Client Name:	Shaw E & I	Project No:	818655	Collection Date:	04/07/2003
Project ID:	MCAS El Toro	Service ID:	032531	Collected by:	
		Lab Sample ID:	03G1944-MB-01	Received Date:	04/07/2003
Sample ID:	**03G1944-MB-01**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Method Blank	Prep Method:	5030	Instrument ID:	GC/MS: Q
Anal Method:	SW8260B	Prep Date:	04/07/03	Anal Date:	04/07/03
Batch No:	03G1944	Prep No:	–	Anal Time:	13:34
Data File Name:	G1944K01	Sample Amount:	25 mL	Dilution Factor:	1
Methanol Vol	–				
Test Level:	Low	Sparge Size:	25 mL	Heated Purge: (Y/N)	N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	50	<50	U
2	BENZENE	71-43-2	µg/L	5	<5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	METHYL ETHYL KETONE (MEK)	78-93-3	µg/L	50	<50	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYLVINYLETHER	110-75-8	µg/L	50	<50	U
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	5	<5	U
19	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	5	<5	U
20	1,2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
21	CIS-1,3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
22	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
23	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
24	2-HEXANONE	591-78-6	µg/L	50	<50	U
25	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
26	METHYLISOBUTYL KETONE (MIBK)	108-10-1	µg/L	50	<50	U
27	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	10	<10	U
28	STYRENE	100-42-5	µg/L	5	<5	U
29	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
30	TETRACHLOROETHENE (PCE)	127-18-4	µg/L	5	<5	U
31	TOLUENE	108-88-3	µg/L	5	<5	U
32	1,2,4-TRICHLOROBENZENE	120-82-1	µg/L	10	<10	U
33	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
34	1,1,2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
35	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
36	VINYL ACETATE	108-05-4	µg/L	50	<50	U
37	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
38	XYLENES (TOTAL)	1330-20-7	µg/L	5	<5	U

Surrogates			Control Limit, %	Surro. Rec %
1	1-BROMO-4-FLUOROBENZENE (4-BROM	460-00-4	75-125	90
2	DIBROMOFLUOROMETHANE	1868-53-7	75-125	103
3	1,2-DICHLOROETHANE-D4	17060-07-0	62-139	89
4	TOLUENE-D8	2037-26-5	75-125	106
# of out-of-control				0

Internal Standard			Control Limit, %	IS Rec.%
1	CHLOROBENZENE-D5	3114-55-4	50-200	106
2	1 4-DICHLOROBENZENE-D4	3855-82-1	50-200	88
3	FLUOROBENZENE	462-06-6	50-200	97
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

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Organic Analysis Results for Method SW8260B

Client Name:	Shaw E & I	Project No:	818655	Collection Date:	04/08/2003
Project ID:	MCAS El Toro	Service ID:	032531	Collected by:	
		Lab Sample ID:	03G1958-MB-01	Received Date:	04/08/2003
Sample ID:	**03G1958-MB-01**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Method Blank	Prep Method:	5030	Instrument ID:	GC/MS: Q
Anal. Method:	SW8260B	Prep. Date:	04/08/03	Anal Date:	04/08/03
Batch No:	03G1958	Prep No:	–	Anal Time:	12:38
Data File Name:	G1958K01	Sample Amount:	25 0 mL	Dilution Factor:	1
Methanol Vol	–				
Test Level:	Low	Sparge Size:	25 mL	Heated Purge: (Y/N)	N

#	Component Name	CAS No	Unit	RL	Result	Qualifier
1	ACETONE	67-64-1	µg/L	50	<50	U
2	BENZENE	71-43-2	µg/L	5	<5	U
3	BROMODICHLOROMETHANE	75-27-4	µg/L	5	<5	U
4	BROMOFORM	75-25-2	µg/L	5	<5	U
5	BROMOMETHANE	74-83-9	µg/L	5	<5	U
6	METHYL ETHYL KETONE (MEK)	78-93-3	µg/L	50	<50	U
7	CARBON DISULFIDE	75-15-0	µg/L	5	<5	U
8	CARBON TETRACHLORIDE	56-23-5	µg/L	5	<5	U
9	CHLOROBENZENE	108-90-7	µg/L	5	<5	U
10	DIBROMOCHLOROMETHANE	124-48-1	µg/L	5	<5	U
11	CHLOROETHANE	75-00-3	µg/L	5	<5	U
12	2-CHLOROETHYLVINYLETHER	110-75-8	µg/L	50	<50	U
13	CHLOROFORM	67-66-3	µg/L	5	<5	U
14	CHLOROMETHANE	74-87-3	µg/L	5	<5	U
15	1,1-DICHLOROETHANE	75-34-3	µg/L	5	<5	U
16	1,2-DICHLOROETHANE	107-06-2	µg/L	5	<5	U
17	1,1-DICHLOROETHENE	75-35-4	µg/L	5	<5	U
18	CIS-1,2-DICHLOROETHENE	156-59-2	µg/L	5	<5	U
19	TRANS-1,2-DICHLOROETHENE	156-60-5	µg/L	5	<5	U
20	1 2-DICHLOROPROPANE	78-87-5	µg/L	5	<5	U
21	CIS-1 3-DICHLOROPROPENE	10061-01-5	µg/L	5	<5	U
22	TRANS-1,3-DICHLOROPROPENE	10061-02-6	µg/L	5	<5	U
23	ETHYLBENZENE	100-41-4	µg/L	5	<5	U
24	2-HEXANONE	591-78-6	µg/L	50	<50	U
25	METHYLENE CHLORIDE	75-09-2	µg/L	5	<5	U
26	METHYLISOBUTYL KETONE (MIBK)	108-10-1	µg/L	50	<50	U
27	METHYL TERT-BUTYL ETHER	1634-04-4	µg/L	10	<10	U
28	STYRENE	100-42-5	µg/L	5	<5	U
29	1,1,2,2-TETRACHLOROETHANE	79-34-5	µg/L	5	<5	U
30	TETRACHLOROETHENE (PCE)	127-18-4	µg/L	5	<5	U
31	TOLUENE	108-88-3	µg/L	5	<5	U
32	1,2,4-TRICHLOROBENZENE	120-82-1	µg/L	10	<10	U
33	1,1,1-TRICHLOROETHANE	71-55-6	µg/L	5	<5	U
34	1,1 2-TRICHLOROETHANE	79-00-5	µg/L	5	<5	U
35	TRICHLOROETHENE (TCE)	79-01-6	µg/L	5	<5	U
36	VINYL ACETATE	108-05-4	µg/L	50	<50	U
37	VINYL CHLORIDE	75-01-4	µg/L	5	<5	U
38	XYLENES (TOTAL)	1330-20-7	µg/L	5	<5	U

Surrogates			Control Limit, %	Surro Rec %
1	1-BROMO-4-FLUOROBENZENE (4-BROM	460-00-4	75-125	94
2	DIBROMOFLUOROMETHANE	1868-53-7	75-125	105
3	1,2-DICHLOROETHANE-D4	17060-07-0	62-139	89
4	TOLUENE-D8	2037-26-5	75-125	107
# of out-of-control				0

Internal Standard			Control Limit, %	IS Rec %
1	CHLOROBENZENE-D5	3114-55-4	50-200	121
2	1 4-DICHLOROBENZENE-D4	3855-82-1	50-200	98
3	FLUOROBENZENE	462-06-6	50-200	110
# of out-of-control				0

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Qualifier: U - Not Detected or less than MDL
J - Less than RL (PQL, EQL or CRDL), but greater than MDL, or an estimated result (e.g. for TIC)
E - Exceed calibration range
B - A positive value was found in the method blank
D - Diluted

FORM-3A

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method SW8260B

Client Name:	Shaw E & I	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	032531
Project ID:	MCAS El Toro	Project No:	818655	Sample Matrix:	Water
		Batch No:	03G1944		
LCS Filename:	G1944L01	Date Analyzed:	040703	Time Analyzed:	11:23
LCSD Filename:	–	Date Analyzed:	–	Time Analyzed:	–

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
BENZENE	µg/L	20	0	20 7	104	75-125
CHLOROBENZENE	µg/L	20	0	22 8	114	75-125
1,1-DICHLOROETHENE	µg/L	20	0	19 7	99	75-125
TOLUENE	µg/L	20	0	22 1	111	74-125
TRICHLOROETHENE (TCE)	µg/L	20	0	21 7	109	71-125
# of Out-of-control					0	

Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits D – Spiked components diluted out

Comments: _____

FORM-3A

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method SW8260B

Client Name:	Shaw E & I	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	032531
Project ID:	MCAS El Toro	Project No:	818655	Sample Matrix:	Water
		Batch No:	03G1944		
MS Filename:	G1944M01	Date Analyzed:	040703	Time Analyzed:	11:49
MSD Filename:	G1944N01	Date Analyzed:	040703	Time Analyzed:	12:15
MS Sample No:	**EFF4APR03**	Sample Lab ID:	03-2555-1		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
BENZENE	µg/L	20	0	21 4	107	75-125
CHLOROBENZENE	µg/L	20	0	23 6	118	75-125
1,1-DICHLOROETHENE	µg/L	20	0	20 9	105	75-125
TOLUENE	µg/L	20	0	23 0	115	74-125
TRICHLOROETHENE (TCE)	µg/L	20	0	22 6	113	71-125
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
BENZENE	µg/L	20	18 8	94	13	20	75-125
CHLOROBENZENE	µg/L	20	20 9	105	12	20	75-125
1,1-DICHLOROETHENE	µg/L	20	18 4	92	13	20	75-125
TOLUENE	µg/L	20	20 3	102	12	20	74-125
TRICHLOROETHENE (TCE)	µg/L	20	19 9	100	12	20	71-125
# of Out-of-control				0	0		

Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits D – Spiked components diluted out

Comments: _____

FORM-3A

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method SW8260B

Client Name:	Shaw E & I	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	032531
Project ID:	MCAS El Toro	Project No:	818655	Sample Matrix:	Water
		Batch No:	03G1958		
LCS Filename:	G1958L01	Date Analyzed:	040803	Time Analyzed:	10:27
LCSD Filename:	-	Date Analyzed:	-	Time Analyzed:	-

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
BENZENE	μg/L	20	0	20.5	103	75-125
CHLOROBENZENE	μg/L	20	0	23.5	118	75-125
1,1-DICHLOROETHENE	μg/L	20	0	19.8	99	75-125
TOLUENE	μg/L	20	0	22.5	113	74-125
TRICHLOROETHENE (TCE)	μg/L	20	0	21.5	108	71-125
# of Out-of-control					0	

Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits D – Spiked components diluted out

Comments: _____

FORM-3A

Applied P & Ch Laboratory

Matrix Spike/Matrix Spike Duplicate Recovery for Method SW8260B

Client Name:	Shaw E & I	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	032531
Project ID:	MCAS El Toro	Project No:	818655	Sample Matrix:	Water
		Batch No:	03G1958		
MS Filename:	G1958M01	Date Analyzed:	040803	Time Analyzed:	10:53
MSD Filename:	G1958N01	Date Analyzed:	040803	Time Analyzed:	11:19
MS Sample No:	**6MW-02-0403**	Sample Lab ID:	03-2564-4		

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration MS	MS Rec% #	QC Limit, % REC
BENZENE	µg/L	20	0	19.6	98	75-125
CHLOROBENZENE	µg/L	20	0	21.6	108	75-125
1,1-DICHLOROETHENE	µg/L	20	0	19.2	96	75-125
TOLUENE	µg/L	20	0	21.1	106	74-125
TRICHLOROETHENE (TCE)	µg/L	20	0	20.4	102	71-125
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	MSD Concentration	MSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
BENZENE	µg/L	20	21.4	107	9	20	75-125
CHLOROBENZENE	µg/L	20	24.5	123	13	20	75-125
1,1-DICHLOROETHENE	µg/L	20	20.9	105	9	20	75-125
TOLUENE	µg/L	20	23.8	119	12	20	74-125
TRICHLOROETHENE (TCE)	µg/L	20	22.2	111	8	20	71-125
# of Out-of-control				0	0		

Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits D – Spiked components diluted out

Comments: _____

Applied P & Ch Laboratory

Metal Analysis Results

Client Name: Shaw E & I
Project ID: MCAS El Toro

Sample ID: **818655-3261**
Sample Type: Field Sample

Project No: 818655
Service ID: 032531
Lab Sample ID: 03-2531-1
Sample Matrix Water

Collection Date: 04/03/2003
Collected by:
Received Date: 04/03/2003
Moisture %: -

Element Name	CAS No	Unit	RL	Result	C	M	Q	Batch	D-Date	A-Date	DF	Method
ANTIMONY	7440-36-0	µg/L	10	<10	U	P		03M1285L	04/04/03	04/04/03	1	6010B
ARSENIC	7440-38-2	µg/L	5	<5	U	P		03M1285L	04/04/03	04/04/03	1	6010B
BARIUM	7440-39-3	µg/L	10	305		P		03M1285L	04/04/03	04/04/03	1	6010B
BERYLLIUM	7440-41-7	µg/L	2	<2	U	P		03M1285L	04/04/03	04/04/03	1	6010B
CADMIUM	7440-43-9	µg/L	2	3 1		P		03M1285L	04/04/03	04/04/03	1	6010B
CHROMIUM	7440-47-3	µg/L	5	11 6		P		03M1285L	04/04/03	04/04/03	1	6010B
COBALT	7440-48-4	µg/L	5	3 4	B	P		03M1285L	04/04/03	04/04/03	1	6010B
COPPER	7440-50-8	µg/L	10	21 7		P		03M1285L	04/04/03	04/04/03	1	6010B
LEAD	7439-92-1	µg/L	5	20 6		P		03M1285L	04/04/03	04/04/03	1	6010B
MERCURY	7439-97-6	µg/L	0 5	0.39	B	CV		03M1286H	04/04/03	04/04/03	1	7470A
MOLYBDENUM	7439-98-7	µg/L	5	1 4	B	P		03M1285L	04/04/03	04/04/03	1	6010B
NICKEL	7440-02-0	µg/L	5	11 4		P		03M1285L	04/04/03	04/04/03	1	6010B
SELENIUM	7782-49-2	µg/L	10	<10	U	P		03M1285L	04/04/03	04/04/03	1	6010B
SILVER	7440-22-4	µg/L	10	1.1	B	P		03M1285L	04/04/03	04/04/03	1	6010B
THALLIUM	7440-28-0	µg/L	10	<10	U	P		03M1285L	04/04/03	04/04/03	1	6010B
VANADIUM	7440-62-2	µg/L	10	14 4		P		03M1285L	04/04/03	04/04/03	1	6010B
ZINC	7440-66-6	µg/L	10	87 5		P		03M1285L	04/04/03	04/04/03	1	6010B

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Note: RL: PQL (EQL) or CRDL D-Date: Digestion Date; A-Date: Analysis Date; DF: Dilution Factor

C Qualifier: U - Not Detected or less than IDL; B - Less than RL (PQL, EQL or CRDL), but greater than IDL

Q Qualifier: N - Spike recovery out of control; * - Duplicate analysis out of control; W - Post digestion spike for GFAA out of control; E - Serial dilution difference out of control

M Qualifier: P - ICP A - FLAA F - GFAA CV - Cold Vapor

Applied P & Ch Laboratory

Metal Analysis Results

Client Name:	Shaw E & I	Project No:	818655	Collection Date:	04/03/2003
Project ID:	MCAS El Toro	Service ID:	032531	Collected by:	
		Lab Sample ID:	03-2531-2	Received Date:	04/03/2003
Sample ID:	**818655-3262**	Sample Matrix	Water	Moisture %:	–
Sample Type:	Field Sample				

Element Name	CAS No	Unit	RL	Result	C	M	Q	Batch	D-Date	A-Date	DF	Method
ANTIMONY	7440-36-0	µg/L	10	6.9	B	P		03M1285L	04/04/03	04/04/03	1	6010B
ARSENIC	7440-38-2	µg/L	5	34.8		P		03M1285L	04/04/03	04/04/03	1	6010B
BARIUM	7440-39-3	µg/L	10	1600		P		03M1285L	04/04/03	04/04/03	1	6010B
BERYLLIUM	7440-41-7	µg/L	2	<2	U	P		03M1285L	04/04/03	04/04/03	1	6010B
CADMIUM	7440-43-9	µg/L	2	285		P		03M1285L	04/04/03	04/04/03	1	6010B
CHROMIUM	7440-47-3	µg/L	5	340		P		03M1285L	04/04/03	04/04/03	1	6010B
COBALT	7440-48-4	µg/L	5	69.0		P		03M1285L	04/04/03	04/04/03	1	6010B
COPPER	7440-50-8	µg/L	10	622		P		03M1285L	04/04/03	04/04/03	1	6010B
LEAD	7439-92-1	µg/L	5	356		P		03M1285L	04/04/03	04/04/03	1	6010B
MERCURY	7439-97-6	µg/L	0.5	0.56		CV		03M1286H	04/04/03	04/04/03	1	7470A
MOLYBDENUM	7439-98-7	µg/L	5	16.2		P		03M1285L	04/04/03	04/04/03	1	6010B
NICKEL	7440-02-0	µg/L	5	222		P		03M1285L	04/04/03	04/04/03	1	6010B
SELENIUM	7782-49-2	µg/L	10	7.6	B	P		03M1285L	04/04/03	04/04/03	1	6010B
SILVER	7440-22-4	µg/L	10	2.7	B	P		03M1285L	04/04/03	04/04/03	1	6010B
THALLIUM	7440-28-0	µg/L	10	<10	U	P		03M1285L	04/04/03	04/04/03	1	6010B
VANADIUM	7440-62-2	µg/L	10	327		P		03M1285L	04/04/03	04/04/03	1	6010B
ZINC	7440-66-6	µg/L	10	4110		P		03M1285L	04/04/03	04/04/03	1	6010B

Not Detected is shown as PQL, with dilution and moisture corrected if applicable

Note: RL: PQL (EQL) or CRDL D-Date: Digestion Date; A-Date: Analysis Date; DF: Dilution Factor

C Qualifier: U - Not Detected or less than IDL; B - Less than RL (PQL, EQL or CRDL), but greater than IDL

Q Qualifier: N - Spike recovery out of control; * - Duplicate analysis out of control

W - Post digestion spike for GFAA out of control; E - Serial dilution difference out of control

M Qualifier: P - ICP A - FLAA F - GFAA CV - Cold Vapor

Applied P & Ch Laboratory

Metal Analysis Results

Client Name: Shaw E & I
Project ID: MCAS El Toro

Project No: 818655
Service ID: 032531
Lab Sample ID: 03M1285-MB-01
Sample Matrix Water

Collection Date: 04/04/2003
Collected by:
Received Date: 04/04/2003
Moisture %: –

Sample ID: **03M1285-MB-01**
Sample Type: Method Blank

Element Name	CAS No	Unit	RL	Result	C	M	Q	Batch	D-Date	A-Date	DF	Method
ANTIMONY	7440-36-0	µg/L	10	<10	U	P		03M1285L	04/04/03	04/04/03	1	6010B
ARSENIC	7440-38-2	µg/L	5	<5	U	P		03M1285L	04/04/03	04/04/03	1	6010B
BARIUM	7440-39-3	µg/L	10	<10	U	P		03M1285L	04/04/03	04/04/03	1	6010B
BERYLLIUM	7440-41-7	µg/L	2	<2	U	P		03M1285L	04/04/03	04/04/03	1	6010B
CADMIUM	7440-43-9	µg/L	2	<2	U	P		03M1285L	04/04/03	04/04/03	1	6010B
CHROMIUM	7440-47-3	µg/L	5	<5	U	P		03M1285L	04/04/03	04/04/03	1	6010B
COBALT	7440-48-4	µg/L	5	<5	U	P		03M1285L	04/04/03	04/04/03	1	6010B
COPPER	7440-50-8	µg/L	10	<10	U	P		03M1285L	04/04/03	04/04/03	1	6010B
LEAD	7439-92-1	µg/L	5	<5	U	P		03M1285L	04/04/03	04/04/03	1	6010B
MERCURY	7439-97-6	µg/L	0.5	0.030	B	CV		03M1286H	04/04/03	04/04/03	1	7470A
MOLYBDENUM	7439-98-7	µg/L	5	0.36	B	P		03M1285L	04/04/03	04/04/03	1	6010B
NICKEL	7440-02-0	µg/L	5	<5	U	P		03M1285L	04/04/03	04/04/03	1	6010B
SELENIUM	7782-49-2	µg/L	10	<10	U	P		03M1285L	04/04/03	04/04/03	1	6010B
SILVER	7440-22-4	µg/L	10	1.5	B	P		03M1285L	04/04/03	04/04/03	1	6010B
THALLIUM	7440-28-0	µg/L	10	<10	U	P		03M1285L	04/04/03	04/04/03	1	6010B
VANADIUM	7440-62-2	µg/L	10	<10	U	P		03M1285L	04/04/03	04/04/03	1	6010B
ZINC	7440-66-6	µg/L	10	<10	U	P		03M1285L	04/04/03	04/04/03	1	6010B

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.

Note: RL: PQL (EQL) or CRDL D-Date: Digestion Date; A-Date: Analysis Date; DF: Dilution Factor

C Qualifier: U - Not Detected or less than IDL; B - Less than RL (PQL, EQL or CRDL), but greater than IDL

Q Qualifier: N - Spike recovery out of control; * - Duplicate analysis out of control; W - Post digestion spike for GFAA out of control; E - Serial dilution difference out of control

M Qualifier: P - ICP; A - FLAA; F - GFAA; CV - Cold Vapor

FORM-7 Metal

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 6010B

Client Name:	Shaw E & I	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	032531
Project ID:	MCAS El Toro	Project No:	818655	Sample Matrix:	Water
		Batch No:	03M1285L		
LCS Filename:	-	Date Analyzed:	040403	Time Analyzed:	12:27
LCSD Filename:	-	Date Analyzed:	040403	Time Analyzed:	12:30

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
ANTIMONY	µg/L	500	0	508	102	80-120
ARSENIC	µg/L	500	0	522	104	80-120
BARIUM	µg/L	4000	0	4350	109	80-120
BERYLLIUM	µg/L	200	0	200	100	80-120
CADMIUM	µg/L	250	0	257	103	80-120
CHROMIUM	µg/L	1000	0	1050	105	80-120
COBALT	µg/L	1000	0	1060	106	80-120
COPPER	µg/L	1000	0	1000	100	80-120
LEAD	µg/L	3000	0	3240	108	80-120
MOLYBDENUM	µg/L	2000	0	2120	106	80-120
NICKEL	µg/L	1000	0	1040	104	80-120
SELENIUM	µg/L	500	0	506	101	80-120
SILVER	µg/L	1000	0	990	99	80-120
THALLIUM	µg/L	500	0	555	111	80-120
VANADIUM	µg/L	2000	0	2040	102	80-120
ZINC	µg/L	500	0	524	105	80-120
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
ANTIMONY	µg/L	500	514	103	1	20	80-120
ARSENIC	µg/L	500	521	104	0	20	80-120
BARIUM	µg/L	4000	4390	110	1	20	80-120
BERYLLIUM	µg/L	200	203	102	2	20	80-120
CADMIUM	µg/L	250	258	103	0	20	80-120
CHROMIUM	µg/L	1000	1070	107	2	20	80-120
COBALT	µg/L	1000	1070	107	1	20	80-120
COPPER	µg/L	1000	1020	102	2	20	80-120
LEAD	µg/L	3000	3290	110	2	20	80-120
MOLYBDENUM	µg/L	2000	2170	109	3	20	80-120
NICKEL	µg/L	1000	1060	106	2	20	80-120
SELENIUM	µg/L	500	509	102	1	20	80-120
SILVER	µg/L	1000	1010	101	2	20	80-120
THALLIUM	µg/L	500	560	112	1	20	80-120

FORM-7 Metal

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 6010B

Client Name:	Shaw E & I	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	032531
Project ID:	MCAS El Toro	Project No:	818655	Sample Matrix:	Water
		Batch No:	03M1285L		
LCS Filename:	-	Date Analyzed:	040403	Time Analyzed:	12:27
LCSD Filename:	-	Date Analyzed:	040403	Time Analyzed:	12:30

Continued *Batch No.: 03M1285L Method: 6010B Page: 2*

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
VANADIUM	μg/L	2000	2090	105	3	20	80-120
ZINC	μg/L	500	527	105	0	20	80-120
# of Out-of-control				0	0		

Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits D – Spiked components diluted out

Comments: _____

FORM-7 Metal

Applied P & Ch Laboratory

Lab Control Spike/Lab Control Spike Duplicate Recovery for Method 7470A

Client Name:	Shaw E & I	Contract No:		Lab Code:	APCL
Case No:		SAS No:		Service ID:	032531
Project ID:	MCAS El Toro	Project No:	818655	Sample Matrix:	Water
		Batch No:	03M1286H		
LCS Filename:	-	Date Analyzed:	040403	Time Analyzed:	14:41
LCSD Filename:	-	Date Analyzed:	040403	Time Analyzed:	14:43

Spiked Components	Unit	Spike Added	Concentration Unspiked	Concentration LCS	LCS Rec% #	QC Limit, % REC
MERCURY	µg/L	5.0	0	5.04	101	80-120
# of Out-of-control					0	

Spiked Components	Unit	Spike Added	LCSD Concentration	LCSD Rec% #	RPD% #	QC Limit, % RPD	QC Limit, % REC
MERCURY	µg/L	5.0	4.98	100	1	20	80-120
# of Out-of-control				0	0		

Column to be used to flag recovery and RPD values:

* – Values outside of contract required QC Limits D – Spiked components diluted out

Comments: _____

Applied P & Ch Laboratory

Wet Analysis Results for Method 1010

Client Name:	Shaw E & I	Project No:	818655	Anal Method	1010
Project ID:	MCAS El Toro	Service ID:	032531	Collected by:	

Component Name: Ignitability (Flashpoint)
CAS No: 10-36-6

Lab ID	Sample ID	Matrix	Coll Date	Rcv Date	Anal. Date	Batch	Unit	RL	Result	Q
03-2531-1	818655-3261	Water	04/03/03	04/03/03	04/04/03	03W2265	°C	0.5[a]	100	
03-2531-2	818655-3262	Water	04/03/03	04/03/03	04/04/03	03W2265	°C	0.5[a]	100	

Not Detected is shown as PQL, with dilution and moisture corrected if applicable.
[a]Corresponds to the minimum reading of the thermometer used.

Note: Q - Qualifier
Qualifier: U - Not Detected or less than MDL
B - Less than RL (PQL, EQL or CRDL), but greater than MDL.

Applied P & Ch Laboratory

Wet Analysis Results for Method 9045B

Client Name: Shaw E & I Project No: 818655 Anal Method 9045B
Project ID: MCAS El Toro Service ID: 032531 Collected by:

Component Name: pH
CAS No: 10-29-7

Lab ID	Sample ID	Matrix	Coll Date	Rcv Date	Anal Date	Batch	Unit	RL	Result	Q
03-2531-1	818655-3261	Water	04/03/03	04/03/03	04/03/03	03W2254	pH unit	0.01	7.55	
03-2531-2	818655-3262	Water	04/03/03	04/03/03	04/03/03	03W2254	pH unit	0.01	7.48	
03W2254-MB-01	03W2254-MB-01	Water	04/03/03	04/03/03	04/03/03	03W2254	pH unit	0.01	6.85	

Note: Q - Qualifier
Qualifier: U - Not Detected or less than MDL
B - Less than RL (PQL, EQL or CRDL), but greater than MDL

Wet Chemistry QC Report B
Duplicate Results

Matrix: Water

APCL Service ID: 03-2531

Analysis	Batch ID	Analysis Date	Sample Name	Unit	Result	Duplicate Result	RPD %	RPD Control limit
pH	03W2254	04/03/2003	03-2527-2	pH Unit	9.59	9.54	1	20
Flashing Point	03W2265	04/04/2003	03-2517-4	°C	ND	ND	ND	20

Note: N/A = Not applicable; NR: Not requested; NC= Not Calculated; ND: Not detected.

EDDPC\2531.xls\MD

Crosby & Overton

Environmental Services

Pursuant to Section 66264.124, Appendix IX, Restriction, Notification & Certification Requirements

NON RCRA LAND DISPOSAL RESTRICTION NOTIFICATION

Generator Name MCAS El Toro, Caretaker Site Office

Phone: (949) 725-2506 **EPA ID#** CA6170023208

Manifest 818655-04003 **Profile #** 44909

****

The waste(s) identified on the above referenced manifest and bearing the California waste numbers identified below is subject to the Land Disposal restrictions of CCR, Title 22, Chapter 18, Section 66068.7(a)

Is this waste Non-Hazardous? If yes, complete Section C. XX Yes ____ No

****

A. WASTE IDENTIFICATION California Waste Numbers_____

Check the appropriate boxes.

( ) Non-RCRA metal-containing aqueous waste identified in 22 CCR 66268.107(a).

( ) PCB waste identified in 22 CCR 66268.110.

( ) Non-RCRA metal containing solid waste identified in 22 66268.106(a) (3). Prohibition effective date 1/1/95.

( ) Non-RCRA aqueous and liquid waste containing any organic compound identified by EPA Test Methods 8080, 8140, 8150, 8240 and/or 8270 identified in 22 CCR 66268.112. Prohibition effective date 1/1/95.

( ) Non-RCRA solid waste containing any organic compound measured by Methods 8080, 8140, 8150, 8240 and/or 8270 identified in 22 CCR 66268.113. Prohibition effective date 1/1/95

( ) Other Non-RCRA, California-regulated waste.

B. HANDLING METHOD

Check the appropriate box.

( ) The waste identified above must be treated to meet the applicable standards in 22 CCR, Division 4.5, Chapter 18, Article 11.

( ) The waste identified above meets the applicable treatment standard, no additional Treatment required 22 CCR Section 66068.7(a)(2)
"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in CCR Title 22, Division 4.5, Chapter 18, Article 11 and all applicable prohibitions set forth in CCR Title 22 Section 66068.32 or RCRA Section 3004(d) U.S.C. Section 6924(d) I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

( ) The waste is subject to a variance. The expiration date of the variance is indicated _____ ____.

( ) The Non-RCRA waste identified above is not currently restricted from land disposal.

C. GENERATOR CERTIFICATION

This notification & certification is based on the following waste stream information:

___ (A) Chemical/Physical Analysis of the waste; ___ (B) Generator knowledge of the waste; or XXXX(C) Both

I hereby certify that all information supplied above and on all associated documents is complete and accurate to the best of my knowledge and that no omissions or errors exist.

Signature	Title	Date
Scott Kahn	CIVIL ENGINEER	13 MAY 03

NOTE: It is the generators responsibility to maintain LDR copies for five years

01/09/96 u:lbandfor

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: CA6170023208

Manifest Document No.: 04003

2. Page 1 of 1

3. Generator's Name and Mailing Address
MCAS El Toro, Caretaker Site Office
Base Realignment & Closure, 7030 Trabuco Irvine CA 92618

818655 - 04003

4. Generator's Phone ((949) 726-2506 Attn: Scott Kehe

5. Transporter 1 Company Name: Island Environmental

6. US EPA ID Number: CAR000053405

A. State Transporter's ID: HAHQ3603891

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter 1 Phone: (909) 598-4449

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
Crosby & Overton, Inc.
1630 West 17th Street
Long Beach CA 90813

10. US EPA ID Number: CAD028409019

E. State Facility's ID

F. Facility's Phone: (562) 432-5445

GENERATOR

11. WASTE DESCRIPTION	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol.
a. Non-regulated waste	001	TT	1300	G
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above
11a. C&O Profile #44909 oil/water seperator residues
Fax copy of TSDF signed manifest to: Steve Chandler, Shaw E&I at fax number (949) 474-8309

H. Handling Codes for Wastes Listed Above: 15

15. Special Handling Instructions and Additional Information
Caution: Wear appropriate protective clothing and respiratory protection when handling.
Site pick up address:
MCAS El Toro APHO 38 Sump

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Scott Kehe
Signature: [signature]
Date: Month 05 Day 14 Year 03

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Juan Rivera
Signature: [signature]
Date: Month 05 Day 14 Year 03

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

19. Discrepancy Indication Space

FACILITY

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.
Printed/Typed Name: Joe Maldonado
Signature: [signature]
Date: Month 5 Day 14 Year 03

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Appendix G
Analytical Reports, Soil Vapor

Chain of Custody Record

HP LABS

☐ 148 S. Vinewood St., Escondido, CA 92029 • ph 760.735.3208 • fax 760.735.2469
☐ 432 N. Cedros Ave., Solana Beach, CA 92075 • ph 858.793.0401 • fax 858.793.0404
☐ 2373 208th Street Unit F-1, Torrance, CA 90501 • ph 310.782.2929 • fax 310.782.2798 ~~580~~ 6305010

Date: 5-19-03
HPL Project # SH051903-L6
Outside Lab:

Client: Shaw Environmental + Infrastructure, Inc.
Address: 3347 Michelson Drive, Suite 200
Irvine, CA 92612
Phone: 949 660-7535 Fax: 949 474-8309

Collector: Robbie Bray
Page: 1 Of 2
Client Project # N62474-98-D-2076
Project Manager Guy Berger
Location: CTO-24, MCAS El Toro, Irvine
Turn around time: On-site

Notes: 10% leak test

	Sample	Depth	Time	Date	Sample Type	Container Type	TPH gasoline / diesel	TPH extended	8021 for BTEX/MTBE	8021 for Halogenated compounds	418.1 TRPH	8260B: BTEX / Oxygenates	8260B: ~~Oxygenates~~ TPH	8260B: VOCs	8260B: VOCs and Oxygenates	Methane	Fixed Gases	Leak test							Field Notes	Total # of containers
1	Field Blank	—	10:00	5/19	SV	Syringe							X	X											~~44 cc purge~~ n/a	1
2	SG16-10 1 pv	10	1025										X	X											~~133~~ 44 cc purge	1
3	SG16-10 3 pv	10	1026										X	X											~~152~~ 132 cc purge	1
4	SG16-10 7 pv	10	1027										X	X											308 cc purge	1
5	SG16-15	15	1200										X	X				X							111 cc purge	1
6	SG17-5	5	1230										X	X				~~X~~							18	1
7	SG17-10	10	1305										X	X											33	1
8	SG17-10 Dup	10	1306										X	X											93	1
9	SG5-5	5	1405										X	X											18	1
10	SG5-10	10	1430										X	X											33	1
11	SG4-5	5	1510										X	X											18	1
12	SG4-10	10	1540										X	X											33	1
13	SG14-5	5	1514										X	X											18	1
14	SG14-10	10	1515										X	X											33	1

Sample Receipt
Intact: ☐ Yes ☐ No
Seal Intact: ☐ Yes ☐ No ☐ N/A
Cold: ☐ Yes ☐ No
N/A (Received on Site)

Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
[signature]		[signature]	HP Labs	5-19-03	1630
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:

*Signature constitutes authorization to proceed with analysis and acceptance of condition on back.

Sample disposal instruction: ☐ *Disposal @ $2.00 each* ☐ *Return to client* ☐ *Pickup*

Chain of Custody Record

HP LABS

☐ 148 S. Vinewood St., Escondido, CA 92029 • ph 760.735.3208 • fax 760.735.2469
☐ 432 N. Cedros Ave., Solana Beach, CA 92075 • ph 858.793.0401 • fax 858.793.0404
☐ 2373 208th Street Unit F-1, Torrance, CA 90501 • ph 310.782.2929 • fax 310.782.2798

Date: 5-19-03
HPL Project #: SH051903-L6
Outside Lab:

Client: Shaw Environmental & Infrastructure, Inc
Address: 3347 Michelson drive, Suite 200
Irvine, CA 92612
Phone: 949 660-7535 Fax: 949 474-8309

Collector: Robbie Bray
Client Project #: N62474-98-D-2076
Location: CTO-24, MCAS El Toro, Irvine
Turn around time: on-site

Page: 2 Of 2
Project Manager:

Notes: 10% leak test

	Sample	Depth	Time	Date	Sample Type	Container Type	TPH gasoline / diesel	TPH extended	8021 for BTEX/MTBE	8021 for Halogenated compounds	418.1 TRPH	8260B: BTEX / Oxygenates	8260B: ~~Oxygenates~~ TPH g	8260B: VOCs	8260B: VOCs and Oxygenates	Methane	Fixed Gases	leak test						Field Notes	Total # of containers
5	SG12-5	5	1629	5/19	SV	Syringe							X	X				X						18 cc purge	1
6	SG12-10	10	1630										X	X										33 "	1

Sample Receipt
Intact: ☐ Yes ☐ No
Seal Intact: ☐ Yes ☐ No ☐ N/A
Cold: ☐ Yes ☐ No
N/A (Received on Site)

Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
[signature]	Shaw Ed	[signature]	HP Labs	5-19-03	1630
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:

*Signature constitutes authorization to proceed with analysis and acceptance of condition on back.

Sample disposal instruction: ☐ *Disposal @ $2.00 each* ☐ *Return to client* ☐ *Pickup*

Chain of Custody Record

HP LABS

☐ 148 S. Vinewood St., Escondido, CA 92029 • ph 760.735.3208 • fax 760.735.2469
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☐ 2373 208th Street Unit F-1, Torrance, CA 90501 • ph 310.782.2929 • fax 310.782.2798 630501

Date: 5-20-03
HPL Project # SH051903-L6
Outside Lab:

Client: Shaw Environmental & Infrastructure, Inc.
Address: 3347 Michelson Drive, Suite 200
Irvine, CA 92612
Phone: 949 660-7535 Fax: 949 474-8309

Collector: Robbie Bray
Client Project # N62474-98-D-2076
Location: CTO-24, MCAS El Toro, Irvine
Turn around time: on-site

Page: 1 Of 1
Project Manager Guy Berger

Notes: 10% Leak test

Sample Receipt
Intact: ☒ Yes ☐ No
Seal Intact: ☐ Yes ☐ No ☒ N/A
Cold: ☐ Yes ☐ No
N/A (Received on Site)

	Sample	Depth	Time	Date	Sample Type	Container Type	TPH gasoline / diesel	TPH extended	8021 for BTEX/MTBE	8021 for Halogenated compounds	418.1 TRPH	BTEX / Oxygenates	8260B: ~~Oxygenates~~ TPHg	8260B: VOCs LARWQCB + mtbe	VOCs and Oxygenates	Methane	Fixed Gases	Field Notes	Total # of containers
1	Field Blank	—	1015	5/20	~~Syringe~~ SV	Syringe							X	X				n/a	1
2	SG20-10	10	1100										X	X				99 " purge	1
3	SG15-5	5	1130										X	X				18	1
4	SG15-10	10	1152										X	X				33	1
5	SG7-5	5	1249										X	X				18	1
6	SG7-10	10	1250										X	X				33	1
7	SG24-5	5	1350										X	X				18	1
8	SG24-10	10	1351										X	X				33	1
9	SG24-10 Dup	10	1352										X	X				93	1
5)	SG7-5	5	1501	(resample)									X	X				18	1
0	SG21-10	10	1555										X	X				33	1
1	SG21-20	20	1610										X	X				123	1

Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
[signature]	5/20/03	[signature]	HP Labs	5-20-03	1700
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:

*Signature constitutes authorization to proceed with analysis and acceptance of condition on back.

