INITIAL VOC & RADIOLOGICAL SUBSURFACE INVESTIGATION REPORT

VETERANS ADMINISTRATION
GREATER LOS ANGELES HEALTHCARE SYSTEM
11301 WILSHIRE BOULEVARD
LOS ANGELES, CA 90073

VOLUME 1

PROJECT NO. 02-3454EI-3

December 10, 2010

Prepared For:

Department of Veterans Affairs
Veterans Administration - Greater Los Angeles Healthcare System
11301 Wilshire Boulevard, Building 218, Room 308
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Project No. 02-3454EI-3
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Veterans Administration Greater Los Angeles Healthcare System
11301 Wilshire Boulevard
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Los Angeles, CA 90073

Attention: Mr. Ben Spivey
Chief, Occupational Safety and Health

Subject: **INITIAL VOC & RADIOLOGICAL SUBSURFACE INVESTIGATION REPORT**

Veterans Administration - Greater Los Angeles Healthcare System (VA-GLAHS)
11301 Wilshire Boulevard
Los Angeles, CA 90073

Dear Mr. Spivey:

Pursuant to the conditions of the contract, Allwest Geoscience, Inc., prepared this *Initial VOC and Radiological Subsurface Investigation Report* summarizing subsurface investigation activities that would assist in evaluating potential human health risks associated with buried medical waste resulting from historic medical research and disposal practices at the Veterans Administration - Greater Los Angeles Healthcare System (VA-GLAHS) campus.

Allwest Geoscience, Inc. developed a report that utilized the Multi Agency Radiation Survey & Site Investigation Manual (MARSSIM) Data Quality Objectives (DQO), which are established to provide information necessary to conduct the overall investigation, evaluation and human health risk assessment.

We appreciate the opportunity to provide the requested environmental services. If you have any questions concerning this report, please contact the undersigned.

Sincerely,
ALLWEST GEOSCIENCE, INC.

JOHN R. GERY
Principal Geotechnical Engineer
California Registration No. RGE 336
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REGISTERED PROFESSIONAL ENGINEER
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INITIAL VOC & RADIOLOGICAL SUBSURFACE INVESTIGATION REPORT
Veterans Administration - Greater Los Angeles Healthcare System (VA-GLAHS)
11301 Wilshire Boulevard
Los Angeles, CA 90073

1.0 EXECUTIVE SUMMARY

Allwest Geoscience has prepared this *Initial VOC and Radiological Subsurface Investigation Report* summarizing initial subsurface investigation activities that would assist in evaluating potential human health risks associated with buried medical waste resulting from historic medical research and disposal practices at the Veterans Administration (VA) Greater Los Angeles Healthcare System (GLAHS) property.

The VA GLAHS property encompasses an area of approximately 450 acres. The two areas investigated include a baseball field and an area known as the “Arroyo” or “Eastern Canyon”. The ‘Arroyo/Eastern Canyon’ has been previously identified as a burial area for former medical waste, including animal carcasses, medical isotope waste in radiological scintillation vials and other miscellaneous medical debris.

Any volatile organic compounds (VOCs) and radionuclides found in the soil and water in the investigated ‘Ball Field’ and ‘Arroyo/Eastern Canyon’ areas did not exceed Preliminary Remediation Goals (PRGs) established for soil and tap water by the U.S. EPA Region IX. In addition, VOCs and radionuclide concentrations in groundwater did not exceed Maximum Contaminant Levels (MCLs) established for drinking water by the California Department of Public Health.

There should be no potential human health risks associated with buried medical waste resulting from historic medical research and disposal at the Veterans Administration (VA) Greater Los Angeles Healthcare System (GLAHS) property within the limits of the investigated area.

1.1 Soil Borings, Sampling and Analysis

Allwest conducted a passive soil gas (PSG) survey, which utilized adsorbent samplers placed within 3 feet of the surface to adsorb compounds in soil gas. Only three (3) VOC analytes (chloroform, benzene and toluene) were detected in soil gas.

Twenty-nine (29) soil borings were advanced utilizing a Geoprobe® brand direct-push sampling rig to depths of 20 to 65 feet below ground surface (bgs) between November 30 and December 9, 2009. Four (4) soil borings were located in the ‘Ball Field’, twenty-two (22) borings were located in the ‘Arroyo/Eastern Canyon’ and three (3) groundwater monitoring wells were installed down gradient of the southernmost suspected burial area. Continuous soil samples were retrieved from the bore holes, and selected samples were submitted to various laboratories for chemical and radiological analysis.

Of all VOCs analyzed in the soil, only two (2) VOC compounds (2-butanone and acetone) were detected at low concentrations.

None of the basic list radionuclides (Tritium, Carbon-14, and Chlorine-36) were detected in any of the soil samples collected.

Soil samples were also analyzed for an extended list of about 40 radionuclides, which were less likely to be present in the suspect waste. Several nuclides on the extended list were detected at low levels, but these are all naturally occurring nuclides from potassium, uranium, thorium, and their daughters in soils.

1.2 Groundwater Monitoring Well Installation, Sampling and Analysis

To verify the depth to groundwater and to assess the possibility of groundwater impacts, three (3) groundwater monitoring wells were installed down gradient of the suspected southernmost medical waste burial area. Each well extended to an approximate depth of 73 feet bgs. Groundwater was measured at depths of 65 to 66 feet bgs in December 2009 and 64 to 69 feet bgs in August 2010.

Groundwater samples were obtained at the completion of well development on December 9, 2009. To verify the water analysis results, additional groundwater samples were obtained on August 16, 2010. Groundwater samples were submitted to laboratories for chemical and radiological analysis.

In the water samples collected on December 9, 2009, analysis for VOCs showed low levels of benzene, toluene, and 2-butanone. In the follow-up water sampling on August 16, 2010, no VOCs were detected above the method detection limits.

In the water samples collected on December 9, 2009, Tritium was detected at levels as high as 28.7 pCi/L with an average activity level of 22.23 pCi/L. Of the other radionuclides analyzed, Radium-226 and Radium-228 were detected at average activity levels of 4.37 pCi/L and 3.66 pCi/L, respectively. All other radionuclides were not detected at levels exceeding laboratory detection limits.

Bismuth-214, which is produced by Radium-226, was detected by gamma spectroscopy. The samples that that went to gamma spectroscopy were not filtered by the lab and had excessive sediment reported. The lab then performed radiochemical analysis for Radium, and reported it at a fraction of the expected level (less than 4 pCi/L versus over 40 pCi/L for Bi-214). The aliquots that went to Radium analysis were filtered and did not contain sediment. It was concluded that the Bismuth-214 measured was in the sediment and not groundwater. This nuclide was also detected in soil samples.

In the water samples collected on August 16, 2010, Tritium was detected at levels as high as 52.5 pCi/L with an average activity level of 26.8 pCi/L. Radium-226 was detected at levels as high as 0.52 pCi/L with an average activity level of 0.45 pCi/L. Radium-228 was only detected in well MW-3 at a level of 1.46 pCi/L with an average activity level of less than 0.90 pCi/L. Carbon-14 and Chlorine-36 were not detected.

1.3 Plant (Transpired) Water Sampling and Analysis

Transpired water was collected from green surface vegetation at 14 locations. This method involved collecting water that is transpired from leaves of plants growing above the suspected waste burial areas. The plant's roots draw on the groundwater and transport it up to the leaves, where it is collected.

Transpired plant water was only analyzed for Tritium, which is both the most prevalent radionuclide reported in the disposal area and the most mobile. Tritium was detected in every plant transpiration water sample collected at levels ranging from 51.0 pCi/L to 130.8 pCi/L.

1.4 Conclusions

Allwest encountered man-made fill over natural deposits in the soil borings within the 'Ball Field' and 'Arroyo/Eastern Canyon' area. Groundwater in the southernmost end of the investigated area was measured at depths ranging from 64 to 69 feet bgs, with the disparity likely due to seasonal effects.

Volatile Organic Compound (VOC) concentrations in soil did not exceed Preliminary Remediation Goals (PRG) established for both residential and industrial soil, and they did not exceed soil screening levels (SSL), all established by the U.S. EPA Region IX.

VOC concentrations in groundwater did not exceed PRGs established for tap water by the U.S. EPA Region IX and did not exceed Maximum Contaminant Levels (MCLs) established for drinking water by the California Department of Public Health.

None of the basic list radionuclides (Tritium, Carbon-14, and Chlorine-36) were detected in any of the soil samples collected. Several nuclides on the extended list were detected at low levels, but these are all naturally occurring nuclides from potassium, uranium, thorium, and their daughters in soils.

In groundwater samples obtained in December 2009 and August 2010, elevated levels of Tritium and Radium were detected. Since Radium was not included in the VA's disposal records covering canyon disposal, its presence is very likely from natural sources. However, Tritium was reported as the most common nuclide disposed of in the canyon and its presence with an average activity levels of up to 26.8 pCi/L can only be due to that disposal.

Of the other radionuclides analyzed, Radium-226 and Radium-228 were detected at average activity levels of 4.37 pCi/L and 3.66 pCi/L, respectively, in December 2009. However, substantially reduced average activity levels of 0.45 pCi/L and 0.90 pCi/L, respectively, were detected in August 2010.

Radionuclide concentrations in soil did not exceed Preliminary Remediation Goals (PRG) established by the U.S. EPA Region IX.

Radionuclide concentrations in groundwater did not exceed PRGs established for tap water by the U.S. EPA Region IX and did not exceed Maximum Contaminant Levels (MCLs) established for drinking water by the California Department of Public Health.

Tritium was detected in every plant transpiration water sample collected at levels ranging from 51.0 pCi/L to 130.8 pCi/L. The water collected from the leaves of the plants occurs from transpiration of groundwater by plants whose roots tap the groundwater. Transpired plant water was only analyzed for Tritium, which is both the most prevalent radionuclide reported in the disposal area, the most mobile and most likely to migrate along groundwater pathways. The test results show levels increasing from west to east, with two of three maximum locations occurring between the suspected disposal areas and along the east edge of the investigated area. The northernmost maximum location occurs near the center of a suspected disposal area

The levels of Tritium detected across the site suggest the presence of burial wastes in or near the study area. The Tritium appears to be well diffused across the site, which is not surprising given its mobility and long time period since disposal.

Tritium concentrations in the transpiration water collected from the plant leaves did not exceed the PRGs established for tap water (160 pCi/L) by the U.S. EPA Region IX.

In summary, all VOCs and radionuclides found in the soil and water in the investigated 'Ball Field' and 'Arroyo/Eastern Canyon' areas did not exceed Preliminary Remediation Goals (PRGs) established for soil and tap water by the U.S. EPA Region IX. In addition, VOCs and radionuclide concentrations in groundwater did not exceed Maximum Contaminant Levels (MCLs) established for drinking water by the California Department of Public Health.

There should be no potential human health risks associated with buried medical waste resulting from historic medical research and disposal at the Veterans Administration (VA) Greater Los Angeles Healthcare System (GLAHS) property within the limits of the investigated area.

2.0 INTRODUCTION

Allwest Geoscience has prepared this *Initial VOC and Radiological Subsurface Investigation Report* summarizing initial subsurface investigation activities that would assist in evaluating potential human health risks associated with buried medical waste resulting from historic medical research and disposal practices at the Veterans Administration (VA) Greater Los Angeles Healthcare System (GLAHS) property (Figures 1 and 2).

3.0 PROJECT DESCRIPTION

The VA GLAHS property encompasses an area of approximately 450 acres (URS, 2000). Two (2) investigation areas include a baseball field and an area known as the "Arroyo" or "Eastern Canyon" (MECA, 2007). The Arroyo or Eastern Canyon has been previously identified as a burial area for former medical waste from animal experiments, including animal carcasses, medical isotope waste in radiological scintillation vials and other miscellaneous medical debris including syringes (MECA, 2007).

Two (2) sites have been selected for this investigation: the 'Ball Field' which measures approximately 200 feet by 200 feet and the adjacent 'Arroyo' or 'Eastern Canyon' which measures approximately 125 feet wide by 1,000 feet long (Figure 2).

4.0 GEOLOGY AND HYDROGEOLOGY

4.1 Geology

The investigation areas are located in the Sawtelle Plain portion of the Santa Monica Basin portion of the larger Coastal Plain of Los Angeles County (DWR, 1961), approximately 1½ miles south of the base of the Santa Monica Mountains and approximately 4 to 5 miles east of the Pacific Ocean. The 'Ball Field' is situated at an elevation of approximately 420 feet above mean sea level (MSL) and the 'Arroyo/Eastern Canyon' is situated at an elevation ranging from approximately 350 to 400 feet MSL in the investigation area. UCLA is located approximately 1 mile northeast of the site and the gently rolling Beverly Hills is located approximately 2 to 3 miles east of the site (USGS, 1981). Surface deposits in the site area consist of marine and continental gravel, sand, sandy silt, silt, and clay with shale pebbles of the upper Pleistocene-age Lakewood Formation and Recent-age alluvium comprised of gravel, sand, silt, and clay. Marine conglomerate, sandstone and shale of the Miocene-age Modelo and Topanga Formations outcrop at the ground surface further to the north of the site (DWR, 1961).

4.2 Hydrogeology

The site is located north/northwest of the Charnock Fault where the DWR does not differentiate groundwater aquifers within undifferentiated Pleistocene formations. South southeast of the Charnock Fault, the first-encountered water-bearing zone is designated as the Ballona Aquifer ("50 ft of gravel") within Recent-age Alluvium extending from approximately 20 to 60 feet below ground surface (bgs) followed by the Silverado Aquifer within the San Pedro Formation which extends from approximately 160 to 425 feet bgs (DWR, 1961).

Groundwater beneath the VA property is within the Santa Monica Hydrologic Subarea of the Coastal Plain Hydrologic Area of the Los Angeles-San Gabriel Hydrologic Unit. Groundwater in the Santa Monica Hydrologic Subarea is designated as existing beneficial use for municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply (LARWQCB, 1995).

Groundwater was measured at depths of 64 to 69 feet bgs in the monitoring wells installed by Allwest at the south end of the investigation area. The groundwater elevations range from 281.22 to 287.53 feet MSL in the south end of the investigated area. Groundwater flow is toward the southwest in the area of the wells.

5.0 MARSSIM DATA QUALITY OBJECTIVES

The Data Quality Objectives (DQOs) for the initial subsurface investigation include the collection of appropriate data to support a future assessment of human health risks associated with potential VOC and radiological impacts resulting from buried medical waste. To ensure that a sufficient quality and quantity of subsurface (soil and hydrogeologic) and chemical data of are collected during field activities described in the workplan outline, a seven-step process was presented.

A detailed description of the DQO process is provided in the Sampling and Analysis plan and QA/QC Plan included as Appendix 1 of the comprehensive workplan dated October 2, 2008 and approved by the VA in July 2009.

6.0 MARSSIM

The Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) provides detailed guidance for planning, implementing, and evaluating environmental and facility radiological surveys conducted to demonstrate compliance with a dose- or risk-based regulation. The MARSSIM guidance focuses on the demonstration of compliance during the final status survey following scoping, characterization, and any necessary remedial actions.

The radiological survey design was developed and documented using the DQO Process. The DQOs for the project were established and preliminary surveys (e.g., scoping, characterization) were performed to provide information necessary to design the final status survey for compliance demonstration.

A minimum amount of information was required from the preliminary surveys to develop an effective final status survey design. This included:

- Sufficient information to justify classification and specification of boundaries for survey units (the default is Class 1 which results in the highest level of survey effort); and
- An estimate of the variability of the contaminant concentration in the survey unit (σ_s) and the reference area (σ_r) if necessary.

After the preliminary surveys were completed, the final status survey design was developed. There are approximately 10 major steps in the development of a survey design that integrates scanning surveys with direct measurements and sampling. Several of these steps are:

- Classify Areas by Contamination Potential
- Group/Separate Areas into Survey Units
- Determine Number of Data Points
- Select Instrumentation
- Develop an Integrated Survey Design

A more detailed description of MARSSIM as it pertains to this project is provided in the Sampling and Analysis plan and QA/QC Plan included as Appendix 1 of the comprehensive workplan dated October 2, 2008 and approved by the VA in July, 2009.

7.0 U.S. DOE QUALITY ASSURANCE TOOL, VISUAL SAMPLING PLAN (VSP)

Allwest and PIKA implemented the U.S. Department of Energy's Quality Assurance tool, Visual Sampling Plan (VSP) to develop a conceptual site model and preliminary soil boring locations using the data obtained from the Phase I Radiological Survey. VSP is a software tool for selecting the correct number and location of environmental samples so that statistical test results performed on the data collected via the sampling plan have the required confidence for decision-making. VSP provides sample designs and sample-size equations needed for specific statistical tests appropriate for several types of environmental problems.

The following is a list of the sampling goals that were addressed in the current version of VSP:

Sampling Goal	User's Guide Section
Compare Average to Fixed Threshold	3.2.1
Compare Average to Reference Average	3.2.2
Estimate the Mean	3.2.3
Construct Confidence Interval on Mean	3.2.4
Compare Proportion to Fixed Threshold	3.2.5
Compare Proportion to Reference Proportion	3.2.6
Estimate the Proportion	3.2.7
Locating a Hot Spot	3.2.8
Find UXO Target Areas	3.2.9
Assess degree of confidence in UXO presence	3.2.10
Non-statistical approach	3.2.11
Establish boundary of contamination	3.2.12
Sampling within buildings	3.2.13

8.0 FIELD ACTIVITIES

The field activities performed during this initial investigation described in this report include the following tasks:

- Aerial flyover, topographic survey and map preparation
- Underground utility clearance
- Passive soil gas (PSG) survey and chemical and radiological analysis
- Soil boring, soil sampling, and chemical and radiological analysis
- Groundwater monitoring well installation, soil sampling, chemical and radiological analysis and surveying
- Groundwater monitoring well development, groundwater sampling and chemical and radiological analysis

8.1 Aerial Flyover, Topographic Survey and Map Preparation

Allwest had the site mapped by aerial flyover survey followed by manual field surveyor verification, under the direction of a California licensed Professional Land Surveyor. A digital topographic map was produced from the survey with an accuracy of ±0.1 inch vertically and ±0.01 inch horizontally, with a one-foot contour interval. The estimated area included mapping 100 feet into all adjoining properties.

Allwest also provided a field survey to locate the horizontal and vertical locations of soil boring and well locations that were utilized during the investigation. Survey data is included in Appendix 3. The topographic survey map was used as the base map for all graphics included in this report.

8.2 Underground Utility Clearance

Prior to mobilizing into the field to conduct soil boring advancement and soil sampling activities, Allwest notified underground service alert to clear underground utilities in the investigation area. In addition, Allwest subcontracted a private utility locating firm (Goldak of Glendale, CA) to clear underground utilities in the investigation area utilizing geophysical methods. Of special concern was irrigation lines in the 'Ball Field' and the storm drain in the 'Arroyo/Eastern Canyon'.

8.3 Passive Soil Gas Survey

Prior to mobilizing sampling rigs to advance soil borings and collecting soil samples, Allwest conducted a passive soil gas (PSG) survey on the site. The PSG survey utilized adsorbent samplers that were emplaced in the subsurface to adsorb compounds in soil gas without forcing the flow rate of soil gas, yielding a more representative sample than active soil gas methods. The samplers were placed in a grid pattern, 50 sample points (SG1 through SG50) spaced on approximately 28 to 35-foot centers in the 'Ball Field' and greater distances in the 'Arroyo/Eastern Canyon'. This allowed for simultaneous sampling trace levels of compounds in soil gas that may originate from impacted soil and/or groundwater. By sampling all locations simultaneously, the temporal variations in soil gas concentrations that are known to occur daily are normalized. At each PSG survey point, a ¾-inch metal stake was hammered into the subsurface to a depth of approximately 3 feet bgs. A borosilicate glass vial containing 2 sets of hydrophobic sorbent cartridges were hung via a wire at a depth of approximately 4 inches bgs. The glass vial was then covered with aluminum foil and surrounding surface soil. The PSG survey point locations were marked and recorded on a field note sheet. The PSG survey point locations were pre-surveyed in the field.

The PSG borosilicate glass vials containing the hydrophobic sorbent cartridges were left downhole for a period of 14 days upon which time they will be retrieved, sealed, and shipped via overnight delivery to Beacon Environmental Services, Inc., in Maryland under strict chain-of-custody procedures for analysis of VOCs using EPA method 8260B.

Analytical results for a PSG method are not presented as a concentration, but in units of mass for comparison between sample locations to identify where vapor migration pathways are present.

PSG locations are plotted on Figure 3 and a copy of the PSG Survey Report prepared by Beacon is included in Appendix 4.

8.4 Soil Boring, Sampling and Analysis

Soil borings were advanced at 29 locations in the two (2) investigation areas between November 30 and December 4, 2009. Four (4) soil borings (SB1 through SB4) were advanced in the 'Ball Field' and twenty-two (22) soil borings (SB9 through SB28 and SB32 through SB34) in the 'Arroyo/Eastern Canyon'. Also, three (3) groundwater monitoring wells were installed down gradient of the southernmost suspected burial area between December 7 and 9, 2009.

Soil borings were advanced to depths ranging from 20 to 65 feet bgs utilizing a Geoprobe® brand direct-push sampling rig. Soil was retrieved continuously utilizing a 4-foot long Dual-Core® sampler fitted with acetate liners. Subsurface materials (lithology) were described continuously and soil boring/well logs were generated for each soil boring/well. Two (2) selected soil samples (generally from the 20 and 40-foot depth intervals) were retrieved from the soil cores and were submitted to a California-certified laboratory for chemical and radiological analysis. E-MAX Laboratories, Inc. of Torrance, California, was utilized to provide VOC analysis. PIKA International/MKM Engineers were utilized for radiological analysis in their Sacramento, California laboratory. GEL Laboratories of Charleston, South Carolina, was additionally utilized for radiological analysis. Soil samples were collected in accordance with EPA Method 5035 sample preservation techniques for VOC analysis.

Selected soil samples were based on lithology from visual inspection and chemical impacts determined by field screening methods. Soil retrieved was screened in the field for VOCs using a photoionization detector (PID) and for possible radiation using radiation detectors. Soil borings and groundwater monitoring well locations are plotted on Figure 4 and soil boring/well logs are included in Appendix 5.

For QA/QC purposes, a record of all soil and groundwater samples collected were recorded in the field on a sample tracking log. This provided a check that samples were collected at proper depth intervals and the samples were submitted to the proper laboratories for the proper analyses. The Sample Tracking Log is included as Table 1 in Appendix 2.

A detailed description of radiological sampling, field screening methodology and analysis is included in the Radiological Study Results report prepared by PIKA International, which is attached as Appendix 6a.

A detailed description of soil sampling activities is provided in the Sampling and Analysis Plan and QA/QC Plan included in the comprehensive Workplan (October 2, 2008) as Appendix 2, which was finalized by the VA in July, 2009.

8.5 Groundwater Monitoring Well Design, Installation, Soil Sampling and Analysis

To verify the depth to groundwater and to assess the possibility of groundwater impacts, three (3) groundwater monitoring wells were installed down gradient of the suspected southernmost medical waste burial area.

The groundwater monitoring wells were installed utilizing a Geoprobe® brand direct-push sampling rig. Soil was retrieved continuously utilizing a 4-foot long Dual-Core® sampler fitted with acetate liners. Subsurface materials (lithology) were described continuously and soil boring/well logs were generated for each soil boring/well. Two (2) selected soil samples (generally from the 20 and 40-foot depth intervals) were retrieved from the soil cores and were submitted to a California-certified laboratory for chemical and radiological analysis. Soil samples were collected in accordance with EPA Method 5035 sample preservation techniques for VOC analysis. A detailed description of radiological sampling, field screening methodology and analysis is included in the Radiological Study Results report prepared by PIKA International, which is attached as Appendix 6a.

Selected soil samples were based on lithology from visual inspection and chemical impacts determined by field screening methods. Soil retrieved was screened in the field for VOCs using a photoionization detector (PID) and for possible radiation using radiation detectors. Soil boring/well logs are included in Appendix 5.

The groundwater monitoring wells were constructed of 3/4-inch diameter schedule 40 PVC pre-packed slotted casing (0.01-inch slots) extending from the bottom of the borehole (approximately 73 feet bgs) to a depth of approximately 63 feet bgs followed by blank PVC casing to the ground surface. All casing materials were shipped to the site in factory-sealed boxes or wrapping. The filter material consisted of #2/12 Monterey sand. Natural slough material was allowed to collapse around the pre-packed screened interval to a depth of 2 feet above the top of pre-packed screen interval or approximately 61 feet bgs.

A 3-foot bentonite seal was placed above the pre-pack screened interval and the remaining annulus was filled with bentonite grout to within 1-foot of the ground surface. The surface completions consisted of a steel, flush-mount, traffic-rated well box placed in 1-foot of concrete. Prior to commencing the proposed well installation activities, a well installation permit was submitted to the Los Angeles County Department of Public Health, Environmental Health, Water & Sewage/Mountain & Rural Programs.

Details regarding the low-flow sampling method and procedures are provided in the Sampling and Analysis Plan and QA/QC Plan included in the comprehensive Workplan (October 2, 2008) as Appendix 2, which was finalized by the VA in July, 2009.

8.6 Groundwater Monitoring Well Development, Monitoring & Groundwater Sampling

Following the installation activities, the wells were developed by pumping using new dedicated, small diameter tubing with a check valve connected to the bottom of the tubing. The tubing was then manually lifted and dropped repeatedly until groundwater was extracted at the ground surface and each well casing was fully evacuated of groundwater. The wells were allowed to recharge prior to collecting groundwater samples. Subsequently, the wells were surveyed to a known benchmark. Groundwater samples were collected prior to placing the bentonite seals and bentonite grout backfill material, thereby foregoing the minimum waiting time of 48 to 72 hours for the bentonite seal to properly cure and equilibrate.

