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# **West Alton Parcel Soil and Soil Gas Assessment Report**

**Former Marine Corps Air Station El Toro  
Irvine, California**

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## EXECUTIVE SUMMARY

The *West Alton Parcel (WAP) Soil and Soil Gas Assessment Report* (Report) presents the results of soil and soil gas sampling and analyses conducted in the WAP (the Site) of the Former Marine Corps Air Station (MCAS) El Toro, in Irvine, California (see Figure 1-1). The objective of the work activities described herein was to perform a screening-level assessment of potential impacts to soil and/or soil gas that may exist at the Site due to known environmental conditions: (1) former agricultural use of the Site, (2) proximity of a volatile organic compound (VOC) plume (primarily trichloroethylene, TCE) in groundwater near the easternmost point of the Site, and (3), potential sources of methane that may exist at the Site (naturally-occurring onsite sources or the offsite Magazine Road Landfill). This screening-level assessment was initiated by Lowe Enterprises Real Estate Group (Lowe Enterprises) and the County of Orange (the County) as part of overall environmental due diligence in advance of, and to support the Environmental Impact Report (EIR).

In order to assess potential impacts to the Site that may exist from its former agricultural use, soil sampling and analyses were performed in general accordance with the *Interim Guidance for Sampling Agricultural Properties (Third Revision)* [DTSC, 2008] as described below. To assess potential impacts to soil gas beneath the Site that may exist due to off-gassing of the groundwater VOC plume located immediately adjacent to the easternmost point of the Site, or from sources of methane, soil gas probes were installed and sampled in accordance with the *Advisory Active Soil Gas Investigations* [DTSC *et al.*, 2012] as described below.

A total of 44 discrete soil samples were collected from locations in the northern and southern areas of the Site (see Figure 3-1) at depths of approximately 12 to 18 inches below ground surface (bgs). Eleven (11) composite samples were prepared by the laboratory and analyzed for organochlorine pesticides (OCPs) by EPA Method 8081A. One discrete sample from each composite area was analyzed for arsenic by EPA method 6010B ICP. In addition, nine (9) soil gas probes with two completion depths (generally 5 and 15 feet bgs) were installed (see Figure 3-2) and analyzed for VOCs (EPA Method 8260B) and for methane (ASTM D1946).

As shown in Table 4-1, only one OCP (4,4'-DDE) was detected in a single composite sample (WAP-composite-11), at a concentration 200 times lower than the United States Environmental Protection Agency (USEPA) Regional Screening Level (RSL) for residential receptors. Measured concentrations of arsenic were well below 12 mg/kg

(see Table 4-2) with the highest measured concentration being 4.90 mg/kg. According to the guidance document, if measured concentrations of each discrete sample analyzed for arsenic are less than 12 mg/kg, arsenic is not a chemical of potential concern (COPC) for the Site [DTSC, 2008].

Only a single VOC compound, tetrachloroethylene (PCE), was detected in four of nine sampling locations in the Site at concentrations below residential screening levels. Soil gas analytical results are presented in Tables 4-3 and 4-4 along with residential and commercial/industrial or other appropriate screening levels for soil gas. There were no detections of methane in soil gas samples collected from the Site. Because the groundwater plume is primarily composed of TCE and there were no detections of TCE above laboratory reporting limits in soil gas, and because PCE was only detected in the southern area of the Site while both the southern and northern areas are equal distance from the groundwater plume, the low concentrations of PCE detected in soil gas is most likely not related to the groundwater plume and may result from construction activities or ongoing industrial/storage activities at the adjacent facilities.

Based on the results presented in this Report the following conclusions are drawn:

1. The detection of a single OCP in one composite soil sample and relatively low concentrations of arsenic detected in soil samples were at concentrations below the risk-based screening level and below concentrations which are considered background, respectively. Therefore soil impacts are not expected to have an impact on development plans for the parcel:
  - a. Only a single OCP (4,4'-DDE) was detected in a single composite sample at a concentration 200 times below the USEPA residential RSL, a level that is considered protective of human health and satisfactory to regulatory oversight agencies. Therefore, OCPs do not pose a significant risk to future residential receptors.
  - b. Based on measured concentrations of arsenic at the Site, arsenic is not a chemical of potential concern (COPC) for the site [DTSC, 2008].
2. The detection of a single VOC in soil gas samples were at concentrations below risk-based screening levels, which are generally considered protective of human health and satisfactory to regulatory oversight agencies, and are not expected to have an impact on the development plans for the parcel:

- a. Only a single VOC was detected (PCE) at concentrations below residential screening levels.
  - b. PCE detections are likely not related to the groundwater plume and the implemented groundwater remedy is expected to reduce existing VOC concentrations in groundwater in the future, further reducing the threat of contaminant off-gassing, migration in soil gas, and vapor intrusion potential.
3. There were no detections of methane in soil gas samples collected from the Site.

## **1. INTRODUCTION**

### **1.1 Purpose and Objectives**

The *West Alton Parcel (WAP) Soil and Soil Gas Assessment Report* (Report) presents the results of soil and soil gas sampling and analyses conducted in the WAP (the Site) of the Former Marine Corps Air Station (MCAS) El Toro, in Irvine, California (see Figure 1-1). The assessment of soil and soil gas beneath the Site was performed by Geosyntec Consultants, Inc. (Geosyntec) at the direction of Lowe Enterprises Real Estate Group (Lowe Enterprises) on behalf of the County of Orange (the County) as part of environmental due diligence in support of the development of the Site. This Report was prepared by the staff of Geosyntec under the direction of Matt Thomas, Ph.D., and reviewed by Mr. Eric Smalstig, P.E., in accordance with Geosyntec's peer review policies.

The objective of the work activities described herein was to perform a screening-level assessment of potential impacts to soil and/or soil gas that may exist at the Site due to known environmental conditions: (1) former agricultural use of the Site, (2) proximity of a volatile organic compound (VOC) plume in groundwater near the easternmost point of the Site, and (3), potential sources of methane that may exist (naturally-occurring onsite sources or the offsite Magazine Road Landfill).

### **1.2 Regulatory Context**

Lowe Enterprises, in partnership with the County plans to develop the Site located on the east end of former MCAS El Toro. An Environmental Impact Report (EIR) for the Site is currently under development. It is anticipated that regulatory stakeholders will be identified during the EIR process. While currently there is no regulatory requirement to perform the soil and soil gas assessment presented in this Report, this screening-level assessment was initiated by Lowe Enterprises and the County as part of overall environmental due diligence in advance of, and to support the EIR. The results of this report will be incorporated into the EIR.

### **1.3 Geosyntec Approach**

Lowe Enterprises has retained Geosyntec as its consultant for environmental due diligence for the redevelopment project. Documented historical uses of the Site are primarily agriculture-related. In order to assess potential impacts to the Site that may exist from this former use, soil sampling and analyses were performed in general accordance with the *Interim Guidance for Sampling Agricultural Properties (Third Revision)* [DTSC, 2008] as detailed in the sections that follow.

Based on previous reviews of documents related to locations of concern (LOCs) at former MCAS El Toro that Geosyntec has performed for the County in 2011, 2014, and 2015, there is a VOC plume in groundwater (primarily trichloroethylene, TCE) that is immediately adjacent to the easternmost point of the Site and is oriented in a northeast by southwest direction. In addition, there may be naturally-occurring onsite sources of methane or the offsite Magazine Road Landfill may be a source of methane at the Site. The VOC groundwater plume is associated with Installation Restoration Program (IRP) Site 2, the Magazine Road Landfill. To assess potential impacts to soil gas beneath the Site that may exist due to off-gassing of VOCs from the plume and from potential sources of methane, soil gas probes were installed and sampled in accordance with the *Advisory Active Soil Gas Investigations* [DTSC *et al.*, 2012] as detailed in the sections that follow.

Consistent with applicable professional standards of care, our opinions are based, in part, on data furnished by others as noted in this Report where applicable, and Geosyntec is not able to independently verify data provided by others.

#### **1.4 Report Organization**

The remainder of this Report for the Site is organized into the following sections:

- Section 2, Background, provides details on the site setting and description, soil lithology, the Magazine Road Landfill (IRP Site 2), potential methane sources, and historical and current Site uses;
- Section 3, Field Activities, describes the sampling and analysis methodologies and field activities for the soil and soil gas assessment; and
- Section 4, Results and Conclusions, summarizes the data collected during the assessment including soil lithology and soil and soil gas analytical results, and conclusions that may be drawn from the results.

References, tables, figures, and appendices are included after the text of this Report.

## **2. BACKGROUND**

### **2.1 Site Setting and Description**

The Site covers approximately 31 acres within the northeast quarter of former Marine Corps Air Station (MCAS) El Toro in the City of Irvine, California (Figure 1-1). The Site is situated just to the south of the foothills of the Santa Ana Mountains in Orange County. The Site is roughly triangular in shape and is bordered by Irvine Boulevard to the west, an industrial park, water treatment facility, recreational vehicle (RV) storage facility, and the Borrego Canyon Wash to the south and southeast, and undeveloped federal land owned by the Federal Bureau of Investigation (FBI) to the north and northeast.

The ground surface slopes gently from the east to west at the Site with elevation ranging from approximately 475 feet above mean sea level (msl) near its eastern end to approximately 430 feet above msl near its western end. The majority of the Site is unpaved with the exception of Magazine Road which traverses the Site from east to west and, along with the adjacent wildlife corridor, divides the Site in to a northern and southern area.

Irvine has an arid climate with an average annual rainfall of 14.42 inches per year and an average temperature of 63.5 degrees Fahrenheit [U.S. Climate Data, 2015]. Precipitation occurs seasonally, as the region experiences intermittent winter storms generally from the months of November through March. Rainwater runoff at the Site collects in catch basins and flows into the flood control drainage system, which discharges to Borrego Canyon Wash or the Agua Chinon Wash, southeast and northwest of the Site, respectively.

### **2.2 Soil Lithology**

Shallow native subsurface soils beneath the Site consist of alluvial deposits originating from the Santa Ana Mountains to the north overlying sandstone from the Topanga and Vaqueros Formations. The alluvial deposits consist primarily of fine- to medium grained sands, sands with silt, silty sands, and sandy silts. First encountered groundwater generally flows within these alluvial sediments. Depth to groundwater at the Site is approximately 60 feet bgs [CE2 – Kleinfelder JV, 2014].

### **2.3 Magazine Road Landfill (IRP Site 2)**

Located approximately one quarter mile to the northeast of the Site and upstream along the Borrego Canyon Wash is IRP Site 2, the Magazine Road Landfill. Associated with operations at former MCAS El Toro, the landfill was operational from the late 1950s to approximately 1980 and received solid waste primarily from MCAS El Toro. Under the Installation Restoration Program (IRP), the Navy's program to clean up sites regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA), the Navy consolidated waste, constructed an evapotranspirative cap over the landfill, installed erosion control features, and imposed land use restrictions (including a 1000-foot buffer zone) and access controls in 2008 [ERRG, 2009; Earth Tech AECOM, 2009]. Operations and maintenance data, presented in the Final 2012 Annual Operations and Maintenance and Long-Term Monitoring Report (January 2012 - December 2012) for IRP Sites 2 (dated December 2013), indicates that the remedy at IRP Site 2 continues to be protective of human health and the environment [CE2-Kleinfelder JV, 2013].

Groundwater to the south of IRP Site 2 is impacted by VOCs (mostly TCE) with an apparent source being a former unauthorized disposal area adjacent to the original solid waste landfill, which was consolidated into the main operational landfill as part of the Navy's landfill remedy. The TCE plume is oriented in a northeast by southwest direction with the edge of the plume just touching the easternmost edge of the Site (see Figure 3-2). The Final Groundwater Record of Decision (ROD) for IRP Site 2 (January 2012) identified the selected remedy for TCE impacts to groundwater as monitored natural attenuation (MNA) and in situ bioremediation (ISB). Remedial Action construction began in March 2014 and was completed in July 2014 with baseline groundwater sampling. The remedy is currently in the process of semi-annual monitoring to evaluate its effectiveness, with the remedial goal being to meet California Maximum Contaminant Levels (MCLs). The remedy is expected to continue to reduce the concentrations of TCE (and other VOCs) in groundwater to acceptable levels.

The main concern for redevelopment of the Site with respect to the VOC plume in groundwater is that VOCs might off-gas from the groundwater plume, migrate in the subsurface (i.e., in soil gas) beneath the Site, and create the potential for vapor intrusion and impacts to indoor air within constructed structures.

### **2.4 Potential Methane Sources**

The potential for naturally-occurring onsite methane sources and/or methane impacts due to the offsite Magazine Road Landfill at the Site was evaluated. There are no known naturally-occurring methane sources at the Site. However, under certain

conditions biological degradation of wastes within landfills can produce methane gas. Generally, fresh wastes produce the most methane with methane production decreasing predictably with time. Due to the age of operation of the Magazine Road Landfill, significant methane production is not expected. Methane was not detected in the most recent sampling of soil gas at the perimeter of the Magazine Road Landfill performed as part of operation and maintenance and long-term monitoring of IRP 2 [CE2-Kleinfelder Joint Venture, 2015].

## **2.5 Historical and Current Site Uses**

The Site sits within the border, near the eastern extent, of former MCAS El Toro and was used as agricultural land from at least as early as 1994 (earliest aerial photograph available), until approximately 2008. The land appears to have remained fallow between 2009 and 2011. Between 2011 and 2013, the east/west oriented Magazine Road and adjacent wildlife corridor were constructed, dividing the Site into a northern and southern area. The remainder of the Site was graded to a gentle slope (approximately 1.5%) to allow for drainage. The northern area of the Site was leased by the County to R&S Soils between 2011 and 2013, who began composting operations in the central portion of this northern area. By 2014 R&S Soils expanded their operations to the east and west in the northern area. In 2015, R&S Soils has sublet the westernmost portion of the northern area to a nursery and the southern area for equipment storage. A small portion on the easternmost end of the Site (approximately 2.4 acres) is held by the Navy in a Lease in Furtherance of Conveyance (LIFOC). This area is referred to as “the LIFOC area” of the Site.

The main concern for development of the Site with respect to its former agricultural use is that there may be residual pesticides and/or pesticide-related compounds (particularly organochlorine pesticides as they are the most persistent) and/or arsenic compounds associated with herbicides [DTSC, 2008].

### **3. SOIL AND SOIL GAS ASSESSMENT FIELD ACTIVITIES**

#### **3.1 Sampling and Analytical Program Overview**

Geosyntec conducted a voluntary screening-level soil and soil gas assessment as part of overall environmental due diligence for development of the Site intended to assess potential impacts to soil and/or soil gas that may exist at the Site due to known environmental conditions: (1) former agricultural use of the Site, (2) proximity of a VOC plume in groundwater near the easternmost point of the Site, associated with the Magazine Road Landfill (IRP Site 2) and (3), potential sources of methane that may exist (naturally-occurring onsite sources or the offsite Magazine Road Landfill). A total of 44 discrete soil samples were collected from locations in the northern and southern areas of the Site (see Figure 3-1) at depths of approximately 12 to 18 inches below existing ground surface (bgs). Eleven (11) composite samples were prepared by the laboratory and analyzed for organochlorine pesticides (OCPs) by EPA Method 8081A. One discrete sample from each composite area was analyzed for arsenic by EPA method 6010B ICP (see Table 3-1 for soil samples and requested analyses). In addition, nine (9) soil gas probes with two completion depths (generally targeting 5 and 15 feet bgs) were installed (see Figure 3-2) and analyzed for VOCs (EPA Method 8260B) and methane (ASTM D1946).

#### **3.2 Methodology for Selection of Sampling Locations**

The LIFO area of the Site is held by the Navy and consequently is inaccessible for environmental testing (see Figures 3-1 and 3-2). Soil sampling was conducted in general accordance with the *Interim Guidance for Sampling Agricultural Properties (Third Revision)* [DTSC, 2008] (the guidance document). Based on the size of the area of the Site excluding the wildlife corridor (~31 acres) and Table 1 of the guidance document, the recommended number of discrete soil samples to be collected was 41, with 11 composite samples to be prepared from the discrete samples. In order to have the same number of discrete soil samples for each composite sample (i.e., 4 discrete samples per composite sample), a total of 44 samples were collected. Individual soil sampling locations were randomly chosen in non-LIFO areas in a pattern sufficient to characterize the Site (see Figure 3-1).

To assess potential VOC and methane impacts to soil gas at the Site, soil gas sampling locations were chosen in non-LIFO areas along the borders of the northern and southern areas of the Site within a radius of approximately 1000 feet from the edge of the documented TCE groundwater plume [AECOM-Envirocon JV, 2014], at a spacing of approximately 200 feet (see Figure 3-2). Depth to groundwater on the eastern end of

the Site is approximately 60 feet bgs [CE2 – Kleinfelder JV, 2014]. Probes were targeted for depths of 5 feet and 15 feet bgs.

### **3.3 Field Work Preparation**

A Site-specific Health and Safety Plan (HASP) for the proposed work tasks was prepared in compliance with California Occupational Safety and Health Agency (CalOSHA), Health and Safety Code, Title 8, California Code of Regulations (CCR), Section 5192 and other appropriate sections. The HASP evaluated potential health and safety issues and provided methods for mitigating hazards. A copy of the HASP was maintained at the Site during field activities.

Prior to commencing field work, Geosyntec worked cooperatively with County of Orange (owner) and R&S Soils (tenant) representatives to arrange access to the Site. A portable global positioning system (GPS) unit was first utilized to identify a total of ten (10) proposed boring locations for installation of soil gas probes, five (5) probes north of the wildlife corridor and five (5) probes south of the wildlife corridor. Upon meeting at the Site, representatives from R&S Soils informed Geosyntec that a portion in the northeast corner of the Site, north of the wildlife corridor, had been cordoned off by an unknown agency [R&S Soils, 2015] due to nesting hawks (apparently under the Migratory Bird Treaty Act), and was inaccessible (see Figure 3-2). As a result, two proposed probe locations were moved outside of the cordoned-off area and one proposed location was abandoned, leaving four (4) proposed probe locations north of the wildlife corridor. Each of the nine (9) remaining boring locations (4 north and 5 south of the wildlife corridor) were marked with white staking. Given the nature of the Site and the potential for encountering underground utilities/infrastructure, a geophysical subsurface utility locating company, Goldak, Inc., was retained to identify and mark utilities and anomalies in proximity to boring locations. Some of the proposed probe locations were moved slightly based on the geophysical investigation. After final marking of boring locations, Underground Service Alert (USA) of southern California was notified at least 48 hours prior to the commencement of intrusive work, to mark and clear utilities in the investigation areas and to reduce the potential for accidentally encountering buried utility lines (USA ticket numbers A51611059 and A51611087). There was no concrete or asphalt at the nine (9) boring locations, so coring was not required.

## **3.4 Soil Sampling**

### **3.4.1 General**

Soil sampling locations were identified in the field during collection. Individual soil sampling locations were randomly chosen in a pattern sufficient to characterize the Site. A GPS unit was used to log the location of each sampling point so they can be located again in the future. The number of samples to be collected and the analyses to be performed were prescribed in the guidance document [DTSC, 2008]. The naming convention for the soil sample locations was as follows: the first three letters before the first dash (i.e., WAP) designate the Site (i.e., the West Alton Parcel). The next four letters (i.e., soil) designates the soil media. The digits after the last dash are sequential numbering in the order the samples were collected (e.g., WAP-soil-7 is the seventh soil sample collected during this sampling event from the WAP).

### **3.4.2 Sample Collection**

Soil samples were collected from 44 sample locations identified in Figure 3-1. In order to sample the former agricultural soils and avoid soils that have been placed on the surface as a result of R&S Soils' operations, soil samples were collected by advancing a hand auger to a depth where there were no visible changes in soil types indicating the soils had not been recently graded (approximately 12 to 18 inches bgs). At the minimum depth that field personnel judged no further visible changes in soil types, the hand auger was advanced an additional approximately six inches and soil was transferred directly to a laboratory-prepared 8 oz. glass sample jar using disposable sampling equipment in order to avoid contamination of samples. A total of 44 primary discrete soil samples were collected and five (5) duplicate discrete soil samples (i.e., >10% of primary samples) were collected from five (5) sampling locations chosen at random. Per agreement with Lowe Enterprises and the County, excavated soil was returned to the augered hole and compacted.

The hand auger was washed between borings by spraying, first with distilled water to remove loose soils, followed by a solution of Liquinox and distilled water, then further with distilled water, followed by air drying.

### **3.4.3 Laboratory Analyses**

Soil samples to be analyzed in the fixed laboratory were collected in 8-oz. glass jars sealed with Teflon®-lined plastic caps. Composite samples were prepared by the laboratory by mixing equal weights of each of four adjacently-collected discrete soil samples. Composite samples were named WAP-composite-1 through WAP-composite-

11. Two duplicate composite samples were prepared independently by the laboratory for analysis (i.e., >10%). Per the guidance document, the 11 composite samples and two (2) duplicates were analyzed by EPA Method 8081A for 20 different organochlorine pesticides (OCPs). Also per the guidance document, 11 discrete samples (one from each composite area) and three (3) duplicate samples were analyzed for arsenic by EPA Method 6010B ICP. Each individual soil sample was labeled with a unique identifier as described above, logged on laboratory chain of custody forms, secured in an ice-filled cooler, and transported to Eurofins Calscience Laboratories in Garden Grove, California, a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory for analyses.

#### **3.4.4 Quality Assurance/Quality Control**

Quality assurance and quality control (QA/QC) was implemented during field activities. A total of 49 discrete soil samples were collected as part of this investigation (44 primary samples and five duplicate samples). Two duplicate composite samples were prepared independently by the laboratory. Trip blanks were not included with the samples because the soil constituents being analyzed were non-volatile.

### **3.5 Soil Gas Sampling**

#### **3.5.1 General**

BC2 was retained to advance soil borings at 9 locations designated SV-22 through SV-30 and to install temporary soil gas probes at target depths of 5 and 15 feet bgs as shown on Figure 3-2. Subsequently, Jones Environmental, a mobile environmental laboratory, was retained to sample and analyze soil gas samples from the probes. The naming convention for soil gas sample locations is as follows: the first two letters (i.e., SV) designate soil vapor media (i.e., soil gas) locations. The second two digits correspond to sequentially numbered locations 22 through 30 (e.g., SV-22). Individual soil gas sample identifiers consist of this name appended with the approximate depth of the sample in feet bgs (e.g., “-5” for 5 feet bgs). The rationale for selection of the proposed soil gas sampling locations and target depths was provided in Section 3.2.

#### **3.5.2 Installation of Temporary Soil Gas Probes**

The first 5 feet of each boring were completed by hand auger to reduce the potential for impairing unidentified underground utilities or pipes. Obstructions were encountered during hand augering in several borings so the boring locations were shifted slightly and the first 5 feet were completed by hand-auger again. This process was repeated until a depth of 5 feet was reached. Once hand augering was completed, soil borings were

advanced using a direct push drill rig to the target boring depth and a continuous soil core was collected using a 4-foot sampler lined with acetate sleeves. Borings were logged for geologic lithology in accordance with the Unified Soil Classification System (USCS). Boring logs are included in Appendix A. A portable GPS unit was used to log the final location of each soil gas probe.

While target depths of 5 and 15 feet bgs had been selected, the final probe depths were determined in the field based on lithologies encountered at each location (i.e., probe depths were modified to avoid significantly fine-grained material which may limit desired gas sampling flow rates). A few soil gas probes were set at depths other than the target depths of 5 and 15 feet due to observed lithologies (see Appendix A). For final probe depths see also Tables 4-3 and 4-4. Once the borings were advanced, nested temporary soil gas probes were constructed in the borehole with installation methods and materials performed in general accordance with the methods presented in the April 2012 *Advisory Active Soil Vapor Investigations* [DTSC *et al.*, 2012].

The temporary soil gas probes consist of a prefabricated 6-inch long by approximately ½-inch diameter stainless steel tip attached to approximately 7- or 17-foot lengths (depending on the depth of the completion) of ¼-inch inner diameter Teflon® tubing. The probes were placed within the boring at the target depth within an approximately 1-foot thick sand pack. Approximately 1 foot of dry granular bentonite was then placed above the sand pack, followed by hydrated bentonite pellets up to the depth of the next shallower completion (if one exists) and then the process was repeated until the ground surface was reached. The end of each probe was fitted with a gas-tight valve and marked to designate the probe identification and depth. Probes were completed with an 8-inch diameter flush mount well box. Figure 3-3 shows how the typical single and nested temporary soil gas probes were constructed. Figure 3-4 shows a schematic of target probe depths and the range of actual depths of installed probes as they were adjusted for subsurface conditions.

### **3.5.3 Purging, Sampling, and Analysis of Temporary Soil Gas Probes**

Soil gas purging, sampling, leak testing, and analysis was performed by Jones Environmental consistent with the methods described in the *Advisory Active Soil Vapor Investigations* [DTSC *et al.*, 2012]. Sampling was scheduled so that it occurred a minimum of 48 hours following the installation of temporary soil gas probes where soils had been excavated by hand auger (i.e., the 5 foot bgs probes) to allow subsurface conditions to equilibrate. Each of the other probes were sampled a minimum of 24 hours following installation.

A step purge volume versus contaminant concentration test was conducted at two soil gas sampling locations/depths that were part of the contemporaneous sampling performed by Geosyntec at another County parcel at former MCAS El Toro [Geosyntec, 2015] that were selected as representative of the different soil types observed at the Site. For each purge volume test, a sample was collected after removal of one, three, and ten purge volumes of gas to select the soil-type-specific purge volumes for this sampling event. Per the guidance document, because VOCs were not detected in the samples collected for purge tests, the default of three (3) purge volumes was used for collection of samples. Once VOCs were detected, step purge volume tests were performed at two additional locations/depths. The selected purge volume for these tests (10) were different than the default value of three (3). Per the guidance document, ten purge volumes were used to collect samples at subsequent locations and 10 percent of samples were resampled and reanalyzed for comparison to results obtained using three purge volumes [Geosyntec, 2015].

The soil gas probes were purged and sampled by applying a vacuum to the probe using a pump and analyzed by Jones Environmental, a NELAP and State-certified mobile/fixed-based laboratory, for VOCs (EPA Method 8260B) and methane (ASTM D1946) under chain-of-custody protocol. Purging during the step purge test was conducted at approximately the same rate that soil gas was sampled, between 200 to 2000 milliliters per minute (ml/min) [DTSC *et al.*, 2012]. A total of 20 soil gas samples (i.e., 18 samples, one sample per location/depth, and two duplicates, approximately 10%) were collected with a gas-tight syringe from the Site on June 23<sup>rd</sup>, 2015, and analyzed for VOCs by the mobile laboratory. Subsequently, a total of 18 soil gas samples (i.e., 16 primary samples, one sample per location/depth, and two duplicates, approximately 10%) were collected in Tedlar<sup>®</sup> bags from the Site on October 1<sup>st</sup>, 2015, and analyzed for methane by the fixed-based laboratory. Between June and October, 2015, the Site lessee's operations in the southern area of the Site caused probe SV-26 to become inaccessible. The probe's surface completion had been covered with compacted soil so that it was obscured, a shipping container had been placed on top or near it, and a fence had been built around it in such way as the shipping container could not be moved without dismantling the fence. A handheld global positioning system (GPS) device was used to attempt to locate the probe, but in the vicinity of the shipping container, it could not provide accurate locations. Consequently, samples could not be collected from SV-26 on October 1<sup>st</sup>, 2015. Target analyte reporting limits were low enough to allow comparison of analytical results to risk-based or other appropriate screening levels for Site-related compounds.

A tracer gas mixture of n-propanol and n-pentane was placed at the tubing/ground surface interface before sample collection. These compounds were analyzed during the

8260B analytical run to evaluate whether surface leaks into the subsurface are compromising the sample. N-propanol or n-pentane were not detected in any of the samples.

### **3.5.4 Quality Assurance/Quality Control**

Quality assurance and quality control (QA/QC) was implemented during field activities. Duplicate soil gas samples were collected and analyzed by the mobile/fixed-based laboratory at a minimum of 10% of the total number of discrete samples.

### **3.6 Investigation-Derived Waste**

The investigation derived waste (IDW) soil generated during the soil boring advancement, and water generated during the soil sampling was containerized (e.g., Department of Transportation approved 30-gallon or 55-gallon drums), sealed, properly labeled, and is temporarily stored at the Site. The containerized IDW will be managed and/or disposed of pursuant to County guidance, per applicable procedures and protocols. IDW generated during gas probe installation and sampling, and decontamination of the drilling equipment was managed by BC2.

### **3.7 Deviations from Guidance Documents**

The guidance document for sampling of agricultural soils [DTSC, 2008] is intended for Preliminary Endangerment Assessments (PEAs) and states that it is applicable to former agricultural land that has not been graded in preparation for construction. While the Site has been graded minimally (i.e., to flatten raised rows present during agricultural use), it has not been prepared for construction (e.g., over-excavated and compacted) and there has not been imported fill soil placed. Thus, even though the guidance is intended for ungraded sites, the guidance document was used as a basis for this voluntary screening-level assessment with the following modification: Soil samples were collected by hand augering to a depth of 12 to 18 inches rather than the 0 to 6 inches prescribed in the guidance, in order to sample soils that were representative of former agricultural use.

Deviations from the methodologies in the soil gas guidance document [DTSC *et al.*, 2012] were not necessary.

## **4. RESULTS AND CONCLUSIONS**

### **4.1 Introduction**

The data collected during this assessment are intended to provide the information necessary to assess whether there are significant impacts to the Site resulting from: (1) historical agricultural use, (2) the exiting TCE plume in groundwater associated with IRP Site 2, and (3) potential sources of methane that may exist (naturally-occurring onsite sources or proximal the offsite Magazine Road Landfill). Laboratory reporting limits were lower than appropriate screening levels for each analyte.

### **4.2 Soil Lithology**

As noted in the boring logs in Appendix A, the lithology observed in borings during this assessment generally consisted of mostly dry sandy silts, silty sands, poorly graded medium sands, and well graded fine to coarse sands with some gravel from ground surface to approximately 15 feet bgs. This is consistent with the alluvial deposits documented to exist in this area of Orange County.