Sample disposal instruction: ☐ *Disposal @ $2.00 each* ☐ *Return to client* ☐ *Pickup*

28 May 2003

Mr. Guy Berger
Shaw Environmental & Infrastructure, Inc.
3347 Michelson Drive, Suite 200
Irvine, CA 92612

RE: SH051903-L6

Enclosed are the results of analyses for samples received by the laboratory on 5/19/2003 -5/20/2003. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Rebecca L Johnson for

Tamara Davis
Laboratory Director

HP Labs operates under CA Environmental Lab Accreditation Program Numbers 1561, 2088, 2278 and 2530

148 S. Vinewood Street • Escondido, CA 92029 • Phone (760) 735-3208 • Fax (760) 735-2469
432 N. Cedros Avenue • Solana Beach, CA 92075 • Phone (858) 793-0401 • Fax (858) 793-0404
2373 208th Street Suite F-1 • Torrance, CA 90501 • Phone (310) 782-2929 • Fax (310) 782-2798

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr. Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
Field Blank (6305010-01) Vapor Sampled: 19-May-03 Received: 19-May-03									
Isobutane	ND	10	ug/l	0 05	6E31901	19-May-03	19-May-03	Isobutane	
SG16-15, 111 cc purge volume (6305010-05) Vapor Sampled: 19-May-03 Received: 19-May-03									
Isobutane	ND	10	ug/l	0 05	6E31901	19-May-03	19-May-03	Isobutane	
SG12-5, 18 cc purge volume (6305010-15) Vapor Sampled: 19-May-03 Received: 19-May-03									
Isobutane	ND	10	ug/l	0 05	6E31901	19-May-03	19-May-03	Isobutane	
SG15-5, 18 cc purge volume (6305011-03) Vapor Sampled: 20-May-03 Received: 20-May-03									
Isobutane	ND	10	ug/l	0 05	6E32001	20-May-03	20-May-03	Isobutane	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr Guy Berger	Reported: 28-May-03

TPH by MS

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
Field Blank (6305010-01) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG16-10 1PV, 44 cc purge volume (6305010-02) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG16-10 3PV, 132 cc purge volume (6305010-03) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG16-10 7PV, 308 cc purge volume (6305010-04) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG16-15, 111 cc purge volume (6305010-05) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG17-5, 18 cc purge volume (6305010-06) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG17-10, 33 cc purge volume (6305010-07) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG17-10 DUP, 93 cc purge volume (6305010-08) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG5-5, 18 cc purge volume (6305010-09) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr Guy Berger	Reported: 28-May-03

TPH by MS

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG5-10, 33 cc purge volume (6305010-10) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG4-5, 18 cc purge volume (6305010-11) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG4-10, 33 cc purge volume (6305010-12) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG14-5, 18 cc purge volume (6305010-13) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG14-10, 33 cc purge volume (6305010-14) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG12-5, 18 cc purge volume (6305010-15) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
SG12-10, 33 cc purge volume (6305010-16) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	0 05	6E31901	19-May-03	19-May-03	DHS LUFT/8260B	
Field Blank (6305011-01) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	0 05	6E32001	20-May-03	20-May-03	DHS LUFT/8260B	
SG20-10, 99 cc purge volume (6305011-02) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	0 05	6E32001	20-May-03	20-May-03	DHS LUFT/8260B	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr. Guy Berger	Reported: 28-May-03

TPH by MS

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG15-5, 18 cc purge volume (6305011-03) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	0 05	6E32001	20-May-03	20-May-03	DHS LUFT/8260B	
SG15-10, 33 cc purge volume (6305011-04) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	0 05	6E32001	20-May-03	20-May-03	DHS LUFT/8260B	
SG7-5, 18 cc purge volume (6305011-05) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	0 05	6E32001	20-May-03	20-May-03	DHS LUFT/8260B	
SG7-10, 33 cc purge volume (6305011-06) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	0 05	6E32001	20-May-03	20-May-03	DHS LUFT/8260B	
SG24-5, 18 cc purge volume (6305011-07) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	0 05	6E32001	20-May-03	20-May-03	DHS LUFT/8260B	
SG24-10, 33 cc purge volume (6305011-08) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	0 05	6E32001	20-May-03	20-May-03	DHS LUFT/8260B	
SG24-10 Dup, 93 cc purge volume (6305011-09) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	0 05	6E32001	20-May-03	20-May-03	DHS LUFT/8260B	
SG21-10, 33 cc purge volume (6305011-10) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	0 05	6E32001	20-May-03	20-May-03	DHS LUFT/8260B	
SG21-20, 123 cc purge volume (6305011-11) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	0 05	6E32001	20-May-03	20-May-03	DHS LUFT/8260B	

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA 92612	Project Manager: Mr Guy Berger	28-May-03

TPH by MS - Quality Control
HP Labs L6

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6E31901 - EPA 5030										
Blank (6E31901-BLK1)				Prepared & Analyzed: 19-May-03						
Gasoline	ND	500	ug/l							
Batch 6E32001 - EPA 5030										
Blank (6E32001-BLK1)				Prepared & Analyzed: 20-May-03						
Gasoline	ND	500	ug/l							

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr. Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG16-10 1PV, 44 cc purge volume (6305010-02) Vapor		**Sampled: 19-May-03**		**Received: 19-May-03**					
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	'	"	'	"	"	
Vinyl chloride	ND	1	"	"		"	'	"	
Chloroethane	ND	1	"		"		"	"	
Trichlorofluoromethane	ND	1	"	"	'	"	'	'	
1,1-Dichloroethene	ND	1	"	'	"	"	'	"	
Methylene chloride	ND	1		"	"	"	"		
Freon 113	ND	1	"	'	"	'	"	"	
trans-1,2-Dichloroethene	ND	1	'	"		"	'		
1,1-Dichloroethane	ND	1	"	'	"	'	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	'	"		'	
Chloroform	ND	1	'	"	"	"	"		
1,1,1-Trichloroethane	ND	1	"		'	'		"	
Carbon tetrachloride	ND	1		"	'	"	"	'	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"	"	"	"	"	'	
Trichloroethene	ND	1	"	'	"	'	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1		"	'	"	"	"	
Tetrachloroethene	ND	1	"	"	"	'	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	'	"	
m,p-Xylene	ND	1	"	"	'	"	"	'	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"		"	"	'	"	
Surrogate Dibromofluoromethane		*124 %*	*75-125*		"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*125 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*90 4 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*102 %*	*75-125*		"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG16-10 3PV, 132 cc purge volume (6305010-03) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"	"	"		"	"	
Chloroethane	ND	1	"	"	"	"		"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"	"		"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"		
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"		"		"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1 1-Trichloroethane	ND	1	"	"	"	"		"	
Carbon tetrachloride	ND	1	"	"	"		"	"	
1,2-Dichloroethane	ND	1	"	"	"	"		"	
Benzene	ND	1	"	"		"	"	"	
Trichloroethene	ND	1	"	"	"		"	"	
Toluene	ND	1	"	"	"	"			
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1		"	"		"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1		"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"		"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"		"	"	
Surrogate Dibromofluoromethane		*125 %*	*75-125*		"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*124 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*92 8 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*116 %*	*75-125*		"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG16-10 7PV, 308 cc purge volume (6305010-04) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"		'	"	
Vinyl chloride	ND	1	"	'	'	"	"	'	
Chloroethane	ND	1		"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"		"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	'		"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	'	
cis-1,2-Dichloroethene	ND	1		'	"	"		'	
Chloroform	ND	1		'	"	"	'		
1,1,1-Trichloroethane	ND	1	"	"	'		"	"	
Carbon tetrachloride	ND	1		"	"	"		'	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"	"	"	"	"		
Trichloroethene	ND	1	"		"	"	"	"	
Toluene	ND	1	'	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	'	"	
1,1,1,2-Tetrachloroethane	ND	1		'	"	"		"	
m,p-Xylene	ND	1	"	"		"	'	"	
o-Xylene	ND	1		'	"	"		"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*121 %*	*75-125*		"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*123 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*92.0 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*96.0 %*	*75-125*		"	"	'	"	

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG16-15, 111 cc purge volume (6305010-05) Vapor		**Sampled: 19-May-03**		**Received: 19-May-03**					
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1		"	"	"	"	"	
Chloroethane	ND	1	"		"	"	"		
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1		"	"	"	"	"	
Methylene chloride	ND	1	"		"	"	"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"		"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"		"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1		"	"	"	"	"	
Carbon tetrachloride	ND	1	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"		"	"	"	
Toluene	ND	1	"	"	"		"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1		"	"	"	"		
Ethylbenzene	ND	1	"	"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"		"		
m,p-Xylene	ND	1	"	"	"	"		"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*124 %*	*75-125*		"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*122 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*91 2 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*117 %*	*75-125*		"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG17-5, 18 cc purge volume (6305010-06) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"		"	"		"	
Vinyl chloride	ND	1	"	"	"		"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"		"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"		"	
Freon 113	1.2	1	"	"	"	"	"		
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"			"	
cis-1,2-Dichloroethene	ND	1	"			"	"	"	
Chloroform	ND	1	"	"	"	"			
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1	"		"	"	"		
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"	"	"	"	"	"	
Trichloroethene	ND	1	"		"	"	"	"	
Toluene	ND	1		"	"	"		"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1		"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"		"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"		
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*125 %*	*75-125*		"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*123 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*88 0 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*95 6 %*	*75-125*		"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr. Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG17-10, 33 cc purge volume (6305010-07) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0.05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"		"	"	
Vinyl chloride	ND	1	"		"	"	"	"	
Chloroethane	ND	1		"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1		"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	1.8	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"		
1,1-Dichloroethane	ND	1	"		"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"		
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1	"		"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"		"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1		"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*125 %*	*75-125*		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*125 %*	*75-125*		"	"	"	"	
Surrogate: Toluene-d8		*94.0 %*	*75-125*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*75-125*		"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG17-10 DUP, 93 cc purge volume (6305010-08) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	'	
Vinyl chloride	ND	1	"	"	'		"	"	
Chloroethane	ND	1		"	"	"	"		
Trichlorofluoromethane	ND	1	"	'	"	"	"	'	
1,1-Dichloroethene	ND	1	'	"	"	"	'	'	
Methylene chloride	ND	1	"			"	'	"	
Freon 113	1.6	1	'	"	"	"	'	'	
trans-1,2-Dichloroethene	ND	1	"	"	'		"	"	
1,1-Dichloroethane	ND	1	"		"	"	"	"	
cis-1,2-Dichloroethene	ND	1	'	"	"	'	'		
Chloroform	ND	1	'	'	'	'	"	"	
1.1,1-Trichloroethane	ND	1		"	"	'			
Carbon tetrachloride	ND	1	"	'	'	"	"	'	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"		"	"	"	"	
Trichloroethene	ND	1	'	"	"	'	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	'	"	"	"	"	"	
Tetrachloroethene	ND	1	'	"	"	"	"	"	
Ethylbenzene	ND	1	'	"	"		"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	'	"	"	
m,p-Xylene	ND	1	"	'	"	"	"	"	
o-Xylene	ND	1	'	"	"	"	'	'	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	'	'	"	
Surrogate Dibromofluoromethane		*124 %*	*75-125*		"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*122 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*79 2 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*94 8 %*	*75-125*		"	"	"	"	

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr. Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG5-5, 18 cc purge volume (6305010-09) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"	"	"		"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"		
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"		"		
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1	"	"	"		"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"		"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1		"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"		"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"		"		
Surrogate Dibromofluoromethane		*125 %*		*75-125*	"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*124 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*83 2 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*91 2 %*		*75-125*	"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG5-10, 33 cc purge volume (6305010-10) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	'	"	'	"	"	
Vinyl chloride	ND	1	"	"	"			'	
Chloroethane	ND	1		'	"	"	"	'	
Trichlorofluoromethane	ND	1	'	"	'	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	'	"	"	
Methylene chloride	ND	1	'		"	"	"	"	
Freon 113	ND	1	"	"	"	"		'	
trans-1,2-Dichloroethene	ND	1	"		"	"	"	"	
1,1-Dichloroethane	ND	1	'	'	"	"	"	'	
cis-1,2-Dichloroethene	ND	1	"	"			"	"	
Chloroform	ND	1	'		"	"	"		
1,1,1-Trichloroethane	ND	1		'			'	"	
Carbon tetrachloride	ND	1	'		"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	'	"	"	"	"	"	
Trichloroethene	ND	1	"	"	'	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1 2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	'	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	'		'	"	
m,p-Xylene	ND	1	'	'	"	"	"	"	
o-Xylene	ND	1	"	"	'	'	'	'	
1,1,2,2-Tetrachloroethane	ND	1		"	"	"	"	'	
Surrogate Dibromofluoromethane		*125 %*		*75-125*	"	'	"	"	
Surrogate 1,2-Dichloroethane-d4		*124 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*87 6 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*97 2 %*		*75-125*	"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG4-5, 18 cc purge volume (6305010-11) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0.05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1		"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1		"	"	"	"	"	
1,2-Dichloroethane	ND	1		"	"	"	"	"	
Benzene	ND	1	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"		"	"	
Surrogate Dibromofluoromethane		*115 %*		*75-125*	"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*122 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*75 2 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*90 0 %*		*75-125*	"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG4-10, 33 cc purge volume (6305010-12) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"		"	"	"	
Vinyl chloride	ND	1		"	"		"	"	
Chloroethane	ND	1	"	"	"	"	"		
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"		"		"	"	
Freon 113	ND	1		"		"	"		
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"		
Chloroform	ND	1		"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"		"	"		"	
Carbon tetrachloride	ND	1	"	"		"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"	"		"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"		
1,1,1,2-Tetrachloroethane	ND	1	"	"	"		"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*116 %*		*75-125*	"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*115 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*82 4 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*86 8 %*		*75-125*	"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr. Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG14-5, 18 cc purge volume (6305010-13) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0.05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1		"	"	"	"	"	
Chloroethane	ND	1	"	"		"	"	"	
Trichlorofluoromethane	ND	1	"	"	"		"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"		
Freon 113	ND	1	"	"		"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1		"	"		"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1		"	"		"	"	
Carbon tetrachloride	ND	1		"	"	"			
1,2-Dichloroethane	ND	1	"	"		"	"	"	
Benzene	ND	1	"	"	"	"			
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1		"	"	"		"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1		"	"		"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"		
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*123 %*		*75-125*	"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*124 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*85.6 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*88.4 %*		*75-125*	"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG14-10, 33 cc purge volume (6305010-14) Vapor	**Sampled: 19-May-03**		**Received: 19-May-03**						
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"		"	"	"	"	
Chloroethane	ND	1		"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1			"		"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1		"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"		"	"		
cis-1,2-Dichloroethene	ND	1	"	"	"		"	"	
Chloroform	ND	1		"		"			
1,1,1-Trichloroethane	ND	1		"	"		"	"	
Carbon tetrachloride	ND	1		"		"	"	"	
1,2-Dichloroethane	ND	1	"		"	"	"	"	
Benzene	ND	1		"	"	"	"		
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1		"	"	"	"		
1,1,2-Trichloroethane	ND	1		"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"		
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*100 %*		*75-125*	"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*99 2 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*87 2 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*91 2 %*		*75-125*	"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr. Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG12-5, 18 cc purge volume (6305010-15) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"		"	"	"	
Vinyl chloride	ND	1	"		"	"	"	"	
Chloroethane	ND	1		"	"	"	"		
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1		"		"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"		
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"			"	"	"	
Carbon tetrachloride	ND	1	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1		"	"	"	"	"	
Benzene	ND	1	"	"	"	"		"	
Trichloroethene	ND	1	"		"	"	"	"	
Toluene	ND	1		"	"	"	"	"	
1,1,2-Trichloroethane	ND	1		"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"		
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"		"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*123 %*	*75-125*		"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*124 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*83 6 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*93 2 %*	*75-125*		"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr. Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG12-10, 33 cc purge volume (6305010-16) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"		"		"		
Methylene chloride	ND	1		"	"	"	"	"	
Freon 113	ND	1	"		"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"		"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"		"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1	"	"		"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"	"	"	"	"		
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"		
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*122 %*	*75-125*		"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*123 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*78 4 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*93 6 %*	*75-125*		"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr. Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
Field Blank (6305010-01) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0.05	6E31901	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1		"		"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"		"		
trans-1,2-Dichloroethene	ND	1	"	"	"	"		"	
1,1-Dichloroethane	ND	1	"	"		"	"	"	
cis-1,2-Dichloroethene	ND	1	"		"		"	"	
Chloroform	ND	1	"	"	"	"		"	
1,1,1-Trichloroethane	ND	1		"		"	"	"	
Carbon tetrachloride	ND	1	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1		"	"	"	"	"	
Trichloroethene	ND	1	"	"	"		"	"	
Toluene	ND	1		"		"	"	"	
1,1,2-Trichloroethane	ND	1	"		"		"	"	
Tetrachloroethene	ND	1		"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"		"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"		"	"		
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*123 %*		*75-125*	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*114 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*89.2 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*124 %*		*75-125*	"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr. Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG20-10, 99 cc purge volume (6305011-02) Vapor		**Sampled: 20-May-03**		**Received: 20-May-03**					
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E32001	20-May-03	20-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	1.1	1		"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"		"	"	"	
Carbon tetrachloride	ND	1	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"		"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*102 %*		*75-125*	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*102 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*97 2 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*123 %*		*75-125*	"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr. Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG15-5, 18 cc purge volume (6305011-03) Vapor Sampled: 20-May-03 Received: 20-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0.05	6E32001	20-May-03	20-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"	"		"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1		"	"	"	"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"			"	
1,1,1-Trichloroethane	ND	1	"	"	"	"		"	
Carbon tetrachloride	ND	1	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"		"			"	
Benzene	ND	1	"	"	"	"	"		
Trichloroethene	ND	1	"	"	"		"	"	
Toluene	ND	1	"	"		"	"	"	
1,1,2-Trichloroethane	ND	1		"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"		"	
Ethylbenzene	ND	1	"	"		"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*96.4 %*		*75-125*	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*96.0 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*91.2 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*		*75-125*	"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG15-10, 33 cc purge volume (6305011-04) Vapor	**Sampled: 20-May-03**	**Received: 20-May-03**							
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E32001	20-May-03	20-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"	"	"		"	"	
Chloroethane	ND	1	"	"		"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"		"	
1,1-Dichloroethene	ND	1		"	"	"	"	"	
Methylene chloride	ND	1	"	"	"		"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"		"	
cis-1,2-Dichloroethene	ND	1	"	"		"	"	"	
Chloroform	ND	1	"	"	"	"		"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1			"	"	"	"	
Ethylbenzene	ND	1	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1		"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*100 %*	*75-125*		"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*75-125*		"	"	"	"	
Surrogate: Toluene-d8		*92 8 %*	*75-125*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*75-125*		"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr. Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG7-5, 18 cc purge volume (6305011-05) Vapor Sampled: 20-May-03 Received: 20-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0.05	6E32001	20-May-03	20-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"	"	"			"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1		"	"		"		
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"		"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"	"	"		"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*		*75-125*	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*118 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*96.4 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*		*75-125*	"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG7-10, 33 cc purge volume (6305011-06) Vapor Sampled: 20-May-03 Received: 20-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E32001	20-May-03	20-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1		"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"		"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1		"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"		"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"		"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*124 %*	*75-125*		"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*111 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*124 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*110 %*	*75-125*		"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr. Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG24-5, 18 cc purge volume (6305011-07) Vapor Sampled: 20-May-03 Received: 20-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E32001	20-May-03	20-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"	"	"	"	"		
Chloroethane	ND	1		"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"		"	"	"	
Freon 113	ND	1			"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"		"	"	
Chloroform	ND	1	"	"	"	"		"	
1,1,1-Trichloroethane	ND	1		"	"	"	"	"	
Carbon tetrachloride	ND	1	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"			"	"	"	
Benzene	ND	1	"	"	"		"		
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*106 %*	*75-125*		"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*107 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*90 0 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*107 %*	*75-125*		"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr. Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG24-10, 33 cc purge volume (6305011-08) Vapor Sampled: 20-May-03 Received: 20-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E32001	20-May-03	20-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"		
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1		"	"	"	"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1		"	"	"	"	"	
1,1-Dichloroethane	ND	1		"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1			"	"	"	"	
Chloroform	ND	1	"	"	"			"	
1,1,1-Trichloroethane	ND	1		"	"	"	"	"	
Carbon tetrachloride	ND	1	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1	"	"	"	"	"		
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1		"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*110 %*		*75-125*	"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*112 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*87 2 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*98 8 %*		*75-125*	"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc.	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG24-10 Dup, 93 cc purge volume (6305011-09) Vapor		**Sampled: 20-May-03**		**Received: 20-May-03**					
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E32001	20-May-03	20-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1		"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"		
Methylene chloride	ND	1		"	"		"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1		"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"		"	
Carbon tetrachloride	ND	1		"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1		"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"		"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1		"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*110 %*	*75-125*		"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*113 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*89 6 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*96 0 %*	*75-125*		"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG21-10, 33 cc purge volume (6305011-10) Vapor Sampled: 20-May-03 Received: 20-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E32001	20-May-03	20-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"	'	"	"	'	'	
Chloroethane	ND	1	'	"		"	"	"	
Trichlorofluoromethane	ND	1			"	"	'	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	'	"	'		"	"	
Freon 113	3.6	1	'	"	"	"		"	
trans-1,2-Dichloroethene	ND	1	"	"	'	"	"	"	
1,1-Dichloroethane	ND	1		"	"	'	"	"	
cis-1,2-Dichloroethene	ND	1	"	'	"	"	"	"	
Chloroform	ND	1		"	"		"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1	"	"	"	"	'	"	
1,2-Dichloroethane	ND	1	"	"	'	"	"	"	
Benzene	ND	1	"	"	"	"	"	"	
Trichloroethene	ND	1	'	"		"	"	"	
Toluene	ND	1		"	"	'	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	'	'	"	"	"	
Ethylbenzene	1.9	1	'	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1		"	'	"	"	'	
m,p-Xylene	11	1		'	"	"	'	"	
o-Xylene	3.1	1	"	"	'	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*115 %*		*75-125*	"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*111 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*88 8 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*115 %*		*75-125*	"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG21-20, 123 cc purge volume (6305011-11) Vapor		**Sampled: 20-May-03**		**Received: 20-May-03**					
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E32001	20-May-03	20-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"		"	"	"	
Methylene chloride	ND	1	"		"	"	"	"	
Freon 113	4.8	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1		"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"		"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1	"	"	"		"	"	
1,2-Dichloroethane	ND	1	"		"	"	"	"	
Benzene	ND	1	"	"		"	"	"	
Trichloroethene	ND	1		"	"	"	"	"	
Toluene	ND	1			"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	2.2	1	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	11	1	"		"		"	"	
o-Xylene	2.8	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1			"	"	"	"	
Surrogate Dibromofluoromethane		*118 %*	*75-125*		"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*116 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*86 4 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*108 %*	*75-125*		"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA 92612	Project Manager: Mr Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B

HP Labs L6

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
Field Blank (6305011-01) Vapor Sampled: 20-May-03 Received: 20-May-03									
Methyl tert-butyl ether	ND	1	ug/l	0 05	6E32001	20-May-03	20-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	'	"	"	"	"	
Vinyl chloride	ND	1	'	"	'	"	"	"	
Chloroethane	ND	1	"		"		"		
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	'	"	"	"	"	"	
Freon 113	ND	1	"	'	'	"	"	'	
trans-1,2-Dichloroethene	ND	1		"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	'	"	'	
cis-1,2-Dichloroethene	ND	1	'	"	"	"	"	"	
Chloroform	ND	1	"	"		"		"	
1,1,1-Trichloroethane	ND	1	"	'	"	'	"		
Carbon tetrachloride	ND	1	"	"	"			"	
1,2-Dichloroethane	ND	1	"	"	'	"	"	"	
Benzene	ND	1	"	'	"		"	'	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	'	'	
1,1,2-Trichloroethane	ND	1	"	"	"		"	"	
Tetrachloroethene	ND	1	'	"	'	"		"	
Ethylbenzene	ND	1	"	"	"	'	"	"	
1,1,1,2-Tetrachloroethane	ND	1		"	"	"	'	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	'	"	"	"	"	"	
Surrogate Dibromofluoromethane		*99 6 %*		*75-125*	"	"	"	"	
Surrogate 1,2-Dichloroethane-d4		*98 4 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*94 8 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*114 %*		*75-125*	"	"	"	"	

HP LABS

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L6 Project Number: N62474-98-D-2076, MCAS El Toro Project Manager: Mr Guy Berger	Reported: 28-May-03

Volatile Organic Compounds by EPA Method 8260B - Quality Control

HP Labs L6

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6E31901 - EPA 5030										
Blank (6E31901-BLK1)				Prepared & Analyzed: 19-May-03						
Methyl tert-butyl ether	ND	1.0	ug/l							
Dichlorodifluoromethane	ND	1.0	"							
Vinyl chloride	ND	1.0	"							
Chloroethane	ND	1.0	"							
Trichlorofluoromethane	ND	1.0	"							
1,1-Dichloroethene	ND	1.0	"							
Methylene chloride	ND	1.0	"							
Freon 113	ND	1.0	"							
trans-1,2-Dichloroethene	ND	1.0	"							
1,1-Dichloroethane	ND	1.0	"							
cis-1,2-Dichloroethene	ND	1.0	"							
Chloroform	ND	1.0	"							
1,1,1-Trichloroethane	ND	1.0	"							
Carbon tetrachloride	ND	1.0	"							
1,2-Dichloroethane	ND	1.0	"							
Benzene	ND	1.0	"							
Trichloroethene	ND	1.0								
Toluene	ND	1.0	"							
1,1,2-Trichloroethane	ND	1.0	"							
Tetrachloroethene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
1,1,1,2-Tetrachloroethane	ND	1.0	"							
m,p-Xylene	ND	1.0	"							
o-Xylene	ND	1.0	"							
1,1,2,2-Tetrachloroethane	ND	1.0	"							
Surrogate: Dibromofluoromethane	*2.78*		"	*2.50*		*111*	*75-125*			
Surrogate: 1,2-Dichloroethane-d4	*2.70*		"	*2.50*		*108*	*75-125*			
Surrogate: Toluene-d8	*2.24*		"	*2.50*		*89.6*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*2.61*		"	*2.50*		*104*	*75-125*			

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B - Quality Control

HP Labs L6

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6E32001 - EPA 5030										
Blank (6E32001-BLK1)				Prepared & Analyzed: 20-May-03						
Methyl tert-butyl ether	ND	1.0	ug/l							
Dichlorodifluoromethane	ND	1.0	"							
Vinyl chloride	ND	1.0	"							
Chloroethane	ND	1.0	"							
Trichlorofluoromethane	ND	1.0								
1,1-Dichloroethene	ND	1.0	"							
Methylene chloride	ND	1.0	"							
Freon 113	ND	1.0	'							
trans-1,2-Dichloroethene	ND	1.0	"							
1,1-Dichloroethane	ND	1.0	"							
cis-1,2-Dichloroethene	ND	1.0	"							
Chloroform	ND	1.0	'							
1,1,1-Trichloroethane	ND	1.0	"							
Carbon tetrachloride	ND	1.0	"							
1,2-Dichloroethane	ND	1.0	"							
Benzene	ND	1.0	"							
Trichloroethene	ND	1.0	"							
Toluene	ND	1.0	"							
1,1,2-Trichloroethane	ND	1.0	"							
Tetrachloroethene	ND	1.0	"							
Ethylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0	"							
m,p-Xylene	ND	1.0	"							
o-Xylene	ND	1.0	'							
1,1,2,2-Tetrachloroethane	ND	1.0	"							
Surrogate: Dibromofluoromethane	*2.49*		"	*2.50*		*99.6*	*75-125*			
Surrogate: 1,2-Dichloroethane-d4	*2.46*		"	*2.50*		*98.4*	*75-125*			
Surrogate: Toluene-d8	*2.37*		"	*2.50*		*94.8*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*2.84*		"	*2.50*		*114*	*75-125*			

HP LABS

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L6	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076, MCAS El Toro	Reported:
Irvine CA, 92612	Project Manager: Mr Guy Berger	28-May-03

Volatile Organic Compounds by EPA Method 8260B in Air - Quality Control

HP Labs L6

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6E31901 - EPA 5030										
Blank (6E31901-BLK1)				Prepared & Analyzed: 19-May-03						
Isobutane	ND	10	ug/l							
Batch 6E32001 - EPA 5030										
Blank (6E32001-BLK1)				Prepared & Analyzed: 20-May-03						
Isobutane	ND	10	ug/l							

Chain of Custody Record

HP LABS

☐ 148 S. Vinewood St., Escondido, CA 92029 • ph 760.735.3208 • fax 760.735.2469
☐ 432 N. Cedros Ave., Solana Beach, CA 92075 • ph 858.793.0401 • fax 858.793.0404
☐ 2373 208th Street Unit F-1, Torrance, CA 90501 • ph 310.782.2929 • fax 310.782.2798

Date: 5/19/03
HPL Project # SHG5A03-24
Outside Lab:

Client: Shaw Environmental & Infrastructure, Inc
Address: 3347 Michelson Drive, Suite 200
Irvine, CA 92612
Phone: 949-474-8309 Fax: 949-474-8309

Collector: Kobbie Bray
Client Project # N62474-98-D-2076, CTO 24
Location: EL Toro MCAS, Irvine CA
Turn around time:

Page: 1 Of 1
Project Manager: Guy Berger

Global ID:
EDF: Yes / No

Sample Receipt
Intact: ☐ Yes ☐ No
Seal Intact: ☐ Yes ☐ No ☐ N/A
Cold: ☐ Yes ☐ No
N/A (Received on Site)

Sample Name	Field Point Name	Depth	Time	Date	Sample Type	Container Type	TPH gasoline / ~~diesel~~	TPH extended	8021 for BTEX/MTBE	8021 for Halogenated compounds	418.1 TRPH	8260B BTEX / Oxygenates	8260B Oxygenates	8260B VOCs	8260B VOCs and Oxygenates	Methane	Fixed Gases							Total # of containers
SG18-5	p. 18cc		1310	5/19/03	Vapor	Syringe	X							X										1
SG18-5 Dup	p. 78cc		1311				X							X										1
SG18-10	p. 33cc		1312				X							X										1
AA SG2-5	p. 18cc		1412				X							X										1
AA SG2-10	p. 33cc		1413				X							X										1
AA SG3-5	p. 18cc		1458				X							X										1
AA SG3-10	p. 33cc		1459				X							X										1
SG1-5	p. 18cc		1600				X							X										1
SG1-10	p. 33cc		1601				X							X										1
SG9-5	p. 18cc		1603				X							X										1
SG9-10	p. 33cc		1604				X							X										1
SG10-5	p. 18cc		1606				X							X										1
SG10-10	p. 33cc		1608				X							X										1

Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
[signature]	Shaw E&I	[signature]	HP Labs	5/19/03	16:10
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:

*Signature constitutes authorization to proceed with analysis and acceptance of condition on back.

Sample disposal instruction: ☐ *Disposal @ $2.00 each* ☐ *Return to client* ☐ *Pickup*

Chain of Custody Record

HP LABS

- ☐ 148 S. Vinewood St., Escondido, CA 92029 • ph 760.735.3208 • fax 760.735.2469
- ☐ 432 N. Cedros Ave., Solana Beach, CA 92075 • ph 858.793.0401 • fax 858.793.0404
- ☐ 2373 208th Street Unit F-1, Torrance, CA 90501 • ph 310.782.2929 • fax 310.782.2798

Date: 5/20/03
HPL Project # S1[illegible]
Outside Lab:

Client: Shaw Environmental & Infrastructure, Inc.
Address: 3347 Michelson Drive, Suite 200
Irvine, CA 92612
Phone: 949-~~474-8309~~ 660-7535 Fax: 949-474-8309

Collector: Robbie Bray
Client Project # N62474 98-D-2076, CTO 24
Location: EL Toro MCAS Irvine CA
Turn around time:

Page: 1 Of 1
Project Manager: Guy Berger

Global ID:
EDF: Yes / No

Sample Receipt
Intact: ☐ Yes ☐ No
Seal Intact: ☐ Yes ☐ No ☐ N/A
Cold: ☐ Yes ☐ No
N/A (Received on Site)

Sample Name	Field Point Name	Depth	Time	Date	Sample Type	Container Type	TPH gasoline / ~~diesel~~	TPH extended	8021 for BTEX/MTBE	8021 for Halogenated compounds	418.1 TRPH	8260B BTEX / Oxygenates	8260B Oxygenates	8260B VOCs + MTBE	8260B VOCs and Oxygenates	Methane	Fixed Gases							Total # of containers
SG17-15	p. ~~27~~ 54 cc		0935	5/20/03	Vapor	Syringe	X							X										1
SG8-5	p. 18 cc		0936				X							X										1
SG8-10	p. 33 cc		0937				X							X										1
SG8-10 Dup	p. 93 cc		0938				X							X										1
SG20-15	p. 54 cc		1110				X							X										1
SG11-5	p. 18 cc		1111				X							X										1
SG11-10	p. 33 cc		1112				X							X										1
SG23-5	p. 18 cc		1320				X							X										1
SG22-10	p. 33 cc		1621				X							X										1
SG22-20	p. 66 cc		1622				X							X										1

Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
[signature]	5/20/03	[signature]	HP Labs	5/20/03	1630
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:

*Signature constitutes authorization to proceed with analysis and acceptance of condition on back.

Sample disposal instruction: ☐ *Disposal @ $2.00 each* ☐ *Return to client* ☐ *Pickup*

W.O. # 4305013

Chain of Custody Record

HP LABS

- ☐ 148 S. Vinewood St., Escondido, CA 92029 • ph 760.735.3208 • fax 760.735.2469
- ☐ 432 N. Cedros Ave., Solana Beach, CA 92075 • ph 858.793.0401 • fax 858.793.0404
- ☐ 2373 208th Street Unit F-1, Torrance, CA 90501 • ph 310.782.2929 • fax 310.782.2798

Date: 5/21/03
HPL Project # SHOS1903 C4
Outside Lab:

Client: Shaw Environmental & Infrastructure, Inc
Address: 3347 Michelson Drive, Suite 200
Irvine, CA 92612
Phone: 949-660-7535 Fax: 949-474-8309 949-475-5433

Collector: Robbie Bray
Client Project # N62474-98-D-1076, CR 24
Location: El Toro MCAS, Irvine CA
Turn around time:
Page: 1 Of 1
Project Manager Guy Berger

Global ID:
EDF: Yes / No

Sample Receipt
Intact: ☐ Yes ☐ No
Seal Intact: ☐ Yes ☐ No ☐ N/A
Cold: ☐ Yes ☐ No
N/A (Received on Site)

	Sample Name	Field Point Name	Depth	Time	Date	Sample Type	Container Type	TPH gasoline ~~/diesel~~	TPH extended	8021 for BTEX/MTBE	8021 for Halogenated compounds	418.1 TRPH	8260B BTEX / Oxygenates	8260B Oxygenates	8260B VOCs + MTBE	8260B VOCs and Oxygenates	Methane	Fixed Gases							Total # of containers
+1038																									
1	SG21-30	p.159cc		0845	5/21/03	Vapor	Syringe	X							X										1
2A	130-SG1-4	p.17cc		1032				X							X										1
3A	130-SG2-5	p.18cc		1035				X							X										1
4A	130-SG2-10	p.33cc		1037				X							X										1
5	130-SG3-5	p.18cc		1038				X							X										1
6	130-SG3-10	p.33cc		1039				X							X										1
7A	130-SG2-15	p.111cc		1330				X							X										1
8A	130-SG2-15 Dup	p.171cc		1331				X							X										1
9A	130-SG2-20	p.123cc		1350				X							X										1
10A	130-SG3-15	p.111cc		1430				X							X										1
11A	130-SG3-20	p.123cc		1500				X							X										1

Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
[signature]	Shaw Ent	[signature]	HPLabs	5/21/03	1530 ~~1230~~
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:

*Signature constitutes authorization to proceed with analysis and acceptance of condition on back.