Due to the low transmissive yield of the formation, and the large volume of water required for chemical analysis, all groundwater removed from the well during the well development process was collected in laboratory supplied sample containers. This water was supplemented by well purge water after each well fully recharged. Therefore, there was no water and sediment stored onsite for subsequent offsite removal and disposal.

Groundwater samples were obtained at the completion of the well development on December 9, 2009. To verify the water analysis results, additional groundwater samples were obtained on August 16, 2010.

Groundwater samples were submitted to a California-certified laboratory for chemical and radiological analysis. E-MAX Laboratories, Inc., of Torrance, California, and Associated Laboratories of Orange, California, were utilized to provide VOC analysis. PIKA International/MKM Engineers was utilized for radiological analysis in their Sacramento, California laboratory. A detailed description of radiological sampling, field screening methodology and analysis is included in the Radiological Study Results report prepared by PIKA International, which is attached as Appendix 6a.

Upon completion of well installation activities, each well was surveyed to a known benchmark by a licensed land surveyor. Depth to groundwater was measured and groundwater samples were collected on December 9, 2009 in accordance with provisions specified in the Sampling and Analysis and QA/QC Plan included as Appendix 1 of the comprehensive Workplan dated October 2, 2008. The groundwater surface was measured at the depths shown in Table 7.1.

Table 7.1
Groundwater Elevations

Monitoring Well	Date	Top of Casing Elevation (feet MSL)	Groundwater Depth (feet)	Groundwater Elevation (feet MSL)
MW-1	12/9/2009	351.83	65.8	286.03
MW-2	12/9/2009	351.67	66.2	285.47
MW-3	12/9/2009	350.52	65.7	284.82

Additional groundwater samples were collected and depth to groundwater was measured on August 16, 2010. The groundwater surface was measured at the depths shown in Table 7.2.

Table 7.2
Groundwater Elevations

Monitoring Well	Date	Top of Casing Elevation (feet MSL)	Groundwater Depth (feet)	Groundwater Elevation (feet MSL)
MW-1	8/16/2010	351.83	64.3	287.53
MW-2	8/16/2010	351.67	64.2	287.47
MW-3	8/16/2010	350.52	69.3	281.22

8.7 Plant (Transpired) Water Sampling, and Analysis

Transpired water was collected from green surface vegetation at 14 locations. This method involved collecting water that is transpired from leaves of plants growing above the suspected waste burial areas. The plant's roots draw on the groundwater and transport it up to the leaves, where it is collected (PIKA, 2010).

A detailed description of radiological sampling and field screening methodology and analysis is included in the Radiological Study Results report prepared by PIKA International (Appendix 6a).

9.0 RESULTS

9.1 Lithology and Depth to Groundwater

Based on soil samples collected during the initial investigation, subsurface material generally consisted of a clayey silt fill extending from the ground surface to a depth of approximately 20 feet bgs and graded into a natural silty clay deposits extending from approximately 20 feet bgs to the total depth explored (73.5 feet bgs). A detailed description of soil lithology is provided in the soil boring/well logs in Appendix 5.

Upon installation of groundwater wells down slope of the southernmost suspected waste burial area during the initial investigation, groundwater stabilized at a depth of approximately 66 feet bgs in the wells and the groundwater flow direction is estimated to be toward the southwest.

9.2 Passive Soil Gas Survey Analytical Results

Only three (3) VOC analytes were detected in soil beneath the 'Ball Field' and the 'Arroyo/Eastern Canyon'. Chloroform was detected in seventeen (17) passive soil gas samples at masses ranging from 25 µg to 84 µg, benzene was detected in two (2) passive soil gas samples at masses of 30 µg and 33 µg, respectively, and toluene was detected in three (3) passive soil gas samples at masses ranging from 25 µg to 16 µg. A copy of the PSG Survey report is included in Appendix 4.

9.3 Soil Analytical Results

9.3.1 VOCs

Only two (2) analytes were detected in soil beneath the 'Ball Field' and the 'Arroyo/Eastern Canyon'. 2-butanone was detected in twelve (12) soil samples at concentrations ranging from 4.6 µg/kg to 16 µg/kg. Acetone was detected in eighteen (18) soil samples at concentrations ranging from 7.1 µg/kg to 71 µg/kg. Laboratory analysis did not detect any other VOCs at concentrations exceeding laboratory detection limits.

Soil VOC analytical results are summarized in Table 3 and a copy of the soil VOC laboratory analytical report is included in Appendix 7.

9.3.2 Radiological

All samples were analyzed for the basic list radionuclides (Tritium, Carbon-14 and Chlorine-36), None of the basic list radionuclides were detected in any of the soil samples collected.

About half of the samples were also analyzed for an extended list of about 40 radionuclides. These "extended list" radionuclides are less likely to be present in the suspect waste. Several nuclides on the extended list were detected at low levels. These nuclides are all naturally occurring nuclides from potassium, uranium, thorium, and their daughters in soils.

Radiological analytical results and summary tables are provided in the *Radiological Study Results* report dated April 14, 2010, prepared by PIKA International (Appendix 6a).

9.4 Groundwater Analytical Results

9.4.1 Volatile Organic Compounds (VOCs)

In the water samples collected on December 9, 2009, benzene, toluene, and 2-butanone were detected at concentrations of 0.38 µg/l, 0.38 µg/l, and 7.9 µg/l, respectively, in the groundwater sample collected from monitoring well MW1. Toluene and 2-butanone were detected at concentrations of 0.34 µg/l, and 5.4 µg/l, respectively, in the groundwater sample collected from monitoring well MW2. Toluene, acetone, and carbon disulfide were detected at concentrations of 0.22 µg/l, 9.9 µg/l, and 0.22 µg/l, respectively, in the groundwater sample collected from monitoring well MW1.

In the water samples collected on August 16, 2010, no VOCs were detected above the method detection limits.

Groundwater VOC analytical results are summarized in Table 3 in Appendix 2, and the groundwater VOC laboratory analytical reports are included in Appendix 7.

9.4.2 Radiological

In the water samples collected on December 9, 2009, down slope of the suspected southernmost waste burial area, Tritium was detected at levels as high as 28.7 pCi/L with an average activity level of 22.23 pCi/L, while Carbon-14 and Chlorine-36 were not detected. Of the other radionuclides analyzed, Bismuth 214 was detected as high as 43.5 pCi/L with an average activity level of 25.8 pCi/L while Radium-226 and Radium-228 were detected at average activity levels of 4.37 pCi/L and 3.66 pCi/L, respectively.

Bismuth-214, which is produced by Radium-226, was detected by gamma spectroscopy. The lab was asked to perform radiochemical analysis for Radium, and reported it at a fraction of the expected level (less than 4 pCi/L versus over 40 pCi/L for Bi-214). This discrepancy was resolved when the lab reported that “excessive sediment” was noted in two of the well water aliquots (MW-2 and MW-3) that went to gamma spectroscopy, indicating that the samples were not filtered prior to measurements. The aliquots that went to Radium analysis were filtered and did not contain sediment. It was concluded that the Bismuth-214 measured was in the sediment and not groundwater. This nuclide was also detected in soil samples.

In the water samples collected on August 16, 2010, Tritium was detected at levels as high as 52.5 pCi/L with an average activity level of 26.8 pCi/L. Radium-226 was detected at levels as high as 0.52 pCi/L with an average activity level of 0.45 pCi/L. Radium-228 was only detected in well MW-3 at a level of 1.46 pCi/L with an average activity level of less than 0.90 pCi/L. Carbon-14 and Chlorine-36 were not detected.

Radiological analytical results are provided in the *Radiological Study Results* report dated April 14, 2010, prepared by PIKA International (Appendix 6a) and the *Additional Groundwater Radiological Analysis Report* dated October 26, 2010, prepared by PIKA International (Appendix 6b).

9.5 Plant (Transpired) Water Analytical Results

Transpired plant water was only analyzed for Tritium, which is both the most prevalent radionuclide reported in the disposal area and the most mobile. Tritium was detected in every plant transpiration water sample collected at levels ranging from 51.0 pCi/L to 130.8 pCi/L.

Radiological analytical results are provided in the Radiological Study Results report prepared by PIKA International (Appendix 6a).

10.0 CONCLUSIONS

Allwest encountered man-made fill over natural deposits in the soil borings within the ‘Ball Field’ and ‘Arroyo/Eastern Canyon’ area. This is based on visual observation and field screening of soil cores collected continuously from ground surface to the total depth explored in a total of 29 soil borings. Groundwater in the southernmost end of the investigated area was measured at depths of 65 to 66 feet bgs in December 2009 and 64 to 69 feet bgs in August 2010. The depth disparity is likely due to seasonal effects.

10.1 Volatile Organic Compounds (VOCs)

Volatile Organic Compound (VOC) concentrations in soil did not exceed Preliminary Remediation Goals (PRG) established for both residential and industrial soil, and they did not exceed soil screening levels (SSL), all established by the U.S. EPA Region IX.

VOC concentrations in groundwater did not exceed PRGs established for tap water by the U.S. EPA Region IX and did not exceed Maximum Contaminant Levels (MCLs) established for drinking water by the California Department of Public Health.

10.2 Radiological

None of the basic list radionuclides (Tritium, Carbon-14, and Chlorine-36) were detected in any of the soil samples collected. Several nuclides on the extended list were detected at low levels, but these are all naturally occurring nuclides from potassium, uranium, thorium, and their daughters in soils.

In groundwater samples obtained in December 2009 and August 2010, Carbon-14 and Chlorine-36 were not detected, but elevated levels of Tritium and Radium were detected. Since Radium was not included in the VA's disposal records covering canyon disposal, its presence is very likely from natural sources. However, Tritium was reported as the most common nuclide disposed of in the canyon and its presence with an average activity levels of up to 26.8 pCi/L can only be due to that disposal. Background levels of Tritium in groundwater generally are less than 10 pCi/L, based on measurements in Simi Valley in 2006 (Reference 16).

Of the other radionuclides analyzed, Radium-226 and Radium-228 were detected at average activity levels of 4.37 pCi/L and 3.66 pCi/L, respectively, in December 2009; but substantially reduced average activity levels of 0.45 pCi/L and 0.90 pCi/L, respectively, were detected in August 2010.

Radionuclide concentrations in soil did not exceed Preliminary Remediation Goals (PRG) established by the U.S. EPA Region IX.

Radionuclide concentrations in groundwater did not exceed PRGs established for tap water by the U.S. EPA Region IX and did not exceed Maximum Contaminant Levels (MCLs) established for drinking water by the California Department of Public Health.

Tritium was detected in every plant transpiration water sample collected at levels ranging from 51.0 pCi/L to 130.8 pCi/L. The water collected from the leaves of the plants occurs from transpiration of groundwater by plants whose roots tap the groundwater. Transpired plant water was only analyzed for Tritium, which is both the most prevalent radionuclide reported in the disposal area and the most mobile. It is the most likely to migrate along groundwater pathways. The test results show levels increasing from west to east, with two of three maximum locations occurring between the suspected disposal areas and along the east edge of the investigated area. The northernmost maximum location occurs near the center of a suspected disposal area (PIKA, 2010).

The levels of Tritium detected across the site suggest the presence of burial wastes in or near the study area. The Tritium appears to be well diffused across the site, which is not surprising given its mobility and long time period since disposal. No clear source of the Tritium is evident (PIKA, 2010).

Tritium concentrations in the transpiration water collected from the plant leaves did not exceed the PRGs established for tap water (160 pCi/L) by the U.S. EPA Region IX.

In summary, all VOCs and radionuclides found in the soil and water in the investigated 'Ball Field' and 'Arroyo/Eastern Canyon' areas did not exceed Preliminary Remediation Goals (PRGs) established for soil and tap water by the U.S. EPA Region IX. In addition, VOCs and radionuclide concentrations in groundwater did not exceed Maximum Contaminant Levels (MCLs) established for drinking water by the California Department of Public Health.

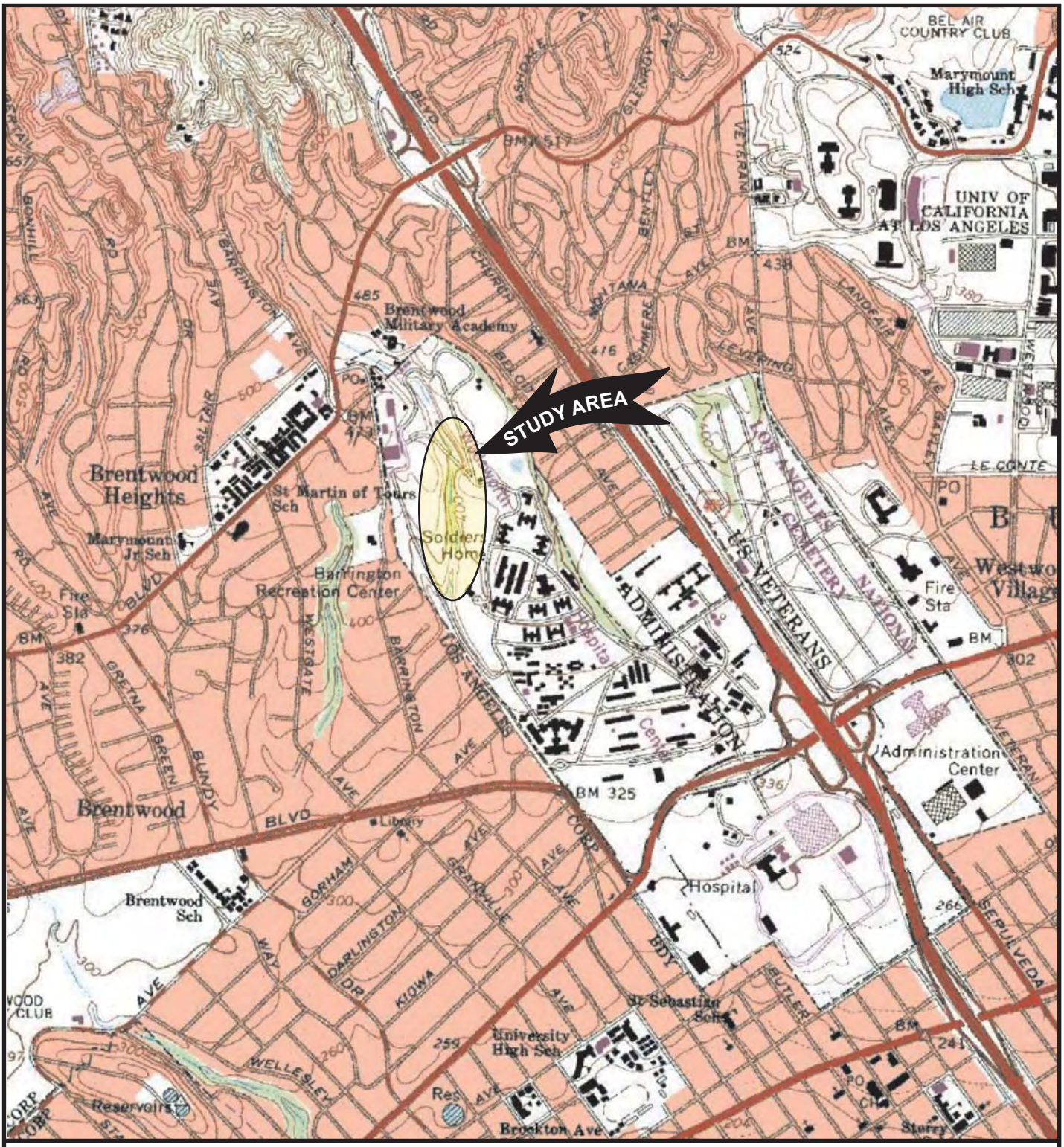
There should be no potential human health risks associated with buried medical waste resulting from historic medical research and disposal at the Veterans Administration (VA) Greater Los Angeles Healthcare System (GLAHS) property within the limits of the investigated area.

11.0 REFERENCES

1. Allwest Geoscience, Initial VOC & Radiological Subsurface Investigation Workplan, October 2008
2. DWR (CA Department of Water Resources), Bulletin No. 104 Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County Appendix A Ground Water Geology, June 1961
3. LARWQCB (Los Angeles Regional Water Quality Control Board), Water Quality Control Plan Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, 1995
4. Millenium Environmental Consulting Associates (MECA), Final Radiological Inspection Report for Veterans Administration Greater Los Angeles & Brentwood Dog Park, March 2, 2007
5. Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), August, 2000
6. PIKA International, Inc., Radiological Survey Results, April 2010
7. URS Greiner Woodward Clyde (URS), Environmental Documents – Request 13: Documents Given to Contractors Regarding Environmental Issues at West Los Angeles – 79. Phase I, Environmental Site Assessment, Brentwood School, January 2000
8. U.S. Department of Energy (DOE), Visual Sampling Plan Version 4.0, July 2005
9. U.S. EPA, Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual (Part A, Baseline Risk Assessment), EPA/540/1-89/002, December, 1989
10. U.S. EPA, Guidance for Data Useability in Risk Assessment (Interim Final), EPA/540/G-90/008, October, 1990
11. U.S. EPA, Guidance for Exposure Assessment, EPA/600-Z-92/001, May 29, 1992
12. U.S. EPA, Superfund Exposure Assessment Manual, EPA/540/1-88/001, OSWER Directive No. 9285.5-1, April, 1988
13. U.S. EPA, Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual Supplemental Guidance, Standard Default Exposure Factors, OSWER Directive No. 9285.6-03, March, 1991
14. U.S. EPA, Region 9 PRG Table, October 2004
15. U.S.G.S. (United States Geologic Survey), 7.5-Minute Series Topographic Map, Beverly Hills Quadrangle, 1966, Photorevised 1981
16. Unpublished data, Joel I. Cehn, CHP

APPENDIX 1

FIGURES



TOPOGRAPHIC VICINITY MAP

References:

United States Geological Survey, 1980, Photo Revised 1989,
7.5 Minute Topographic Map, Beverly Hills Quadrangle

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SCALE
(feet)

ALLWEST GEOSCIENCE Inc.

Project No.	Date	Figure
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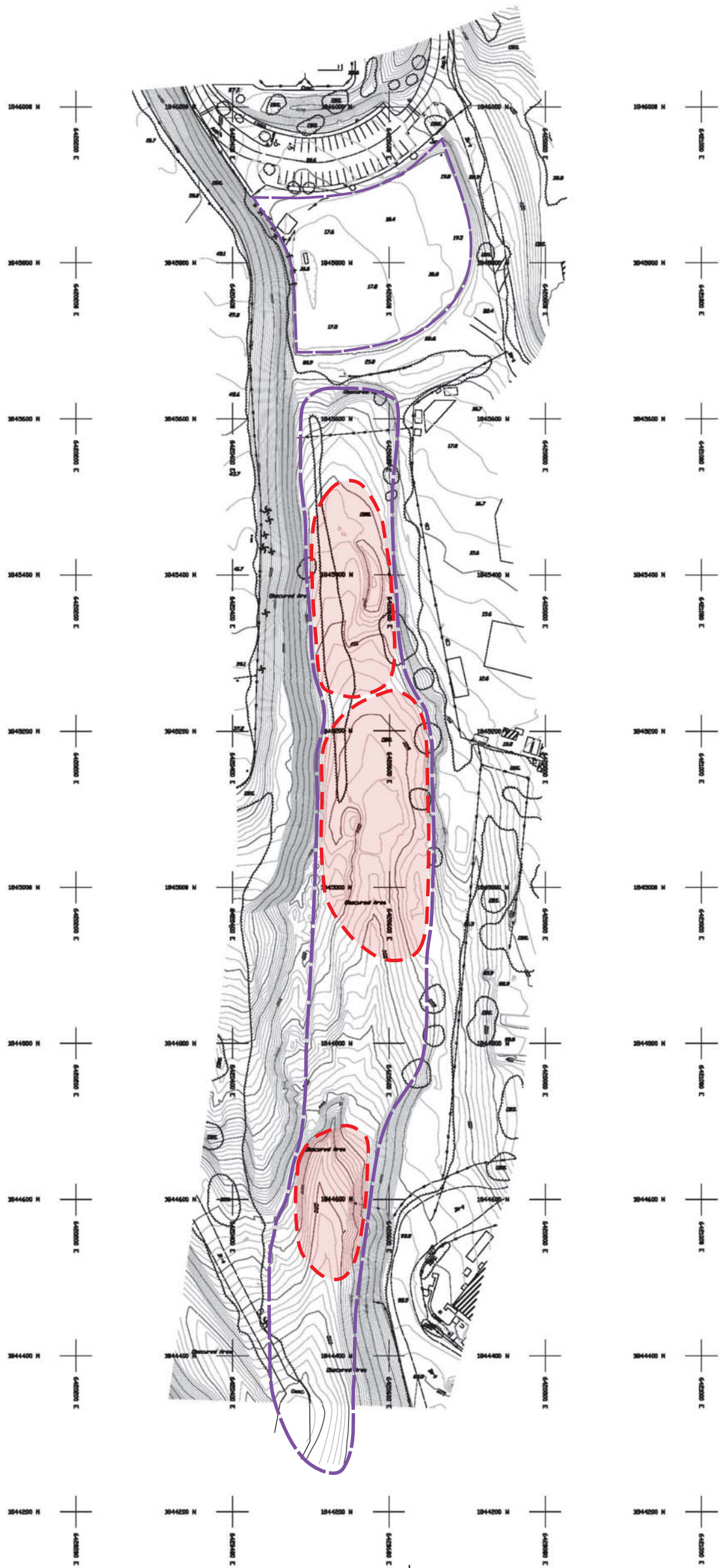

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SCALE

LEGEND

Limits of Investigation

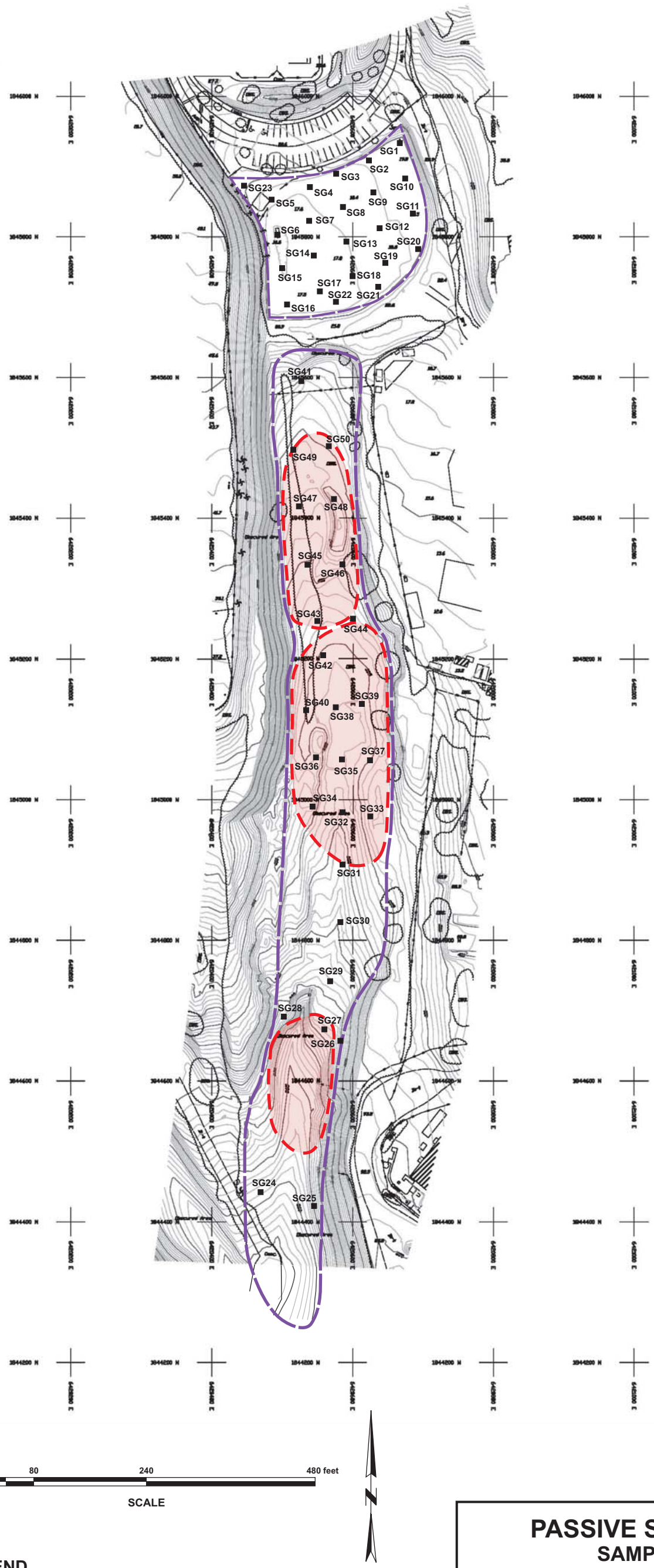
Estimated Limits of Buried Waste

LIMITS OF INVESTIGATION
WITH BURIAL AREAS

US Department of Veteran Affairs
Greater Los Angeles Healthcare System
11301 Wilshire Boulevard
Los Angeles, CA 90073
Contract No. VA 262-P-0304

ALLWEST GEOSCIENCE Inc.