### **4.3 Soil Analytical Results**

#### **4.3.1 General**

The rationale for selection of the soil sampling locations, depths, and analyses is provided in Sections 3.2 and 3.4. The following sampling and analyses were performed: 44 primary discrete soil samples and five (5) duplicate discrete soil samples were collected. Eleven composite samples and two duplicate composite samples were prepared by the laboratory and analyzed for OCPs by EPA Method 8081A (see Figure 4-1). Eleven discrete samples and three duplicate discrete samples were analyzed for arsenic by EPA method 6010B ICP. Soil laboratory analytical reports are provided in Appendix B. The following sections present the results of the analyses.

#### **4.3.2 Organochlorine Pesticides (OCPs)**

The soil OCP analytical results are presented in Table 4-1 along with residential United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSLs) [USEPA, 2015] for comparison. Per the guidance document, the 11 composite samples and two (2) duplicates were analyzed by EPA Method 8081A for 20 different organochlorine pesticides (OCPs). As shown in Table 4-1, only one OCP (4,4'-DDE) was detected in a single composite sample (WAP-composite-11), at a concentration 200 times lower than the residential RSL. Per the guidance document [DTSC, 2008], based

on the concentration detected, discrete samples making up the composite did not require separate (i.e., individual) analysis of the discrete samples as the maximum potential concentration of one of the discrete samples would have been 4 times the concentration of the composite sample (i.e., 40 ug/kg), which is still 50 times below the USEPA residential RSL.

### **4.3.3 Arsenic**

The soil arsenic analytical results are presented in Table 4-2. USEPA RSLs for arsenic are not shown in the table as they are not generally applicable to soils in Southern California. A regionally applicable screening level for arsenic of 12 mg/kg was established in the guidance document [DTSC, 2008]. Per the guidance document, 11 discrete samples (one from each composite area) and three (3) duplicate samples were analyzed for arsenic by EPA Method 6010B ICP. According to the guidance document, if measured concentrations of each discrete sample analyzed for arsenic are less than 12 mg/kg, arsenic is not a chemical of potential concern (COPC) for the Site [DTSC, 2008]. Measured concentrations of arsenic were well below 12 mg/kg (see Table 4-2) with the highest measured concentration being 4.90 mg/kg.

## **4.4 Soil Gas Analytical Results**

### **4.4.1 General**

The rationale for selection of the soil gas sampling locations, final depths, and analysis is provided in Sections 3.2 and 3.5. A total of 20 soil gas samples (i.e., 18 samples, one sample per location/depth and two duplicates, approximately 10%) were collected and analyzed by the mobile laboratory for VOCs (EPA method 8260B). A total of 18 soil gas samples (i.e., 16 primary samples, one sample per location/depth, and two duplicates, approximately 10%) were collected from the Site analyzed for methane by the fixed-based laboratory. Soil gas VOC analytical laboratory reports are provided in Appendix C and soil gas methane analytical laboratory reports are provided in Appendix D.

### **4.4.2 Tetrachloroethylene (PCE)**

Only a single VOC compound (PCE) was detected in soil gas collected from the Site. Soil gas analytical results are presented in Table 4-3 and Figure 4-2 along with Residential and Commercial/Industrial screening levels for soil gas. These screening levels were calculated by dividing the California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) “Note 3” screening levels for ambient air [DTSC, 2015] by the appropriate attenuation factors for future

residential development (0.001 [DTSC, 2011]) or future commercial development (0.0005 [DTSC, 2011]), respectively.

Low concentrations of PCE (i.e., below the residential screening levels) were detected in soil gas in locations within the southern area of the Site and nearest the water treatment facility and RV storage facility (SV-27 through SV-30). Because the groundwater plume is primarily composed of TCE and there were no detections of TCE above laboratory reporting limits in soil gas, and because PCE was only detected in the southern area of the Site while both the southern and northern areas are equal distance from the groundwater plume, the low concentrations of PCE detected in soil gas is likely not related to the groundwater plume and may result from construction activities or ongoing industrial/storage activities at the adjacent facilities.

#### **4.5 Methane**

There were no detections of methane in soil gas samples collected from the Site (see Table 4-4).

#### **4.6 Conclusions**

The following conclusions may be drawn from the results of the voluntary screening-level soil and soil gas assessments performed by Geosyntec on behalf of Lowe Enterprises and the County for the Site:

1. The detection of a single OCP in one composite soil sample and relatively low concentrations of arsenic detected in soil samples were at concentrations below the risk-based screening level and below concentrations which are considered background, respectively. Therefore soil impacts are not expected to have an impact on development plans for the parcel:
  - a. Only a single OCP (4,4'-DDE) was detected in a single composite sample at a concentration 200 times below the USEPA residential RSL, a level that is considered protective of human health and satisfactory to regulatory oversight agencies. Therefore, OCPs do not pose a significant risk to future residential receptors.
  - b. Based on measured concentrations of arsenic at the Site, arsenic is not a chemical of potential concern (COPC) for the site [DTSC, 2008].
2. The detection of a single VOC in soil gas samples were at concentrations below risk-based screening levels, which are generally considered protective of human

health and satisfactory to regulatory oversight agencies, and are not expected to have an impact on the development plans for the parcel :

- a. Only a single VOC was detected (PCE) at concentrations below residential screening levels.
  - b. PCE detections are likely not related to the groundwater plume and the implemented groundwater remedy is expected to reduce existing VOC concentrations in groundwater in the future, further reducing the threat of contaminant off-gassing, migration in soil gas, and vapor intrusion potential.
3. There were no detections of methane in soil gas samples collected from the Site.

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## **TABLES**

**Table 3-1  
Soil Samples and Requested Analyses  
West Alton Parcel  
Former MCAS El Toro  
Irvine, California  
(June 2015)**

Composite Sample ID	Duplicate (Prepared for QC)	Organochlorine Pesticides (8081A)	Primary Discrete Sample ID	Sampled Date	Duplicate (Collected for QC)	Arsenic (6010B ICP)
WAP-composite-1		X	WAP-soil-1	6/11/2015		
			WAP-soil-2	6/11/2015		
			WAP-soil-15	6/11/2015		
			WAP-soil-16	6/11/2015	X	X
WAP-composite-2		X	WAP-soil-3	6/11/2015		
			WAP-soil-12	6/11/2015		
			WAP-soil-13	6/11/2015		
			WAP-soil-14	6/11/2015	X	X
WAP-composite-3		X	WAP-soil-7	6/11/2015		
			WAP-soil-8	6/11/2015		X
			WAP-soil-9	6/11/2015		
			WAP-soil-11	6/11/2015		
WAP-composite-4	X	X	WAP-soil-4	6/11/2015		
			WAP-soil-5	6/11/2015		X
			WAP-soil-6	6/11/2015		
			WAP-soil-10	6/11/2015		
WAP-composite-5		X	WAP-soil-17	6/18/2015		X
			WAP-soil-18	6/18/2015		
			WAP-soil-19	6/18/2015		
			WAP-soil-22	6/18/2015		
WAP-composite-6		X	WAP-soil-20	6/18/2015		X
			WAP-soil-21	6/18/2015	X	
			WAP-soil-24	6/18/2015		
			WAP-soil-25	6/18/2015		
WAP-composite-7		X	WAP-soil-28	6/18/2015		X
			WAP-soil-29	6/18/2015		
			WAP-soil-32	6/18/2015		
			WAP-soil-33	6/18/2015		

**Table 3-1  
Soil Samples and Requested Analyses  
West Alton Parcel  
Former MCAS El Toro  
Irvine, California  
(June 2015)**

Composite Sample ID	Duplicate (Prepared for QC)	Organochlorine Pesticides (8081A)	Primary Discrete Sample ID	Sampled Date	Duplicate (Collected for QC)	Arsenic (6010B ICP)
WAP-composite-8		X	WAP-soil-23	6/18/2015		X
			WAP-soil-26	6/18/2015		
			WAP-soil-27	6/18/2015		
			WAP-soil-30	6/18/2015	X	
WAP-composite-9	X	X	WAP-soil-34	6/18/2015		X
			WAP-soil-36	6/18/2015		
			WAP-soil-37	6/18/2015		
			WAP-soil-38	6/18/2015		
WAP-composite-10		X	WAP-soil-31	6/18/2015		X
			WAP-soil-35	6/18/2015		
			WAP-soil-43	6/18/2015		
			WAP-soil-44	6/18/2015		
WAP-composite-11		X	WAP-soil-39	6/18/2015	X	X
			WAP-soil-40	6/18/2015		
			WAP-soil-41	6/18/2015		
			WAP-soil-42	6/18/2015		

Definition:

QC - Quality Control

Notes:

1. The laboratory prepared each of 11 composite samples by mixing equal weights of four adjacently-collected primary discrete samples [DTSC, 2008].
2. Composite duplicate samples were prepared independently by the laboratory.
3. Discrete samples were collected from depths of approximately 12 to 18 inches below ground surface.

**Table 4-1**  
**Soil Organochlorine Pesticide Analytical Results**  
**West Alton Parcel**  
**Former MCAS El Toro**  
**Irvine, California**  
**(June 2015)**

Analyte>>	4,4'-DDE
Units>>	ug/kg
<b>Regulatory Threshold</b>	
<b>Residential RSL</b>	<b>2,000</b>
Composite Sample ID	Result
WAP-composite-1	ND<5.0
WAP-composite-2	ND<5.1
WAP-composite-3	ND<5.0
WAP-composite-4	ND<5.0
WAP-composite-4-DUP	ND<5.0
WAP-composite-5	ND<5.0
WAP-composite-6	ND<5.0
WAP-composite-7	ND<5.0
WAP-composite-8	ND<5.0
WAP-composite-9	ND<5.1
WAP-composite-9-DUP	ND<5.0
WAP-composite-10	ND<5.0
WAP-composite-11	<b>10</b>

Definitions:

- 4,4'-DDE - Dichlorodiphenyldichloroethylene
- ug/kg - micrograms per kilogram
- RSL - United States Environmental Protection Agency (USEPA) Regional Screening Level for residential receptors
- WAP - West Alton Parcel
- DUP - Duplicate sample prepared for quality control (QC)
- 10** - Bold type indicates a detection above laboratory reporting limits

Notes:

1. The laboratory prepared each of 11 composite samples by mixing equal weights of four adjacently-collected primary discrete samples [DTSC, 2008].
2. Composite duplicate samples were prepared independently by the laboratory.
3. Each composite sample was analyzed for 20 organochlorine pesticides (OCPs) by USEPA Method 8081A [DTSC, 2008].
4. Only compounds that were detected above laboratory reporting limits are shown in this table.
5. Only one OCP (4,4'-DDE) was detected in a single composite sample (WAP-composite-11), at a concentration 200 times lower than the residential screening level.
6. Individual primary samples did not require analysis (i.e., the maximum possible concentration of any of the primary discrete samples would be 40 ug/kg, which is 50 times below the residential RSL) [DTSC, 2008].

**Table 4-2  
Soil Arsenic Analytical Results  
West Alton Parcel  
Former MCAS El Toro  
Irvine, California  
(June 2015)**

Analyte>>		Arsenic
Units>>		mg/kg
Regulatory Threshold		
Screening Level*		12
Discrete Sample ID	Date Collected	Result
WAP-soil-16	6/11/2015	<b>3.99</b>
WAP-soil-16-DUP	6/11/2015	<b>3.10</b>
WAP-soil-14	6/11/2015	<b>1.81</b>
WAP-soil-14-DUP	6/11/2015	<b>2.03</b>
WAP-soil-8	6/11/2015	<b>4.05</b>
WAP-soil-5	6/11/2015	<b>2.57</b>
WAP-soil-17	6/18/2015	<b>2.76</b>
WAP-soil-20	6/18/2015	<b>2.78</b>
WAP-soil-28	6/18/2015	<b>4.07</b>
WAP-soil-23	6/18/2015	<b>4.90</b>
WAP-soil-34	6/18/2015	<b>1.86</b>
WAP-soil-31	6/18/2015	<b>1.73</b>
WAP-soil-39	6/18/2015	<b>2.45</b>
WAP-soil-39-DUP	6/18/2015	<b>2.41</b>

Definitions:

- mg/kg - milligrams per kilogram
- WAP - West Alton Parcel
- DUP - Duplicate sample
- 3.99** - Bold type indicates a detection above laboratory reporting limits

Notes:

- \* Arsenic concentrations were below the 12 mg/kg screening level established in the guidance document [DTSC, 2008]; therefore arsenic is not a chemical of potential concern (COPC) for the site.
- 1. Other screening levels (e.g., United States Environmental Protection Agency [USEPA] Regional Screening Levels [RSLs] for residential receptors) are not shown on this table as they are not generally applicable to soils in Southern California.
- 2. Based on the size of the West Alton Parcel, 44 primary discrete soil samples were collected [DTSC, 2008].
- 3. One discrete sample from each composite area was analyzed for arsenic by USEPA Method 6010B [DTSC, 2008].
- 4. Arsenic was detected in each sample at levels generally considered to be background in Southern California.

**Table 4-3**  
**Soil Gas VOC Analytical Results**  
**West Alton Parcel**  
**Former MCAS El Toro**  
**Irvine, California**  
**(June 2015)**

Analyte>>		Tetrachloroethylene (PCE)	Trichloroethylene (TCE)	Chloroform	Toluene	4-Isopropyltoluene	Carbon Tetrachloride	Freon 113
Units>>		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
<b>Regulatory Thresholds</b>								
Residential Screening Level <sup>1</sup>		0.48	0.48	0.12	310	NA	0.067	31,000
Commercial/Industrial Screening Level <sup>2</sup>		4.2	6.0	1.1	2,600	NA	0.58	260,000
Sample ID	Date Collected	Analytical Results						
SV-22-5.5'	6/23/2015	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-22-15'	6/23/2015	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-23-5'	6/23/2015	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-23-15.5'	6/23/2015	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-24-5'	6/23/2015	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-24-5' REP	6/23/2015	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-24-17.5'	6/23/2015	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-25-5'	6/23/2015	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-25-15'	6/23/2015	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-26-6'	6/23/2015	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-26-15'	6/23/2015	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-27-5'	6/23/2015	<b>0.272</b>	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-27-17'	6/23/2015	<b>0.075</b>	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-27-17' REP	6/23/2015	<b>0.077</b>	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-28-5'	6/23/2015	<b>0.330</b>	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-28-15'	6/23/2015	<b>0.223</b>	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-29-4.5'	6/23/2015	<b>0.281</b>	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-29-15'	6/23/2015	<b>0.126</b>	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-30-5'	6/23/2015	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040
SV-30-13'	6/23/2015	<b>0.273</b>	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.008	ND<0.040

Definitions:

ug/L - microgram per liter

ND<0.008 - Not detected at concentrations above the listed laboratory reporting limit (e.g., 0.008 ug/L)

NA - Note 3 screening levels do not exist for this compound

REP - Replicate - the gas sample collected from a soil gas probe was analyzed a second time by the same equipment to compare results

**0.272** - Bold type indicates a detection above laboratory reporting limits

Notes:

Only compounds detected in at least one sample collected from the WAP or the 100-Acre Parcel [Geosyntec, 2015] are shown in this table.

<sup>1</sup> California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) Note 3 screening levels for ambient air converted to soil gas screening levels by dividing by the appropriate attenuation factor for future residential development (0.001 [DTSC, 2011]).

<sup>2</sup> Cal-EPA DTSC Note 3 screening levels for ambient air converted to soil gas screening levels by dividing by the appropriate attenuation factor for future commercial development (0.0005 [DTSC, 2011]).

0.272
None Detected
None Detected

Green indicates a detection less than or equal to the residential screening levels.

Orange indicates a detection greater than residential but less than or equal to commercial/industrial screening levels.

Red indicates a detection greater than commercial/industrial screening levels.

No compounds were detected at concentrations > residential screening levels.

**Table 4-4**  
**Soil Gas Methane Analytical Results**  
**West Alton Parcel**  
**Former MCAS El Toro**  
**Irvine, California**  
**(October 2015)**

Analyte>>		Methane
Units>>		%
Regulatory Threshold		
10% of LEL <sup>1</sup>		0.5
Sample ID	Date Collected	Analytical Results
SV-22-5.5'	10/1/2015	ND<0.01
SV-22-15'	10/1/2015	ND<0.01
SV-23-5'	10/1/2015	ND<0.01
SV-23-15.5'	10/1/2015	ND<0.01
SV-24-5'	10/1/2015	ND<0.01
SV-24-17'	10/1/2015	ND<0.01
SV-25-5'	10/1/2015	ND<0.01
SV-25-15'	10/1/2015	ND<0.01
SV-26-6'	10/1/2015	NS
SV-26-15'	10/1/2015	NS
SV-27-5'	10/1/2015	ND<0.01
SV-27-17'	10/1/2015	ND<0.01
SV-28-5'	10/1/2015	ND<0.01
SV-28-15'	10/1/2015	ND<0.01
SV-28-15' REP	10/1/2015	ND<0.01
SV-29-4.5'	10/1/2015	ND<0.01
SV-29-15'	10/1/2015	ND<0.01
SV-30-5'	10/1/2015	ND<0.01
SV-30-13'	10/1/2015	ND<0.01
SV-30-13' REP	10/1/2015	ND<0.01

Definitions:

% - Percent of methane in soil gas by volume

ND<0.01 - Not detected at concentrations above the listed laboratory reporting limit (e.g., 0.01 %)

REP - Replicate - the gas sample collected from a soil gas probe was analyzed a second time by the same equipment to compare results

NS - Not sampled

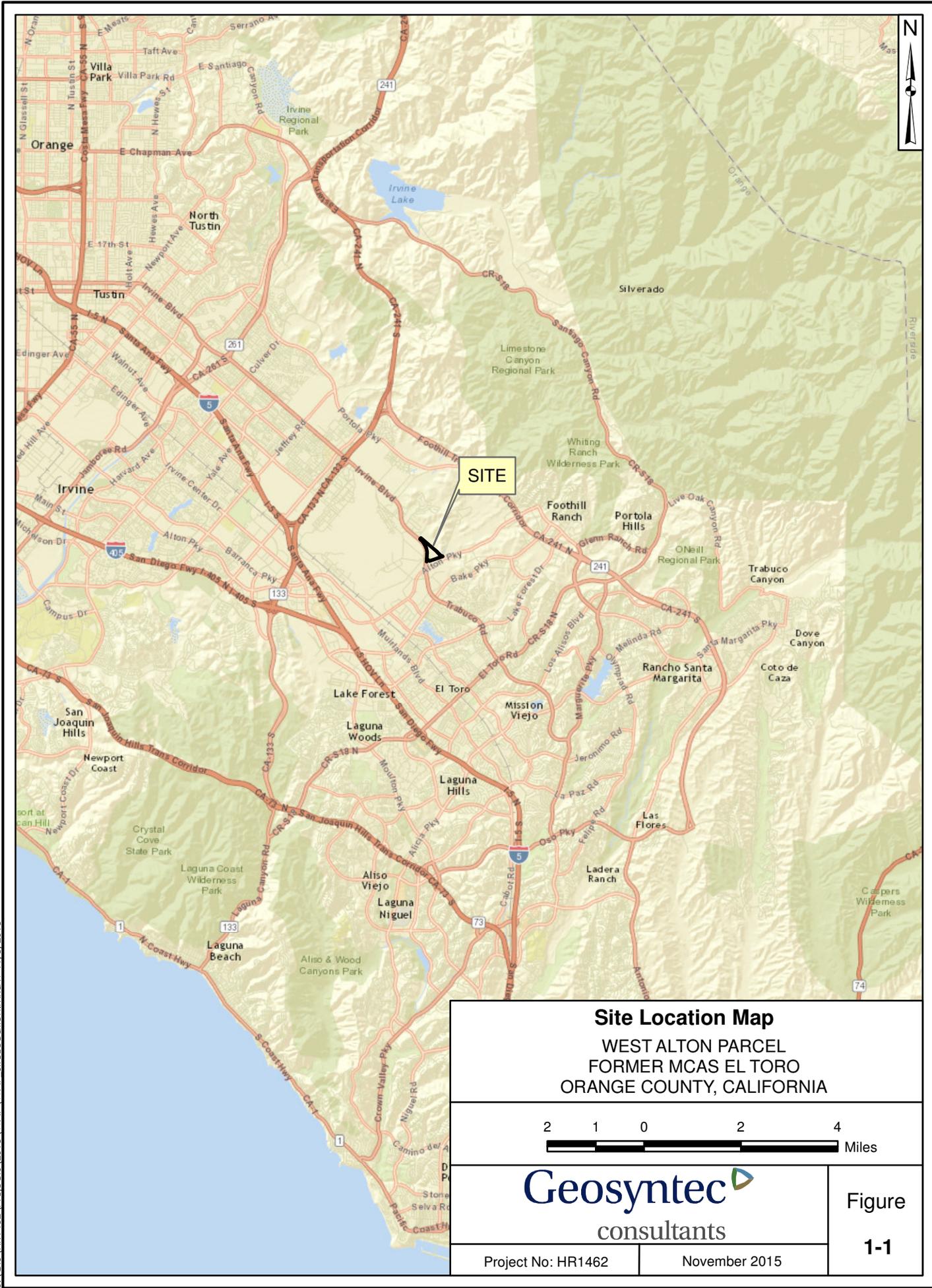
Notes:

<sup>1</sup> 10% of the Lower Explosive Limit (LEL) is a commonly utilized action level above which mitigation measures are recommended [DTSC, 2005].

The LEL (5% for methane) represents the lower limit of ignitability (i.e., concentrations below the LEL are too lean to burn).

There were no detections of methane in soil gas samples collected from the Site.

## **FIGURES**



**SITE**

**Site Location Map**  
WEST ALTON PARCEL  
FORMER MCAS EL TORO  
ORANGE COUNTY, CALIFORNIA



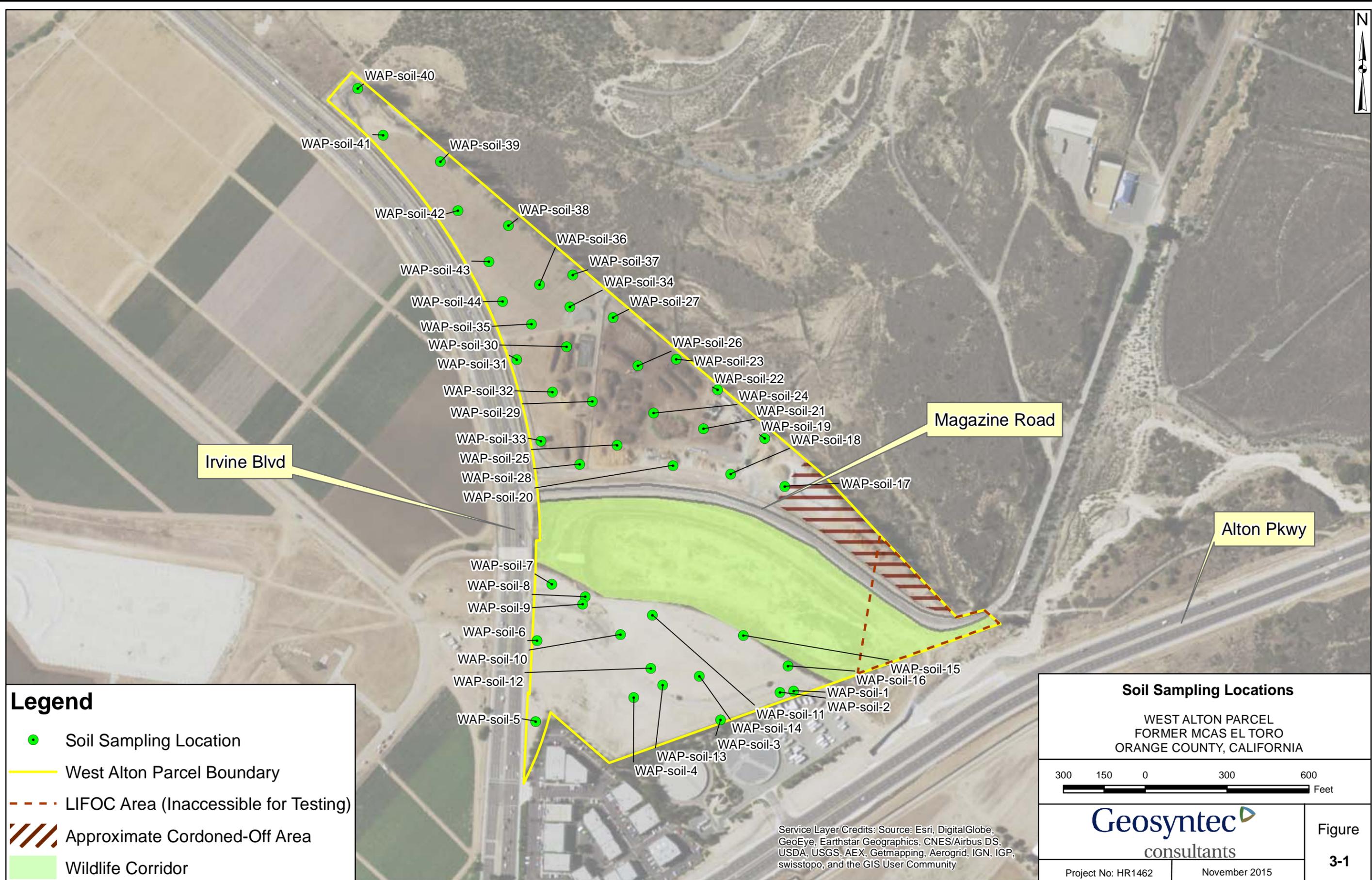
**Geosyntec**  
consultants

Figure  
**1-1**

Project No: HR1462

November 2015

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**Legend**

- Soil Sampling Location
- West Alton Parcel Boundary
- LIFOC Area (Inaccessible for Testing)
- Approximate Cordoned-Off Area
- Wildlife Corridor

**Soil Sampling Locations**  
 WEST ALTON PARCEL  
 FORMER MCAS EL TORO  
 ORANGE COUNTY, CALIFORNIA

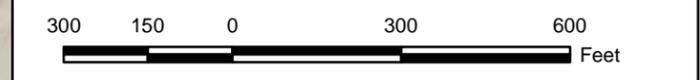
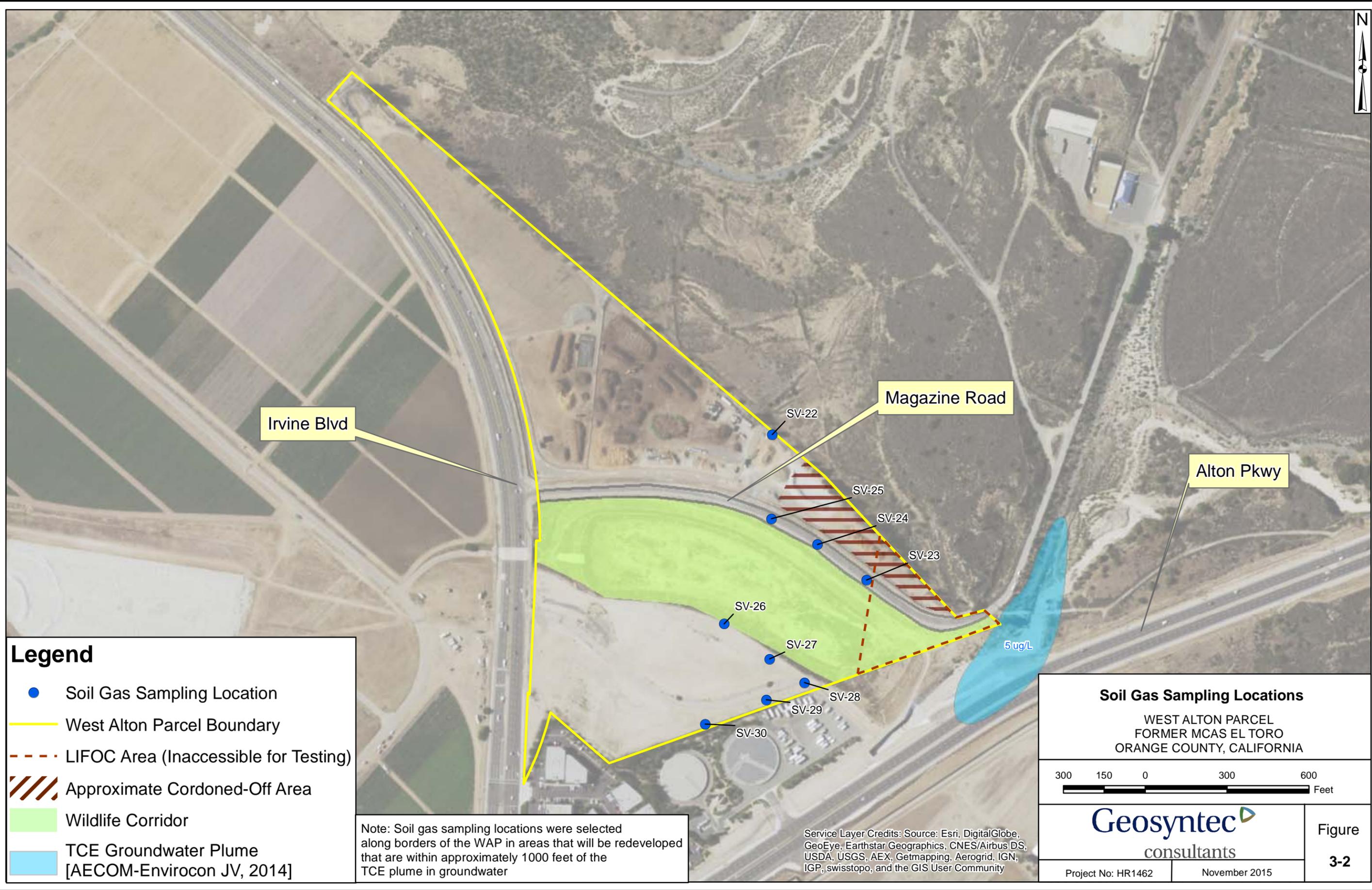


		Figure <b>3-1</b>
Project No: HR1462	November 2015	

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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**Legend**

- Soil Gas Sampling Location
- West Alton Parcel Boundary
- - - LIFO Area (Inaccessible for Testing)
- ▨ Approximate Cordoned-Off Area
- Wildlife Corridor
- TCE Groundwater Plume [AECOM-Envirocon JV, 2014]

Note: Soil gas sampling locations were selected along borders of the WAP in areas that will be redeveloped that are within approximately 1000 feet of the TCE plume in groundwater