Sample disposal instruction: ☐ *Disposal @ $2.00 each* ☐ *Return to client* ☐ *Pickup*

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

TPH by GC FID

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG18-5, PV 18CC (4305011-01) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	1	4E32001	19-May-03	19-May-03	EPA 8015M	
SG18-5 DUP, PV78CC (4305011-02) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	1	4E32001	19-May-03	19-May-03	EPA 8015M	
SG18-10, PV33CC (4305011-03) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	1	4E32001	19-May-03	19-May-03	EPA 8015M	
SG2-5, PV18CC (4305011-04) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	1	4E32001	19-May-03	19-May-03	EPA 8015M	
SG2-10, PV33CC (4305011-05) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	1	4E32001	19-May-03	19-May-03	EPA 8015M	
SG3-5, PV18CC (4305011-06) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	1	4E32001	19-May-03	19-May-03	EPA 8015M	
SG3-10, PV33CC (4305011-07) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	1	4E32001	19-May-03	19-May-03	EPA 8015M	
SG1-5, PV18CC (4305011-08) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	1	4E32001	19-May-03	19-May-03	EPA 8015M	
SG1-10, PV33CC (4305011-09) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	1	4E32001	19-May-03	19-May-03	EPA 8015M	

Shaw Environmental & Infrastructure, Inc. 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

TPH by GC FID

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG9-5, PV18CC (4305011-10) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	1	4E32001	19-May-03	19-May-03	EPA 8015M	
SG9-10, PV33CC (4305011-11) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	1	4E32001	19-May-03	19-May-03	EPA 8015M	
SG10-5, PV18CC (4305011-12) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	1	4E32001	19-May-03	19-May-03	EPA 8015M	
SG10-10, PV33CC (4305011-13) Vapor Sampled: 19-May-03 Received: 19-May-03									
Gasoline	ND	500	ug/l	1	4E32001	19-May-03	19-May-03	EPA 8015M	
SG17-15, PV54CC (4305012-01) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	1	4E32101	20-May-03	20-May-03	EPA 8015M	
SG8-5, PV18CC (4305012-02) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	1	4E32101	20-May-03	20-May-03	EPA 8015M	
SG8-10, PV33CC (4305012-03) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	1	4E32101	20-May-03	20-May-03	EPA 8015M	
SG8-10 DUP, PV93CC (4305012-04) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	1	4E32101	20-May-03	20-May-03	EPA 8015M	
SG20-15, PV54CC (4305012-05) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	1	4E32101	20-May-03	20-May-03	EPA 8015M	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr. Guy Berger	Reported: 30-May-03

TPH by GC FID

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG11-5, PV18CC (4305012-06) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	1	4E32101	20-May-03	20-May-03	EPA 8015M	
SG11-10, PV33CC (4305012-07) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	1	4E32101	20-May-03	20-May-03	EPA 8015M	
SG23-5, PV18CC (4305012-08) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	1	4E32101	20-May-03	20-May-03	EPA 8015M	
SG22-10, PV33CC (4305012-09) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	1	4E32101	20-May-03	20-May-03	EPA 8015M	
SG22-20, PV66CC (4305012-10) Vapor Sampled: 20-May-03 Received: 20-May-03									
Gasoline	ND	500	ug/l	1	4E32101	20-May-03	20-May-03	EPA 8015M	
SG21-30, PV159CC (4305013-01) Vapor Sampled: 21-May-03 Received: 21-May-03									
Gasoline	ND	500	ug/l	1	4E32102	21-May-03	21-May-03	EPA 8015M	
130-SG1-4, PV17CC (4305013-02) Vapor Sampled: 21-May-03 Received: 21-May-03									
Gasoline	ND	500	ug/l	1	4E32102	21-May-03	21-May-03	EPA 8015M	
130-SG2-5, PV18CC (4305013-03) Vapor Sampled: 21-May-03 Received: 21-May-03									
Gasoline	ND	500	ug/l	1	4E32102	21-May-03	21-May-03	EPA 8015M	
130-SG2-10, PV33CC (4305013-04) Vapor Sampled: 21-May-03 Received: 21-May-03									
Gasoline	ND	500	ug/l	1	4E32102	21-May-03	21-May-03	EPA 8015M	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

TPH by GC FID - Quality Control

HP Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4E32001 - EPA 5030										
Blank (4E32001-BLK1)				Prepared & Analyzed: 19-May-03						
Gasoline	ND	500	ug/l							
Batch 4E32101 - EPA 5030										
Blank (4E32101-BLK1)				Prepared & Analyzed: 20-May-03						
Gasoline	ND	500	ug/l							
Batch 4E32102 - EPA 5030										
Blank (4E32102-BLK1)				Prepared & Analyzed: 21-May-03						
Gasoline	ND	500	ug/l							

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG18-5, PV 18CC (4305011-01) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1.0	ug/l	0.1	4E32001	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"		"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"		
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"		"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"		"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"		"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"		"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*104 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*107 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG18-5 DUP, PV78CC (4305011-02) Vapor	**Sampled: 19-May-03**		**Received: 19-May-03**						
Methyl tert-butyl ether	ND	1.0	ug/l	0 1	4E32001	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1 0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"		"	"	
cis-1,2-Dichloroethene	ND	1	"			"	"	"	
Chloroform	ND	1	"	"	"		"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1 0	"	"	"	"		"	
1,2-Dichloroethane	ND	1	"		"		"	"	
Benzene	ND	1.0	"			"	"	"	
Trichloroethene	ND	1	"	"	"	"			
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"		"	"	
m,p-Xylene	ND	1	"	"	"	"	"		
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"		"	"	"	"	
Surrogate Dibromofluoromethane		*109 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*106 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*107 %*	*75-125*		"	"	"	"	

Shaw Environmental & Infrastructure, Inc. 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr. Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG18-10, PV33CC (4305011-03) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1.0	ug/l	0.1	4E32001	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"		"	
Chloroethane	ND	1	"	"		"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"		"	
1,1-Dichloroethene	ND	1	"				"	"	
Methylene chloride	ND	1			"	"	"		
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"		"	"	"		
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"				"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"		
1,2-Dichloroethane	ND	1	"	"		"	"	"	
Benzene	ND	1.0	"			"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"		"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*111 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*105 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*115 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG2-5, PV18CC (4305011-04) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1.0	ug/l	0.1	4E32001	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"		
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"		"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"		"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"		"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"		"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"		"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"		
1,1,2,2-Tetrachloroethane	ND	1	"		"	"	"	"	
Surrogate: Dibromofluoromethane		*109 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*102 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr. Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG2-10, PV33CC (4305011-05) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1.0	ug/l	0.1	4E32001	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"		
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"		"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"		
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*105 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*107 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc	Project: SH051903-L4	
3347 Michelson Drive, Suite 200	Project Number: N62474-98-D-2076 CTO24	Reported:
Irvine CA, 92612	Project Manager: Mr Guy Berger	30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG3-5, PV18CC (4305011-06) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1.0	ug/l	0.1	4E32001	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"			
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"		"	"	
Freon 113	ND	1	"	"	"	"	"		
trans-1,2-Dichloroethene	ND	1	"	"	"		"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"		"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1.0	"		"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"		"	"	
Tetrachloroethene	ND	1	"	"	"	"		"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"		"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*107 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*106 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*104 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG3-10, PV33CC (4305011-07) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1.0	ug/l	0.1	4E32001	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"		"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"	"		"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"			"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"		"			"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"		"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1					"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"		
m,p-Xylene	ND	1	"	"	"		"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"		"	"	
Surrogate: Dibromofluoromethane		*106 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*102 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr. Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG1-5, PV18CC (4305011-08) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1.0	ug/l	0.1	4E32001	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"		
1,1,1-Trichloroethane	ND	1	"	"	"			"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"		
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"		
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*106 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*104 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*107 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr. Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG1-10, PV33CC (4305011-09) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1.0	ug/l	0.1	4E32001	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"		"	"		
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"		"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"		"	"		
cis-1,2-Dichloroethene	ND	1	"	"	"		"	"	
Chloroform	ND	1	"	"	"	"	"		
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"		"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"		"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*109 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*104 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr. Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG9-5, PV18CC (4305011-10) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1.0	ug/l	0.1	4E32001	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"		"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"		
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"		
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"			"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"		
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"		"	
Surrogate: Dibromofluoromethane		*110 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*106 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG9-10, PV33CC (4305011-11) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1 0	ug/l	0 1	4E32001	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1 0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	'	
Trichlorofluoromethane	ND	1	'	'	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	'	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	'	"		"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	'	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	'	
Carbon tetrachloride	ND	1 0	"	"	"		"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"		
Benzene	ND	1 0	"	"	"	'	"	"	
Trichloroethene	ND	1	'	'		"	"		
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	'		'	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"		"	"	'	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"		"	"	
m,p-Xylene	ND	1	"	'	'	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	'	"	"	"	
Surrogate Dibromofluoromethane		*108 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*105 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*102 %*		*75-125*	"	"	"	"	

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Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG10-5, PV18CC (4305011-12) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1.0	ug/l	0.1	4E32001	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"		"	"	"	
Trichlorofluoromethane	ND	1	"		"	"		"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"		"	"		"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"		
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"		"	
1,1,1-Trichloroethane	ND	1	"	"	"		"	"	
Carbon tetrachloride	ND	1.0	"	"		"	"	"	
1,2-Dichloroethane	ND	1	"	"		"	"	"	
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"		"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"		"	"	"	
Surrogate: Dibromofluoromethane		*112 %*		*75-125*		"	"	"	
Surrogate: Toluene-d8		*103 %*		*75-125*		"	"	"	
Surrogate: 4-Bromofluorobenzene		*104 %*		*75-125*		"	"	"	

Shaw Environmental & Infrastructure, Inc. 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG10-10, PV33CC (4305011-13) Vapor Sampled: 19-May-03 Received: 19-May-03									
Methyl tert-butyl ether	ND	1.0	ug/l	0.1	4E32001	19-May-03	19-May-03	EPA 8260B	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"		"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"		"	"	
Carbon tetrachloride	ND	1.0	"	"	"		"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"		"	"	"		
m,p-Xylene	ND	1	"	"	"		"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*115 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*107 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG17-15, PV54CC (4305012-01) Vapor Sampled: 20-May-03 Received: 20-May-03									
1,1-Difluoroethane	ND	20	ug/l	0 1	4E32101	20-May-03	20-May-03	EPA 8260B	
Methyl tert-butyl ether	ND	1.0	"	'	"	"	"	'	
Dichlorodifluoromethane	ND	1	"	"	"		"	"	
Vinyl chloride	ND	1 0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	'	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"		
cis-1,2-Dichloroethene	ND	1	"	"		'		"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1				'		'	
Carbon tetrachloride	ND	1.0	"		'	'	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"		
Benzene	ND	1 0	"	"			"	"	
Trichloroethene	ND	1	"	"	"	"	"		
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	'	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	'	"	
m,p-Xylene	ND	1	'	"	'	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"		'	"	"	"	
Surrogate Dibromofluoromethane		*115 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*105 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*101 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr. Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG8-5, PV18CC (4305012-02) Vapor Sampled: 20-May-03 Received: 20-May-03									
1,1-Difluoroethane	ND	20	ug/l	0.1	4E32101	20-May-03	20-May-03	EPA 8260B	
Methyl tert-butyl ether	ND	1.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"		
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"		
1,1-Dichloroethene	ND	1	"	"	"				
Methylene chloride	ND	1	"	"	"		"	"	
Freon 113	ND	1	"		"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"		"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"		
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"				
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*122 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*111 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*108 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG8-10, PV33CC (4305012-03) Vapor	**Sampled: 20-May-03**	**Received: 20-May-03**							
1,1-Difluoroethane	ND	20	ug/l	0 1	4E32101	20-May-03	20-May-03	EPA 8260B	
Methyl tert-butyl ether	ND	1 0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"		"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"	"	"		
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"		"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"			"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"		"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*106 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*100 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*95 6 %*	*75-125*		"	"	"	"	

Shaw Environmental & Infrastructure, Inc. 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr. Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG8-10 DUP, PV93CC (4305012-04) Vapor	**Sampled: 20-May-03**		**Received: 20-May-03**						
1,1-Difluoroethane	ND	20	ug/l	0.1	4E32101	20-May-03	20-May-03	EPA 8260B	
Methyl tert-butyl ether	ND	1.0	"	"	"		"	"	
Dichlorodifluoromethane	ND	1	"			"	"	"	
Vinyl chloride	ND	1.0	"	"	"		"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"		"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"			"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"		"		"	"	
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"		"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"			"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*115 %*	*75-125*		"	"	"	"	
Surrogate: Toluene-d8		*105 %*	*75-125*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*98.8 %*	*75-125*		"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr. Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG20-15, PV54CC (4305012-05) Vapor Sampled: 20-May-03 Received: 20-May-03									
1,1-Difluoroethane	ND	20	ug/l	0.1	4E32101	20-May-03	20-May-03	EPA 8260B	
Methyl tert-butyl ether	ND	1.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"			
Methylene chloride	ND	1	"	"	"		"	"	
Freon 113	ND	1	"			"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"		"	
1,1-Dichloroethane	ND	1	"	"	"		"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"		"	
Chloroform	ND	1	"	"			"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1.0	"	"	"	"		"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"		"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*110 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*101 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*99.4 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG11-5, PV18CC (4305012-06) Vapor Sampled: 20-May-03 Received: 20-May-03									
1,1-Difluoroethane	ND	20	ug/l	0 1	4E32101	20-May-03	20-May-03	EPA 8260B	
Methyl tert-butyl ether	ND	1.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"		"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"		"	"	
trans-1,2-Dichloroethene	ND	1	"		"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"		"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1 0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"		"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate Dibromofluoromethane		*113 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*102 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*93.4 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG11-10, PV33CC (4305012-07) Vapor Sampled: 20-May-03 Received: 20-May-03									
1,1-Difluoroethane	ND	20	ug/l	0 1	4E32101	20-May-03	20-May-03	EPA 8260B	
Methyl tert-butyl ether	ND	1 0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1	'		"	"	"		
Vinyl chloride	ND	1 0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	'	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	'	"	"	"	'	
trans-1,2-Dichloroethene	ND	1	"	"	"	'	"	"	
1,1-Dichloroethane	ND	1	"	'	"	'		'	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"		'			
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	'		"	"	"	"	
Benzene	ND	1.0	"	'		'		'	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	'	'	"	"	"		
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"			'		"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	'	'	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	'	"	"		
1,1,2,2-Tetrachloroethane	ND	1	"	"	'		'	"	
Surrogate Dibromofluoromethane		*122 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*108 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*105 %*	*75-125*		"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG23-5, PV18CC (4305012-08) Vapor Sampled: 20-May-03 Received: 20-May-03									
1,1-Difluoroethane	ND	20	ug/l	0 1	4E32101	20-May-03	20-May-03	EPA 8260B	
Methyl tert-butyl ether	ND	1.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1	"	'	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	'	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"		"	'	"	'	
Methylene chloride	ND	1	'	"	"	'	"	'	
Freon 113	ND	1	"	'	"	"	'	"	
trans-1,2-Dichloroethene	ND	1	'	"	'		"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	'	"	
cis-1,2-Dichloroethene	ND	1	"	"	"		"	"	
Chloroform	ND	1	"			'			
1,1,1-Trichloroethane	ND	1	"	"	"	'	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"	'	"	"	
Benzene	ND	1.0	"	"		"		"	
Trichloroethene	ND	1	"		"	"	"		
Toluene	ND	1	"	"		"	'	"	
1,1,2-Trichloroethane	ND	1	"	"	"		"	"	
Tetrachloroethene	ND	1	"	'	'	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	'	"	
o-Xylene	ND	1	"	"	"	'	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"		"	"	
Surrogate Dibromofluoromethane		*115 %*		*75-125*	"	"	"	"	
Surrogate Toluene-d8		*99 6 %*		*75-125*	"	"	"	"	
Surrogate 4-Bromofluorobenzene		*92 4 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr. Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG22-10, PV33CC (4305012-09) Vapor Sampled: 20-May-03 Received: 20-May-03									
1,1-Difluoroethane	ND	20	ug/l	0 1	4E32101	20-May-03	20-May-03	EPA 8260B	
Methyl tert-butyl ether	ND	1.0	"	'			"	"	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	'	'	"	"		
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	'	
1,1-Dichloroethene	ND	1	"	"	"		"	"	
Methylene chloride	ND	1	"	"	"	"	"		
Freon 113	ND	1	"	"	"	"	'	"	
trans-1,2-Dichloroethene	ND	1	"	"	'	'	'	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"		
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	'	"	"	"	"	
Benzene	ND	1.0	"	"	"	"	"	'	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"		
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	'	"	
m,p-Xylene	1.4	1	"	"	'	'	"	"	
o-Xylene	ND	1	"	"	"	"	'	"	
1,1,2,2-Tetrachloroethane	ND	1	'			"	"	"	
Surrogate Dibromofluoromethane		*114 %*		*75-125*		"	"	"	
Surrogate Toluene-d8		*107 %*		*75-125*		"	"	"	
Surrogate 4-Bromofluorobenzene		*104 %*		*75-125*		"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr. Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG22-20, PV66CC (4305012-10) Vapor Sampled: 20-May-03 Received: 20-May-03									
1,1-Difluoroethane	ND	20	ug/l	0.1	4E32101	20-May-03	20-May-03	EPA 8260B	
Methyl tert-butyl ether	ND	1.0	"	"	"	"	"		
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"		"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"		"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1	"	"	"		"	"	
Benzene	ND	1.0	"	"	"	"	"		
Trichloroethene	ND	1	"	"	"		"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"		"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*113 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*97.4 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92.2 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SG21-30, PV159CC (4305013-01) Vapor Sampled: 21-May-03 Received: 21-May-03									
1,1-Difluoroethane	ND	20	ug/l	0 1	4E32102	21-May-03	21-May-03	EPA 8260B	
Methyl tert-butyl ether	ND	1.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1.0	"	"	"	"	"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"	"	
Freon 113	ND	1	"		"	"	"		
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"			"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1		"	"	"	"		
Benzene	ND	1.0	"	"			"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
Surrogate: Dibromofluoromethane		*112 %*		*75-125*	"	"	"	"	
Surrogate: Toluene-d8		*98 4 %*		*75-125*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*93 0 %*		*75-125*	"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air

HP Labs

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
130-SG1-4, PV17CC (4305013-02) Vapor	**Sampled: 21-May-03**		**Received: 21-May-03**						
1,1-Difluoroethane	ND	20	ug/l	0 1	4E32102	21-May-03	21-May-03	EPA 8260B	
Methyl tert-butyl ether	ND	1.0	"	"	"				
Dichlorodifluoromethane	ND	1	"	"	"	"	"	"	
Vinyl chloride	ND	1 0	"		"		"	"	
Chloroethane	ND	1	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1	"	"	"	"	"	"	
Methylene chloride	ND	1	"	"	"	"	"		
Freon 113	3.0	1	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1	"	"		"	"	"	
Chloroform	ND	1	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.0	"	"	"	"		"	
1,2-Dichloroethane	ND	1	"	"	"	"	"	"	
Benzene	ND	1.0	"	"	"	"	"	"	
Trichloroethene	ND	1	"	"	"	"	"	"	
Toluene	ND	1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1	"	"	"	"	"	"	
Tetrachloroethene	ND	1	"	"	"	"	"	"	
Ethylbenzene	ND	1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1	"	"	"	"	"	"	
m,p-Xylene	ND	1	"	"	"	"	"	"	
o-Xylene	ND	1	"	"	"	"	"		
1,1,2,2-Tetrachloroethane	ND	1	"		"	"	"	"	
Surrogate Dibromofluoromethane		*116 %*	*75-125*		"	"	"	"	
Surrogate Toluene-d8		*102 %*	*75-125*		"	"	"	"	
Surrogate 4-Bromofluorobenzene		*97 2 %*	*75-125*		"	"	"	"	

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air - Quality Control

HP Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4E32001 - EPA 5030										
Blank (4E32001-BLK1)				Prepared & Analyzed: 19-May-03						
Methyl tert-butyl ether	ND		ug/l							
Dichlorodifluoromethane	ND	1.0	"							
Vinyl chloride	ND	1.0	"							
Chloroethane	ND	1.0	"							
Trichlorofluoromethane	ND	1.0	"							
1,1-Dichloroethene	ND	1.0	"							
Methylene chloride	ND	1.0	"							
Freon 113	ND	1.0	"							
trans-1,2-Dichloroethene	ND	1.0	"							
1,1-Dichloroethane	ND	1.0	"							
cis-1,2-Dichloroethene	ND	1.0	"							
Chloroform	ND	1.0	"							
1,1,1-Trichloroethane	ND	1.0	"							
Carbon tetrachloride	ND	1.0	"							
1,2-Dichloroethane	ND	1.0	"							
Benzene	ND	1.0	"							
Trichloroethene	ND	1.0	"							
Toluene	ND	1.0	"							
1,1,2-Trichloroethane	ND	1.0	"							
Tetrachloroethene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
1,1,1,2-Tetrachloroethane	ND	1.0	"							
m,p-Xylene	ND	1.0	"							
o-Xylene	ND	1.0	"							
1,1,2,2-Tetrachloroethane	ND	1.0	"							
Surrogate: Dibromofluoromethane	*56.4*		"	*50.0*		*113*	*75-125*			
Surrogate: Toluene-d8	*51.7*		"	*50.0*		*103*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*55.8*		"	*50.0*		*112*	*75-125*			

Shaw Environmental & Infrastructure, Inc 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr. Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air - Quality Control

HP Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4E32101 - EPA 5030										
Blank (4E32101-BLK1)				Prepared & Analyzed: 20-May-03						
Methyl tert-butyl ether	ND		ug/l							
1,1-Difluoroethane	ND	20	"							
Dichlorodifluoromethane	ND	1.0	"							
Vinyl chloride	ND	1.0	"							
Chloroethane	ND	1.0	"							
Trichlorofluoromethane	ND	1.0	"							
1,1-Dichloroethene	ND	1.0	"							
Methylene chloride	ND	1.0	"							
Freon 113	ND	1.0	"							
trans-1,2-Dichloroethene	ND	1.0	"							
1,1-Dichloroethane	ND	1.0	"							
cis-1,2-Dichloroethene	ND	1.0	"							
Chloroform	ND	1.0	"							
1,1,1-Trichloroethane	ND	1.0	"							
Carbon tetrachloride	ND	1.0	"							
1,2-Dichloroethane	ND	1.0	"							
Benzene	ND	1.0	"							
Trichloroethene	ND	1.0	"							
Toluene	ND	1.0	"							
1,1,2-Trichloroethane	ND	1.0	"							
Tetrachloroethene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
1,1,1,2-Tetrachloroethane	ND	1.0	"							
m,p-Xylene	ND	1.0	"							
o-Xylene	ND	1.0	"							
1,1,2,2-Tetrachloroethane	ND	1.0								
Surrogate: Dibromofluoromethane	*56.8*		"	*50.0*		*114*	*75-125*			
Surrogate: Toluene-d8	*52.6*		"	*50.0*		*105*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*52.6*		"	*50.0*		*105*	*75-125*			

Shaw Environmental & Infrastructure, Inc. 3347 Michelson Drive, Suite 200 Irvine CA, 92612	Project: SH051903-L4 Project Number: N62474-98-D-2076 CTO24 Project Manager: Mr Guy Berger	Reported: 30-May-03

Volatile Organic Compounds by EPA Method 8260B in Air - Quality Control

HP Labs

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4E32102 - EPA 5030										
Blank (4E32102-BLK1)				Prepared & Analyzed: 21-May-03						
Methyl tert-butyl ether	ND		ug/l							
1,1-Difluoroethane	ND	20	"							
Dichlorodifluoromethane	ND	1.0	"							
Vinyl chloride	ND	1.0	"							
Chloroethane	ND	1.0	"							
Trichlorofluoromethane	ND	1.0	"							
1,1-Dichloroethene	ND	1.0	"							
Methylene chloride	ND	1.0	"							
Freon 113	ND	1.0	"							
trans-1,2-Dichloroethene	ND	1.0	"							
1,1-Dichloroethane	ND	1.0	"							
cis-1,2-Dichloroethene	ND	1.0	"							
Chloroform	ND	1.0	"							
1,1,1-Trichloroethane	ND	1.0	"							
Carbon tetrachloride	ND	1.0	"							
1,2-Dichloroethane	ND	1.0	"							
Benzene	ND	1.0	"							
Trichloroethene	ND	1.0	"							
Toluene	ND	1.0	"							
1,1,2-Trichloroethane	ND	1.0	"							
Tetrachloroethene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
1,1,1,2-Tetrachloroethane	ND	1.0	"							
m,p-Xylene	ND	1.0	"							
o-Xylene	ND	1.0	"							
1,1,2,2-Tetrachloroethane	ND	1.0	"							
Surrogate: Dibromofluoromethane	*58.4*		"	*50.0*		*117*	*75-125*			
Surrogate: Toluene-d8	*50.4*		"	*50.0*		*101*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*46.7*		"	*50.0*		*93.4*	*75-125*			

the group

IT Corporation
2790 Mosside Blvd.
Monroeville, PA 15146-2792
(412)372-7701

CHAIN-OF-CUSTODY RECORD

APHO-38

PROJECT DATA MANAGER'S COPY

A 16102

FORM 0019 REV. 9-99

IT'S LAB COORDINATOR: Lynn Jefferson	LAB COORDINATOR'S PHONE: 949-660-7537	LAB COORDINATOR'S FAX: 949-475-5433	LABORATORY SERVICE ID: E3E210194	LABORATORY CONTACT: Subina Siddoko	MAIL REPORT (COMPANY NAME): Shaw E&I
PROJECT NAME: APHO 38-Soil Vapor	PROJECT LOCATION: MCAS El Toro	PROJECT NUMBER: 818655	LABORATORY PHONE: 714-258-8610	LABORATORY FAX: 714-258-0921	RECIPIENT NAME: Dwayne Shinda
PROJECT CONTACT: Lynn Jefferson	PROJECT PHONE NUMBER: 949-660-7537	PROJECT FAX: 949-475-5433	LABORATORY ADDRESS: 1721 S. Grand Ave		ADDRESS: 3347 Michelson #200
PROJECT ADDRESS: 311 Bldg. Marine Way	CITY, STATE AND ZIP CODE: El Toro, CA	CLIENT: SWDIV	CITY, STATE AND ZIP CODE: Santa Ana, CA 92703		CITY, STATE AND ZIP CODE: Irvine, CA 92677
PROJECT MANAGER: Dhananjay Rawal	PROJECT MANAGER'S PHONE: 949-660-7576	PROJECT MANAGER'S FAX: 949-474-8309			

Item	Sample Identifier	Matrix	2003 Date	Time	Preserved	# of Cont.	QC Level	T.A.T.	Analyses: TO-3 (TVPH)	TO-15 (VOC)	+ MTBE						Comments
1	~~818655-3303~~	V	5/19	~~0~~1715	NO	1	3	5 day	X	X	X						
2	818655-3304	V	5/20	1150	NO	1	3	5 day	X	X							
3	818655-3305	V	5/20	1215	NO	1	3	5 day	X	X							
4																	
5																	
6																	
7																	
8																	
9																	
10																	

SAMPLES COLLECTED BY: W. Jeffers

COURIER AND AIR BILL NUMBER:

COOLER TEMPERATURE UPON RECEIPT:

RELINQUISHED BY	RECEIVED BY	DATE	TIME	SAMPLE'S CONDITION UPON RECEIPT
[signature]	[signature]	5/20/03	1745	

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

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

Sample Point Location	Sample Type: G	C	F	QC
① ~~SG-5~~ APHO 38-SG-12 @ 10'				
② APHO 38-SG-15 @ 5'				
③ APHO 38-SG-20 @ 15'				

Comments

COC ✓ m 5/28/03

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

CASE NARRATIVE

All applicable quality control procedures met method-specified acceptance criteria except as noted on the following page

If you have any questions, please feel free to call me at 714.258.8610.

Sincerely,

Sabina Sudoko
Project Manager
CC: Project File

SHAW E & I INC

Client Sample ID: 818655-3304

GC Volatiles

Lot-Sample #....: E3E210194-001 **Work Order #...:** FN5DR1AF **Matrix.....:** AIR
Date Sampled...: 05/20/03 11:50 **Date Received..:** 05/20/03
Prep Date.....: 05/22/03 **Analysis Date..:** 05/22/03
Prep Batch #...: 3149311 **Analysis Time..:** 19:31
Dilution Factor: 2.12
Analyst ID.....: 358011 **Instrument ID..:** GC6
Method.....: EPA-19 TO-3

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
C10+	ND	6.4	ug/L	1.3
C4 (butane)	ND	0.51	ug/L	0.11
C2 (ethane)	ND	1.3	ug/L	0.053
C7 (heptane)	ND	0.87	ug/L	0.25
C6 (hexane)	ND	0.74	ug/L	0.30
C9 (nonane)	ND	1.1	ug/L	0.34
C8 (Octane)	ND	1.0	ug/L	0.40
C5 (pentane)	ND	0.61	ug/L	0.13
C3 (propane)	ND	0.38	ug/L	0.085

SHAW E & I INC

Client Sample ID: 818655-3305

GC Volatiles

Lot-Sample #....:	E3E210194-002	**Work Order #....:**	FN5D21AF	**Matrix.....:**	AIR
Date Sampled....:	05/20/03 12:15	**Date Received...:**	05/20/03		
Prep Date.....:	05/22/03	**Analysis Date...:**	05/22/03		
Prep Batch #....:	3149311	**Analysis Time...:**	19:59		
Dilution Factor:	2.32				
Analyst ID.....:	358011	**Instrument ID...:**	GC6		
		Method.....:	EPA-19 TO-3		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
C10+	ND	7.0	ug/L	1.4
C4 (butane)	ND	0.56	ug/L	0.12
C2 (ethane)	ND	1.4	ug/L	0.058
C7 (heptane)	ND	0.95	ug/L	0.28
C6 (hexane)	ND	0.81	ug/L	0.32
C9 (nonane)	ND	1.2	ug/L	0.37
C8 (Octane)	ND	1.1	ug/L	0.44
C5 (pentane)	ND	0.67	ug/L	0.14
C3 (propane)	ND	0.42	ug/L	0.093

METHOD BLANK REPORT

GC Volatiles

Client Lot #....: E3E210194 **Work Order #....:** FPKGT1AA **Matrix.....:** AIR
MB Lot-Sample #: M3E290000-311

Prep Date.....: 05/22/03 **Analysis Time...:** 18:31
Analysis Date...: 05/22/03 **Prep Batch #....:** 314931L **Instrument ID....:** GC6
Dilution Factor: 1

Analyst ID.....: 358011

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
C2 (ethane)	ND	0.61	ug/L	EPA-19 TO-3
C3 (propane)	ND	0.18	ug/L	EPA-19 TO-3
C4 (butane)	ND	0.24	ug/L	EPA-19 TO-3
C5 (pentane)	ND	0.29	ug/L	EPA-19 TO-3
C6 (hexane)	ND	0.35	ug/L	EPA-19 TO-3
C7 (heptane)	ND	0.41	ug/L	EPA-19 TO-3
C9 (nonane)	**0.22 J**	**0.52**	**ug/L**	**EPA-19 TO-3**
C8 (Octane)	ND	0.47	ug/L	EPA-19 TO-3
C10+	**1.0 J**	**3.0**	**ug/L**	**EPA-19 TO-3**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

J Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #....: E3E210194 Work Order #...: FPF061AC-LCS Matrix.....: AIR
LCS Lot-Sample#: M3E270000-538 FPF061AD-LCSD
Prep Date.....: 05/22/03 Analysis Date..: 05/22/03
Prep Batch #....: 3147538 Analysis Time..: 17:25
Dilution Factor: 1 Instrument ID..: GC5
Analyst ID.....: 358011

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Pentane	107	(75 - 125)			EPA-19 TO-3
	106	(75 - 125)	0.31	(0-20)	EPA-19 TO-3
Octane	95	(75 - 125)			EPA-19 TO-3
	96	(75 - 125)	0.23	(0-20)	EPA-19 TO-3

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

Bold print denotes control parameters

SHAW E & I INC

Client Sample ID: 818655-3304

GC/MS Volatiles

Lot-Sample #....:	E3E210194-001	**Work Order #....:**	FN5DR1AE	**Matrix.....:**	AIR
Date Sampled....:	05/20/03 11:50	**Date Received...:**	05/20/03		
Prep Date.....:	05/21/03	**Analysis Date...:**	05/21/03		
Prep Batch #....:	3149379	**Analysis Time...:**	16:36		
Dilution Factor:	1				
Analyst ID.....:	341569	**Instrument ID...:**	MSC		
		Method.....:	EPA-2 TO-15		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	**0.0030**	**0.00099**	**ug/L**	**0.00025**
Chloromethane	**0.00092**	**0.00082**	**ug/L**	**0.00014**
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.0014	ug/L	0.00063
Vinyl chloride	ND	0.00051	ug/L	0.00015
Bromomethane	ND	0.00078	ug/L	0.00035
Chloroethane	ND	0.0011	ug/L	0.00037
Trichlorofluoromethane	**0.0015 J**	**0.0022**	**ug/L**	**0.0011**
1,1-Dichloroethene	ND	0.00079	ug/L	0.00024
Carbon disulfide	**0.0010 J**	**0.0031**	**ug/L**	**0.00044**
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.14**	**0.0031**	**ug/L**	**0.00054**
Acetone	**0.062**	**0.0019**	**ug/L**	**0.00047**
Methylene chloride	**0.0011**	**0.00069**	**ug/L**	**0.00024**
trans-1,2-Dichloroethene	ND	0.00079	ug/L	0.00028
1,1-Dichloroethane	ND	0.00081	ug/L	0.00020
Vinyl acetate	ND	0.0035	ug/L	0.00014
cis-1,2-Dichloroethene	ND	0.00079	ug/L	0.00020
2-Butanone (MEK)	**0.015**	**0.0029**	**ug/L**	**0.00059**
Chloroform	**0.00048 J**	**0.00097**	**ug/L**	**0.00029**
1,1,1-Trichloroethane	ND	0.0011	ug/L	0.00044
Carbon tetrachloride	**0.0010 J**	**0.0013**	**ug/L**	**0.00025**
Benzene	**0.0020**	**0.00064**	**ug/L**	**0.00026**
1,2-Dichloroethane	ND	0.00081	ug/L	0.00024
Trichloroethene	ND	0.0011	ug/L	0.00043
1,2-Dichloropropane	ND	0.00092	ug/L	0.00028
Bromodichloromethane	ND	0.0013	ug/L	0.00040
cis-1,3-Dichloropropene	ND	0.00091	ug/L	0.00036
4-Methyl-2-pentanone (MIBK)	ND	0.0016	ug/L	0.00037
Toluene	**0.010**	**0.0011**	**ug/L**	**0.00034**
trans-1,3-Dichloropropene	ND	0.00091	ug/L	0.00036
1,1,2-Trichloroethane	ND	0.0011	ug/L	0.00044
Tetrachloroethene	**0.00073 J**	**0.0014**	**ug/L**	**0.00061**
2-Hexanone	**0.0022**	**0.0016**	**ug/L**	**0.00082**
Dibromochloromethane	ND	0.0017	ug/L	0.00068
1,2-Dibromoethane (EDB)	ND	0.0015	ug/L	0.00046

(Continued on next page)

SHAW E & I INC

Client Sample ID: 818655-3304

GC/MS Volatiles

Lot-Sample #....: E3E210194-001 Work Order #...: FN5DR1AE Matrix.....: AIR

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	0.00049 J	0.00092	ug/L	0.00041
Ethylbenzene	0.0025	0.00087	ug/L	0.00030
m-Xylene & p-Xylene	0.011	0.0022	ug/L	0.00087
o-Xylene	0.0045	0.00087	ug/L	0.00026
Styrene	0.00045 J,JA	0.00085	ug/L	0.00026
Bromoform	ND	0.0021	ug/L	0.00072
1,1,2,2-Tetrachloroethane	ND	0.0014	ug/L	0.00055
Benzyl chloride	ND	0.0064	ug/L	0.00038
4-Ethyltoluene	0.0045	0.0020	ug/L	0.00034
1,3,5-Trimethylbenzene	0.0016 J	0.0020	ug/L	0.00044
1,2,4-Trimethylbenzene	0.0065	0.0020	ug/L	0.00039
1,3-Dichlorobenzene	ND	0.0012	ug/L	0.00048
1,4-Dichlorobenzene	ND	0.0012	ug/L	0.00036
1,2-Dichlorobenzene	ND	0.0012	ug/L	0.00042
1,2,4-Trichloro-benzene	ND	0.0059	ug/L	0.00067
Hexachlorobutadiene	ND	0.0043	ug/L	0.0014
Methyl tert-butyl ether (MTBE)	0.00064 J	0.0036	ug/L	0.00036

NOTE(S):

J Estimated result Result is less than RL

JA The analyte was positively identified but the quantitation is an estimate

SHAW E & I INC

Client Sample ID: 818655-3305

GC/MS Volatiles

Lot-Sample #....:	E3E210194-002	**Work Order #....:**	FN5D21AE	**Matrix.....:**	AIR
Date Sampled....:	05/20/03 12:15	**Date Received...:**	05/20/03		
Prep Date.....:	05/21/03	**Analysis Date...:**	05/21/03		
Prep Batch #...:	3149379	**Analysis Time...:**	17:20		
Dilution Factor:	1				
Analyst ID.....:	341569	**Instrument ID...:**	MSC		
		Method.....:	EPA-2 TO-15		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	**0.0033**	**0.00099**	**ug/L**	**0.00025**
Chloromethane	**0.00099**	**0.00082**	**ug/L**	**0.00014**
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.0014	ug/L	0.00063
Vinyl chloride	ND	0.00051	ug/L	0.00015
Bromomethane	ND	0.00078	ug/L	0.00035
Chloroethane	ND	0.0011	ug/L	0.00037
Trichlorofluoromethane	**0.0015 J**	**0.0022**	**ug/L**	**0.0011**
1,1-Dichloroethene	ND	0.00079	ug/L	0.00024
Carbon disulfide	**0.0011 J**	**0.0031**	**ug/L**	**0.00044**
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.29**	**0.0031**	**ug/L**	**0.00054**
Acetone	**0.063**	**0.0019**	**ug/L**	**0.00047**
Methylene chloride	**0.0012**	**0.00069**	**ug/L**	**0.00024**
trans-1,2-Dichloroethene	ND	0.00079	ug/L	0.00028
1,1-Dichloroethane	ND	0.00081	ug/L	0.00020
Vinyl acetate	ND	0.0035	ug/L	0.00014
cis-1,2-Dichloroethene	ND	0.00079	ug/L	0.00020
2-Butanone (MEK)	**0.018**	**0.0029**	**ug/L**	**0.00059**
Chloroform	ND	0.00097	ug/L	0.00029
1,1,1-Trichloroethane	ND	0.0011	ug/L	0.00044
Carbon tetrachloride	**0.00096 J**	**0.0013**	**ug/L**	**0.00025**
Benzene	**0.0013**	**0.00064**	**ug/L**	**0.00026**
1,2-Dichloroethane	ND	0.00081	ug/L	0.00024
Trichloroethene	ND	0.0011	ug/L	0.00043
1,2-Dichloropropane	ND	0.00092	ug/L	0.00028
Bromodichloromethane	ND	0.0013	ug/L	0.00040
cis-1,3-Dichloropropene	ND	0.00091	ug/L	0.00036
4-Methyl-2-pentanone (MIBK)	ND	0.0016	ug/L	0.00037
Toluene	**0.0044**	**0.0011**	**ug/L**	**0.00034**
trans-1,3-Dichloropropene	ND	0.00091	ug/L	0.00036
1,1,2-Trichloroethane	ND	0.0011	ug/L	0.00044
Tetrachloroethene	**0.0011 J**	**0.0014**	**ug/L**	**0.00061**
2-Hexanone	**0.0021**	**0.0016**	**ug/L**	**0.00082**
Dibromochloromethane	ND	0.0017	ug/L	0.00068
1,2-Dibromoethane (EDB)	ND	0.0015	ug/L	0.00046

(Continued on next page)

SHAW E & I INC

Client Sample ID: 818655-3305

GC/MS Volatiles

Lot-Sample #....: E3E210194-002 **Work Order #....:** FN5D21AE **Matrix.....:** AIR