Project No.	Date	Figure
02-3454EI-3	10/2010	2



LEGEND

Limits of Investigation

Estimated Limits of Buried Waste

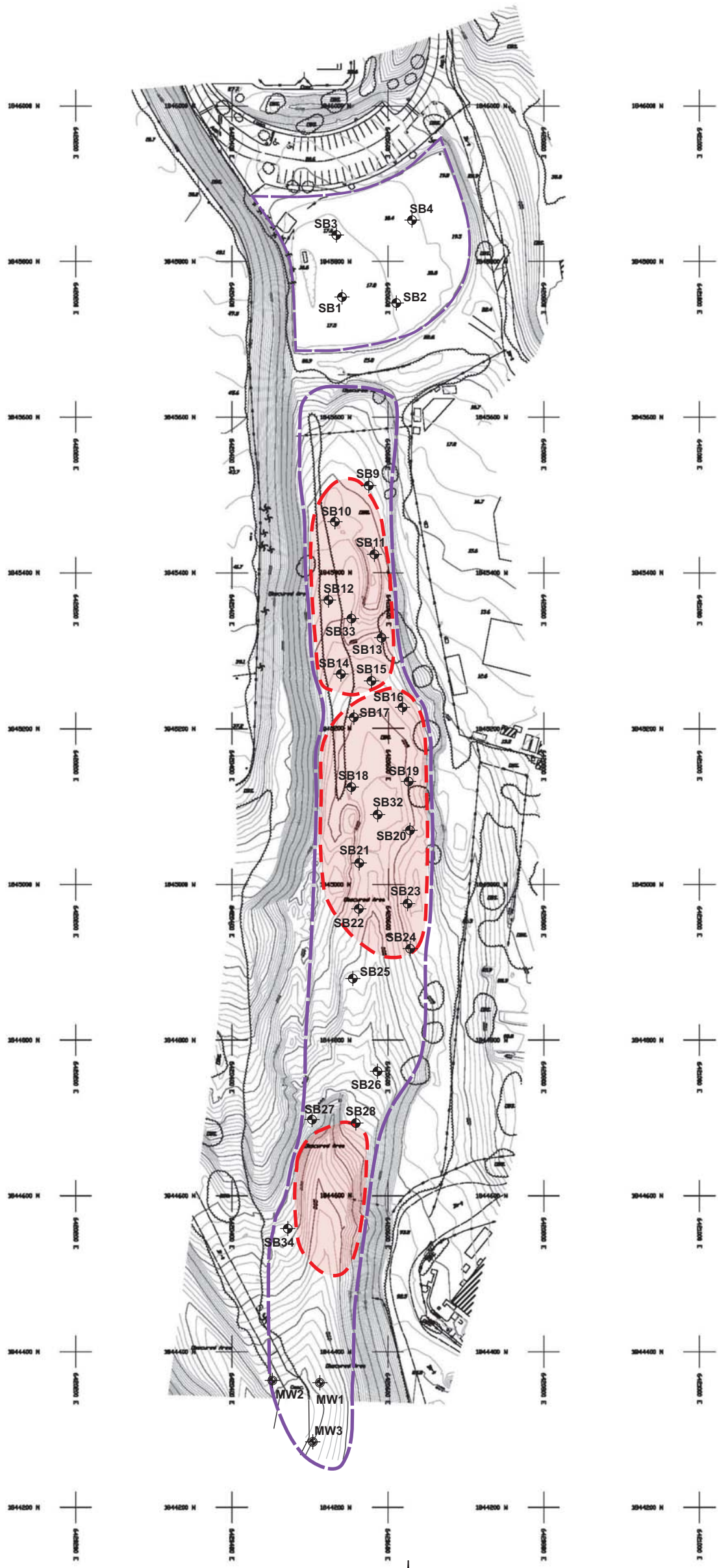
SG2 ■ Soil Gas Test Points

PASSIVE SOIL GAS SURVEY
SAMPLE LOCATIONS

US Department of Veteran Affairs
Greater Los Angeles Healthcare System
11301 Wilshire Boulevard
Los Angeles, CA 90073
Contract No. VA 262-P-0304

ALLWEST GEOSCIENCE Inc.

Project No.	Date	Figure
02-3454EI-3	10/2010	3



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SCALE

LEGEND

Limits of Investigation

Estimated Limits of Buried Waste

SB2 Exploratory Boring

MW2 Monitoring Well

SUBSURFACE EXPLORATION
SOIL BORING & MONITOR WELL LOCATIONS

US Department of Veteran Affairs
Greater Los Angeles Healthcare System
11301 Wilshire Boulevard
Los Angeles, CA 90073
Contract No. VA 262-P-0304

ALLWEST GEOSCIENCE Inc.

Project No.	Date	Figure
02-3454EI-3	10/2010	4

APPENDIX 2

TABLES

TABLE 1

SAMPLE TRACKING LOG
INITIAL INVESTIGATION
VA GLAHS
LOS ANGELES, CA

Sample No.	Collection		Boring No./ Location	Depth (feet)	Matrix		Analysis	TAT (days)	COC No.	Comments	Lab	Sampler
	Date	Time			Soil	Water						
SB1-10V	11/30/2009	12:29	SB1 Ballfield	10	X	---	8260B	10	1		EMAX	JB/RB
SB1-10R	11/30/2009	12:29	SB1 Ballfield	10	X	---	Radioisotopes	30	1		PIKA	Benny
SB2-19V	11/30/2009	1:43	SB2 Ballfield	19	X	---	8260B	10	1		EMAX	JB/RB
SB2-19R	11/30/2009	1:43	SB2 Ballfield	19	X	---	Radioisotopes	30	1		PIKA	Benny
SB3-20V	11/30/2009	2:20	SB3 Ballfield	20	X	---	8260B	10	1		EMAX	JB/RB
SB3-20R	11/30/2009	2:20	SB3 Ballfield	20	X	---	Radioisotopes	30	1		PIKA	Benny
SB4-20V	11/30/2009	3:00	SB4 Ballfield	20	X	---	8260B	10	1		EMAX	JB/RB
SB4-20R	11/30/2009	3:00	SB4 Ballfield	20	X	---	Radioisotopes	30	1		PIKA	Benny
SB12-30V	12/1/2009	8:08	SB12 E. Canyon	30	X	---	8260B	10	1		EMAX	JB/RB
SB12-30R	12/1/2009	8:08	SB12 E. Canyon	30	X	---	Radioisotopes	30	1		PIKA	Benny
SB12-50V	12/1/2009	8:45	SB12 E. Canyon	50	X	---	8260B	10	1		EMAX	JB/RB
SB12-50R	12/1/2009	8:45	SB12 E. Canyon	50	X	---	Radioisotopes	30	1		PIKA	Benny
SB11-20V	12/1/2009	10:10	SB11 E. Canyon	20	X	---	8260B	10	1		EMAX	JB/RB
SB11-20R	12/1/2009	10:10	SB11 E. Canyon	20	X	---	Radioisotopes	30	1		PIKA	Benny
SB11-40V	12/1/2009	10:21	SB11 E. Canyon	40	X	---	8260B	10	1		EMAX	JB/RB
SB11-40R	12/1/2009	10:21	SB11 E. Canyon	40	X	---	Radioisotopes	30	1		PIKA	Benny
SB10-20V	12/1/2009	11:40	SB10 E. Canyon	20	X	---	8260B	10	1		EMAX	JB/RB
SB10-20R	12/1/2009	11:40	SB10 E. Canyon	20	X	---	Radioisotopes	30	1		PIKA	Benny
SB9-20V	12/1/2009	12:22	SB9 E. Canyon	20	X	---	8260B	10	2		EMAX	JB/RB
SB9-20R	12/1/2009	12:22	SB9 E. Canyon	20	X	---	Radioisotopes	30	2		PIKA	Benny
SB9-40V	12/1/2009	12:40	SB9 E. Canyon	40	X	---	8260B	10	2		EMAX	JB/RB
SB9-40R	12/1/2009	12:40	SB9 E. Canyon	40	X	---	Radioisotopes	30	2		PIKA	Benny

TABLE 1 (Cont.)

SAMPLE TRACKING LOG
INITIAL INVESTIGATION
VA GLAHS
LOS ANGELES, CA

Sample No.	Collection		Boring No./ Location	Depth (feet)	Matrix		Analysis	TAT (days)	COC No.	Comments	Lab	Sampler
	Date	Time			Soil	Water						
SB14-20V	12/2/2009	7:35	SB14 E. Canyon	20	X	---	8260B	10	2		EMAX	JB/RB
SB14-20R	12/2/2009	7:35	SB14 E. Canyon	20	X	---	Radioisotopes	30	2		PIKA	Benny
SB14-40V	12/2/2009	7:48	SB14 E. Canyon	40	X	---	8260B	10	2		EMAX	JB/RB
SB14-40R	12/2/2009	7:48	SB14 E. Canyon	40	X	---	Radioisotopes	30	2		PIKA	Benny
SB15-20V	12/2/2009	8:13	SB15 E. Canyon	20	X	---	8260B	10	2		EMAX	JB/RB
SB15-20R	12/2/2009	8:13	SB15 E. Canyon	20	X	---	Radioisotopes	30	2		PIKA	Benny
SB15-40V	12/2/2009	8:30	SB15 E. Canyon	40	X	---	8260B	10	2		EMAX	JB/RB
SB15-40R	12/2/2009	8:30	SB15 E. Canyon	40	X	---	Radioisotopes	30	2		PIKA	Benny
SB13-20V	12/2/2009	9:00	SB13 E. Canyon	20	X	---	8260B	10	2		EMAX	JB/RB
SB13-20R	12/2/2009	9:00	SB13 E. Canyon	20	X	---	Radioisotopes	30	2		PIKA	Benny
SB13-40V	12/2/2009	9:12	SB13 E. Canyon	40	X	---	8260B	10	2		EMAX	JB/RB
SB13-40R	12/2/2009	9:12	SB13 E. Canyon	40	X	---	Radioisotopes	30	2		PIKA	Benny
SB31-40V	12/2/2009	10:00	SB13 E. Canyon	40	X	---	8260B	10	2	Duplicate of 13	EMAX	JB/RB
SB16-20V	12/2/2009	9:36	SB16 E. Canyon	20	X	---	8260B	10	2		EMAX	JB/RB
SB16-20R	12/2/2009	9:36	SB16 E. Canyon	20	X	---	Radioisotopes	30	2		PIKA	Benny
SB16-40V	12/2/2009	9:46	SB16 E. Canyon	40	X	---	8260B	10	2		EMAX	JB/RB
SB16-40R	12/2/2009	9:46	SB16 E. Canyon	40	X	---	Radioisotopes	30	2		PIKA	Benny
SB17-20V	12/2/2009	10:53	SB17 E. Canyon	20	X	---	8260B	10	2		EMAX	JB/RB
SB17-20R	12/2/2009	10:53	SB17 E. Canyon	20	X	---	Radioisotopes	30	2		PIKA	Benny
SB17-40V	12/2/2009	11:13	SB17 E. Canyon	40	X	---	8260B	10	2		EMAX	JB/RB
SB17-40R	12/2/2009	11:13	SB17 E. Canyon	40	X	---	Radioisotopes	30	2		PIKA	Benny
SB18-20V	12/2/2009	12:38	SB18 E. Canyon	20	X	---	8260B	10	3		EMAX	JB/RB
SB18-20R	12/2/2009	12:38	SB18 E. Canyon	20	X	---	Radioisotopes	30	3		PIKA	Benny
SB18-40V	12/2/2009	12:49	SB18 E. Canyon	40	X	---	8260B	10	3		EMAX	JB/RB
SB18-40R	12/2/2009	12:49	SB18 E. Canyon	40	X	---	Radioisotopes	30	3		PIKA	Benny
SB19-20V	12/2/2009	1:30	SB19 E. Canyon	20	X	---	8260B	10	3		EMAX	JB/RB
SB19-20R	12/2/2009	1:30	SB19 E. Canyon	20	X	---	Radioisotopes	30	3		PIKA	Benny
SB19-40V	12/2/2009	1:50	SB19 E. Canyon	40	X	---	8260B	10	3		EMAX	JB/RB
SB19-40R	12/2/2009	1:50	SB9 E. Canyon	40	X	---	Radioisotopes	30	3		PIKA	Benny

TABLE 1 (Cont.)

SAMPLE TRACKING LOG
INITIAL INVESTIGATION
VA GLAHS
LOS ANGELES, CA

Sample No.	Collection		Boring No./ Location	Depth (feet)	Matrix		Analysis	TAT (days)	COC No.	Comments	Lab	Sampler
	Date	Time			Soil	Water						
SB20-20V	12/3/2009	7:28	SB20 E. Canyon	20	X	---	8260B	10	3		EMAX	JB/RB
SB20-20R	12/3/2009	7:28	SB20 E. Canyon	20	X	---	Radioisotopes	30	3		PIKA	Benny
SB20-40V	12/3/2009	7:45	SB20 E. Canyon	40	X	---	8260B	10	3	MS/MSD	EMAX	JB/RB
SB20-40R	12/3/2009	7:45	SB20 E. Canyon	40	X	---	Radioisotopes	30	3		PIKA	Benny
SB21-20V	12/3/2009	8:35	SB21 E. Canyon	20	X	---	8260B	10	3		EMAX	JB/RB
SB21-20R	12/3/2009	8:35	SB21 E. Canyon	20	X	---	Radioisotopes	30	3		PIKA	Benny
SB21-40V	12/3/2009	8:58	SB21 E. Canyon	40	X	---	8260B	10	3		EMAX	JB/RB
SB21-40R	12/3/2009	8:58	SB21 E. Canyon	40	X	---	Radioisotopes	30	3		PIKA	Benny
SB22-20V	12/3/2009	9:33	SB22 E. Canyon	20	X	---	8260B	10	3		EMAX	JB/RB
SB22-20R	12/3/2009	9:33	SB22 E. Canyon	20	X	---	Radioisotopes	30	3		PIKA	Benny
SB22-40V	12/3/2009	9:51	SB22 E. Canyon	40	X	---	8260B	10	3		EMAX	JB/RB
SB22-40R	12/3/2009	9:51	SB22 E. Canyon	40	X	---	Radioisotopes	30	3		PIKA	Benny
SB23-20V	12/3/2009	10:17	SB23 E. Canyon	20	X	---	8260B	10	3		EMAX	JB/RB
SB23-20R	12/3/2009	10:17	SB23 E. Canyon	20	X	---	Radioisotopes	30	3		PIKA	Benny
SB23-40V	12/3/2009	10:36	SB23 E. Canyon	40	X	---	8260B	10	3		EMAX	JB/RB
SB23-40R	12/3/2009	10:36	SB23 E. Canyon	40	X	---	Radioisotopes	30	3		PIKA	Benny
SB24-20V	12/3/2009	12:26	SB24 E. Canyon	20	X	---	8260B	10	4		EMAX	JB/RB
SB24-20R	12/3/2009	12:26	SB24 E. Canyon	20	X	---	Radioisotopes	30	4		PIKA	Benny
SB24-40V	12/3/2009	12:40	SB24 E. Canyon	40	X	---	8260B	10	4		EMAX	JB/RB
SB24-40R	12/3/2009	12:40	SB24 E. Canyon	40	X	---	Radioisotopes	30	4		PIKA	Benny
SB25-20V	12/3/2009	1:15	SB25 E. Canyon	20	X	---	8260B	10	4		EMAX	JB/RB
SB25-20R	12/3/2009	1:15	SB25 E. Canyon	20	X	---	Radioisotopes	30	4		PIKA	Benny
SB26-20V	12/3/2009	1:58	SB26 E. Canyon	20	X	---	8260B	10	4		EMAX	JB/RB
SB26-20R	12/3/2009	1:58	SB26 E. Canyon	20	X	---	Radioisotopes	30	4		PIKA	Benny
SB26-40V	12/3/2009	2:15	SB26 E. Canyon	40	X	---	8260B	10	4		EMAX	JB/RB
SB26-40R	12/3/2009	2:15	SB26 E. Canyon	40	X	---	Radioisotopes	30	4		PIKA	Benny

TABLE 1 (Cont.)

SAMPLE TRACKING LOG
INITIAL INVESTIGATION
VA GLAHS
LOS ANGELES, CA

Sample No.	Collection		Boring No./ Location	Depth (feet)	Matrix		Analysis	TAT (days)	COC No.	Comments	Lab	Sampler
	Date	Time			Soil	Water						
SB28-20V	12/4/2009	7:10	SB28 E. Canyon	20	X	---	8260B	10	4		EMAX	JB/RB
SB28-20R	12/4/2009	7:10	SB28 E. Canyon	20	X	---	Radioisotopes	30	4		PIKA	Benny
SB28-40V	12/4/2009	7:27	SB28 E. Canyon	40	X	---	8260B	10	4		EMAX	JB/RB
SB28-40R	12/4/2009	7:27	SB28 E. Canyon	40	X	---	Radioisotopes	30	4		PIKA	Benny
SB27-20V	12/4/2009	8:20	SB27 E. Canyon	20	X	---	8260B	10	4		EMAX	JB/RB
SB27-20R	12/4/2009	8:20	SB27 E. Canyon	20	X	---	Radioisotopes	30	4		PIKA	Benny
SB32-20V	12/4/2009	10:05	SB32 E. Canyon	20	X	---	8260B	10	4		EMAX	JB/RB
SB32-20R	12/4/2009	10:05	SB32 E. Canyon	20	X	---	Radioisotopes	30	4		PIKA	Benny
SB32-40V	12/4/2009	10:15	SB32 E. Canyon	40	X	---	8260B	10	4		EMAX	JB/RB
SB32-40R	12/4/2009	10:15	SB32 E. Canyon	40	X	---	Radioisotopes	30	4		PIKA	Benny
SB40-40V	12/4/2009	12:00	SB32 E. Canyon	40	X	---	8260B	10	4	Duplicate of 32	EMAX	JB/RB
SB33-20V	12/4/2009	11:36	SB33 E. Canyon	20	X	---	8260B	10	4		EMAX	JB/RB
SB33-20R	12/4/2009	11:36	SB33 E. Canyon	20	X	---	Radioisotopes	30	4		PIKA	Benny
SB33-40V	12/4/2009	12:09	SB33 E. Canyon	40	X	---	8260B	10	4		EMAX	JB/RB
SB33-40R	12/4/2009	12:09	SB33 E. Canyon	40	X	---	Radioisotopes	30	4		PIKA	Benny
MW1-20V	12/7/2009	10:00	MW1 E. Canyon	20	X	---	8260B	10	5		EMAX	JB/RB
MW1-20R	12/7/2009	10:00	MW1 E. Canyon	20	X	---	Radioisotopes	30	5		PIKA	Benny
MW1-40V	12/7/2009	11:00	MW1 E. Canyon	40	X	---	8260B	10	5		EMAX	JB/RB
MW1-40R	12/7/2009	11:00	MW1 E. Canyon	40	X	---	Radioisotopes	30	5		PIKA	Benny
MW2-40V	12/7/2009	10:20	MW2 E. Canyon	40	X	---	8260B	10	5		EMAX	JB/RB
MW2-40R	12/7/2009	10:20	MW2 E. Canyon	40	X	---	Radioisotopes	30	5		PIKA	Benny
MW2-60V	12/7/2009	11:55	MW2 E. Canyon	60	X	---	8260B	10	5		EMAX	JB/RB
MW2-60R	12/7/2009	11:55	MW2 E. Canyon	60	X	---	Radioisotopes	30	5		PIKA	Benny
MW3-20V	12/8/2009	1:30	MW3 E. Canyon	20	X	--	8260B	10	6		EMAX	JB/RB
MW3-20R	12/8/2009	1:30	MW3 E. Canyon	20	X	---	Radioisotopes	30	6		PIKA	Benny
MW3-40V	12/8/2009	2:20	MW3 E. Canyon	40	X	---	8260B	10	6		EMAX	JB/RB
MW3-40R	12/8/2009	2:20	SB26 E. Canyon	40	X	---	Radioisotopes	30	6		PIKA	Benny
MW1	12/9/2009	7:00	MW1 E. Canyon	---	---	X	VOCs/Rad	10	6		EMAX	JB/RB
MW2	12/9/2009	7:30	MW2 E. Canyon	---	---	X	VOCs/Rad	10	6		EMAX	JB/RB
MW3	12/9/2009	0:00	MW3 E. Canyon	---	---	X	VOCs/Rad	10	6		EMAX	JB/RB

TABLE 2
SOIL ANALYTICAL RESULTS - VOCs
VA GLAHS
11301 Wilshire Boulevard
Los Angeles, California

Sample ID	Date Collected	EPA Method 8260B																		
		1,1,1-TCA	1,1,2,2-PCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	1,2-Dichloro propane	2-Butanone	2-Hexanone	4-Methyl-2-Pentanone	Acetone	Benzene	Toluene	E-Benzene	Xylenes	MtBE	Bromo chloro methane	Bromo form	Bromo methane
Units:		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Method Detection Limit:		2.1	2.1	2.1	2.1	2.1	2.1	2.1	5.2	5.2	5.2	5.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
SB1-10	11/30/2009	ND	ND	ND	ND	ND	ND	ND	15	ND	ND	72	ND	ND	ND	ND	ND	ND	ND	ND
SB2-19	11/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB3-20	11/30/2009	ND	ND	ND	ND	ND	ND	ND	4.6	ND	ND	15	ND	ND	ND	ND	ND	ND	ND	ND
SB4-20	11/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.4	ND	ND	ND	ND	ND	ND	ND	ND
SB9-20	12/1/2009	ND	ND	ND	ND	ND	ND	ND	6.4	ND	ND	20	ND	ND	ND	ND	ND	ND	ND	ND
SB9-40	12/1/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB10-20	12/1/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB11-20	12/1/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB12-30	12/1/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB12-50	12/1/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB13-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.4	ND	ND	ND	ND	ND	ND	ND	ND
SB13-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB14-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB14-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB15-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	ND	ND	ND	ND	ND	ND	ND
SB15-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB16-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB16-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB17-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB17-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB18-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	6	ND	ND	20	ND	ND	ND	ND	ND	ND	ND	ND
SB18-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB19-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB19-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2
SOIL ANALYTICAL RESULTS - VOCs
VA GLAHS
11301 Wilshire Boulevard
Los Angeles, California

Sample ID	Date Collected	EPA Method 8260B															
		Carbon Disulfide	Carbon Tetra chloride	Chloro benzene	Chloro ethane	Chloro form	Chloro methane	Cis-1,2-Dichloro ethene	Cis-1,3-Dichloro propene	Dibromo chloro methane	Methylene Chloride	Styrene	Tetra chloro ethylene	Trans-1,2-Dichloro ethene	Trans-1,3-Dichloro propene	Trichloro ethene	Vinyl Chloride
	Units:	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Method Detection Limit:		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
SB1-10	11/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB2-19	11/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB3-20	11/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB4-20	11/30/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB9-20	12/1/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB9-40	12/1/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB10-20	12/1/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB11-20	12/1/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB12-30	12/1/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB12-50	12/1/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB13-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB13-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB14-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB14-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB15-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB15-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB16-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB16-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB17-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB17-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB18-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB18-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB19-20	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB19-40	12/2/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2
SOIL ANALYTICAL RESULTS - VOCs
VA GLAHS
11301 Wilshire Boulevard
Los Angeles, California

Sample ID	Date Collected	EPA Method 8260B																		
		1,1,1-TCA	1,1,2,2-PCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	1,2-Dichloro propane	2-Butanone	2-Hexanone	4-Methyl-2-Pentanone	Acetone	Benzene	Toluene	E-Benzene	Xylenes	MtBE	Bromo chloro methane	Bromo form	Bromo methane
Units:		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Method Detection Limit:		2.1	2.1	2.1	2.1	2.1	2.1	2.1	5.2	5.2	5.2	5.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
SB20-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	5.7	ND	ND	18	ND	ND	ND	ND	ND	ND	ND	ND
SB20-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB21-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	9.2	ND	ND	29	ND	ND	ND	ND	ND	ND	ND	ND
SB21-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB22-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	6.3	ND	ND	22	ND	ND	ND	ND	ND	ND	ND	ND
SB22-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB23-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	5.4	ND	ND	18	ND	ND	ND	ND	ND	ND	ND	ND
SB23-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB24-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB24-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	5.5	ND	ND	22	ND	ND	ND	ND	ND	ND	ND	ND
SB25-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	16	ND	ND	71	ND	ND	ND	ND	ND	ND	ND	ND
SB26-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	6.3	ND	ND	21	ND	ND	ND	ND	ND	ND	ND	ND
SB26-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB27-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB28-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	25	ND	ND	ND	ND	ND	ND	ND	ND
SB28-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB32-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.6	ND	ND	ND	ND	ND	ND	ND	ND
SB32-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB33-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	7.3	ND	ND	29	ND	ND	ND	ND	ND	ND	ND	ND
SB33-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	7.1	ND	ND	21	ND	ND	ND	ND	ND	ND	ND	ND
MW1-20	12/7/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.1	ND	ND	ND	ND	ND	ND	ND	ND
MW1-40	12/7/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW2-40	12/7/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW2-60	12/7/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW3-20	12/8/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW3-40	12/8/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2
SOIL ANALYTICAL RESULTS - VOCs
VA GLAHS
11301 Wilshire Boulevard
Los Angeles, California

Sample ID	Date Collected	EPA Method 8260B															
		Carbon Disulfide	Carbon Tetra chloride	Chloro benzene	Chloro ethane	Chloro form	Chloro methane	Cis-1,2-Dichloro ethene	Cis-1,3-Dichloro propene	Dibromo chloro methane	Methylene Chloride	Styrene	Tetra chloro ethylene	Trans-1,2-Dichloro ethene	Trans-1,3-Dichloro propene	Trichloro ethene	Vinyl Chloride
	Units:	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Method Detection Limit:		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
SB20-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB20-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB21-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB21-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB22-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB22-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB23-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB23-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB24-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB24-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB25-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB26-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB26-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB27-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB28-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB28-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB32-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB32-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB33-20	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB33-40	12/3/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW1-20	12/7/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW1-40	12/7/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW2-40	12/7/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW2-60	12/7/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW3-20	12/8/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW3-40	12/8/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 3
GROUNDWATER ANALYTICAL RESULTS - VOCs
VA GLAHS
11301 Wilshire Boulevard
Los Angeles, California