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

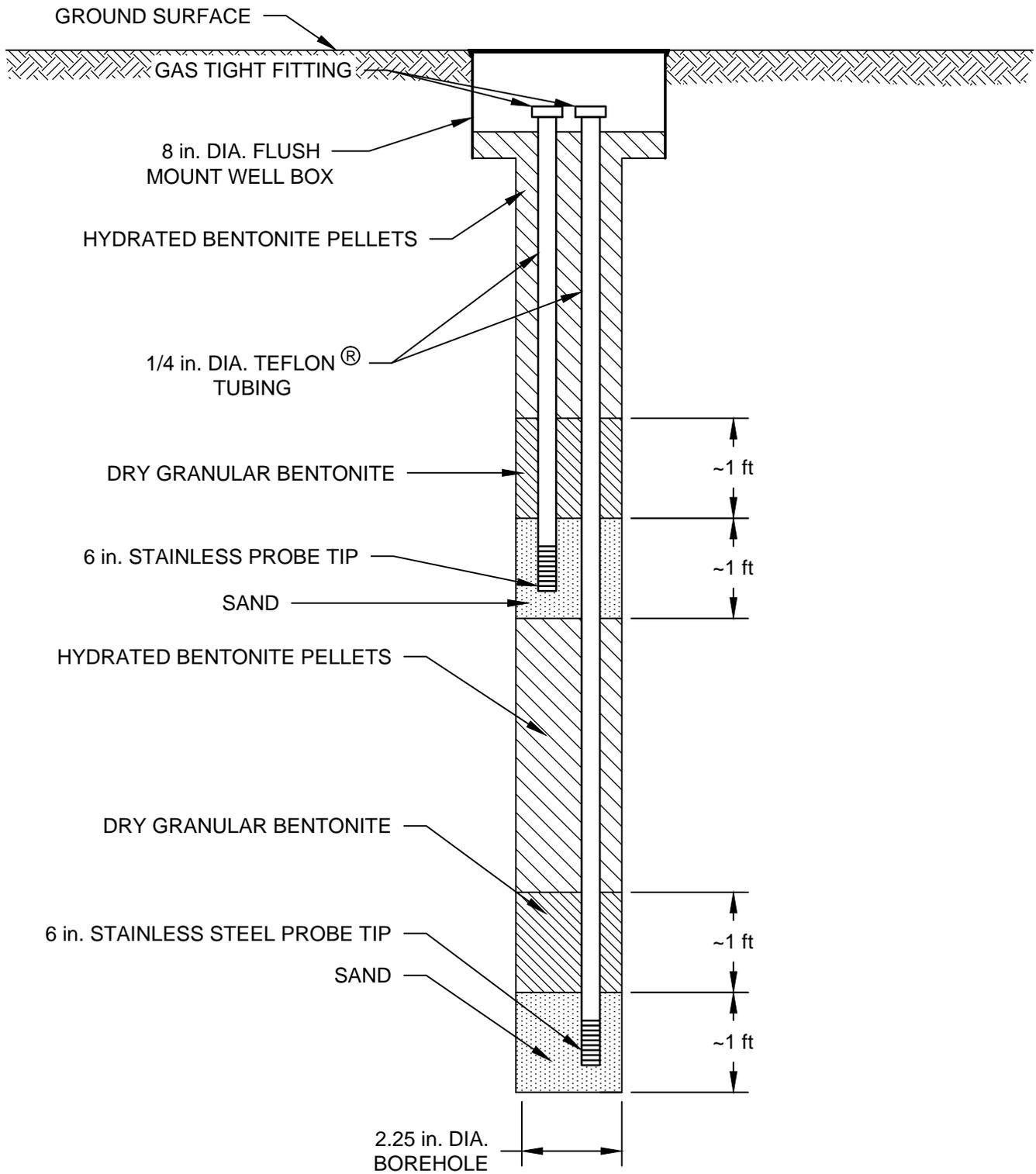
**Soil Gas Sampling Locations**  
 WEST ALTON PARCEL  
 FORMER MCAS EL TORO  
 ORANGE COUNTY, CALIFORNIA

300 150 0 300 600  
 Feet

**Geosyntec**  
 consultants

Project No: HR1462      November 2015

Figure  
**3-2**



NOT TO SCALE

TYPICAL NESTED TEMPORARY  
SOIL GAS PROBE CONSTRUCTION  
WEST ALTON PARCEL  
FORMER MCAS EL TORO  
ORANGE COUNTY, CALIFORNIA

**Geosyntec**  
consultants

Figure

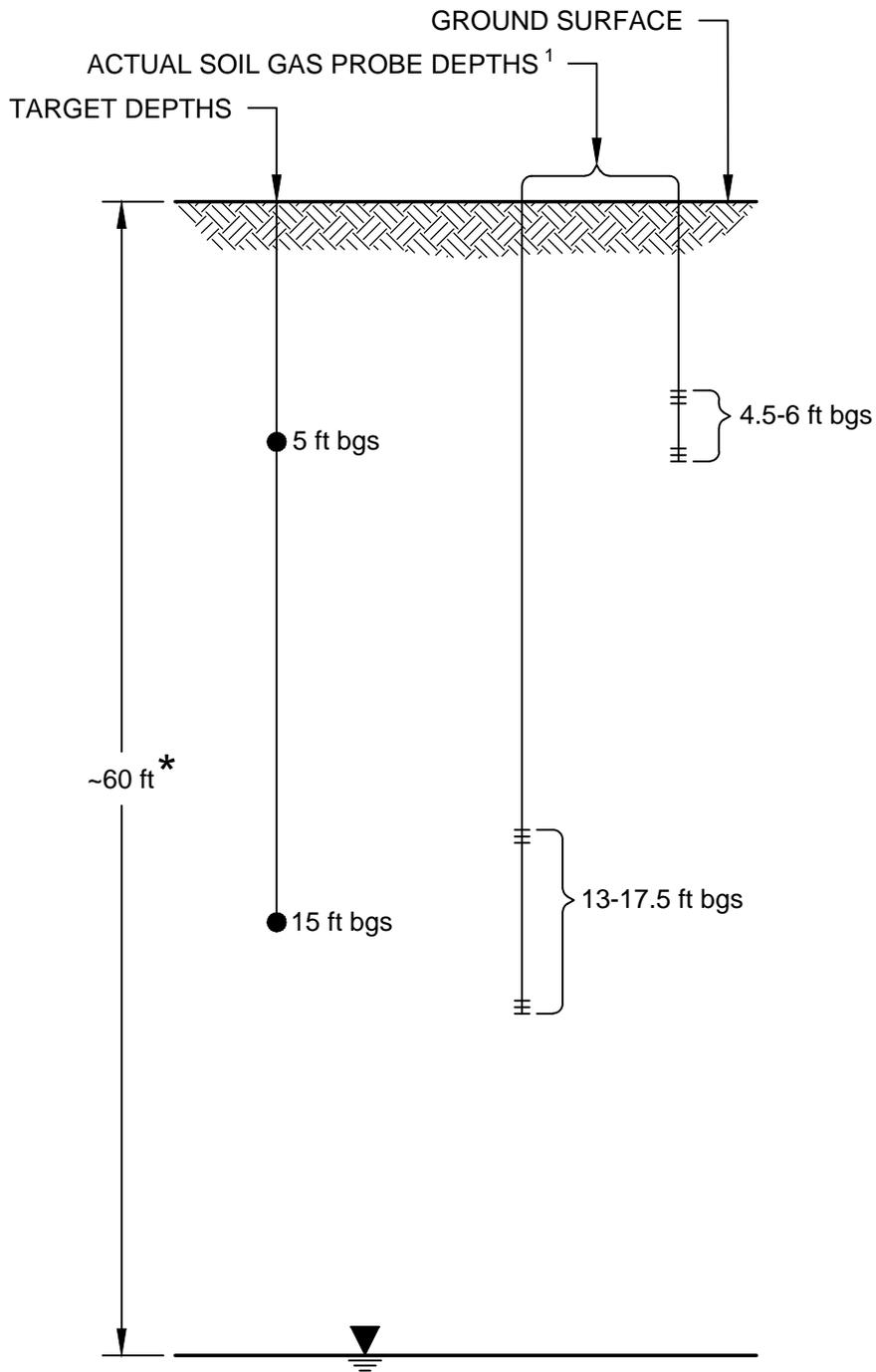
**3-3**

SOURCE: FIG. 1 OF ADVISORY ACTIVE SOIL GAS INVESTIGATIONS [DTSC et al., 2012].

Project No: HR1462

November 2015

# SOIL GAS SAMPLING



## LEGEND



GROUNDWATER TABLE

ft bgs

FEET BELOW GROUND SURFACE

\*

APPROXIMATE DEPTH TO STATIC WATER LEVEL [CE2-KLIENFELDER JV, 2014]

### NOTE:

- SOME PROBE LOCATIONS AND/OR DEPTHS WERE OMITTED AND/OR MODIFIED BASED ON FIELD CONDITIONS.

NOT TO SCALE

**SAMPLING DEPTH SCHEMATIC**  
 WEST ALTON PARCEL  
 FORMER MCAS EL TORO  
 ORANGE COUNTY, CALIFORNIA

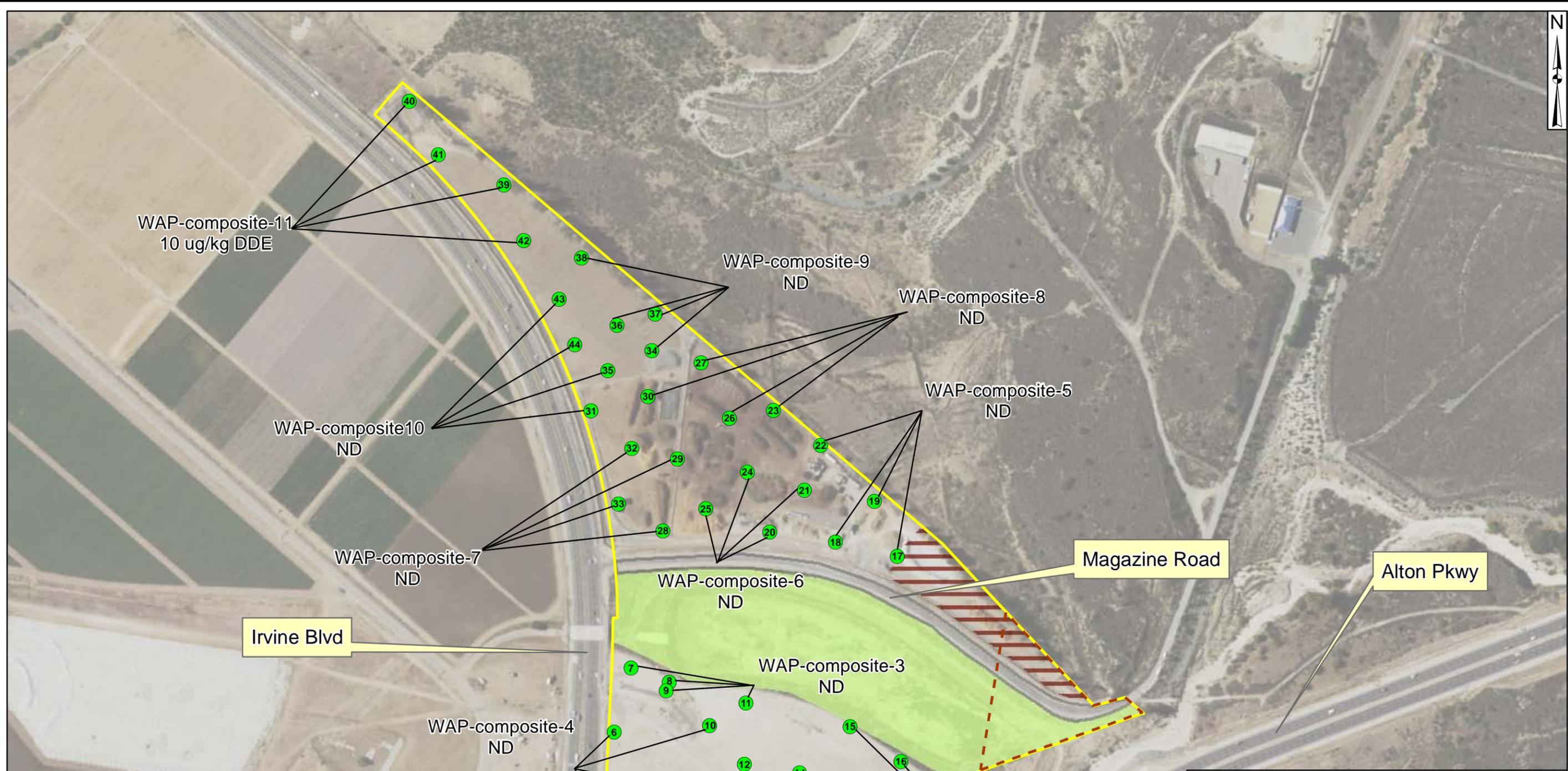
**Geosyntec**  
 consultants

Figure

**3-4**

Project No: HR1462

November 2015



**Legend**

-  Primary Soil Sampling Location (i.e., WAP-soil-40)
-  West Alton Parcel Boundary
-  LIFOA Area (Inaccessible for Testing)
-  Approximate Cordoned-Off Area
-  Wildlife Corridor

Notes:  
DDE: Dichlorodiphenyldichloroethylene

**Soil Organochlorine Pesticides Results**  
 WEST ALTON PARCEL  
 FORMER MCAS EL TORO  
 ORANGE COUNTY, CALIFORNIA

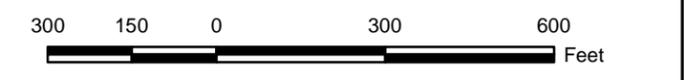


		Figure <b>4-1</b>
Project No: HR1462	November 2015	

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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Irvine Blvd

Magazine Road

Alton Pkwy

SV-26	
Analyte	PCE
SL <sup>1</sup>	0.48
Depth	Result
6' bgs	ND<0.008
15' bgs	ND<0.008

SV-27	
Analyte	PCE
SL <sup>1</sup>	0.48
Depth	Result
5' bgs	0.272
17' bgs	0.076

SV-29	
Analyte	PCE
SL <sup>1</sup>	0.48
Depth	Result
4.5' bgs	0.281
15' bgs	0.126

SV-30	
Analyte	PCE
SL <sup>1</sup>	0.48
Depth	Result
5' bgs	ND<0.008
13' bgs	0.273

SV-22	
Analyte	PCE
SL <sup>1</sup>	0.48
Depth	Result
5.5' bgs	ND<0.008
15' bgs	ND<0.008

SV-25	
Analyte	PCE
SL <sup>1</sup>	0.48
Depth	Result
5' bgs	ND<0.008
15' bgs	ND<0.008

SV-24	
Analyte	PCE
SL <sup>1</sup>	0.48
Depth	Result
5' bgs	ND<0.008
17.5' bgs	ND<0.008

SV-23	
Analyte	PCE
SL <sup>1</sup>	0.48
Depth	Result
5' bgs	ND<0.008
15.5' bgs	ND<0.008

SV-28	
Analyte	PCE
SL <sup>1</sup>	0.48
Depth	Result
5' bgs	0.330
15' bgs	0.223

5ug/L

### Legend

- Soil Gas Sampling Location
- West Alton Parcel Boundary
- LIFOA Area (Inaccessible for Testing)
- Approximate Cordoned-Off Area
- Wildlife Corridor
- TCE Groundwater Plume [AECOM-Envirocon JV, 2014]

Notes:  
 Results reported are in micrograms per liter (ug/L)  
 bgs: Below ground surface  
 PCE (Tetrachloroethylene) was the only compound detected in the West Alton Parcel  
 ND<0.008: Not detected at concentrations above the listed laboratory reporting limit (e.g., 0.008 ug/L)  
 SL: California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC)  
 "Note 3" screening levels for ambient air converted to soil gas screening levels by dividing by the appropriate attenuation factor for future residential development (0.001 [DTSC, 2011])  
0.272 Green indicates a detection less than or equal to residential screening levels  
 No compounds were detected at concentrations greater than residential screening levels

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

### Soil Gas Sampling Locations and Detection Results

WEST ALTON PARCEL  
 FORMER MCAS EL TORO  
 ORANGE COUNTY, CALIFORNIA



Project No: HR1462      November 2015

Figure  
4-2

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**APPENDIX A**  
**BORING LOGS**

GS FORM:  
WELL BORE 01/04

## BOREHOLE LOG

DEPTH (ft-bgs)	DESCRIPTION	GRAPHIC LOG	WELL LOG	GROUNDWATER OR STRUCTURE	ELEVATION (ft)	SAMPLE					COMMENTS	
						SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID/FID (ppm)		TIME (00:00)
	<p>1) Unit/Formation, Mem. 6) Plasticity                      2) USCS Name 7) Density/Consistency                      3) Color 8) Structure                      4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.)                      5) Percent Grain Size</p>											1) Rig Behavior 2) Air Monitoring
	<p><b>SILTY SAND (SM)</b>, orange-brown, moist, fine to medium, (45,55,0), non-plastic, little vegetation                      Grading to <b>SANDY SILT (ML)</b>, orange-brown, moist, fine, (60,40,0), non-plastic                      Grading to <b>Well-Graded SAND with SILT (SW-SM)</b>, tan-yellow mottled with blue-gray, moist, fine to coarse, (10,85,5), few fine gravel @4.5 ft Sandstone cobble</p>									08:01	Core 12" Hand auger 5'	
5	<p><b>SANDY SILT (ML)</b>, dark brown, moist, fine to medium, (70,30,0), non-plastic, few clay                      @9 ft trace fine gravel</p>											@5.5 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Blue tape at surface.  1/2 Recovery 8' to 12'
10	<p><b>Poorly Graded SAND (SP)</b>, tan-yellow, moist, medium, (3,87,10), few fine gravel  <b>SILTY with SAND (ML)</b>, dark brown, moist, fine to medium, (80,20,0), low plastic, little clay</p>											
15	<p><b>Poorly-Graded SAND with SILT (SP-SM)</b>, orange-brown, moist, fine to medium, (10,90,0)                      16 ft TD</p>										08:36	@15 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Red tape at surface.
20												
25												
30												

**CONTRACTOR** BC2  
**EQUIPMENT** Geoprobe 7822DT  
**DRILL MTHD** Direct Push  
**DIAMETER** 2.25  
**LOGGER** D. Simpson

**NORTHING**  
**EASTING**  
**COORDINATE SYSTEM:**  
**REVIEWER** M. Thomas

**NOTES:** Continuous 1" diameter soil cores. Began using PID meter on 6/18. Non-detect on this boring. SAA - same as above.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS



2100 Main St  
Suite 150  
Huntington Beach, CA 92648  
Tel: (714) 969-0800  
Fax: (714) 969-0820

**BORING SV-23**  
START DRILL DATE Jun 18, 15  
FINISH DRILL DATE Jun 18, 15  
LOCATION Orange County, CA  
PROJECT El Toro  
NUMBER HR1462

**SHEET 1 OF 1**  
ELEVATION DATA:  
GROUND SURF. (Ft)  
TOP OF CASING (Ft)  
DATUM

GS FORM:  
WELL BORE 01/04

**BOREHOLE LOG**

DEPTH (ft-bgs)	DESCRIPTION 1) Unit/Formation, Mem. 2) USCS Name 3) Color 4) Moisture 5) Percent Grain Size 6) Plasticity 7) Density/Consistency 8) Structure 9) Other (Mineralization, Discoloration, Odor, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER OR STRUCTURE	ELEVATION (ft)	SAMPLE					COMMENTS 1) Rig Behavior 2) Air Monitoring	
						SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID/FID (ppm)		TIME (00:00)
	<b>SILTY SAND with GRAVEL (SM)</b> , brown and gray, moist, fine to coarse, (40,40,20), non-plastic										15:53	Hand auger 5'
	<b>SANDY SILT (ML)</b> brown and gray, moist, fine, (60,35,5), non plastic, few fine angular gravel											
5	<b>Poorly-Graded SAND with SILT (SP-SM)</b> , tan, moist, fine, (10,90,0)  @6.5 ft 1" seam <b>Lean CLAY (CL)</b> , olive tan, moist, (100,0,0), medium plastic											@5 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Blue tape at surface.
	<b>SILTY SAND (SM)</b> , brown, moist, fine, (25,75,0)											
10												
	<b>SILT (ML)</b> , dark brown, moist, (90,10,0), medium plastic, few fine sand and little clay											
15												
	<b>SILTY SAND (SM)</b> , light brown to tan, moist, fine to medium, (25,75,0), non-plastic											@15.5 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Red tape at surface.
20	20 ft TD										16:15	
25												
30												

07-WELL BORE HR1462.GPJ GEOSNTEC.GDT 8/18/15

**CONTRACTOR** BC2  
**EQUIPMENT** Geoprobe 7822DT  
**DRILL MTHD** Direct Push  
**DIAMETER** 2.25  
**LOGGER** D. Simpson

**NORTHING**  
**EASTING**  
**COORDINATE SYSTEM:**

**REVIEWER** M. Thomas

**NOTES:** Continuous 1" diameter soil cores. Began using PID meter on 6/18. Non-detect on this boring. SAA - same as above.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS



2100 Main St  
Suite 150  
Huntington Beach, CA 92648  
Tel: (714) 969-0800  
Fax: (714) 969-0820

**BORING SV-24**  
START DRILL DATE Jun 18, 15  
FINISH DRILL DATE Jun 18, 15  
LOCATION Orange County, CA  
PROJECT El Toro  
NUMBER HR1462

**SHEET 1 OF 1**  
ELEVATION DATA:  
GROUND SURF. (Ft)  
TOP OF CASING (Ft)  
DATUM

GS FORM:  
WELL BORE 01/04

**BOREHOLE LOG**

DEPTH (ft-bgs)	DESCRIPTION 1) Unit/Formation, Mem. 6) Plasticity 2) USCS Name 7) Density/Consistency 3) Color 8) Structure 4) Moisture 9) Other (Mineralization, Discoloration, Odor, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER OR STRUCTURE	ELEVATION (ft)	SAMPLE					COMMENTS 1) Rig Behavior 2) Air Monitoring
						SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID/FID (ppm)	
	<b>SILTY SAND with GRAVEL (SM)</b> , brown and gray, moist, fine to coarse, (40,40,20), non-plastic										14:20 Hand auger to 3'. Refusal @ 3 ft.
	<b>SANDY SILT (ML)</b> brown and gray, moist, fine, (60,35,5), non plastic, few fine angular gravel										14:38 Drill at 3'.
	Grading to <b>Lean CLAY with SAND (CL)</b> , dark brown, moist, fine, (80,20,0), medium plastic, little silt										
5	Grading to <b>SILTY SAND (SM)</b> , dark brown, moist, fine to medium, (45,55,0), non-plastic										@5 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Blue tape at surface.
	<b>Poorly-Graded SAND (SP)</b> , tan, dry, medium (3,97,0), trace silt										
	<b>SILTY SAND (SM)</b> , SAA										
	<b>SANDY SILT (ML)</b> , dark brown, moist, fine to medium, (65,30,5), non-plastic, few gravel										
10											
	<b>SILTY SAND (SM)</b> , olive brown, moist, medium, (25,75,0), non-plastic										@17.5 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Red tape at surface.
20	20 ft TD										14:49
25											
30											

07-WELL BORE HR1462.GPJ GEOSNTEC.GDT 8/18/15

**CONTRACTOR** BC2  
**EQUIPMENT** Geoprobe 7822DT  
**DRILL MTHD** Direct Push  
**DIAMETER** 2.25  
**LOGGER** D. Simpson

**NORTHING**  
**EASTING**  
**COORDINATE SYSTEM:**

**REVIEWER** M. Thomas

**NOTES:** Continuous 1" diameter soil cores. Began using PID meter on 6/18. Non-detect on this boring. SAA - same as above.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS



2100 Main St  
Suite 150  
Huntington Beach, CA 92648  
Tel: (714) 969-0800  
Fax: (714) 969-0820

**BORING SV-25**  
**START DRILL DATE** Jun 18, 15  
**FINISH DRILL DATE** Jun 18, 15  
**LOCATION** Orange County, CA  
**PROJECT** El Toro  
**NUMBER** HR1462

**SHEET 1 OF 1**  
**ELEVATION DATA:**  
**GROUND SURF. (Ft)**  
**TOP OF CASING (Ft)**  
**DATUM**

GS FORM:  
WELL BORE 01/04

**BOREHOLE LOG**

DEPTH (ft-bgs)	DESCRIPTION 1) Unit/Formation, Mem. 2) USCS Name 3) Color 4) Moisture 5) Percent Grain Size 6) Plasticity 7) Density/Consistency 8) Structure 9) Other (Mineralization, Discoloration, Odor, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER OR STRUCTURE	ELEVATION (ft)	SAMPLE					COMMENTS 1) Rig Behavior 2) Air Monitoring	
						SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID/FID (ppm)		TIME (00:00)
	<b>SILTY SAND with GRAVEL (SM)</b> , brown and gray, moist, fine to coarse, (40,40,20), non-plastic										15:07	Hand auger 5'
	<b>SANDY SILT (ML)</b> brown and gray, moist, fine, (60,35,5), non plastic, few fine angular gravel @2.5 ft increasing to little clay, (70,30,0), low plastic											
5	Grading to <b>SILTY SAND (SM)</b> , brown, moist, fine to medium, (40,60,0), non-plastic										15:23	@5 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Blue tape at surface.
	<b>Poorly-Graded SAND (SP)</b> , tan, fine, moist, (3,97,0), trace silt											
	<b>SILTY SAND (SM)</b> , SAA											
10	<b>Poorly-Graded SAND (SP)</b> , SAA											1/2 Recovery 12' to 16'
	Grading to <b>Well-Graded SAND</b> , tan, fine to coarse, moist, (3,97,0), trace silt											
15	<b>SILTY SAND (SM)</b> , tan-brown, moist, fine, (40,60,0), non plastic 16 ft TD										15:27	@15 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Red tape at surface.
20												
25												
30												

07-WELL BORE HR1462.GPJ GEOSNTEC.GDT 8/18/15

**CONTRACTOR** BC2  
**EQUIPMENT** Geoprobe 7822DT  
**DRILL MTHD** Direct Push  
**DIAMETER** 2.25  
**LOGGER** D. Simpson

**NORTHING**  
**EASTING**  
**COORDINATE SYSTEM:**

**REVIEWER** M. Thomas

**NOTES:** Continuous 1" diameter soil cores. Began using PID meter on 6/18. Non-detect on this boring. SAA - same as above.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS



2100 Main St  
Suite 150  
Huntington Beach, CA 92648  
Tel: (714) 969-0800  
Fax: (714) 969-0820

**BORING SV-26**  
START DRILL DATE Jun 19, 15  
FINISH DRILL DATE Jun 19, 15  
LOCATION Orange County, CA  
PROJECT El Toro  
NUMBER HR1462

**SHEET 1 OF 1**  
ELEVATION DATA:  
GROUND SURF. (Ft)  
TOP OF CASING (Ft)  
DATUM

GS FORM:  
WELL BORE 01/04

**BOREHOLE LOG**

DEPTH (ft-bgs)	DESCRIPTION 1) Unit/Formation, Mem. 2) USCS Name 3) Color 4) Moisture 5) Percent Grain Size 6) Plasticity 7) Density/Consistency 8) Structure 9) Other (Mineralization, Discoloration, Odor, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER OR STRUCTURE	ELEVATION (ft)	SAMPLE					COMMENTS 1) Rig Behavior 2) Air Monitoring	
						SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID/FID (ppm)		TIME (00:00)
	<b>SANDY SILT (ML)</b> , brown, moist, fine to medium, (60,40,0), non-plastic										12:01	Hand auger 5'
	Grading to <b>SILTY SAND (SM)</b> , tan-brown, moist, fine, (40,60,0), non-plastic @3.5 grading to orange-brown											
5	@5 Decreasing silt (25,75,0)											@6 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Blue tape at surface.
	<b>SILT with SAND (ML)</b> , brown, moist, fine, (85,15,0), non-low plastic, little clay											
10	<b>Poorly-Graded SAND with SILT (SP-SM)</b> , tan, moist, fine, (10,90,0), non-plastic											
	@11.5 ft 2" seam <b>SILT (ML)</b> , brown, moist, (90,10,0), non-low plastic, few sand and little clay trace fine subrounded gravel											
15	@15 ft 1" seam <b>SILT (ML)</b> , SAA											@15 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Red tape at surface.
	16 ft TD											
20												
25												
30												

07-WELL BORE HR1462.GPJ GEOSNTEC.GDT 8/18/15

**CONTRACTOR** BC2  
**EQUIPMENT** Geoprobe 7822DT  
**DRILL MTHD** Direct Push  
**DIAMETER** 2.25  
**LOGGER** D. Simpson

**NORTHING**  
**EASTING**  
**COORDINATE SYSTEM:**

**REVIEWER** M. Thomas

**NOTES:** Continuous 1" diameter soil cores. Began using PID meter on 6/18. Non-detect on this boring. SAA - same as above.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS



2100 Main St  
Suite 150  
Huntington Beach, CA 92648  
Tel: (714) 969-0800  
Fax: (714) 969-0820

**BORING SV-27**  
**START DRILL DATE** Jun 19, 15  
**FINISH DRILL DATE** Jun 19, 15  
**LOCATION** Orange County, CA  
**PROJECT** El Toro  
**NUMBER** HR1462

**SHEET 1 OF 1**

**ELEVATION DATA:**  
**GROUND SURF. (Ft)**  
**TOP OF CASING (Ft)**  
**DATUM**

GS FORM:  
WELL BORE 01/04

**BOREHOLE LOG**

DEPTH (ft-bgs)	DESCRIPTION 1) Unit/Formation, Mem. 2) USCS Name 3) Color 4) Moisture 5) Percent Grain Size 6) Plasticity 7) Density/Consistency 8) Structure 9) Other (Mineralization, Discoloration, Odor, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER OR STRUCTURE	ELEVATION (ft)	SAMPLE					COMMENTS 1) Rig Behavior 2) Air Monitoring	
						SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID/FID (ppm)		TIME (00:00)
	<b>SILTY SAND with GRAVEL(SM)</b> , orange-brown, moist, fine to medium, (45,40,15), non-plastic  @2ft no gravel (45,55,0)										11:25	Core 12" Hand auger 5'
5	@5ft grading to brown										11:38	@5 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Blue tape at surface.
10	@11.5 ft increasing sand (30,70,0)											
15	<b>SANDY SILT (ML)</b> , brown, moist, fine, (70,30,0), low-plastic, trace calcite veins and little clay <b>SILTY SAND (SM)</b> , tan, moist, fine, (30,70,0), non-plastic Grading to <b>Poorly-Graded SAND with SILT (SP-SM)</b> , tan, moist, fine, (10,90,0)											
20	@18.75 ft 1" seam <b>SILT with SAND (ML)</b> , brown, moist, fine, (75,25,0), non-plastic <b>SANDY SILT (ML)</b> , brown, moist, fine, (70,30,0), low-plastic, little clay 20 ft TD										11:47	@17 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Red tape at surface.
25												
30												