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	0.00092	ug/L	0.00041
Ethylbenzene	**0.00066 J**	**0.00087**	**ug/L**	**0.00030**
m-Xylene & p-Xylene	**0.0020 J**	**0.0022**	**ug/L**	**0.00087**
o-Xylene	**0.00084 J**	**0.00087**	**ug/L**	**0.00026**
Styrene	ND	0.00085	ug/L	0.00026
Bromoform	ND	0.0021	ug/L	0.00072
1,1,2,2-Tetrachloroethane	ND	0.0014	ug/L	0.00055
Benzyl chloride	ND	0.0064	ug/L	0.00038
4-Ethyltoluene	**0.0014 J**	**0.0020**	**ug/L**	**0.00034**
1,3,5-Trimethylbenzene	**0.00047 J**	**0.0020**	**ug/L**	**0.00044**
1,2,4-Trimethylbenzene	**0.0024**	**0.0020**	**ug/L**	**0.00039**
1,3-Dichlorobenzene	ND	0.0012	ug/L	0.00048
1,4-Dichlorobenzene	ND	0.0012	ug/L	0.00036
1,2-Dichlorobenzene	ND	0.0012	ug/L	0.00042
1,2,4-Trichloro-benzene	ND	0.0059	ug/L	0.00067
Hexachlorobutadiene	ND	0.0043	ug/L	0.0014
Methyl tert-butyl ether (MTBE)	**0.00044 J**	**0.0036**	**ug/L**	**0.00036**

NOTE(S):

J Estimated result Result is less than RL.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #....: E3E210194 **Work Order #....:** FPKWW1AA **Matrix.....:** AIR
MB Lot-Sample #: M3E290000-379

Prep Date.....: 05/21/03 **Analysis Time...:** 11:45
Analysis Date...: 05/21/03 **Prep Batch #....:** 3149379 **Instrument ID...:** MSC
Dilution Factor: 1

Analyst ID.....: 341569

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Dichlorodifluoromethane	ND	0.00099	ug/L	EPA-2 TO-15
Chloromethane	ND	0.00082	ug/L	EPA-2 TO-15
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.0014	ug/L	EPA-2 TO-15
Vinyl chloride	ND	0.00051	ug/L	EPA-2 TO-15
Bromomethane	ND	0.00078	ug/L	EPA-2 TO-15
Chloroethane	ND	0.0011	ug/L	EPA-2 TO-15
Trichlorofluoromethane	ND	0.0022	ug/L	EPA-2 TO-15
1,1-Dichloroethene	ND	0.00079	ug/L	EPA-2 TO-15
Carbon disulfide	ND	0.0031	ug/L	EPA-2 TO-15
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0031	ug/L	EPA-2 TO-15
Acetone	ND	0.0019	ug/L	EPA-2 TO-15
Methylene chloride	ND	0.00069	ug/L	EPA-2 TO-15
trans-1,2-Dichloroethene	ND	0.00079	ug/L	EPA-2 TO-15
1,1-Dichloroethane	ND	0.00081	ug/L	EPA-2 TO-15
Vinyl acetate	ND	0.0035	ug/L	EPA-2 TO-15
cis-1,2-Dichloroethene	ND	0.00079	ug/L	EPA-2 TO-15
2-Butanone (MEK)	ND	0.0029	ug/L	EPA-2 TO-15
Chloroform	ND	0.00097	ug/L	EPA-2 TO-15
1,1,1-Trichloroethane	ND	0.0011	ug/L	EPA-2 TO-15
Carbon tetrachloride	ND	0.0013	ug/L	EPA-2 TO-15
Benzene	ND	0.00064	ug/L	EPA-2 TO-15
1,2-Dichloroethane	ND	0.00081	ug/L	EPA-2 TO-15
Trichloroethene	ND	0.0011	ug/L	EPA-2 TO-15
1,2-Dichloropropane	ND	0.00092	ug/L	EPA-2 TO-15
Bromodichloromethane	ND	0.0013	ug/L	EPA-2 TO-15
cis-1,3-Dichloropropene	ND	0.00091	ug/L	EPA-2 TO-15
4-Methyl-2-pentanone (MIBK)	ND	0.0016	ug/L	EPA-2 TO-15
Toluene	ND	0.0011	ug/L	EPA-2 TO-15
trans-1,3-Dichloropropene	ND	0.00091	ug/L	EPA-2 TO-15
1,1,2-Trichloroethane	ND	0.0011	ug/L	EPA-2 TO-15
Tetrachloroethene	ND	0.0014	ug/L	EPA-2 TO-15
2-Hexanone	ND	0.0016	ug/L	EPA-2 TO-15
Dibromochloromethane	ND	0.0017	ug/L	EPA-2 TO-15
1,2-Dibromoethane (EDB)	ND	0.0015	ug/L	EPA-2 TO-15
Chlorobenzene	ND	0.00092	ug/L	EPA-2 TO-15
Ethylbenzene	ND	0.00087	ug/L	EPA-2 TO-15
m-Xylene & p-Xylene	ND	0.0022	ug/L	EPA-2 TO-15

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #....: E3E210194 **Work Order #....:** FPKWW1AA **Matrix.....:** AIR

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
o-Xylene	ND	0.00087	ug/L	EPA-2 TO-15
Styrene	ND	0.00085	ug/L	EPA-2 TO-15
Bromoform	ND	0.0021	ug/L	EPA-2 TO-15
1,1,2,2-Tetrachloroethane	ND	0.0014	ug/L	EPA-2 TO-15
Benzyl chloride	ND	0.0064	ug/L	EPA-2 TO-15
4-Ethyltoluene	ND	0.0020	ug/L	EPA-2 TO-15
1,3,5-Trimethylbenzene	ND	0.0020	ug/L	EPA-2 TO-15
1,2,4-Trimethylbenzene	ND	0.0020	ug/L	EPA-2 TO-15
1,3-Dichlorobenzene	ND	0.0012	ug/L	EPA-2 TO-15
1,4-Dichlorobenzene	ND	0.0012	ug/L	EPA-2 TO-15
1,2-Dichlorobenzene	ND	0.0012	ug/L	EPA-2 TO-15
1,2,4-Trichloro-benzene	ND	0.0059	ug/L	EPA-2 TO-15
Hexachlorobutadiene	ND	0.0043	ug/L	EPA-2 TO-15
Methyl tert-butyl ether (MTBE)	ND	0.0036	ug/L	EPA-2 TO-15

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #....: E3E210194
LCS Lot-Sample#: M3E220000-377
Prep Date.....: 05/21/03
Prep Batch #....: 3142377
Dilution Factor: 1
Analyst ID.....: 341569

Work Order #....: FN77L1AC-LCS
FN77L1AD-LCSD
Analysis Date...: 05/21/03
Analysis Time...: 09:45
Instrument ID...: MSC

Matrix.....: AIR

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	103	(75 - 135)			EPA-2 TO-15
	94	(75 - 135)	9.0	(0-20)	EPA-2 TO-15
Methylene chloride	99	(75 - 125)			EPA-2 TO-15
	94	(75 - 125)	5.0	(0-20)	EPA-2 TO-15
Trichloroethene	113	(75 - 130)			EPA-2 TO-15
	109	(75 - 130)	3.4	(0-20)	EPA-2 TO-15
Toluene	105	(75 - 125)			EPA-2 TO-15
	102	(75 - 125)	2.7	(0-20)	EPA-2 TO-15
1,1,2,2-Tetrachloroethane	122	(60 - 130)			EPA-2 TO-15
	120	(60 - 130)	2.4	(0-20)	EPA-2 TO-15

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

the IT group

IT Corporation
2790 Mosside Blvd.
Monroeville, PA 15146-2792
(412)372-7701

CHAIN-OF-CUSTODY RECORD

APHO-38

PROJECT DATA MANAGER'S COPY

A 16105

FORM 0019 REV. 9-99

IT'S LAB COORDINATOR: LYNN JEFFERSON	LAB COORDINATOR'S PHONE: 949-660-7537	LAB COORDINATOR'S FAX: 949-475-5433	LABORATORY SERVICE ID: E3E220195	LABORATORY CONTACT: Sabina Suckoko	MAIL REPORT (COMPANY NAME): Shaw Ed 1
PROJECT NAME: APHO38 - Soil Vapor	PROJECT LOCATION: MCAS El Toro	PROJECT NUMBER: 818655	LABORATORY PHONE: 714-258-8610	LABORATORY FAX: 714-258-0921	RECIPIENT NAME: Suwayne Ishida
PROJECT CONTACT: LYNN JEFFERSON	PROJECT PHONE NUMBER: 949-660-7537	PROJECT FAX: 949-475-5433	LABORATORY ADDRESS: 1721 S. Grand Ave.		ADDRESS: 3347 Michelson #2000
PROJECT ADDRESS: Bldg. 311 Marine Way	CITY, STATE AND ZIP CODE: El Toro, CA	CLIENT: SWDIV	CITY, STATE AND ZIP CODE: Santa Ana 92703		CITY, STATE AND ZIP CODE: Irvine, CA 92677-12
PROJECT MANAGER: Dhananjay Rawal	PROJECT MANAGER'S PHONE: 949-660-7576	PROJECT MANAGER'S FAX: 949-474-8309			

Item	Sample Identifier	Matrix	Date (2003)	Time	Preserved	# of Cont.	QC Level	T.A.T.	Analyses: TO-3	TO-15 VOC							Comments
1	818655-3306	V	5/21	1715	NO	1	3	5 day	X	X							
2	818655-3307	V	5/21	750	NO	1	3	5 day	X	X							
3	818655-3308	V	5/21	1345	NO	1	3	5 day	X	X							Analyze VOC only
4	818655-3309	V	5/22	0745	NO	1	3	5 day		X							
5																	
6																	
7																	
8																	
9																	
10																	

WJ 5/22/03

SAMPLES COLLECTED BY: N. Jefferson

COURIER AND AIR BILL NUMBER: Courier

COOLER TEMPERATURE UPON RECEIPT:

RELINQUISHED BY	RECEIVED BY	DATE	TIME	SAMPLE'S CONDITION UPON RECEIPT
Way - Lynn Jeff	Matt Carrasfield	5/22/03	8:50	

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

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

Sample Point Location	G	C	F	QC
① APHO 38 - SG - 12 @ 10'				
② APHO38 - SG - 21 @ 20'				
③ TAA130 - SG - 3 @ 10'				
④ TAA130 - SG - 2 @ 20'				

Comments

COC ✓ on 5/28/03

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

CASE NARRATIVE

All applicable quality control procedures met method-specified acceptance criteria

Please note that the canisters were screened for TO14A The canisters used were not screened to TO15 scan level. The client was notified of this on May 22, 2003.

If you have any questions, please feel free to call me at 714.258.8610.

Sincerely,

Sabina Sudoko

Sabina Sudoko
Project Manager
CC: Project File

SHAW E & I INC

Client Sample ID: 818655-3306

GC Volatiles

Lot-Sample #....:	E3E220195-001	**Work Order #....:**	FN7181AF	**Matrix.....:**	AIR
Date Sampled....:	05/19/03 17:15	**Date Received...:**	05/22/03		
Prep Date.....:	05/22/03	**Analysis Date...:**	05/22/03		
Prep Batch #....:	3150366	**Analysis Time...:**	20:27		
Dilution Factor:	1.97				
Analyst ID.....:	358011	**Instrument ID...:**	GC5		
		Method.....:	EPA-19 TO-3		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
C10+	ND	5.9	ug/L	1.2
C4 (butane)	ND	0.47	ug/L	0.098
C2 (ethane)	ND	0.24	ug/L	0.049
C7 (heptane)	ND	0.81	ug/L	0.24
C6 (hexane)	ND	0.69	ug/L	0.28
C9 (nonane)	ND	1.0	ug/L	0.32
C8 (Octane)	ND	0.93	ug/L	0.37
C5 (pentane)	ND	0.57	ug/L	0.12
C3 (propane)	ND	0.35	ug/L	0.079

SHAW E & I INC

Client Sample ID: 818655-3307

GC Volatiles

Lot-Sample #....:	E3E220195-002	**Work Order #....:**	FN72E1AF	**Matrix.....:**	AIR
Date Sampled....:	05/21/03 07:50	**Date Received..:**	05/22/03		
Prep Date.....:	05/22/03	**Analysis Date..:**	05/22/03		
Prep Batch #....:	3150366	**Analysis Time...:**	20:56		
Dilution Factor:	1.75				
Analyst ID.....:	358011	**Instrument ID...:**	GC5		
		Method.....:	EPA-19 TO-3		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
C10+	ND	5.2	ug/L	1.0
C4 (butane)	ND	0.42	ug/L	0.088
C2 (ethane)	ND	0.21	ug/L	0.044
C7 (heptane)	ND	0.72	ug/L	0.21
C6 (hexane)	ND	0.61	ug/L	0.24
C9 (nonane)	**1.1 B**	**0.91**	**ug/L**	**0.28**
C8 (Octane)	ND	0.82	ug/L	0.33
C5 (pentane)	ND	0.51	ug/L	0.10
C3 (propane)	ND	0.32	ug/L	0.070

NOTE(S):

B Method blank contamination. The associated method blank contains the target analyte at a reportable level

METHOD BLANK REPORT

GC Volatiles

Client Lot #....: E3E220195
MB Lot-Sample #: M3E300000-366

Analysis Date...: 05/22/03
Dilution Factor: 1

Work Order #....: FPM7T1AA

Prep Date.....: 05/22/03
Prep Batch #....: 3150366

Analyst ID.....: 358011

Matrix.....: AIR

Analysis Time...: 18:31
Instrument ID...: GC5

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
C2 (ethane)	ND	0.12	ug/L	EPA-19 TO-3
C3 (propane)	ND	0.18	ug/L	EPA-19 TO-3
C4 (butane)	ND	0.24	ug/L	EPA-19 TO-3
C5 (pentane)	ND	0.29	ug/L	EPA-19 TO-3
C6 (hexane)	ND	0.35	ug/L	EPA-19 TO-3
C7 (heptane)	ND	0.41	ug/L	EPA-19 TO-3
C9 (nonane)	**0.22 J**	**0.52**	**ug/L**	**EPA-19 TO-3**
C8 (Octane)	ND	0.47	ug/L	EPA-19 TO-3
C10+	**1.0 J**	**3.0**	**ug/L**	**EPA-19 TO-3**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

J Estimated result Result is less than RL

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #....: E3E220195 **Work Order #....:** FPF061AC-LCS **Matrix.....:** AIR
LCS Lot-Sample#: M3E270000-538 FPF061AD-LCSD
Prep Date.....: 05/22/03 **Analysis Date...:** 05/22/03
Prep Batch #....: 3147538 **Analysis Time...:** 17:25
Dilution Factor: 1 **Instrument ID...:** GC5
Analyst ID.....: 358011

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Pentane	107	(75 - 125)			**EPA-19 TO-3**
	106	(75 - 125)	0.31	(0-20)	**EPA-19 TO-3**
Octane	95	(75 - 125)			**EPA-19 TO-3**
	96	(75 - 125)	0.23	(0-20)	**EPA-19 TO-3**

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

Bold print denotes control parameters

SHAW E & I INC

Client Sample ID: 818655-3306

GC/MS Volatiles

Lot-Sample #....: E3E220195-001 Work Order #....: FN7181AE Matrix.....: AIR
Date Sampled....: 05/19/03 17:15 Date Received..: 05/22/03
Prep Date.....: 05/23/03 Analysis Date..: 05/23/03
Prep Batch #....: 3149475 Analysis Time..: 15:11
Dilution Factor: 1
Analyst ID.....: 341569 Instrument ID..: MSC
Method.....: EPA-2 IO-15

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	**0.0030**	**0.00099**	**ug/L**	**0.00025**
Chloromethane	**0.0014**	**0.00082**	**ug/L**	**0.00014**
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.0014	ug/L	0.00063
Vinyl chloride	ND	0.00051	ug/L	0.00015
Bromomethane	ND	0.00078	ug/L	0.00035
Chloroethane	ND	0.0011	ug/L	0.00037
Trichlorofluoromethane	**0.0013 J**	**0.0022**	**ug/L**	**0.0011**
1,1-Dichloroethene	ND	0.00079	ug/L	0.00024
Carbon disulfide	**0.0041**	**0.0031**	**ug/L**	**0.00044**
1,1,2-Trichloro-1,2,2-trifluoroethane	**0.0086**	**0.0031**	**ug/L**	**0.00054**
Acetone	**0.030**	**0.0019**	**ug/L**	**0.00047**
Methylene chloride	**0.00066 J**	**0.00069**	**ug/L**	**0.00024**
trans-1,2-Dichloroethene	ND	0.00079	ug/L	0.00028
1,1-Dichloroethane	ND	0.00081	ug/L	0.00020
Vinyl acetate	ND	0.0035	ug/L	0.00014
cis-1,2-Dichloroethene	ND	0.00079	ug/L	0.00020
2-Butanone (MEK)	**0.0062**	**0.0029**	**ug/L**	**0.00059**
Chloroform	ND	0.00097	ug/L	0.00029
1,1,1-Trichloroethane	ND	0.0011	ug/L	0.00044
Carbon tetrachloride	**0.00027 J**	**0.0013**	**ug/L**	**0.00025**
Benzene	**0.00091**	**0.00064**	**ug/L**	**0.00026**
1,2-Dichloroethane	ND	0.00081	ug/L	0.00024
Trichloroethene	ND	0.0011	ug/L	0.00043
1,2-Dichloropropane	ND	0.00092	ug/L	0.00028
Bromodichloromethane	ND	0.0013	ug/L	0.00040
cis-1,3-Dichloropropene	ND	0.00091	ug/L	0.00036
4-Methyl-2-pentanone (MIBK)	ND	0.0016	ug/L	0.00037
Toluene	**0.0038**	**0.0011**	**ug/L**	**0.00034**
trans-1,3-Dichloropropene	ND	0.00091	ug/L	0.00036
1,1,2-Trichloroethane	ND	0.0011	ug/L	0.00044
Tetrachloroethene	**0.0011 J**	**0.0014**	**ug/L**	**0.00061**
2-Hexanone	ND	0.0016	ug/L	0.00082
Dibromochloromethane	ND	0.0017	ug/L	0.00068
1,2-Dibromoethane (EDB)	ND	0.0015	ug/L	0.00046

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SHAW E & I INC

Client Sample ID: 818655-3306

GC/MS Volatiles

Lot-Sample #....: E3E220195-001 Work Order #....: FN7181AE Matrix.....: AIR

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	0.00092	ug/L	0.00041
Ethylbenzene	ND	0.00087	ug/L	0.00030
m-Xylene & p-Xylene	ND	0.0022	ug/L	0.00087
o-Xylene	ND	0.00087	ug/L	0.00026
Styrene	ND	0.00085	ug/L	0.00026
Bromoform	ND	0.0021	ug/L	0.00072
1,1,2,2-Tetrachloroethane	ND	0.0014	ug/L	0.00055
Benzyl chloride	ND	0.0064	ug/L	0.00038
4-Ethyltoluene	ND	0.0020	ug/L	0.00034
1,3,5-Trimethylbenzene	ND	0.0020	ug/L	0.00044
1,2,4-Trimethylbenzene	ND	0.0020	ug/L	0.00039
1,3-Dichlorobenzene	ND	0.0012	ug/L	0.00048
1,4-Dichlorobenzene	ND	0.0012	ug/L	0.00036
1,2-Dichlorobenzene	ND	0.0012	ug/L	0.00042
1,2,4-Trichloro-benzene	ND	0.0059	ug/L	0.00067
Hexachlorobutadiene	ND	0.0043	ug/L	0.0014
Methyl tert-butyl ether (MTBE)	ND	0.0036	ug/L	0.00036

NOTE(S):

J Estimated result Result is less than RL

SHAW E & I INC

Client Sample ID: 818655-3307

GC/MS Volatiles

Lot-Sample #....:	E3E220195-002	**Work Order #....:**	FN72E1AE	**Matrix.....:**	AIR
Date Sampled....:	05/21/03 07:50	**Date Received....:**	05/22/03		
Prep Date.....:	05/23/03	**Analysis Date....:**	05/23/03		
Prep Batch #....:	3149475	**Analysis Time....:**	14:28		
Dilution Factor:	10 96				
Analyst ID.....:	341569	**Instrument ID....:**	MSC		
		Method.....:	EPA-2 TO-15		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Dichlorodifluoromethane	ND	0.011	ug/L	0.0027
Chloromethane	ND	0.0090	ug/L	0.0015
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.015	ug/L	0.0069
Vinyl chloride	ND	0.0056	ug/L	0.0016
Bromomethane	ND	0.0085	ug/L	0.0038
Chloroethane	ND	0.012	ug/L	0.0041
Trichlorofluoromethane	ND	0.024	ug/L	0.012
1,1-Dichloroethene	ND	0.0087	ug/L	0.0026
Carbon disulfide	ND	0.034	ug/L	0.0048
1,1,2-Trichloro-1,2,2-trifluoroethane	**1.9**	**0.034**	**ug/L**	**0.0059**
Acetone	**0.066**	**0.021**	**ug/L**	**0.0052**
Methylene chloride	**0.0030 J**	**0.0076**	**ug/L**	**0.0026**
trans-1,2-Dichloroethene	ND	0.0087	ug/L	0.0031
1,1-Dichloroethane	ND	0.0089	ug/L	0.0022
Vinyl acetate	ND	0.038	ug/L	0.0015
cis-1,2-Dichloroethene	ND	0.0087	ug/L	0.0022
2-Butanone (MEK)	ND	0.032	ug/L	0.0065
Chloroform	ND	0.011	ug/L	0.0032
1,1,1-Trichloroethane	ND	0.012	ug/L	0.0048
Carbon tetrachloride	ND	0.014	ug/L	0.0027
Benzene	ND	0.0070	ug/L	0.0028
1,2-Dichloroethane	ND	0.0089	ug/L	0.0026
Trichloroethene	ND	0.012	ug/L	0.0047
1,2-Dichloropropane	ND	0.010	ug/L	0.0031
Bromodichloromethane	ND	0.014	ug/L	0.0044
cis-1,3-Dichloropropene	ND	0.010	ug/L	0.0039
4-Methyl-2-pentanone (MIBK)	ND	0.018	ug/L	0.0041
Toluene	ND	0.012	ug/L	0.0037
trans-1,3-Dichloropropene	ND	0.010	ug/L	0.0039
1,1,2-Trichloroethane	ND	0.012	ug/L	0.0048
Tetrachloroethene	ND	0.015	ug/L	0.0067
2-Hexanone	ND	0.018	ug/L	0.0090
Dibromochloromethane	ND	0.019	ug/L	0.0075
1,2-Dibromoethane (EDB)	ND	0.016	ug/L	0.0050

(Continued on next page)

SHAW E & I INC

Client Sample ID: 818655-3307

GC/MS Volatiles

Lot-Sample #....: E3E220195-002 Work Order #....: FN72E1AE Matrix.....: AIR

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chlorobenzene	ND	0.010	ug/L	0.0045
Ethylbenzene	**0.14**	**0.0095**	**ug/L**	**0.0033**
m-Xylene & p-Xylene	**1.2**	**0.024**	**ug/L**	**0.0095**
o-Xylene	**0.43**	**0.0095**	**ug/L**	**0.0028**
Styrene	ND	0.0093	ug/L	0.0028
Bromoform	ND	0.023	ug/L	0.0079
1,1,2,2-Tetrachloroethane	ND	0.015	ug/L	0.0060
Benzyl chloride	ND	0.070	ug/L	0.0042
4-Ethyltoluene	ND	0.022	ug/L	0.0037
1,3,5-Trimethylbenzene	ND	0.022	ug/L	0.0048
1,2,4-Trimethylbenzene	ND	0.022	ug/L	0.0043
1,3-Dichlorobenzene	ND	0.013	ug/L	0.0053
1,4-Dichlorobenzene	ND	0.013	ug/L	0.0039
1,2-Dichlorobenzene	ND	0.013	ug/L	0.0046
1,2,4-Trichloro-benzene	ND	0.065	ug/L	0.0073
Hexachlorobutadiene	ND	0.047	ug/L	0.015
Methyl tert-butyl ether (MTBE)	ND	0.039	ug/L	0.0039

NOTE(S):

J Estimated result Result is less than RL

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #....: E3E220195
MB Lot-Sample #: M3E290000-446
Analysis Date...: 05/27/03
Dilution Factor: 1

Work Order #....: FPLAR1AA
Prep Date.....: 05/27/03
Prep Batch #....: 3149446
Analyst ID.....: 117751

Matrix.....: AIR
Analysis Time...: 11:03
Instrument ID...: MSB

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	0.024	ug/L	EPA-2 TO-15
Benzene	ND	0.0064	ug/L	EPA-2 TO-15
Benzyl chloride	ND	0.052	ug/L	EPA-2 TO-15
Bromodichloromethane	ND	0.013	ug/L	EPA-2 TO-15
Bromoform	ND	0.021	ug/L	EPA-2 TO-15
Bromomethane	ND	0.0078	ug/L	EPA-2 TO-15
Carbon disulfide	ND	0.031	ug/L	EPA-2 TO-15
Carbon tetrachloride	ND	0.013	ug/L	EPA-2 TO-15
Chlorobenzene	ND	0.0092	ug/L	EPA-2 TO-15
Dibromochloromethane	ND	0.017	ug/L	EPA-2 TO-15
Chloroethane	ND	0.010	ug/L	EPA-2 TO-15
Chloroform	ND	0.0098	ug/L	EPA-2 TO-15
Chloromethane	ND	0.0082	ug/L	EPA-2 TO-15
1,2-Dichlorobenzene	ND	0.012	ug/L	EPA-2 TO-15
1,3-Dichlorobenzene	ND	0.012	ug/L	EPA-2 TO-15
1,4-Dichlorobenzene	ND	0.012	ug/L	EPA-2 TO-15
Dichlorodifluoromethane	ND	0.0099	ug/L	EPA-2 TO-15
1,1-Dichloroethane	ND	0.0081	ug/L	EPA-2 TO-15
1,2-Dichloroethane	ND	0.0081	ug/L	EPA-2 TO-15
1,1-Dichloroethene	ND	0.0079	ug/L	EPA-2 TO-15
cis-1,2-Dichloroethene	ND	0.0079	ug/L	EPA-2 TO-15
trans-1,2-Dichloroethene	ND	0.0079	ug/L	EPA-2 TO-15
1,2-Dichloropropane	ND	0.0092	ug/L	EPA-2 TO-15
cis-1,3-Dichloropropene	ND	0.0091	ug/L	EPA-2 TO-15
trans-1,3-Dichloropropene	ND	0.0091	ug/L	EPA-2 TO-15
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.014	ug/L	EPA-2 TO-15
Ethylbenzene	ND	0.0087	ug/L	EPA-2 TO-15
Trichlorofluoromethane	ND	0.011	ug/L	EPA-2 TO-15
Hexachlorobutadiene	ND	0.043	ug/L	EPA-2 TO-15
2-Hexanone	ND	0.041	ug/L	EPA-2 TO-15
Methylene chloride	ND	0.016	ug/L	EPA-2 TO-15
Styrene	ND	0.0085	ug/L	EPA-2 TO-15
1,1,2,2-Tetrachloroethane	ND	0.014	ug/L	EPA-2 TO-15
Tetrachloroethene	ND	0.014	ug/L	EPA-2 TO-15
Toluene	ND	0.0075	ug/L	EPA-2 TO-15
1,2,4-Trichlorobenzene	ND	0.037	ug/L	EPA-2 TO-15
1,1,1-Trichloroethane	ND	0.011	ug/L	EPA-2 TO-15
1,1,2-Trichloroethane	ND	0.011	ug/L	EPA-2 TO-15

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E3E220195 **Work Order #...:** FPLAR1AA **Matrix.....:** AIR

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Trichloroethene	ND	0.011	ug/L	EPA-2 TO-15
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.015	ug/L	EPA-2 TO-15
1,2,4-Trimethylbenzene	ND	0.0098	ug/L	EPA-2 TO-15
1,3,5-Trimethylbenzene	ND	0.0098	ug/L	EPA-2 TO-15
Vinyl acetate	ND	0.035	ug/L	EPA-2 TO-15
Vinyl chloride	ND	0.0051	ug/L	EPA-2 TO-15
o-Xylene	ND	0.0090	ug/L	EPA-2 TO-15
Methyl tert-butyl ether	ND	0.0072	ug/L	EPA-2 TO-15
m-Xylene & p-Xylene	ND	0.0087	ug/L	EPA-2 TO-15
1,2-Dibromoethane (EDB)	ND	0.015	ug/L	EPA-2 TO-15
2-Butanone (MEK)	ND	0.029	ug/L	EPA-2 TO-15
4-Methyl-2-pentanone (MIBK)	ND	0.041	ug/L	EPA-2 TO-15
4-Ethyltoluene	ND	0.0098	ug/L	EPA-2 TO-15

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #....: E3E220195
MB Lot-Sample #: M3E290000-475

Analysis Date...: 05/23/03
Dilution Factor: 1

Work Order #....: FPLJV1AA

Prep Date.....: 05/23/03
Prep Batch #....: 3149475

Analyst ID.....: 341569

Matrix.....: AIR

Analysis Time...: 10:53
Instrument ID...: MSC

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Dichlorodifluoromethane	ND	0.00099	ug/L	EPA-2 TO-15
Chloromethane	ND	0.00082	ug/L	EPA-2 TO-15
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.0014	ug/L	EPA-2 TO-15
Vinyl chloride	ND	0.00051	ug/L	EPA-2 TO-15
Bromomethane	ND	0.00078	ug/L	EPA-2 TO-15
Chloroethane	ND	0.0011	ug/L	EPA-2 TO-15
Trichlorofluoromethane	ND	0.0022	ug/L	EPA-2 TO-15
1,1-Dichloroethene	ND	0.00079	ug/L	EPA-2 TO-15
Carbon disulfide	ND	0.0031	ug/L	EPA-2 TO-15
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0031	ug/L	EPA-2 TO-15
Acetone	ND	0.0019	ug/L	EPA-2 TO-15
Methylene chloride	ND	0.00069	ug/L	EPA-2 TO-15
trans-1,2-Dichloroethene	ND	0.00079	ug/L	EPA-2 TO-15
1,1-Dichloroethane	ND	0.00081	ug/L	EPA-2 TO-15
Vinyl acetate	ND	0.0035	ug/L	EPA-2 TO-15
cis-1,2-Dichloroethene	ND	0.00079	ug/L	EPA-2 TO-15
2-Butanone (MEK)	ND	0.0029	ug/L	EPA-2 TO-15
Chloroform	ND	0.00097	ug/L	EPA-2 TO-15
1,1,1-Trichloroethane	ND	0.0011	ug/L	EPA-2 TO-15
Carbon tetrachloride	ND	0.0013	ug/L	EPA-2 TO-15
Benzene	ND	0.00064	ug/L	EPA-2 TO-15
1,2-Dichloroethane	ND	0.00081	ug/L	EPA-2 TO-15
Trichloroethene	ND	0.0011	ug/L	EPA-2 TO-15
1,2-Dichloropropane	ND	0.00092	ug/L	EPA-2 TO-15
Bromodichloromethane	ND	0.0013	ug/L	EPA-2 TO-15
cis-1,3-Dichloropropene	ND	0.00091	ug/L	EPA-2 TO-15
4-Methyl-2-pentanone (MIBK)	ND	0.0016	ug/L	EPA-2 TO-15
Toluene	ND	0.0011	ug/L	EPA-2 TO-15
trans-1,3-Dichloropropene	ND	0.00091	ug/L	EPA-2 TO-15
1,1,2-Trichloroethane	ND	0.0011	ug/L	EPA-2 TO-15
Tetrachloroethene	ND	0.0014	ug/L	EPA-2 TO-15
2-Hexanone	ND	0.0016	ug/L	EPA-2 TO-15
Dibromochloromethane	ND	0.0017	ug/L	EPA-2 TO-15
1,2-Dibromoethane (EDB)	ND	0.0015	ug/L	EPA-2 TO-15
Chlorobenzene	ND	0.00092	ug/L	EPA-2 TO-15
Ethylbenzene	ND	0.00087	ug/L	EPA-2 TO-15
m-Xylene & p-Xylene	ND	0.0022	ug/L	EPA-2 TO-15

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #....: E3E220195 Work Order #....: FPLJV1AA Matrix.....: AIR

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
o-Xylene	ND	0.00087	ug/L	EPA-2 TO-15
Styrene	ND	0.00085	ug/L	EPA-2 TO-15
Bromoform	ND	0.0021	ug/L	EPA-2 TO-15
1,1,2,2-Tetrachloroethane	ND	0.0014	ug/L	EPA-2 TO-15
Benzyl chloride	ND	0.0064	ug/L	EPA-2 TO-15
4-Ethyltoluene	ND	0.0020	ug/L	EPA-2 TO-15
1,3,5-Trimethylbenzene	ND	0.0020	ug/L	EPA-2 TO-15
1,2,4-Trimethylbenzene	ND	0.0020	ug/L	EPA-2 TO-15
1,3-Dichlorobenzene	ND	0.0012	ug/L	EPA-2 TO-15
1,4-Dichlorobenzene	ND	0.0012	ug/L	EPA-2 TO-15
1,2-Dichlorobenzene	ND	0.0012	ug/L	EPA-2 TO-15
1,2,4-Trichloro-benzene	ND	0.0059	ug/L	EPA-2 TO-15
Hexachlorobutadiene	ND	0.0043	ug/L	EPA-2 TO-15
Methyl tert-butyl ether (MTBE)	ND	0.0036	ug/L	EPA-2 TO-15

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #....: E3E220195
LCS Lot-Sample#: M3E270000-396
Prep Date.....: 05/23/03
Prep Batch #....: 3147396
Dilution Factor: 1
Analyst ID.....: 341569

Work Order #....: FPFGV1AC-LCS
FPFGV1AD-LCSD
Analysis Date...: 05/23/03
Analysis Time...: 09:32
Instrument ID...: MSC

Matrix.....: AIR

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	104	(75 - 135)			EPA-2 TO-15
	103	(75 - 135)	0.32	(0-20)	EPA-2 TO-15
Methylene chloride	94	(75 - 125)			EPA-2 TO-15
	97	(75 - 125)	2.6	(0-20)	EPA-2 TO-15
Trichloroethene	111	(75 - 130)			EPA-2 TO-15
	114	(75 - 130)	2.5	(0-20)	EPA-2 TO-15
Toluene	117	(75 - 125)			EPA-2 TO-15
	124	(75 - 125)	5.8	(0-20)	EPA-2 TO-15
1,1,2,2-Tetrachloroethane	112	(60 - 130)			EPA-2 TO-15
	118	(60 - 130)	4.9	(0-20)	EPA-2 TO-15

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #....: E3E220195
LCS Lot-Sample#: M3E290000-448
Prep Date.....: 05/27/03
Prep Batch #....: 3149448
Dilution Factor: 1
Analyst ID.....: 117751

Work Order #....: FPLAW1AC-LCS
FPLAW1AD-LCSD
Analysis Date...: 05/27/03
Analysis Time...: 10:02
Instrument ID...: MSB

Matrix.....: AIR

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	107	(70 - 125)			EPA-2 TO-15
	105	(70 - 125)	1.1	(0-20)	EPA-2 TO-15
Methylene chloride	112	(75 - 120)			EPA-2 TO-15
	111	(75 - 120)	0.67	(0-20)	EPA-2 TO-15
Trichloroethene	91	(70 - 125)			EPA-2 TO-15
	90	(70 - 125)	1.0	(0-20)	EPA-2 TO-15
Toluene	101	(75 - 125)			EPA-2 TO-15
	99	(75 - 125)	2.5	(0-20)	EPA-2 TO-15
1,1,2,2-Tetrachloroethane	104	(65 - 130)			EPA-2 TO-15
	102	(65 - 130)	1.8	(0-20)	EPA-2 TO-15

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results

Bold print denotes control parameters

Appendix H
Boring Logs and Photographs

BORING LOG

Boring/Well ID: SB-01
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: Core Probe Int'l
Drill Rig Model: ATV Geoprobe 4220
Driller: Alejandro Estrada
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

First Water: ft bgs on at hrs
Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL	RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
0810		0.0								; Concrete to 7-½" over		
	3352								CL	**SILTY CLAY (CL)**; brown (7 5YR 4/3); dry to moist; firm to hard; some fine grained sand; mostly fines with low plasticity; odorless		
		0 0										
						5						
	3353	0 0								; Same as above		
0817												Backfilled with hydrated bentonite chips to surface, capped with concrete
										Boring was terminated at approximately 8 feet below ground surface		
						10						
						15						
						20						
						25						

REGISTERED GEOLOGIST
GUY JOSEPH BERGER
No. 7135
10-31-04
EXP. DATE
STATE OF CALIFORNIA

BORING LOG

Boring/Well ID: SB-02
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: Core Probe Int'l
Drill Rig Model: ATV Geoprobe 4220
Driller: Alejandro Estrada
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

▽ First Water: ft bgs on at hrs
▼ Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL	RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
0825	3360	0 0							ML	; Concrete to 3-½" over **SILT (ML)**; dark yellowish brown (10YR 4/6); dry to moist; soft to firm; trace fine grained sand; mostly fines with low to medium plasticity; odorless		
	3355	0 0				5			SW	**WELL-GRADED SAND (SW)**; light gray (10YR 7/2); dry to moist; medium dense; mostly subangular to subrounded, fine to medium grained sand; trace fines; odorless.		Backfilled with hydrated bentonite chips to surface, capped with concrete
0840		0 0								Boring was terminated at approximately 6 feet below ground surface.		
						10						
						15						
						20						
						25						

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10-31-04
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STATE OF CALIFORNIA

BORING LOG

Boring/Well ID: SB-03
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: Core Probe Int'l
Drill Rig Model: ATV Geoprobe 4220
Driller: Alejandro Estrada
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

First Water: ft bgs on at hrs
Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL	RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
0840		0.0							ML	**SILT (ML)**; dark yellowish brown (10YR 4/4); dry to moist; soft to firm; trace fine grained sand; mostly fines with low plasticity; micaceous; odorless		
		0 0				5				; Same as above; odorless		
0900		0 0										Backfilled with hydrated bentonite chips to surface
										Boring was terminated at approximately 6 feet below ground surface		
						10						
						15						
						20						
						25						

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10-31-04
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Project No.: 818655
Location: APHO-38, Irvine, CA

Boring/Well ID: SB-03
Sheet: 1 of 1

BORING LOG

Boring/Well ID: SB-04
Sheet: 1 of 2

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: Core Probe Int'l
Drill Rig Model: ATV Geoprobe 4220
Driller: Alejandro Estrada
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