		Sample ID	MW-1		MW-2		MW-3	
		Date Collected	12/9/2009	8/16/2010	12/9/2009	8/16/2010	12/9/2009	8/16/2010
EPA 8260B	Units:	Method Detection Limit:						
1,1,1-TCA	µg/L	0.2	ND	ND	ND	ND	ND	ND
1,1,2,2-PCA	µg/L	0.2	ND	ND	ND	ND	ND	ND
1,1,2-TCA	µg/L	0.2	ND	ND	ND	ND	ND	ND
1,1-DCA	µg/L	0.2	ND	ND	ND	ND	ND	ND
1,1-DCE	µg/L	0.2	ND	ND	ND	ND	ND	ND
1,2-DCA	µg/L	0.2	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	µg/L	0.2	ND	ND	ND	ND	ND	ND
2-Butanone	µg/L	5	7.9	ND	5.4	ND	ND	ND
2-Hexanone	µg/L	5	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	µg/L	5	ND	ND	ND	ND	ND	ND
Acetone	µg/L	5	22	ND	ND	ND	9.9	ND
Benzene	µg/L	0.2	0.38	ND	ND	ND	ND	ND
Toluene	µg/L	0.2	0.38	ND	0.34	ND	0.22	ND
E-Benzene	µg/L	0.2	ND	ND	ND	ND	ND	ND
Xylenes	µg/L	0.4	ND	ND	ND	ND	ND	ND
MtBE	µg/L	0.2	ND	ND	ND	ND	ND	ND
Bromochloromethane	µg/L	0.2	ND	ND	ND	ND	ND	ND
Bromoform	µg/L	0.3	ND	ND	ND	ND	ND	ND
Bromomethane	µg/L	0.2	ND	ND	ND	ND	ND	ND
Carbon Disulfide	µg/L	0.2	ND	ND	ND	ND	0.22	ND
Carbon Tetrachloride	µg/L	0.2	ND	ND	ND	ND	ND	ND
Chlorobenzene	µg/L	0.2	ND	ND	ND	ND	ND	ND
Chloroethane	µg/L	0.2	ND	ND	ND	ND	ND	ND
Chloroform	µg/L	0.2	ND	ND	ND	ND	ND	ND
Chloromethane	µg/L	0.2	ND	ND	ND	ND	ND	ND
Cis-1,2-Dichloroethene	µg/L	0.2	ND	ND	ND	ND	ND	ND
Cis-1,3-Dichloropropene	µg/L	0.2	ND	ND	ND	ND	ND	ND
Dibromochloromethane	µg/L	0.2	ND	ND	ND	ND	ND	ND
Methylene Chloride	µg/L	0.5	ND	ND	ND	ND	ND	ND
Styrene	µg/L	0.2	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	µg/L	0.2	ND	ND	ND	ND	ND	ND
Trans-1,2- Dichloroethene	µg/L	0.2	ND	ND	ND	ND	ND	ND
Trans-1,3- Dichloropropene	µg/L	0.2	ND	ND	ND	ND	ND	ND
Trichloroethene	µg/L	0.2	ND	ND	ND	ND	ND	ND
Vinyl Chloride	µg/L	2.1	ND	ND	ND	ND	ND	ND

APPENDIX 3

SURVEY DATA

SURVEY DATA

VA GLAHS

11301 Wilshire Boulevard

Los Angeles, California

BORING	NORTHING	EASTING	ELEVATION (MSL)
SB01	1845755.114	6420540.850	417.962
SB02	1845748.500	6420610.448	418.160
SB03	1845835.227	6420533.404	418.620
SB04	1845854.545	6420630.682	418.988
SB09	1845512.917	6420574.311	405.473
SB10	1845466.392	6420531.782	402.411
SB11	1845423.850	6420583.159	404.157
SB12	1845364.750	6420523.938	400.496
SB13	1845317.296	6420591.388	399.167
SB14	1845270.311	6420538.548	397.321
SB15	1845261.911	6420577.593	396.220
SB16	1845226.925	6420618.040	396.570
SB17	1845214.950	6420556.710	394.844
SB18	1845125.413	6420552.860	393.503
SB19	1845131.493	6420625.981	394.645
SB20	1845069.801	6420628.092	394.170
SB21	1845028.118	6420562.688	392.068
SB22	1844969.047	6420562.657	391.699
SB23	1844975.836	6420624.700	397.092
SB24	1844915.911	6420628.812	395.155
SB25	1844877.938	6420554.076	387.818
SB26	1844759.592	6420584.715	383.098
SB27	1844696.990	6420501.487	378.503
SB32	1845091.391	6420592.553	393.100
SB33	1845343.111	6420552.701	399.800
SB34	1844560.063	6420577.987	372.000

MONITORING WELL	NORTHING	EASTING	ELEVATION (MSL)
MW01	1844362.220	6420512.219	351.830
MW02	1844365.206	6420451.467	351.670
MW03	1844286.108	6420503.494	350.520

SURVEY DATA

VA GLAHS

11301 Wilshire Boulevard

Los Angeles, California

SOIL GAS POINTS	NORTHING	EASTING	ELEVATION (MSL)
SG01	1845932.384	6420666.731	419.482
SG02	1845912.124	6420621.374	418.627
SG03	1845891.918	6420575.530	418.253
SG04	1845873.122	6420529.113	417.820
SG05	1845853.938	6420483.025	417.869
SG06	1845804.955	6420490.463	416.163
SG07	1845824.190	6420536.141	417.378
SG08	1845843.107	6420583.660	418.058
SG09	1845863.043	6420629.173	418.540
SG10	1845883.659	6420675.295	419.096
SG11	1845534.252	6420684.169	419.009
SG12	1845814.050	6420637.371	418.429
SG13	1845793.810	6420591.046	417.786
SG14	1845775.056	6420544.374	417.133
SG15	1845755.724	6420498.634	416.679
SG16	1845706.356	6420505.941	416.931
SG17	1845725.380	6420552.385	417.217
SG18	1845743.987	6420598.825	417.672
SG19	1845764.329	6420644.912	418.287
SG20	1845780.478	6420692.368	419.030
SG21	1845731.280	6420634.363	418.032
SG22	1845708.061	6420576.027	417.259
SG23	1845874.372	6420445.896	419.361
SG24	1844443.557	6420468.191	362.103
SG25	1844424.168	6420542.466	361.092
SG26	1844657.761	6420582.241	377.748
SG27	1844675.986	6420559.415	377.208
SG28	1844694.276	6420501.776	378.483
SG29	1844742.250	6420568.081	381.718
SG30	1844827.448	6420580.556	385.138
SG31	1844909.687	6420583.907	387.851
SG32	1844984.600	6420583.334	390.549
SG33	1844977.984	6420623.500	397.016
SG34	1844992.276	6420542.193	398.042
SG35	1845058.396	6420585.029	392.119
SG36	1845061.504	6420545.606	395.086
SG37	1845057.234	6420625.150	394.583
SG38	1845132.590	6420573.870	392.751
SG39	1845137.692	6420612.125	392.869
SG40	1845127.850	6420534.227	394.138
SG41	1845596.660	6420527.598	401.925
SG42	1845206.623	6420558.735	394.756
SG43	1845254.657	6420548.872	396.279
SG44	1845260.236	6420599.471	397.026
SG45	1845336.096	6420535.844	399.208
SG46	1845336.078	6420586.104	401.014
SG47	1845417.905	6420522.511	401.905
SG48	1845427.573	6420572.053	404.927
SG49	1845498.401	6420514.431	403.978
SG50	1845504.118	6420563.756	404.820

APPENDIX 4

PASSIVE SOIL GAS SURVEY REPORT

BEACON Report No. 2077

PASSIVE SOIL-GAS SURVEY
VETERANS ADMINISTRATION SITE
LOS ANGELES, CA

Prepared for

Atlas Environmental Engineering, Inc.
3185 Airway Avenue
Suite D-1
Costa Mesa, CA 92626

by

Beacon Environmental Services, Inc.
323 Williams Street
Suite D
Bel Air, MD 21014

August 7, 2008

Applying Results from Soil-Gas Surveys

The utility of soil-gas surveys is directly proportional to their accuracy in reflecting and representing changes in the subsurface concentrations of source compounds. Passive soil-gas survey results are the mass collected from the vapor-phase emanating from the source. The vapor-phase is merely a fractional trace of the source, so, as a matter of convenience, the units used in reporting detection values from passive soil-gas surveys are smaller than those employed for source-compound concentrations.

The critical fact is that, whatever the relative concentrations of source and associated soil gas, best results are realized when the ratio of soil-gas measurements to actual subsurface concentrations remains as close to constant as the real world permits. It is the reliability and consistency of this ratio, not the particular units of mass (*e.g.*, nanograms) that determine usefulness. Thus, BEACON emphasizes the necessity of conducting — at minimum — follow-on intrusive sampling at one or two points that show relatively high soil-gas measurements to obtain corresponding concentrations of soil and groundwater contaminants. These correspondent values furnish the basis for approximating the required ratio. Once that ratio is established, it can be used in conjunction with the soil-gas measurements (regardless of the units adopted) to estimate subsurface contaminant concentrations across the survey field. It is important to keep in mind, however, that specific conditions at individual sample points, including soil porosity and permeability, depth to contamination, and perched ground water, can have significant impact on soil-gas measurements at those locations.

When passive soil-gas surveys are handled in this way, the data provide information that can yield substantial savings in drilling costs and in time. They furnish, among other things, a checklist of compounds expected at each survey location and help to determine how and where drilling budgets can most effectively be spent.

BEACON Report Number: 2077

Passive Soil-Gas Survey
Veterans Administration Site
Los Angeles, CA

This Passive Soil-Gas Survey Report has been prepared for Atlas Environmental Engineering, Inc. (ATLAS) by Beacon Environmental Services, Inc. (BEACON) in accordance with the terms of the signed order confirmation form, dated June 3, 2008. BEACON's principal technical contact at ATLAS for this project has been Mr. Jay Boughter.

1. Objectives

Soil-gas samples were collected to determine the presence, identity, and relative strength of targeted contaminants in soil and/or ground water at the Veterans Administration Site. Survey results will be used to determine the distribution of contaminants and to guide further site investigation.

2. Target Compounds

This survey targeted the 40 compounds listed in **Table 1**, which supplies the resulting laboratory data in nanograms (ng) of specific compound per cartridge.

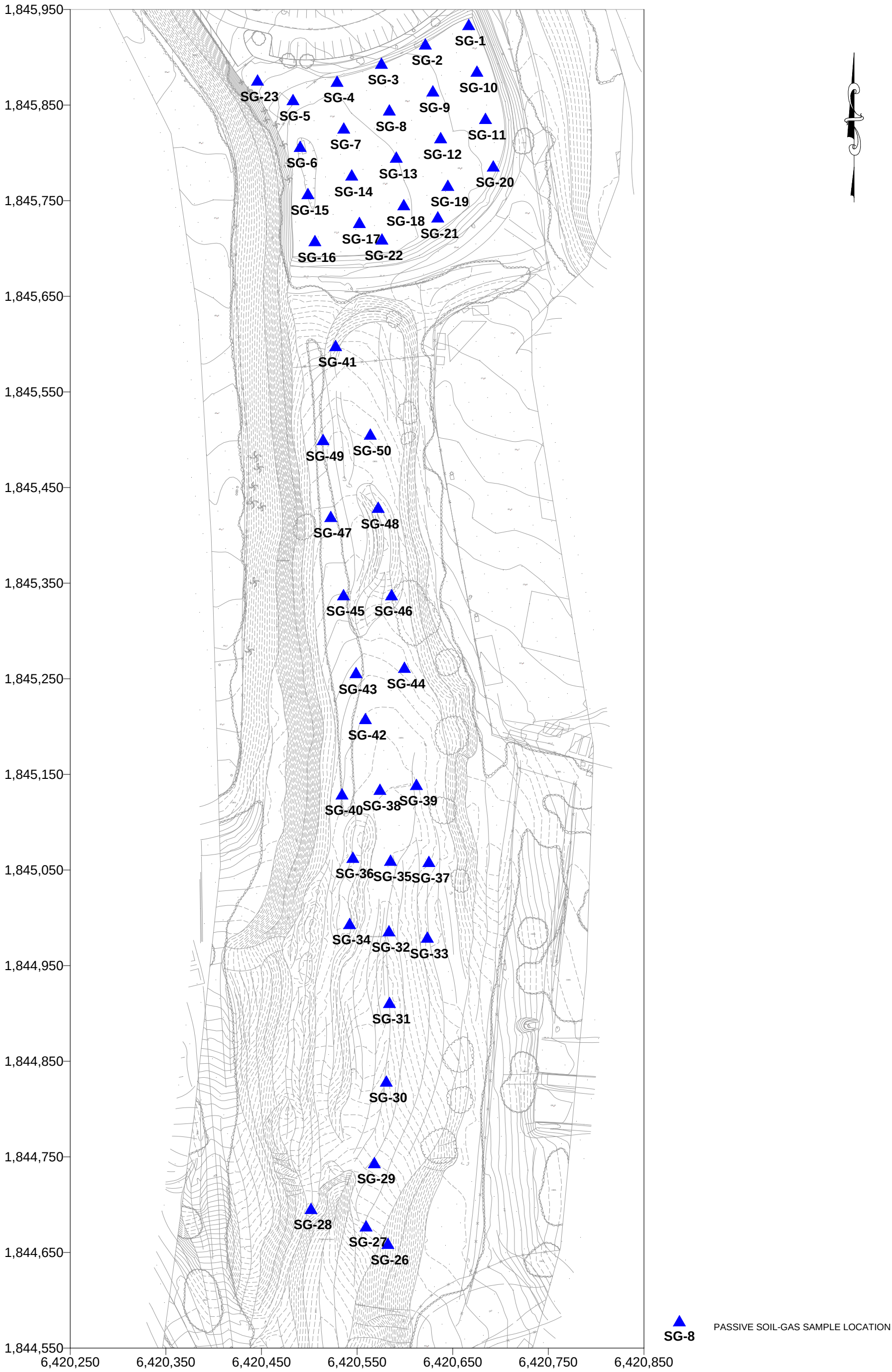
3. Survey Description

No. of Field Samples:	50
No. of Trip Blanks:	2
Total No. of Samples:	52

Field sample locations are shown on **Figure 1**.

4. Field Work

ATLAS was provided a BeSure Sample Collection Kit™ with the equipment needed to conduct a 50-point passive soil-gas survey. Samplers were deployed on July 9 and 10, 2008, and were retrieved on July 23 and 24, 2008. **Attachment 1** describes the field procedures used. Individual deployment and retrieval times will be found in the Field Deployment Report (**Attachment 2**).



BEACON ENVIRONMENTAL SERVICES, INC.

323 Williams Street, Suite D, Bel Air, MD, 800-878-5510

Beacon Project No. 2077, August 2008

Scale in Feet

0 100 200

Figure 1
Passive Soil-Gas Survey
Sample Locations

Veterans Administration Site
Los Angeles, CA

5. Analysis and Reporting Dates

BEACON's laboratory received 52 samples for analysis on July 25, 2008. Adsorbent cartridges from the passive samplers were thermally desorbed, then analyzed using gas chromatography/mass spectrometry (GC/MS) equipment, in accordance with EPA Method 8260B (Modified), as described in **Attachment 3**. BEACON's laboratory analyzed each cartridge for the targeted compounds; analyses were completed on July 30, 2008. Following a laboratory review, results were provided to ATLAS on August 1, 2008.

6. Report Notes and Quality Assurance/Quality Control Factors

Table 1 provides survey results in nanograms per cartridge by sample-point number and compound name. The quantitation levels represent values above which quantitative laboratory results can be achieved within specified limits of precision and with a high degree of confidence. The quantitation level for each compound, therefore, provides a reliable basis for comparing the relative strength of any detection of that compound.

Data Compatibility. It is important to note that when sample locations are covered with or near the edge of an artificial surface (*e.g.*, asphalt or concrete), the concentrations of compounds in soil gas are often significantly higher than the concentrations would be if the surfacing were not present. Thus, a reading taken below or near an impermeable surface is much higher than it would be in the absence of such a cap. Therefore, the sample location conditions should be evaluated when comparing results between locations.

The **Chain-of-Custody** form, which was shipped with the samples for this survey, is supplied as **Attachment 4**.

Laboratory QA/QC procedures included standards, surrogates, and blanks appropriate to EPA Method 8260 (Modified). Field work, analyses, and reporting were done in accordance with BEACON's Quality Assurance Program Plan.

QA/QC Contaminant Corrections. Following EPA guidelines, laboratory data are not corrected for method blank or trip blank contamination values; any contamination detected on QA/QC samples is reported in **Table 1**.

Laboratory method blanks are run each day with project samples to identify contamination present in the laboratory. If contamination is detected on a method blank, measurements of identical compounds on samples analyzed the same day are considered to be suspect and are flagged in the laboratory report. The laboratory method blanks analyzed in connection with the present samples revealed no contamination.

The **trip blank** is a sampling cartridge prepared, transported, and analyzed with other samples but intentionally not exposed. Any target compounds identified on the trip blanks are reported in the laboratory data. The analyses of the trip blanks (labeled Trip-1 and Trip-2 in **Table 1**) reported none of the targeted compounds, indicating that the survey site itself is the source of detected contamination.

Survey findings are relative exclusively to this project and should not routinely be compared with results of other BEACON Surveys. *To establish a relationship between reported soil-gas measurements and actual subsurface contaminant concentrations, which will indicate those detections representing significant subsurface contamination, BEACON recommends the guidelines on the inside front cover of this report.*

At the request of ATLAS, the following compound distribution maps have been provided:

Figure 2 — Chloroform
Figure 3 — Benzene
Figure 4 — Toluene

The following **Attachments** are included:

-1- Field Procedures
-2- Field Deployment Report
-3- Laboratory Procedures
-4- Chain-of-Custody Form

Table 1

Beacon Environmental Services, Inc.
323 Williams Street, Ste. D
Bel Air, MD 21014

Analysis by EPA Method 8260B (Modified)

Client Sample ID:	Meth_Bl	Trip-1	SG-1	SG-2	SG-3	SG-4
Project Number:	2077	2077	2077	2077	2077	2077
Lab File ID:	08072816	08072817	08072818	08072819	08072820	08072821
Received Date:		7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008
Analysis Date:	7/29/2008	7/29/2008	7/29/2008	7/29/2008	7/29/2008	7/29/2008
Analysis Time:	13:11	13:41	14:11	14:42	15:12	15:42
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<25	<25	<25	<25	<25	<25
1,1-Dichloroethene	<25	<25	<25	<25	<25	<25
trans-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Methyl-t-butyl ether	<25	<25	<25	<25	<25	<25
1,1-Dichloroethane	<25	<25	<25	<25	<25	<25
cis-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Chloroform	<25	<25	**81**	**45**	<25	**51**
2,2-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dichloroethane	<25	<25	<25	<25	<25	<25
1,1,1-Trichloroethane	<25	<25	<25	<25	<25	<25
1,1-Dichloropropene	<25	<25	<25	<25	<25	<25
Carbon Tetrachloride	<25	<25	<25	<25	<25	<25
Benzene	<25	<25	<25	<25	<25	<25
1,2-Dichloropropane	<25	<25	<25	<25	<25	<25
Trichloroethene	<25	<25	<25	<25	<25	<25
1,1,2-Trichloroethane	<25	<25	<25	<25	<25	<25
Toluene	<25	<25	<25	<25	<25	<25
1,3-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dibromoethane (EDB)	<25	<25	<25	<25	<25	<25
Tetrachloroethene	<25	<25	<25	<25	<25	<25
1,1,1,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
Chlorobenzene	<25	<25	<25	<25	<25	<25
Ethylbenzene	<25	<25	<25	<25	<25	<25
p & m-Xylene	<25	<25	<25	<25	<25	<25
Bromoform	<25	<25	<25	<25	<25	<25
1,1,2,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
o-Xylene	<25	<25	<25	<25	<25	<25
1,2,3-Trichloropropane	<25	<25	<25	<25	<25	<25
Isopropylbenzene	<25	<25	<25	<25	<25	<25
1,3,5-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,3-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,4-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,2-Dichlorobenzene	<25	<25	<25	<25	<25	<25
n-Butylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trichlorobenzene	<25	<25	<25	<25	<25	<25
Naphthalene	<25	<25	<25	<25	<25	<25
1,2,3-Trichlorobenzene	<25	<25	<25	<25	<25	<25
TPH C_5-C_9	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500
TPH C_{10}-C_{14}	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.

Table 1

Beacon Environmental Services, Inc.
323 Williams Street, Ste. D
Bel Air, MD 21014

Analysis by EPA Method 8260B (Modified)

Client Sample ID:	SG-5	SG-6	SG-7	SG-8	SG-9	SG-10
Project Number:	2077	2077	2077	2077	2077	2077
Lab File ID:	08072822	08072823	08072824	08072825	08072826	08072827
Received Date:	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008
Analysis Date:	7/29/2008	7/29/2008	7/29/2008	7/29/2008	7/29/2008	7/29/2008
Analysis Time:	16:12	16:42	17:12	17:42	18:13	18:43
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<25	<25	<25	<25	<25	<25
1,1-Dichloroethene	<25	<25	<25	<25	<25	<25
trans-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Methyl-t-butyl ether	<25	<25	<25	<25	<25	<25
1,1-Dichloroethane	<25	<25	<25	<25	<25	<25
cis-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Chloroform	**42**	**52**	**81**	**67**	<25	<25
2,2-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dichloroethane	<25	<25	<25	<25	<25	<25
1,1,1-Trichloroethane	<25	<25	<25	<25	<25	<25
1,1-Dichloropropene	<25	<25	<25	<25	<25	<25
Carbon Tetrachloride	<25	<25	<25	<25	<25	<25
Benzene	<25	<25	<25	<25	<25	<25
1,2-Dichloropropane	<25	<25	<25	<25	<25	<25
Trichloroethene	<25	<25	<25	<25	<25	<25
1,1,2-Trichloroethane	<25	<25	<25	<25	<25	<25
Toluene	**26**	<25	<25	**25**	<25	<25
1,3-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dibromoethane (EDB)	<25	<25	<25	<25	<25	<25
Tetrachloroethene	<25	<25	<25	<25	<25	<25
1,1,1,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
Chlorobenzene	<25	<25	<25	<25	<25	<25
Ethylbenzene	<25	<25	<25	<25	<25	<25
p & m-Xylene	<25	<25	<25	<25	<25	<25
Bromoform	<25	<25	<25	<25	<25	<25
1,1,2,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
o-Xylene	<25	<25	<25	<25	<25	<25
1,2,3-Trichloropropane	<25	<25	<25	<25	<25	<25
Isopropylbenzene	<25	<25	<25	<25	<25	<25
1,3,5-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,3-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,4-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,2-Dichlorobenzene	<25	<25	<25	<25	<25	<25
n-Butylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trichlorobenzene	<25	<25	<25	<25	<25	<25
Naphthalene	<25	<25	<25	<25	<25	<25
1,2,3-Trichlorobenzene	<25	<25	<25	<25	<25	<25
TPH C_5-C_9	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500
TPH C_{10}-C_{14}	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.

Table 1

Beacon Environmental Services, Inc.
323 Williams Street, Ste. D
Bel Air, MD 21014

Analysis by EPA Method 8260B (Modified)

Client Sample ID:	SG-11	SG-12	SG-13	SG-14	SG-15	SG-16
Project Number:	2077	2077	2077	2077	2077	2077
Lab File ID:	08072828	08072829	08072830	08072831	08072832	08072833
Received Date:	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008
Analysis Date:	7/29/2008	7/29/2008	7/29/2008	7/29/2008	7/29/2008	7/29/2008
Analysis Time:	19:13	19:43	20:13	20:44	21:14	21:44
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<25	<25	<25	<25	<25	<25
1,1-Dichloroethene	<25	<25	<25	<25	<25	<25
trans-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Methyl-t-butyl ether	<25	<25	<25	<25	<25	<25
1,1-Dichloroethane	<25	<25	<25	<25	<25	<25
cis-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Chloroform	**26**	**29**	<25	**68**	**56**	**84**
2,2-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dichloroethane	<25	<25	<25	<25	<25	<25
1,1,1-Trichloroethane	<25	<25	<25	<25	<25	<25
1,1-Dichloropropene	<25	<25	<25	<25	<25	<25
Carbon Tetrachloride	<25	<25	<25	<25	<25	<25
Benzene	<25	<25	<25	**30**	<25	<25
1,2-Dichloropropane	<25	<25	<25	<25	<25	<25
Trichloroethene	<25	<25	<25	<25	<25	<25
1,1,2-Trichloroethane	<25	<25	<25	<25	<25	<25
Toluene	<25	<25	<25	<25	<25	<25
1,3-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dibromoethane (EDB)	<25	<25	<25	<25	<25	<25
Tetrachloroethene	<25	<25	<25	<25	<25	<25
1,1,1,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
Chlorobenzene	<25	<25	<25	<25	<25	<25
Ethylbenzene	<25	<25	<25	<25	<25	<25
p & m-Xylene	<25	<25	<25	<25	<25	<25
Bromoform	<25	<25	<25	<25	<25	<25
1,1,2,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
o-Xylene	<25	<25	<25	<25	<25	<25
1,2,3-Trichloropropane	<25	<25	<25	<25	<25	<25
Isopropylbenzene	<25	<25	<25	<25	<25	<25
1,3,5-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,3-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,4-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,2-Dichlorobenzene	<25	<25	<25	<25	<25	<25
n-Butylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trichlorobenzene	<25	<25	<25	<25	<25	<25
Naphthalene	<25	<25	<25	<25	<25	<25
1,2,3-Trichlorobenzene	<25	<25	<25	<25	<25	<25
TPH C_5-C_9	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500
TPH C_{10}-C_{14}	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.