07-WELL BORE HR1462.GPJ GEOSNTEC.GDT 8/18/15

**CONTRACTOR** BC2  
**EQUIPMENT** Geoprobe 7822DT  
**DRILL MTHD** Direct Push  
**DIAMETER** 2.25  
**LOGGER** D. Simpson

**NORTHING**  
**EASTING**  
**COORDINATE SYSTEM:**

**REVIEWER** M. Thomas

**NOTES:** Continuous 1" diameter soil cores. Began using PID meter on 6/18. Non-detect on this boring. SAA - same as above.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS



2100 Main St  
Suite 150  
Huntington Beach, CA 92648  
Tel: (714) 969-0800  
Fax: (714) 969-0820

**BORING SV-28**  
**START DRILL DATE** Jun 19, 15  
**FINISH DRILL DATE** Jun 19, 15  
**LOCATION** Orange County, CA  
**PROJECT** El Toro  
**NUMBER** HR1462

**SHEET 1 OF 1**  
**ELEVATION DATA:**  
**GROUND SURF. (Ft)**  
**TOP OF CASING (Ft)**  
**DATUM**

GS FORM:  
WELL BORE 01/04

**BOREHOLE LOG**

DEPTH (ft-bgs)	DESCRIPTION 1) Unit/Formation, Mem. 2) USCS Name 3) Color 4) Moisture 5) Percent Grain Size 6) Plasticity 7) Density/Consistency 8) Structure 9) Other (Mineralization, Discoloration, Odor, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER OR STRUCTURE	ELEVATION (ft)	SAMPLE					COMMENTS 1) Rig Behavior 2) Air Monitoring
						SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID/FID (ppm)	
5	<b>SILTY SAND (SM)</b> , orange brown, moist, fine to medium, (45,55,0), non-low plastic, little clay  @2ft grading to dark brown  Grading to brown										10:51 Hand auger 5'
10	<b>SANDY SILT (ML)</b> , orange-brown, moist, fine, (60,40,0), low-plastic, few clay  @10.5 ft 4" seam <b>Well-Graded SAND (SW)</b> , multicolored, moist, fine-coarse, (0,90,10), few fine gravel  @12.5 ft 4" seam SAA										10:57 1/2 Recovery 4' to 8' @5 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Blue tape at surface.
15	<b>Poorly-Graded SAND with SILT (SP-SM)</b> , tan-brown, moist, fine-medium, (10,90,0) <b>SILT (ML)</b> , brown, moist, (100,0,0), low-plastic, little clay 16 ft TD										11:06 @15 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Red tape at surface.
20											
25											
30											

07-WELL BORE HR1462.GPJ GEOSNTEC.GDT 8/18/15

**CONTRACTOR** BC2  
**EQUIPMENT** Geoprobe 7822DT  
**DRILL MTHD** Direct Push  
**DIAMETER** 2.25  
**LOGGER** D. Simpson

**NORTHING**  
**EASTING**  
**COORDINATE SYSTEM:**

**REVIEWER** M. Thomas

**NOTES:** Continuous 1" diameter soil cores. Began using PID meter on 6/18. Non-detect on this boring. SAA - same as above.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS



2100 Main St  
Suite 150  
Huntington Beach, CA 92648  
Tel: (714) 969-0800  
Fax: (714) 969-0820

**BORING SV-29**  
**START DRILL DATE** Jun 19, 15  
**FINISH DRILL DATE** Jun 19, 15  
**LOCATION** Orange County, CA  
**PROJECT** El Toro  
**NUMBER** HR1462

**SHEET 1 OF 1**

**ELEVATION DATA:**  
**GROUND SURF. (Ft)**  
**TOP OF CASING (Ft)**  
**DATUM**

GS FORM:  
WELL BORE 01/04

**BOREHOLE LOG**

DEPTH (ft-bgs)	DESCRIPTION 1) Unit/Formation, Mem. 2) USCS Name 3) Color 4) Moisture 5) Percent Grain Size 6) Plasticity 7) Density/Consistency 8) Structure 9) Other (Mineralization, Discoloration, Odor, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER OR STRUCTURE	ELEVATION (ft)	SAMPLE					COMMENTS 1) Rig Behavior 2) Air Monitoring
						SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID/FID (ppm)	
5	<b>SILTY SAND (SM)</b> , brown to orange-brown, moist, fine to medium, (45,52,3), non-low plastic, little clay, trace gravel and vegetation  No gravel, (45,55,0)  Decreasing fines (30,70,0), non-plastic  trace calcite veins										10:17 Hand auger 5'  @4.5 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Blue tape at surface.
15	<b>Poorly-Graded SAND with SILT (SP-SM)</b> , tan, moist, fine, (5,95,0)  <b>SILTY SAND (SM)</b> , SAA 16 ft TD										10:31 @15 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Red tape at surface.

07-WELL BORE HR1462.GPJ GEOSNTEC.GDT 8/18/15

**CONTRACTOR** BC2  
**EQUIPMENT** Geoprobe 7822DT  
**DRILL MTHD** Direct Push  
**DIAMETER** 2.25  
**LOGGER** D. Simpson

**NORTHING**  
**EASTING**  
**COORDINATE SYSTEM:**

**REVIEWER** M. Thomas

**NOTES:** Continuous 1" diameter soil cores. Began using PID meter on 6/18. Non-detect on this boring. SAA - same as above.

SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS



2100 Main St  
Suite 150  
Huntington Beach, CA 92648  
Tel: (714) 969-0800  
Fax: (714) 969-0820

**BORING SV-30**  
**START DRILL DATE** Jun 19, 15  
**FINISH DRILL DATE** Jun 19, 15  
**LOCATION** Orange County, CA  
**PROJECT** El Toro  
**NUMBER** HR1462

**SHEET 1 OF 1**  
**ELEVATION DATA:**  
**GROUND SURF. (Ft)**  
**TOP OF CASING (Ft)**  
**DATUM**

GS FORM:  
WELL BORE 01/04

**BOREHOLE LOG**

DEPTH (ft-bgs)	DESCRIPTION 1) Unit/Formation, Mem. 2) USCS Name 3) Color 4) Moisture 5) Percent Grain Size 6) Plasticity 7) Density/Consistency 8) Structure 9) Other (Mineralization, Discoloration, Odor, etc.)	GRAPHIC LOG	WELL LOG	GROUNDWATER OR STRUCTURE	ELEVATION (ft)	SAMPLE					COMMENTS 1) Rig Behavior 2) Air Monitoring
						SAMPLE NO.	TYPE	BLOWS PER 6"	RECOVERY (%)	PID/FID (ppm)	
5	<b>SILTY SAND (SM)</b> , tan-brown with orange, moist, fine (40,57,3), non-plastic, trace gravel										09:37 Hand auger 5'.  1/3 Recovery 4' to 8'. 09:46 @5 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Blue tape at surface.
10	<b>SILT with SAND (ML)</b> , brown, moist, fine (80,20,0), low-plastic, little clay										@13 ft 6" Vapor probe in 12" sand, connected to 1/4" Teflon tubing. Red tape at surface.
15	Grading to <b>SANDY SILT (ML)</b> , tan, moist, fine, (55,45,0), non-plastic										09:57
16 ft TD											
20											
25											
30											

07-WELL BORE HR1462.GPJ GEOSNTEC.GDT 8/18/15

**CONTRACTOR** BC2  
**EQUIPMENT** Geoprobe 7822DT  
**DRILL MTHD** Direct Push  
**DIAMETER** 2.25  
**LOGGER** D. Simpson

**NORTHING**  
**EASTING**  
**COORDINATE SYSTEM:**

**REVIEWER** M. Thomas

**NOTES:** Continuous 1" diameter soil cores. Began using PID meter on 6/18. Non-detect on this boring. SAA - same as above.

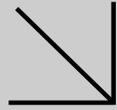
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

**APPENDIX B**

**SOIL ANALYTICAL LABORATORY REPORTS**



Calscience



**WORK ORDER NUMBER: 15-06-1073**

*The difference is service*



AIR | SOIL | WATER | MARINE CHEMISTRY

**Analytical Report For**

**Client:** Geosyntec Consultants

**Client Project Name:** HR1462-11

**Attention:** Matt Thomas  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Approved for release on 06/22/2015 by:  
Stephen Nowak  
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

# Contents

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 Work Order Number: 15-06-1073

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**Work Order Narrative**

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Work Order: 15-06-1073Page 1 of 1

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**Condition Upon Receipt:**

Samples were received under Chain-of-Custody (COC) on 06/12/15. They were assigned to Work Order 15-06-1073.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

**Holding Times:**

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of  $\leq 15$  minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

**Quality Control:**

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

**Subcontractor Information:**

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

**Additional Comments:**

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.



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## Sample Summary

Client: Geosyntec Consultants	Work Order: 15-06-1073
2100 Main Street, Suite 150	Project Name: HR1462-11
Huntington Beach, CA 92648-2460	PO Number:
	Date/Time Received: 06/12/15 16:00
	Number of Containers: 23

Attn: Matt Thomas

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
WAP-Soil-1	15-06-1073-1	06/11/15 09:40	1	Solid
WAP-Soil-2	15-06-1073-2	06/11/15 10:05	1	Solid
WAP-Soil-3	15-06-1073-3	06/11/15 10:20	1	Solid
WAP-Soil-4	15-06-1073-4	06/11/15 11:05	1	Solid
WAP-Soil-5	15-06-1073-5	06/11/15 11:30	1	Solid
WAP-Soil-6	15-06-1073-6	06/11/15 11:55	1	Solid
WAP-Soil-7	15-06-1073-7	06/11/15 12:13	1	Solid
WAP-Soil-8	15-06-1073-8	06/11/15 12:42	1	Solid
WAP-Soil-9	15-06-1073-9	06/11/15 13:42	1	Solid
WAP-Soil-10	15-06-1073-10	06/11/15 14:05	1	Solid
WAP-Soil-11	15-06-1073-11	06/11/15 14:21	1	Solid
WAP-Soil-12	15-06-1073-12	06/11/15 14:38	1	Solid
WAP-Soil-13	15-06-1073-13	06/11/15 14:57	1	Solid
WAP-Soil-14	15-06-1073-14	06/11/15 15:18	1	Solid
WAP-Soil-14-DUP	15-06-1073-15	06/11/15 15:18	1	Solid
WAP-Soil-15	15-06-1073-16	06/11/15 15:30	1	Solid
WAP-Soil-16	15-06-1073-17	06/11/15 15:56	1	Solid
WAP-Soil-16-DUP	15-06-1073-18	06/11/15 15:56	1	Solid
WAP-Composite-1	15-06-1073-19	06/11/15 00:00	1	Solid
WAP-Composite-2	15-06-1073-20	06/11/15 00:00	1	Solid
WAP-Composite-3	15-06-1073-21	06/11/15 00:00	1	Solid
WAP-Composite-4	15-06-1073-22	06/11/15 00:00	1	Solid
WAP-Composite-4-DUP	15-06-1073-23	06/11/15 00:00	1	Solid


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## Detections Summary

Client: Geosyntec Consultants  
 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648-2460

Work Order: 15-06-1073  
 Project Name: HR1462-11  
 Received: 06/12/15

Attn: Matt Thomas

Page 1 of 1

### Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
WAP-Soil-5 (15-06-1073-5) Arsenic	2.57		0.761	mg/kg	EPA 6010B	EPA 3050B
WAP-Soil-8 (15-06-1073-8) Arsenic	4.05		0.789	mg/kg	EPA 6010B	EPA 3050B
WAP-Soil-14 (15-06-1073-14) Arsenic	1.81		0.765	mg/kg	EPA 6010B	EPA 3050B
WAP-Soil-14-DUP (15-06-1073-15) Arsenic	2.03		0.721	mg/kg	EPA 6010B	EPA 3050B
WAP-Soil-16 (15-06-1073-17) Arsenic	3.99		0.725	mg/kg	EPA 6010B	EPA 3050B
WAP-Soil-16-DUP (15-06-1073-18) Arsenic	3.10		0.781	mg/kg	EPA 6010B	EPA 3050B

Subcontracted analyses, if any, are not included in this summary.

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\* MDL is shown



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## Analytical Report

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/12/15  
Work Order: 15-06-1073  
Preparation: EPA 3050B  
Method: EPA 6010B  
Units: mg/kg

Project: HR1462-11

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Soil-5</b>	<b>15-06-1073-5-A</b>	<b>06/11/15 11:30</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/15/15</b>	<b>06/16/15 18:53</b>	<b>150615L02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.57	0.761		1.02		
<b>WAP-Soil-8</b>	<b>15-06-1073-8-A</b>	<b>06/11/15 12:42</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/15/15</b>	<b>06/16/15 18:54</b>	<b>150615L02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		4.05	0.789		1.05		
<b>WAP-Soil-14</b>	<b>15-06-1073-14-A</b>	<b>06/11/15 15:18</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/15/15</b>	<b>06/16/15 18:55</b>	<b>150615L02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		1.81	0.765		1.02		
<b>WAP-Soil-14-DUP</b>	<b>15-06-1073-15-A</b>	<b>06/11/15 15:18</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/15/15</b>	<b>06/16/15 19:01</b>	<b>150615L02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		2.03	0.721		0.962		
<b>WAP-Soil-16</b>	<b>15-06-1073-17-A</b>	<b>06/11/15 15:56</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/15/15</b>	<b>06/16/15 19:03</b>	<b>150615L02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		3.99	0.725		0.966		
<b>WAP-Soil-16-DUP</b>	<b>15-06-1073-18-A</b>	<b>06/11/15 15:56</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/15/15</b>	<b>06/16/15 19:04</b>	<b>150615L02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		3.10	0.781		1.04		
<b>Method Blank</b>	<b>097-01-002-21229</b>	<b>N/A</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/15/15</b>	<b>06/16/15 17:33</b>	<b>150615L02</b>
<u>Parameter</u>		<u>Result</u>	<u>RL</u>		<u>DF</u>		<u>Qualifiers</u>
Arsenic		ND	0.746		0.995		

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

## Analytical Report

Geosyntec Consultants  
 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648-2460

Date Received: 06/12/15  
 Work Order: 15-06-1073  
 Preparation: EPA 3545  
 Method: EPA 8081A  
 Units: ug/kg

Project: HR1462-11

Page 1 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Composite-1</b>	<b>15-06-1073-19-A</b>	<b>06/11/15 00:00</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/15/15</b>	<b>06/17/15 04:59</b>	<b>150615L06</b>

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1.00	
Alpha-BHC	ND	10	1.00	
Beta-BHC	ND	5.0	1.00	
Chlordane	ND	50	1.00	
4,4'-DDD	ND	5.0	1.00	
4,4'-DDE	ND	5.0	1.00	
4,4'-DDT	ND	5.0	1.00	
Delta-BHC	ND	10	1.00	
Dieldrin	ND	5.0	1.00	
Endosulfan I	ND	5.0	1.00	
Endosulfan II	ND	5.0	1.00	
Endosulfan Sulfate	ND	5.0	1.00	
Endrin	ND	5.0	1.00	
Endrin Aldehyde	ND	5.0	1.00	
Endrin Ketone	ND	5.0	1.00	
Gamma-BHC	ND	5.0	1.00	
Heptachlor	ND	5.0	1.00	
Heptachlor Epoxide	ND	10	1.00	
Methoxychlor	ND	5.0	1.00	
Toxaphene	ND	100	1.00	
<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>	
Decachlorobiphenyl	93	24-168		
2,4,5,6-Tetrachloro-m-Xylene	87	25-145		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

## Analytical Report

Geosyntec Consultants	Date Received:	06/12/15
2100 Main Street, Suite 150	Work Order:	15-06-1073
Huntington Beach, CA 92648-2460	Preparation:	EPA 3545
	Method:	EPA 8081A
	Units:	ug/kg

Project: HR1462-11 Page 2 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Composite-2</b>	<b>15-06-1073-20-A</b>	<b>06/11/15 00:00</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/15/15</b>	<b>06/17/15 05:14</b>	<b>150615L06</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Aldrin	ND	5.1	1.00	
Alpha-BHC	ND	10	1.00	
Beta-BHC	ND	5.1	1.00	
Chlordane	ND	51	1.00	
4,4'-DDD	ND	5.1	1.00	
4,4'-DDE	ND	5.1	1.00	
4,4'-DDT	ND	5.1	1.00	
Delta-BHC	ND	10	1.00	
Dieldrin	ND	5.1	1.00	
Endosulfan I	ND	5.1	1.00	
Endosulfan II	ND	5.1	1.00	
Endosulfan Sulfate	ND	5.1	1.00	
Endrin	ND	5.1	1.00	
Endrin Aldehyde	ND	5.1	1.00	
Endrin Ketone	ND	5.1	1.00	
Gamma-BHC	ND	5.1	1.00	
Heptachlor	ND	5.1	1.00	
Heptachlor Epoxide	ND	10	1.00	
Methoxychlor	ND	5.1	1.00	
Toxaphene	ND	100	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	85	24-168	
2,4,5,6-Tetrachloro-m-Xylene	81	25-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

## Analytical Report

Geosyntec Consultants	Date Received:	06/12/15
2100 Main Street, Suite 150	Work Order:	15-06-1073
Huntington Beach, CA 92648-2460	Preparation:	EPA 3545
	Method:	EPA 8081A
	Units:	ug/kg

Project: HR1462-11 Page 3 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Composite-3</b>	<b>15-06-1073-21-A</b>	<b>06/11/15 00:00</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/15/15</b>	<b>06/18/15 19:49</b>	<b>150615L06</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Aldrin		ND		5.0		1.00	
Alpha-BHC		ND		10		1.00	
Beta-BHC		ND		5.0		1.00	
Chlordane		ND		50		1.00	
4,4'-DDD		ND		5.0		1.00	
4,4'-DDE		ND		5.0		1.00	
4,4'-DDT		ND		5.0		1.00	
Delta-BHC		ND		10		1.00	
Dieldrin		ND		5.0		1.00	
Endosulfan I		ND		5.0		1.00	
Endosulfan II		ND		5.0		1.00	
Endosulfan Sulfate		ND		5.0		1.00	
Endrin		ND		5.0		1.00	
Endrin Aldehyde		ND		5.0		1.00	
Endrin Ketone		ND		5.0		1.00	
Gamma-BHC		ND		5.0		1.00	
Heptachlor		ND		5.0		1.00	
Heptachlor Epoxide		ND		10		1.00	
Methoxychlor		ND		5.0		1.00	
Toxaphene		ND		100		1.00	
<u>Surrogate</u>		<u>Rec. (%)</u>		<u>Control Limits</u>		<u>Qualifiers</u>	
Decachlorobiphenyl		69		24-168			
2,4,5,6-Tetrachloro-m-Xylene		78		25-145			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

## Analytical Report

Geosyntec Consultants	Date Received:	06/12/15
2100 Main Street, Suite 150	Work Order:	15-06-1073
Huntington Beach, CA 92648-2460	Preparation:	EPA 3545
	Method:	EPA 8081A
	Units:	ug/kg

Project: HR1462-11

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Composite-4</b>	<b>15-06-1073-22-A</b>	<b>06/11/15 00:00</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/15/15</b>	<b>06/17/15 05:42</b>	<b>150615L06</b>

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1.00	
Alpha-BHC	ND	9.9	1.00	
Beta-BHC	ND	5.0	1.00	
Chlordane	ND	50	1.00	
4,4'-DDD	ND	5.0	1.00	
4,4'-DDE	ND	5.0	1.00	
4,4'-DDT	ND	5.0	1.00	
Delta-BHC	ND	9.9	1.00	
Dieldrin	ND	5.0	1.00	
Endosulfan I	ND	5.0	1.00	
Endosulfan II	ND	5.0	1.00	
Endosulfan Sulfate	ND	5.0	1.00	
Endrin	ND	5.0	1.00	
Endrin Aldehyde	ND	5.0	1.00	
Endrin Ketone	ND	5.0	1.00	
Gamma-BHC	ND	5.0	1.00	
Heptachlor	ND	5.0	1.00	
Heptachlor Epoxide	ND	9.9	1.00	
Methoxychlor	ND	5.0	1.00	
Toxaphene	ND	99	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	72	24-168	
2,4,5,6-Tetrachloro-m-Xylene	70	25-145	


  
 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

## Analytical Report

Geosyntec Consultants	Date Received:	06/12/15
2100 Main Street, Suite 150	Work Order:	15-06-1073
Huntington Beach, CA 92648-2460	Preparation:	EPA 3545
	Method:	EPA 8081A
	Units:	ug/kg

Project: HR1462-11 Page 5 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Composite-4-DUP</b>	<b>15-06-1073-23-A</b>	<b>06/11/15 00:00</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/15/15</b>	<b>06/17/15 05:57</b>	<b>150615L06</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Aldrin	ND	5.0	1.00	
Alpha-BHC	ND	10	1.00	
Beta-BHC	ND	5.0	1.00	
Chlordane	ND	50	1.00	
4,4'-DDD	ND	5.0	1.00	
4,4'-DDE	ND	5.0	1.00	
4,4'-DDT	ND	5.0	1.00	
Delta-BHC	ND	10	1.00	
Dieldrin	ND	5.0	1.00	
Endosulfan I	ND	5.0	1.00	
Endosulfan II	ND	5.0	1.00	
Endosulfan Sulfate	ND	5.0	1.00	
Endrin	ND	5.0	1.00	
Endrin Aldehyde	ND	5.0	1.00	
Endrin Ketone	ND	5.0	1.00	
Gamma-BHC	ND	5.0	1.00	
Heptachlor	ND	5.0	1.00	
Heptachlor Epoxide	ND	10	1.00	
Methoxychlor	ND	5.0	1.00	
Toxaphene	ND	100	1.00	
 <u>Surrogate</u>	 <u>Rec. (%)</u>	 <u>Control Limits</u>	 <u>Qualifiers</u>	
Decachlorobiphenyl	78	24-168		
2,4,5,6-Tetrachloro-m-Xylene	77	25-145		


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

## Analytical Report

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/12/15  
Work Order: 15-06-1073  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: HR1462-11

Page 6 of 6

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Method Blank</b>	<b>099-12-537-2139</b>	<b>N/A</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/15/15</b>	<b>06/16/15 12:01</b>	<b>150615L06</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Aldrin	ND	5.0	1.00	
Alpha-BHC	ND	10	1.00	
Beta-BHC	ND	5.0	1.00	
Chlordane	ND	50	1.00	
4,4'-DDD	ND	5.0	1.00	
4,4'-DDE	ND	5.0	1.00	
4,4'-DDT	ND	5.0	1.00	
Delta-BHC	ND	10	1.00	
Dieldrin	ND	5.0	1.00	
Endosulfan I	ND	5.0	1.00	
Endosulfan II	ND	5.0	1.00	
Endosulfan Sulfate	ND	5.0	1.00	
Endrin	ND	5.0	1.00	
Endrin Aldehyde	ND	5.0	1.00	
Endrin Ketone	ND	5.0	1.00	
Gamma-BHC	ND	5.0	1.00	
Heptachlor	ND	5.0	1.00	
Heptachlor Epoxide	ND	10	1.00	
Methoxychlor	ND	5.0	1.00	
Toxaphene	ND	100	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	89	24-168	
2,4,5,6-Tetrachloro-m-Xylene	87	25-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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## Quality Control - Spike/Spike Duplicate

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/12/15  
Work Order: 15-06-1073  
Preparation: EPA 3050B  
Method: EPA 6010B

Project: HR1462-11

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-06-0807-31	Sample	Solid	ICP 7300	06/15/15	06/16/15 18:46	150615S02
15-06-0807-31	Matrix Spike	Solid	ICP 7300	06/15/15	06/16/15 18:47	150615S02
15-06-0807-31	Matrix Spike Duplicate	Solid	ICP 7300	06/15/15	06/16/15 18:48	150615S02

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	8.330	25.00	32.94	98	33.89	102	75-125	3	0-20	

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RPD: Relative Percent Difference. CL: Control Limits



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## Quality Control - Spike/Spike Duplicate

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/12/15  
Work Order: 15-06-1073  
Preparation: EPA 3545  
Method: EPA 8081A

Project: HR1462-11

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-06-1087-19	Sample	Solid	GC 51	06/15/15	06/16/15 14:55	150615S06
15-06-1087-19	Matrix Spike	Solid	GC 51	06/15/15	06/16/15 14:11	150615S06
15-06-1087-19	Matrix Spike Duplicate	Solid	GC 51	06/15/15	06/16/15 14:25	150615S06

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	25.00	19.81	79	19.06	76	50-135	4	0-25	
Alpha-BHC	ND	25.00	26.43	106	27.65	111	50-135	5	0-25	
Beta-BHC	ND	25.00	23.22	93	23.97	96	50-135	3	0-25	
4,4'-DDD	19.52	25.00	40.98	86	41.45	88	50-135	1	0-25	
4,4'-DDE	47.08	25.00	58.76	47	60.15	52	50-135	2	0-25	3
4,4'-DDT	5.863	25.00	31.88	104	33.77	112	50-135	6	0-25	
Delta-BHC	ND	25.00	26.48	106	26.42	106	50-135	0	0-25	
Dieldrin	ND	25.00	28.68	115	29.01	116	50-135	1	0-25	
Endosulfan I	ND	25.00	22.77	91	22.71	91	50-135	0	0-25	
Endosulfan II	ND	25.00	25.54	102	26.27	105	50-135	3	0-25	
Endosulfan Sulfate	ND	25.00	23.02	92	22.87	91	50-135	1	0-25	
Endrin	ND	25.00	30.97	124	32.13	129	50-135	4	0-25	
Endrin Aldehyde	ND	25.00	22.53	90	22.78	91	50-135	1	0-25	
Gamma-BHC	ND	25.00	22.95	92	22.85	91	50-135	0	0-25	
Heptachlor	ND	25.00	23.21	93	21.99	88	50-135	5	0-25	
Heptachlor Epoxide	ND	25.00	24.71	99	24.34	97	50-135	2	0-25	
Methoxychlor	ND	25.00	31.09	124	32.40	130	50-135	4	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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## Quality Control - LCS

Geosyntec Consultants  
 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648-2460

Date Received: 06/12/15  
 Work Order: 15-06-1073  
 Preparation: EPA 3050B  
 Method: EPA 6010B

Project: HR1462-11

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
<b>097-01-002-21229</b>	<b>LCS</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/15/15</b>	<b>06/16/15 17:35</b>	<b>150615L02</b>
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic		25.00	23.95	96	80-120	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

## Quality Control - LCS

Geosyntec Consultants  
 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648-2460

Date Received: 06/12/15  
 Work Order: 15-06-1073  
 Preparation: EPA 3545  
 Method: EPA 8081A

Project: HR1462-11

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number	
<b>099-12-537-2139</b>	<b>LCS</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/15/15</b>	<b>06/16/15 11:47</b>	<b>150615L06</b>	
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
Aldrin		25.00	21.44	86	50-135	36-149	
Alpha-BHC		25.00	18.09	72	50-135	36-149	
Beta-BHC		25.00	23.57	94	50-135	36-149	
4,4'-DDD		25.00	21.64	87	50-135	36-149	
4,4'-DDE		25.00	22.18	89	50-135	36-149	
4,4'-DDT		25.00	23.52	94	50-135	36-149	
Delta-BHC		25.00	20.90	84	50-135	36-149	
Dieldrin		25.00	23.78	95	50-135	36-149	
Endosulfan I		25.00	21.68	87	50-135	36-149	
Endosulfan II		25.00	21.39	86	50-135	36-149	
Endosulfan Sulfate		25.00	21.29	85	50-135	36-149	
Endrin		25.00	21.46	86	50-135	36-149	
Endrin Aldehyde		25.00	16.23	65	50-135	36-149	
Gamma-BHC		25.00	20.30	81	50-135	36-149	
Heptachlor		25.00	22.28	89	50-135	36-149	
Heptachlor Epoxide		25.00	21.76	87	50-135	36-149	
Methoxychlor		25.00	23.92	96	50-135	36-149	

Total number of LCS compounds: 17

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

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## Sample Analysis Summary Report

Work Order: 15-06-1073

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<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 6010B	EPA 3050B	935	ICP 7300	1
EPA 8081A	EPA 3545	669	GC 51	1

## Glossary of Terms and Qualifiers

Work Order: 15-06-1073

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.