▽ First Water: ft bgs on at hrs
▼ Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
0746									; Concrete to 4 5" over.		
	3350	0 0						ML	**SILT (ML)**; reddish yellow (5YR 6/6); dry to moist; soft to firm; mostly fines with no plasticity; miceaeous, odorless		
								SP	**POORLY GRADED SAND (SP)**; pinkish white (5YR 8/2); dry; medium dense; mostly fine grained sand; odorless		
								ML	**SILT (ML)**; reddish yellow (5YR 7/6); dry to moist; soft to firm; trace fine grained sand; mostly fines with no plasticity; micaceous, odorless		
					5			SM	**SAND (SM)**; light brown (7.5YR 6/3); dry to moist; medium dense; mostly fine grained sand; some fines with no to low plasticity; micaceous, odorless		
0756	3351	0 0									
		0 0						ML	**SILT (ML)**; light brown (7 5YR 6/3); dry to moist; firm; trace fine grained sand; mostly fines with low plasticity; odorless		
					10			SM	**SAND (SM)**; reddish yellow (7.5YR 7/6); dry to moist; medium dense; mostly fine grained sand; some fines with low plasticity; micaceous, odorless		
		0 0									
					15						
		0 0						SP	**POORLY GRADED SAND (SP)**; reddish yellow (7.5YR 7/6); dry to moist; loose; mostly fine grained sand; micaceous, odorless		
					20			CL	**LEAN CLAY (CL)**; strong brown (7.5YR 4/6); dry to moist; firm to hard; mostly sand; with medium plasticity; odorless		
	3365	0 0						SP	**POORLY GRADED SAND (SP)**; reddish yellow (7.5YR 7/6); dry to moist; medium dense; mostly fine grained sand; trace medium to coarse sand, odorless		
					25						

REGISTERED GEOLOGIST
GUY JOSEPH BERGER
No. 7135
10-31-04
EXP. DATE
STATE OF CALIFORNIA

SHAW ELTORO.GPJ SHAWEI.GDT 7/2/03

BORING LOG

Boring/Well ID: SB-04
Sheet: 2 of 2

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
		0.0							; Same as above, odorless		
1205	3366	0 0			30				; Same as above, odorless		Backfilled with hydrated bentonite chips to surface, capped with concrete
									Boring was terminated at approximately 30 feet below ground surface		
					35						
					40						
					45						
					50						

REGISTERED GEOLOGIST
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No. 7135
10-31-04
EXP. DATE
STATE OF CALIFORNIA

Project No.: 818655
Location: APHO-38, Irvine, CA

Boring/Well ID: SB-04
Sheet: 2 of 2

BORING LOG

Boring/Well ID: SB-05
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: HP Labs
Drill Rig Model: GeoProbe
Driller: Robbie Bray
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

▽ First Water: ft bgs on at hrs
▼ Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL	RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
0920										; Concrete to 9-½" over		
	3380	0 0							ML	**SILT (ML)**; yellowish brown (10YR 5/6); dry to moist; firm; trace fine grained sand; mostly fines with no to low plasticity; micaceous odorless		
						5						
	3376	0 0								; dark grayish brown (10YR 4/2); very hard; odorless		
						10						
	3378	0 0								; Same as above, odorless		
		0 0										
		0 0										
0930		0 0										
										Boring was terminated at approximately 12 feet below ground surface		Backfilled with hydrated bentonite chips to surface, capped with concrete
						15						
						20						
						25						

REGISTERED GEOLOGIST
GUY JOSEPH BERGER
No. 7135
10-31-04
EXP. DATE
STATE OF CALIFORNIA

SHAW ELTORO.GPJ SHAWEI.GDT 7/2/03

BORING LOG

Boring/Well ID: SB-06
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: HP Labs
Drill Rig Model: GeoProbe
Driller: Robbie Bray
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

First Water: ft bgs on at hrs
Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL	RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
0900		0.0								; Concrete to 9-½" over		
	3384								ML	**SILT (ML)**; dark grayish brown (10YR 4/2); dry to moist; firm; trace fine grained sand; mostly fines with low plasticity; micaceous, odorless		
		0 0										
	3382					5				; As above, odorless		
						10						
	3383	0 0								; As above odorless		
		0 0										
		0 0										
0915		0 0										Backfilled with hydrated bentonite to surface
										Boring was terminated at approximately 12 feet below ground surface		
						15						
						20						
						25						

REGISTERED GEOLOGIST
GUY JOSEPH BERGER
No. 7135
10-31-04
EXP. DATE
STATE OF CALIFORNIA

SHAW ELTORO.GPJ SHAWEL.GDT 7/2/03

BORING LOG

Boring/Well ID: SG-01
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: Core Probe Int'l
Drill Rig Model: ATV Geoprobe 4220
Driller: Alejandro Estrada
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

First Water: ft bgs on at hrs
Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
0958		0.0						ML	**SILT (ML)**; dark brown (10YR 3/3); dry to moist; firm to hard; trace fine grained sand; mostly fines with low plasticity; micaceous; odorless		
	3361	0 0			5			SP	**WELL-GRADED SAND (SP)**; dark brown (10YR 3/3); dry to moist; medium dense; mostly fine grained sand; odorless		
	3364	0 00 0 0 0 0 0 0			10			ML	**SILT (ML)**; brown (10YR 5/3); dry to moist; firm to hard; trace fine grained sand; mostly fines with low plasticity; micaceous; odorless		Backfilled with hydrated bentonite to surface
1015									Boring was terminated at approximately 12 feet below ground surface		
					15						
					20						
					25						

REGISTERED GEOLOGIST
GUY JOSEPH BERGER
No. 7135
10 31 - 04
EXP. DATE
STATE OF CALIFORNIA

SHAW ELTORO.GPJ SHAWEI.GDT 7/2/03

BORING LOG

Boring/Well ID: SG-03
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: HP Labs
Drill Rig Model: GeoProbe
Driller: Robbie Bray
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

First Water: ft bgs on at hrs
Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL	RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
0900		0.0							SM	**SAND (SM)**; very dark grayish brown (10YR 3/2); dry to moist; dense; mostly fine grained sand; some fines with no plasticity; micaceous; odorless.		
	3382	0.0				5			ML	**SILT (ML)**; weak red (10R 4/3); dry to moist; hard; some fine grained sand; mostly fines with no plasticity; odorless		
1000	3372	0.0				10				; Same as above; odorless.		Backfilled with hydrated bentonite to surface
										Boring was terminated at approximately 11 feet below ground surface		
						15						
						20						
						25						

REGISTERED GEOLOGIST
GUY JOSEPH BERGER
No. 7135
10-31-04
EXP. DATE
STATE OF CALIFORNIA

SHAW ELTORO.GPJ SHAWEI.GDT 7/2/03

BORING LOG

Boring/Well ID: SG-05
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: Core Probe Int'l
Drill Rig Model: ATV Geoprobe 4220
Driller: Alejandro Estrada
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

▽ First Water: ft bgs on at hrs
▼ Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL	RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
1020		0.0							ML	**SILT (ML)**; dark brown (10YR 3/3); dry to moist; firm to hard; mostly fines with low plasticity; odorless		
	3375	0.0				5						
									SP	**POORLY GRADED SAND (SP)**; light yellowish brown (10YR 6/4); dry to moist; medium dense; mostly fine grained sand; odorless		
	3367	0.0				10				; Same as above; odorless		
		0.0										
		0.0										
1040		0.0										Backfilled with hydrated bentonite to surface
										Boring was terminated at approximately 12 feet below ground surface		
						15						
						20						
						25						

REGISTERED GEOLOGIST
GUY JOSEPH BERGER
No. 7135
10-31-04
EXP. DATE
STATE OF CALIFORNIA

BORING LOG

Boring/Well ID: SG-12
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: Core Probe Int'l
Drill Rig Model: ATV Geoprobe 4220
Driller: Alejandro Estrada
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

First Water: ft bgs on at hrs
Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
1050		0.0						SM	**SAND (SM)**; brown (7.5YR 4/3); dry to moist; medium dense; mostly fine grained sand; some fines with low plasticity; micaceous; odorless		
		0 0			5				; light brown (7 5YR 6/4); odorless		
	3306	0 0			10				; Same as above; odorless		Backfilled with hydrated bentonite to surface
		0 0									
		0 0									
1100		0 0									
									Boring was terminated at approximately 12 feet below ground surface.		
					15						
					20						
					25						

REGISTERED GEOLOGIST
GUY JOSEPH BERGER
No. 7135
10-31-04
EXP. DATE
STATE OF CALIFORNIA

Project No.: 818655
Location: APHO-38, Irvine, CA

Boring/Well ID: SG-12
Sheet: 1 of 1

SHAW ELTORO.GPJ SHAWEI.GDT 7/2/03

BORING LOG

Boring/Well ID: SG-17
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: HP Labs
Drill Rig Model: GeoProbe
Driller: Robbie Bray
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

▽ First Water: ft bgs on at hrs
▼ Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
1000		0.0						ML	**SILT (ML)**; very dark grayish brown (10YR 3/2); dry to moist; hard; trace fine grained sand; mostly fines with no plasticity; micaceous; odorless		
	3373				5				; Same as above; odorless		
	3379	0 0 0 0 0 0 0 0			10				; Same as above; odorless		
1010									Boring was terminated at approximately 12 feet below ground surface		Backfilled with hydrated bentonite to surface
					15						
					20						
					25						

REGISTERED GEOLOGIST
GUY JOSEPH BERGER
No. 7135
10-31-04
EXP DATE
STATE OF CALIFORNIA

SHAW ELTORO.GPJ SHAWEI.GDT 7/2/03

BORING LOG

Boring/Well ID: SG-20
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: HP Labs
Drill Rig Model: GeoProbe
Driller: Robbie Bray
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

First Water: ft bgs on at hrs
Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL	RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
1025		0.0							ML	**SILT (ML)**; dark olive brown (2.5Y 3/3); dry to moist; firm to hard; trace fine grained sand; mostly fines with low plasticity; micaceous; odorless		
		0 0				5				; Same as above; odorless		
	3371	0 0				10				; Same as above; odorless		
									ML	**SILT (ML)**; light brown (7.5YR 6/4); dry to moist; firm to hard; some fine grained sand; mostly fines with low plasticity; micaceous; odorless		
	3377	0 0				15				; Same as above; odorless		Backfilled with hydrated bentonite to surface
1040		0 0										
						20				Boring was terminated at approximately 16 feet below ground surface		
						25						

REGISTERED GEOLOGIST
GUY JOSEPH BERGER
No 7135
10-31-04
EXP. DATE
STATE OF CALIFORNIA

SHAW ELTORO.GPJ SHAWEI.GDT 7/2/03

BORING LOG

Boring/Well ID: SG-21
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: HP Labs
Drill Rig Model: GeoProbe
Driller: Robbie Bray
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

First Water: ft bgs on at hrs
Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL	RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
0745		0.0							ML	**SILT (ML)**; brown (7.5YR 4/3); dry to moist; firm; mostly fines with low plasticity; micaceous; odorless		
		0 0				5				; Same as above; odorless		
	3370	0 0				10				; very dark brown (7 5YR 2 5/3); hard; odorless		
		0 0				15						
									ML	**SILT (ML)**; reddish yellow (7.5YR 6/6); dry to moist; firm; some fine grained sand; mostly fines with low plasticity; odorless		
	3307									; Same as above; odorless		
1115		0 0				20						Backfilled with hydrated bentonite to surface
										Boring was terminated at approximately 20 feet below ground surface		
						25						

REGISTERED GEOLOGIST
GUY JOSEPH BERGER
No. 7135
10-31-04
EXP. DATE
STATE OF CALIFORNIA

SHAW ELTORO.GPJ SHAWEL.GDT 7/2/03

BORING LOG

Boring/Well ID: SG-22
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: HP Labs
Drill Rig Model: GeoProbe
Driller: Robbie Bray
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

▽ First Water: ft bgs on at hrs
▼ Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL	RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
1145		0.0							ML	**SILT (ML)**; pale brown (10YR 6/3); dry to moist; firm; some fine grained sand; mostly fines with low plasticity; micaceous; odorless		
		0 0				5				; Same as above; odorless		
	3368	0 0				10			ML	**SILT (ML)**; dark grayish brown (10YR 4/2); dry to moist; firm; mostly fines with low plasticity; micaceous; odorless		
						15			ML	**SILT (ML)**; olive brown (2.5Y 4/3); dry to moist; firm; some fine grained sand; mostly fines with low plasticity; micaceous; odorless		
1240	3369	0 0				20			CL	**LEAN CLAY (CL)**; light olive brown (2.5Y 5/6); dry to moist; hard; mostly fines with medium plasticity; odorless.		Backfilled with hydrated bentonite
						25				Boring was terminated at approximately 20 feet below ground surface		

REGISTERED GEOLOGIST
GUY JOSEPH BERGER
No. 7135
10-31-04
EXP. DATE
STATE OF CALIFORNIA

Project No.: 818655
Location: APHO-38, Irvine, CA

Boring/Well ID: SG-22
Sheet: 1 of 1

SHAW ELTORO.GPJ SHAWEL.GDT 7/2/03

BORING LOG

Boring/Well ID: SG-24
Sheet: 1 of 1

Project No.: 818655
Client: SWDIV
Location: APHO-38
Started: 5/21/2003
Ended: 5/21/2003

Drilling Co.: Core Probe Int'l
Drill Rig Model: ATV Geoprobe 4220
Driller: Alejandro Estrada
Drilling Method: Direct Push
Hole Diameter: 2 (inches)

Logged By: Brian Tanaka
Edited By: Matthew Curtis
Checked By: Guy Berger
Number: RG7135

First Water: ft bgs on at hrs
Static Water: ft btoc on at hrs

TIME	SAMPLE NUMBER	PID / FID (ppm)	BLOWS (per 6 inch)	INTERVAL	RECOVERY	DEPTH (feet)	ELEVATION (feet msl)	GRAPHIC LOG	SOIL/ROCK SYMBOL	SOIL / ROCK DESCRIPTION	WELL DETAIL	COMMENTS OR NOTES
0935		0.0							ML	**SILT (ML)**; dark yellowish brown (10YR 4/4); dry to moist; firm to hard; trace fine grained sand; mostly fines with low plasticity; micaceous; odorless		
	3358	0 0				5				; Same as above; odorless		
	3359	0 0 0 0 0 0 0 0				10				; Same as above; odorless		Backfilled with hydrated bentonite to surface
										Boring was terminated at approximately 12 feet below ground surface		
						15						
						20						
						25						

REGISTERED GEOLOGIST
GUY JOSEPH BERGER
No. 7135
10-31-04
EXP. DATE
STATE OF CALIFORNIA

SHAW ELTORO.GPJ SHAWELGDT 7/2/03

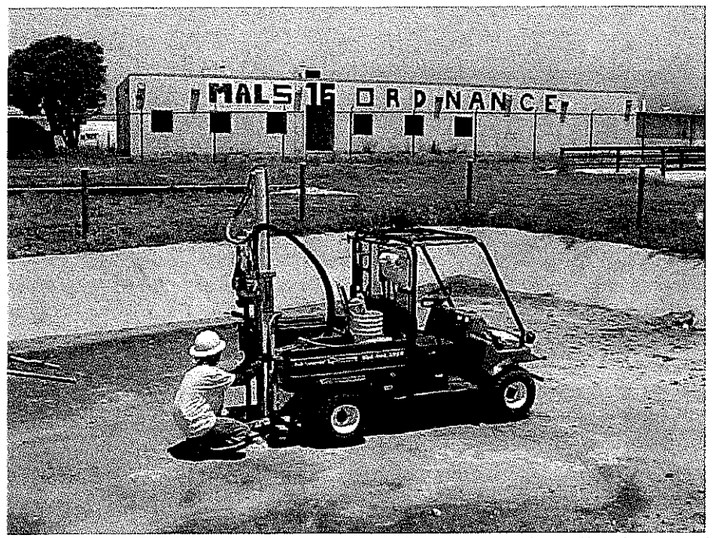

Photo 1, APHO 38 Investigation, Push Rig at SB-4 in collection pond.

Photo 2, APHO 38 Investigation. Push Rig at SB-4 Location.

the IT group

IT Corporation
2790 Mosside Blvd.
Monroeville, PA 15146-2792
(412)372-7701

CHAIN-OF-CUSTODY RECORD

PROJECT DATA MANAGER'S COPY

A 16103

FORM 0019 REV. 9-99

IT'S LAB COORDINATOR: LYNN JEFFERSON	LAB COORDINATOR'S PHONE: 949-660-7537	LAB COORDINATOR'S FAX: 949-475-5433	LABORATORY SERVICE ID: 03E172	LABORATORY CONTACT: Ye Myint	MAIL REPORT (COMPANY NAME): Shaw E+I
PROJECT NAME: APH038-Soil Conf.	PROJECT LOCATION: MCAS El Toro	PROJECT NUMBER: 818655	LABORATORY PHONE: 310-618-8889	LABORATORY FAX:	RECIPIENT NAME: Dwayne Ishida
PROJECT CONTACT: LYNN JEFFERSON	PROJECT PHONE NUMBER: 949-278-2553	PROJECT FAX: 949-~~660-10~~ 475-5433	LABORATORY ADDRESS: 1835 W. 205th St.		ADDRESS: 3347 Michelson #200
PROJECT ADDRESS: Bldg. 311 Marine Way	CITY, STATE AND ZIP CODE: El Toro, CA	CLIENT: EFA West	CITY, STATE AND ZIP CODE: Torrance, CA 90501		CITY, STATE AND ZIP CODE: Irvine, CA 92677
PROJECT MANAGER: Dhananjay Rawal	PROJECT MANAGER'S PHONE: 949-660-7576	PROJECT MANAGER'S FAX: 949-474-8309			

Item	Sample Identifier	Matrix	2003 Date	Time	Preserved	# of Cont.	QC Level	T.A.T.	Analyses: 8260 B+MTBE	SVOC	8015 (gas)	8015 (Diesel)	8081 (Pesticide)	8082 (PCB)	6010 (Metals)	Comments
1	818655-3350	S	5/21	0750	4°C	7	3	5 day	X	X	X	X			X	
2	818655-3351	S	5/21	0756	"	"	"	"	X		X	X				
3	818655-3352			0810					X	X	X	X			X	
4	818655-3353			0817					X		X	X				
5	818655-3354	W		1250		8			X	X	X	X				
6	818655-3355	S		0835		7	4		X		X	X				
7	818655-3356	S		0845		7	3		X	X	X	X		X	X	
8	818655-3357	S		0855		7			X		X	X				
9	818655-3358	S		0940		7			X		X	X				
10	818655-3359	S		0950		7			X		X	X				

SAMPLES COLLECTED BY: W. Jefferson

COURIER AND AIR BILL NUMBER:

COOLER TEMPERATURE UPON RECEIPT:

RELINQUISHED BY	RECEIVED BY	DATE	TIME	SAMPLE'S CONDITION UPON RECEIPT
[signature]	[signature]	5-21-03	1715	

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

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

Sample Point Location	Sample Type: G	C	F	QC
① APH038-SB-4 @ 1'	X			
② APH038-SB-4 @ 5'	X			
③ APH038-SB-1 @ 1'	X			
④ APH038-SB-1 @ 5'	X			
⑤ APH038-~~SB~~ Equipment Rinsate	X			X
⑥ APH038-SB-2 @ 5'				
⑦ APH038-SB-3 @ 1'				
⑧ APH038-SB-3 @ 5'				
⑨ APH038-SB-24 @ 5'				
⑩ APH038-SG-24 @ 10'				

Comments: QC ✓ on 5/28/03

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

IT Corporation
2790 Mosside Blvd.
Monroeville, PA 15146-2792
(412)372-7701

CHAIN-OF-CUSTODY RECORD

PROJECT DATA MANAGER'S COPY

A 16106

FORM 0019 REV. 9-99

IT'S LAB COORDINATOR: LYNN JEFFERSON	LAB COORDINATOR'S PHONE: 949-660-7537	LAB COORDINATOR'S FAX: 949-475-5433	LABORATORY SERVICE ID: 03E172	LABORATORY CONTACT: Ye Myint	MAIL REPORT (COMPANY NAME): Shaw E&I
PROJECT NAME: APH038 - Soil Cont.	PROJECT LOCATION: MCAS El Toro	PROJECT NUMBER: 818655	LABORATORY PHONE: 310-618-8889	LABORATORY FAX:	RECIPIENT NAME: Dwayne Ishida
PROJECT CONTACT: LYNN JEFFERSON	PROJECT PHONE NUMBER: 949-278-2553	PROJECT FAX: 949-475-5433	LABORATORY ADDRESS: 1835 W. 205th St.		ADDRESS: 3347 Michelson #200
PROJECT ADDRESS: Bldg. 311 Marine Wkw	CITY, STATE AND ZIP CODE: El Toro, CA	CLIENT: EFA West	CITY, STATE AND ZIP CODE: Torrance, CA 90501		CITY, STATE AND ZIP CODE: Irvine CA 92677
PROJECT MANAGER: Dhananjay Rawal	PROJECT MANAGER'S PHONE: 949-660-7576	PROJECT MANAGER'S FAX: 949-474-8399			

Item	Sample Identifier	Matrix	Date 2003	Time	Preserved	# of Cont.	QC Level	T.A.T.	Analyses: 8260	8260	8015 (gas)	8015 (diesel)	1010 (carbon)				Comments
1	818655-336070	S	5/21	1115	4°C	7	3	5 day	X		X	X					
2	818655-336071	S	5/21	1030	4°C	7	3	5 day	X		X	X					
3	818655-336072			1125													
4	818655-336073			1005													
5	818655-336074			0955													
6	818655-336075			1025													
7	818655-336076			0930													
8	818655-336077			1040													
9	818655-336078			0930													
10	818655-336079			1010		6											

SAMPLES COLLECTED BY: L. Jefferson

RELINQUISHED BY:

COURIER AND AIR BILL NUMBER:

RECEIVED BY: [signature]

DATE	TIME
5-21-03	1715

COOLER TEMPERATURE UPON RECEIPT:

SAMPLE'S CONDITION UPON RECEIPT

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

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

Sample Point Location	Sample Type G	C	F	QC
① APH038-SG-21 @10'				
② APH038-SG-20 @10'				
③ APH038-SG-21 @20'				
④ APH038-SG-17 @5'				
⑤ APH038-SG-3 @10'				
⑥ APH038-SG-5 @5'				
⑦ APH038-SB-5 @5'				
⑧ APH038-SG-20 @15'				
⑨ APH038-~~SG-5~~ SB-5 @10'				
⑩ APH038-SG-17 @10'				

Comments: COC v on May 29

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

EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Telephone: (310) 618-8889
Fax: (310) 618-0818

Date: 06-06-2003
EMAX Batch No.: 03E172

Attn: Way-Lynn Jefferson

Shaw E&I
3347 Michelson Dr., Suite 200
Irvine CA 92612

Subject: Laboratory Report
Project: El Toro, CTO 0024

Enclosed is the Laboratory report for samples received on 05/21/03. The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
818655-3350	E172-01	05/21/03	SOIL	TPH DIESEL
				SEMIVOLATILE ORGANICS SIM
				SEMIVOLATILE ORGANICS BY GCMS
				MERCURY
				METALS TAL BY ICP
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3351	E172-02	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3352	E172-03	05/21/03	SOIL	TPH DIESEL
				SEMIVOLATILE ORGANICS SIM
				SEMIVOLATILE ORGANICS BY GCMS
				MERCURY
				METALS TAL BY ICP
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3353	E172-04	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE

Sample ID	Control #	Col Date	Matrix	Analysis
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3365	E172-16	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3366	E172-17	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3367	E172-18	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3368	E172-19	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3369	E172-20	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3370	E172-21	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3371	E172-22	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3372	E172-23	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3373	E172-24	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3374	E172-25	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3375	E172-26	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3376	E172-27	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3377	E172-28	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS

EMAX LABORATORIES, INC. 1835 W. 205th Street, Torrance, CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

Sample ID	Control #	Col Date	Matrix	Analysis
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3366MS	E172-17M	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS
818655-3366MSD	E172-17S	05/21/03	SOIL	TPH DIESEL
				TPH GASOLINE
				VOLATILE ORGANICS BY GC/MS

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

EMAX LABORATORIES, INC. 1835 W 205th Street, Torrance CA 90501 Tel: (310) 618-8889 Fax: (310) 618-0818

METHOD 3520C/M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : SHAW E&I
Project : EL TORO, CTO 0024
Batch No. : 03E172

Matrix : WATER
Instrument ID : GCT050

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	SUR1 (%)	SUR2 (%)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	DSE016WB	ND	73	95	1	NA	.1	.1	05/22/0313:41	05/22/0313:30	TE22003A	TE22002A	DSE016W	NA	05/22/03
LCS1W	DSE016WL	4.37	81	100	1	NA	.1	.1	05/22/0314:22	05/22/0313:30	TE22004A	TE22002A	DSE016W	NA	05/22/03
LCD1W	DSE016WC	4.31	85	98	1	NA	.1	.1	05/22/0315:03	05/22/0313:30	TE22005A	TE22002A	DSE016W	NA	05/22/03
818655-3354	E172-05	ND	75	97	.97	NA	.097	.097	05/22/0315:45	05/22/0313:30	TE22006A	TE22002A	DSE016W	05/21/03	05/21/03

RL : Reporting Limit
SURR1 : Bromobenzene
SURR2 : Hexacosane

Parameter	H-C Range
Diesel	C10-C38

5004

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: SHAW E&I
PROJECT: EL TORO, CTO 0024
BATCH NO.: 03E172
METHOD: CA LUFT/M8015

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MATRIX:	SOIL		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MBLK2S			
LAB SAMP ID:	DSE018SB	DSE018SL		
LAB FILE ID:	TE22032A	TE22033A		
DATE EXTRACTED:	05/22/0315:45	05/22/0315:45	DATE COLLECTED:	NA
DATE ANALYZED:	05/23/0309:42	05/23/0310:23	DATE RECEIVED:	05/22/03
PREP. BATCH:	DSE018S	DSE018S		
CALIB. REF:	TE22024A	TE22024A		

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	QC LIMIT (%)
Diesel	ND	500	465	93	65-135

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SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	QC LIMIT (%)
Bromobenzene	100	103	103	50-150
Hexacosane	25	25.5	102	30-160

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: SHAW E&I
PROJECT: EL TORO, CTO 0024
BATCH NO.: 03E172
METHOD: CA LUFT/M8015

MATRIX:	SOIL			% MOISTURE:	2.4
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	818655-3387				
LAB SAMP ID:	E172-37	E172-37M	E172-37S		
LAB FILE ID:	TE22053A	TE22054A	TE22055A		
DATE EXTRACTED:	05/22/0315:45	05/22/0315:45	05/22/0315:45	DATE COLLECTED:	05/21/03
DATE ANALYZED:	05/24/0300:10	05/24/0300:51	05/24/0301:33	DATE RECEIVED:	05/21/03
PREP. BATCH:	DSE018S	DSE018S	DSE018S		
CALIB. REF:	TE22046A	TE22046A	TE22046A		

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SPIKE AMT (mg/kg)	MS RSLT (mg/kg)	MS % REC	SPIKE AMT (mg/kg)	MSD RSLT (mg/kg)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	58.8	512	491	84	512	484	83	1	65-135	50

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	MS RSLT (mg/kg)	MS % REC	SPIKE AMT (mg/kg)	MSD RSLT (mg/kg)	MSD % REC	QC LIMIT (%)
Bromobenzene	102	106	104	102	106	104	45-165
Hexacosane	25.6	27.4	107	25.6	27	105	27-176

METHOD 5035/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : SHAW E&I
Project : EL TORO, CTO 0024
Batch No. : 03E172

Matrix : SOIL
Instrument ID : GCT039

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	SURR (%)	DLF	MOIST	RL (mg/kg)	MDL (mg/kg)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1S	VM39E21B	ND	91	1	NA	10	.524	05/22/0312:04	05/22/0312:04	EE22003A	EE22002A	VM39E21	NA	05/22/03
LCS1S	VM39E21L	22.6	98	1	NA	10	.524	05/22/0312:46	05/22/0312:46	EE22004A	EE22002A	VM39E21	NA	05/22/03
LCD1S	VM39E21C	25	77	1	NA	10	.524	05/22/0313:21	05/22/0313:21	EE22005A	EE22002A	VM39E21	NA	05/22/03
MBLK2S	VM39E23B	ND	94	1	NA	10	.524	05/23/0304:59	05/23/0304:59	EE22032A	EE22022A	VM39E23	NA	05/23/03
LCS2S	VM39E23L	24.9	85	1	NA	10	.524	05/23/0303:50	05/23/0303:50	EE22030A	EE22022A	VM39E23	NA	05/23/03
LCD2S	VM39E23C	24.5	82	1	NA	10	.524	05/23/0304:25	05/23/0304:25	EE22031A	EE22022A	VM39E23	NA	05/23/03
818655-3350	E172-01	ND	88	0.96	8.3	10	.55	05/22/0315:50	05/22/0315:50	EE22009A	EE22002A	VM39E21	05/21/03	05/21/03
818655-3351	E172-02	ND	88	1.04	15.1	12	.64	05/22/0316:25	05/22/0316:25	EE22010A	EE22002A	VM39E21	05/21/03	05/21/03
818655-3352	E172-03	ND	86	0.93	11.5	11	.55	05/22/0317:33	05/22/0317:33	EE22012A	EE22011A	VM39E21	05/21/03	05/21/03
818655-3353	E172-04	ND	89	0.83	8.5	9.1	.48	05/22/0318:07	05/22/0318:07	EE22013A	EE22011A	VM39E21	05/21/03	05/21/03
818655-3355	E172-06	ND	87	0.86	6.0	9.1	.48	05/22/0318:42	05/22/0318:42	EE22014A	EE22011A	VM39E21	05/21/03	05/21/03
818655-3356	E172-07	ND	87	1.06	12.6	12	.64	05/22/0319:16	05/22/0319:16	EE22015A	EE22011A	VM39E21	05/21/03	05/21/03
818655-3357	E172-08	ND	89	0.86	13.3	9.9	.52	05/22/0319:50	05/22/0319:50	EE22016A	EE22011A	VM39E21	05/21/03	05/21/03
818655-3358	E172-09	ND	85	0.85	15.3	10	.53	05/22/0320:25	05/22/0320:25	EE22017A	EE22011A	VM39E21	05/21/03	05/21/03
818655-3359	E172-10	ND	85	0.83	6.0	8.8	.46	05/22/0320:59	05/22/0320:59	EE22018A	EE22011A	VM39E21	05/21/03	05/21/03
818655-3360	E172-11	ND	83	0.89	21.5	11	.59	05/22/0321:33	05/22/0321:33	EE22019A	EE22011A	VM39E21	05/21/03	05/21/03
818655-3361	E172-12	ND	88	1.06	7.0	11	.6	05/22/0322:08	05/22/0322:08	EE22020A	EE22011A	VM39E21	05/21/03	05/21/03
818655-3362	E172-13	ND	83	0.89	8.4	9.7	.51	05/22/0322:42	05/22/0322:42	EE22021A	EE22011A	VM39E21	05/21/03	05/21/03
818655-3363	E172-14	ND	87	1.04	13.7	12	.63	05/23/0300:25	05/23/0300:25	EE22024A	EE22022A	VM39E21	05/21/03	05/21/03
818655-3364	E172-15	ND	88	0.94	13.7	11	.57	05/23/0301:34	05/23/0301:34	EE22026A	EE22022A	VM39E21	05/21/03	05/21/03
818655-3365	E172-16	ND	81	1.09	20.9	14	.72	05/23/0302:08	05/23/0302:08	EE22027A	EE22022A	VM39E21	05/21/03	05/21/03
818655-3366	E172-17	ND	90	0.98	9.6	11	.57	05/22/0314:06	05/22/0314:06	EE22006A	EE22002A	VM39E21	05/21/03	05/21/03
818655-3366MS	E172-17M	27.1	96	0.98	9.6	10.8	.568	05/22/0314:41	05/22/0314:41	EE22007A	EE22002A	VM39E21	05/21/03	05/21/03
818655-3366MSD	E172-17S	26.4	95	0.98	9.6	10.8	.568	05/22/0315:16	05/22/0315:16	EE22008A	EE22002A	VM39E21	05/21/03	05/21/03
818655-3367	E172-18	ND	89	0.98	8.8	11	.56	05/23/0302:42	05/23/0302:42	EE22028A	EE22022A	VM39E21	05/21/03	05/21/03
818655-3368	E172-19	ND	90	1.61	6.2	17	.9	05/23/0303:16	05/23/0303:16	EE22029A	EE22022A	VM39E21	05/21/03	05/21/03
818655-3369	E172-20	ND	82	0.96	11.9	11	.57	05/23/0305:33	05/23/0305:33	EE22033A	EE22022A	VM39E23	05/21/03	05/21/03
818655-3370	E172-21	ND	87	1.06	6.0	11	.59	05/23/0306:08	05/23/0306:08	EE22034A	EE22022A	VM39E23	05/21/03	05/21/03
818655-3371	E172-22	ND	85	0.91	4.0	9.5	.5	05/23/0307:50	05/23/0307:50	EE22037A	EE22036A	VM39E23	05/21/03	05/21/03
818655-3372	E172-23	ND	89	1.02	4.5	11	.56	05/23/0308:24	05/23/0308:24	EE22038A	EE22036A	VM39E23	05/21/03	05/21/03
818655-3373	E172-24	ND	85	0.88	15.3	10	.54	05/23/0308:59	05/23/0308:59	EE22039A	EE22036A	VM39E23	05/21/03	05/21/03
818655-3374	E172-25	ND	87	0.96	6.4	10	.54	05/23/0309:33	05/23/0309:33	EE22040A	EE22036A	VM39E23	05/21/03	05/21/03
818655-3375	E172-26	ND	84	0.86	10.5	9.6	.5	05/23/0310:07	05/23/0310:07	EE22041A	EE22036A	VM39E23	05/21/03	05/21/03
818655-3376	E172-27	ND	84	0.86	5.8	9.1	.48	05/23/0310:43	05/23/0310:43	EE22042A	EE22036A	VM39E23	05/21/03	05/21/03
818655-3377	E172-28	ND	89	0.98	9.2	11	.57	05/23/0314:09	05/23/0314:09	EE22048A	EE22046A	VM39E23	05/21/03	05/21/03
818655-3378	E172-29	ND	87	0.98	13.5	11	.59	05/23/0314:46	05/23/0314:46	EE22049A	EE22046A	VM39E23	05/21/03	05/21/03
818655-3379	E172-30	ND	90	1.09	18.4	13	.7	05/23/0315:20	05/23/0315:20	EE22050A	EE22046A	VM39E23	05/21/03	05/21/03
818655-3380	E172-31	ND	84	0.98	19.9	12	.64	05/23/0315:55	05/23/0315:55	EE22051A	EE22046A	VM39E23	05/21/03	05/21/03
818655-3381	E172-32	ND	88	0.86	13.5	9.9	.52	05/23/0316:29	05/23/0316:29	EE22052A	EE22046A	VM39E23	05/21/03	05/21/03
818655-3382	E172-33	ND	83	0.85	14.5	9.9	.52	05/23/0317:03	05/23/0317:03	EE22053A	EE22046A	VM39E23	05/21/03	05/21/03
818655-3383	E172-34	ND	87	0.96	15.6	11	.6	05/23/0318:12	05/23/0318:12	EE22055A	EE22046A	VM39E23	05/21/03	05/21/03
818655-3384	E172-35	ND	86	0.98	20.1	12	.64	05/23/0318:47	05/23/0318:47	EE22056A	EE22046A	VM39E23	05/21/03	05/21/03
818655-3386	E172-36	ND	78	1	22.5	13	.68	05/23/0319:21	05/23/0319:21	EE22057A	EE22046A	VM39E23	05/21/03	05/21/03
818655-3387	E172-37	ND	91	1	2.4	10	.54	05/23/0311:17	05/23/0311:17	EE22043A	EE22036A	VM39E23	05/21/03	05/21/03
818655-3387MS	E172-37M	25.9	100	1	2.4	10.2	.537	05/23/0311:52	05/23/0311:52	EE22044A	EE22036A	VM39E23	05/21/03	05/21/03
818655-3387MSD	E172-37S	26.3	102	1	2.4	10.2	.537	05/23/0312:26	05/23/0312:26	EE22045A	EE22036A	VM39E23	05/21/03	05/21/03

RL : Reporting Limit
Methanol Extration: 05/22/03 11:50 (VM39E21)
Methanol Extration: 05/22/03 13:50 (VM39E23)

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SHAW E&I
PROJECT: EL TORO, CTO 0024
BATCH NO.: 03E172
METHOD: METHOD 5035/M8015

MATRIX:	SOIL			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK2S				
LAB SAMP ID:	VM39E23B	VM39E23L	VM39E23C		
LAB FILE ID:	EE22032A	EE22030A	EE22031A		
DATE EXTRACTED:	05/23/0304:59	05/23/0303:50	05/23/0304:25	DATE COLLECTED:	NA
DATE ANALYZED:	05/23/0304:59	05/23/0303:50	05/23/0304:25	DATE RECEIVED:	05/23/03
PREP. BATCH:	VM39E23	VM39E23	VM39E23		
CALIB. REF:	EE22022A	EE22022A	EE22022A		

ACCESSION:

PARAMETER	BLNK RSLT (mg/kg)	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Gasoline	ND	27.5	24.9	91	27.5	24.5	89	2	57-146	50

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	BS RSLT (mg/kg)	BS % REC	SPIKE AMT (mg/kg)	BSD RSLT (mg/kg)	BSD % REC	QC LIMIT (%)
Bromofluorobenzene	2	1.7	85	2	1.65	82	63-154

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: SHAW E&I
PROJECT: EL TORO, CTO 0024
BATCH NO.: 03E172
METHOD: METHOD 5035/M8015

MATRIX:	SOIL			% MOISTURE:	2.4
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	818655-3387				
LAB SAMP ID:	E172-37	E172-37M	E172-37S		
LAB FILE ID:	EE22043A	EE22044A	EE22045A		
DATE EXTRACTED:	05/23/0311:17	05/23/0311:52	05/23/0312:26	DATE COLLECTED:	05/21/03
DATE ANALYZED:	05/23/0311:17	05/23/0311:52	05/23/0312:26	DATE RECEIVED:	05/21/03
PREP. BATCH:	VM39E23	VM39E23	VM39E23		
CALIB. REF:	EE22036A	EE22036A	EE22036A		

ACCESSION:

PARAMETER	SMPL RSLT (mg/kg)	SPIKE AMT (mg/kg)	MS RSLT (mg/kg)	MS % REC	SPIKE AMT (mg/kg)	MSD RSLT (mg/kg)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RP (%)
Gasoline	ND	28.2	25.9	92	28.2	26.3	94	2	57-146	50

SURROGATE PARAMETER	SPIKE AMT (mg/kg)	MS RSLT (mg/kg)	MS % REC	SPIKE AMT (mg/kg)	MSD RSLT (mg/kg)	MSD % REC	QC LIMIT (%)
Bromofluorobenzene	2.05	2.06	100	2.05	2.09	102	63-154

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SHAW E&I
PROJECT: EL TORO, CTO 0024
BATCH NO.: 03E172
METHOD: METHOD 5030B/M8015

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	VA39E25B	VA39E25L	VA39E25C		
LAB FILE ID:	EE22062A	EE22060A	EE22061A		
DATE EXTRACTED:	05/23/0322:11	05/23/0321:03	05/23/0321:37	DATE COLLECTED:	NA
DATE ANALYZED:	05/23/0322:11	05/23/0321:03	05/23/0321:37	DATE RECEIVED:	05/23/03
PREP. BATCH:	VA39E25	VA39E25	VA39E25		
CALIB. REF:	EE22058A	EE22058A	EE22058A		

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Gasoline	ND	.55	.504	92	.55	.517	94	3	67-136	30

SURROGATE PARAMETER	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	QC LIMIT (%)
Bromofluorobenzene	.04	.0405	101	.04	.039	98	63-154

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/24/03 16:09
Sample ID:	818655-3350	Date Analyzed:	05/24/03 16:09
Lab Samp ID:	E172-01	Dilution Factor:	.98
Lab File ID:	REW303	Matrix :	SOIL
Ext Btch ID:	V006E32	% Moisture :	8.3
Calib. Ref.:	REW270	Instrument ID :	T-006

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5.3	2.1
1,1,2,2-TETRACHLOROETHANE	ND	5.3	2.1
1,1,2-TRICHLOROETHANE	ND	5.3	2.1
1,1-DICHLOROETHANE	ND	5.3	2.1
1,1-DICHLOROETHENE	ND	5.3	2.1
1,2-DICHLOROETHANE	ND	5.3	2.1
1,2-DICHLOROPROPANE	ND	5.3	2.1
2-BUTANONE (MEK)	ND	53	5.3
2-HEXANONE	ND	53	5.3
2-CHLOROETHYLVINYLETHER	ND	53	2.1
4-METHYL-2-PENTANONE (MIBK)	ND	53	5.3
ACETONE	19J	53	5.3
BENZENE	ND	5.3	2.1
BROMODICHLOROMETHANE	ND	5.3	2.1
BROMOFORM	ND	5.3	2.1
BROMOMETHANE	ND	5.3	3.2
CARBON DISULFIDE	ND	5.3	2.1
CARBON TETRACHLORIDE	ND	5.3	2.1
CHLOROBENZENE	ND	5.3	2.1
CHLOROETHANE	ND	5.3	3.2
CHLOROFORM	ND	5.3	2.1
CHLOROMETHANE	ND	5.3	5.3
CIS-1,2-DICHLOROETHENE	ND	5.3	2.1
CIS-1,3-DICHLOROPROPENE	ND	5.3	2.1
DIBROMOCHLOROMETHANE	ND	5.3	2.1
ETHYLBENZENE	ND	5.3	2.1
XYLENES	ND	5.3	3.2
METHYLENE CHLORIDE	ND	5.3	2.1
MTBE	ND	11	2.1
STYRENE	ND	5.3	2.1
TOLUENE	ND	5.3	2.1
TRANS-1,2-DICHLOROETHENE	ND	5.3	2.1
TRANS-1,3-DICHLOROPROPENE	ND	5.3	2.1
TRICHLOROETHENE	ND	5.3	2.1
TETRACHLOROETHENE	ND	5.3	2.1
VINYL ACETATE	ND	53	2.1
VINYL CHLORIDE	ND	5.3	2.1
FREON113	ND	5.3	2.1

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	109	70-130
BROMOFLUOROBENZENE	99	70-130
TOLUENE-D8	95	70-130

Preservation Date: 05/22/03 19:05

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/24/03 18:48
Sample ID:	818655-3355	Date Analyzed:	05/24/03 18:48
Lab Samp ID:	E172-06	Dilution Factor:	1.2
Lab File ID:	REW307	Matrix :	SOIL
Ext Btch ID:	V006E32	% Moisture :	6.0
Calib. Ref.:	REW270	Instrument ID :	T-006

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	6.4	2.6
1,1,2,2-TETRACHLOROETHANE	ND	6.4	2.6
1,1,2-TRICHLOROETHANE	ND	6.4	2.6
1,1-DICHLOROETHANE	ND	6.4	2.6
1,1-DICHLOROETHENE	ND	6.4	2.6
1,2-DICHLOROETHANE	ND	6.4	2.6
1,2-DICHLOROPROPANE	ND	6.4	2.6
2-BUTANONE (MEK)	ND	64	6.4
2-HEXANONE	ND	64	6.4
2-CHLOROETHYLVINYLETHER	ND	64	2.6
4-METHYL-2-PENTANONE (MIBK)	ND	64	6.4
ACETONE	25J	64	6.4
BENZENE	ND	6.4	2.6
BROMODICHLOROMETHANE	ND	6.4	2.6
BROMOFORM	ND	6.4	2.6
BROMOMETHANE	ND	6.4	3.8
CARBON DISULFIDE	ND	6.4	2.6
CARBON TETRACHLORIDE	ND	6.4	2.6
CHLOROBENZENE	ND	6.4	2.6
CHLOROETHANE	ND	6.4	3.8
CHLOROFORM	ND	6.4	2.6
CHLOROMETHANE	ND	6.4	6.4
CIS-1,2-DICHLOROETHENE	ND	6.4	2.6
CIS-1,3-DICHLOROPROPENE	ND	6.4	2.6
DIBROMOCHLOROMETHANE	ND	6.4	2.6
ETHYLBENZENE	ND	6.4	2.6
XYLENES	ND	6.4	3.8
METHYLENE CHLORIDE	ND	6.4	2.6
MTBE	ND	13	2.6
STYRENE	ND	6.4	2.6
TOLUENE	ND	6.4	2.6
TRANS-1,2-DICHLOROETHENE	ND	6.4	2.6
TRANS-1,3-DICHLOROPROPENE	ND	6.4	2.6
TRICHLOROETHENE	ND	6.4	2.6
TETRACHLOROETHENE	ND	6.4	2.6
VINYL ACETATE	ND	64	2.6
VINYL CHLORIDE	ND	6.4	2.6
FREON113	ND	6.4	2.6

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	117	70-130
BROMOFLUOROBENZENE	98	70-130
TOLUENE-D8	94	70-130

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SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/24/03 20:08
Sample ID:	818655-3357	Date Analyzed:	05/24/03 20:08
Lab Samp ID:	E172-08	Dilution Factor:	.81
Lab File ID:	REW309	Matrix :	SOIL
Ext Btch ID:	V006E32	% Moisture :	13.3
Calib. Ref.:	REW270	Instrument ID :	T-006

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	4.7	1.9
1,1,2,2-TETRACHLOROETHANE	ND	4.7	1.9
1,1,2-TRICHLOROETHANE	ND	4.7	1.9
1,1-DICHLOROETHANE	ND	4.7	1.9
1,1-DICHLOROETHENE	ND	4.7	1.9
1,2-DICHLOROETHANE	ND	4.7	1.9
1,2-DICHLOROPROPANE	ND	4.7	1.9
2-BUTANONE (MEK)	ND	47	4.7
2-HEXANONE	ND	47	4.7
2-CHLOROETHYLVINYLETHER	ND	47	1.9
4-METHYL-2-PENTANONE (MIBK)	ND	47	4.7
ACETONE	30J	47	4.7
BENZENE	ND	4.7	1.9
BROMODICHLOROMETHANE	ND	4.7	1.9
BROMOFORM	ND	4.7	1.9
BROMOMETHANE	ND	4.7	2.8
CARBON DISULFIDE	ND	4.7	1.9
CARBON TETRACHLORIDE	ND	4.7	1.9
CHLOROBENZENE	ND	4.7	1.9
CHLOROETHANE	ND	4.7	2.8
CHLOROFORM	ND	4.7	1.9
CHLOROMETHANE	ND	4.7	4.7
CIS-1,2-DICHLOROETHENE	ND	4.7	1.9
CIS-1,3-DICHLOROPROPENE	ND	4.7	1.9
DIBROMOCHLOROMETHANE	ND	4.7	1.9
ETHYLBENZENE	ND	4.7	1.9
XYLENES	ND	4.7	2.8
METHYLENE CHLORIDE	ND	4.7	1.9
MTBE	ND	9.3	1.9
STYRENE	ND	4.7	1.9
TOLUENE	ND	4.7	1.9
TRANS-1,2-DICHLOROETHENE	ND	4.7	1.9
TRANS-1,3-DICHLOROPROPENE	ND	4.7	1.9
TRICHLOROETHENE	ND	4.7	1.9
TETRACHLOROETHENE	ND	4.7	1.9
VINYL ACETATE	ND	47	1.9
VINYL CHLORIDE	ND	4.7	1.9
FREON113	ND	4.7	1.9

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	116	70-130
BROMOFLUOROBENZENE	98	70-130
TOLUENE-D8	93	70-130

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SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/25/03 14:38
Sample ID	: 818655-3359	Date Analyzed:	05/25/03 14:38
Lab Samp ID	: E172-10	Dilution Factor:	.77
Lab File ID	: REB429	Matrix :	SOIL
Ext Btch ID	: V003E47	% Moisture :	6.0
Calib. Ref.	: REB106	Instrument ID :	T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	4.1	1.6
1,1,2,2-TETRACHLOROETHANE	ND	4.1	1.6
1,1,2-TRICHLOROETHANE	ND	4.1	1.6
1,1-DICHLOROETHANE	ND	4.1	1.6
1,1-DICHLOROETHENE	ND	4.1	1.6
1,2-DICHLOROETHANE	ND	4.1	1.6
1,2-DICHLOROPROPANE	ND	4.1	1.6
2-BUTANONE (MEK)	ND	41	4.1
2-HEXANONE	ND	41	4.1
2-CHLOROETHYLVINYLETHER	ND	41	1.6
4-METHYL-2-PENTANONE (MIBK)	ND	41	4.1
ACETONE	15J	41	4.1
BENZENE	ND	4.1	1.6
BROMODICHLOROMETHANE	ND	4.1	1.6
BROMOFORM	ND	4.1	1.6
BROMOMETHANE	ND	4.1	2.5
CARBON DISULFIDE	ND	4.1	1.6
CARBON TETRACHLORIDE	ND	4.1	1.6
CHLOROBENZENE	ND	4.1	1.6
CHLOROETHANE	ND	4.1	2.5
CHLOROFORM	ND	4.1	1.6
CHLOROMETHANE	ND	4.1	4.1
CIS-1,2-DICHLOROETHENE	ND	4.1	1.6
CIS-1,3-DICHLOROPROPENE	ND	4.1	1.6
DIBROMOCHLOROMETHANE	ND	4.1	1.6
ETHYLBENZENE	ND	4.1	1.6
XYLENES	ND	4.1	2.5
METHYLENE CHLORIDE	ND	4.1	1.6
MTBE	ND	8.2	1.6
STYRENE	ND	4.1	1.6
TOLUENE	ND	4.1	1.6
TRANS-1,2-DICHLOROETHENE	ND	4.1	1.6
TRANS-1,3-DICHLOROPROPENE	ND	4.1	1.6
TRICHLOROETHENE	ND	4.1	1.6
TETRACHLOROETHENE	ND	4.1	1.6
VINYL ACETATE	ND	41	1.6
VINYL CHLORIDE	ND	4.1	1.6
FREON113	ND	4.1	1.6

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	115	70-130
BROMOFLUOROBENZENE	109	70-130
TOLUENE-D8	105	70-130

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SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/25/03 16:01
Sample ID:	818655-3361	Date Analyzed:	05/25/03 16:01
Lab Samp ID:	E172-12	Dilution Factor:	.98
Lab File ID:	REB431	Matrix :	SOIL
Ext Btch ID:	V003E47	% Moisture :	7.0
Calib. Ref.:	REB106	Instrument ID :	T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5.3	2.1
1,1,2,2-TETRACHLOROETHANE	ND	5.3	2.1
1,1,2-TRICHLOROETHANE	ND	5.3	2.1
1,1-DICHLOROETHANE	ND	5.3	2.1
1,1-DICHLOROETHENE	ND	5.3	2.1
1,2-DICHLOROETHANE	ND	5.3	2.1
1,2-DICHLOROPROPANE	ND	5.3	2.1
2-BUTANONE (MEK)	ND	53	5.3
2-HEXANONE	ND	53	5.3
2-CHLOROETHYLVINYLETHER	ND	53	2.1
4-METHYL-2-PENTANONE (MIBK)	ND	53	5.3
ACETONE	19J	53	5.3
BENZENE	ND	5.3	2.1
BROMODICHLOROMETHANE	ND	5.3	2.1
BROMOFORM	ND	5.3	2.1
BROMOMETHANE	ND	5.3	3.2
CARBON DISULFIDE	ND	5.3	2.1
CARBON TETRACHLORIDE	ND	5.3	2.1
CHLOROBENZENE	ND	5.3	2.1
CHLOROETHANE	ND	5.3	3.2
CHLOROFORM	ND	5.3	2.1
CHLOROMETHANE	ND	5.3	5.3
CIS-1,2-DICHLOROETHENE	ND	5.3	2.1
CIS-1,3-DICHLOROPROPENE	ND	5.3	2.1
DIBROMOCHLOROMETHANE	ND	5.3	2.1
ETHYLBENZENE	ND	5.3	2.1
XYLENES	ND	5.3	3.2
METHYLENE CHLORIDE	ND	5.3	2.1
MTBE	ND	11	2.1
STYRENE	ND	5.3	2.1
TOLUENE	ND	5.3	2.1
TRANS-1,2-DICHLOROETHENE	ND	5.3	2.1
TRANS-1,3-DICHLOROPROPENE	ND	5.3	2.1
TRICHLOROETHENE	ND	5.3	2.1
TETRACHLOROETHENE	ND	5.3	2.1
VINYL ACETATE	ND	53	2.1
VINYL CHLORIDE	ND	5.3	2.1
FREON113	ND	5.3	2.1

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	114	70-130
BROMOFLUOROBENZENE	104	70-130
TOLUENE-D8	106	70-130

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SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/25/03 17:24
Sample ID:	818655-3363	Date Analyzed:	05/25/03 17:24
Lab Samp ID:	E172-14	Dilution Factor:	.96
Lab File ID:	REB433	Matrix :	SOIL
Ext Btch ID:	V003E47	% Moisture :	13.7
Calib. Ref.:	REB106	Instrument ID :	T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5.6	2.2
1,1,2,2-TETRACHLOROETHANE	ND	5.6	2.2
1,1,2-TRICHLOROETHANE	ND	5.6	2.2
1,1-DICHLOROETHANE	ND	5.6	2.2
1,1-DICHLOROETHENE	ND	5.6	2.2
1,2-DICHLOROETHANE	ND	5.6	2.2
1,2-DICHLOROPROPANE	ND	5.6	2.2
2-BUTANONE (MEK)	ND	56	5.6
2-HEXANONE	ND	56	5.6
2-CHLOROETHYLVINYLETHER	ND	56	2.2
4-METHYL-2-PENTANONE (MIBK)	ND	56	5.6
ACETONE	10J	56	5.6
BENZENE	ND	5.6	2.2
BROMODICHLOROMETHANE	ND	5.6	2.2
BROMOFORM	ND	5.6	2.2
BROMOMETHANE	ND	5.6	3.3
CARBON DISULFIDE	ND	5.6	2.2
CARBON TETRACHLORIDE	ND	5.6	2.2
CHLOROBENZENE	ND	5.6	2.2
CHLOROETHANE	ND	5.6	3.3
CHLOROFORM	ND	5.6	2.2
CHLOROMETHANE	ND	5.6	5.6
CIS-1,2-DICHLOROETHENE	ND	5.6	2.2
CIS-1,3-DICHLOROPROPENE	ND	5.6	2.2
DIBROMOCHLOROMETHANE	ND	5.6	2.2
ETHYLBENZENE	ND	5.6	2.2
XYLENES	ND	5.6	3.3
METHYLENE CHLORIDE	ND	5.6	2.2
MTBE	ND	11	2.2
STYRENE	ND	5.6	2.2
TOLUENE	ND	5.6	2.2
TRANS-1,2-DICHLOROETHENE	ND	5.6	2.2
TRANS-1,3-DICHLOROPROPENE	ND	5.6	2.2
TRICHLOROETHENE	ND	5.6	2.2
TETRACHLOROETHENE	ND	5.6	2.2
VINYL ACETATE	ND	56	2.2
VINYL CHLORIDE	ND	5.6	2.2
FREON113	ND	5.6	2.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	115	70-130
BROMOFLUOROBENZENE	95	70-130
TOLUENE-D8	101	70-130

Preservation Date: 05/22/03 19:05

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client : SHAW E&I	Date Collected: 05/21/03
Project : EL TORO, CTO 0024	Date Received: 05/21/03
Batch No. : 03E172	Date Extracted: 05/25/03 18:47
Sample ID: 818655-3365	Date Analyzed: 05/25/03 18:47
Lab Samp ID: E172-16	Dilution Factor: .94
Lab File ID: REB435	Matrix : SOIL
Ext Btch ID: V003E47	% Moisture : 20.9
Calib. Ref.: REB106	Instrument ID : T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5.9	2.4
1,1,2,2-TETRACHLOROETHANE	ND	5.9	2.4
1,1,2-TRICHLOROETHANE	ND	5.9	2.4
1,1-DICHLOROETHANE	ND	5.9	2.4
1,1-DICHLOROETHENE	ND	5.9	2.4
1,2-DICHLOROETHANE	ND	5.9	2.4
1,2-DICHLOROPROPANE	ND	5.9	2.4
2-BUTANONE (MEK)	ND	59	5.9
2-HEXANONE	ND	59	5.9
2-CHLOROETHYLVINYLETHER	ND	59	2.4
4-METHYL-2-PENTANONE (MIBK)	ND	59	5.9
ACETONE	6.4J	59	5.9
BENZENE	ND	5.9	2.4
BROMODICHLOROMETHANE	ND	5.9	2.4
BROMOFORM	ND	5.9	2.4
BROMOMETHANE	ND	5.9	3.6
CARBON DISULFIDE	ND	5.9	2.4
CARBON TETRACHLORIDE	ND	5.9	2.4
CHLOROBENZENE	ND	5.9	2.4
CHLOROETHANE	ND	5.9	3.6
CHLOROFORM	ND	5.9	2.4
CHLOROMETHANE	ND	5.9	5.9
CIS-1,2-DICHLOROETHENE	ND	5.9	2.4
CIS-1,3-DICHLOROPROPENE	ND	5.9	2.4
DIBROMOCHLOROMETHANE	ND	5.9	2.4
ETHYLBENZENE	ND	5.9	2.4
XYLENES	ND	5.9	3.6
METHYLENE CHLORIDE	ND	5.9	2.4
MTBE	ND	12	2.4
STYRENE	ND	5.9	2.4
TOLUENE	ND	5.9	2.4
TRANS-1,2-DICHLOROETHENE	ND	5.9	2.4
TRANS-1,3-DICHLOROPROPENE	ND	5.9	2.4
TRICHLOROETHENE	ND	5.9	2.4
TETRACHLOROETHENE	ND	5.9	2.4
VINYL ACETATE	ND	59	2.4
VINYL CHLORIDE	ND	5.9	2.4
FREON113	ND	5.9	2.4

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	114	70-130
BROMOFLUOROBENZENE	96	70-130
TOLUENE-D8	102	70-130

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SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client : SHAW E&I	Date Collected: 05/21/03
Project : EL TORO, CTO 0024	Date Received: 05/21/03
Batch No. : 03E172	Date Extracted: 05/25/03 19:28
Sample ID: 818655-3367	Date Analyzed: 05/25/03 19:28
Lab Samp ID: E172-18	Dilution Factor: 1.2
Lab File ID: REB436	Matrix : SOIL
Ext Btch ID: V003E47	% Moisture : 8.8
Calib. Ref.: REB106	Instrument ID : T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	6.6	2.6
1,1,2,2-TETRACHLOROETHANE	ND	6.6	2.6
1,1,2-TRICHLOROETHANE	ND	6.6	2.6
1,1-DICHLOROETHANE	ND	6.6	2.6
1,1-DICHLOROETHENE	ND	6.6	2.6
1,2-DICHLOROETHANE	ND	6.6	2.6
1,2-DICHLOROPROPANE	ND	6.6	2.6
2-BUTANONE (MEK)	ND	66	6.6
2-HEXANONE	ND	66	6.6
2-CHLOROETHYLVINYLETHER	ND	66	2.6
4-METHYL-2-PENTANONE (MIBK)	ND	66	6.6
ACETONE	9.4J	66	6.6
BENZENE	ND	6.6	2.6
BROMODICHLOROMETHANE	ND	6.6	2.6
BROMOFORM	ND	6.6	2.6
BROMOMETHANE	ND	6.6	3.9
CARBON DISULFIDE	ND	6.6	2.6
CARBON TETRACHLORIDE	ND	6.6	2.6
CHLOROBENZENE	ND	6.6	2.6
CHLOROETHANE	ND	6.6	3.9
CHLOROFORM	ND	6.6	2.6
CHLOROMETHANE	ND	6.6	6.6
CIS-1,2-DICHLOROETHENE	ND	6.6	2.6
CIS-1,3-DICHLOROPROPENE	ND	6.6	2.6
DIBROMOCHLOROMETHANE	ND	6.6	2.6
ETHYLBENZENE	ND	6.6	2.6
XYLENES	ND	6.6	3.9
METHYLENE CHLORIDE	ND	6.6	2.6
MTBE	ND	13	2.6
STYRENE	ND	6.6	2.6
TOLUENE	ND	6.6	2.6
TRANS-1,2-DICHLOROETHENE	ND	6.6	2.6
TRANS-1,3-DICHLOROPROPENE	ND	6.6	2.6
TRICHLOROETHENE	ND	6.6	2.6
TETRACHLOROETHENE	ND	6.6	2.6
VINYL ACETATE	ND	66	2.6
VINYL CHLORIDE	ND	6.6	2.6
FREON113	ND	6.6	2.6

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	113	70-130
BROMOFLUOROBENZENE	94	70-130
TOLUENE-D8	102	70-130

Preservation Date: 05/22/03 19:05

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client : SHAW E&I	Date Collected: 05/21/03
Project : EL TORO, CTO 0024	Date Received: 05/21/03
Batch No. : 03E172	Date Extracted: 05/25/03 20:51
Sample ID: 818655-3369	Date Analyzed: 05/25/03 20:51
Lab Samp ID: E172-20	Dilution Factor: .89
Lab File ID: REB438	Matrix : SOIL
Ext Btch ID: V003E47	% Moisture : 11.9
Calib. Ref.: REB106	Instrument ID : T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5.1	2
1,1,2,2-TETRACHLOROETHANE	ND	5.1	2
1,1,2-TRICHLOROETHANE	ND	5.1	2
1,1-DICHLOROETHANE	ND	5.1	2
1,1-DICHLOROETHENE	ND	5.1	2
1,2-DICHLOROETHANE	ND	5.1	2
1,2-DICHLOROPROPANE	ND	5.1	2
2-BUTANONE (MEK)	ND	51	5.1
2-HEXANONE	ND	51	5.1
2-CHLOROETHYLVINYLETHER	ND	51	2
4-METHYL-2-PENTANONE (MIBK)	ND	51	5.1
ACETONE	11J	51	5.1
BENZENE	ND	5.1	2
BROMODICHLOROMETHANE	ND	5.1	2
BROMOFORM	ND	5.1	2
BROMOMETHANE	ND	5.1	3
CARBON DISULFIDE	ND	5.1	2
CARBON TETRACHLORIDE	ND	5.1	2
CHLOROBENZENE	ND	5.1	2
CHLOROETHANE	ND	5.1	3
CHLOROFORM	ND	5.1	2
CHLOROMETHANE	ND	5.1	5.1
CIS-1,2-DICHLOROETHENE	ND	5.1	2
CIS-1,3-DICHLOROPROPENE	ND	5.1	2
DIBROMOCHLOROMETHANE	ND	5.1	2
ETHYLBENZENE	ND	5.1	2
XYLENES	ND	5.1	3
METHYLENE CHLORIDE	ND	5.1	2
MTBE	ND	10	2
STYRENE	ND	5.1	2
TOLUENE	ND	5.1	2
TRANS-1,2-DICHLOROETHENE	ND	5.1	2
TRANS-1,3-DICHLOROPROPENE	ND	5.1	2
TRICHLOROETHENE	ND	5.1	2
TETRACHLOROETHENE	ND	5.1	2
VINYL ACETATE	ND	51	2
VINYL CHLORIDE	ND	5.1	2
FREON113	ND	5.1	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	113	70-130
BROMOFLUOROBENZENE	96	70-130
TOLUENE-D8	102	70-130

Preservation Date: 05/22/03 19:05

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client : SHAW E&I	Date Collected: 05/21/03
Project : EL TORO, CTO 0024	Date Received: 05/21/03
Batch No. : 03E172	Date Extracted: 05/26/03 05:06
Sample ID: 818655-3371	Date Analyzed: 05/26/03 05:06
Lab Samp ID: E172-22	Dilution Factor: .96
Lab File ID: REB450	Matrix : SOIL
Ext Btch ID: V003E49	% Moisture : 4.0
Calib. Ref.: REB106	Instrument ID : T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE (MEK)	ND	50	5
2-HEXANONE	ND	50	5
2-CHLOROETHYLVINYLETHER	ND	50	2
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	19J	50	5
BENZENE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	3
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	3
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	5
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
XYLENES	ND	5	3
METHYLENE CHLORIDE	ND	5	2
MTBE	ND	10	2
STYRENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TETRACHLOROETHENE	ND	5	2
VINYL ACETATE	ND	50	2
VINYL CHLORIDE	ND	5	2
FREON113	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	114	70-130
BROMOFLUOROBENZENE	96	70-130
TOLUENE-D8	103	70-130

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SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/26/03 06:29
Sample ID:	818655-3373	Date Analyzed:	05/26/03 06:29
Lab Samp ID:	E172-24	Dilution Factor:	.86
Lab File ID:	REB452	Matrix :	SOIL
Ext Btch ID:	V003E49	% Moisture :	15.3
Calib. Ref.:	REB106	Instrument ID :	T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5.1	2
1,1,2,2-TETRACHLOROETHANE	ND	5.1	2
1,1,2-TRICHLOROETHANE	ND	5.1	2
1,1-DICHLOROETHANE	ND	5.1	2
1,1-DICHLOROETHENE	ND	5.1	2
1,2-DICHLOROETHANE	ND	5.1	2
1,2-DICHLOROPROPANE	ND	5.1	2
2-BUTANONE (MEK)	ND	51	5.1
2-HEXANONE	ND	51	5.1
2-CHLOROETHYLVINYLETHER	ND	51	2
4-METHYL-2-PENTANONE (MIBK)	ND	51	5.1
ACETONE	33J	51	5.1
BENZENE	ND	5.1	2
BROMODICHLOROMETHANE	ND	5.1	2
BROMOFORM	ND	5.1	2
BROMOMETHANE	ND	5.1	3
CARBON DISULFIDE	ND	5.1	2
CARBON TETRACHLORIDE	ND	5.1	2
CHLOROBENZENE	ND	5.1	2
CHLOROETHANE	ND	5.1	3
CHLOROFORM	ND	5.1	2
CHLOROMETHANE	ND	5.1	5.1
CIS-1,2-DICHLOROETHENE	ND	5.1	2
CIS-1,3-DICHLOROPROPENE	ND	5.1	2
DIBROMOCHLOROMETHANE	ND	5.1	2
ETHYLBENZENE	ND	5.1	2
XYLENES	ND	5.1	3
METHYLENE CHLORIDE	ND	5.1	2
MTBE	ND	10	2
STYRENE	ND	5.1	2
TOLUENE	ND	5.1	2
TRANS-1,2-DICHLOROETHENE	ND	5.1	2
TRANS-1,3-DICHLOROPROPENE	ND	5.1	2
TRICHLOROETHENE	ND	5.1	2
TETRACHLOROETHENE	ND	5.1	2
VINYL ACETATE	ND	51	2
VINYL CHLORIDE	ND	5.1	2
FREON113	ND	5.1	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	114	70-130
BROMOFLUOROBENZENE	97	70-130
TOLUENE-D8	108	70-130

Preservation Date: 05/22/03 19:05

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/26/03 09:01
Sample ID:	818655-3375	Date Analyzed:	05/26/03 09:01
Lab Samp ID:	E172-26	Dilution Factor:	1.0
Lab File ID:	REB454	Matrix :	SOIL
Ext Btch ID:	V003E49	% Moisture :	10.5
Calib. Ref.:	REB106	Instrument ID :	T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5.6	2.2
1,1,2,2-TETRACHLOROETHANE	ND	5.6	2.2
1,1,2-TRICHLOROETHANE	ND	5.6	2.2
1,1-DICHLOROETHANE	ND	5.6	2.2
1,1-DICHLOROETHENE	ND	5.6	2.2
1,2-DICHLOROETHANE	ND	5.6	2.2
1,2-DICHLOROPROPANE	ND	5.6	2.2
2-BUTANONE (MEK)	ND	56	5.6
2-HEXANONE	ND	56	5.6
2-CHLOROETHYLVINYLETHER	ND	56	2.2
4-METHYL-2-PENTANONE (MIBK)	ND	56	5.6
ACETONE	10J	56	5.6
BENZENE	ND	5.6	2.2
BROMODICHLOROMETHANE	ND	5.6	2.2
BROMOFORM	ND	5.6	2.2
BROMOMETHANE	ND	5.6	3.4
CARBON DISULFIDE	ND	5.6	2.2
CARBON TETRACHLORIDE	ND	5.6	2.2
CHLOROBENZENE	ND	5.6	2.2
CHLOROETHANE	ND	5.6	3.4
CHLOROFORM	ND	5.6	2.2
CHLOROMETHANE	ND	5.6	5.6
CIS-1,2-DICHLOROETHENE	ND	5.6	2.2
CIS-1,3-DICHLOROPROPENE	ND	5.6	2.2
DIBROMOCHLOROMETHANE	ND	5.6	2.2
ETHYLBENZENE	ND	5.6	2.2
XYLENES	ND	5.6	3.4
METHYLENE CHLORIDE	ND	5.6	2.2
MTBE	ND	11	2.2
STYRENE	ND	5.6	2.2
TOLUENE	ND	5.6	2.2
TRANS-1,2-DICHLOROETHENE	ND	5.6	2.2
TRANS-1,3-DICHLOROPROPENE	ND	5.6	2.2
TRICHLOROETHENE	ND	5.6	2.2
TETRACHLOROETHENE	ND	5.6	2.2
VINYL ACETATE	ND	56	2.2
VINYL CHLORIDE	ND	5.6	2.2
FREON113	ND	5.6	2.2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	110	70-130
BROMOFLUOROBENZENE	105	70-130
TOLUENE-D8	105	70-130

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SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/26/03 10:25
Sample ID:	818655-3377	Date Analyzed:	05/26/03 10:25
Lab Samp ID:	E172-28	Dilution Factor:	.91
Lab File ID:	REB456	Matrix :	SOIL
Ext Btch ID:	V003E49	% Moisture :	9.2
Calib. Ref.:	REB106	Instrument ID :	T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE (MEK)	ND	50	5
2-HEXANONE	ND	50	5
2-CHLOROETHYLVINYLETHER	ND	50	2
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	11J	50	5
BENZENE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	3
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	3
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	5
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
XYLENES	ND	5	3
METHYLENE CHLORIDE	ND	5	2
MTBE	ND	10	2
STYRENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TETRACHLOROETHENE	ND	5	2
VINYL ACETATE	ND	50	2
VINYL CHLORIDE	ND	5	2
FREON113	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	115	70-130
BROMOFLUOROBENZENE	95	70-130
TOLUENE-D8	110	70-130

Preservation Date: 05/22/03 19:05

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client : SHAW E&I	Date Collected: 05/21/03
Project : EL TORO, CTO 0024	Date Received: 05/21/03
Batch No. : 03E172	Date Extracted: 05/26/03 17:29
Sample ID: 818655-3379	Date Analyzed: 05/26/03 17:29
Lab Samp ID: E172-30	Dilution Factor: 1.1
Lab File ID: REB466	Matrix : SOIL
Ext Btch ID: V003E51	% Moisture : 18.4
Calib. Ref.: REB106	Instrument ID : T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	6.7	2.7
1,1,2,2-TETRACHLOROETHANE	ND	6.7	2.7
1,1,2-TRICHLOROETHANE	ND	6.7	2.7
1,1-DICHLOROETHANE	ND	6.7	2.7
1,1-DICHLOROETHENE	ND	6.7	2.7
1,2-DICHLOROETHANE	ND	6.7	2.7
1,2-DICHLOROPROPANE	ND	6.7	2.7
2-BUTANONE (MEK)	ND	67	6.7
2-HEXANONE	ND	67	6.7
2-CHLOROETHYLVINYLETHER	ND	67	2.7
4-METHYL-2-PENTANONE (MIBK)	ND	67	6.7
ACETONE	17J	67	6.7
BENZENE	ND	6.7	2.7
BROMODICHLOROMETHANE	ND	6.7	2.7
BROMOFORM	ND	6.7	2.7
BROMOMETHANE	ND	6.7	4
CARBON DISULFIDE	ND	6.7	2.7
CARBON TETRACHLORIDE	ND	6.7	2.7
CHLOROBENZENE	ND	6.7	2.7
CHLOROETHANE	ND	6.7	4
CHLOROFORM	ND	6.7	2.7
CHLOROMETHANE	ND	6.7	6.7
CIS-1,2-DICHLOROETHENE	ND	6.7	2.7
CIS-1,3-DICHLOROPROPENE	ND	6.7	2.7
DIBROMOCHLOROMETHANE	ND	6.7	2.7
ETHYLBENZENE	ND	6.7	2.7
XYLENES	ND	6.7	4
METHYLENE CHLORIDE	ND	6.7	2.7
MTBE	ND	13	2.7
STYRENE	ND	6.7	2.7
TOLUENE	ND	6.7	2.7
TRANS-1,2-DICHLOROETHENE	ND	6.7	2.7
TRANS-1,3-DICHLOROPROPENE	ND	6.7	2.7
TRICHLOROETHENE	ND	6.7	2.7
TETRACHLOROETHENE	ND	6.7	2.7
VINYL ACETATE	ND	67	2.7
VINYL CHLORIDE	ND	6.7	2.7
FREON113	ND	6.7	2.7

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	114	70-130
BROMOFLUOROBENZENE	97	70-130
TOLUENE-D8	111	70-130

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SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/26/03 18:53
Sample ID:	818655-3381	Date Analyzed:	05/26/03 18:53
Lab Samp ID:	E172-32	Dilution Factor:	1.0
Lab File ID:	REB468	Matrix :	SOIL
Ext Btch ID:	V003E51	% Moisture :	13.5
Calib. Ref.:	REB106	Instrument ID :	T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5.8	2.3
1,1,2,2-TETRACHLOROETHANE	ND	5.8	2.3
1,1,2-TRICHLOROETHANE	ND	5.8	2.3
1,1-DICHLOROETHANE	ND	5.8	2.3
1,1-DICHLOROETHENE	ND	5.8	2.3
1,2-DICHLOROETHANE	ND	5.8	2.3
1,2-DICHLOROPROPANE	ND	5.8	2.3
2-BUTANONE (MEK)	ND	58	5.8
2-HEXANONE	ND	58	5.8
2-CHLOROETHYLVINYLETHER	ND	58	2.3
4-METHYL-2-PENTANONE (MIBK)	ND	58	5.8
ACETONE	42J	58	5.8
BENZENE	ND	5.8	2.3
BROMODICHLOROMETHANE	ND	5.8	2.3
BROMOFORM	ND	5.8	2.3
BROMOMETHANE	ND	5.8	3.5
CARBON DISULFIDE	ND	5.8	2.3
CARBON TETRACHLORIDE	ND	5.8	2.3
CHLOROBENZENE	ND	5.8	2.3
CHLOROETHANE	ND	5.8	3.5
CHLOROFORM	ND	5.8	2.3
CHLOROMETHANE	ND	5.8	5.8
CIS-1,2-DICHLOROETHENE	ND	5.8	2.3
CIS-1,3-DICHLOROPROPENE	ND	5.8	2.3
DIBROMOCHLOROMETHANE	ND	5.8	2.3
ETHYLBENZENE	ND	5.8	2.3
XYLENES	ND	5.8	3.5
METHYLENE CHLORIDE	ND	5.8	2.3
MTBE	ND	12	2.3
STYRENE	ND	5.8	2.3
TOLUENE	ND	5.8	2.3
TRANS-1,2-DICHLOROETHENE	ND	5.8	2.3
TRANS-1,3-DICHLOROPROPENE	ND	5.8	2.3
TRICHLOROETHENE	ND	5.8	2.3
TETRACHLOROETHENE	ND	5.8	2.3
VINYL ACETATE	ND	58	2.3
VINYL CHLORIDE	ND	5.8	2.3
FREON113	ND	5.8	2.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	116	70-130
BROMOFLUOROBENZENE	103	70-130
TOLUENE-D8	122	70-130