Table 1

Beacon Environmental Services, Inc.
323 Williams Street, Ste. D
Bel Air, MD 21014

Analysis by EPA Method 8260B (Modified)

Client Sample ID:	SG-17	SG-18	SG-19	SG-20	SG-21	SG-22
Project Number:	2077	2077	2077	2077	2077	2077
Lab File ID:	08072834	08072835	08072836	08072837	08072838	08072839
Received Date:	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008
Analysis Date:	7/29/2008	7/29/2008	7/29/2008	7/29/2008	7/30/2008	7/30/2008
Analysis Time:	22:14	22:44	23:15	23:46	12:17	12:47
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<25	<25	<25	<25	<25	<25
1,1-Dichloroethene	<25	<25	<25	<25	<25	<25
trans-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Methyl-t-butyl ether	<25	<25	<25	<25	<25	<25
1,1-Dichloroethane	<25	<25	<25	<25	<25	<25
cis-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Chloroform	**25**	<25	<25	**61**	**36**	**81**
2,2-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dichloroethane	<25	<25	<25	<25	<25	<25
1,1,1-Trichloroethane	<25	<25	<25	<25	<25	<25
1,1-Dichloropropene	<25	<25	<25	<25	<25	<25
Carbon Tetrachloride	<25	<25	<25	<25	<25	<25
Benzene	<25	<25	<25	<25	<25	<25
1,2-Dichloropropane	<25	<25	<25	<25	<25	<25
Trichloroethene	<25	<25	<25	<25	<25	<25
1,1,2-Trichloroethane	<25	<25	<25	<25	<25	<25
Toluene	<25	<25	<25	<25	<25	<25
1,3-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dibromoethane (EDB)	<25	<25	<25	<25	<25	<25
Tetrachloroethene	<25	<25	<25	<25	<25	<25
1,1,1,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
Chlorobenzene	<25	<25	<25	<25	<25	<25
Ethylbenzene	<25	<25	<25	<25	<25	<25
p & m-Xylene	<25	<25	<25	<25	<25	<25
Bromoform	<25	<25	<25	<25	<25	<25
1,1,2,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
o-Xylene	<25	<25	<25	<25	<25	<25
1,2,3-Trichloropropane	<25	<25	<25	<25	<25	<25
Isopropylbenzene	<25	<25	<25	<25	<25	<25
1,3,5-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,3-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,4-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,2-Dichlorobenzene	<25	<25	<25	<25	<25	<25
n-Butylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trichlorobenzene	<25	<25	<25	<25	<25	<25
Naphthalene	<25	<25	<25	<25	<25	<25
1,2,3-Trichlorobenzene	<25	<25	<25	<25	<25	<25
TPH C_5-C_9	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500
TPH C_{10}-C_{14}	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.

Table 1

Beacon Environmental Services, Inc.
323 Williams Street, Ste. D
Bel Air, MD 21014

Analysis by EPA Method 8260B (Modified)

Client Sample ID:	SG-23	SG-24	SG-25	Trip-2	SG-26	SG-27
Project Number:	2077	2077	2077	2077	2077	2077
Lab File ID:	08072840	08072841	08072842	08072843	08072844	08072845
Received Date:	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008
Analysis Date:	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008
Analysis Time:	1:17	1:47	2:17	2:47	3:17	3:47
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<25	<25	<25	<25	<25	<25
1,1-Dichloroethene	<25	<25	<25	<25	<25	<25
trans-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Methyl-t-butyl ether	<25	<25	<25	<25	<25	<25
1,1-Dichloroethane	<25	<25	<25	<25	<25	<25
cis-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Chloroform	**36**	<25	<25	<25	<25	<25
2,2-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dichloroethane	<25	<25	<25	<25	<25	<25
1,1,1-Trichloroethane	<25	<25	<25	<25	<25	<25
1,1-Dichloropropene	<25	<25	<25	<25	<25	<25
Carbon Tetrachloride	<25	<25	<25	<25	<25	<25
Benzene	**33**	<25	<25	<25	<25	<25
1,2-Dichloropropane	<25	<25	<25	<25	<25	<25
Trichloroethene	<25	<25	<25	<25	<25	<25
1,1,2-Trichloroethane	<25	<25	<25	<25	<25	<25
Toluene	<25	<25	<25	<25	<25	**25**
1,3-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dibromoethane (EDB)	<25	<25	<25	<25	<25	<25
Tetrachloroethene	<25	<25	<25	<25	<25	<25
1,1,1,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
Chlorobenzene	<25	<25	<25	<25	<25	<25
Ethylbenzene	<25	<25	<25	<25	<25	<25
p & m-Xylene	<25	<25	<25	<25	<25	<25
Bromoform	<25	<25	<25	<25	<25	<25
1,1,2,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
o-Xylene	<25	<25	<25	<25	<25	<25
1,2,3-Trichloropropane	<25	<25	<25	<25	<25	<25
Isopropylbenzene	<25	<25	<25	<25	<25	<25
1,3,5-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,3-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,4-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,2-Dichlorobenzene	<25	<25	<25	<25	<25	<25
n-Butylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trichlorobenzene	<25	<25	<25	<25	<25	<25
Naphthalene	<25	<25	<25	<25	<25	<25
1,2,3-Trichlorobenzene	<25	<25	<25	<25	<25	<25
TPH C_5-C_9	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500
TPH C_{10}-C_{14}	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.

Table 1

Beacon Environmental Services, Inc.
323 Williams Street, Ste. D
Bel Air, MD 21014

Analysis by EPA Method 8260B (Modified)

Client Sample ID:	SG-28	Meth_Bl	SG-29	SG-30	SG-31	SG-32
Project Number:	2077	2077	2077	2077	2077	2077
Lab File ID:	08072846	08073003	08073004	08073005	08073006	08073007
Received Date:	7/25/2008		7/25/2008	7/25/2008	7/25/2008	7/25/2008
Analysis Date:	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008
Analysis Time:	4:19	10:40	11:10	11:40	12:10	12:40
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<25	<25	<25	<25	<25	<25
1,1-Dichloroethene	<25	<25	<25	<25	<25	<25
trans-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Methyl-t-butyl ether	<25	<25	<25	<25	<25	<25
1,1-Dichloroethane	<25	<25	<25	<25	<25	<25
cis-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Chloroform	<25	<25	<25	<25	<25	<25
2,2-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dichloroethane	<25	<25	<25	<25	<25	<25
1,1,1-Trichloroethane	<25	<25	<25	<25	<25	<25
1,1-Dichloropropene	<25	<25	<25	<25	<25	<25
Carbon Tetrachloride	<25	<25	<25	<25	<25	<25
Benzene	<25	<25	<25	<25	<25	<25
1,2-Dichloropropane	<25	<25	<25	<25	<25	<25
Trichloroethene	<25	<25	<25	<25	<25	<25
1,1,2-Trichloroethane	<25	<25	<25	<25	<25	<25
Toluene	<25	<25	<25	<25	<25	<25
1,3-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dibromoethane (EDB)	<25	<25	<25	<25	<25	<25
Tetrachloroethene	<25	<25	<25	<25	<25	<25
1,1,1,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
Chlorobenzene	<25	<25	<25	<25	<25	<25
Ethylbenzene	<25	<25	<25	<25	<25	<25
p & m-Xylene	<25	<25	<25	<25	<25	<25
Bromoform	<25	<25	<25	<25	<25	<25
1,1,2,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
o-Xylene	<25	<25	<25	<25	<25	<25
1,2,3-Trichloropropane	<25	<25	<25	<25	<25	<25
Isopropylbenzene	<25	<25	<25	<25	<25	<25
1,3,5-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,3-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,4-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,2-Dichlorobenzene	<25	<25	<25	<25	<25	<25
n-Butylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trichlorobenzene	<25	<25	<25	<25	<25	<25
Naphthalene	<25	<25	<25	<25	<25	<25
1,2,3-Trichlorobenzene	<25	<25	<25	<25	<25	<25
TPH C_5-C_9	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500
TPH C_{10}-C_{14}	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.

Table 1

Beacon Environmental Services, Inc.
323 Williams Street, Ste. D
Bel Air, MD 21014

Analysis by EPA Method 8260B (Modified)

Client Sample ID:	SG-33	SG-34	SG-35	SG-36	SG-37	SG-38
Project Number:	2077	2077	2077	2077	2077	2077
Lab File ID:	08073008	08073009	08073010	08073011	08073012	08073013
Received Date:	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008
Analysis Date:	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008
Analysis Time:	13:10	13:41	14:11	14:41	15:11	15:43
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<25	<25	<25	<25	<25	<25
1,1-Dichloroethene	<25	<25	<25	<25	<25	<25
trans-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Methyl-t-butyl ether	<25	<25	<25	<25	<25	<25
1,1-Dichloroethane	<25	<25	<25	<25	<25	<25
cis-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Chloroform	<25	<25	<25	<25	<25	<25
2,2-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dichloroethane	<25	<25	<25	<25	<25	<25
1,1,1-Trichloroethane	<25	<25	<25	<25	<25	<25
1,1-Dichloropropene	<25	<25	<25	<25	<25	<25
Carbon Tetrachloride	<25	<25	<25	<25	<25	<25
Benzene	<25	<25	<25	<25	<25	<25
1,2-Dichloropropane	<25	<25	<25	<25	<25	<25
Trichloroethene	<25	<25	<25	<25	<25	<25
1,1,2-Trichloroethane	<25	<25	<25	<25	<25	<25
Toluene	<25	<25	<25	<25	<25	<25
1,3-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dibromoethane (EDB)	<25	<25	<25	<25	<25	<25
Tetrachloroethene	<25	<25	<25	<25	<25	<25
1,1,1,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
Chlorobenzene	<25	<25	<25	<25	<25	<25
Ethylbenzene	<25	<25	<25	<25	<25	<25
p & m-Xylene	<25	<25	<25	<25	<25	<25
Bromoform	<25	<25	<25	<25	<25	<25
1,1,2,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
o-Xylene	<25	<25	<25	<25	<25	<25
1,2,3-Trichloropropane	<25	<25	<25	<25	<25	<25
Isopropylbenzene	<25	<25	<25	<25	<25	<25
1,3,5-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,3-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,4-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,2-Dichlorobenzene	<25	<25	<25	<25	<25	<25
n-Butylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trichlorobenzene	<25	<25	<25	<25	<25	<25
Naphthalene	<25	<25	<25	<25	<25	<25
1,2,3-Trichlorobenzene	<25	<25	<25	<25	<25	<25
TPH C_5-C_9	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500
TPH C_{10}-C_{14}	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.

Table 1

Beacon Environmental Services, Inc.
323 Williams Street, Ste. D
Bel Air, MD 21014

Analysis by EPA Method 8260B (Modified)

Client Sample ID:	SG-39	SG-40	SG-41	SG-42	SG-43	SG-44
Project Number:	2077	2077	2077	2077	2077	2077
Lab File ID:	08073014	08073015	08073016	08073017	08073018	08073019
Received Date:	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008
Analysis Date:	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008
Analysis Time:	16:14	16:45	17:16	17:46	18:16	18:46
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<25	<25	<25	<25	<25	<25
1,1-Dichloroethene	<25	<25	<25	<25	<25	<25
trans-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Methyl-t-butyl ether	<25	<25	<25	<25	<25	<25
1,1-Dichloroethane	<25	<25	<25	<25	<25	<25
cis-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Chloroform	<25	<25	<25	<25	<25	<25
2,2-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dichloroethane	<25	<25	<25	<25	<25	<25
1,1,1-Trichloroethane	<25	<25	<25	<25	<25	<25
1,1-Dichloropropene	<25	<25	<25	<25	<25	<25
Carbon Tetrachloride	<25	<25	<25	<25	<25	<25
Benzene	<25	<25	<25	<25	<25	<25
1,2-Dichloropropane	<25	<25	<25	<25	<25	<25
Trichloroethene	<25	<25	<25	<25	<25	<25
1,1,2-Trichloroethane	<25	<25	<25	<25	<25	<25
Toluene	<25	<25	<25	<25	<25	<25
1,3-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dibromoethane (EDB)	<25	<25	<25	<25	<25	<25
Tetrachloroethene	<25	<25	<25	<25	<25	<25
1,1,1,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
Chlorobenzene	<25	<25	<25	<25	<25	<25
Ethylbenzene	<25	<25	<25	<25	<25	<25
p & m-Xylene	<25	<25	<25	<25	<25	<25
Bromoform	<25	<25	<25	<25	<25	<25
1,1,2,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
o-Xylene	<25	<25	<25	<25	<25	<25
1,2,3-Trichloropropane	<25	<25	<25	<25	<25	<25
Isopropylbenzene	<25	<25	<25	<25	<25	<25
1,3,5-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,3-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,4-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,2-Dichlorobenzene	<25	<25	<25	<25	<25	<25
n-Butylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trichlorobenzene	<25	<25	<25	<25	<25	<25
Naphthalene	<25	<25	<25	<25	<25	<25
1,2,3-Trichlorobenzene	<25	<25	<25	<25	<25	<25
TPH C_5-C_9	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500
TPH C_{10}-C_{14}	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.

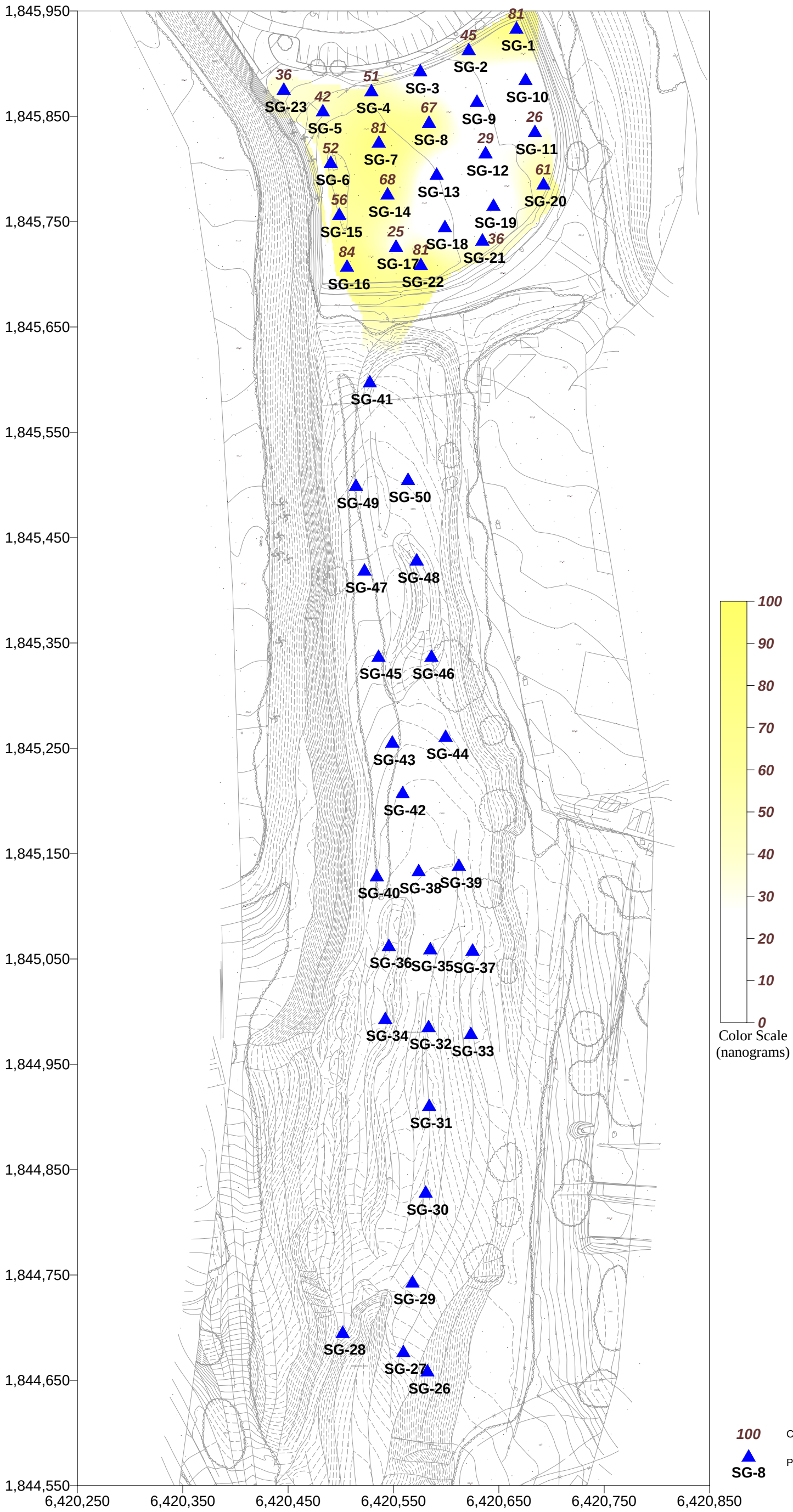
Table 1

Beacon Environmental Services, Inc.
323 Williams Street, Ste. D
Bel Air, MD 21014

Analysis by EPA Method 8260B (Modified)

Client Sample ID:	SG-45	SG-46	SG-47	SG-48	SG-49	SG-50
Project Number:	2077	2077	2077	2077	2077	2077
Lab File ID:	08073020	08073021	08073022	08073023	08073024	08073025
Received Date:	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008	7/25/2008
Analysis Date:	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008	7/30/2008
Analysis Time:	19:16	19:46	20:16	20:47	21:17	21:47
Units:	ng	ng	ng	ng	ng	ng
COMPOUNDS						
Vinyl Chloride	<25	<25	<25	<25	<25	<25
1,1-Dichloroethene	<25	<25	<25	<25	<25	<25
trans-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Methyl-t-butyl ether	<25	<25	<25	<25	<25	<25
1,1-Dichloroethane	<25	<25	<25	<25	<25	<25
cis-1,2-Dichloroethene	<25	<25	<25	<25	<25	<25
Chloroform	<25	<25	<25	<25	<25	<25
2,2-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dichloroethane	<25	<25	<25	<25	<25	<25
1,1,1-Trichloroethane	<25	<25	<25	<25	<25	<25
1,1-Dichloropropene	<25	<25	<25	<25	<25	<25
Carbon Tetrachloride	<25	<25	<25	<25	<25	<25
Benzene	<25	<25	<25	<25	<25	<25
1,2-Dichloropropane	<25	<25	<25	<25	<25	<25
Trichloroethene	<25	<25	<25	<25	<25	<25
1,1,2-Trichloroethane	<25	<25	<25	<25	<25	<25
Toluene	<25	<25	<25	<25	<25	<25
1,3-Dichloropropane	<25	<25	<25	<25	<25	<25
1,2-Dibromoethane (EDB)	<25	<25	<25	<25	<25	<25
Tetrachloroethene	<25	<25	<25	<25	<25	<25
1,1,1,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
Chlorobenzene	<25	<25	<25	<25	<25	<25
Ethylbenzene	<25	<25	<25	<25	<25	<25
p & m-Xylene	<25	<25	<25	<25	<25	<25
Bromoform	<25	<25	<25	<25	<25	<25
1,1,2,2-Tetrachloroethane	<25	<25	<25	<25	<25	<25
o-Xylene	<25	<25	<25	<25	<25	<25
1,2,3-Trichloropropane	<25	<25	<25	<25	<25	<25
Isopropylbenzene	<25	<25	<25	<25	<25	<25
1,3,5-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trimethylbenzene	<25	<25	<25	<25	<25	<25
1,3-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,4-Dichlorobenzene	<25	<25	<25	<25	<25	<25
1,2-Dichlorobenzene	<25	<25	<25	<25	<25	<25
n-Butylbenzene	<25	<25	<25	<25	<25	<25
1,2,4-Trichlorobenzene	<25	<25	<25	<25	<25	<25
Naphthalene	<25	<25	<25	<25	<25	<25
1,2,3-Trichlorobenzene	<25	<25	<25	<25	<25	<25
TPH C_5-C_9	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500
TPH C_{10}-C_{14}	<2,500	<2,500	<2,500	<2,500	<2,500	<2,500

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.



BEACON ENVIRONMENTAL SERVICES, INC.

323 Williams Street, Suite D, Bel Air, MD, 800-878-5510

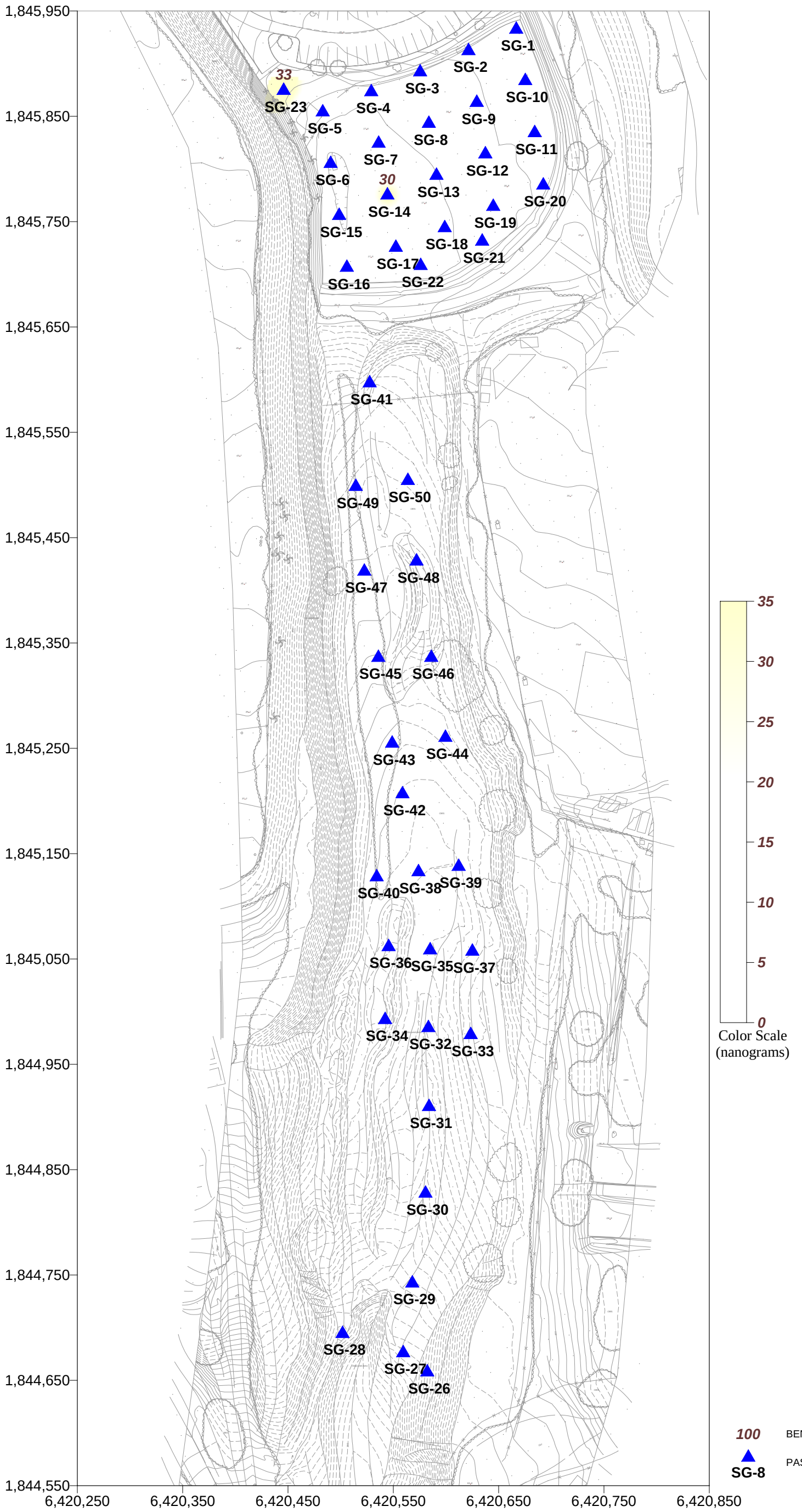
Beacon Project No. 2077, August 2008

Scale in Feet

0 100 200

Figure 2
Passive Soil-Gas Survey
Chloroform

Veterans Administration Site
Los Angeles, CA



100 BENZENE (nanograms)

SG-8 PASSIVE SOIL-GAS SAMPLE LOCATION

BEACON ENVIRONMENTAL SERVICES, INC.