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CHAIN-OF-CUSTODY RECORD

DATE: 6/12/15  
PAGE: 1 OF 3

WO NO. / LAB USE ONLY  
**15-06-1073**

LABORATORY CLIENT: **Geosyntec**

ADDRESS: **2100 Main St, Ste 150**

CITY: **Huntington Beach** STATE: **CA** ZIP: **92648**

TEL: **714 465-1230** E-MAIL: **mthomas@geosyntec.com**

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):  
 SAME DAY  24 HR  48 HR  72 HR  5 DAYS  STANDARD

EOB:  COELT EDF  OTHER

SPECIAL INSTRUCTIONS:  
**Composite Samples:**  
**WAP-composite-1 => WAP-soil-1, WAP-soil-2, WAP-soil-15, WAP-soil-16**  
**WAP-composite-2 => WAP-soil-3, WAP-soil-12, WAP-soil-13, WAP-soil-14**  
**\* Hold remaining sample volumes**

CLIENT PROJECT NAME / NO.: **HR1462-11**

LAB CONTACT OR QUOTE NO.:

PROJECT CONTACT: **Matt Thomas**

GLOBAL ID:

LOG CODE:

SAMPLER(S): (PRINT)  
**Zahra Amini**

LAB USE ONLY	SAMPLE ID	SAMPLING		MATRIX	NO. OF CONT.	Requested Analyses	
		DATE	TIME			Requested	Field
1	WAP-soil-1	6/11/15	9:40	S	1	Unpreserved	Field Filtered
2	WAP-soil-2	6/11/15	10:05	S	1	Unpreserved	Field Filtered
3	WAP-soil-3	6/11/15	10:20	S	1	Unpreserved	Field Filtered
4	WAP-soil-4	6/11/15	11:05	S	1	Unpreserved	Field Filtered
5	WAP-soil-5	6/11/15	11:30	S	1	Unpreserved	Field Filtered
6	WAP-soil-6	6/11/15	11:55	S	1	Unpreserved	Field Filtered
7	WAP-soil-7	6/11/15	12:13	S	1	Unpreserved	Field Filtered
8	WAP-soil-8	6/11/15	12:42	S	1	Unpreserved	Field Filtered
9	WAP-soil-9	6/11/15	13:42	S	1	Unpreserved	Field Filtered
10	WAP-soil-10	6/11/15	14:05	S	1	Unpreserved	Field Filtered

**REQUESTED ANALYSES**  
Please check box or fill in blank as needed.

Cr(VI) <input type="checkbox"/> 7196 <input type="checkbox"/> 7199 <input type="checkbox"/> 218.6	PCBs (8082)	PAHs <input type="checkbox"/> 8270 <input type="checkbox"/> 8270 SIM	Pesticides (8081)	SVOcs (8270)	Prep (5035) <input type="checkbox"/> En Core <input type="checkbox"/> Terra Core	Oxygenates (8260)	VOCs (8260)	BTEX / MTBE <input type="checkbox"/> 8260 <input type="checkbox"/>	TPH	TPH <input type="checkbox"/> C6-C36 <input type="checkbox"/> C6-C44	<input type="checkbox"/> TPH(d) <input type="checkbox"/> DRO	<input type="checkbox"/> TPH(g) <input type="checkbox"/> GRO
<input checked="" type="checkbox"/>												

Received by: (Signature/Affiliation) **EEI** Date: **6/12/15** Time: **15:25**

Received by: (Signature/Affiliation) **sample** Date: **6/12/15** Time: **16:00**

Relinquished by: (Signature) **Matt Thomas**

Relinquished by: (Signature)

Relinquished by: (Signature)



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For courier service / sample drop off information, contact us26\_sales@eurofins.com or call us.

CHAIN-OF-CUSTODY RECORD

DATE: 6/12/15  
PAGE: 2 OF 3

WO NO. / LAB USE ONLY  
15-06-1073

LABORATORY CLIENT: Geosyntec  
 ADDRESS: 2100 Main St, Site 150  
 CITY: Huntington Beach STATE: CA ZIP: 92648  
 TEL: 714 465-1230 E-MAIL: mthomas@geosyntec.com  
 TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):  
 SAME DAY  24 HR  48 HR  72 HR  5 DAYS  STANDARD  
 EDD:  COELT EDF  OTHER

CLIENT PROJECT NAME / NO.: HR1462-11  
 PROJECT CONTACT: Matt Thomas  
 GLOBAL ID: \_\_\_\_\_ LOG CODE: \_\_\_\_\_  
 SAMPLER(S): (PRINT) Zahra Amini  
 LAB CONTACT OR QUOTE NO.: \_\_\_\_\_  
 P.O. NO.: \_\_\_\_\_

**REQUESTED ANALYSES**  
Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING		MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) <input type="checkbox"/> GRO	TPH (d) <input type="checkbox"/> DRO	TPH <input type="checkbox"/> C6-C36 <input type="checkbox"/> C6-C44	TPH	BTEX / MTBE <input type="checkbox"/> 8260 <input type="checkbox"/>	VOCs (8260)	Oxygenates (8260)	Prep (5035) <input type="checkbox"/> En Core <input type="checkbox"/> Terra Core	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PAHs <input type="checkbox"/> 8270 <input type="checkbox"/> 8270 SIM	T22 Metals <input type="checkbox"/> 6010/747X <input type="checkbox"/> 6020/747X	Cr(VI) <input type="checkbox"/> 7196 <input type="checkbox"/> 7199 <input type="checkbox"/> 218.6	610B ICP (As Only)	
		DATE	TIME																					
	11 WAP-soil-11	6/11/15	14:21	S	1	X																		
	12 WAP-soil-12	6/11/15	14:38	S	1	X																		
	13 WAP-soil-13	6/11/15	14:57	S	1	X																		
	14 WAP-soil-14	6/11/15	15:18	S	1	X																		
	15 WAP-soil-14-Dup	6/11/15	15:18	S	1	X																		
	16 WAP-soil-15	6/11/15	15:30	S	1	X																		
	17 WAP-soil-16	6/11/15	15:56	S	1	X																		
	18 WAP-soil-16-Dup	6/11/15	15:56	S	1	X																		
	19 WAP-composite-1																							
	20 WAP-composite-2																							

Relinquished by: (Signature) Matt Thomas Date: 6/12/15 Time: 15:25  
 Relinquished by: (Signature) \_\_\_\_\_ Date: 6/12/15 Time: 16:00  
 Relinquished by: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_



SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Geosyntec

DATE: 06/12/2015

**TEMPERATURE:** (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC2 (CF:-0.3°C); Temperature (w/o CF): 3.0 °C (w/ CF): 2.7 °C;  Blank  Sample

Sample(s) outside temperature criteria (PM/APM contacted by: \_\_\_\_\_)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature:  Air  Filter

Checked by: SR

**CUSTODY SEAL:**

Cooler  Present and Intact  Present but Not Intact  Not Present  N/A

Sample(s)  Present and Intact  Present but Not Intact  Not Present  N/A

Checked by: SR

Checked by: 965

SAMPLE CONDITION:	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers			
<input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen .....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container .....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Container(s) for certain analysis free of headspace .....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500)			
<input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation .....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**CONTAINER TYPE:** (Trip Blank Lot Number: \_\_\_\_\_)

**Aqueous:**  VOA  VOA<sub>h</sub>  VOA<sub>na2</sub>  100PJ  100PJ<sub>na2</sub>  125AGB  125AGB<sub>h</sub>  125AGB<sub>p</sub>  125PB

125PB<sub>z<sub>na</sub></sub>  250AGB  250CGB  250CGB<sub>s</sub>  250PB  250PB<sub>n</sub>  500AGB  500AGJ  500AGJ<sub>s</sub>

500PB  1AGB  1AGB<sub>na2</sub>  1AGB<sub>s</sub>  1PB  1PB<sub>na</sub>  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

**Solid:**  4ozCGJ  8ozCGJ  16ozCGJ  Sleeve (\_\_\_\_\_)  EnCores® (\_\_\_\_\_)  TerraCores® (\_\_\_\_\_)  \_\_\_\_\_

**Air:**  Tedlar™  Canister  Sorbent Tube  PUF  \_\_\_\_\_ **Other Matrix** (\_\_\_\_\_)  \_\_\_\_\_  \_\_\_\_\_

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

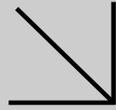
Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO<sub>3</sub>, **na** = NaOH, **na<sub>2</sub>** = Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>, **p** = H<sub>3</sub>PO<sub>4</sub>, Labeled/Checked by: 965

**s** = H<sub>2</sub>SO<sub>4</sub>, **u** = ultra-pure, **z<sub>na</sub>** = Zn(CH<sub>3</sub>CO<sub>2</sub>)<sub>2</sub> + NaOH Reviewed by: SR

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**WORK ORDER NUMBER: 15-06-1646**

*The difference is service*



AIR | SOIL | WATER | MARINE CHEMISTRY

**Analytical Report For**

**Client:** Geosyntec Consultants

**Client Project Name:** HR1462-11

**Attention:** Matt Thomas  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Approved for release on 06/30/2015 by:  
Stephen Nowak  
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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 Work Order Number: 15-06-1646

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**Condition Upon Receipt:**

Samples were received under Chain-of-Custody (COC) on 06/19/15. They were assigned to Work Order 15-06-1646.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

**Holding Times:**

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of  $\leq 15$  minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

**Quality Control:**

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

**Subcontractor Information:**

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

**Additional Comments:**

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.



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## Sample Summary

Client: Geosyntec Consultants	Work Order: 15-06-1646
2100 Main Street, Suite 150	Project Name: HR1462-11
Huntington Beach, CA 92648-2460	PO Number:
	Date/Time Received: 06/19/15 16:25
	Number of Containers: 39

Attn: Matt Thomas

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
WAP-Soil-17	15-06-1646-1	06/18/15 09:45	1	Solid
WAP-Soil-18	15-06-1646-2	06/18/15 10:10	1	Solid
WAP-Soil-19	15-06-1646-3	06/18/15 10:23	1	Solid
WAP-Soil-20	15-06-1646-4	06/18/15 10:38	1	Solid
WAP-Soil-21	15-06-1646-5	06/18/15 10:53	1	Solid
WAP-Soil-21-DUP	15-06-1646-6	06/18/15 10:53	1	Solid
WAP-Soil-22	15-06-1646-7	06/18/15 11:27	1	Solid
WAP-Soil-23	15-06-1646-8	06/18/15 11:43	1	Solid
WAP-Soil-24	15-06-1646-9	06/18/15 12:02	1	Solid
WAP-Soil-25	15-06-1646-10	06/18/15 12:24	1	Solid
WAP-Soil-26	15-06-1646-11	06/18/15 12:46	1	Solid
WAP-Soil-27	15-06-1646-12	06/18/15 13:04	1	Solid
WAP-Soil-28	15-06-1646-13	06/18/15 13:54	1	Solid
WAP-Soil-29	15-06-1646-14	06/18/15 14:11	1	Solid
WAP-Soil-30	15-06-1646-15	06/18/15 14:30	1	Solid
WAP-Soil-30-DUP	15-06-1646-16	06/18/15 14:30	1	Solid
WAP-Soil-31	15-06-1646-17	06/18/15 14:55	1	Solid
WAP-Soil-32	15-06-1646-18	06/18/15 15:05	1	Solid
WAP-Soil-33	15-06-1646-19	06/18/15 15:18	1	Solid
WAP-Soil-34	15-06-1646-20	06/19/15 10:24	1	Solid
WAP-Soil-35	15-06-1646-21	06/19/15 10:40	1	Solid
WAP-Soil-36	15-06-1646-22	06/19/15 10:56	1	Solid
WAP-Soil-37	15-06-1646-23	06/19/15 11:15	1	Solid
WAP-Soil-38	15-06-1646-24	06/19/15 11:32	1	Solid
WAP-Soil-39	15-06-1646-25	06/19/15 11:54	1	Solid
WAP-Soil-39-DUP	15-06-1646-26	06/19/15 11:54	1	Solid
WAP-Soil-40	15-06-1646-27	06/19/15 12:11	1	Solid
WAP-Soil-41	15-06-1646-28	06/19/15 12:26	1	Solid
WAP-Soil-42	15-06-1646-29	06/19/15 12:40	1	Solid
WAP-Soil-43	15-06-1646-30	06/19/15 13:05	1	Solid
WAP-Soil-44	15-06-1646-31	06/19/15 13:24	1	Solid
WAP-Composite-5	15-06-1646-32	06/19/15 00:00	1	Solid
WAP-Composite-6	15-06-1646-33	06/19/15 00:00	1	Solid
WAP-Composite-7	15-06-1646-34	06/19/15 00:00	1	Solid
WAP-Composite-8	15-06-1646-35	06/19/15 00:00	1	Solid
WAP-Composite-9	15-06-1646-36	06/19/15 00:00	1	Solid
WAP-Composite-9-DUP	15-06-1646-37	06/19/15 00:00	1	Solid
WAP-Composite-10	15-06-1646-38	06/19/15 00:00	1	Solid
WAP-Composite-11	15-06-1646-39	06/19/15 00:00	1	Solid


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## Detections Summary

Client: Geosyntec Consultants  
 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648-2460

Work Order: 15-06-1646  
 Project Name: HR1462-11  
 Received: 06/19/15

Attn: Matt Thomas

Page 1 of 1

### Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
WAP-Soil-17 (15-06-1646-1) Arsenic	2.76		0.750	mg/kg	EPA 6010B	EPA 3050B
WAP-Soil-20 (15-06-1646-4) Arsenic	2.78		0.754	mg/kg	EPA 6010B	EPA 3050B
WAP-Soil-23 (15-06-1646-8) Arsenic	4.90		0.754	mg/kg	EPA 6010B	EPA 3050B
WAP-Soil-28 (15-06-1646-13) Arsenic	4.07		0.746	mg/kg	EPA 6010B	EPA 3050B
WAP-Soil-31 (15-06-1646-17) Arsenic	1.73		0.739	mg/kg	EPA 6010B	EPA 3050B
WAP-Soil-34 (15-06-1646-20) Arsenic	1.86		0.728	mg/kg	EPA 6010B	EPA 3050B
WAP-Soil-39 (15-06-1646-25) Arsenic	2.45		0.758	mg/kg	EPA 6010B	EPA 3050B
WAP-Soil-39-DUP (15-06-1646-26) Arsenic	2.41		0.761	mg/kg	EPA 6010B	EPA 3050B
WAP-Composite-11 (15-06-1646-39) 4,4'-DDE	10		5.0	ug/kg	EPA 8081A	EPA 3545

Subcontracted analyses, if any, are not included in this summary.

\* MDL is shown



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## Analytical Report

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3050B  
Method: EPA 6010B  
Units: mg/kg

Project: HR1462-11

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Soil-17</b>	<b>15-06-1646-1-A</b>	<b>06/18/15 09:45</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/23/15</b>	<b>06/30/15 15:23</b>	<b>150623L04</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		2.76		0.750		1.00	
<b>WAP-Soil-20</b>	<b>15-06-1646-4-A</b>	<b>06/18/15 10:38</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/23/15</b>	<b>06/30/15 15:24</b>	<b>150623L04</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		2.78		0.754		1.01	
<b>WAP-Soil-23</b>	<b>15-06-1646-8-A</b>	<b>06/18/15 11:43</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/23/15</b>	<b>06/30/15 15:24</b>	<b>150623L04</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		4.90		0.754		1.01	
<b>WAP-Soil-28</b>	<b>15-06-1646-13-A</b>	<b>06/18/15 13:54</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/23/15</b>	<b>06/30/15 15:25</b>	<b>150623L04</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		4.07		0.746		0.995	
<b>WAP-Soil-31</b>	<b>15-06-1646-17-A</b>	<b>06/18/15 14:55</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/23/15</b>	<b>06/30/15 15:26</b>	<b>150623L04</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		1.73		0.739		0.985	
<b>WAP-Soil-34</b>	<b>15-06-1646-20-A</b>	<b>06/19/15 10:24</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/23/15</b>	<b>06/30/15 15:29</b>	<b>150623L04</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		1.86		0.728		0.971	
<b>WAP-Soil-39</b>	<b>15-06-1646-25-A</b>	<b>06/19/15 11:54</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/23/15</b>	<b>06/30/15 15:30</b>	<b>150623L04</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		2.45		0.758		1.01	
<b>WAP-Soil-39-DUP</b>	<b>15-06-1646-26-A</b>	<b>06/19/15 11:54</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/23/15</b>	<b>06/30/15 15:30</b>	<b>150623L04</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Arsenic		2.41		0.761		1.02	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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## Analytical Report

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3050B  
Method: EPA 6010B  
Units: mg/kg

Project: HR1462-11

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Method Blank</b>	<b>097-01-002-21336</b>	<b>N/A</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/23/15</b>	<b>06/30/15 15:50</b>	<b>150623L04</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Arsenic	ND	0.735	0.980	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

## Analytical Report

Geosyntec Consultants	Date Received:	06/19/15
2100 Main Street, Suite 150	Work Order:	15-06-1646
Huntington Beach, CA 92648-2460	Preparation:	EPA 3545
	Method:	EPA 8081A
	Units:	ug/kg

Project: HR1462-11 Page 1 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Composite-5</b>	<b>15-06-1646-32-A</b>	<b>06/19/15 00:00</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/22/15</b>	<b>06/24/15 12:17</b>	<b>150622L05</b>
<u>Parameter</u>		<u>Result</u>		<u>RL</u>		<u>DF</u>	<u>Qualifiers</u>
Aldrin		ND		5.0		1.00	
Alpha-BHC		ND		10		1.00	
Beta-BHC		ND		5.0		1.00	
Chlordane		ND		50		1.00	
4,4'-DDD		ND		5.0		1.00	
4,4'-DDE		ND		5.0		1.00	
4,4'-DDT		ND		5.0		1.00	
Delta-BHC		ND		10		1.00	
Dieldrin		ND		5.0		1.00	
Endosulfan I		ND		5.0		1.00	
Endosulfan II		ND		5.0		1.00	
Endosulfan Sulfate		ND		5.0		1.00	
Endrin		ND		5.0		1.00	
Endrin Aldehyde		ND		5.0		1.00	
Endrin Ketone		ND		5.0		1.00	
Gamma-BHC		ND		5.0		1.00	
Heptachlor		ND		5.0		1.00	
Heptachlor Epoxide		ND		10		1.00	
Methoxychlor		ND		5.0		1.00	
Toxaphene		ND		100		1.00	
<u>Surrogate</u>		<u>Rec. (%)</u>		<u>Control Limits</u>		<u>Qualifiers</u>	
Decachlorobiphenyl		73		24-168			
2,4,5,6-Tetrachloro-m-Xylene		58		25-145			

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

## Analytical Report

Geosyntec Consultants	Date Received:	06/19/15
2100 Main Street, Suite 150	Work Order:	15-06-1646
Huntington Beach, CA 92648-2460	Preparation:	EPA 3545
	Method:	EPA 8081A
	Units:	ug/kg

Project: HR1462-11 Page 2 of 10

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Composite-6</b>	<b>15-06-1646-33-A</b>	<b>06/19/15 00:00</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/24/15</b>	<b>06/25/15 13:56</b>	<b>150624L06</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Aldrin	ND	5.0	1.00	
Alpha-BHC	ND	10	1.00	
Beta-BHC	ND	5.0	1.00	
Chlordane	ND	50	1.00	
4,4'-DDD	ND	5.0	1.00	
4,4'-DDE	ND	5.0	1.00	
4,4'-DDT	ND	5.0	1.00	
Delta-BHC	ND	10	1.00	
Dieldrin	ND	5.0	1.00	
Endosulfan I	ND	5.0	1.00	
Endosulfan II	ND	5.0	1.00	
Endosulfan Sulfate	ND	5.0	1.00	
Endrin	ND	5.0	1.00	
Endrin Aldehyde	ND	5.0	1.00	
Endrin Ketone	ND	5.0	1.00	
Gamma-BHC	ND	5.0	1.00	
Heptachlor	ND	5.0	1.00	
Heptachlor Epoxide	ND	10	1.00	
Methoxychlor	ND	5.0	1.00	
Toxaphene	ND	100	1.00	
 <u>Surrogate</u>	 <u>Rec. (%)</u>	 <u>Control Limits</u>	 <u>Qualifiers</u>	
Decachlorobiphenyl	72	24-168		
2,4,5,6-Tetrachloro-m-Xylene	67	25-145		

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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## Analytical Report

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: HR1462-11

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Composite-7</b>	<b>15-06-1646-34-A</b>	<b>06/19/15 00:00</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/22/15</b>	<b>06/24/15 12:46</b>	<b>150622L05</b>

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1.00	
Alpha-BHC	ND	10	1.00	
Beta-BHC	ND	5.0	1.00	
Chlordane	ND	50	1.00	
4,4'-DDD	ND	5.0	1.00	
4,4'-DDE	ND	5.0	1.00	
4,4'-DDT	ND	5.0	1.00	
Delta-BHC	ND	10	1.00	
Dieldrin	ND	5.0	1.00	
Endosulfan I	ND	5.0	1.00	
Endosulfan II	ND	5.0	1.00	
Endosulfan Sulfate	ND	5.0	1.00	
Endrin	ND	5.0	1.00	
Endrin Aldehyde	ND	5.0	1.00	
Endrin Ketone	ND	5.0	1.00	
Gamma-BHC	ND	5.0	1.00	
Heptachlor	ND	5.0	1.00	
Heptachlor Epoxide	ND	10	1.00	
Methoxychlor	ND	5.0	1.00	
Toxaphene	ND	100	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	61	24-168	
2,4,5,6-Tetrachloro-m-Xylene	59	25-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

## Analytical Report

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: HR1462-11

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Composite-8</b>	<b>15-06-1646-35-A</b>	<b>06/19/15 00:00</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/22/15</b>	<b>06/24/15 13:00</b>	<b>150622L05</b>

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1.00	
Alpha-BHC	ND	10	1.00	
Beta-BHC	ND	5.0	1.00	
Chlordane	ND	50	1.00	
4,4'-DDD	ND	5.0	1.00	
4,4'-DDE	ND	5.0	1.00	
4,4'-DDT	ND	5.0	1.00	
Delta-BHC	ND	10	1.00	
Dieldrin	ND	5.0	1.00	
Endosulfan I	ND	5.0	1.00	
Endosulfan II	ND	5.0	1.00	
Endosulfan Sulfate	ND	5.0	1.00	
Endrin	ND	5.0	1.00	
Endrin Aldehyde	ND	5.0	1.00	
Endrin Ketone	ND	5.0	1.00	
Gamma-BHC	ND	5.0	1.00	
Heptachlor	ND	5.0	1.00	
Heptachlor Epoxide	ND	10	1.00	
Methoxychlor	ND	5.0	1.00	
Toxaphene	ND	100	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	61	24-168	
2,4,5,6-Tetrachloro-m-Xylene	58	25-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

## Analytical Report

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: HR1462-11

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Composite-9</b>	<b>15-06-1646-36-A</b>	<b>06/19/15 00:00</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/22/15</b>	<b>06/24/15 13:14</b>	<b>150622L05</b>

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.1	1.00	
Alpha-BHC	ND	10	1.00	
Beta-BHC	ND	5.1	1.00	
Chlordane	ND	51	1.00	
4,4'-DDD	ND	5.1	1.00	
4,4'-DDE	ND	5.1	1.00	
4,4'-DDT	ND	5.1	1.00	
Delta-BHC	ND	10	1.00	
Dieldrin	ND	5.1	1.00	
Endosulfan I	ND	5.1	1.00	
Endosulfan II	ND	5.1	1.00	
Endosulfan Sulfate	ND	5.1	1.00	
Endrin	ND	5.1	1.00	
Endrin Aldehyde	ND	5.1	1.00	
Endrin Ketone	ND	5.1	1.00	
Gamma-BHC	ND	5.1	1.00	
Heptachlor	ND	5.1	1.00	
Heptachlor Epoxide	ND	10	1.00	
Methoxychlor	ND	5.1	1.00	
Toxaphene	ND	100	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	77	24-168	
2,4,5,6-Tetrachloro-m-Xylene	71	25-145	


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

## Analytical Report

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: HR1462-11

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Composite-9-DUP</b>	<b>15-06-1646-37-A</b>	<b>06/19/15 00:00</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/22/15</b>	<b>06/24/15 13:29</b>	<b>150622L05</b>

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1.00	
Alpha-BHC	ND	10	1.00	
Beta-BHC	ND	5.0	1.00	
Chlordane	ND	50	1.00	
4,4'-DDD	ND	5.0	1.00	
4,4'-DDE	ND	5.0	1.00	
4,4'-DDT	ND	5.0	1.00	
Delta-BHC	ND	10	1.00	
Dieldrin	ND	5.0	1.00	
Endosulfan I	ND	5.0	1.00	
Endosulfan II	ND	5.0	1.00	
Endosulfan Sulfate	ND	5.0	1.00	
Endrin	ND	5.0	1.00	
Endrin Aldehyde	ND	5.0	1.00	
Endrin Ketone	ND	5.0	1.00	
Gamma-BHC	ND	5.0	1.00	
Heptachlor	ND	5.0	1.00	
Heptachlor Epoxide	ND	10	1.00	
Methoxychlor	ND	5.0	1.00	
Toxaphene	ND	100	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	74	24-168	
2,4,5,6-Tetrachloro-m-Xylene	62	25-145	

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

## Analytical Report

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: HR1462-11

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Composite-10</b>	<b>15-06-1646-38-A</b>	<b>06/19/15 00:00</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/22/15</b>	<b>06/24/15 13:43</b>	<b>150622L05</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Aldrin	ND	5.0	1.00	
Alpha-BHC	ND	10	1.00	
Beta-BHC	ND	5.0	1.00	
Chlordane	ND	50	1.00	
4,4'-DDD	ND	5.0	1.00	
4,4'-DDE	ND	5.0	1.00	
4,4'-DDT	ND	5.0	1.00	
Delta-BHC	ND	10	1.00	
Dieldrin	ND	5.0	1.00	
Endosulfan I	ND	5.0	1.00	
Endosulfan II	ND	5.0	1.00	
Endosulfan Sulfate	ND	5.0	1.00	
Endrin	ND	5.0	1.00	
Endrin Aldehyde	ND	5.0	1.00	
Endrin Ketone	ND	5.0	1.00	
Gamma-BHC	ND	5.0	1.00	
Heptachlor	ND	5.0	1.00	
Heptachlor Epoxide	ND	10	1.00	
Methoxychlor	ND	5.0	1.00	
Toxaphene	ND	100	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	76	24-168	
2,4,5,6-Tetrachloro-m-Xylene	66	25-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

## Analytical Report

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: HR1462-11

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>WAP-Composite-11</b>	<b>15-06-1646-39-A</b>	<b>06/19/15 00:00</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/22/15</b>	<b>06/24/15 13:57</b>	<b>150622L05</b>

Parameter	Result	RL	DF	Qualifiers
Aldrin	ND	5.0	1.00	
Alpha-BHC	ND	10	1.00	
Beta-BHC	ND	5.0	1.00	
Chlordane	ND	50	1.00	
4,4'-DDD	ND	5.0	1.00	
4,4'-DDE	10	5.0	1.00	
4,4'-DDT	ND	5.0	1.00	
Delta-BHC	ND	10	1.00	
Dieldrin	ND	5.0	1.00	
Endosulfan I	ND	5.0	1.00	
Endosulfan II	ND	5.0	1.00	
Endosulfan Sulfate	ND	5.0	1.00	
Endrin	ND	5.0	1.00	
Endrin Aldehyde	ND	5.0	1.00	
Endrin Ketone	ND	5.0	1.00	
Gamma-BHC	ND	5.0	1.00	
Heptachlor	ND	5.0	1.00	
Heptachlor Epoxide	ND	10	1.00	
Methoxychlor	ND	5.0	1.00	
Toxaphene	ND	100	1.00	

Surrogate	Rec. (%)	Control Limits	Qualifiers
Decachlorobiphenyl	77	24-168	
2,4,5,6-Tetrachloro-m-Xylene	63	25-145	


 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

## Analytical Report

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: HR1462-11

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Method Blank</b>	<b>099-12-537-2145</b>	<b>N/A</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/22/15</b>	<b>06/23/15 04:53</b>	<b>150622L05</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Aldrin	ND	5.0	1.00	
Alpha-BHC	ND	10	1.00	
Beta-BHC	ND	5.0	1.00	
Chlordane	ND	50	1.00	
4,4'-DDD	ND	5.0	1.00	
4,4'-DDE	ND	5.0	1.00	
4,4'-DDT	ND	5.0	1.00	
Delta-BHC	ND	10	1.00	
Dieldrin	ND	5.0	1.00	
Endosulfan I	ND	5.0	1.00	
Endosulfan II	ND	5.0	1.00	
Endosulfan Sulfate	ND	5.0	1.00	
Endrin	ND	5.0	1.00	
Endrin Aldehyde	ND	5.0	1.00	
Endrin Ketone	ND	5.0	1.00	
Gamma-BHC	ND	5.0	1.00	
Heptachlor	ND	5.0	1.00	
Heptachlor Epoxide	ND	10	1.00	
Methoxychlor	ND	5.0	1.00	
Toxaphene	ND	100	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	40	24-168	
2,4,5,6-Tetrachloro-m-Xylene	35	25-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



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## Analytical Report

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3545  
Method: EPA 8081A  
Units: ug/kg

Project: HR1462-11

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
<b>Method Blank</b>	<b>099-12-537-2146</b>	<b>N/A</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/24/15</b>	<b>06/25/15 12:58</b>	<b>150624L06</b>

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qualifiers</u>
Aldrin	ND	5.0	1.00	
Alpha-BHC	ND	10	1.00	
Beta-BHC	ND	5.0	1.00	
Chlordane	ND	50	1.00	
4,4'-DDD	ND	5.0	1.00	
4,4'-DDE	ND	5.0	1.00	
4,4'-DDT	ND	5.0	1.00	
Delta-BHC	ND	10	1.00	
Dieldrin	ND	5.0	1.00	
Endosulfan I	ND	5.0	1.00	
Endosulfan II	ND	5.0	1.00	
Endosulfan Sulfate	ND	5.0	1.00	
Endrin	ND	5.0	1.00	
Endrin Aldehyde	ND	5.0	1.00	
Endrin Ketone	ND	5.0	1.00	
Gamma-BHC	ND	5.0	1.00	
Heptachlor	ND	5.0	1.00	
Heptachlor Epoxide	ND	10	1.00	
Methoxychlor	ND	5.0	1.00	
Toxaphene	ND	100	1.00	

<u>Surrogate</u>	<u>Rec. (%)</u>	<u>Control Limits</u>	<u>Qualifiers</u>
Decachlorobiphenyl	83	24-168	
2,4,5,6-Tetrachloro-m-Xylene	75	25-145	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

## Quality Control - Spike/Spike Duplicate

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3050B  
Method: EPA 6010B

Project: HR1462-11

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-06-1308-2	Sample	Solid	ICP 7300	06/23/15	06/30/15 15:56	150623S04
15-06-1308-2	Matrix Spike	Solid	ICP 7300	06/23/15	06/30/15 15:53	150623S04
15-06-1308-2	Matrix Spike Duplicate	Solid	ICP 7300	06/23/15	06/30/15 15:54	150623S04

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Arsenic	1.313	25.00	24.82	94	27.40	104	75-125	10	0-20	

  
Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

## Quality Control - Spike/Spike Duplicate

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3545  
Method: EPA 8081A

Project: HR1462-11

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-06-1598-1	Sample	Solid	GC 51	06/22/15	06/23/15 07:16	150622S05
15-06-1598-1	Matrix Spike	Solid	GC 51	06/22/15	06/23/15 09:11	150622S05
15-06-1598-1	Matrix Spike Duplicate	Solid	GC 51	06/22/15	06/23/15 09:26	150622S05