Preservation Date: 05/22/03 19:05

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/26/03 20:17
Sample ID:	818655-3383	Date Analyzed:	05/26/03 20:17
Lab Samp ID:	E172-34	Dilution Factor:	1.2
Lab File ID:	REB470	Matrix :	SOIL
Ext Btch ID:	V003E51	% Moisture :	15.6
Calib. Ref.:	REB106	Instrument ID :	T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	7.1	2.8
1,1,2,2-TETRACHLOROETHANE	ND	7.1	2.8
1,1,2-TRICHLOROETHANE	ND	7.1	2.8
1,1-DICHLOROETHANE	ND	7.1	2.8
1,1-DICHLOROETHENE	ND	7.1	2.8
1,2-DICHLOROETHANE	ND	7.1	2.8
1,2-DICHLOROPROPANE	ND	7.1	2.8
2-BUTANONE (MEK)	ND	71	7.1
2-HEXANONE	ND	71	7.1
2-CHLOROETHYLVINYLETHER	ND	71	2.8
4-METHYL-2-PENTANONE (MIBK)	ND	71	7.1
ACETONE	12J	71	7.1
BENZENE	ND	7.1	2.8
BROMODICHLOROMETHANE	ND	7.1	2.8
BROMOFORM	ND	7.1	2.8
BROMOMETHANE	ND	7.1	4.3
CARBON DISULFIDE	ND	7.1	2.8
CARBON TETRACHLORIDE	ND	7.1	2.8
CHLOROBENZENE	ND	7.1	2.8
CHLOROETHANE	ND	7.1	4.3
CHLOROFORM	ND	7.1	2.8
CHLOROMETHANE	ND	7.1	7.1
CIS-1,2-DICHLOROETHENE	ND	7.1	2.8
CIS-1,3-DICHLOROPROPENE	ND	7.1	2.8
DIBROMOCHLOROMETHANE	ND	7.1	2.8
ETHYLBENZENE	ND	7.1	2.8
XYLENES	ND	7.1	4.3
METHYLENE CHLORIDE	ND	7.1	2.8
MTBE	ND	14	2.8
STYRENE	ND	7.1	2.8
TOLUENE	ND	7.1	2.8
TRANS-1,2-DICHLOROETHENE	ND	7.1	2.8
TRANS-1,3-DICHLOROPROPENE	ND	7.1	2.8
TRICHLOROETHENE	ND	7.1	2.8
TETRACHLOROETHENE	ND	7.1	2.8
VINYL ACETATE	ND	71	2.8
VINYL CHLORIDE	ND	7.1	2.8
FREON113	ND	7.1	2.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	116	70-130
BROMOFLUOROBENZENE	95	70-130
TOLUENE-D8	111	70-130

Preservation Date: 05/22/03 19:05

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/27/03 16:35
Sample ID:	818655-3386	Date Analyzed:	05/27/03 16:35
Lab Samp ID:	E172-36R	Dilution Factor:	1
Lab File ID:	REB482	Matrix :	SOIL
Ext Btch ID:	V003E53	% Moisture :	22.5
Calib. Ref.:	REB106	Instrument ID :	T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	6.5	2.6
1,1,2,2-TETRACHLOROETHANE	ND	6.5	2.6
1,1,2-TRICHLOROETHANE	ND	6.5	2.6
1,1-DICHLOROETHANE	ND	6.5	2.6
1,1-DICHLOROETHENE	ND	6.5	2.6
1,2-DICHLOROETHANE	ND	6.5	2.6
1,2-DICHLOROPROPANE	ND	6.5	2.6
2-BUTANONE (MEK)	ND	65	6.5
2-HEXANONE	ND	65	6.5
2-CHLOROETHYLVINYLETHER	ND	65	2.6
4-METHYL-2-PENTANONE (MIBK)	ND	65	6.5
ACETONE	ND	65	6.5
BENZENE	ND	6.5	2.6
BROMODICHLOROMETHANE	ND	6.5	2.6
BROMOFORM	ND	6.5	2.6
BROMOMETHANE	ND	6.5	3.9
CARBON DISULFIDE	ND	6.5	2.6
CARBON TETRACHLORIDE	ND	6.5	2.6
CHLOROBENZENE	ND	6.5	2.6
CHLOROETHANE	ND	6.5	3.9
CHLOROFORM	ND	6.5	2.6
CHLOROMETHANE	ND	6.5	6.5
CIS-1,2-DICHLOROETHENE	ND	6.5	2.6
CIS-1,3-DICHLOROPROPENE	ND	6.5	2.6
DIBROMOCHLOROMETHANE	ND	6.5	2.6
ETHYLBENZENE	ND	6.5	2.6
XYLENES	ND	6.5	3.9
METHYLENE CHLORIDE	ND	6.5	2.6
MTBE	ND	13	2.6
STYRENE	ND	6.5	2.6
TOLUENE	ND	6.5	2.6
TRANS-1,2-DICHLOROETHENE	ND	6.5	2.6
TRANS-1,3-DICHLOROPROPENE	ND	6.5	2.6
TRICHLOROETHENE	ND	6.5	2.6
TETRACHLOROETHENE	ND	6.5	2.6
VINYL ACETATE	ND	65	2.6
VINYL CHLORIDE	ND	6.5	2.6
FREON113	ND	6.5	2.6

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	106	70-130
BROMOFLUOROBENZENE	100	70-130
TOLUENE-D8	102	70-130

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client : SHAW E&I	Date Collected: NA
Project : EL TORO, CTO 0024	Date Received: 05/24/03
Batch No. : 03E172	Date Extracted: 05/24/03 14:49
Sample ID: MBLK1S	Date Analyzed: 05/24/03 14:49
Lab Samp ID: V006E32B	Dilution Factor: 1
Lab File ID: REW301	Matrix : SOIL
Ext Btch ID: V006E32	% Moisture : NA
Calib. Ref.: REW270	Instrument ID : T-006

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE (MEK)	ND	50	5
2-HEXANONE	ND	50	5
2-CHLOROETHYLVINYLETHER	ND	50	2
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	3
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	3
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	5
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
XYLENES	ND	5	3
METHYLENE CHLORIDE	ND	5	2
MTBE	ND	10	2
STYRENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TETRACHLOROETHENE	ND	5	2
VINYL ACETATE	ND	50	2
VINYL CHLORIDE	ND	5	2
FREON113	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	100	70-130
BROMOFLUOROBENZENE	102	70-130
TOLUENE-D8	98	70-130

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	NA
Project	: EL TORO, CTO 0024	Date Received:	05/25/03
Batch No.	: 03E172	Date Extracted:	05/25/03 13:15
Sample ID:	MBLK3S	Date Analyzed:	05/25/03 13:15
Lab Samp ID:	V003E47B	Dilution Factor:	1
Lab File ID:	REB427	Matrix :	SOIL
Ext Btch ID:	V003E47	% Moisture :	NA
Calib. Ref.:	REB106	Instrument ID :	T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE (MEK)	ND	50	5
2-HEXANONE	ND	50	5
2-CHLOROETHYLVINYLETHER	ND	50	2
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	3
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	3
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	5
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
XYLENES	ND	5	3
METHYLENE CHLORIDE	ND	5	2
MTBE	ND	10	2
STYRENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TETRACHLOROETHENE	ND	5	2
VINYL ACETATE	ND	50	2
VINYL CHLORIDE	ND	5	2
FREON113	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	112	70-130
BROMOFLUOROBENZENE	105	70-130
TOLUENE-D8	102	70-130

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	NA
Project	: EL TORO, CTO 0024	Date Received:	05/26/03
Batch No.	: 03E172	Date Extracted:	05/26/03 04:25
Sample ID:	MBLK5S	Date Analyzed:	05/26/03 04:25
Lab Samp ID:	VPE015SB	Dilution Factor:	1.0
Lab File ID:	REB449	Matrix :	SOIL
Ext Btch ID:	V003E49	% Moisture :	NA
Calib. Ref.:	REB106	Instrument ID :	T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE (MEK)	ND	50	5
2-HEXANONE	ND	50	5
2-CHLOROETHYLVINYLETHER	ND	50	2
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	3
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	3
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	5
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
XYLENES	ND	5	3
METHYLENE CHLORIDE	ND	5	2
MTBE	ND	10	2
STYRENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TETRACHLOROETHENE	ND	5	2
VINYL ACETATE	ND	50	2
VINYL CHLORIDE	ND	5	2
FREON113	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	114	70-130
BROMOFLUOROBENZENE	99	70-130
TOLUENE-D8	101	70-130

Preservation Date: 05/22/03 19:05

SW 5035/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	NA
Project	: EL TORO, CTO 0024	Date Received:	05/27/03
Batch No.	: 03E172	Date Extracted:	05/27/03 15:11
Sample ID:	MBLK7S	Date Analyzed:	05/27/03 15:11
Lab Samp ID:	V003E53B	Dilution Factor:	1
Lab File ID:	REB480	Matrix :	SOIL
Ext Btch ID:	V003E53	% Moisture :	NA
Calib. Ref.:	REB106	Instrument ID :	T-003

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE (MEK)	ND	50	5
2-HEXANONE	ND	50	5
2-CHLOROETHYLVINYLETHER	ND	50	2
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	3
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	3
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	5
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
XYLENES	ND	5	3
METHYLENE CHLORIDE	ND	5	2
MTBE	ND	10	2
STYRENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TETRACHLOROETHENE	ND	5	2
VINYL ACETATE	ND	50	2
VINYL CHLORIDE	ND	5	2
FREON113	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	97	70-130
BROMOFLUOROBENZENE	96	70-130
TOLUENE-D8	100	70-130

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SHAW E&I
PROJECT: EL TORO, CTO 0024
BATCH NO.: 03E172
METHOD: SW 5035/8260B

MATRIX:	SOIL			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK6S				
LAB SAMP ID:	V003E51B	V003E51L	V003E51C		
LAB FILE ID:	REB463	REB461	REB462		
DATE EXTRACTED:	05/26/0315:23	05/26/0313:58	05/26/0314:40	DATE COLLECTED:	NA
DATE ANALYZED:	05/26/0315:23	05/26/0313:58	05/26/0314:40	DATE RECEIVED:	05/26/03
PREP. BATCH:	V003E51	V003E51	V003E51		
CALIB. REF:	REB106	REB106	REB106		

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1-Dichloroethene	ND	20	18	90	20	17.6	88	2	65-135	30
Benzene	ND	20	19.3	96	20	19.1	95	1	65-135	30
Chlorobenzene	ND	20	20.5	103	20	20.4	102	1	65-135	30
Toluene	ND	20	20.9	104	20	19.1	95	9	64-135	30
Trichloroethene	ND	20	20.7	104	20	20.8	104	0	61-135	30

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	50	51.4	103	50	52.4	105	70-130
Bromofluorobenzene	50	46.1	92	50	44.9	90	70-130
Toluene-d8	50	54.4	109	50	50.2	100	70-130

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SHAW E&I
PROJECT: EL TORO, CTO 0024
BATCH NO.: 03E172
METHOD: SW 5035/8260B

MATRIX:	SOIL			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1S				
LAB SAMP ID:	V006E32B	V006E32L	V006E32C		
LAB FILE ID:	REW301	REW299	REW300		
DATE EXTRACTED:	05/24/0314:49	05/24/0313:29	05/24/0314:09	DATE COLLECTED:	NA
DATE ANALYZED:	05/24/0314:49	05/24/0313:29	05/24/0314:09	DATE RECEIVED:	05/24/03
PREP. BATCH:	V006E32	V006E32	V006E32		
CALIB. REF:	REW270	REW270	REW270		

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,1-Dichloroethene	ND	20	14.3	71	20	19.2	96	29	65-135	30
Benzene	ND	20	18.5	92	20	19.3	97	5	65-135	30
Chlorobenzene	ND	20	19.7	99	20	20.1	101	2	65-135	30
Toluene	ND	20	20.5	102	20	20.9	104	2	64-135	30
Trichloroethene	ND	20	17.7	89	20	19	95	7	61-135	30

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	SPIKE AMT (ug/kg)	BSD RSLT (ug/kg)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	50	47.3	95	50	49.3	99	70-130
Bromofluorobenzene	50	48.8	98	50	49.5	99	70-130
Toluene-d8	50	49.2	98	50	48.9	98	70-130

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: SHAW E&I
PROJECT: EL TORO, CTO 0024
BATCH NO.: 03E172
METHOD: SW 5035/8260B

MATRIX:	SOIL			% MOISTURE:	9.6
DILUTION FACTOR:	.94	1.1	.98		
SAMPLE ID:	818655-3366				
LAB SAMP ID:	E172-17	E172-17M	E172-17S		
LAB FILE ID:	REW311	REW312	REW313		
DATE EXTRACTED:	05/24/0321:28	05/24/0322:08	05/24/0322:48	DATE COLLECTED:	05/21/03
DATE ANALYZED:	05/24/0321:28	05/24/0322:08	05/24/0322:48	DATE RECEIVED:	05/21/03
PREP. BATCH:	V006E32	V006E32	V006E32		
CALIB. REF:	REW270	REW270	REW270		

ACCESSION:

PARAMETER	SMPL RSLT (ug/kg)	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RF (%)
1,1-Dichloroethene	ND	60.8	57.8	95	54.2	48.4	89	7	65-135	30
Benzene	ND	60.8	65.4	107	54.2	56.4	104	3	65-135	30
Chlorobenzene	ND	60.8	62.2	102	54.2	53.7	99	3	65-135	30
Toluene	ND	60.8	64.1	105	54.2	56	103	2	64-135	30
Trichloroethene	ND	60.8	64.5	106	54.2	55.2	102	4	61-135	30

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	60.8	65.1	107	54.2	52.2	96	70-130
Bromofluorobenzene	60.8	59.7	98	54.2	52.7	97	70-130
Toluene-d8	60.8	58.6	96	54.2	51.3	95	70-130

SW 5030B/8260B
VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	NA
Project	: EL TORO, CTO 0024	Date Received:	05/23/03
Batch No.	: 03E172	Date Extracted:	05/23/03 19:44
Sample ID:	MBLK1W	Date Analyzed:	05/23/03 19:44
Lab Samp ID:	V006E30B	Dilution Factor:	1
Lab File ID:	REW284	Matrix :	WATER
Ext Btch ID:	V006E30	% Moisture :	NA
Calib. Ref.:	REW270	Instrument ID :	T-006

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5	2
1,1,2,2-TETRACHLOROETHANE	ND	5	2
1,1,2-TRICHLOROETHANE	ND	5	2
1,1-DICHLOROETHANE	ND	5	2
1,1-DICHLOROETHENE	ND	5	2
1,2-DICHLOROETHANE	ND	5	2
1,2-DICHLOROPROPANE	ND	5	2
2-BUTANONE (MEK)	ND	50	5
2-HEXANONE	ND	50	5
2-CHLOROETHYLVINYLETHER	ND	50	2
4-METHYL-2-PENTANONE (MIBK)	ND	50	5
ACETONE	ND	50	5
BENZENE	ND	5	2
BROMODICHLOROMETHANE	ND	5	2
BROMOFORM	ND	5	2
BROMOMETHANE	ND	5	3
CARBON DISULFIDE	ND	5	2
CARBON TETRACHLORIDE	ND	5	2
CHLOROBENZENE	ND	5	2
CHLOROETHANE	ND	5	2
CHLOROFORM	ND	5	2
CHLOROMETHANE	ND	5	2.5
CIS-1,2-DICHLOROETHENE	ND	5	2
CIS-1,3-DICHLOROPROPENE	ND	5	2
DIBROMOCHLOROMETHANE	ND	5	2
ETHYLBENZENE	ND	5	2
XYLENES	ND	5	3
METHYLENE CHLORIDE	ND	5	2
MTBE	ND	10	2
STYRENE	ND	5	2
TOLUENE	ND	5	2
TRANS-1,2-DICHLOROETHENE	ND	5	2
TRANS-1,3-DICHLOROPROPENE	ND	5	2
TRICHLOROETHENE	ND	5	2
TETRACHLOROETHENE	ND	5	2
VINYL ACETATE	ND	50	2
VINYL CHLORIDE	ND	5	2
FREON113	ND	5	2

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	103	86-118
BROMOFLUOROBENZENE	104	86-115
TOLUENE-D8	98	88-110

SW 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/23/03 14:00
Sample ID:	818655-3350	Date Analyzed:	05/27/03 19:57
Lab Samp ID:	E172-01	Dilution Factor:	1
Lab File ID:	REX216	Matrix :	SOIL
Ext Btch ID:	SVE024S	% Moisture :	8.3
Calib. Ref.:	RCX007	Instrument ID :	T-042

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	360	180
1,2-DICHLOROBENZENE	ND	360	180
1,3-DICHLOROBENZENE	ND	360	180
1,4-DICHLOROBENZENE	ND	360	180
2,4,5-TRICHLOROPHENOL	ND	910	180
2,4,6-TRICHLOROPHENOL	ND	360	180
2,4-DICHLOROPHENOL	ND	360	180
2,4-DIMETHYLPHENOL	ND	360	180
2,4-DINITROPHENOL	ND	910	180
2,4-DINITROTOLUENE	ND	360	180
2,6-DINITROTOLUENE	ND	360	180
2-CHLORONAPHTHALENE	ND	360	180
2-CHLOROPHENOL	ND	360	180
2-METHYLNAPHTHALENE	ND	360	180
2-METHYLPHENOL	ND	360	180
2-NITROANILINE	ND	910	180
2-NITROPHENOL	ND	360	180
3,3'-DICHLOROBENZIDINE	ND	360	180
3-NITROANILINE	ND	910	180
4,6-DINITRO-2-METHYLPHENOL	ND	910	180
4-BROMOPHENYL-PHENYL ETHER	ND	360	180
4-CHLORO-3-METHYLPHENOL	ND	360	180
4-CHLOROANILINE	ND	360	180
4-CHLOROPHENYL-PHENYL ETHER	ND	360	180
4-METHYLPHENOL (1)	ND	360	180
4-NITROANILINE	ND	910	180
4-NITROPHENOL	ND	910	180
ACENAPHTHENE	ND	360	180
ACENAPHTHYLENE	ND	360	180
ANTHRACENE	ND	360	180
BENZO(A)ANTHRACENE	ND	360	180
BENZO(B)FLUORANTHENE	ND	360	180
BENZO(K)FLUORANTHENE	ND	360	180
BENZO(G,H,I)PERYLENE	ND	360	180
BIS(2-CHLOROETHOXY)METHANE	ND	360	180
BIS(2-CHLOROISOPROPYL)ETHER	ND	360	180
BIS(2-ETHYLHEXYL)PHTHALATE	ND	360	180
BUTYLBENZYLPHTHALATE	ND	360	180
CHRYSENE	ND	360	180
DI-N-BUTYLPHTHALATE	ND	360	180
DI-N-OCTYLPHTHALATE	ND	360	180
DIBENZOFURAN	ND	360	180
DIETHYLPHTHALATE	ND	360	180
DIMETHYLPHTHALATE	ND	360	180
FLUORANTHENE	ND	360	180
FLUORENE	ND	360	180
HEXACHLOROBUTADIENE	ND	360	180
HEXACHLOROCYCLOPENTADIENE	ND	360	180
HEXACHLOROETHANE	ND	360	180
N-NITROSODIPHENYLAMINE (2)	ND	360	180
NAPHTHALENE	ND	360	180
NITROBENZENE	ND	360	180
PENTACHLOROPHENOL	ND	220	180
PHENANTHRENE	ND	360	180
PHENOL	690	360	180
PYRENE	ND	360	180

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	58	25-144
2-FLUOROBIPHENYL	52	34-135
2-FLUOROPHENOL	50	25-135
NITROBENZENE-D5	64	25-135
PHENOL-D5	60	25-135
TERPHENYL-D14	74	32-136

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

SW 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/23/03 10:00
Sample ID:	818655-3354	Date Analyzed:	05/23/03 15:11
Lab Samp ID:	E172-05	Dilution Factor:	.97
Lab File ID:	REX190	Matrix :	WATER
Ext Btch ID:	SVE018W	% Moisture :	NA
Calib. Ref.:	RCX007	Instrument ID :	T-042

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,2,4-TRICHLOROBENZENE	ND	9.7	4.9
1,2-DICHLOROBENZENE	ND	9.7	4.9
1,3-DICHLOROBENZENE	ND	9.7	4.9
1,4-DICHLOROBENZENE	ND	9.7	4.9
2,4,5-TRICHLOROPHENOL	ND	24	4.9
2,4,6-TRICHLOROPHENOL	ND	9.7	4.9
2,4-DICHLOROPHENOL	ND	9.7	4.9
2,4-DIMETHYLPHENOL	ND	9.7	4.9
2,4-DINITROPHENOL	ND	24	9.7
2,4-DINITROTOLUENE	ND	9.7	4.9
2,6-DINITROTOLUENE	ND	9.7	4.9
2-CHLORONAPHTHALENE	ND	9.7	4.9
2-CHLOROPHENOL	ND	9.7	4.9
2-METHYLNAPHTHALENE	ND	9.7	4.9
2-METHYLPHENOL	ND	9.7	4.9
2-NITROANILINE	ND	24	9.7
2-NITROPHENOL	ND	9.7	4.9
3,3'-DICHLOROBENZIDINE	ND	9.7	4.9
3-NITROANILINE	ND	24	4.9
4,6-DINITRO-2-METHYLPHENOL	ND	24	9.7
4-BROMOPHENYL-PHENYL ETHER	ND	9.7	4.9
4-CHLORO-3-METHYLPHENOL	ND	9.7	4.9
4-CHLOROANILINE	ND	9.7	4.9
4-CHLOROPHENYL-PHENYL ETHER	ND	9.7	4.9
4-METHYLPHENOL (1)	ND	9.7	4.9
4-NITROANILINE	ND	24	4.9
4-NITROPHENOL	ND	24	4.9
ACENAPHTHENE	ND	9.7	4.9
ACENAPHTHYLENE	ND	9.7	4.9
ANTHRACENE	ND	9.7	4.9
BENZO(A)ANTHRACENE	ND	9.7	4.9
BENZO(A)PYRENE	ND	9.7	4.9
BENZO(B)FLUORANTHENE	ND	9.7	4.9
BENZO(K)FLUORANTHENE	ND	9.7	4.9
BENZO(G,H,I)PERYLENE	ND	9.7	4.9
BIS(2-CHLOROETHOXY)METHANE	ND	9.7	4.9
BIS(2-CHLOROETHYL)ETHER	ND	9.7	4.9
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.7	4.9
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	9.7
BUTYLBENZYLPHTHALATE	ND	9.7	4.9
CHRYSENE	ND	9.7	4.9
DI-N-BUTYLPHTHALATE	ND	9.7	4.9
DI-N-OCTYLPHTHALATE	ND	9.7	4.9
DIBENZO(A,H)ANTHRACENE	ND	9.7	4.9
DIBENZOFURAN	ND	9.7	4.9
DIETHYLPHTHALATE	ND	9.7	4.9
DIMETHYLPHTHALATE	ND	9.7	4.9
FLUORANTHENE	ND	9.7	4.9
FLUORENE	ND	9.7	4.9
HEXACHLOROBENZENE	ND	9.7	4.9
HEXACHLOROBUTADIENE	ND	9.7	4.9
HEXACHLOROCYCLOPENTADIENE	ND	9.7	4.9
HEXACHLOROETHANE	ND	9.7	4.9
INDENO(1,2,3-CD)PYRENE	ND	9.7	4.9
N-NITROSO-DI-N-PROPYLAMINE	ND	9.7	4.9
N-NITROSODIPHENYLAMINE (2)	ND	9.7	4.9
NAPHTHALENE	ND	9.7	4.9
NITROBENZENE	ND	9.7	4.9
PENTACHLOROPHENOL	ND	9.7	9.7
PHENANTHRENE	ND	9.7	4.9
PHENOL	ND	9.7	4.9
PYRENE	ND	9.7	4.9

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	95	25-134
2-FLUOROBIPHENYL	75	43-125
2-FLUOROPHENOL	70	25-125
NITROBENZENE-D5	91	32-125
PHENOL-D5	82	25-125
TERPHENYL-D14	94	42-126

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

SW 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/23/03 14:00
Sample ID:	818655-3360	Date Analyzed:	05/27/03 22:47
Lab Samp ID:	E172-11	Dilution Factor:	1
Lab File ID:	REX221	Matrix :	SOIL
Ext Btch ID:	SVE024S	% Moisture :	21.5
Calib. Ref.:	RCX007	Instrument ID :	T-042

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	420	210
1,2-DICHLOROBENZENE	ND	420	210
1,3-DICHLOROBENZENE	ND	420	210
1,4-DICHLOROBENZENE	ND	420	210
2,4,5-TRICHLOROPHENOL	ND	1100	210
2,4,6-TRICHLOROPHENOL	ND	420	210
2,4-DICHLOROPHENOL	ND	420	210
2,4-DIMETHYLPHENOL	ND	420	210
2,4-DINITROPHENOL	ND	1100	210
2,4-DINITROTOLUENE	ND	420	210
2,6-DINITROTOLUENE	ND	420	210
2-CHLORONAPHTHALENE	ND	420	210
2-CHLOROPHENOL	ND	420	210
2-METHYLNAPHTHALENE	ND	420	210
2-METHYLPHENOL	ND	420	210
2-NITROANILINE	ND	1100	210
2-NITROPHENOL	ND	420	210
3,3'-DICHLOROBENZIDINE	ND	420	210
3-NITROANILINE	ND	1100	210
4,6-DINITRO-2-METHYLPHENOL	ND	1100	210
4-BROMOPHENYL-PHENYL ETHER	ND	420	210
4-CHLORO-3-METHYLPHENOL	ND	420	210
4-CHLOROANILINE	ND	420	210
4-CHLOROPHENYL-PHENYL ETHER	ND	420	210
4-METHYLPHENOL (1)	ND	420	210
4-NITROANILINE	ND	1100	210
4-NITROPHENOL	ND	1100	210
ACENAPHTHENE	ND	420	210
ACENAPHTHYLENE	ND	420	210
ANTHRACENE	ND	420	210
BENZO(A)ANTHRACENE	ND	420	210
BENZO(B)FLUORANTHENE	ND	420	210
BENZO(K)FLUORANTHENE	ND	420	210
BENZO(G,H,I)PERYLENE	ND	420	210
BIS(2-CHLOROETHOXY)METHANE	ND	420	210
BIS(2-CHLOROISOPROPYL)ETHER	ND	420	210
BIS(2-ETHYLHEXYL)PHTHALATE	ND	420	210
BUTYLBENZYLPHTHALATE	ND	420	210
CHRYSENE	ND	420	210
DI-N-BUTYLPHTHALATE	ND	420	210
DI-N-OCTYLPHTHALATE	ND	420	210
DIBENZOFURAN	ND	420	210
DIETHYLPHTHALATE	ND	420	210
DIMETHYLPHTHALATE	ND	420	210
FLUORANTHENE	ND	420	210
FLUORENE	ND	420	210
HEXACHLOROBUTADIENE	ND	420	210
HEXACHLOROCYCLOPENTADIENE	ND	420	210
HEXACHLOROETHANE	ND	420	210
N-NITROSODIPHENYLAMINE (2)	ND	420	210
NAPHTHALENE	ND	420	210
NITROBENZENE	ND	420	210
PENTACHLOROPHENOL	ND	250	210
PHENANTHRENE	ND	420	210
PHENOL	4400	420	210
PYRENE	ND	420	210

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	85	25-144
2-FLUOROBIPHENYL	61	34-135
2-FLUOROPHENOL	49	25-135
NITROBENZENE-D5	57	25-135
PHENOL-D5	65	25-135
TERPHENYL-D14	86	32-136

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

SW 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/23/03 14:00
Sample ID:	818655-3384	Date Analyzed:	05/27/03 23:54
Lab Samp ID:	E172-35	Dilution Factor:	1
Lab File ID:	REX223	Matrix	: SOIL
Ext Btch ID:	SVE024S	% Moisture	: 20.1
Calib. Ref.:	RCX007	Instrument ID	: T-042

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	410	210
1,2-DICHLOROBENZENE	ND	410	210
1,3-DICHLOROBENZENE	ND	410	210
1,4-DICHLOROBENZENE	ND	410	210
2,4,5-TRICHLOROPHENOL	ND	1000	210
2,4,6-TRICHLOROPHENOL	ND	410	210
2,4-DICHLOROPHENOL	ND	410	210
2,4-DIMETHYLPHENOL	ND	410	210
2,4-DINITROPHENOL	ND	1000	210
2,4-DINITROTOLUENE	ND	410	210
2,6-DINITROTOLUENE	ND	410	210
2-CHLORONAPHTHALENE	ND	410	210
2-CHLOROPHENOL	ND	410	210
2-METHYLNAPHTHALENE	ND	410	210
2-METHYLPHENOL	ND	410	210
2-NITROANILINE	ND	1000	210
2-NITROPHENOL	ND	410	210
3,3'-DICHLOROBENZIDINE	ND	410	210
3-NITROANILINE	ND	1000	210
4,6-DINITRO-2-METHYLPHENOL	ND	1000	210
4-BROMOPHENYL-PHENYL ETHER	ND	410	210
4-CHLORO-3-METHYLPHENOL	ND	410	210
4-CHLOROANILINE	ND	410	210
4-CHLOROPHENYL-PHENYL ETHER	ND	410	210
4-METHYLPHENOL (1)	ND	410	210
4-NITROANILINE	ND	1000	210
4-NITROPHENOL	ND	1000	210
ACENAPHTHENE	ND	410	210
ACENAPHTHYLENE	ND	410	210
ANTHRACENE	ND	410	210
BENZO(A)ANTHRACENE	ND	410	210
BENZO(B)FLUORANTHENE	ND	410	210
BENZO(K)FLUORANTHENE	ND	410	210
BENZO(G,H,I)PERYLENE	ND	410	210
BIS(2-CHLOROETHOXY)METHANE	ND	410	210
BIS(2-CHLOROISOPROPYL)ETHER	ND	410	210
BIS(2-ETHYLHEXYL)PHTHALATE	ND	410	210
BUTYLBENZYLPHTHALATE	ND	410	210
CHRYSENE	ND	410	210
DI-N-BUTYLPHTHALATE	ND	410	210
DI-N-OCTYLPHTHALATE	ND	410	210
DIBENZOFURAN	ND	410	210
DIETHYLPHTHALATE	ND	410	210
DIMETHYLPHTHALATE	ND	410	210
FLUORANTHENE	ND	410	210
FLUORENE	ND	410	210
HEXACHLOROBUTADIENE	ND	410	210
HEXACHLOROCYCLOPENTADIENE	ND	410	210
HEXACHLOROETHANE	ND	410	210
N-NITROSODIPHENYLAMINE (2)	ND	410	210
NAPHTHALENE	ND	410	210
NITROBENZENE	ND	410	210
PENTACHLOROPHENOL	ND	250	210
PHENANTHRENE	ND	410	210
PHENOL	ND	410	210
PYRENE	ND	410	210

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	86	25-144
2-FLUOROBIPHENYL	79	34-135
2-FLUOROPHENOL	73	25-135
NITROBENZENE-D5	96	25-135
PHENOL-D5	88	25-135
TERPHENYL-D14	84	32-136

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

SW 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/23/03 14:00
Sample ID:	818655-3387	Date Analyzed:	05/28/03 00:28
Lab Samp ID:	E172-37	Dilution Factor:	1
Lab File ID:	REX224	Matrix	: SOIL
Ext Btch ID:	SVE024S	% Moisture	: 2.4
Calib. Ref.:	RCX007	Instrument ID	: T-042

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	340	170
1,2-DICHLOROBENZENE	ND	340	170
1,3-DICHLOROBENZENE	ND	340	170
1,4-DICHLOROBENZENE	ND	340	170
2,4,5-TRICHLOROPHENOL	ND	850	170
2,4,6-TRICHLOROPHENOL	ND	340	170
2,4-DICHLOROPHENOL	ND	340	170
2,4-DIMETHYLPHENOL	ND	340	170
2,4-DINITROPHENOL	ND	850	170
2,4-DINITROTOLUENE	ND	340	170
2,6-DINITROTOLUENE	ND	340	170
2-CHLORONAPHTHALENE	ND	340	170
2-CHLOROPHENOL	ND	340	170
2-METHYLNAPHTHALENE	ND	340	170
2-METHYLPHENOL	ND	340	170
2-NITROANILINE	ND	850	170
2-NITROPHENOL	ND	340	170
3,3'-DICHLOROBENZIDINE	ND	340	170
3-NITROANILINE	ND	850	170
4,6-DINITRO-2-METHYLPHENOL	ND	850	170
4-BROMOPHENYL-PHENYL ETHER	ND	340	170
4-CHLORO-3-METHYLPHENOL	ND	340	170
4-CHLOROANILINE	ND	340	170
4-CHLOROPHENYL-PHENYL ETHER	ND	340	170
4-METHYLPHENOL (1)	ND	340	170
4-NITROANILINE	ND	850	170
4-NITROPHENOL	ND	850	170
ACENAPHTHENE	ND	340	170
ACENAPHTHYLENE	ND	340	170
ANTHRACENE	ND	340	170
BENZO(A)ANTHRACENE	ND	340	170
BENZO(B)FLUORANTHENE	ND	340	170
BENZO(K)FLUORANTHENE	ND	340	170
BENZO(G,H,I)PERYLENE	ND	340	170
BIS(2-CHLOROETHOXY)METHANE	ND	340	170
BIS(2-CHLOROISOPROPYL)ETHER	ND	340	170
BIS(2-ETHYLHEXYL)PHTHALATE	ND	340	170
BUTYLBENZYLPHTHALATE	ND	340	170
CHRYSENE	ND	340	170
DI-N-BUTYLPHTHALATE	ND	340	170
DI-N-OCTYLPHTHALATE	ND	340	170
DIBENZOFURAN	ND	340	170
DIETHYLPHTHALATE	ND	340	170
DIMETHYLPHTHALATE	ND	340	170
FLUORANTHENE	ND	340	170
FLUORENE	ND	340	170
HEXACHLOROBUTADIENE	ND	340	170
HEXACHLOROCYCLOPENTADIENE	ND	340	170
HEXACHLOROETHANE	ND	340	170
N-NITROSODIPHENYLAMINE (2)	ND	340	170
NAPHTHALENE	ND	340	170
NITROBENZENE	ND	340	170
PENTACHLOROPHENOL	ND	200	170
PHENANTHRENE	ND	340	170
PHENOL	ND	340	170
PYRENE	ND	340	170

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	86	25-144
2-FLUOROBIPHENYL	71	34-135
2-FLUOROPHENOL	70	25-135
NITROBENZENE-D5	90	25-135
PHENOL-D5	82	25-135
TERPHENYL-D14	82	32-136

RL: Reporting Limit
(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: SHAW E&I
PROJECT: EL TORO, CTO 0024
BATCH NO.: 03E172
METHOD: METHOD 3520B/8270B

MATRIX:	WATER			% MOISTURE:	NA
DILUTION FACTOR:	1	1	1		
SAMPLE ID:	MBLK1W				
LAB SAMP ID:	SVE018WB	SVE018WL	SVE018WC		
LAB FILE ID:	REX186	REX187	REX188		
DATE EXTRACTED:	05/23/0310:00	05/23/0310:00	05/23/0310:00	DATE COLLECTED:	NA
DATE ANALYZED:	05/23/0312:55	05/23/0313:29	05/23/0314:02	DATE RECEIVED:	NA
PREP. BATCH:	SVE018W	SVE018W	SVE018W		
CALIB. REF:	RCX007	RCX007	RCX007		

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,2,4-Trichlorobenzene	ND	100	58.5	59	100	66.2	66	12	44-142	20
1,4-Dichlorobenzene	ND	100	57.2	57	100	65.7	66	14	30-125	20
2,4-Dinitrotoluene	ND	100	88.4	88	100	85.9	86	3	39-139	20
2-Chlorophenol	ND	150	95.6	64	150	105	70	10	41-125	20
4-Chloro-3-Methylphenol	ND	150	115	77	150	120	80	3	44-125	20
4-Nitrophenol	ND	150	92.8	62	150	88.6	59	5	25-131	20
Acenaphthene	ND	100	74.8	75	100	77.7	78	4	49-125	20
N-Nitroso-di-n-propylamine	ND	100	109	109	100	113	113	4	37-125	20
Pentachlorophenol	ND	150	126	84	150	123	82	3	28-136	20
Phenol	ND	150	110	73	150	118	79	7	25-125	20
Pyrene	ND	100	84.6	85	100	85.1	85	1	47-136	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
2,4,6-Tribromophenol	150	149	100	150	145	97	25-134
2-Fluorobiphenyl	100	73.9	74	100	77.8	78	43-125
2-Fluorophenol	150	101	67	150	109	72	25-125
Nitrobenzene-d5	100	89.9	90	100	97.2	97	32-125
Phenol-d5	150	121	81	150	127	85	25-125
Terphenyl-d14	100	98.3	98	100	97.6	98	42-126

EMAX QUALITY CONTROL DATA
LCS ANALYSIS

CLIENT: SHAW E&I
PROJECT: EL TORO, CTO 0024
BATCH NO.: 03E172
METHOD: METHOD 3550A/8270B

MATRIX:	SOIL		% MOISTURE:	NA
DILUTION FACTOR:	1	1		
SAMPLE ID:	MBLK1S			
LAB SAMP ID:	SVE024SB	SVE024SL		
LAB FILE ID:	REX214	REX215		
DATE EXTRACTED:	05/23/0314:00	05/23/0314:00	DATE COLLECTED:	NA
DATE ANALYZED:	05/27/0318:48	05/27/0319:23	DATE RECEIVED:	NA
PREP. BATCH:	SVE024S	SVE024S		
CALIB. REF:	RCX007	RCX007		

ACCESSION:

PARAMETER	BLNK RSLT (ug/kg)	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	QC LIMIT (%)
1,2,4-Trichlorobenzene	ND	3330	1680	50	34-152
1,4-Dichlorobenzene	ND	3330	1750	52	25-135
2,4-Dinitrotoluene	ND	3330	2460	74	29-149
2-Chlorophenol	ND	5000	2660	53	31-135
4-Chloro-3-Methylphenol	ND	5000	3120	62	34-135
4-Nitrophenol	ND	5000	2280	46	25-141
Acenaphthene	ND	3330	2090	63	39-135
Pentachlorophenol	ND	5000	2930	59	38-146
Phenol	ND	5000	3100	62	25-135
Pyrene	ND	3330	2470	74	37-146

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	BS RSLT (ug/kg)	BS % REC	QC LIMIT (%)
2,4,6-Tribromophenol	5000	3570	71	25-144
2-Fluorobiphenyl	3330	2010	60	34-135
2-Fluorophenol	5000	2790	56	25-135
Nitrobenzene-d5	3330	2470	74	25-135
Phenol-d5	5000	3350	67	25-135
Terphenyl-d14	3330	2690	81	32-136

SW 3550B/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS/SIM

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/23/03 14:00
Sample ID:	818655-3350	Date Analyzed:	05/23/03 19:16
Lab Samp ID:	E172-01	Dilution Factor:	1
Lab File ID:	REZ105	Matrix	: SOIL
Ext Btch ID:	SVE024S	% Moisture	: 8.3
Calib. Ref.:	RDZ137	Instrument ID	: T-048