323 Williams Street, Suite D, Bel Air, MD, 800-878-5510

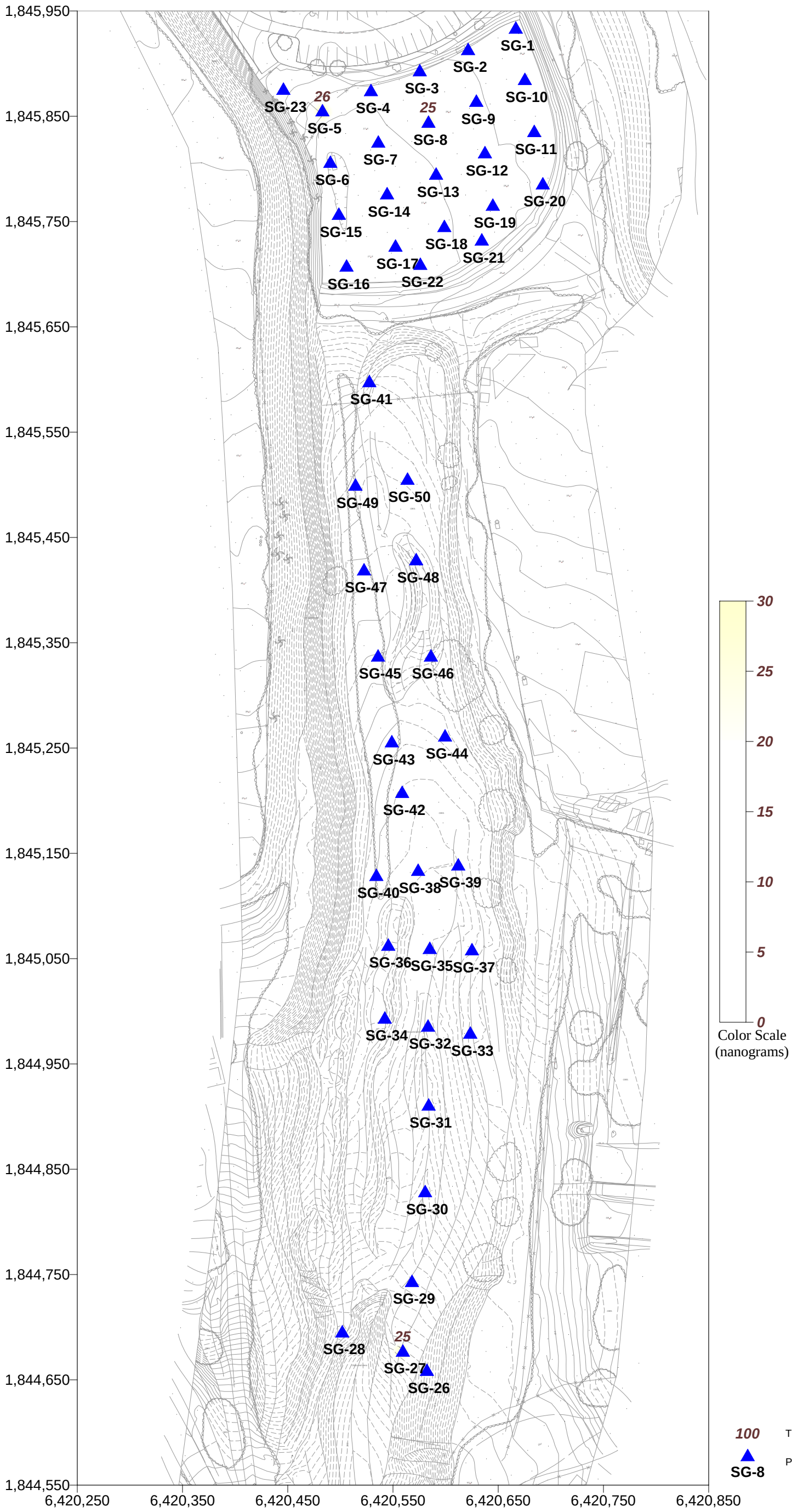
Beacon Project No. 2077, August 2008

Scale in Feet

0 100 200

Figure 3
Passive Soil-Gas Survey
Benzene

Veterans Administration Site
Los Angeles, CA



BEACON ENVIRONMENTAL SERVICES, INC.

323 Williams Street, Suite D, Bel Air, MD, 800-878-5510

Beacon Project No. 2077, August 2008

Scale in Feet

0 100 200

Figure 4
Passive Soil-Gas Survey
Toluene

Veterans Administration Site
Los Angeles, CA

Attachments

Attachment 1

FIELD PROCEDURES FOR PASSIVE SOIL-GAS SURVEYS

The following field procedures are routinely used during a BEACON Passive Soil-Gas Survey. Modifications can be and are incorporated from time to time in response to individual project requirements. In all instances, BEACON adheres to EPA-approved Quality Assurance and Quality Control practices.

A. Field personnel carry a BESURE Sample Collection Kit™and support equipment to the site and deploy the passive samplers in a prearranged survey pattern. A passive sampler consists of a glass vial containing hydrophobic adsorbent cartridges with a length of wire attached to the vial for retrieval. Although samplers require only one person for emplacement and retrieval, the specific number of field personnel required depends upon the scope and schedule of the project. Each Sampler emplacement generally takes less than two minutes.

B. At each survey point a field technician clears vegetation as needed and, using a slide hammer with a ½″ diameter probe or a hammer drill with a ½″ diameter bit, creates a hole three-feet deep. The technician then uses a hammer and a ¾″ diameter pointed metal stake to widen the top four inches of the hole. [Note: For locations covered with asphalt, concrete, or gravel surfacing, the field technician first drills a 1″- to 1½″-diameter hole through the surfacing to the soils beneath and the hole is sleeved with a 1″-diameter . metal sleeve.]

C. The technician then removes the solid plastic cap from a sampler and replaces it with a Sampling Cap (a plastic cap with a hole covered by screen meshing). The technician inserts the sampler, with the Sampling Cap end facing down, into the hole (**see attached figure**). The sampler is then covered with either local soils for uncapped locations or, for capped locations, aluminum foil and a concrete patch. The sampler's location, time and date of emplacement, and other relevant information are recorded on the Field Deployment Form.

D. One or more trip blanks are included as part of the quality-control procedures.

E. Once all the samplers have been deployed, field personnel schedule sampler recovery and depart, taking all other equipment and materials with them.

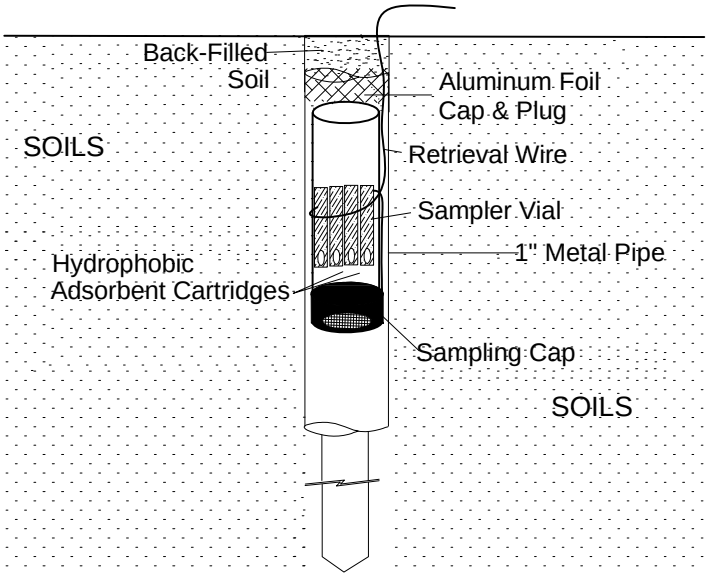
F. Field personnel retrieve the samplers at the end of the exposure period. At each location, a field technician withdraws the sampler from its hole, removes the retrieval wire, and wipes the outside of the vial clean using gauze cloth; following removal of the Sampling Cap, the threads of the vial are also cleaned. A solid plastic cap is screwed onto the vial and the sample location number is written on the label. The technician then records sample-point location, date, time, etc. on the Field Deployment Form.

G. Sampling holes are refilled with soil, sand, or other suitable material. If samplers have been installed through asphalt or concrete, the hole is filled to grade with a plug of cold patch or cement.

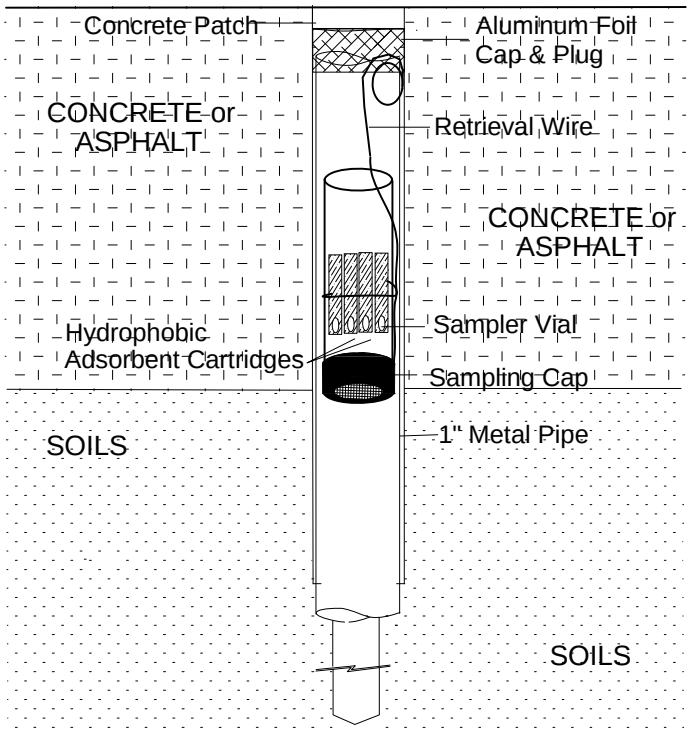
H. Following retrieval, field personnel ship or transport the passive samplers to BEACON's laboratory.

BEACON'S PASSIVE SOIL-GAS SAMPLER

DEPLOYMENT THROUGH SOILS



DEPLOYMENT THROUGH AN ASPHALT/CONCRETE CAP



Attachment 2

Field Deployment Report

PASSIVE SOIL-GAS SURVEY
FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2077
Site Name:	Veterans Administration Site
Site Location:	Los Angeles, CA

BEACON ENVIRONMENTAL SERVICES, INC.
723 Williams Street, Suite D, Bel Air, MD 21014 (800) 878-5516

Client Information	
Company Name:	Atlas Environmental Engineering
Office Location:	Costa Mesa, CA
Samples Collected By:	JAC, JEO, KB

FIELD SAMPLE ID	Date Emplaced / Time Emplaced	Date Retrieved / Time Retrieved	FIELD NOTES (e.g., asphalt/concrete covering, description of sample location, sampling hole depth, cartridge/vial condition)
	7-9-08	7-22-08	
SG-1	10:35	7:44	Grass cover; ball field; 3'
" -2	10:36	7:49	
" -3	10:38	7:51	
" -4	10:39	7:54	
" -5	10:40	7:59	
" -6	10:41	8:03	
" -7	10:42	8:07	
" -8	10:44	8:10	
" -9	10:45	8:13	
" -10	10:47	8:16	
" -11	10:49	8:19	
" -12	10:50	8:23	
" -13	10:51	8:26	
" -14	10:53	8:28	
" -15	10:54	8:32	

PASSIVE SOIL-GAS SURVEY
FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2077
Site Name:	Veterans Administration Site
Site Location:	Los Angeles, CA

BEACON ENVIRONMENTAL SERVICES, INC.
323 Williams Street, Suite D, Bel Air, MD 21013 (800) 878-5510

Client Information	
Company Name:	Atlas Environmental Engineering
Office Location:	Costa Mesa, CA
Samples Collected By:	JAB / RB

FIELD SAMPLE ID	Date Emplaced / Time Emplaced	Date Retrieved / Time Retrieved	FIELD NOTES (*e.g.*, asphalt/concrete covering, description of sample location, sampling hole depth, cartridge/vial condition)
	7-9-08	7-23-08	
SG-16	10:55	8:35	grass cover; ball field; 3'
" -17	10:57	8:38	↓
" -18	10:59	8:40	↓
" -19	11:00	8:42	↓
" -20	11:01	8:45	↓
" -21	11:02	8:47	↓
" -22	11:03	8:49	↓
" -23	11:07	8:00	↓

PASSIVE SOIL-GAS SURVEY
FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2077
Site Name:	Veterans Administration Site
Site Location:	Los Angeles, CA

BEACON ENVIRONMENTAL SERVICES, INC.
723 Williams Street, Suite D, Bel Air, MD 21014 (800) 678-5510

Client Information	
Company Name:	Atlas Environmental Engineering
Office Location:	Costa Mesa, CA
Samples Collected By:	JAB/KB

FIELD SAMPLE ID	Date Emplaced / Time Emplaced	Date Retrieved / Time Retrieved	FIELD NOTES (e.g., asphalt/concrete covering, description of sample location, sampling hole depth, cartridge/vial condition)
	7/10/08	7/24/08	
SG-24	8:12	7:58	no covering; arroyo/eastern Canyon; 3'
" -25	8:21	8:02	
" -26	8:39	7:44	
" -27	8:42	7:40	
" -28	8:46	7:48	
" -29	8:57	7:37	
" -30	9:02	7:34	
" -31	9:06	7:32	
" -32	9:16	7:17	
" -33	9:26	7:15	
" -34	9:29	7:20	
" -35	9:44	7:27	
" -36	9:48	7:25	
" -37	9:51	7:11	
" -38	9:56	7:06	

PASSIVE SOIL-GAS SURVEY
FIELD DEPLOYMENT REPORT

Project Information	
Beacon Project No.:	2077
Site Name:	Veterans Administration Site
Site Location:	Los Angeles, CA

BEACON ENVIRONMENTAL SERVICES, INC.
723 Williams Street, Suite D, Del Ar, MD 21014 (800) 876-5519

Client Information	
Company Name:	Atlas Environmental Engineering
Office Location:	Costa Mesa, CA
Samples Collected By:	JAB / RB

FIELD SAMPLE ID	Date Emplaced / Time Emplaced	Date Retrieved / Time Retrieved	FIELD NOTES (e.g., asphalt/concrete covering, description of sample location, sampling hole depth, cartridge/vial condition)
	7/10/08	7/24/08	
SG-39	10:00	7:08	no covering; arroyo/eastern canyon; 3'
" -40	10:05	7:04	
" -41	11:03	6:33	
" -42	10:14	7:01	
" -43	10:19	6:59	
" -44	10:23	6:56	
" -45	10:30	6:50	
" -46	10:35	6:53	
" -47	10:44	6:48	
" -48	10:48	6:45	
" -49	10:54	6:38	
" -50	10:58	6:41	
"			

Attachment 3

LABORATORY PROCEDURES FOR PASSIVE SOIL-GAS SAMPLES

Following are laboratory procedures used with BEACON Passive Soil-Gas Surveys, a screening technology for expedited site investigation. After exposure, adsorbent cartridges from the passive samplers are analyzed using U.S. EPA Method 8260B as described in the Solid Waste Manual (SW-846), a capillary gas chromatographic/mass spectrometric method, modified to accommodate high temperature thermal desorption of the adsorbent cartridges. This procedure is summarized as follows:

A. The adsorbent cartridges are loaded with internal standards and surrogates prior to loading the autosampler with the cartridges. The loaded cartridges are purged in a helium flow. Then the cartridges are thermally desorbed in a helium flow onto a focusing trap. Any analytes in the helium stream are adsorbed onto a focusing trap.

B. Following trap focusing, the trap is thermally desorbed onto a DB-VRX 40m, 0.18 mm ID, 1.00 micron filament thickness capillary column.

C. The GC/MS is scanned between 35 and 270 Atomic Mass Units (AMU) at 3.12 scans per second.

D. BFB tuning criteria and the initial five-point calibration procedures are those stated in method SW846-8260B. System performance and calibration check criteria are met prior to analysis of samples. A laboratory method blank is analyzed after the daily standard to determine that the system is contaminant-free.

E. The instrumentation used for these analyses includes:

- Agilent 6890-5973 Gas Chromatograph/Mass Spectrometer;
- Markes Unity thermal desorber;
- Markes UltrA autosampler; and
- Markes Mass Flow Controller Module.

Attachment 4

Chain-of-Custody Form

CHAIN-OF-CUSTODY
PASSIVE SOIL-GAS SAMPLES

Project Information	
Beacon Project No.:	2077
Site Name:	Veterans Administration Site
Site Location:	Los Angeles, CA
Analytical Method:	EPA Method 8260B
Target Compounds:	Beacon Project Number 2077 Target Compound List

BEACON ENVIRONMENTAL SERVICES, INC.
123 Williams Street, Suite D, Bel Air, MD 21014 (800) 878-5510

Client Information	
Company Name:	Atlas Environmental Engineering
Office Location:	Costa Mesa, CA
Samples Submitted By:	Jay a. Bourg Mtz
Contact Phone No.:	(949) 350-4682

Field Sample ID	Lab Sample ID (for lab use only)		Comments (only necessary if problem or discrepancy) Condition of sample or vial	Date	Time	Initial
SG-1	2077	SG-1				
SG-2	2077	SG-2				
SG-3	2077	SG-3				
SG-4	2077	SG-4				
SG-5	2077	SG-5				
SG-6	2077	SG-6				
SG-7	2077	SG-7				
SG-8	2077	SG-8				
SG-9	2077	SG-9				
SG-10	2077	SG-10				
SG-11	2077	SG-11				
SG-12	2077	SG-12				
SG-13	2077	SG-13				
SG-14	2077	SG-14				
SG-15	2077	SG-15				
SG-16	2077	SG-16				
SG-17	2077	SG-17				
SG-18	2077	SG-18				
SG-19	2077	SG-19				
SG-20	2077	SG-20				

Shipment of Field Kit to Site — Custody Seal # 0745205 **Intact?** (Y) N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
Ryan Scheidt	06-12-2008 / 1700 Hours	FedEx	Jay a. Bourg Mtz	7-9-08 / 8:00

Shipment of Field Kit to Laboratory — Custody Seal # 0745207 **Intact?** (Y) N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
Jay a. Bourg Mtz	7-24-08 / 9:28	Fed EX	[signature]	7-24-08 / 9:28
		FedEx	Ryan Scheidt	7-25-08 / 1000

CHAIN-OF-CUSTODY
PASSIVE SOIL-GAS SAMPLES

Project Information	
Beacon Project No.:	2077
Site Name:	Veterans Administration Site
Site Location:	Los Angeles, CA
Analytical Method:	EPA Method 8260B
Target Compounds:	Beacon Project Number 2077 Target Compound List

BEACON ENVIRONMENTAL SERVICES, INC.
125 Williams Street, Suite D, Bel Air, MD 21014 (800) 876-5510

Client Information	
Company Name:	Atlas Environmental Engineering
Office Location:	Costa Mesa, CA
Samples Submitted By:	Jay A. Boughter
Contact Phone No.:	(949) 350-4682

Field Sample ID	Lab Sample ID (for lab use only)		Comments (only necessary if problem or discrepancy)			
			Condition of sample or vial	Date	Time	Initial
SG-21	2077	SG-21				
SG-22	2077	SG-22				
SG-23	2077	SG-23				
SG-24	2077	SG-24				
SG-25	2077	SG-25				
SG-26	2077	SG-26				
SG-27	2077	SG-27				
SG-28	2077	SG-28				
SG-29	2077	SG-29				
SG-30	2077	SG-30				
SG-31	2077	SG-31				
SG-32	2077	SG-32				
SG-33	2077	SG-33				
SG-34	2077	SG-34				
SG-35	2077	SG-35				
SG-36	2077	SG-36				
SG-37	2077	SG-37				
SG-38	2077	SG-38				
SG-39	2077	SG-39				
SG-40	2077	SG-40				

Shipment of Field Kit to Site — Custody Seal # 0745205 **Intact?** (Y) N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
Ryan Schrad	06-12-2008 / 1700 Hours	FedEx	Jay A. Boughter	7-9-08 / 8:00

Shipment of Field Kit to Laboratory — Custody Seal # 0745207 **Intact?** (Y) N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
Jay A. Boughter	7-24-08 / 9:28	Fed Ex	[illegible]	7-24-08 / 9:28
		FedEx	Ryan Schrad	7-25-08 / 1000

CHAIN-OF-CUSTODY
PASSIVE SOIL-GAS SAMPLES

Project Information	
Beacon Project No.:	2077
Site Name:	Veterans Administration Site
Site Location:	Los Angeles, CA
Analytical Method:	EPA Method 8260B
Target Compounds:	Beacon Project Number 2077 Target Compound List

BEACON ENVIRONMENTAL SERVICES, INC.
125 Williams Street, Suite D, Bel Air, MD 21014 (800) 676-5919

Client Information	
Company Name:	Atlas Environmental Engineering
Office Location:	Costa Mesa, CA
Samples Submitted By:	Jay a. Boughton
Contact Phone No.:	(949) 356-4682

Field Sample ID	Lab Sample ID (for lab use only)		Comments (only necessary if problem or discrepancy) Condition of sample or vial	Date	Time	Initial
SG-41	2077	SG-41				
SG-42	2077	SG-42				
SG-43	2077	SG-43				
SG-44	2077	SG-44				
SG-45	2077	SG-45				
SG-46	2077	SG-46				
SG-47	2077	SG-47				
SG-48	2077	SG-48				
SG-49	2077	SG-49				
SG-50	2077	SG-50				
Trip-1	2077	Trip-1	Sample received, not listed on C-o-C, added to C-o-C at lab	7/25/08	1030	TWS
Trip 2	2077	Trip-2	" " " " " "	7/25/08	1030	TWS

Shipment of Field Kit to Site — Custody Seal # 0745205 Intact? (Y) N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
Ryan Schiel	06-12-2008 / 1700 Hours	FedEx	Jay a Boughton	7-9-08 / 8:00

Shipment of Field Kit to Laboratory — Custody Seal # 0745207 Intact? (Y) N

Relinquished by:	Date/Time	Courier	Received by:	Date/Time
Jay a. Boughton	7-24-08 / 9:28	Fed Ex	[signature]	7-24-08 / 9:28
		FedEx	Ryan Schiel	7-25-08 / 1000

APPENDIX 5

SOIL BORING/WELL LOGS

BORING NUMBER: **SB1** BORING TOTAL DEPTH: 40ft bgs DATE DRILLED: 11/30/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: Jerry

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0					**GRASS**	0
				ML	**Clayey Silt: Dark olive gray (5Y 3/2) ; moist; 20-40% clay**	
5						5
10	**SB1-10V SB1-10R**				**2 inch thick zone f-med. Gravel white (5Y 8/1)**	10
15						15
					Grades To	
20				CL	**Silty clay: Olive gray (5Y 4/2) ; high plasticity**	20
25						25
30						30
35						35
40					**End of Boring Total Depth 40 feet bgs**	40

■ **Undisturbed Sample**

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB-1

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB2** BORING TOTAL DEPTH: 20ft bgs DATE DRILLED: 11/30/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: Jerry

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0					Grass	0
				ML	Clayey silt: Dark olive gray (5Y 3/2) ; moist; 20-40% clay	
				SM	Silty Sand: Dark olive gray (5Y 3/2) ; moist; fine to coarse; 20-40% silt	
5				SP	Sand: Dark olive gray (5Y 3/2) ; moist; fine to coarse	5
				ML	Silt: Dark olive gray (5Y 3/2) ; moist	
				ML	Clayey Silt: Dark olive gray (5Y 3/2) ; moist; 20-40% clay	
10						10
					Grades To	
				CL	Silty clay	
15						15
20	SB2-19V SB2-19R					20
					End of boring Total depth 20 feet bgs	
25						25
30						30
35						35
40						40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB2

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB3** BORING TOTAL DEPTH: 25ft bgs DATE DRILLED: 11/30/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: Jerry

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0					Grass	0
				ML	Clayey silt: Dark olive gray (5Y 3/2) ; moist; 20-40% clay	
5						5
10						10
					Grades To	
15				SM	Silty sand: Very fine to fine ; 20-40% silt	15
	SB3-20V SB3-20R			CL	Silty clay: Dark olive gray (5Y 3/2) ; moist; 20-40% silt	
20						20
					3 inch thick layer light tan sand ; very fine to fine	
25					End of boring Total depth 25 feet bgs	25
30						30
35						35
40						40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB3

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB4** BORING TOTAL DEPTH: 25ft bgs DATE DRILLED: 11/30/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: Jerry

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0					Grass	0
				ML	Clayey silt: Dark olive gray (5Y 3/2) ; moist; 20-40% clay	
5						5
10						10
15					3 inch thick layer fine to medium gravel	15
20	SB4-20V SB4-20R				Grades To	20
				CL	Silty clay; 20-40% silt	
25					End of boring Total depth 25 feet bgs	25
30						30
35						35
40						40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB4

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB9** BORING TOTAL DEPTH: 55ft bgs DATE DRILLED: 12/01/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: Jerry

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey Silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
					Very Moist	
20	SB9-20V SB9-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
					37ft - 39ft wet	
40	SB9-40V SB9-40R				Moist	40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB9

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB9** BORING TOTAL DEPTH: 55ft bgs DATE DRILLED: 12/01/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: Jerry

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
40	■			CL		40
45						45
50						50
					refusal @ 55ft bgs	
55					End of boring Total depth 55feet bgs	55
60						60
65						65
70						70
75						75
80						80

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB9

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB10** BORING TOTAL DEPTH: 23ft bgs DATE DRILLED: 12/01/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: Jerry

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace of fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB10-20V SB10-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
					Refusal @ 23 feet	
25					End of boring Total depth 23 feet bgs	25
30						30
35						35
40						40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB10

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB11** BORING TOTAL DEPTH: 65ft bgs DATE DRILLED: 12/01/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: Jerry

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey Silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB11-20V SB11-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; very moist; 20-40% silt; high plasticity	
25					26ft - 28ft wet	25
30					Very moist	30
35						35
40	SB11-40V SB11-40R					40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB11

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB11** BORING TOTAL DEPTH: 65ft bgs DATE DRILLED: 12/01/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: Jerry

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
40				CL		40
45						45
50					Construction debris ; pea gravel and red brick pieces	50
55						55
60						60
65					End of boring Total depth 65 feet bgs	65
70						70
75						75
80						80

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB11

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB12** BORING TOTAL DEPTH: 65ft bgs DATE DRILLED: 12/01/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: Jerry