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	25.00	18.88	76	19.99	80	50-135	6	0-25	
Alpha-BHC	ND	25.00	19.96	80	20.86	83	50-135	4	0-25	
Beta-BHC	ND	25.00	15.95	64	19.98	80	50-135	22	0-25	
4,4'-DDD	ND	25.00	28.21	113	31.70	127	50-135	12	0-25	
4,4'-DDE	ND	25.00	23.54	94	24.41	98	50-135	4	0-25	
4,4'-DDT	ND	25.00	18.16	73	17.64	71	50-135	3	0-25	
Delta-BHC	ND	25.00	18.10	72	20.51	82	50-135	12	0-25	
Dieldrin	ND	25.00	27.54	110	25.23	101	50-135	9	0-25	
Endosulfan I	ND	25.00	21.23	85	20.85	83	50-135	2	0-25	
Endosulfan II	ND	25.00	18.60	74	20.98	84	50-135	12	0-25	
Endosulfan Sulfate	ND	25.00	36.15	145	25.28	101	50-135	35	0-25	3,4
Endrin	ND	25.00	26.46	106	27.30	109	50-135	3	0-25	
Endrin Aldehyde	ND	25.00	16.04	64	18.37	73	50-135	14	0-25	
Gamma-BHC	ND	25.00	20.61	82	21.81	87	50-135	6	0-25	
Heptachlor	ND	25.00	20.03	80	20.59	82	50-135	3	0-25	
Heptachlor Epoxide	ND	25.00	21.76	87	25.56	102	50-135	16	0-25	
Methoxychlor	ND	25.00	26.82	107	19.02	76	50-135	34	0-25	4

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

## Quality Control - Spike/Spike Duplicate

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3545  
Method: EPA 8081A

Project: HR1462-11

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
15-06-1798-11	Sample	Solid	GC 51	06/24/15	06/25/15 13:41	150624S06
15-06-1798-11	Matrix Spike	Solid	GC 51	06/24/15	06/25/15 13:12	150624S06
15-06-1798-11	Matrix Spike Duplicate	Solid	GC 51	06/24/15	06/25/15 13:27	150624S06

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Aldrin	ND	25.00	17.22	69	9.206	37	50-135	61	0-25	3,4
Alpha-BHC	ND	25.00	17.87	71	9.608	38	50-135	60	0-25	3,4
Beta-BHC	ND	25.00	17.73	71	9.398	38	50-135	61	0-25	3,4
4,4'-DDD	ND	25.00	20.12	80	11.10	44	50-135	58	0-25	3,4
4,4'-DDE	ND	25.00	20.30	81	10.67	43	50-135	62	0-25	3,4
4,4'-DDT	ND	25.00	22.21	89	11.65	47	50-135	62	0-25	3,4
Delta-BHC	ND	25.00	18.79	75	9.741	39	50-135	63	0-25	3,4
Dieldrin	ND	25.00	19.74	79	10.65	43	50-135	60	0-25	3,4
Endosulfan I	ND	25.00	18.88	76	10.45	42	50-135	57	0-25	3,4
Endosulfan II	ND	25.00	20.62	82	11.24	45	50-135	59	0-25	3,4
Endosulfan Sulfate	ND	25.00	21.21	85	11.69	47	50-135	58	0-25	3,4
Endrin	ND	25.00	20.70	83	11.97	48	50-135	53	0-25	3,4
Endrin Aldehyde	ND	25.00	19.27	77	9.090	36	50-135	72	0-25	3,4
Gamma-BHC	ND	25.00	18.96	76	10.16	41	50-135	60	0-25	3,4
Heptachlor	ND	25.00	18.18	73	9.594	38	50-135	62	0-25	3,4
Heptachlor Epoxide	ND	25.00	18.03	72	9.736	39	50-135	60	0-25	3,4
Methoxychlor	ND	25.00	22.37	89	12.57	50	50-135	56	0-25	4

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

## Quality Control - LCS

Geosyntec Consultants  
 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
 Work Order: 15-06-1646  
 Preparation: EPA 3050B  
 Method: EPA 6010B

Project: HR1462-11

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
<b>097-01-002-21336</b>	<b>LCS</b>	<b>Solid</b>	<b>ICP 7300</b>	<b>06/23/15</b>	<b>06/30/15 15:51</b>	<b>150623L04</b>
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Arsenic		25.00	22.95	92	80-120	


  
Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

## Quality Control - LCS

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3545  
Method: EPA 8081A

Project: HR1462-11

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number	
<b>099-12-537-2145</b>	<b>LCS</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/22/15</b>	<b>06/23/15 04:38</b>	<b>150622L05</b>	
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
Aldrin		25.00	23.71	95	50-135	36-149	
Alpha-BHC		25.00	23.21	93	50-135	36-149	
Beta-BHC		25.00	24.29	97	50-135	36-149	
4,4'-DDD		25.00	24.05	96	50-135	36-149	
4,4'-DDE		25.00	24.04	96	50-135	36-149	
4,4'-DDT		25.00	25.34	101	50-135	36-149	
Delta-BHC		25.00	23.71	95	50-135	36-149	
Dieldrin		25.00	24.80	99	50-135	36-149	
Endosulfan I		25.00	24.22	97	50-135	36-149	
Endosulfan II		25.00	24.87	99	50-135	36-149	
Endosulfan Sulfate		25.00	25.08	100	50-135	36-149	
Endrin		25.00	24.76	99	50-135	36-149	
Endrin Aldehyde		25.00	21.74	87	50-135	36-149	
Gamma-BHC		25.00	24.35	97	50-135	36-149	
Heptachlor		25.00	24.95	100	50-135	36-149	
Heptachlor Epoxide		25.00	23.22	93	50-135	36-149	
Methoxychlor		25.00	26.10	104	50-135	36-149	

Total number of LCS compounds: 17

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



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## Quality Control - LCS

Geosyntec Consultants  
2100 Main Street, Suite 150  
Huntington Beach, CA 92648-2460

Date Received: 06/19/15  
Work Order: 15-06-1646  
Preparation: EPA 3545  
Method: EPA 8081A

Project: HR1462-11

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number	
<b>099-12-537-2146</b>	<b>LCS</b>	<b>Solid</b>	<b>GC 51</b>	<b>06/24/15</b>	<b>06/25/15 12:44</b>	<b>150624L06</b>	
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>ME CL</u>	<u>Qualifiers</u>
Aldrin		25.00	17.97	72	50-135	36-149	
Alpha-BHC		25.00	18.20	73	50-135	36-149	
Beta-BHC		25.00	17.04	68	50-135	36-149	
4,4'-DDD		25.00	20.36	81	50-135	36-149	
4,4'-DDE		25.00	19.82	79	50-135	36-149	
4,4'-DDT		25.00	21.93	88	50-135	36-149	
Delta-BHC		25.00	18.42	74	50-135	36-149	
Dieldrin		25.00	19.77	79	50-135	36-149	
Endosulfan I		25.00	19.18	77	50-135	36-149	
Endosulfan II		25.00	20.62	82	50-135	36-149	
Endosulfan Sulfate		25.00	21.87	87	50-135	36-149	
Endrin		25.00	21.23	85	50-135	36-149	
Endrin Aldehyde		25.00	17.82	71	50-135	36-149	
Gamma-BHC		25.00	19.16	77	50-135	36-149	
Heptachlor		25.00	18.75	75	50-135	36-149	
Heptachlor Epoxide		25.00	18.36	73	50-135	36-149	
Methoxychlor		25.00	23.21	93	50-135	36-149	

Total number of LCS compounds: 17

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

## Sample Analysis Summary Report

Work Order: 15-06-1646

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 6010B	EPA 3050B	935	ICP 7300	1
EPA 8081A	EPA 3545	960	GC 51	1

## Glossary of Terms and Qualifiers

Work Order: 15-06-1646

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.





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7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494  
For courier service / sample drop off information, contact us26\_sales@eurofins.com or call us.

LABORATORY CLIENT:

Geosyntec

ADDRESS: 2100 Main St., Ste. 150

CITY: Huntington Beach STATE: CA ZIP: 92648

TEL: 714.465.1230 E-MAIL: mthomas@geosyntec.com

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):  
 SAME DAY  24 HR  48 HR  72 HR  5 DAYS  STANDARD

ADD:  COELT EDF  OTHER

SPECIAL INSTRUCTIONS:

Composite samples:  
WAP-Composite-10 ⇒ WAP-soil-31, 35, 43, 44  
WAP-Composite-11 ⇒ WAP-soil-39, 40, 41, 42  
Prepare composite samples with equal weights or volumes of soil. Prepare composite duplicate separately

LAB USE ONLY	SAMPLE ID	SAMPLING		MATRIX	NO. OF CONT.
		DATE	TIME		
11	WAP-Soil-26	6/18/15	12:46P	S	1
12	WAP-soil-27		13:04		1
13	WAP-soil-28		13:54		1
14	WAP-soil-29		14:11		1
15	WAP-soil-30		14:30		1
16	WAP-soil-30-DUP		14:30		1
17	WAP-soil-31		14:55		1
18	WAP-soil-32		15:05		1
19	WAP-soil-33		15:18		1
20	WAP-soil-3A	6/19/15	10:24A	↓	1

Relinquished by: (Signature)

*Matt Thomas*

Relinquished by: (Signature)

Received by: (Signature/Affiliation)

*M. Thomas*

Received by: (Signature/Affiliation)

Relinquished by: (Signature)

Received by: (Signature/Affiliation)

CHAIN-OF-CUSTODY RECORD

DATE: 6/19/15  
PAGE: 2 OF 4

WON# / LAB USE ONLY  
15-06-1676

CLIENT PROJECT NAME / NO.: HR1462-11

LABORATORY CONTACT: Matt Thomas

GLOBAL ID: \_\_\_\_\_

LOG CODE: \_\_\_\_\_

SAMPLER(S): (PRINT) Matt Thomas

LAB CONTACT OR QUOTE NO.: \_\_\_\_\_

P.O. NO.: \_\_\_\_\_

REQUESTED ANALYSES

Please check box or fill in blank as needed.

Field Filtered	Preserved	Unpreserved	TPH	TPH □ C6-C36 □ C6-C44	TPH(d) □ DRO	TPH(g) □ GRO	BTEX / MTBE □ 8260	VOCs (8260)	Oxygenates (8260)	Prep (5035) □ En Core □ Terra Core	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PAHs □ 8270 □ 8270 SIM	T22 Metals □ 6010/747X □ 6020/747X	Cr(VI) □ 7196 □ 7199 □ 218.6	6010 B ICP (As Only)
		X															
																	X
																	X
																	X

Date: 6/19/15 Time: 1625

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_







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For courier service / sample drop off information, contact us2@eurofins.com or call us.

LABORATORY CLIENT:

**Geosyntec**  
ADDRESS: 2100 Main St., Ste. 150  
CITY: Huntington Beach CA ZIP: 92648  
TEL: 714.465.1230 E-MAIL: mthomas@geosyntec.com  
TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):  
 SAME DAY  24 HR  48 HR  72 HR  5 DAYS  STANDARD  
EOD:

COELT EDF  OTHER

SPECIAL INSTRUCTIONS:

Hold remaining sample volumes

CHAIN-OF-CUSTODY RECORD

DATE: 6/19/15  
PAGE: 4 OF 4

WO NO. / LAB USE ONLY  
15-06-1646

CLIENT PROJECT NAME / NO.: HR1462-11  
PROJECT CONTACT: Matt Thomas  
GLOBAL ID:  
LOG CODE:  
SAMPLER(S): (PRINT) Matt Thomas  
LAB CONTACT OR QUOTE NO.:

REQUESTED ANALYSES

Please check box or fill in blank as needed.

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	<input type="checkbox"/> TPH(g) <input type="checkbox"/> GRO	<input type="checkbox"/> TPH(d) <input type="checkbox"/> DRO	TPH <input type="checkbox"/> C6-C36 <input type="checkbox"/> C6-C44	TPH	BTEX / MTBE <input type="checkbox"/> 8260 <input type="checkbox"/>	VOCs (8260)	Oxygenates (8260)	Prep (5035) <input type="checkbox"/> En Core <input type="checkbox"/> Terra Core	SVOCs (8270)	Pesticides (8081) 8081A - OCP	PCBs (8082)	PAHs <input type="checkbox"/> 8270 <input type="checkbox"/> 8270 SIM	T22 Metals <input type="checkbox"/> 6010/747X <input type="checkbox"/> 6020/747X	Cr(VI) <input type="checkbox"/> 7196 <input type="checkbox"/> 7199 <input type="checkbox"/> 218.6		
31	WAP-soil-44	6/19/15	13:24	S	1	X																		
	WAP-composite-5																							
	WAP-composite-6																							
	WAP-composite-7																							
	WAP-composite-8																							
	WAP-composite-9																							
	WAP-composite-9-DUP																							
	WAP-composite-10																							
	WAP-composite-11																							

Received by: (Signature/Affiliation) *prey*  
Date: 6/19/15  
Received by: (Signature/Affiliation)  
Date: 6/19/15  
Received by: (Signature/Affiliation)  
Date: 6/19/15

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: Geosyntec

DATE: 06/19/2015

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC2 (CF:-0.3°C); Temperature (w/o CF): 3.3 °C (w/ CF): 3.0 °C;  Blank  Sample

Sample(s) outside temperature criteria (PM/APM contacted by: \_\_\_\_\_)

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature:  Air  Filter

Checked by: 836

CUSTODY SEAL:

Cooler  Present and Intact  Present but Not Intact  Not Present  N/A

Checked by: 836

Sample(s)  Present and Intact  Present but Not Intact  Not Present  N/A

Checked by: 1017

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples .....  Yes  No  N/A

COC document(s) received complete .....  Yes  No  N/A

Sampling date  Sampling time  Matrix  Number of containers

No analysis requested  Not relinquished  No relinquished date  No relinquished time

Sampler's name indicated on COC .....  Yes  No  N/A

Sample container label(s) consistent with COC .....  Yes  No  N/A

Sample container(s) intact and in good condition .....  Yes  No  N/A

Proper containers for analyses requested .....  Yes  No  N/A

Sufficient volume/mass for analyses requested .....  Yes  No  N/A

Samples received within holding time .....  Yes  No  N/A

Aqueous samples for certain analyses received within 15-minute holding time

pH  Residual Chlorine  Dissolved Sulfide  Dissolved Oxygen .....  Yes  No  N/A

Proper preservation chemical(s) noted on COC and/or sample container .....  Yes  No  N/A

Unpreserved aqueous sample(s) received for certain analyses

Volatile Organics  Total Metals  Dissolved Metals

Container(s) for certain analysis free of headspace .....  Yes  No  N/A

Volatile Organics  Dissolved Gases (RSK-175)  Dissolved Oxygen (SM 4500)

Carbon Dioxide (SM 4500)  Ferrous Iron (SM 3500)  Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation .....  Yes  No  N/A

CONTAINER TYPE:

(Trip Blank Lot Number: \_\_\_\_\_)

Aqueous:  VOA  VOA<sub>h</sub>  VOA<sub>na2</sub>  100PJ  100PJ<sub>na2</sub>  125AGB  125AGB<sub>h</sub>  125AGB<sub>p</sub>  125PB

125PB<sub>z<sub>na</sub></sub>  250AGB  250CGB  250CGB<sub>s</sub>  250PB  250PB<sub>n</sub>  500AGB  500AG<sub>J</sub>  500AG<sub>J</sub><sub>s</sub>

500PB  1AGB  1AGB<sub>na2</sub>  1AGB<sub>s</sub>  1PB  1PB<sub>na</sub>  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Solid:  4ozCGJ  8ozCGJ  16ozCGJ  Sleeve (\_\_\_\_\_)  EnCores® (\_\_\_\_\_)  TerraCores® (\_\_\_\_\_)  \_\_\_\_\_

Air:  Tedlar™  Canister  Sorbent Tube  PUF  \_\_\_\_\_ Other Matrix (\_\_\_\_):  \_\_\_\_\_  \_\_\_\_\_

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO<sub>3</sub>, na = NaOH, na<sub>2</sub> = Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>, p = H<sub>3</sub>PO<sub>4</sub>, Labeled/Checked by: 1017

s = H<sub>2</sub>SO<sub>4</sub>, u = ultra-pure, z<sub>na</sub> = Zn(CH<sub>3</sub>CO<sub>2</sub>)<sub>2</sub> + NaOH Reviewed by: 836

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**APPENDIX C**

**SOIL GAS VOC ANALYTICAL LABORATORY  
REPORTS**



P.O. BOX 5387 | FULLERTON, CA 92838  
(714) 449-9937 | FAX (714) 449-9685

**JONES ENVIRONMENTAL  
LABORATORY RESULTS**

<b>Client:</b>	Geosyntec Consultants	<b>Report date:</b>	6/23/2015
<b>Client Address:</b>	2100 Main Street, Suite 150 Huntington Beach, CA 92648	<b>JEL Ref. No.:</b>	E-0337-39
		<b>Client Ref. No.:</b>	HR-1462-10
<b>Attn:</b>	Matt Thomas	<b>Date Sampled:</b>	6/19&22-23/2015
		<b>Date Received:</b>	6/19&22-23/2015
<b>Project Name:</b>	Former MCAS	<b>Date Analyzed:</b>	6/19&22-23/2015
<b>Project Address:</b>	Sand Canyon & Marine Way Irvine, CA	<b>Physical State:</b>	Soil Gas

---

**ANALYSES REQUESTED**

1. EPA 8260B - Volatile Organics by GC/MS + Oxygenates

Sampling – Soil Gas samples were collected in glass gas-tight syringes equipped with Teflon plungers. Tubing placed in the ground for soil gas sampling was purged three different times as recommended by DTSC/RWQCB guidance documents. This purge test determined how many purges of the soil gas tubing were needed throughout the project. One, three and ten purge volumes were analyzed to make this determination.

A tracer gas mixture of n-propanol and n-pentane was placed at the tubing-surface interface before sampling. These compounds were analyzed during the 8260B analytical run to determine if there were surface leaks into the subsurface due to improper installation of the probe. No n-propanol or n-pentane was found in any of the samples reported herein.

The sampling rate was approximately 200 cc/min except when noted differently on the chain of custody record using a gas tight syringe. 1, 3 and 10 purge volumes were used since these purging levels gave the highest results for the compound(s) of greatest interest.

Prior to purging and sampling of soil gas at each point, a shut-in test was conducted to check for leaks in the above ground fittings. The shut-in test was performed on the above ground apparatus by evacuating the line to a vacuum of 100 inches of water, sealing the entire system and watching the vacuum for at least one minute. A vacuum gauge attached in parallel to the apparatus measured the vacuum. If there was any observable loss of vacuum, the fittings were adjusted as needed until the vacuum did not change noticeably. The soil gas sample was then taken.

No flow conditions occur when a sampling rate greater than 10 mL/min cannot be maintained without applying a vacuum greater than 100 inches of water to the sampling train. The sampling train is left at a vacuum for no less than three minutes. If the vacuum does not subside appreciably after three minutes, the sample location is determined to be a no flow sample.

Analytical – Soil Gas samples were analyzed using EPA Method 8260 that includes extra compounds required by DTSC/RWQCB (such as Freon 113). Instrument Continuing Calibration Verification, QC Reference Standards, Instrument Blanks and Sampling Blanks were analyzed every 12 hours as prescribed by the method. In addition, Matrix Spike (MS) and Matrix Spike Duplicates (MSD) were analyzed with each batch of Soil Gas samples. A duplicate/replicate sample was analyzed each day of the sampling activity. All samples were injected into the GC/MS system within 30 minutes of sampling.

**Approval:**

Steve Jones, Ph.D.  
Laboratory Manager

**Pages 2-27 Purposely Blank**  
**(Samples collected from a separate parcel)**



P.O. BOX 5387 | FULLERTON, CA 92838  
 (714) 449-9937 | FAX (714) 449-9685

**JONES ENVIRONMENTAL LABORATORY RESULTS**

**Client:** Geosyntec Consultants  
**Client Address:** 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648

**Report date:** 6/23/2015  
**JEL Ref. No.:** E-0337-39  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas  
**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Sampled:** 6/19&22-23/2015  
**Date Received:** 6/19&22-23/2015  
**Date Analyzed:** 6/19&22-23/2015  
**Physical State:** Soil Gas

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

<u>Sample ID:</u>	SV-30-5'	SV-30-13'	SV-29-4.5'	SV-29-15'	SV-27-5'		
<u>JEL ID:</u>	E-0339-19	E-0339-20	E-0339-21	E-0339-22	E-0339-23	<u>Method Detection</u>	<u>Units</u>
						<u>Limit</u>	
<b>Analytes:</b>							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

## JONES ENVIRONMENTAL LABORATORY RESULTS

### EPA 8260B-Volatile Organics by GC/MS + Oxygenates

<u>Sample ID:</u>	SV-30-5'	SV-30-13'	SV-29-4.5'	SV-29-15'	SV-27-5'		
<u>JEL ID:</u>	E-0339-19	E-0339-20	E-0339-21	E-0339-22	E-0339-23	<u>Method Detection</u>	<u>Units</u>
						<u>Limit</u>	
<b>Analytes:</b>							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	ND	<b>0.273</b>	<b>0.281</b>	<b>0.126</b>	<b>0.272</b>	0.008	µg/L
Toluene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	ND	ND	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.040	µg/L
<b>TIC:</b>							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
<b><u>Dilution Factor</u></b>	1	1	1	1	1		
<b><u>Surrogate Recoveries:</u></b>						<b><u>QC Limits</u></b>	
Dibromofluoromethane	108	111	107	105	110	75 - 125	%
Toluene-d <sub>8</sub>	96	93	94	97	96	75 - 125	%
4-Bromofluorobenzene	107	90	92	104	93	75 - 125	%
	E1-062315- E-0339	E2-062315- E-0339	E2-062315- E-0339	E1-062315- E-0339	E2-062315- E-0339		

ND= Not Detected



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**JONES ENVIRONMENTAL LABORATORY RESULTS**

**Client:** Geosyntec Consultants  
**Client Address:** 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648

**Report date:** 6/23/2015  
**JEL Ref. No.:** E-0337-39  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas  
**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Sampled:** 6/19&22-23/2015  
**Date Received:** 6/19&22-23/2015  
**Date Analyzed:** 6/19&22-23/2015  
**Physical State:** Soil Gas

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

<u>Sample ID:</u>	SV-27-17'	SV-27-17' REP	SV-28-5'	SV-28-15'	SV-26-6'	<u>Method Detection</u>	<u>Units</u>
<u>JEL ID:</u>	E-0339-24	E-0339-25	E-0339-26	E-0339-27	E-0339-28	<u>Limit</u>	
<b>Analytes:</b>							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

**JONES ENVIRONMENTAL LABORATORY RESULTS**

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

<u>Sample ID:</u>	SV-27-17'	SV-27-17' REP	SV-28-5'	SV-28-15'	SV-26-6'		
<u>JEL ID:</u>	E-0339-24	E-0339-25	E-0339-26	E-0339-27	E-0339-28	<u>Method Detection Limit</u>	<u>Units</u>
<b>Analytes:</b>							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	<b>0.075</b>	<b>0.077</b>	<b>0.330</b>	<b>0.223</b>	ND	0.008	µg/L
Toluene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	ND	ND	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.040	µg/L
<b>TIC:</b>							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
<b><u>Dilution Factor</u></b>	1	1	1	1	1		
<b><u>Surrogate Recoveries:</u></b>						<b><u>QC Limits</u></b>	
Dibromofluoromethane	109	110	112	107	114	75 - 125	%
Toluene-d <sub>8</sub>	96	99	93	100	94	75 - 125	%
4-Bromofluorobenzene	109	109	90	103	92	75 - 125	%
	E1-062315- E-0339	E1-062315- E-0339	E2-062315- E-0339	E1-062315- E-0339	E2-062315- E-0339		

ND= Not Detected



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**JONES ENVIRONMENTAL LABORATORY RESULTS**

**Client:** Geosyntec Consultants  
**Client Address:** 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648

**Report date:** 6/23/2015  
**JEL Ref. No.:** E-0337-39  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas  
**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Sampled:** 6/19&22-23/2015  
**Date Received:** 6/19&22-23/2015  
**Date Analyzed:** 6/19&22-23/2015  
**Physical State:** Soil Gas

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

<u>Sample ID:</u>	SV-26-15'	SV-22-5.5'	SV-22-15'	SV-23-5'	SV-23-15.5'		
<u>JEL ID:</u>	E-0339-29	E-0339-30	E-0339-31	E-0339-32	E-0339-33	<u>Method Detection</u>	<u>Units</u>
						<u>Limit</u>	
<b>Analytes:</b>							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

**JONES ENVIRONMENTAL LABORATORY RESULTS**

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

<b>Sample ID:</b>	<b>SV-26-15'</b>	<b>SV-22-5.5'</b>	<b>SV-22-15'</b>	<b>SV-23-5'</b>	<b>SV-23-15.5'</b>		
<b>JEL ID:</b>	<b>E-0339-29</b>	<b>E-0339-30</b>	<b>E-0339-31</b>	<b>E-0339-32</b>	<b>E-0339-33</b>	<b>Method Detection Limit</b>	<b>Units</b>
<b>Analytes:</b>							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	ND	ND	ND	ND	ND	0.008	µg/L
Toluene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	ND	ND	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.040	µg/L
<b>TIC:</b>							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
<b>Dilution Factor</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>		
<b>Surrogate Recoveries:</b>						<b>QC Limits</b>	
Dibromofluoromethane	106	109	110	106	111	75 - 125	%
Toluene-d <sub>8</sub>	97	101	95	100	92	75 - 125	%
4-Bromofluorobenzene	107	104	94	108	91	75 - 125	%
	E1-062315- E-0339	E1-062315- E-0339	E2-062315- E-0339	E1-062315- E-0339	E2-062315- E-0339		

ND= Not Detected



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**JONES ENVIRONMENTAL LABORATORY RESULTS**

**Client:** Geosyntec Consultants  
**Client Address:** 2100 Main Street, Suite 150  
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**Report date:** 6/23/2015  
**JEL Ref. No.:** E-0337-39  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas  
**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Sampled:** 6/19&22-23/2015  
**Date Received:** 6/19&22-23/2015  
**Date Analyzed:** 6/19&22-23/2015  
**Physical State:** Soil Gas

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

<u>Sample ID:</u>	SV-24-5	SV-24-5 REP	SV-24-17.5	SV-25-5	SV-25-15	<u>Method Detection Limit</u>	<u>Units</u>
<u>JEL ID:</u>	E-0339-34	E-0339-35	E-0339-36	E-0339-37	E-0339-38		
<b>Analytes:</b>							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

**JONES ENVIRONMENTAL LABORATORY RESULTS**

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

<b>Sample ID:</b>	<b>SV-24-5</b>	<b>SV-24-5 REP</b>	<b>SV-24-17.5</b>	<b>SV-25-5</b>	<b>SV-25-15</b>		
<b>JEL ID:</b>	<b>E-0339-34</b>	<b>E-0339-35</b>	<b>E-0339-36</b>	<b>E-0339-37</b>	<b>E-0339-38</b>	<b>Method Detection Limit</b>	<b>Units</b>
<b>Analytes:</b>							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	ND	ND	ND	ND	ND	0.008	µg/L
Toluene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	ND	ND	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.040	µg/L
<b>TIC:</b>							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
<b>Dilution Factor</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>		
<b>Surrogate Recoveries:</b>						<b>QC Limits</b>	
Dibromofluoromethane	107	106	104	108	105	75 - 125	%
Toluene-d <sub>8</sub>	95	96	101	95	98	75 - 125	%
4-Bromofluorobenzene	91	91	105	93	105	75 - 125	%
	E2-062315- E-0339	E2-062315- E-0339	E1-062315- E-0339	E2-062315- E-0339	E1-062315- E-0339		

ND= Not Detected



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**JONES ENVIRONMENTAL LABORATORY RESULTS**

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**Client Address:** 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648

**Report date:** 6/23/2015  
**JEL Ref. No.:** E-0337-39  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas  
**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Sampled:** 6/19&22-23/2015  
**Date Received:** 6/19&22-23/2015  
**Date Analyzed:** 6/19&22-23/2015  
**Physical State:** Soil Gas

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

<u>Sample ID:</u>	METHOD BLANK	SAMPLING BLANK	METHOD BLANK	SAMPLING BLANK	METHOD BLANK	<u>Method Detection Limit</u>	<u>Units</u>
<u>JEL ID:</u>	E-0337-08	E-0337-09	E-0337-13	E-0337-14	E-0338-41		
<b>Analytes:</b>							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

**JONES ENVIRONMENTAL LABORATORY RESULTS**

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

<u>Sample ID:</u>	<b>METHOD BLANK</b>	<b>SAMPLING BLANK</b>	<b>METHOD BLANK</b>	<b>SAMPLING BLANK</b>	<b>METHOD BLANK</b>		
<u>JEL ID:</u>	<b>E-0337-08</b>	<b>E-0337-09</b>	<b>E-0337-13</b>	<b>E-0337-14</b>	<b>E-0338-41</b>	<b><u>Method Detection Limit</u></b>	<b><u>Units</u></b>
<b>Analytes:</b>							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	ND	ND	ND	ND	ND	0.008	µg/L
Toluene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	ND	ND	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.040	µg/L
<b>TIC:</b>							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
<b><u>Dilution Factor</u></b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>		
<b><u>Surrogate Recoveries:</u></b>						<b><u>QC Limits</u></b>	
Dibromofluoromethane	106	107	105	118	106	75 - 125	%
Toluene-d <sub>8</sub>	100	111	95	90	99	75 - 125	%
4-Bromofluorobenzene	114	109	94	83	112	75 - 125	%
	E1-061915- E-0337	E1-061915- E-0337	E2-061915- E-0337	E2-061915- E-0337	E1-062215- E-0338		

ND= Not Detected



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**JONES ENVIRONMENTAL LABORATORY RESULTS**

**Client:** Geosyntec Consultants  
**Client Address:** 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648

**Report date:** 6/23/2015  
**JEL Ref. No.:** E-0337-39  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas  
**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Sampled:** 6/19&22-23/2015  
**Date Received:** 6/19&22-23/2015  
**Date Analyzed:** 6/19&22-23/2015  
**Physical State:** Soil Gas