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
BENZO(A)PYRENE	ND	36	11
BIS(2-CHLOROETHYL)ETHER	ND	36	16
DIBENZO(A,H)ANTHRACENE	ND	36	11
HEXACHLOROBENZENE	ND	82	11
INDENO(1,2,3-CD)PYRENE	ND	38	11
N-NITROSO-DI-N-PROPYLAMINE	14J	36	11

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	89	32-136

RL: Reporting Limit

SW 3550B/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS/SIM

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/23/03 14:00
Sample ID:	818655-3356	Date Analyzed:	05/23/03 21:16
Lab Samp ID:	E172-07	Dilution Factor:	1
Lab File ID:	REZ109	Matrix	: SOIL
Ext Btch ID:	SVE024S	% Moisture	: 12.6
Calib. Ref.:	RDZ137	Instrument ID	: T-048

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
BENZO(A)PYRENE	ND	38	11
BIS(2-CHLOROETHYL)ETHER	ND	38	17
DIBENZO(A,H)ANTHRACENE	ND	38	11
HEXACHLOROBENZENE	ND	86	11
INDENO(1,2,3-CD)PYRENE	ND	40	11
N-NITROSO-DI-N-PROPYLAMINE	ND	38	11

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	102	32-136

RL: Reporting Limit

SW 3550B/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS/SIM

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
Batch No.	: 03E172	Date Extracted:	05/23/03 14:00
Sample ID:	818655-3380	Date Analyzed:	05/27/03 13:09
Lab Samp ID:	E172-31R	Dilution Factor:	1
Lab File ID:	REZ123	Matrix	: SOIL
Ext Btch ID:	SVE024S	% Moisture	: 19.9
Calib. Ref.:	RDZ137	Instrument ID	: T-048

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
BENZO(A)PYRENE	ND	41	12
BIS(2-CHLOROETHYL)ETHER	ND	41	19
DIBENZO(A,H)ANTHRACENE	ND	41	12
HEXACHLOROBENZENE	ND	94	12
INDENO(1,2,3-CD)PYRENE	ND	44	12
N-NITROSO-DI-N-PROPYLAMINE	ND	41	12

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	91	32-136

RL: Reporting Limit

SW 3550B/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS/SIM

Client : SHAW E&I		Date Collected:	05/21/03
Project : EL TORO, CTO 0024		Date Received:	05/21/03
Batch No. : 03E172		Date Extracted:	05/23/03 14:00
Sample ID: 818655-3386		Date Analyzed:	05/23/03 23:46
Lab Samp ID: E172-36		Dilution Factor:	1
Lab File ID: REZ114		Matrix :	SOIL
Ext Btch ID: SVE024S		% Moisture :	22.5
Calib. Ref.: RDZ137		Instrument ID :	T-048

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
BENZO(A)PYRENE	91	43	13
BIS(2-CHLOROETHYL)ETHER	ND	43	19
DIBENZO(A,H)ANTHRACENE	ND	43	13
HEXACHLOROBENZENE	ND	97	13
INDENO(1,2,3-CD)PYRENE	120	45	13
N-NITROSO-DI-N-PROPYLAMINE	ND	43	13

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	77	32-136

RL: Reporting Limit

SW 3550B/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS/SIM

Client	: SHAW E&I	Date Collected:	NA
Project	: EL TORO, CTO 0024	Date Received:	NA
Batch No.	: 03E172	Date Extracted:	05/23/03 14:00
Sample ID:	M8LK1S	Date Analyzed:	05/23/03 18:16
Lab Samp ID:	SVE024SB	Dilution Factor:	1
Lab File ID:	REZ103	Matrix :	SOIL
Ext Btch ID:	SVE024S	% Moisture :	NA
Calib. Ref.:	RDZ137	Instrument ID :	T-04B

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
BENZO(A)PYRENE	ND	33	10
BIS(2-CHLOROETHYL)ETHER	ND	33	15
DIBENZO(A,H)ANTHRACENE	ND	33	10
HEXACHLOROBENZENE	ND	75	10
INDENO(1,2,3-CD)PYRENE	ND	35	10
N-NITROSO-DI-N-PROPYLAMINE	ND	33	10

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	92	32-136

RL: Reporting Limit

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: SHAW E&I
PROJECT: EL TORO, CTO 0024
BATCH NO.: 03E172
METHOD: SW 3550B/8270C SIM

MATRIX:	SOIL			% MOISTURE:	8.3
DILUTION FACTOR:	1	2	2		
SAMPLE ID:	818655-3350				
LAB SAMP ID:	E172-01	E172-01M	E172-01S		
LAB FILE ID:	REZ105	REZ106	REZ107		
DATE EXTRACTED:	05/23/0314:00	05/23/0314:00	05/23/0314:00	DATE COLLECTED:	05/21/03
DATE ANALYZED:	05/23/0319:16	05/23/0319:46	05/23/0320:16	DATE RECEIVED:	05/21/03
PREP. BATCH:	SVE024S	SVE024S	SVE024S		
CALIB. REF:	RDZ137	RDZ137	RDZ137		

ACCESSION:

PARAMETER	SMPL RSLT (ug/kg)	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RP (%)
n-Nitroso-di-n-propylamine	14.1J	3630	1960	53	3630	1970	54	1	27-135	3(

SURROGATE PARAMETER	SPIKE AMT (ug/kg)	MS RSLT (ug/kg)	MS % REC	SPIKE AMT (ug/kg)	MSD RSLT (ug/kg)	MSD % REC	QC LIMIT (%)
Terphenyl-d14	3630	1970	54	3630	3290	91	32-136

METHOD 3050B/6010B
METALS BY ICP

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
SDG NO.	: 03E172	Date Extracted:	05/23/03 14:45
Sample ID:	818655-3350	Date Analyzed:	05/23/03 19:46
Lab Samp ID:	E172-01	Dilution Factor:	1
Lab File ID:	I07E034019	Matrix :	SOIL
Ext Btch ID:	IPE038S	% Moisture :	8.3
Calib. Ref.:	I07E034014	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Aluminum	15700	54.5	4.89
Antimony	ND	5.45	2.29
Barium	83.3	1.09	.135
Beryllium	.562	.218	.129
Cadmium	.611	.545	.395
Calcium	6630	109	7.41
Chromium	12.1	2.18	.67
Cobalt	14.3	1.09	.754
Copper	8.23	2.18	.515
Iron	13600	21.8	1.66
Magnesium	5970	109	8.72
Manganese	214	2.18	.205
Molybdenum	ND	5.45	.805
Nickel	7.32	2.18	.6
Potassium	3020	109	78
Silver	2.13J	2.18	.685
Sodium	194	109	7.64
Vanadium	35.8	2.18	.478
Zinc	40.1	1.09	.314

RL: Reporting Limit

METHOD 3050B/6010B
METALS BY ICP

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
SDG NO.	: 03E172	Date Extracted:	05/23/03 14:45
Sample ID:	818655-3352	Date Analyzed:	05/23/03 19:51
Lab Samp ID:	E172-03	Dilution Factor:	1
Lab File ID:	I07E034020	Matrix :	SOIL
Ext Btch ID:	IPE038S	% Moisture :	11.5
Calib. Ref.:	I07E034014	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Aluminum	17200	56.5	5.06
Antimony	ND	5.65	2.38
Barium	97.3	1.13	.14
Beryllium	.632	.226	.133
Cadmium	.507J	.565	.409
Calcium	3870	113	7.68
Chromium	13.4	2.26	.694
Cobalt	7.58	1.13	.781
Copper	8.05	2.26	.533
Iron	14200	22.6	1.72
Magnesium	5570	113	9.03
Manganese	234	2.26	.212
Molybdenum	ND	5.65	.834
Nickel	7.91	2.26	.621
Potassium	3680	113	80.9
Silver	ND	2.26	.71
Sodium	172	113	7.92
Vanadium	37.9	2.26	.495
Zinc	43	1.13	.325

RL: Reporting Limit

METHOD 3050B/6010B
METALS BY ICP

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
SDG NO.	: 03E172	Date Extracted:	05/23/03 14:45
Sample ID:	818655-3356	Date Analyzed:	05/23/03 19:56
Lab Samp ID:	E172-07	Dilution Factor:	1
Lab File ID:	I07E034021	Matrix :	SOIL
Ext Btch ID:	IPE038S	% Moisture :	12.6
Calib. Ref.:	I07E034014	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Aluminum	14200	57.2	5.13
Antimony	ND	5.72	2.41
Barium	74.8	1.14	.142
Beryllium	.504	.229	.135
Cadmium	.512J	.572	.414
Calcium	5560	114	7.78
Chromium	10.5	2.29	.703
Cobalt	7.35	1.14	.791
Copper	5.75	2.29	.54
Iron	11600	22.9	1.75
Magnesium	5110	114	9.15
Manganese	183	2.29	.215
Molybdenum	ND	5.72	.844
Nickel	6.42	2.29	.629
Potassium	2770	114	81.9
Silver	ND	2.29	.719
Sodium	198	114	8.02
Vanadium	31	2.29	.501
Zinc	33	1.14	.33

RL: Reporting Limit

METHOD 3050B/6010B
METALS BY ICP

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
SDG NO.	: 03E172	Date Extracted:	05/23/03 14:45
Sample ID:	818655-3360	Date Analyzed:	05/23/03 20:02
Lab Samp ID:	E172-11	Dilution Factor:	1
Lab File ID:	I07E034022	Matrix :	SOIL
Ext Btch ID:	IPE038S	% Moisture :	21.5
Calib. Ref.:	I07E034014	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Aluminum	23900	63.7	5.71
Antimony	2.7J	6.37	2.68
Barium	143	1.27	.158
Beryllium	.797	.255	.15
Cadmium	1.07	.637	.461
Calcium	14600	127	8.66
Chromium	16.7	2.55	.782
Cobalt	8.67	1.27	.88
Copper	10.8	2.55	.601
Iron	20500	25.5	1.94
Magnesium	9060	127	10.2
Manganese	276	2.55	.239
Molybdenum	ND	6.37	.94
Nickel	10.2	2.55	.701
Potassium	4660	127	91.2
Silver	ND	2.55	.8
Sodium	140	127	8.93
Vanadium	50.5	2.55	.558
Zinc	92.8	1.27	.367

RL: Reporting Limit

METHOD 3050B/6010B
METALS BY ICP

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
SDG NO.	: 03E172	Date Extracted:	05/23/03 14:45
Sample ID:	818655-3380	Date Analyzed:	05/23/03 20:07
Lab Samp ID:	E172-31	Dilution Factor:	1
Lab File ID:	I07E034023	Matrix :	SOIL
Ext Btch ID:	IPE038S	% Moisture :	19.9
Calib. Ref.:	I07E034014	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Aluminum	11800	62.4	5.59
Antimony	ND	6.24	2.63
Barium	97.7	1.25	.155
Beryllium	.471	.25	.147
Cadmium	.565J	.624	.452
Calcium	2850	125	8.48
Chromium	9.94	2.5	.767
Cobalt	20.6	1.25	.863
Copper	6.38	2.5	.589
Iron	10800	25	1.91
Magnesium	3980	125	9.98
Manganese	216	2.5	.235
Molybdenum	ND	6.24	.921
Nickel	6.74	2.5	.687
Potassium	3260	125	89.3
Silver	ND	2.5	.784
Sodium	137	125	8.75
Vanadium	27.6	2.5	.547
Zinc	33.1	1.25	.36

RL: Reporting Limit

METHOD 3050B/6010B
METALS BY ICP

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
SDG NO.	: 03E172	Date Extracted:	05/23/03 14:45
Sample ID:	818655-3384	Date Analyzed:	05/23/03 20:12
Lab Samp ID:	E172-35	Dilution Factor:	1
Lab File ID:	I07E034024	Matrix :	SOIL
Ext Btch ID:	IPE038S	% Moisture :	20.1
Calib. Ref.:	I07E034014	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Aluminum	15400	62.6	5.61
Antimony	ND	6.26	2.63
Barium	86.9	1.25	.155
Beryllium	.57	.25	.148
Cadmium	.717	.626	.453
Calcium	4020	125	8.51
Chromium	12.2	2.5	.768
Cobalt	4.86	1.25	.865
Copper	8.3	2.5	.591
Iron	12400	25	1.91
Magnesium	4960	125	10
Manganese	154	2.5	.235
Molybdenum	ND	6.26	.924
Nickel	7.64	2.5	.688
Potassium	3470	125	89.6
Silver	ND	2.5	.786
Sodium	129	125	8.77
Vanadium	34.5	2.5	.548
Zinc	63.5	1.25	.36

RL: Reporting Limit

METHOD 3050B/6010B
METALS BY ICP

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
SDG NO.	: 03E172	Date Extracted:	05/23/03 14:45
Sample ID:	818655-3386	Date Analyzed:	05/23/03 20:18
Lab Samp ID:	E172-36	Dilution Factor:	1
Lab File ID:	I07E034025	Matrix :	SOIL
Ext Btch ID:	IPE038S	% Moisture :	22.5
Calib. Ref.:	I07E034014	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Aluminum	22500	64.5	5.78
Antimony	ND	6.45	2.71
Barium	139	1.29	.16
Beryllium	.847	.258	.152
Cadmium	6.65	.645	.467
Calcium	6530	129	8.77
Chromium	24.3	2.58	.792
Cobalt	8.56	1.29	.892
Copper	28.3	2.58	.609
Iron	21500	25.8	1.97
Magnesium	8160	129	10.3
Manganese	340	2.58	.243
Molybdenum	ND	6.45	.952
Nickel	14.1	2.58	.71
Potassium	6750	129	92.3
Silver	ND	2.58	.81
Sodium	423	129	9.04
Vanadium	49.7	2.58	.565
Zinc	252	1.29	.372

RL: Reporting Limit

METHOD 3050B/6010B
METALS BY ICP

Client	: SHAW E&I	Date Collected:	05/21/03
Project	: EL TORO, CTO 0024	Date Received:	05/21/03
SDG NO.	: 03E172	Date Extracted:	05/23/03 14:45
Sample ID:	818655-3387	Date Analyzed:	05/23/03 20:39
Lab Samp ID:	E172-37	Dilution Factor:	1
Lab File ID:	I07E034029	Matrix :	SOIL
Ext Btch ID:	IPE038S	% Moisture :	2.4
Calib. Ref.:	I07E034026	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Aluminum	13300	51.2	4.59
Antimony	2.28J	5.12	2.15
Barium	77	1.02	.127
Beryllium	.484	.205	.121
Cadmium	.814	.512	.371
Calcium	3770	102	6.96
Chromium	11.2	2.05	.629
Cobalt	4.68	1.02	.708
Copper	8.15	2.05	.484
Iron	11500	20.5	1.56
Magnesium	4390	102	8.19
Manganese	192	2.05	.193
Molybdenum	ND	5.12	.756
Nickel	7.07	2.05	.564
Potassium	3470	102	73.3
Silver	ND	2.05	.643
Sodium	242	102	7.18
Vanadium	30.5	2.05	.449
Zinc	296	1.02	.295

RL: Reporting Limit

METHOD 3050B/6010B
METALS BY ICP

Client	: SHAW E&I	Date Collected:	NA
Project	: EL TORO, CTO 0024	Date Received:	05/23/03
SDG NO.	: 03E172	Date Extracted:	05/23/03 14:45
Sample ID	: MBLK1S	Date Analyzed:	05/23/03 19:27
Lab Samp ID	: IPE038SB	Dilution Factor:	1
Lab File ID	: I07E034016	Matrix :	SOIL
Ext Btch ID	: IPE038S	% Moisture :	NA
Calib. Ref.	: I07E034014	Instrument ID :	EMAXTI07

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Aluminum	ND	50	4.48
Antimony	ND	5	2.1
Barium	ND	1	.124
Beryllium	ND	.2	.118
Cadmium	ND	.5	.362
Calcium	ND	100	6.8
Chromium	ND	2	.614
Cobalt	ND	1	.691
Copper	ND	2	.472
Iron	ND	20	1.53
Magnesium	ND	100	7.99
Manganese	ND	2	.188
Molybdenum	ND	5	.738
Nickel	ND	2	.55
Potassium	ND	100	71.6
Silver	ND	2	.628
Sodium	ND	100	7.01
Vanadium	ND	2	.438
Zinc	ND	1	.288

RL: Reporting Limit

METHOD 3050B/60108
METALS BY TRACE ICP

Client	: SHAW E&I	Date Collected:	NA
Project	: EL TORO, CTO 0024	Date Received:	05/23/03
SDG NO.	: 03E172	Date Extracted:	05/23/03 14:45
Sample ID:	MBLK1S	Date Analyzed:	05/27/03 16:59
Lab Samp ID:	IPE038SB	Dilution Factor:	1
Lab File ID:	I31E033023	Matrix :	SOIL
Ext Btch ID:	IPE038S	% Moisture :	NA
Calib. Ref.:	I31E033015	Instrument ID :	EMAXTI31

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Arsenic	ND	1	.21
Lead	ND	1	.174
Selenium	.317J	1	.285
Thallium	.34J	1	.305

RL: Reporting Limit

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: SHAW E&I
PROJECT: EL TORO, CTO 0024
SDG NO.: 03E172
METHOD: METHOD 3050B/6010B

MATRIX:	SOIL			% MOISTURE:	2.4
DILTN FACTR:	1	1	1		
SAMPLE ID:	818655-3387				
CONTROL NO.:	E172-37	E172-37M	E172-37S		
LAB FILE ID:	I07E034029	I07E034031	I07E034032		
DATIME EXTRCTD:	05/23/0314:45	05/23/0314:45	05/23/0314:45	DATE COLLECTED:	05/21/03
DATIME ANALYZD:	05/23/0320:39	05/23/0320:49	05/23/0320:55	DATE RECEIVED:	05/21/03
PREP. BATCH:	IPE038S	IPE038S	IPE038S		
CALIB. REF:	I07E034026	I07E034026	I07E034026		

ACCESSION:

PARAMETER	SMPL RSLT mg/kg	SPIKE AMT mg/kg	MS RSLT mg/kg	MS % REC	SPIKE AMT mg/kg	MSD RSLT mg/kg	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Aluminum	13300	1020	13600	30*	1020	13400	15*	1	80-120	25
Antimony	2.28J	512	229	44*	512	227	44*	1	80-120	25
Barium	77	102	159	80	102	157	78*	1	80-120	25
Beryllium	.484	102	93.7	91	102	92.6	90	1	80-120	25
Cadmium	.814	102	89.6	87	102	89	86	1	80-120	25
Calcium	3770	5120	8130	85	5120	8080	84	1	80-120	25
Chromium	11.2	102	101	87	102	100	87	0	80-120	25
Cobalt	4.68	102	92	85	102	90.8	84	1	80-120	25
Copper	8.15	102	99.9	90	102	98.4	88	2	80-120	25
Iron	11500	1020	10800	-61*	1020	10700	-70*	1	80-120	25
Magnesium	4390	5120	8830	87	5120	8710	84	1	80-120	25
Manganese	192	102	257	63*	102	255	61*	1	80-120	25
Molybdenum	ND	102	81.3	79*	102	81.4	79*	0	80-120	25
Nickel	7.07	102	90.5	81	102	89.8	81	1	80-120	25
Potassium	3470	5120	7940	87	5120	7890	86	1	80-120	25
Silver	ND	102	90.4	88	102	89.2	87	1	80-120	25
Sodium	242	5120	5020	93	5120	4920	91	2	80-120	25
Vanadium	30.5	102	116	83	102	115	82	1	80-120	25
Zinc	296	102	368	70*	102	366	68*	0	80-120	25

METHOD 7471A
MERCURY BY COLD VAPOR

Client : SHAW E&I
Project : EL TORO, CTO 0024
Batch No. : 03E172

Matrix : SOIL
Instrument ID : TI047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DLF	MOIST	RL (mg/kg)	MDL (mg/kg)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1S	HGE026SB	ND	1	NA	.1	.033	05/23/0318:03	05/23/0315:30	M47E014010	M47E014008	HGE026S	NA	05/23/03
LCS1S	HGE026SL	.813	1	NA	.1	.033	05/23/0318:05	05/23/0315:30	M47E014011	M47E014008	HGE026S	NA	05/23/03
LCD1S	HGE026SC	.812	1	NA	.1	.033	05/23/0318:07	05/23/0315:30	M47E014012	M47E014008	HGE026S	NA	05/23/03
818655-3387AS	E172-37A	.376	1	2.4	.102	.0338	05/23/0318:10	05/23/0315:30	M47E014013	M47E014008	HGE026S	05/21/03	05/21/03
818655-3387	E172-37	ND	1	2.4	.102	.0338	05/23/0318:12	05/23/0315:30	M47E014014	M47E014008	HGE026S	05/21/03	05/21/03
818655-3387DL	E172-37T	ND	5	2.4	.512	.169	05/23/0318:14	05/23/0315:30	M47E014015	M47E014008	HGE026S	05/21/03	05/21/03
818655-3387MS	E172-37M	.857	1	2.4	.102	.0338	05/23/0318:16	05/23/0315:30	M47E014016	M47E014008	HGE026S	05/21/03	05/21/03
818655-3387MSD	E172-37S	.864	1	2.4	.102	.0338	05/23/0318:19	05/23/0315:30	M47E014017	M47E014008	HGE026S	05/21/03	05/21/03
818655-3350	E172-01	ND	1	8.3	.109	.036	05/23/0318:21	05/23/0315:30	M47E014018	M47E014008	HGE026S	05/21/03	05/21/03
818655-3352	E172-03	ND	1	11.5	.113	.0373	05/23/0318:23	05/23/0315:30	M47E014019	M47E014008	HGE026S	05/21/03	05/21/03
818655-3356	E172-07	ND	1	12.6	.114	.0378	05/23/0318:30	05/23/0315:30	M47E014022	M47E014020	HGE026S	05/21/03	05/21/03
818655-3360	E172-11	ND	1	21.5	.127	.042	05/23/0318:32	05/23/0315:30	M47E014023	M47E014020	HGE026S	05/21/03	05/21/03
818655-3380	E172-31	ND	1	19.9	.125	.0412	05/23/0318:34	05/23/0315:30	M47E014024	M47E014020	HGE026S	05/21/03	05/21/03
818655-3384	E172-35	.0503J	1	20.1	.125	.0413	05/23/0318:36	05/23/0315:30	M47E014025	M47E014020	HGE026S	05/21/03	05/21/03
818655-3386	E172-36	.0445J	1	22.5	.129	.0426	05/23/0318:39	05/23/0315:30	M47E014026	M47E014020	HGE026S	05/21/03	05/21/03

RL: Reporting Limit

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: SHAW E&I
PROJECT: EL TORO, CTO 0024
SDG NO.: 03E172
METHOD: METHOD 7471A

MATRIX:	SOIL			% MOISTURE:	2.4
DILTN FACTR:	1	1	1		
SAMPLE ID:	818655-3387				
CONTROL NO.:	E172-37	E172-37M	E172-37S		
LAB FILE ID:	M47E014014	M47E014016	M47E014017		
DATIME EXTRCTD:	05/23/0315:30	05/23/0315:30	05/23/0315:30	DATE COLLECTED:	05/21/03
DATIME ANALYZD:	05/23/0318:12	05/23/0318:16	05/23/0318:19	DATE RECEIVED:	05/21/03
PREP. BATCH:	HGE026S	HGE026S	HGE026S		
CALIB. REF:	M47E014008	M47E014008	M47E014008		

ACCESSION:

PARAMETER	SMPL RSLT mg/kg	SPIKE AMT mg/kg	MS RSLT mg/kg	MS % REC	SPIKE AMT mg/kg	MSD RSLT mg/kg	MSD % REC	RPD %	QC LIMIT %	MAX RPD %
Mercury	ND	.853	.857	100	.853	.864	101	1	77-120	25

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The DV Group, Inc.

DATA VALIDATION REPORT

Project / Site Name:	MCAS El Toro, CTO #24
Project No.:	818655
Data Reviewer:	S. Obleas, The Data Validation Group, Inc
Review Date:	Jun 17, 2003
Matrix:	36 Soils / 1 Water
Parameters:	M8015 Gasoline and Diesel; Volatiles 8260B; Semivolatiles 8270C; Semivolatiles-SIM 8270C; Mercury 7470/7471A; Metals 6010B
Validation Level:	EPA Level III / IV
Laboratory:	EMAX Analytical Lab Inc.
Sample Delivery Group (SDG) No.:	03-E172

Sample Nos.:

818655-3350	818655-3363	818655-3376
818655-3351	818655-3364	818655-3377
818655-3352	818655-3365	818655-3378
818655-3353	818655-3366	818655-3379
818655-3354	818655-3367	818655-3380
818655-3355	818655-3368	818655-3381
818655-3356	818655-3369	818655-3382
818655-3357	818655-3370	818655-3383
818655-3358	818655-3371	818655-3384
818655-3359	818655-3372	818655-3386
818655-3360	818655-3373	818655-3387
818655-3361	818655-3374	
818655-3362	818655-3375	

Collection Date(s):	May 11, 2003
Comments:	Field duplicates: not performed Trip Blank: not performed. Equipment rinsate: 818655-3354

The data were qualified according to the U.S. Environmental Protection Agency (EPA) documents "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (1999) and "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (1994). In addition, the Data Validation Services Statement of Work for MCAS El Toro was used along with other EPA methods.

S.R. Obleas, President

CURSORY DATA VALIDATION SUMMARY TABLE

Analysis	Holding Times	Surrogates	MS/MSD	LCS	Blanks	Calibration	Internal Standards	Field Duplicates	Other
Method M8015 **Gasoline**	√	√	√	√	√	√	N/A	N/A	√
Method M8015 **Diesel**	√	√	√	√	√	√	N/A	N/A	√
Method 8260B **Volatiles**	√	√	√	√	√	**Pg. 6**	√	N/A	√
Method 8270C **Semivolatiles**	√	√	√	√	√	**Pg. 7**	√	N/A	√
Method 8270C **Semivolatiles-SIM**	√	√	√	√	√	√	√	N/A	√
Method 7470A/7471A **Mercury**	√	N/A	√	√	√	√	N/A	N/A	√
Method 6010B **Metals**	√	N/A	**Pg. 8**	√	**Pg. 8**	√	N/A	N/A	√

Notes:

√ indicates that all quality control criteria were met for the parameter as specified in the prescribed methods and data validation guidelines.

N/A indicates the parameter is not applicable to an analysis.

If criteria were not met and the data were qualified, a page number is indicated where the qualification is detailed.

The data were evaluated for all validation criteria and were found to be in control except where noted. Any outliers are described in the text.

DATA ASSESSMENT

GASOLINE (Method M8015)

I. Level III criteria met.

Level IV Validation Criteria for Samples 818655-3355 and 818655-3364

II. Compound Quantitation and Reported Detection Limits

A. Sample results were recalculated, with the proper dilution factors, weights, volumes, and percent moisture used to calculate the sample results. The samples were correctly quantitated. The reported detection limits were consistent with the contract required report limits and reflect any dilutions, weights, volumes, and percent moisture.

III. System Performance

A. The samples were evaluated for baseline shifts, extraneous peaks, loss of resolution, and peak tailing. No system degradation was noted.

DIESEL (Method M8015)

I. Level III criteria met.

Level IV Validation Criteria for Samples 818655-3355 and 818655-3364

II. Compound Quantitation and Reported Detection Limits

A. Sample results were recalculated, with the proper dilution factors, weights, volumes, and percent moisture used to calculate the sample results. The samples were correctly quantitated. The reported detection limits were consistent with the contract required report limits and reflect any dilutions, weights, volumes, and percent moisture.

III. System Performance

A. The samples were evaluated for baseline shifts, extraneous peaks, loss of resolution, and peak tailing. No system degradation was noted.

SEMIVOLATILES (Method 8270C)

I. Calibrations

A. Due to continuing calibration problems, the following nondetected results are estimated (UJ).

- Bis(2-chloroisopropyl)ether and 4-Nitrophenol for all samples.
- 2,4-Dinitrophenol in samples 818655-3350, 818655-3352, 818655-3356, 818655-3360, 818655-3380, 818655-3384, 818655-3386, and 818655-3387.

The following continuing calibrations had percent differences (%D) of >25% for SPCCs / CCCs and >50% for all other compounds.

Calibration Date	Compound	%D
5/23/03 1001	Bis(2-chloroisopropyl)ether	-63.6
	4-Nitrophenol	34.8
5/27/03 1815	Bis(2-chloroisopropyl)ether	-76.2
	2,4-Dinitrophenol	-30.6
	4-Nitrophenol	28.1

SEMIVOLATILES-SIM (Method 8270C)

I. Level III criteria met.

MERCURY (Method 7470A/7471A)

I. Level III criteria met.

MCAS El Toro, CTO 24
Gasoline – Data Qualification Summary – SDG 03-E172

No Sample Data Qualified in this SDG.

MCAS El Toro, CTO 24
Gasoline – Laboratory Blank Data Qualification Summary – SDG 03-E172

No Sample Data Qualified in this SDG.

MCAS El Toro, CTO 24
Diesel – Data Qualification Summary – SDG 03-E172

No Sample Data Qualified in this SDG.

MCAS El Toro, CTO 24
Diesel – Laboratory Blank Data Qualification Summary – SDG 03-E172

No Sample Data Qualified in this SDG.

MCAS El Toro, CTO 24
Volatiles – Data Qualification Summary – SDG 03-E172

Continuing calibration qualifications

Sample	Compound	Qualification	Protocol / Advisory
818655-3359	2-Chloroethylvinylether	UJ	Protocol
818655-3360	2-Chloroethylvinylether	UJ	Protocol
818655-3361	2-Chloroethylvinylether	UJ	Protocol
818655-3362	2-Chloroethylvinylether	UJ	Protocol
818655-3363	2-Chloroethylvinylether	UJ	Protocol
818655-3364	2-Chloroethylvinylether	UJ	Protocol
818655-3365	2-Chloroethylvinylether	UJ	Protocol
818655-3367	2-Chloroethylvinylether	UJ	Protocol
818655-3368	2-Chloroethylvinylether	UJ	Protocol
818655-3369	2-Chloroethylvinylether	UJ	Protocol
818655-3370	2-Chloroethylvinylether	UJ	Protocol
818655-3371	2-Chloroethylvinylether	UJ	Protocol
818655-3372	2-Chloroethylvinylether	UJ	Protocol
818655-3373	2-Chloroethylvinylether	UJ	Protocol
818655-3374	2-Chloroethylvinylether	UJ	Protocol
818655-3375	2-Chloroethylvinylether	UJ	Protocol
818655-3376	2-Chloroethylvinylether	UJ	Protocol
818655-3377	2-Chloroethylvinylether	UJ	Protocol
818655-3378	2-Chloroethylvinylether	UJ	Protocol
818655-3379	2-Chloroethylvinylether	UJ	Protocol
818655-3380	2-Chloroethylvinylether	UJ	Protocol
818655-3381	2-Chloroethylvinylether	UJ	Protocol
818655-3382	2-Chloroethylvinylether	UJ	Protocol

MCAS El Toro, CTO 24
Semivolatiles-SIM – Data Qualification Summary – SDG 03-E172

No Sample Data Qualified in this SDG.

MCAS El Toro, CTO 24
Semivolatiles-SIM – Laboratory Blank Data Qualification Summary – SDG 03-E172

No Sample Data Qualified in this SDG.

MCAS El Toro, CTO 24
Mercury – Data Qualification Summary – SDG 03-E172

No Sample Data Qualified in this SDG.

MCAS El Toro, CTO 24
Mercury – Laboratory Blank Data Qualification Summary – SDG 03-E172

No Sample Data Qualified in this SDG.

MCAS El Toro, CTO 24
Metals – Data Qualification Summary – SDG 03-E172

Analytical Spike qualifications

Sample	Compound	Qualification	Protocol / Advisory
818655-3350	Aluminum	J	Protocol
	Iron	J	Protocol
818655-3352	Aluminum	J	Protocol
	Iron	J	Protocol
818655-3356	Aluminum	J	Protocol
	Iron	J	Protocol
818655-3360	Aluminum	J	Protocol
	Iron	J	Protocol
818655-3380	Aluminum	J	Protocol
	Iron	J	Protocol
818655-3384	Aluminum	J	Protocol
	Iron	J	Protocol
818655-3386	Aluminum	J	Protocol
	Iron	J	Protocol
818655-3387	Aluminum	J	Protocol
	Iron	J	Protocol

OVERALL ASSESSMENT OF DATA

I. Method Compliance and Additional Comments

A. All analyses were conducted within all specifications of the requested methods.

II. Usability

A. Due to continuing calibration problems in the Volatile analyses, the following were qualified as estimated: 2-Chloroethylvinylether for twenty-seven samples.

B. Due to continuing calibration problems in the Semivolatile analyses, the following were qualified as estimated: Bis(2-chloroisopropyl)ether and 4-Nitrophenol for nine samples; 2,4-Dinitrophenol for eight samples.

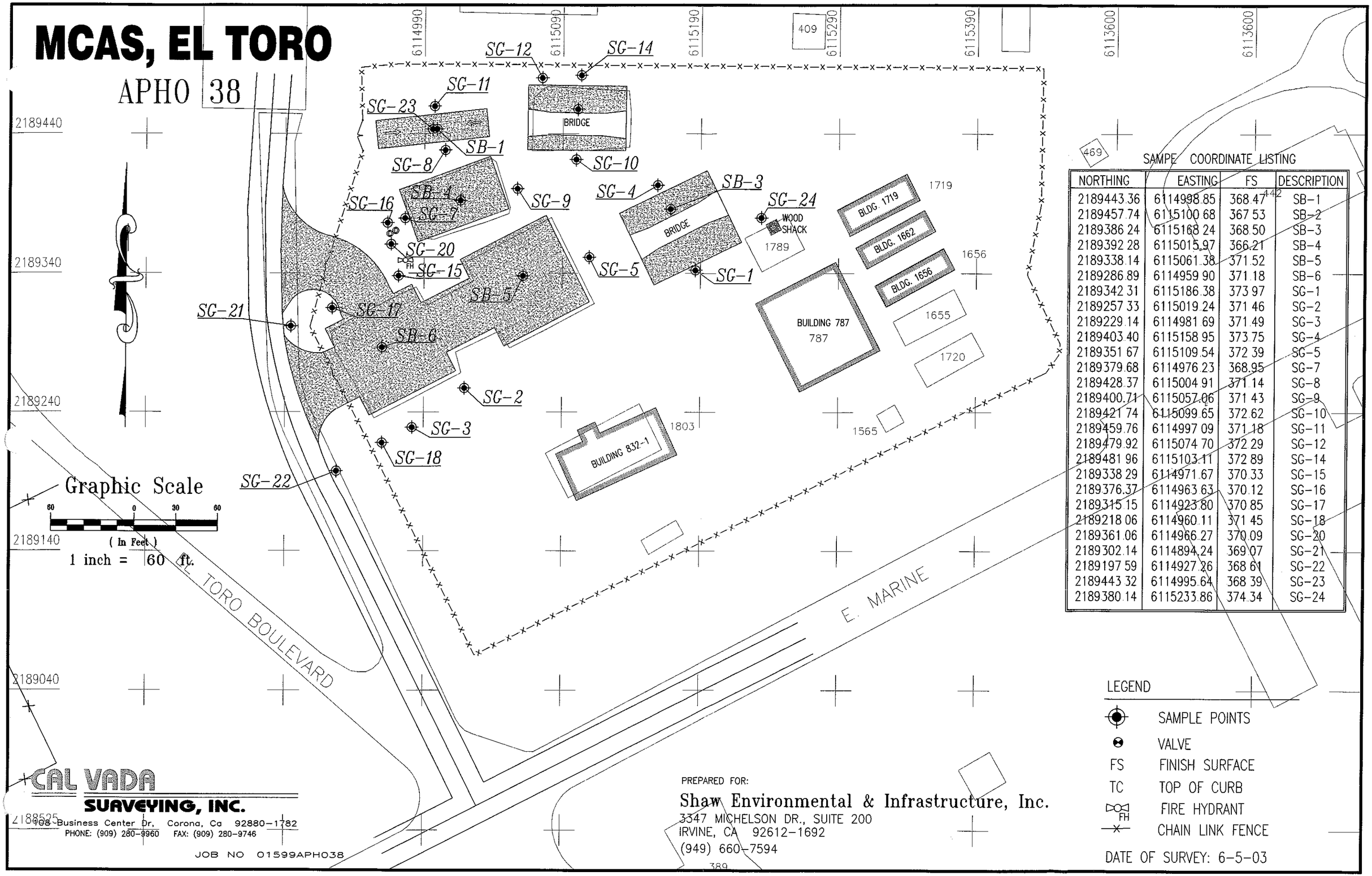
C. Due to calibration and method blank contamination in the Metals analyses, the following were considered nondetected: Selenium for seven samples; Thallium for four samples. Due to analytical spike recovery problems, Aluminum and Iron were qualified as estimated for eight samples. Due to matrix spike and matrix spike duplicate problems, Antimony, Manganese, and Zinc were qualified as estimated for eight samples.

D. The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be rejected (R) are unusable for all purposes. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the cursory and full data validation all other results are considered valid and usable for all purposes. In general, the absence of rejected data and the small number of qualifiers added to the data indicate high usability.

Appendix J
Land Survey Plat

MCAS, EL TORO

APHO 38



SAMPLE COORDINATE LISTING

NORTHING	EASTING	FS	DESCRIPTION
2189443.36	6114998.85	368.47	SB-1
2189457.74	6115100.68	367.53	SB-2
2189386.24	6115168.24	368.50	SB-3
2189392.28	6115015.97	366.21	SB-4
2189338.14	6115061.38	371.52	SB-5
2189286.89	6114959.90	371.18	SB-6
2189342.31	6115186.38	373.97	SG-1
2189257.33	6115019.24	371.46	SG-2
2189229.14	6114981.69	371.49	SG-3
2189403.40	6115158.95	373.75	SG-4
2189351.67	6115109.54	372.39	SG-5
2189379.68	6114976.23	368.95	SG-7
2189428.37	6115004.91	371.14	SG-8
2189400.71	6115057.06	371.43	SG-9
2189421.74	6115099.65	372.62	SG-10
2189459.76	6114997.09	371.18	SG-11
2189479.92	6115074.70	372.29	SG-12
2189481.96	6115103.11	372.89	SG-14
2189338.29	6114971.67	370.33	SG-15
2189376.37	6114963.63	370.12	SG-16
2189315.15	6114923.80	370.85	SG-17
2189218.06	6114960.11	371.45	SG-18
2189361.06	6114966.27	370.09	SG-20
2189302.14	6114894.24	369.07	SG-21
2189197.59	6114927.26	368.61	SG-22
2189443.32	6114995.64	368.39	SG-23
2189380.14	6115233.86	374.34	SG-24