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry	0
				ML	Sandy clayey silt: Dark olive brown (2.5Y 3/3) ; slightly moist; 10-20% fine sand; 20-40%clay	
					Clayey silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20						20
				SM	Clayey silty sand: Olive brown (2.5Y 4/4) ; very fine to fine; 20-40% silt; 10-20% clay	
25						25
30	SB12-30V SB12-30R					30
35					Dark olive brown (2.5Y 3/3)	35
40						40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB12

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB12** BORING TOTAL DEPTH: 65ft bgs DATE DRILLED: 12/01/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: Jerry

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
40				SM		40
				SP	Sand: Brown (10Y 4/3) ; moist	
45				SM	Silty sand: Brown (10Y 4/3) ; very fine to fine; 20% silt	45
				CL	Clay: Dark yellowish-brown (10YR 3/6) ; moist; trace very fine sand; high plasticity	
50	SB12-50V SB12-50R					50
				SP	Sand: Very pale brown (10YR 7/4) ; very fine to medium	
				ML	Sandy silt: Brown (10Y 4/3) ; 20-40% very fine to fine sand	
55				SP	Sand: Brown (10Y 4/3) ; moist; very fine	55
				CL	Clay: Olive brown (2.5Y 4/4) ; moist; high plasticity	
60				CL/ ML	Clayey silt/Silty clay: Olive brown (2.5Y 4/4) ; very moist	60
65					End of boring Total depth 65 feet bgs	65
70						70
75						75
80						80

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB12

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB13** BORING TOTAL DEPTH: 40ft bgs DATE DRILLED:12/02/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: Jerry

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description and Remarks	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB13-20V SB13-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB13-40V SB13-40R				Collected duplicate sample SB13-40V	40
					End of boring Total depth 40 feet bgs	

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB13

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB14** BORING TOTAL DEPTH: 40ft bgs DATE DRILLED: 12/02/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: Jerry

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description and Remarks	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
					Construction debris; pea gravel and brick	
15						15
20	SB14-20V SB14-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
					MS/MSD sample @ 20 feet	
25						25
30						30
35						35
40	SB14-40V SB14-40R				End of boring Total depth 40 feet bgs	40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB14

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB15** BORING TOTAL DEPTH: 40ft bgs DATE DRILLED: 12/02/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description and Remarks	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB15-20V SB15-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB15-40V SB15-40R				End of boring Total depth 40 feet bgs	40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB15

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB16** BORING TOTAL DEPTH: 40ft bgs DATE DRILLED: 12/02/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description and Remarks	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB16-20V SB16-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB16-40V SB16-40R				End of boring Total depth 40 feet bgs	40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB16

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB17** BORING TOTAL DEPTH: 45ft bgs DATE DRILLED: 12/02/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey Silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB17-20V SB17-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB17-40V SB17-40R					40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB17

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB17** BORING TOTAL DEPTH: 45ft bgs DATE DRILLED: 12/02/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
40						40
					Push to 45 feet bgs - No Recovery 40-45 feet bgs	
45					End of boring Total depth 45feet bgs	45
50						50
55						55
60						60
65						65
70						70
75						75
80						80

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB17

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB18** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/02/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey Silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB18-20V SB18-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB18-40V SB18-40R					40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB18

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB18** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/02/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
40				CL		40
45						45
50					End of boring Total depth 50feet bgs	50
55						55
60						60
65						65
70						70
75						75
80						80

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB18

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB19** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/02/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey Silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB19-20V SB19-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB19-40V SB19-40R					40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB19

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB19** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/02/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
40				CL		40
45						45
50					End of boring Total depth 50feet bgs	50
55						55
60						60
65						65
70						70
75						75
80						80

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB19

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB20** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/03/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey Silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB20-20V SB20-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB20-40V SB20-40R				MS/MSD sample @ 40 feet bgs	40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB20

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB20** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/03/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
40				CL		40
45					No Recovery @ 45-50 feet bgs	45
50					End of boring Total depth 50feet bgs	50
55						55
60						60
65						65
70						70
75						75
80						80

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB20

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB21** BORING TOTAL DEPTH: 40ft bgs DATE DRILLED: 12/03/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description and Remarks	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB21-20V SB21-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB21-40V SB21-40R				End of boring Total depth 40 feet bgs	40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB21

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB22** BORING TOTAL DEPTH: 40ft bgs DATE DRILLED: 12/03/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description and Remarks	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB22-20V SB22-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB22-40V SB22-40R				End of boring Total depth 40 feet bgs	40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB22

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB23** BORING TOTAL DEPTH: 60ft bgs DATE DRILLED: 12/03/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey Silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB23-20V SB23-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB23-40V SB23-40R					40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB23

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB23** BORING TOTAL DEPTH: 60ft bgs DATE DRILLED: 12/03/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
40				CL		40
45						45
50						50
55						55
60					End of boring Total depth 60feet bgs	60
65						65
70						70
75						75
80						80

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB23

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB24** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/03/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey Silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB24-20V SB24-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB24-40V SB24-40R					40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB24

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB24** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/03/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
40				CL		40
45						45
50						50
					End of boring Total depth 50feet bgs	
55						55
60						60
65						65
70						70
75						75
80						80

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB24

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB25** BORING TOTAL DEPTH: 20ft bgs DATE DRILLED: 12/03/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description and Remarks	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB21-20V SB21-20R				Grades to silty clay	20
					Refusal @ 20 feet bgs	
					End of boring Total depth 20 feet bgs	
25						25
30						30
35						35
40						40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB25

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB26** BORING TOTAL DEPTH: 40ft bgs DATE DRILLED: 12/03/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description and Remarks	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB26-20V SB26-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB26-40V SB26-40R				End of boring Total depth 40 feet bgs	40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB26

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB27** BORING TOTAL DEPTH: 33ft bgs DATE DRILLED: 12/04/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description and Remarks	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB27-20V SB27-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
					Refusal @ 33 feet bgs	
					End of boring Total depth 33 feet bgs	
35						35
40						40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB27

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB28** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/04/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey Silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB28-20V SB28-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB28-40V SB28-40R					40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB28

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB28** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/04/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
40				CL		40
45						45
50					No Recovery @ 45-50 feet bgs	50
					End of boring Total depth 50feet bgs	
55						55
60						60
65						65
70						70
75						75
80						80

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB28

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB32** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/04/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey Silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB32-20V SB32-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB32-40V SB32-40R					40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB32

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB32** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/04/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
40				CL		40
45						45
50						50
					End of boring Total depth 50feet bgs	
55						55
60						60
65						65
70						70
75						75
80						80

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB32

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB33** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/04/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Silt: Dark olive brown (2.5Y 3/3) ; dry; hard	0
				ML	Clayey Silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	
5						5
10						10
15						15
20	SB33-20V SB33-20R				Grades To	20
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	
25						25
30						30
35						35
40	SB33-40V SB33-40R					40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB33

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB33** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/04/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
40				CL		40
45						45
50					End of boring Total depth 50feet bgs	50
55						55
60						60
65						65
70						70
75						75
80						80

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB33

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB34** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/04/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
0				ML	Clayey Silt: Olive brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay	0
5						5
10						10
15						15
					Grades To	
20	SB33-20V SB33-20R			CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	20
25						25
30						30
35						35
40	SB33-40V SB33-40R					40

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB34

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

BORING NUMBER: **SB34** BORING TOTAL DEPTH: 50ft bgs DATE DRILLED: 12/04/2009

CASING MATERIAL AND DIAMETER: _____ LENGTH: _____

SCREEN MATERIAL AND DIAMETER: _____ LENGTH: _____ SLOT SIZE: _____ GRAVEL PACK: _____

DRILLING COMPANY: Core Probe International DRILLER: _____

DRILLING METHOD: Continuous Core DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual-Tube Sampler LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description	Depth (feet)
40				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity	40
45						45
50					End of boring Total depth 50feet bgs	50
55						55
60						60
65						65
70						70
75						75
80						80

■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: SB34

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

LOG OF BORING/MONITORING WELL NO. MW1

BORING TOTAL DEPTH: 73 ft bgs | TOP OF CASING ELEVATION: 351.83 ft | DATE DRILLED: 12/7-12/8/09

CASING MATERIAL AND DIAMETER: 3/4" Sch 40 PVC | LENGTH: 63 ft

SCREEN MATERIAL AND DIAMETER: 3/4" Sch 40 PVC Slotted & Pre-Packed | LENGTH: 10 ft

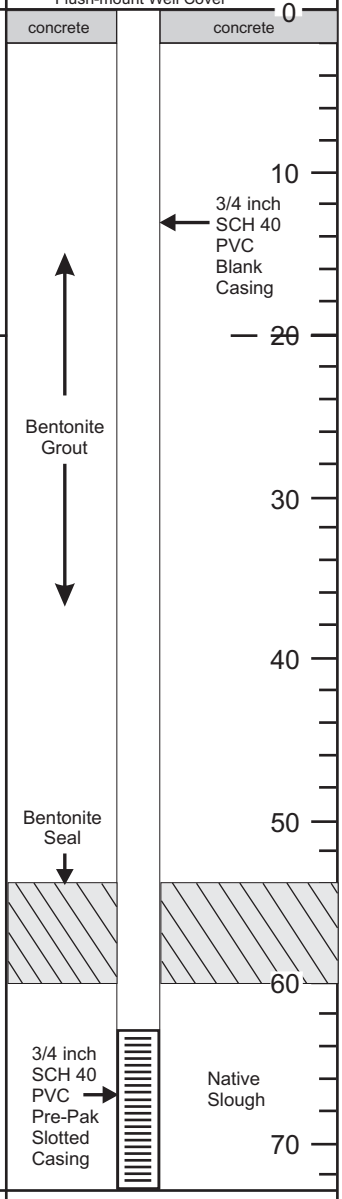
DRILLING COMPANY: Core Probe International | DRILLER: Jerry

DRILLING METHOD: Continuous Core | DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual Tube Sampler | LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description
0				ML	Clayey silt: Olive Brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay
10					
20	MW1-20V MW1-20R				Grades To
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity
30					
40	MW1-40V MW1-40R				
50					
60					GW
					Screen @ 63ft - 73ft bgs
70					
					End of Boring Total Depth of boring 73 feet bgs Groundwater not encountered upon boring completion Groundwater stabilized at 65.8 feet bgs after 24 hrs
80					

WELL DIAGRAM



■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: MW1

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

LOG OF BORING/MONITORING WELL NO. MW2

BORING TOTAL DEPTH: 73 ft bgs | TOP OF CASING ELEVATION: 351.67 ft | DATE DRILLED: 12/8/09

CASING MATERIAL AND DIAMETER: 3/4" Sch 40 PVC | LENGTH: 63 ft

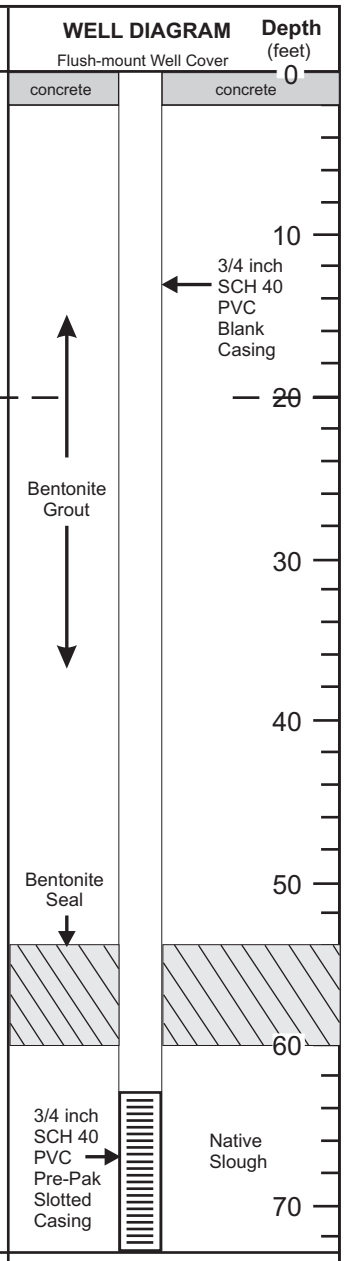
SCREEN MATERIAL AND DIAMETER: 3/4" Sch 40 PVC Slotted & Pre-Packed | LENGTH: 10 ft

DRILLING COMPANY: Core Probe International | DRILLER: Jerry

DRILLING METHOD: Continuous Core | DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual Tube Sampler | LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description
0				ML	Clayey silt: Olive Brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay
10					
					Grades To
20				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity
30					
40	MW2-40V MW2-40R				
50					
60	MW2-60V MW2-60R				
					Screen @ 63ft - 73ft bgs
					GW
70					
					End of Boring Total Depth of boring 73 feet bgs Groundwater not encountered upon boring completion Groundwater stabilized at 66.2 feet bgs after 24 hrs
80					



■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: MW2

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

LOG OF BORING/MONITORING WELL NO. MW3

BORING TOTAL DEPTH: 73.5 ft bgs | TOP OF CASING ELEVATION: 350.52 ft | DATE DRILLED: 12/8-12/9/09

CASING MATERIAL AND DIAMETER: 3/4" Sch 40 PVC | LENGTH: 63 ft

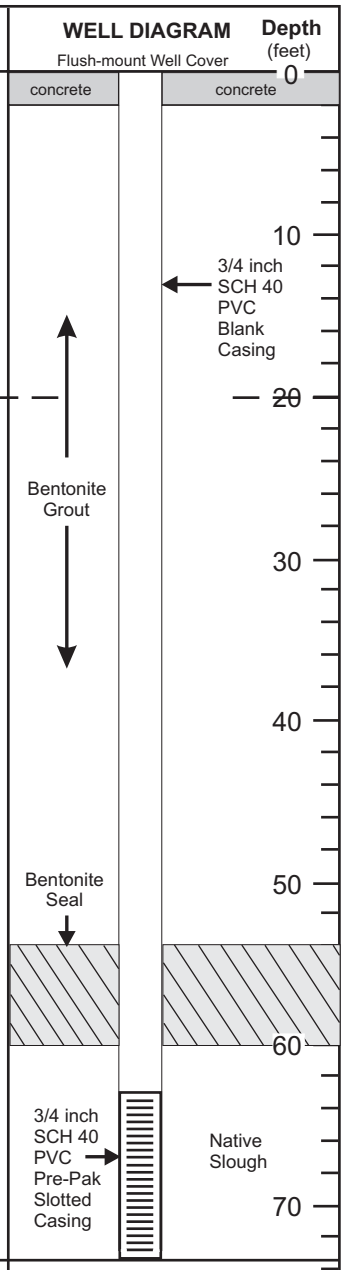
SCREEN MATERIAL AND DIAMETER: 3/4" Sch 40 PVC Slotted & Pre-Packed | LENGTH: 10 ft

DRILLING COMPANY: Core Probe International | DRILLER: Jerry

DRILLING METHOD: Continuous Core | DRILL RIG TYPE: Geoprobe 6610 DT

SAMPLE METHOD: Dual Tube Sampler | LOGGED BY: J. Boughter

Depth (feet)	Sample No.	Blow Count	PID (ppm)	USCS	Description
0				ML	Clayey silt: Olive Brown (2.5Y 4/4) ; dry to slightly moist; trace fine gravel; 20-40% clay
10					
20	MW3-20V MW3-20R				Grades To
				CL	Silty clay: Olive brown (2.5Y 4/4) ; moist; 20-40% silt; high plasticity
30					
40	MW3-40V MW3-40R				
50					
60					Screen @ 63.5ft - 73.5ft bgs GW
70					
					End of Boring Total Depth of boring 73.5 feet bgs Groundwater not encountered upon boring completion Groundwater stabilized at 65.7 feet bgs after 24 hrs
80					



■ Undisturbed Sample

ALLWEST GEOSCIENCE Inc.

PROJECT NO. 02-3454-EI

LOG OF BORING: MW3

VA GLAHS
11301 Wilshire Blvd
Los Angeles, CA 90073

APPENDIX 6a

RADIOLOGICAL STUDY RESULTS
(PIKA, April 14, 2010)

Radiological Study Results

PIKA INTERNATIONAL, INC.

Greater Los Angeles Veterans Administration Hospital (GLAVA)

Radiological Study Results

Prepared for:

ALLWEST GEOSCIENCE INC.
1751 Jenks Drive
Corona, CA 92880

Prepared By:

PIKA INTERNATIONAL, INC.
12723 Capricorn Drive, Suite 500
Stafford, Texas 77477

April 14, 2010

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3.0 RESULTS 4
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4.0 DISCUSSION.....6

TABLES

Table X Average Results of Basic Radionuclide Analyses of Soils; 51 core samples

Table Y Average Results of Detected Radionuclides in Soils; 22 Core Samples; pCi/gram

Table Z Average Results of Extended Radionuclide Analyses of Soils; 22 Core Samples

Table A Average Results of Basic Radionuclide Analyses of Groundwater; 3 Well Samples

Table B Average Results of Extended Radionuclide Analyses of Groundwater; 3 Well Samples

Table C Results of Tritium Analyses of Transpired Water

FIGURE

Figure F Tritium in Transpired Water

1.0 INTRODUCTION

PIKA International Inc., (PIKA) has prepared this Report to provide a summary of the radiological testing/sampling/analysis at the Veterans Administration (VA) Greater Los Angeles Healthcare System (VA GLAHS) property. The samples for radiological analysis were collected during the initial subsurface investigation that was conducted by the Allwest Geoscience Team to assist in evaluating potential human health risks associated with buried medical waste resulting from historic medical research and disposal practices.

The VA GLAHS property encompasses an area of approximately 450 acres (URS, 2000). Two (2) investigation areas included a baseball field and an area known as the "Arroyo" or "Eastern Canyon" (MECA, 2007). The Arroyo or Eastern Canyon has been previously identified as a burial area for former medical waste from animal experiments, including animal carcasses, medical isotope waste in radiological scintillation vials and other miscellaneous medical debris including syringes (MECA, 2007). Two (2) sites were selected for this investigation: the "Ball Field" which measures approximately 200 feet by 200 feet and the adjacent "Arroyo" or "Eastern Canyon" which measures approximately 125 feet wide by 1,000 feet long.

PIKA was tasked to provide Health Physics Support during sampling activities conducted by the Allwest Geoscience team and analysis and interpretation of the radiological analytical results for this project.

PIKA's involvement consisted of field scanning soil cores for beta and gamma radiation, laboratory analysis of soil core samples and water samples, and ensuring radiological safety during the field work. Field scanning was negative; that is, all scans of surface and sub-surface materials found only normal background levels of radiation. The results of the laboratory analyses are discussed below.

2.0 SOIL SAMPLING

A summary of the radiological sampling per the work plan is provided in the following table.

Media	Approximate Number	Analysis
Soil	50	H-3, C-14 and Cl-36 (basic)
	22 (of 50)	Extended, contractual list
Ground water	3	Basic and extended list
Plant (transpired) water	20	Low-level H-3

Two samples were planned be collected from each location, at or near the disposal depths. These depths were to be determined in the field by the geologist during boring (push-probing), who would examine cores for evidence of waste disposal. Sampling depths were expected to be between 20 and 40 feet below grade. This study focused on sampling below grade since prior studies have been confined to surface sampling and testing, and have not found elevated radioactivity. One groundwater sample was collected and analyzed from each of the three monitoring wells.

This project used a novel method of obtaining additional groundwater samples to investigate tritium migration. The method involved collecting water that is transpired from the leaves of plants, growing above the disposal area. The plants' roots draw on the groundwater and transport it up to the leaves, where it was collected. Tritium is both the most prevalent radio-nuclide in the disposal area and the most mobile. The method is described in the work plan.

Soil sampling locations were selected using the Visual Sample Plan (VSP) software as described in the work plan. Since we have no site data on tritium, etc. in soil, the following assumptions were made:

VSP Input Parameter	Assumed Value	Comment
Primary radionuclides	H-3 and C-14	H-3 proved most

		conservative
DCGLs	110 and 12 pCi/g	NRC screening limits for H-3 and C-14, respectively
LBGR	55 and 6 pCi/g	Assumed half of DCGL
Sigma	40 and 4 pCi/g	Assumed ~30%
Statistical test	Sign test	Contaminant not significantly present in background
Grid pattern	Triangular w/ random start	
Oversampling	50%	To allow for refused borings, etc.
Error rates	$\alpha = 0.05$; $\beta = 0.05$	

3.0 RESULTS

3.1 Soil Sampling Results

As discussed in the work plan and summarized in the previous section, all soil samples were analyzed for the following reduced suite of radioisotopes:

- Tritium (H-3)
- Carbon-14 (C-14)
- Chlorine-36 (Cl-36)

These three radionuclides are the most likely to be present in the suspected disposal areas. About half of the samples were also analyzed for a larger suite of about 40 radionuclides. These "extended list" radionuclides are less likely to be present.

As shown in Table X, none of the basic list nuclides (H-3, C-14, Cl-36) were detected in any of the 51 soil samples. As shown in Table Y, several nuclides on the extended list were detected. These nuclides are all naturally occurring nuclides from potassium, uranium, thorium, and their daughters in soils[1]. The complete extended nuclide list, with results, is shown in Table Z.

3.2 Water Sampling Results

Water was collected from the study area in two ways. First, three groundwater wells were cored to a depth of about 60 ft., and groundwater samples were drawn from these wells. Second, transpired water was collected from green surface vegetation. This method involved collecting water that is transpired from the leaves of plants, growing above the disposal area(s). The plants' roots draw on the groundwater and transport it up to the leaves, where it is collected.

Radionuclide results for well water are shown in Tables A and B. Tritium was found at levels as high as 28.7 pCi/L (average of three wells = 22.3 pCi/L).

[1] National Uranium Resource Evaluation, U.S. Geological Survey data show area uranium at 0.9 pC/g (ave.) and thorium at 1.5 pCi/g (ave.)

Background levels measured in Simi Valley in 2006[2] were 9.6 pCi/L. A sample of commercial bottled water collected during the GLAVA study measured less than 9.6 pCi/L (non-detectable).

In addition, bismuth-214 was detected by gamma spectroscopy. This is produced by radium (Ra-226), which was not detected due to its weak gamma signature. The lab was asked to perform radiochemical analysis for radium, and reported it at a fraction of the expected level (4 pCi/L versus over 40 pCi/L based on Bi-214). This discrepancy was finally resolved when the lab reported that "excessive sediment" was noted in two of the well water aliquots that went to gamma spectroscopy. The aliquots that went to radium analysis did not contain sediment. It was concluded that the bismuth-214 measured was in the sediment and not groundwater. This nuclide was also detected in soil samples.

Transpired plant water was analyzed for tritium, which is both the most prevalent radio-nuclide reported in the disposal area, and the most mobile. It is the most likely to migrate and does so by moving with groundwater. Low level analyses showed tritium as high as 131 pCi/L and as low as 51 pCi/L. All samples appear to be elevated above background levels.

Note that the soil moisture in core samples was also analyzed for tritium. Tritium was not detected, but with a higher detection limit--about 500 pCi/L. The method used was not capable of detecting tritium at 50 to 130 pCi/L.

Tritium levels in transpired water were plotted on a contour map in Figure F. This figure covers the southern three-quarters of the study area. Insufficient vegetation in the north end limited sampling of this area. With only fourteen data points, the plot is only an approximation of tritium contours. It shows levels increasing from west to east, with two of three maximum locations (shown as stars) occurring between the suspected disposal areas (in red), and the northernmost maximum occurring near the center of a suspected disposal area. Groundwater flow is from north to south.

[2] Unpublished data, Joel I. Cehn, CHP.

4.0 DISCUSSION

The levels of tritium detected across the site suggest the presence of tritium wastes somewhere in or near the study area. The tritium appears to be well diffused across the site, which is not surprising given its mobility and the long time period since disposal. No clear source of the tritium is evident in Figure F.

To better pinpoint the potential sources of the tritium, additional, “step-out” testing is suggested. Soil cores in the north area and near areas of tritium maxima can be taken and analyzed for low-level tritium. Also, vegetation is present east of the maxima, and can be analyzed for low-level tritium in transpired water. By testing a wider area, one or more sources of tritium may be revealed.