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

<u>Sample ID:</u>	<b>SAMPLING BLANK</b>	<b>METHOD BLANK</b>	<b>SAMPLING BLANK</b>	<b>METHOD BLANK</b>	<b>SAMPLING BLANK</b>	<b>Method Detection Limit</b>	<b>Units</b>
<u>JEL ID:</u>	<b>E-0338-42</b>	<b>E-0338-46</b>	<b>E-0338-47</b>	<b>E-0338-39</b>	<b>E-0338-40</b>		
<b>Analytes:</b>							
Benzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	ND	ND	ND	0.008	µg/L
Bromoform	ND	ND	ND	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	ND	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Chloroform	ND	ND	ND	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	ND	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L

**JONES ENVIRONMENTAL LABORATORY RESULTS**

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

<u>Sample ID:</u>	<b>SAMPLING BLANK</b>	<b>METHOD BLANK</b>	<b>SAMPLING BLANK</b>	<b>METHOD BLANK</b>	<b>SAMPLING BLANK</b>	<b>Method Detection Limit</b>	<b>Units</b>
<u>JEL ID:</u>	<b>E-0338-42</b>	<b>E-0338-46</b>	<b>E-0338-47</b>	<b>E-0338-39</b>	<b>E-0338-40</b>		
<b>Analytes:</b>							
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Freon 113	ND	ND	ND	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	ND	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	ND	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	ND	ND	ND	0.008	µg/L
Naphthalene	ND	ND	ND	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Styrene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Tetrachloroethylene	ND	ND	ND	ND	ND	0.008	µg/L
Toluene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	0.008	µg/L
Trichloroethylene	ND	ND	ND	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	ND	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	ND	ND	ND	0.008	µg/L
Xylenes	ND	ND	ND	ND	ND	0.008	µg/L
MTBE	ND	ND	ND	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	ND	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	ND	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	ND	ND	ND	0.040	µg/L
<b>TIC:</b>							
n-propanol	ND	ND	ND	ND	ND	0.080	µg/L
n-pentane	ND	ND	ND	ND	ND	0.008	µg/L
<b><u>Dilution Factor</u></b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>		
<b><u>Surrogate Recoveries:</u></b>						<b><u>QC Limits</u></b>	
Dibromofluoromethane	107	102	102	110	108	75 - 125	%
Toluene-d <sub>8</sub>	97	95	95	101	97	75 - 125	%
4-Bromofluorobenzene	107	95	93	109	112	75 - 125	%
	E1-062215- E-0338	E2-062215- E-0338	E2-062215- E-0338	E1-062315- E-0339	E1-062315- E-0339		

ND= Not Detected



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**JONES ENVIRONMENTAL LABORATORY RESULTS**

**Client:** Geosyntec Consultants  
**Client Address:** 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648

**Report date:** 6/23/2015  
**JEL Ref. No.:** E-0337-39  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas  
**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Sampled:** 6/19&22-23/2015  
**Date Received:** 6/19&22-23/2015  
**Date Analyzed:** 6/19&22-23/2015  
**Physical State:** Soil Gas

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

<u>Sample ID:</u>	<b>METHOD</b>	<b>SAMPLING</b>		
	<b>BLANK</b>	<b>BLANK</b>		
<u>JEL ID:</u>	<b>E-0338-44</b>	<b>E-0338-45</b>	<u>Method Detection</u>	<u>Units</u>
			<u>Limit</u>	
<b>Analytes:</b>				
Benzene	ND	ND	0.008	µg/L
Bromobenzene	ND	ND	0.008	µg/L
Bromodichloromethane	ND	ND	0.008	µg/L
Bromoform	ND	ND	0.008	µg/L
n-Butylbenzene	ND	ND	0.008	µg/L
sec-Butylbenzene	ND	ND	0.008	µg/L
tert-Butylbenzene	ND	ND	0.008	µg/L
Carbon tetrachloride	ND	ND	0.008	µg/L
Chlorobenzene	ND	ND	0.008	µg/L
Chloroform	ND	ND	0.008	µg/L
2-Chlorotoluene	ND	ND	0.008	µg/L
4-Chlorotoluene	ND	ND	0.008	µg/L
Dibromochloromethane	ND	ND	0.008	µg/L
1,2-Dibromo-3-chloropropane	ND	ND	0.008	µg/L
1,2-Dibromoethane (EDB)	ND	ND	0.008	µg/L
Dibromomethane	ND	ND	0.008	µg/L
1,2- Dichlorobenzene	ND	ND	0.008	µg/L
1,3-Dichlorobenzene	ND	ND	0.008	µg/L
1,4-Dichlorobenzene	ND	ND	0.008	µg/L
Dichlorodifluoromethane	ND	ND	0.008	µg/L
1,1-Dichloroethane	ND	ND	0.008	µg/L
1,2-Dichloroethane	ND	ND	0.008	µg/L
1,1-Dichloroethene	ND	ND	0.008	µg/L
cis-1,2-Dichloroethene	ND	ND	0.008	µg/L
trans-1,2-Dichloroethene	ND	ND	0.008	µg/L
1,2-Dichloropropane	ND	ND	0.008	µg/L
1,3-Dichloropropane	ND	ND	0.008	µg/L
1,1-Dichloropropene	ND	ND	0.008	µg/L

**JONES ENVIRONMENTAL LABORATORY RESULTS**

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

<u>Sample ID:</u>	<b>METHOD</b>	<b>SAMPLING</b>		
	<b>BLANK</b>	<b>BLANK</b>		
<u>JEL ID:</u>	<b>E-0338-44</b>	<b>E-0338-45</b>	<u>Method Detection</u>	<u>Units</u>
			<u>Limit</u>	
<b>Analytes:</b>				
cis-1,3-Dichloropropene	ND	ND	0.008	µg/L
trans-1,3-Dichloropropene	ND	ND	0.008	µg/L
Ethylbenzene	ND	ND	0.008	µg/L
Freon 113	ND	ND	0.040	µg/L
Hexachlorobutadiene	ND	ND	0.008	µg/L
Isopropylbenzene	ND	ND	0.008	µg/L
4-Isopropyltoluene	ND	ND	0.008	µg/L
Methylene chloride	ND	ND	0.008	µg/L
Naphthalene	ND	ND	0.008	µg/L
n-Propylbenzene	ND	ND	0.008	µg/L
Styrene	ND	ND	0.008	µg/L
1,1,1,2-Tetrachloroethane	ND	ND	0.008	µg/L
1,1,2,2-Tetrachloroethane	ND	ND	0.008	µg/L
Tetrachloroethylene	ND	ND	0.008	µg/L
Toluene	ND	ND	0.008	µg/L
1,2,3-Trichlorobenzene	ND	ND	0.008	µg/L
1,2,4-Trichlorobenzene	ND	ND	0.008	µg/L
1,1,1-Trichloroethane	ND	ND	0.008	µg/L
1,1,2-Trichloroethane	ND	ND	0.008	µg/L
Trichloroethylene	ND	ND	0.008	µg/L
Trichlorofluoromethane	ND	ND	0.008	µg/L
1,2,3-Trichloropropane	ND	ND	0.008	µg/L
1,2,4-Trimethylbenzene	ND	ND	0.008	µg/L
1,3,5-Trimethylbenzene	ND	ND	0.008	µg/L
Vinyl chloride	ND	ND	0.008	µg/L
Xylenes	ND	ND	0.008	µg/L
MTBE	ND	ND	0.040	µg/L
Ethyl-tert-butylether	ND	ND	0.040	µg/L
Di-isopropylether	ND	ND	0.040	µg/L
tert-amylmethylether	ND	ND	0.040	µg/L
<b>TIC:</b>				
n-propanol	ND	ND	0.080	µg/L
n-pentane	ND	ND	0.008	µg/L
<b><u>Dilution Factor</u></b>	<b>1</b>	<b>1</b>		
<b><u>Surrogate Recoveries:</u></b>			<b><u>QC Limits</u></b>	
Dibromofluoromethane	103	111	75 - 125	%
Toluene-d <sub>8</sub>	98	85	75 - 125	%
4-Bromofluorobenzene	94	92	75 - 125	%
	E2-062315-	E2-062315-		
	E-0339	E-0339		

ND= Not Detected



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**JONES ENVIRONMENTAL  
 QUALITY CONTROL INFORMATION**

**Client:** Geosyntec Consultants  
**Client Address:** 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648

**Report date:** 6/23/2015  
**JEL Ref. No.:** E-0337-39  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas

**Date Sampled:** 6/19&22-23/2015

**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Received:** 6/19&22-23/2015

**Date Analyzed:** 6/19&22-23/2015

**Physical State:** Soil Gas

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

Sample Spiked: JEL ID:	Ambient Air		GC#: E1-061915-E-0337			
	E-0337-11	E-0337-12			E-0337-10	
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD (%)	Acceptability Range (%)	LCS (%)	Acceptability Range (%)
Benzene	92	96	4.7	70-130	92	70-130
Bromobenzene	107	112	4.5	70-130	101	70-130
Bromodichloromethane	101	103	1.7	70-130	94	70-130
Bromoform	97	102	5.8	70-130	102	70-130
n-Butylbenzene	77	78	1.7	70-130	111	70-130
sec-Butylbenzene	100	104	3.7	70-130	101	70-130
tert-Butylbenzene	104	104	0.2	70-130	97	70-130
Carbon tetrachloride	59	63	6.4	70-130	79	70-130
Chlorobenzene	100	102	1.7	70-130	96	70-130
Chloroform	103	103	0.2	70-130	96	70-130
2-Chlorotoluene	100	100	0.2	70-130	99	70-130
4-Chlorotoluene	82	83	1.8	70-130	101	70-130
Dibromochloromethane	105	106	0.5	70-130	92	70-130
1,2-Dibromo-3-chloropropane	131	163	21	70-130	161	70-130
1,2-Dibromoethane (EDB)	104	108	3.7	70-130	101	70-130
Dibromomethane	111	108	2.5	70-130	101	70-130
1,2-Dichlorobenzene	114	113	0.4	70-130	85	70-130
1,3-Dichlorobenzene	96	100	4.1	70-130	96	70-130
1,4-Dichlorobenzene	101	105	3.2	70-130	98	70-130
Dichlorodifluoromethane	113	108	4.4	70-130	104	70-130
1,1-Dichloroethane	107	102	4.9	70-130	110	70-130
1,2-Dichloroethane	98	96	1.9	70-130	101	70-130
1,1-Dichloroethene	83	83	0.0	60-140	109	60-140
cis-1,2-Dichloroethene	72	64	11	70-130	96	70-130
trans-1,2-Dichloroethene	125	123	1.8	70-130	117	70-130
1,2-Dichloropropane	103	102	0.7	70-130	101	70-130
1,3-Dichloropropane	72	73	1.4	70-130	86	70-130
1,1-Dichloropropene	70	69	1.3	70-130	83	70-130

## QUALITY CONTROL INFORMATION

### EPA 8260B-Volatile Organics by GC/MS + Oxygenates

JEL ID:	E-0337-11	E-0337-12			E-0337-10		
<u>Parameter</u>	MS Recovery (%)	MSD Recovery (%)	<u>RPD (%)</u>	Acceptability Range (%)	<u>LCS (%)</u>	Acceptability Range (%)	
Ethylbenzene	79	79	0.5	70-130	98	70-130	
Freon 113	109	104	5.0	70-130	102	70-130	
Hexachlorobutadiene	129	151	16	70-130	123	70-130	
Isopropylbenzene	101	100	1.3	70-130	100	70-130	
4-Isopropyltoluene	106	108	1.7	70-130	100	70-130	
Methylene chloride	93	95	1.9	70-130	88	70-130	
Naphthalene	365	477	27	70-130	274	70-130	
n-Propylbenzene	99	102	2.9	70-130	108	70-130	
Styrene	104	106	2.0	70-130	90	70-130	
1,1,1,2-Tetrachloroethane	97	98	1.5	70-130	101	70-130	
1,1,2,2-Tetrachloroethane	112	119	5.7	70-130	113	70-130	
Tetrachloroethylene	101	102	1.0	70-130	96	70-130	
Toluene	101	98	2.3	70-130	100	70-130	
1,2,3-Trichlorobenzene	314	368	16	70-130	216	70-130	
1,2,4-Trichlorobenzene	186	212	13	70-130	179	70-130	
1,1,1-Trichloroethane	96	95	1.1	70-130	93	70-130	
1,1,2-Trichloroethane	94	97	3.0	70-130	99	70-130	
Trichloroethylene	98	97	1.0	70-130	94	70-130	
Trichlorofluoromethane	104	101	3.0	70-130	100	70-130	
1,2,3-Trichloropropane	104	111	6.1	70-130	112	70-130	
1,2,4-Trimethylbenzene	82	86	5.0	70-130	97	70-130	
1,3,5-Trimethylbenzene	91	94	3.1	70-130	99	70-130	
Vinyl chloride	124	123	1.4	70-130	118	70-130	
Xylenes	95	93	1.4	60-140	105	60-140	
MTBE	110	108	1.5	70-130	99	70-130	
Ethyl-tert-butylether	100	99	0.9	70-130	92	70-130	
Di-isopropylether	105	102	2.8	70-130	102	70-130	
tert-amylmethylether	95	93	1.7	70-130	91	70-130	
 <b><u>Surrogate Recovery:</u></b>							
Dibromofluoromethane	101	102		75-125	97	75-125	
Toluene-d <sub>8</sub>	100	96		75-125	96	75-125	
4-Bromofluorobenzene	100	106		75-125	101	75-125	

MS = Matrix Spike

MSD = Matrix Spike Duplicate

RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%



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**JONES ENVIRONMENTAL  
 QUALITY CONTROL INFORMATION**

**Client:** Geosyntec Consultants  
**Client Address:** 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648

**Report date:** 6/23/2015  
**JEL Ref. No.:** E-0337-39  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas

**Date Sampled:** 6/19&22-23/2015

**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Received:** 6/19&22-23/2015

**Date Analyzed:** 6/19&22-23/2015

**Physical State:** Soil Gas

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

Sample Spiked: JEL ID:	Ambient Air		GC#: E2-061915-E-0337			
	E-0337-16	E-0337-17	E-0337-15		E-0337-15	
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD (%)	Acceptability Range (%)	LCS (%)	Acceptability Range (%)
Benzene	105	106	0.9	70-130	93	70-130
Bromobenzene	90	86	4.4	70-130	94	70-130
Bromodichloromethane	98	103	5.2	70-130	99	70-130
Bromoform	93	93	0.2	70-130	96	70-130
n-Butylbenzene	92	92	0.7	70-130	94	70-130
sec-Butylbenzene	91	92	0.8	70-130	93	70-130
tert-Butylbenzene	90	92	2.4	70-130	94	70-130
Carbon tetrachloride	108	108	0.1	70-130	103	70-130
Chlorobenzene	99	99		70-130	96	70-130
Chloroform	113	116	2.5	70-130	113	70-130
2-Chlorotoluene	89	92	3.0	70-130	90	70-130
4-Chlorotoluene	88	91	3.4	70-130	88	70-130
Dibromochloromethane	88	88	0.7	70-130	88	70-130
1,2-Dibromo-3-chloropropane	101	103	2.1	70-130	87	70-130
1,2-Dibromoethane (EDB)	89	92	3.0	70-130	93	70-130
Dibromomethane	111	115	4.2	70-130	102	70-130
1,2-Dichlorobenzene	92	90	1.5	70-130	94	70-130
1,3-Dichlorobenzene	89	93	4.0	70-130	96	70-130
1,4-Dichlorobenzene	90	89	0.6	70-130	93	70-130
Dichlorodifluoromethane	89	89	0.2	70-130	103	70-130
1,1-Dichloroethane	105	107	1.2	70-130	98	70-130
1,2-Dichloroethane	107	111	3.4	70-130	100	70-130
1,1-Dichloroethene	83	83	0.6	60-140	77	60-140
cis-1,2-Dichloroethene	98	99	1.1	70-130	94	70-130
trans-1,2-Dichloroethene	107	107	0.5	70-130	105	70-130
1,2-Dichloropropane	106	108	2.0	70-130	112	70-130
1,3-Dichloropropane	90	91	1.7	70-130	87	70-130
1,1-Dichloropropene	97	98	1.0	70-130	99	70-130

## QUALITY CONTROL INFORMATION

### EPA 8260B-Volatile Organics by GC/MS + Oxygenates

JEL ID:	E-0337-16	E-0337-17			E-0337-15		
<u>Parameter</u>	MS Recovery (%)	MSD Recovery (%)	<u>RPD (%)</u>	Acceptability Range (%)	<u>LCS (%)</u>	Acceptability Range (%)	
Ethylbenzene	87	88	0.4	70-130	88	70-130	
Freon 113	103	101	1.9	70-130	102	70-130	
Hexachlorobutadiene	89	87	2.3	70-130	86	70-130	
Isopropylbenzene	89	90	1.0	70-130	90	70-130	
4-Isopropyltoluene	88	90	2.3	70-130	92	70-130	
Methylene chloride	102	97	5.8	70-130	89	70-130	
Naphthalene	103	105	2.3	70-130	101	70-130	
n-Propylbenzene	92	92	0.2	70-130	93	70-130	
Styrene	82	83	1.4	70-130	84	70-130	
1,1,1,2-Tetrachloroethane	87	85	2.9	70-130	89	70-130	
1,1,2,2-Tetrachloroethane	89	90	0.3	70-130	87	70-130	
Tetrachloroethylene	86	86	0.7	70-130	81	70-130	
Toluene	88	87	1.2	70-130	89	70-130	
1,2,3-Trichlorobenzene	92	96	4.0	70-130	95	70-130	
1,2,4-Trichlorobenzene	92	88	4.3	70-130	93	70-130	
1,1,1-Trichloroethane	106	107	1.3	70-130	105	70-130	
1,1,2-Trichloroethane	87	87	0.7	70-130	89	70-130	
Trichloroethylene	99	102	2.8	70-130	99	70-130	
Trichlorofluoromethane	106	108	1.8	70-130	114	70-130	
1,2,3-Trichloropropane	94	94	0.7	70-130	89	70-130	
1,2,4-Trimethylbenzene	89	89	0.6	70-130	92	70-130	
1,3,5-Trimethylbenzene	88	89	1.3	70-130	91	70-130	
Vinyl chloride	97	97	0.1	60-140	99	60-140	
Xylenes	89	91	1.8	70-130	90	70-130	
MTBE	121	118	2.5	70-130	115	70-130	
Ethyl-tert-butylether	121	119	1.3	70-130	109	70-130	
Di-isopropylether	118	115	3.2	70-130	106	70-130	
tert-amylmethylether	103	102	0.7	70-130	98	70-130	
 <b><u>Surrogate Recovery:</u></b>							
Dibromofluoromethane	100	101		75-125	99	75-125	
Toluene-d <sub>8</sub>	86	84		75-125	104	75-125	
4-Bromofluorobenzene	86	85		75-125	104	75-125	

MS = Matrix Spike

MSD = Matrix Spike Duplicate

RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%



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**JONES ENVIRONMENTAL  
 QUALITY CONTROL INFORMATION**

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**Client Address:** 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648

**Report date:** 6/23/2015  
**JEL Ref. No.:** E-0337-39  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas

**Date Sampled:** 6/19&22-23/2015

**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Received:** 6/19&22-23/2015

**Date Analyzed:** 6/19&22-23/2015

**Physical State:** Soil Gas

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

Sample Spiked: JEL ID:	Ambient Air		GC#: E1-062215-E-0338			
	E-0338-44	E-0338-45		E-0338-43		
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD (%)	Acceptability Range (%)	LCS (%)	Acceptability Range (%)
Benzene	103	96	6.9	70-130	96	70-130
Bromobenzene	111	111	0.5	70-130	116	70-130
Bromodichloromethane	119	109	8.5	70-130	111	70-130
Bromoform	111	118	5.3	70-130	129	70-130
n-Butylbenzene	82	81	1.2	70-130	87	70-130
sec-Butylbenzene	107	104	2.6	70-130	111	70-130
tert-Butylbenzene	101	105	4.4	70-130	107	70-130
Carbon tetrachloride	91	86	5.0	70-130	89	70-130
Chlorobenzene	109	107	1.9	70-130	108	70-130
Chloroform	111	104	6.8	70-130	106	70-130
2-Chlorotoluene	101	105	3.5	70-130	107	70-130
4-Chlorotoluene	86	83	3.8	70-130	87	70-130
Dibromochloromethane	116	115	1.1	70-130	118	70-130
1,2-Dibromo-3-chloropropane	136	154	13	70-130	232	70-130
1,2-Dibromoethane (EDB)	110	117	6.5	70-130	127	70-130
Dibromomethane	125	118	5.8	70-130	121	70-130
1,2- Dichlorobenzene	118	122	3.9	70-130	136	70-130
1,3-Dichlorobenzene	108	107	1.1	70-130	111	70-130
1,4-Dichlorobenzene	104	112	7.7	70-130	117	70-130
Dichlorodifluoromethane	93	104	12	70-130	103	70-130
1,1-Dichloroethane	120	121	0.9	70-130	108	70-130
1,2-Dichloroethane	112	111	1.3	70-130	113	70-130
1,1-Dichloroethene	81	86	6.0	60-140	79	60-140
cis-1,2-Dichloroethene	72	69	4.3	70-130	64	70-130
trans-1,2-Dichloroethene	131	119	8.9	70-130	121	70-130
1,2-Dichloropropane	125	112	11	70-130	112	70-130
1,3-Dichloropropane	81	88	8.0	70-130	100	70-130
1,1-Dichloropropene	87	75	16	70-130	74	70-130

## QUALITY CONTROL INFORMATION

### EPA 8260B-Volatile Organics by GC/MS + Oxygenates

JEL ID:	E-0338-44	E-0338-45			E-0338-43		
<u>Parameter</u>	MS Recovery (%)	MSD Recovery (%)	RPD (%)	Acceptability Range (%)	LCS (%)	Acceptability Range (%)	
Ethylbenzene	87	81	6.8	70-130	85	70-130	
Freon 113	113	107	4.7	70-130	102	70-130	
Hexachlorobutadiene	136	190	33	70-130	222	70-130	
Isopropylbenzene	104	104	0.3	70-130	105	70-130	
4-Isopropyltoluene	109	110	0.8	70-130	112	70-130	
Methylene chloride	97	94	3.1	70-130	95	70-130	
Naphthalene	362	436	18	70-130	558	70-130	
n-Propylbenzene	105	103	1.8	70-130	108	70-130	
Styrene	110	108	1.5	70-130	112	70-130	
1,1,1,2-Tetrachloroethane	118	117	0.7	70-130	115	70-130	
1,1,2,2-Tetrachloroethane	102	118	14	70-130	144	70-130	
Tetrachloroethylene	103	103	0.4	70-130	105	70-130	
Toluene	103	101	2.3	70-130	102	70-130	
1,2,3-Trichlorobenzene	308	368	18	70-130	474	70-130	
1,2,4-Trichlorobenzene	183	248	30	70-130	351	70-130	
1,1,1-Trichloroethane	111	102	7.7	70-130	101	70-130	
1,1,2-Trichloroethane	116	103	11	70-130	111	70-130	
Trichloroethylene	112	106	6.0	70-130	104	70-130	
Trichlorofluoromethane	111	109	1.8	70-130	110	70-130	
1,2,3-Trichloropropane	101	111	9.5	70-130	141	70-130	
1,2,4-Trimethylbenzene	87	107	20	70-130	88	70-130	
1,3,5-Trimethylbenzene	97	96	1.3	70-130	100	70-130	
Vinyl chloride	127	118	6.9	60-140	109	60-140	
Xylenes	98	97	1.0	70-130	100	70-130	
MTBE	112	115	3.0	70-130	116	70-130	
Ethyl-tert-butylether	105	117	11	70-130	101	70-130	
Di-isopropylether	106	105	0.5	70-130	103	70-130	
tert-amylmethylether	98	102	4.3	70-130	102	70-130	
<b><u>Surrogate Recovery:</u></b>							
Dibromofluoromethane	106	105		75-125	101	75-125	
Toluene-d <sub>8</sub>	94	99		75-125	97	75-125	
4-Bromofluorobenzene	102	98		75-125	104	75-125	

MS = Matrix Spike

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RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%



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**JONES ENVIRONMENTAL  
 QUALITY CONTROL INFORMATION**

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**Client Address:** 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648

**Report date:** 6/23/2015  
**JEL Ref. No.:** E-0337-39  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas

**Date Sampled:** 6/19&22-23/2015

**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Received:** 6/19&22-23/2015

**Date Analyzed:** 6/19&22-23/2015

**Physical State:** Soil Gas

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

Sample Spiked: JEL ID:	Ambient Air		GC#: E2-062215-E-0338			
	E-0338-49	E-0338-50			E-0338-48	
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD (%)	Acceptability Range (%)	LCS (%)	Acceptability Range (%)
Benzene	105	105	0.0	70-130	103	70-130
Bromobenzene	91	91	0.3	70-130	79	70-130
Bromodichloromethane	94	99	5.8	70-130	102	70-130
Bromoform	94	96	2.3	70-130	92	70-130
n-Butylbenzene	95	94	0.8	70-130	72	70-130
sec-Butylbenzene	92	92	0.1	70-130	93	70-130
tert-Butylbenzene	92	92	0.3	70-130	90	70-130
Carbon tetrachloride	100	108	7.6	70-130	108	70-130
Chlorobenzene	114	104	9.5	70-130	100	70-130
Chloroform	108	115	6.3	70-130	116	70-130
2-Chlorotoluene	92	92	0.9	70-130	91	70-130
4-Chlorotoluene	91	89	2.0	70-130	86	70-130
Dibromochloromethane	89	90	0.6	70-130	95	70-130
1,2-Dibromo-3-chloropropane	96	101	5.9	70-130	87	70-130
1,2-Dibromoethane (EDB)	89	93	3.8	70-130	87	70-130
Dibromomethane	102	111	7.8	70-130	112	70-130
1,2- Dichlorobenzene	90	91	0.8	70-130	74	70-130
1,3-Dichlorobenzene	93	91	1.5	70-130	72	70-130
1,4-Dichlorobenzene	92	90	2.1	70-130	73	70-130
Dichlorodifluoromethane	77	88	13	70-130	85	70-130
1,1-Dichloroethane	93	104	10	70-130	104	70-130
1,2-Dichloroethane	100	106	6.0	70-130	108	70-130
1,1-Dichloroethene	86	82	4.4	60-140	82	60-140
cis-1,2-Dichloroethene	93	99	6.0	70-130	99	70-130
trans-1,2-Dichloroethene	106	108	2.0	70-130	107	70-130
1,2-Dichloropropane	97	102	4.4	70-130	105	70-130
1,3-Dichloropropane	90	92	2.0	70-130	82	70-130
1,1-Dichloropropene	95	96	1.2	70-130	98	70-130

## QUALITY CONTROL INFORMATION

### EPA 8260B-Volatile Organics by GC/MS + Oxygenates

JEL ID:	E-0338-49	E-0338-50			E-0338-48		
<u>Parameter</u>	MS Recovery (%)	MSD Recovery (%)	RPD (%)	Acceptability Range (%)	LCS (%)	Acceptability Range (%)	
Ethylbenzene	90	88	2.6	70-130	82	70-130	
Freon 113	102	102	0.6	70-130	103	70-130	
Hexachlorobutadiene	84	87	3.5	70-130	72	70-130	
Isopropylbenzene	92	90	2.5	70-130	93	70-130	
4-Isopropyltoluene	91	90	1.2	70-130	93	70-130	
Methylene chloride	102	102	0.3	70-130	103	70-130	
Naphthalene	96	102	5.8	70-130	84	70-130	
n-Propylbenzene	95	93	1.6	70-130	93	70-130	
Styrene	84	82	1.6	70-130	85	70-130	
1,1,1,2-Tetrachloroethane	102	96	6.2	70-130	90	70-130	
1,1,2,2-Tetrachloroethane	88	90	2.6	70-130	84	70-130	
Tetrachloroethylene	90	88	2.8	70-130	72	70-130	
Toluene	92	88	3.9	70-130	70	70-130	
1,2,3-Trichlorobenzene	95	96	0.6	70-130	77	70-130	
1,2,4-Trichlorobenzene	91	90	1.1	70-130	72	70-130	
1,1,1-Trichloroethane	101	107	6.3	70-130	107	70-130	
1,1,2-Trichloroethane	91	89	1.4	70-130	81	70-130	
Trichloroethylene	96	100	3.7	70-130	100	70-130	
Trichlorofluoromethane	98	108	10	70-130	106	70-130	
1,2,3-Trichloropropane	91	92	1.7	70-130	86	70-130	
1,2,4-Trimethylbenzene	92	90	1.3	70-130	90	70-130	
1,3,5-Trimethylbenzene	91	90	0.8	70-130	89	70-130	
Vinyl chloride	89	96	8.4	60-140	96	60-140	
Xylenes	94	92	2.5	70-130	88	70-130	
MTBE	114	120	5.2	70-130	126	70-130	
Ethyl-tert-butylether	113	116	2.4	70-130	119	70-130	
Di-isopropylether	117	117	0.4	70-130	115	70-130	
<b><u>Surrogate Recovery:</u></b>							
Dibromofluoromethane	100	103		75-125	102	75-125	
Toluene-d <sub>8</sub>	95	88		75-125	84	75-125	
4-Bromofluorobenzene	94	90		75-125	99	75-125	

MS = Matrix Spike

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RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%



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**JONES ENVIRONMENTAL  
 QUALITY CONTROL INFORMATION**

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**Date Analyzed:** 6/19&22-23/2015

**Physical State:** Soil Gas

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

Sample Spiked: JEL ID:	Ambient Air		GC#: E1-062315-E-0339			
	E-0338-42	E-0338-43			E-0338-41	
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD (%)	Acceptability Range (%)	LCS (%)	Acceptability Range (%)
Benzene	97	97	0.6	70-130	101	70-130
Bromobenzene	100	106	5.5	70-130	114	70-130
Bromodichloromethane	107	109	1.4	70-130	116	70-130
Bromoform	97	98	0.9	70-130	105	70-130
n-Butylbenzene	62	70	13.2	70-130	80	70-130
sec-Butylbenzene	93	102	8.7	70-130	107	70-130
tert-Butylbenzene	98	103	5.3	70-130	107	70-130
Carbon tetrachloride	88	87	0.9	70-130	87	70-130
Chlorobenzene	106	102	3.8	70-130	107	70-130
Chloroform	109	107	1.7	70-130	113	70-130
2-Chlorotoluene	94	96	2.0	70-130	104	70-130
4-Chlorotoluene	76	74	2.2	70-130	86	70-130
Dibromochloromethane	101	107	6.0	70-130	111	70-130
1,2-Dibromo-3-chloropropane	63	92	38	70-130	110	70-130
1,2-Dibromoethane (EDB)	89	100	12	70-130	106	70-130
Dibromomethane	106	112	5.5	70-130	115	70-130
1,2-Dichlorobenzene	101	109	7.2	70-130	116	70-130
1,3-Dichlorobenzene	92	100	9.0	70-130	107	70-130
1,4-Dichlorobenzene	89	102	14	70-130	107	70-130
Dichlorodifluoromethane	102	101	1.0	70-130	104	70-130
1,1-Dichloroethane	118	115	2.7	70-130	127	70-130
1,2-Dichloroethane	98	106	8.0	70-130	106	70-130
1,1-Dichloroethene	89	77	14	60-140	90	60-140
cis-1,2-Dichloroethene	75	75	0.7	70-130	74	70-130
trans-1,2-Dichloroethene	119	116	3.1	70-130	135	70-130
1,2-Dichloropropane	112	110	1.8	70-130	121	70-130
1,3-Dichloropropane	72	74	3.6	70-130	76	70-130
1,1-Dichloropropene	77	74	2.9	70-130	80	70-130

## QUALITY CONTROL INFORMATION

### EPA 8260B-Volatile Organics by GC/MS + Oxygenates

JEL ID:	E-0338-42	E-0338-43			E-0338-41		
<u>Parameter</u>	MS Recovery (%)	MSD Recovery (%)	<u>RPD (%)</u>	Acceptability Range (%)	<u>LCS (%)</u>	Acceptability Range (%)	
Ethylbenzene	86	80	6.9	70-130	85	70-130	
Freon 113	102	106	3.2	70-130	109	70-130	
Hexachlorobutadiene	122	128	5.0	70-130	158	70-130	
Isopropylbenzene	98	98	0.4	70-130	105	70-130	
4-Isopropyltoluene	97	103	5.5	70-130	109	70-130	
Methylene chloride	91	89	2.2	70-130	96	70-130	
Naphthalene	230	271	17	70-130	377	70-130	
n-Propylbenzene	100	99	1.0	70-130	60	70-130	
Styrene	109	106	2.8	70-130	108	70-130	
1,1,1,2-Tetrachloroethane	112	109	2.6	70-130	115	70-130	
1,1,2,2-Tetrachloroethane	85	93	8.9	70-130	99	70-130	
Tetrachloroethylene	107	99	6.9	70-130	110	70-130	
Toluene	104	99	5.2	70-130	103	70-130	
1,2,3-Trichlorobenzene	234	268	13	70-130	340	70-130	
1,2,4-Trichlorobenzene	139	173	22	70-130	217	70-130	
1,1,1-Trichloroethane	104	105	1.0	70-130	111	70-130	
1,1,2-Trichloroethane	97	98	0.6	70-130	99	70-130	
Trichloroethylene	108	107	0.8	70-130	115	70-130	
Trichlorofluoromethane	104	111	6.0	70-130	114	70-130	
1,2,3-Trichloropropane	73	84	14	70-130	90	70-130	
1,2,4-Trimethylbenzene	75	81	8.2	70-130	85	70-130	
1,3,5-Trimethylbenzene	89	90	0.5	70-130	96	70-130	
Vinyl chloride	113	111	1.5	60-140	116	60-140	
Xylenes	100	92	8.5	70-130	99	70-130	
MTBE	104	110	5.7	70-130	113	70-130	
Ethyl-tert-butylether	96	100	4.0	70-130	103	70-130	
Di-isopropylether	95	99	3.4	70-130	102	70-130	
tert-amylmethylether	93	98	6.1	70-130	98	70-130	
<b><u>Surrogate Recovery:</u></b>							
Dibromofluoromethane	99	107		75-125	104	75-125	
Toluene-d <sub>8</sub>	101	97		75-125	100	75-125	
4-Bromofluorobenzene	109	103		75-125	102	75-125	

MS = Matrix Spike

MSD = Matrix Spike Duplicate

RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%



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**JONES ENVIRONMENTAL  
 QUALITY CONTROL INFORMATION**

**Client:** Geosyntec Consultants  
**Client Address:** 2100 Main Street, Suite 150  
 Huntington Beach, CA 92648

**Report date:** 6/23/2015  
**JEL Ref. No.:** E-0337-39  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas

**Date Sampled:** 6/19&22-23/2015

**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Received:** 6/19&22-23/2015

**Date Analyzed:** 6/19&22-23/2015

**Physical State:** Soil Gas

**EPA 8260B-Volatile Organics by GC/MS + Oxygenates**

Sample Spiked: JEL ID:	Ambient Air		GC#: E2-062315-E-0339			
	E-0337-47	E-0337-48		E-0337-46		
Parameter	MS Recovery (%)	MSD Recovery (%)	RPD (%)	Acceptability Range (%)	LCS (%)	Acceptability Range (%)
Benzene	108	106	1.7	70-130	111	70-130
Bromobenzene	97	93	3.7	70-130	100	70-130
Bromodichloromethane	98	92	6.2	70-130	99	70-130
Bromoform	100	94	5.9	70-130	103	70-130
n-Butylbenzene	99	93	5.3	70-130	102	70-130
sec-Butylbenzene	99	93	5.6	70-130	103	70-130
tert-Butylbenzene	97	93	4.5	70-130	103	70-130
Carbon tetrachloride	108	104	3.8	70-130	108	70-130
Chlorobenzene	116	111	4.2	70-130	122	70-130
Chloroform	114	111	2.6	70-130	115	70-130
2-Chlorotoluene	97	91	6.0	70-130	99	70-130
4-Chlorotoluene	94	89	5.4	70-130	97	70-130
Dibromochloromethane	95	86	9.0	70-130	93	70-130
1,2-Dibromo-3-chloropropane	112	106	5.3	70-130	114	70-130
1,2-Dibromoethane (EDB)	95	89	6.7	70-130	97	70-130
Dibromomethane	109	104	4.8	70-130	109	70-130
1,2-Dichlorobenzene	94	89	5.3	70-130	97	70-130
1,3-Dichlorobenzene	96	92	3.8	70-130	99	70-130
1,4-Dichlorobenzene	94	89	5.2	70-130	96	70-130
Dichlorodifluoromethane	84	82	1.8	70-130	90	70-130
1,1-Dichloroethane	103	100	2.9	70-130	102	70-130
1,2-Dichloroethane	109	105	3.6	70-130	109	70-130
1,1-Dichloroethene	82	79	3.9	60-140	108	60-140
cis-1,2-Dichloroethene	98	94	4.4	70-130	99	70-130
trans-1,2-Dichloroethene	106	106	0.5	70-130	110	70-130
1,2-Dichloropropane	104	99	4.7	70-130	108	70-130
1,3-Dichloropropane	94	89	5.7	70-130	96	70-130
1,1-Dichloropropene	100	96	3.5	70-130	98	70-130

## QUALITY CONTROL INFORMATION

### EPA 8260B-Volatile Organics by GC/MS + Oxygenates

JEL ID:	E-0337-47	E-0337-48			E-0337-46		
<u>Parameter</u>	MS Recovery (%)	MSD Recovery (%)	<u>RPD (%)</u>	Acceptability Range (%)	<u>LCS (%)</u>	Acceptability Range (%)	
Ethylbenzene	94	88	6.4	70-130	95	70-130	
Freon 113	102	102	0.3	70-130	108	70-130	
Hexachlorobutadiene	91	86	5.7	70-130	90	70-130	
Isopropylbenzene	98	92	6.2	70-130	101	70-130	
4-Isopropyltoluene	97	90	7.3	70-130	100	70-130	
Methylene chloride	102	102	0.2	70-130	108	70-130	
Naphthalene	111	103	7.4	70-130	114	70-130	
n-Propylbenzene	99	94	5.8	70-130	103	70-130	
Styrene	85	81	4.1	70-130	87	70-130	
1,1,1,2-Tetrachloroethane	102	95	7.5	70-130	104	70-130	
1,1,2,2-Tetrachloroethane	98	92	7.1	70-130	99	70-130	
Tetrachloroethylene	92	89	3.2	70-130	95	70-130	
Toluene	94	89	6.1	70-130	97	70-130	
1,2,3-Trichlorobenzene	98	92	6.2	70-130	99	70-130	
1,2,4-Trichlorobenzene	93	87	7.1	70-130	93	70-130	
1,1,1-Trichloroethane	107	104	3.4	70-130	108	70-130	
1,1,2-Trichloroethane	94	90	4.9	70-130	97	70-130	
Trichloroethylene	100	97	2.6	70-130	103	70-130	
Trichlorofluoromethane	105	100	5.3	70-130	109	70-130	
1,2,3-Trichloropropane	97	91	5.9	70-130	104	70-130	
1,2,4-Trimethylbenzene	95	89	6.9	70-130	98	70-130	
1,3,5-Trimethylbenzene	95	89	6.8	70-130	99	70-130	
Vinyl chloride	98	94	4.0	60-140	100	60-140	
Xylenes	97	91	6.3	70-130	99	70-130	
MTBE	118	116	1.2	70-130	124	70-130	
Ethyl-tert-butylether	117	116	1.0	70-130	120	70-130	
Di-isopropylether	116	115	1.4	70-130	123	70-130	
tert-amylmethylether	98	94	3.7	70-130	102	70-130	
 <b><u>Surrogate Recovery:</u></b>							
Dibromofluoromethane	99	100		75-125	97	75-125	
Toluene-d <sub>8</sub>	95	93		75-125	97	75-125	
4-Bromofluorobenzene	91	90		75-125	96	75-125	

MS = Matrix Spike

MSD = Matrix Spike Duplicate

RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%

**Pages 54-59 Purposely Blank**  
**(Samples collected from a separate parcel)**

# Chain-of-Custody Record

JEL Project #  
**E-0339**  
 Page **2** of **4**  
 Lab Use Only  
 Sample Condition as Received:  
 Chilled  yes  no  
 Sealed  yes  no

SOIL GAS  
 Purge Number:  1P  3P  7P  10P  
 Purge Rate: **200** cc/min  
 Shut in Test  Y  N  
 Tracer:  
 n-propanol  
 n-pentane  
 1,1-DFA  
 Helium  
 \_\_\_\_\_

Date: **06.23.15**  
 Client Project #: **AR-1462-10**  
 Turn Around Requested:  
 Immediate Attention  
 Rush 24-48 Hours  
 Rush 72-96 Hours  
 Normal  
 Mobile Lab

Client: **Geosyntec Consultants**  
 Project Name: **Former MCAS**  
 Project Address: **Sand Canyon + Marine Way**  
**Irvine, CA**  
 Project Contact: **Matt Thomas**

Analysis Requested  
 Number of Containers  
 Magnetic Vacuum (In H<sub>2</sub>O)  
 Sample Mark:  
 Soil (S), Sludge (SL), Aqueous (A), Soil Gas (SG)  
**EPA 8160B/VOCs/TPH**

Sample ID	Purge Number	Purge Volume	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample Number	Remarks/Special Instructions
SN-30-5	10	4238	6/23	1145	1146	E0331-19 SL X	gas tight glass syringe
SN-30-13	10	4674	6/23	1143	1144	E0331-20 SL X	
1 Relinquished by (signature) <b>Zahra</b> Company							Total Number of Containers
2 Received by (signature) <b>Jones Environmental</b> Company							Date: <b>6/23/15</b> Time
3 Relinquished by (signature)							Date
4 Received by Laboratory (signature)							Date
Company							Time

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

# Chain-of-Custody Record

Client: Geosyntec Consultants  
 Project Name: Former MCAS  
 Project Address: Sand Canyon & Narcho Way  
Irvine, CA  
 Project Contact: Matt Thomas

Date: 06/23/2015  
 Client Project #: ATK-140210  
 Turn Around Requested:  
 Immediate Attention  
 Rush 24-48 Hours  
 Rush 72-96 Hours  
 Normal  
 Mobile Lab

SOIL GAS  
 Purge Number:  1P  3P  7P  10P  
 Purge Rate: 200 cc/min  
 Shut in Test: 10/1 N  
 Tracer:  
 n-propanol  
 n-pentane  
 1,1-DFA  
 Helium

JEL Project # E-0339  
 Page 3 of 4  
 Lab Use Only  
 Sample Condition as Received:  
 Chilled  yes  no  
 Sealed  yes  no

Analysis Requested  
 Magnetic Vacuum (mH<sub>2</sub>O)  
 Number of Containers  
 Sample Matrix: SL, Sludge (S), Aqueous (A), Soil Gas (SG)  
CPA 82608 (vials)

Sample ID	Purge Number	Purge Volume	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample Number	Sample Matrix	Magnetic Vacuum (mH <sub>2</sub> O)	Number of Containers	Remarks/Special Instructions
SV-29-45	10	4210	6/23	1209	1240	E-0339-21	SG X	<5	2	glass dustight syringe
SV-29-15	10	4783	6/23	1213	1214	E-0339-22	SG X	<5	2	
SV-27-5	10	4238	6/23	1230	1230	E-0339-23	SG X	<5	2	
SV-27-17	10	4893	6/23	1231	1233	E-0339-24	SG X	<5	2	
SV-27-17-25P	10	4893	6/23	1232	1246	E-0339-25	SG X	<5	2	
SV-28-5	10	4238	6/23	1255	1255	E-0339-26	SG X	<5	2	
SV-28-15	10	4783	6/23	1257	1304	E-0339-27	SG X	<5	2	
SV-26-6	10	4292	6/23	1319	1326	E-0339-28	SG X	<5	2	
SV-26-15	10	4783	6/23	1322	1323	E-0339-29	SG X	<5	2	
SV-22-5.5	10	4265	6/23	1245	1246	E-0339-30	SG X	<5	2	

1 Relinquished by (signature) [Signature] Date 6/23/15 Total Number of Containers

Company Jones Environmental

2 Received by (signature) [Signature] Date 6/23/15

Company Jones Environmental

3 Relinquished by (signature) \_\_\_\_\_ Date \_\_\_\_\_

Company \_\_\_\_\_

4 Received by Laboratory (signature) \_\_\_\_\_ Date \_\_\_\_\_

Company \_\_\_\_\_

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

EDD  EDF

# Chain-of-Custody Record

JEL Project # **E-0339**  
Page **4** of **4**  
Lab Use Only  
Sample Condition as Received: Chilled  yes  no  
Sealed  yes  no

Date **06.23.15**  
Client Project # **HR-1462-10**  
Turn Around Requested:  
 Immediate Attention  
 Rush 24-48 Hours  
 Rush 72-96 Hours  
 Normal  
 Mobile Lab

SOIL GAS  
Purge Number:  1P  3P  7P  10P  
Purge Rate: **200** cc/min  
Shut in Test  /  N  
Tracer:  
 n-propanol  
 n-pentane  
 1,1-DFA  
 Helium

Analysis Requested  
Magnetic Vacuum (In/H<sub>2</sub>O)  
Number of Containers

Sample ID	Purge Number	Purge Volume	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample Number	Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Soil Gas (SG)	Magnetic Vacuum (In/H <sub>2</sub> O)	Number of Containers	Remarks/Special Instructions
SV-22-15	10	4783	6/23	1347	1348	E-0339-31	X	45	2	gas that glass syringe
SV-23-5	10	4238	6/23	1409	1409	E-0339-32	X	45	2	
SV-23-15.5	10	4811	6/23	1410	1411	E-0339-33	X	45	2	
SV-24-5	10	4238	6/23	1434	1435	E-0339-34	X	45	2	
SV-24-5-SEP	10	4238	6/23	1434	1443	E-0339-35	X	45	2	
SV-24-17.5	10	4920	6/23	1436	1436	E-0339-36	X	45	2	
SV-25-5	10	4238	6/23	1457	1500	E-0339-37	X	45	2	
SV-25-15	10	4783	6/23	1455	1456	E-0339-38	X	45	2	

1 Relinquished by (signature) *Zahra*  
Company

2 Received by (signature) *[Signature]*  
Date **6/23/15**  
Time  
Company **Jones Environmental**

3 Relinquished by (signature)  
Date  
Time  
Company

4 Received by Laboratory (signature)  
Date  
Time  
Company

Total Number of Containers

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

EDD  EDF

**APPENDIX D**

**SOIL GAS METHANE ANALYTICAL  
LABORATORY REPORTS**



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**JONES ENVIRONMENTAL  
LABORATORY RESULTS**

<b>Client:</b>	Geosyntec Consultants	<b>Report date:</b>	10/1/2015
<b>Client Address:</b>	2100 Main Street #150 Huntington Beach, CA 92648	<b>JEL Ref. No.:</b>	ST-8732
		<b>Client Ref. No:</b>	HR-1462-10
<b>Attn:</b>	Matt Thomas	<b>Date Sampled:</b>	10/1/2015
		<b>Date Received:</b>	10/1/2015
<b>Project:</b>	Former MCAS	<b>Date Analyzed:</b>	10/1/2015
<b>Project Address:</b>	Sand Canyon & Marine Way Irvine, CA	<b>Physical State:</b>	Soil Gas

---

**ANALYSES REQUESTED**

1. ASTM D1946- Fixed Gases

**Approval:**

Steve Jones, Ph.D.  
Laboratory Manager



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**JONES ENVIRONMENTAL  
 LABORATORY RESULTS**

**Client:** Geosyntec Consultants  
**Client Address:** 2100 Main Street #150  
 Huntington Beach, CA 92648  
  
**Attn:** Matt Thomas  
  
**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Report date:** 10/1/2015  
**JEL Ref. No.:** ST-8732  
**Client Ref. No.:** HR-1462-10  
  
**Date Sampled:** 10/1/2015  
**Date Received:** 10/1/2015  
**Date Analyzed:** 10/1/2015  
**Physical State:** Soil Gas

**ASTM D1946 - Fixed Gases**

<u>Sample ID:</u>	SV-25-5	SV-25-15		
<u>JEL ID:</u>	ST-8732-07	ST-8732-08	<u>Reporting Limits</u>	<u>Units</u>
<b>Analytes:</b>				
Carbon Dioxide (CO <sub>2</sub> )	6.30	4.55	0.01	%
Oxygen (O <sub>2</sub> )	14.0	15.3	0.01	%
Nitrogen (N <sub>2</sub> )	77.4	78.1	0.01	%
Methane (CH <sub>4</sub> )	ND	ND	0.01	%
Carbon Monoxide (CO)	ND	ND	0.01	%
	100515_1	100515_1		

<u>Sample ID:</u>	SV-24-5	SV-24-17	SV-23-5	SV-23-15.5	SV-28-5		
<u>JEL ID:</u>	ST-8732-09	ST-8732-10	ST-8732-11	ST-8732-12	ST-8732-13	<u>Reporting Limits</u>	<u>Units</u>
<b>Analytes:</b>							
Carbon Dioxide (CO <sub>2</sub> )	14.7	5.07	7.10	4.86	1.57	0.01	%
Oxygen (O <sub>2</sub> )	8.92	14.9	13.4	15.0	17.5	0.01	%
Nitrogen (N <sub>2</sub> )	76.5	78.5	78.4	78.5	78.6	0.01	%
Methane (CH <sub>4</sub> )	ND	ND	ND	ND	ND	0.01	%
Carbon Monoxide (CO)	ND	ND	ND	ND	ND	0.01	%
	100515_1	100515_1	100515_1	100515_1	100515_1		

ND = Not Detected



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**JONES ENVIRONMENTAL  
 LABORATORY RESULTS**

**Client:** Geosyntec Consultants  
**Client Address:** 2100 Main Street #150  
 Huntington Beach, CA 92648

**Report date:** 10/1/2015  
**JEL Ref. No.:** ST-8732  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas  
**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Sampled:** 10/1/2015  
**Date Received:** 10/1/2015  
**Date Analyzed:** 10/1/2015  
**Physical State:** Soil Gas

**ASTM D1946 - Fixed Gases**

<u>Sample ID:</u>	SV-28-15	SV-28-15 REP	SV-27-5	SV-27-17	SV-29-4.5		
<u>JEL ID:</u>	ST-8732-14	ST-8732-15	ST-8732-16	ST-8732-17	ST-8732-18	<u>Reporting Limits</u>	<u>Units</u>
<b>Analytes:</b>							
Carbon Dioxide (CO <sub>2</sub> )	2.08	2.05	2.11	1.50	2.75	0.01	%
Oxygen (O <sub>2</sub> )	17.3	17.2	17.1	17.5	16.6	0.01	%
Nitrogen (N <sub>2</sub> )	78.5	78.5	78.8	78.6	78.6	0.01	%
Methane (CH <sub>4</sub> )	ND	ND	ND	ND	ND	0.01	%
Carbon Monoxide (CO)	ND	ND	ND	ND	ND	0.01	%
	100515_1	100515_1	100515_1	100515_1	100515_1		

<u>Sample ID:</u>	SV-29-15	SV-30-5	SV-30-13	SV-30-13 REP	SV-22-5.5		
<u>JEL ID:</u>	ST-8732-19	ST-8732-20	ST-8732-21	ST-8732-22	ST-8732-23	<u>Reporting Limits</u>	<u>Units</u>
<b>Analytes:</b>							
Carbon Dioxide (CO <sub>2</sub> )	2.15	2.04	2.46	2.40	1.02	0.01	%
Oxygen (O <sub>2</sub> )	17.2	17.2	16.6	16.7	17.8	0.01	%
Nitrogen (N <sub>2</sub> )	78.4	78.4	78.5	78.6	78.1	0.01	%
Methane (CH <sub>4</sub> )	ND	ND	ND	ND	ND	0.01	%
Carbon Monoxide (CO)	ND	ND	ND	ND	ND	0.01	%
	100515_1	100515_1	100515_1	100515_1	100515_1		

ND = Not Detected



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**JONES ENVIRONMENTAL  
 LABORATORY RESULTS**

**Client:** Geosyntec Consultants  
**Client Address:** 2100 Main Street #150  
 Huntington Beach, CA 92648

**Report date:** 10/1/2015  
**JEL Ref. No.:** ST-8732  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas

**Date Sampled:** 10/1/2015

**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Received:** 10/1/2015

**Date Analyzed:** 10/1/2015

**Physical State:** Soil Gas

**ASTM D1946 - Fixed Gases**

**Sample ID:** SV-22-15

**JEL ID:** ST-8732-24

**Analytes:**

		<u>Reporting Limits</u>	<u>Units</u>
Carbon Dioxide (CO <sub>2</sub> )	<b>2.45</b>	0.01	%
Oxygen (O <sub>2</sub> )	<b>17.2</b>	0.01	%
Nitrogen (N <sub>2</sub> )	<b>78.1</b>	0.01	%
Methane (CH <sub>4</sub> )	ND	0.01	%
Carbon Monoxide (CO)	ND	0.01	%

100515\_2

ND = Not Detected



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**JONES ENVIRONMENTAL  
 LABORATORY RESULTS**

**Client:** Geosyntec Consultants  
**Client Address:** 2100 Main Street #150  
 Huntington Beach, CA 92648

**Report date:** 10/1/2015  
**JEL Ref. No.:** ST-8732  
**Client Ref. No.:** HR-1462-10

**Attn:** Matt Thomas

**Date Sampled:** 10/1/2015  
**Date Received:** 10/1/2015

**Project:** Former MCAS  
**Project Address:** Sand Canyon & Marine Way  
 Irvine, CA

**Date Analyzed:** 10/1/2015  
**Physical State:** Soil Gas

**ASTM D1946 - Fixed Gases**

<u>Sample ID:</u>	<b>METHOD BLANK</b>	<b>METHOD BLANK</b>		
<u>JEL ID:</u>	<b>ST-8732-25</b>	<b>ST-8732-26</b>	<u>Reporting Limits</u>	<u>Units</u>
<b>Analytes:</b>				
Carbon Dioxide (CO <sub>2</sub> )	ND	ND	0.01	%
Oxygen (O <sub>2</sub> )	<b>18.4</b>	<b>18.6</b>	0.01	%
Nitrogen (N <sub>2</sub> )	<b>78.6</b>	<b>78.7</b>	0.01	%
Methane (CH <sub>4</sub> )	ND	ND	0.01	%
Carbon Monoxide (CO)	ND	ND	0.01	%
	100515_1	100515_2		

ND = Not Detected



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**JONES ENVIRONMENTAL  
 QUALITY CONTROL INFORMATION**

<b>Client:</b>	Geosyntec Consultants	<b>Report date:</b>	10/1/2015
<b>Client Address:</b>	2100 Main Street #150 Huntington Beach, CA 92648	<b>JEL Ref. No.:</b>	ST-8732
		<b>Client Ref. No.:</b>	HR-1462-10
<b>Attn:</b>	Matt Thomas	<b>Date Sampled:</b>	10/1/2015
		<b>Date Received:</b>	10/1/2015
<b>Project:</b>	Former MCAS	<b>Date Analyzed:</b>	10/1/2015
<b>Project Address:</b>	Sand Canyon & Marine Way Irvine, CA	<b>Physical State:</b>	Soil Gas

**ASTM D1946 - Fixed Gases**

**GC#:** 100515\_1

<b>JEL ID:</b>	<b>ST-8732-27</b>	<b>ST-8732-28</b>		
<u>Parameter</u>	LCS Recovery (%)	LCSD Recovery (%)	<u>RPD</u>	Acceptability Range (%)
Carbon Dioxide (CO <sub>2</sub> )	98%	96%	2.5%	60-140
Oxygen (O <sub>2</sub> )	112%	112%	0.2%	60-140
Nitrogen (N <sub>2</sub> )	102%	102%	0.1%	60-140
Methane (CH <sub>4</sub> )	100%	100%	0.2%	60-140
Carbon Monoxide (CO)	100%	100%		60-140

LCS = Lab Control Sample

LCSD = Lab Control Sample Duplicate

RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%



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**JONES ENVIRONMENTAL  
 QUALITY CONTROL INFORMATION**

<b>Client:</b>	Geosyntec Consultants	<b>Report date:</b>	10/1/2015
<b>Client Address:</b>	2100 Main Street #150 Huntington Beach, CA 92648	<b>JEL Ref. No.:</b>	ST-8732
		<b>Client Ref. No.:</b>	HR-1462-10
<b>Attn:</b>	Matt Thomas	<b>Date Sampled:</b>	10/1/2015
		<b>Date Received:</b>	10/1/2015
<b>Project:</b>	Former MCAS	<b>Date Analyzed:</b>	10/1/2015
<b>Project Address:</b>	Sand Canyon & Marine Way Irvine, CA	<b>Physical State:</b>	Soil Gas

**ASTM D1946 - Fixed Gases**

**GC#:** 100515\_2

<b>JEL ID:</b>	<b>ST-8732-29</b>	<b>ST-8732-30</b>		
<u>Parameter</u>	LCS Recovery (%)	LCSD Recovery (%)	<u>RPD</u>	Acceptability Range (%)
Carbon Dioxide (CO <sub>2</sub> )	101%	97%	3.6%	60-140
Oxygen (O <sub>2</sub> )	85%	88%	2.9%	60-140
Nitrogen (N <sub>2</sub> )	101%	100%	0.3%	60-140
Methane (CH <sub>4</sub> )	101%	100%	0.9%	60-140
Carbon Monoxide (CO)	100%	100%	0.7%	60-140

LCS = Lab Control Sample

LCSD = Lab Control Sample Duplicate

RPD = Relative Percent Difference; Acceptability range for RPD is ≤ 15%





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(562) 646-1611  
www.jonesenv.com

# Chain-of-Custody Record

**Client** Geosystem Consultants  
**Project Name** Former MCAS  
**Project Address** Sand Canyon + Malibu Way  
Twine, CA  
**Project Contact** Matt Thomas

**Date** 10-1-15  
**Client Project #** HR-14102-10

**Turn Around Requested:**  
 Immediate Attention  
 24  
 48  
 72  
 Normal  
 Mobile Lab

**Tracer:**  
 n-propanol  
 n-pentane  
 1,1-DFA  
 Heptane

**SOIL GAS**  
 Purge Number:  1P  3P  7P  10P  
 Purge Rate: 200 cc/min  
 Shut in Test  Y  N

**Analysis Requested**  
 Magnetic Vacuum (mH<sub>2</sub>O)  
 Number of Containers

**JEL Project #** ST-8732  
**Page** 2 of 3  
**Lab Use Only**  
 Sample Condition as Received:  
 Chilled  yes  no  
 Sealed  yes  no

Sample ID	Purge Number	Purge Volume	Date	Sample Collection Time	Sample Analysis Time	Laboratory Sample Number	Sample Matrix: Soil (S), Sludge (SL), Aqueous (A), Soil Gas (SG)	Analysis Requested	Number of Containers	Remarks/Special Instructions
SV-23-5	3	1221	10/1	11:09		ST-8732-11	X	5	1	
SV-23-15.5	3	1403	10/1	11:13		-12	X	5	1	
SV-28-5	3	1271	10/1	11:20		-13	X	5	1	
SV-28-15	3	1425	10/1	11:30		-14	X	5	1	
SV-28-15 RES	3	1435	10/1	11:31		-15	X	5	1	
SV-27-5	3	1271	10/1	11:30		-16	X	5	1	
SV-27-17	3	1467	10/1	11:32		-17	X	5	1	
SV-29-4.5	3	1263	10/1	11:45		-18	X	5	1	
SV-29-15	3	1435	10/1	11:48		-19	X	5	1	
SV-30-5	3	1271	10/1	12:44		-20	X	5	1	
<b>1 Relinquished by (signature)</b> <u>Zahra A</u> Company							<b>2 Received by (signature)</b>  Company		<b>Total Number of Containers</b> <u>10</u>	
<b>3 Relinquished by (signature)</b> Company							<b>4 Received by Laboratory (signature)</b> <u>JEC</u> Company		The delivery of samples and the signature on this Chain of Custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.	
<b>Company</b>							<b>Date</b> <u>10/1/15</u> <b>Time</b> <u>13:15</u>		<b>Date</b> <b>Time</b>	