TABLES

Table X

Average Results of Basic Radionuclide Analyses of Soils; 51 core samples

Nuclide	pCi/gram
Tritium	ND
Carbon-14	ND
Chlorine-36	ND

Note: ND = not detected

Table Y

Average Results of Detected Radionuclides in Soils; 22 core samples; pCi/gram

	Average	Sigma
Potassium-40	20.32	1.38
Uranium Series		
Uranium-238	0.82	0.58
Bismuth-214	0.76	0.10
Lead-214	0.87	0.11
Thorium Series		
Lead-212	0.88	0.12
Bismuth-212	0.06	0.20
Lead-210	0.46	2.94
Radium-228	0.23	0.05
Actinium-228	0.93	0.15
Thallium-208	0.28	0.04

Table Z
Average Results of Extended Radionuclide Analyses of Soils; 22 core samples

Nuclide	pCi/gram	Nuclide	pCi/gram	Nuclide	pCi/gram
Actinium-228	0.93	Gallium-67	ND	Rubidium-83	ND
Americium-241	ND	Gold-198	ND	Rubidium-86	ND
Antimony-124	ND	Indium-111	ND	Ruthenium-106	ND
Antimony-125	ND	Iodine-125	ND	Scandium-46	ND
Barium-133	ND	Iodine-131	ND	Selenium-75	ND
Barium-140	ND	Iridium-192	ND	Silver-110m	ND
Beryllium-7	ND	Iron-59	ND	Sodium-22	ND
Bismuth-212	0.06	Lead-210	0.46	Sodium-24	ND
Bismuth-214	0.76	Lead-212	0.88	Strontium-85	ND
Bromine-82	ND	Lead-214	0.87	Strontium-90/Y-90	ND
Calcium-45	ND	Manganese-54	ND	Sulfur-35	ND
Calcium-47	ND	Mercury-197	ND	Technetium-99	ND
Cerium-139	ND	Mercury-203	ND	Thallium-208	ND
Cerium-141	ND	Molybdenum-99	ND	Thorium-234	0.82
Cerium-144	ND	Neodymium-147	ND	Tin-113	ND
Cesium-134	ND	Neptunium-239	ND	Uranium-235	ND
Cesium-136	ND	Nickel-63	ND	Uranium-238	0.82

Table Z (Continued)
Average Results of Extended Radionuclide Analyses of Soils; 22 core samples

Nuclide	pCi/gram	Nuclide	pCi/gram	Nuclide	pCi/gram
Cesium-137	ND	Niobium-94	ND	Xenon-133	ND
Chromium-51	ND	Niobium-95	ND	Yttrium-88	ND
Cobalt-56	ND	Phosphorus-32	ND	Zinc-65	ND
Cobalt-57	ND	Potassium-40	20.32	Zirconium-95	ND
Cobalt-58	ND	Potassium-42	ND		
Cobalt-60	ND	Promethium-144	ND		
Europium-152	ND	Promethium-146	ND		
Europium-154	ND	Radium-228	0.23		
Europium-155	ND	Rubidium-81	ND		

Note: ND = not detected

Table A
Average Results of Basic Radionuclide Analyses of Groundwater; 3 well samples

Nuclide	pCi/L
Tritium	22.33
Carbon-14	ND
Chlorine-36	ND

Table B
Average Results of Extended Radionuclide Analyses of Groundwater; 3 well samples

Nuclide	pCi/L	Nuclide	pCi/L	Nuclide	pCi/L
Actinium-228	ND	Gallium-67	ND	Rubidium-81	ND
Americium-241	ND	Gold-198	ND	Rubidium-83	ND
Antimony-124	ND	Indium-111	ND	Rubidium-86	ND
Antimony-125	ND	Iodine-125	ND	Ruthenium-106	ND
Barium-133	ND	Iodine-131	ND	Scandium-46	ND
Barium-140	ND	Iridium-192	ND	Selenium-75	ND
Beryllium-7	ND	Iron-59	ND	Silver-110m	ND
Bismuth-212	ND	Lead-210	ND	Sodium-22	ND
Bismuth-214	25.8	Lead-212	ND	Sodium-24	ND
Bromine-82	ND	Lead-214	ND	Strontium-85	ND
Calcium-45	ND	Manganese-54	ND	Strontium-90/Y-90	ND

Table B
Average Results of Extended Radionuclide Analyses of Groundwater; 3 well samples

Nuclide	pCi/L	Nuclide	pCi/L	Nuclide	pCi/L
Calcium-47	ND	Mercury-197	ND	Sulfur-35	ND
Cerium-139	ND	Mercury-203	ND	Technetium-99	ND
Cerium-141	ND	Molybdenum-99	ND	Thallium-208	ND
Cerium-144	ND	Neodymium-147	ND	Thorium-234	ND
Cesium-134	ND	Neptunium-239	ND	Tin-113	ND
Cesium-136	ND	Nickel-63	ND	Uranium-235	ND
Cesium-137	ND	Niobium-94	ND	Uranium-238	ND
Chromium-51	ND	Niobium-95	ND	Xenon-133	ND
Cobalt-56	ND	Phosphorus-32	ND	Yttrium-88	ND
Cobalt-57	ND	Potassium-40	ND	Zinc-65	ND
Cobalt-58	ND	Potassium-42	ND	Zirconium-95	ND
Cobalt-60	ND	Promethium-144	ND		
Europium-152	ND	Promethium-146	ND		
Europium-154	ND	Radium-226	4.37		
Europium-155	ND	Radium-228	3.66		

Note: ND = not detected

Table C
Results of Tritium Analyses of Transpired Water

Sample ID	pCi/L
TW-1	115.0
TW-2	92.5
TW-3	130.8
TW-4	87.7
TW-5	60.6
TW-6	70.2
TW-7	54.2
TW-8	51.0
TW-9	54.2
TW-10	54.2
TW-11	121.2
TW-12	130.8
TW-13	130.8
TW-15	108.5
Background*	ND**

Notes:
Location TW-14 failed to produce sufficient water
* Commercial Bottled Water (Background)

**Detection limit = 9.6pCi/L

FIGURE

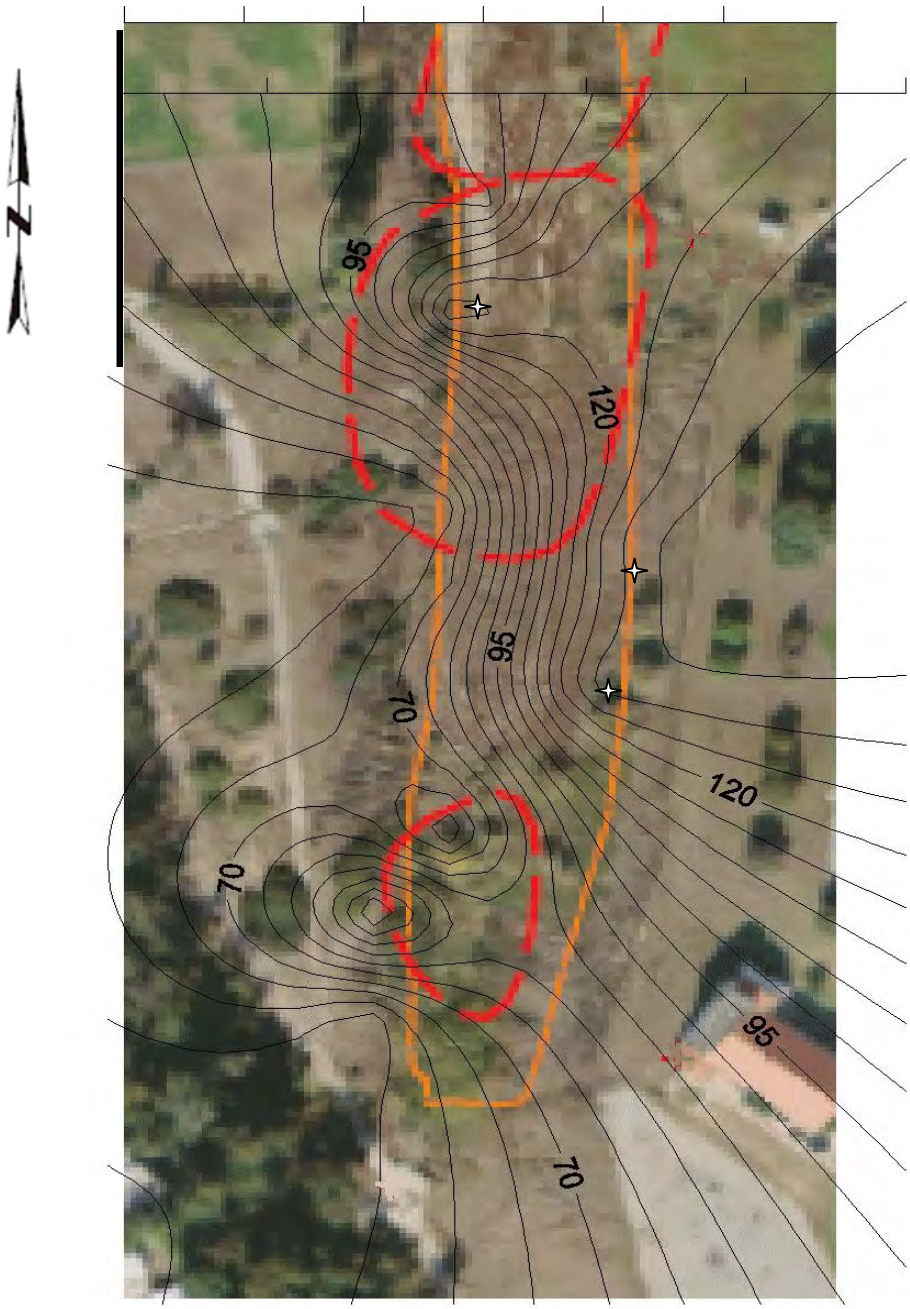

Figure F. Tritium in Transpired Water (pCi/L)
✧ = Maximum locations

APPENDIX 6b

RADIOLOGICAL STUDY RESULTS
(PIKA, October 26, 2010)

PIKA
INTERNATIONAL, INC.

October 27, 2010

Allwest Geoscience, Inc.
1751 Jenks Drive
Corona, CA 92880

Attention: John Gery

Re: Department of Veteran Affairs, Phase II Subsurface Investigation and Risk Assessment, VA Greater Los Angeles Healthcare System, Los Angeles, CA
VA Contract No. VA-262-08-RP-0125: Additional Groundwater Sample Analysis Report.

Dear Mr. Gery:

Please find enclosed the radiological analysis report for three additional groundwater samples for the above referenced project. The laboratory analytical data is also enclosed as part of this report.

If you have any questions or comments please feel free to call me at (281) 340-5525. Thank you for the opportunity to work with your team on this project.

Sincerely,

Srini Neralla, Ph.D.
Vice President (Technical Services)

CC: Joel Cehn

Enclosure: Radiological Study Report

Additional GW Analysis Report

PIKA INTERNATIONAL, INC.

Greater Los Angeles Veterans Administration Hospital (GLAVA)

Additional Groundwater Radiological Analysis Report

Prepared for:

ALLWEST GEOSCIENCE INC.
1751 Jenks Drive
Corona, CA 92880

Prepared By:

PIKA INTERNATIONAL, INC.
12723 Capricorn Drive, Suite 500
Stafford, Texas 77477

October 26, 2010

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Table 2 Analytical Results of Detected Radionuclides in Groundwater (3 Well Samples)

APPENDIX

Appendix 1 Laboratory Data

1.0 INTRODUCTION

PIKA International Inc., (PIKA) has prepared this Report to provide a summary of the radiological analysis results of three additional groundwater samples collected at the Veterans Administration (VA) Greater Los Angeles Healthcare System (VA GLAHS) property. Samples for radiological analysis were collected during the initial subsurface investigation that was conducted by the Allwest Geoscience Team in November 2009 to assist in evaluating potential human health risks associated with buried medical waste resulting from historic medical research and disposal practices. PIKA was tasked to provide Health Physics Support during sampling activities conducted by the Allwest Geoscience team and analysis and interpretation of the radiological analytical results for this project.

Based on Tritium detections in groundwater and plant transpiration samples from November 2009, and the Radium 226 & 228 in groundwater, three additional groundwater samples were collected and analyzed in August 2010 for the original 3 radioisotopes (C14, Tritium, and CL36) + Radium226 & Radium 228. PIKA's involvement consisted of getting the samples analyzed and results interpreted. The additional groundwater samples were analyzed for radionuclides as follows:

Table 1.

Nuclide	Samples
Tritium	3
Carbon-14	3
Chlorine-36	3
Radium-226	3
Radium-228	3

The samples were analyzed for low-level tritium by the University of Miami Tritium Lab. Other analytes were analyzed by General Engineering Laboratories in Charleston, SC. Radium and chlorine isotopes were determined using radiochemistry and alpha or beta counting. Carbon-14 was determined by liquid scintillation counting and tritium by low-level gas counting.

2.0 ANALYTICAL RESULTS

Results of analyses are shown below (units are picocuries per liter). Laboratory reports are included in the attachment. The laboratories' quality control results were within acceptable limits.

Table 2.

Sample	Tritium	Carbon-14	Chlorine-36	Radium-226	Radium-228
MW1	22.5 ± 6.4	U[1]	U[2]	0.50 ± .32	U[3]
MW2	51.5 ± 9.6	U	U	0.32 ± .26	U
MW3	6.4 ± 6.4	U	U	0.52 ± .26	1.46 ± .88

Notes:

U = not detected

1. Detection Limit of 34 pCi/L
2. Detection Limit of 100 pCi/L
3. Detection Limit of 1.4 pCi/L

3.0 DISCUSSION

Elevated levels of tritium and radium were detected in the groundwater samples. Since radium was not included in the VA's disposal records covering canyon disposal, its presence is very likely from natural sources. However, tritium was reported as the most common nuclide disposed of in the canyon. Its presence at these levels can only be due to that disposal. Background levels of tritium in groundwater are less than 10 pCi/L. The 2009 round of sampling from the same wells found tritium at 29, 10 and 29 pCi/L, respectively.

APPENDIX 1

LABORATORY DATA

UNIVERSITY OF Miami
THE ROSENSTIEL SCHOOL

August 19, 2010

TRITIUM LABORATORY

Data Release #10-102
Job # 2806

PIKA INTERNATIONAL, INC.
TRITIUM SAMPLES

Dr. James D. Happell
Associate Research Professor

Distribution:
Pika International, Inc.
Attn: Joel Cehn
5025 Arnold Avenue
Sacramento, CA 95652

Rosenstiel School of Marine and Atmospheric Science
Tritium Laboratory
4600 Rickenbacker Causeway • Miami, Florida 33149-1098
Phone: 305-421-4100 • Fax: 305- 421-4112
E-mail: tritium@rsmas.miami.edu
www.rsmas.miami.edu/groups/tritium/

Revised 1 January 2002

GENERAL COMMENTS ON TRITIUM RESULTS

Tritium Scale New Half-life

Tritium concentrations are expressed in TU, where 1 TU indicates a T/H abundance ratio of 10^{-18}. The values refer to the tritium scale recommended by U.S. National Institute of Science and Technology (NIST, formerly NBS), and International Atomic Energy Agency (IAEA). The TU-numbers are based on the NIST tritium water standard #4926E. Age corrections and conversions are made using the recommended half-life of **12.32 years**, i.e., a decay rate of $\lambda = 5.626\%\ \text{year}^{-1}$. In this scale, 1 TU is equivalent to 7.151 dpm/kg H_2O, or 3.222 pCi/kg H_2O, or 0.1192 Bq/kg H_2O (Bq = disint/sec).

TU values are calculated for date of sample collection, REFDATE in the table, as provided by the submitter. If no such date is available, date of sample arrival at our laboratory is used.

The stated errors, eTU, are one standard deviation (1 sigma) including all conceivable contributions. In the table, QUANT is quantity of sample received, and ELYS is the amount of water taken for electrolytic enrichment. DIR means direct run (no enrichment).

Remark: From 1 Jan 1994 through 31 Dec 2001 we used the previously recommended value for the half-life, 12.43 years. The use of the new number, 12.32 years will in practice increase the reported TU-values by 0.9 %. This is insignificant since our reported values carry 1 sigma uncertainties of 3 % or more.

It is interesting to note that before 1994 we used the older, then recommended value of 12.26 years.

Very low tritium values

In some cases, negative TU values are listed. Such numbers can occur because the net tritium count rate is, in principle the difference between the count rate of the sample and that of a tritium-free sample (background count or blank sample). Given a set of "unknown" samples with no tritium, the distribution of net results should become symmetrical around 0 TU. The negative values are reported as such for the benefit of allowing the user unbiased statistical treatment of sets of the data. For other applications, 0 TU should be used.

Additional information

Refer to Services Rendered (Tritium), Section II.8, in the "Tritium Laboratory Price Schedule; Procedures and Standards; Advice on Sampling", and our Web-site www.rsmas.edu/groups/tritium.

Tritium efficiencies and background values are somewhat different in each of the nine counters and values are corrected for cosmic intensity, gas pressure and other parameters. For tritium, the efficiency is typically 1.00 cpm per 100 TU (direct counting). At 50× enrichment, the efficiency is equivalent to 1.00 cpm per 2.4 TU. The background is typically 0.3 cpm, known to about ± 0.02 cpm. Our reported results include not only the Poisson statistics, but also other experimental uncertainties such as enrichment error, etc.

End

Client: PIKA INTERNATIONAL, INC
Recvd : 10/08/13
Job# : 2806
Final : 10/08/19

Project Name: GLAVA

Purchase Order: NEED IT
Contact: Joel Cehn, 510/914-6262
5025 Arnold Ave.
Sacramento, CA 95652

Cust	LABEL INFO	JOB.SX	REFDATE	QUANT	ELYS	TU	eTU
PIKA -	GLAVA MW-1 DIRECT	2806.01	100806	500	DIR	7	2
PIKA -	GLAVA MW-2 DIRECT	2806.02	100806	500	DIR	16	3
PIKA -	GLAVA MW-3 DIRECT	2806.03	100806	500	DIR	2	2

Note:

The above low-level tritium analytical results are given in units of "tritium units" (TU). "eTU " is analytical error in tritium units.

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171 F 843.766.1178
www.gel.com

August 31, 2010

Mr. Joel Cehn
PIKA International, Inc.
5025 Arnold Ave.
Mcclellan Afb, California 95652

Re: GLAVA - PIKA International
Work Order: 258847

Dear Mr. Cehn:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on August 12, 2010. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4512.

Sincerely,

Ann Skradski
Project Manager

Purchase Order: 0990103-001
Enclosures

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 – (843) 556–8171 – www.gel.com

Certificate of Analysis Report
for

PIKA003 Joel Cehn – PIKA International

Client SDG: 258847 GEL Work Order: 258847

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Ann Skradski.

Reviewed by _____

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : PIKA International, Inc.
Address : 5025 Arnold Ave.
Mcclellan Afb, California 95652

Report Date: August 31, 2010

Contact: Mr. Joel Cehn
Project: **GLAVA - PIKA International**

Client Sample ID:	MW-1	Project:	PIKA00109
Sample ID:	258847001	Client ID:	PIKA003
Matrix:	Water		
Collect Date:	06-AUG-10 09:00		
Receive Date:	12-AUG-10		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Chlorine-36 liquid "As Received"												
Chlorine-36	U	-23.8	+/-120	213	100	pCi/L		JXR1	08/26/10	1726	1014218	1
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	-1.04	+/-0.591	1.36	3.00	pCi/L		AYB1	08/27/10	1224	1014214	2
Rad Liquid Scintillation Analysis												
Liquid Scint C14, Liquid "As Received"												
Carbon-14	U	-2.49	+/-19.6	34.3	50.0	pCi/L		EXK2	08/21/10	0645	1014482	3
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		0.504	+/-0.320	0.453	1.00	pCi/L		KSD1	08/24/10	1640	1014283	4

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	GL-RAD-A-033	
2	EPA 904.0/SW846 9320 Modified	
3	EPA EERF C-01 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Potassium Chloride Carrier	GFPC, Chlorine-36 liquid "As Received"			99.6	(25%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			99.1	(15%-125%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : PIKA International, Inc.
Address : 5025 Arnold Ave.
Mcclellan Afb, California 95652

Report Date: August 31, 2010

Contact: Mr. Joel Cehn
Project: **GLAVA - PIKA International**

Client Sample ID:	MW-2	Project:	PIKA00109
Sample ID:	258847002	Client ID:	PIKA003
Matrix:	Water		
Collect Date:	06-AUG-10 10:00		
Receive Date:	12-AUG-10		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gas Flow Proportional Counting												
GFPC, Chlorine-36 liquid "As Received"												
Chlorine-36	U	1.49	+/-146	257	100	pCi/L		JXR1	08/26/10	1727	1014218	1
GFPC, Ra228, Liquid "As Received"												
Radium-228	U	1.23	+/-1.04	1.67	3.00	pCi/L		AYB1	08/27/10	1247	1014214	2
Rad Liquid Scintillation Analysis												
Liquid Scint C14, Liquid "As Received"												
Carbon-14	U	0.00	+/-19.6	34.1	50.0	pCi/L		EXK2	08/21/10	0711	1014482	3
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226	U	0.316	+/-0.256	0.393	1.00	pCi/L		KSD1	08/24/10	1640	1014283	4

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	GL-RAD-A-033	
2	EPA 904.0/SW846 9320 Modified	
3	EPA EERF C-01 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Potassium Chloride Carrier	GFPC, Chlorine-36 liquid "As Received"			75.6	(25%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			103	(15%-125%)

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : PIKA International, Inc.
Address : 5025 Arnold Ave.
Mcclellan Afb, California 95652

Report Date: August 31, 2010

Contact: Mr. Joel Cehn
Project: **GLAVA - PIKA International**

Client Sample ID:	MW-3	Project:	PIKA00109
Sample ID:	258847003	Client ID:	PIKA003
Matrix:	Water		
Collect Date:	06-AUG-10 12:00		
Receive Date:	12-AUG-10		
Collector:	Client		

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	AnalystDate	Time	Batch	Method
Rad Gas Flow Proportional Counting											
GFPC, Chlorine-36 liquid "As Received"											
Chlorine-36	U	-146	+/-191	348	100	pCi/L		JXR1 08/26/10	1727	1014218	1
GFPC, Ra228, Liquid "As Received"											
Radium-228		1.46	+/-0.881	1.36	3.00	pCi/L		AYB1 08/27/10	1215	1014214	2
Rad Liquid Scintillation Analysis											
Liquid Scint C14, Liquid "As Received"											
Carbon-14	U	1.75	+/-19.6	34.1	50.0	pCi/L		EXK2 08/21/10	0737	1014482	3
Rad Radium-226											
Lucas Cell, Ra226, liquid "As Received"											
Radium-226		0.519	+/-0.261	0.304	1.00	pCi/L		KSD1 08/24/10	1640	1014283	4

The following Analytical Methods were performed

Method	Description	Analyst Comments
1	GL-RAD-A-033	
2	EPA 904.0/SW846 9320 Modified	
3	EPA EERF C-01 Modified	
4	EPA 903.1 Modified	

Surrogate/Tracer recovery	Test	Result	Nominal	Recovery%	Acceptable Limits
Potassium Chloride Carrier	GFPC, Chlorine-36 liquid "As Received"			55.8	(25%-125%)
Barium-133 Tracer	GFPC, Ra228, Liquid "As Received"			97.4	(15%-125%)

GEL LABORATORIES LLC

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QC Summary

Report Date: August 31, 2010

PIKA International, Inc.
5025 Arnold Ave.
Mcclellan Afb, California

Contact: **Mr. Joel Cehn**

Workorder: **258847**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1014214										
QC1202190487 258847001 DUP										
Radium-228	U	-1.04	U	0.862	pCi/L	0.00		N/A	AYB1	08/27/10 12:25
	Uncertainty	+/-0.591		+/-0.822						
QC1202190489 LCS										
Radium-228	23.9			27.1	pCi/L		114	(75%-125%)		08/27/10 12:54
	Uncertainty			+/-3.19						
QC1202190486 MB										
Radium-228			U	0.945	pCi/L					08/27/10 12:24
	Uncertainty			+/-1.02						
QC1202190488 258847001 MS										
Radium-228	48.0 U	-1.04		52.0	pCi/L		108	(75%-125%)		08/27/10 12:54
	Uncertainty	+/-0.591		+/-6.43						
Batch 1014218										
QC1202190508 258763001 DUP										
Chlorine-36	U	-15.5	U	58.7	pCi/L	0.00		N/A	JXR1	08/26/10 17:26
	Uncertainty	+/-99.7		+/-222						
QC1202190510 LCS										
Chlorine-36	47300			58200	pCi/L		123	(75%-125%)		08/26/10 14:24
	Uncertainty			+/-3410						
QC1202190507 MB										
Chlorine-36			U	-142	pCi/L					08/26/10 17:26
	Uncertainty			+/-296						
QC1202190509 258763001 MS										
Chlorine-36	47300 U	-15.5		42500	pCi/L		89.7	(75%-125%)		08/26/10 14:24
	Uncertainty	+/-99.7		+/-2380						
Rad Liquid Scintillation										
Batch 1014482										
QC1202191253 258847001 DUP										
Carbon-14	U	-2.49	U	19.3	pCi/L	0.00		N/A	EXK2	08/21/10 08:30
	Uncertainty	+/-19.6		+/-20.2						
QC1202191255 LCS										
Carbon-14	1200			1180	pCi/L		99	(75%-125%)		08/21/10 09:22
	Uncertainty			+/-47.5						
QC1202191252 MB										
Carbon-14			U	12.5	pCi/L					08/21/10 08:04
	Uncertainty			+/-20.1						
QC1202191254 258847001 MS										
Carbon-14	1200 U	-2.49		1200	pCi/L		100	(75%-125%)		08/21/10 08:56
	Uncertainty	+/-19.6		+/-48.0						
Rad Ra-226										
Batch 1014283										
QC1202190709 258865001 DUP										
Radium-226		8.51		5.83	pCi/L	37.4*		(0% - 20%)	KSD1	08/24/10 16:40

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QC Summary

Workorder: 258847

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Rad Ra-226										
Batch 1014283										
	Uncertainty									
		+/-1.03		+/-0.750						
QC1202190711 LCS										
Radium-226	24.2			23.2	pCi/L		95.8	(75%-125%)	KSD1	08/24/10 17:15
	Uncertainty			+/-1.55						
QC1202190708 MB										
Radium-226			U	0.0466	pCi/L					08/24/10 16:40
	Uncertainty			+/-0.129						
QC1202190710 258865001 MS										
Radium-226	121	8.51		130	pCi/L		101	(75%-125%)		08/24/10 17:15
	Uncertainty	+/-1.03		+/-7.70						

Notes:
The Qualifiers in this report are defined as follows:

- ** Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.
- ND Analyte concentration is not detected above the detection limit
- NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Q One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
- R Sample results are rejected
- U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
- UI Gamma Spectroscopy--Uncertain identification
- UJ Gamma Spectroscopy--Uncertain identification
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y QC Samples were not spiked with this compound
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

QC Summary

Workorder: 258847

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

DATA EXCEPTION REPORT

Mo.Day Yr.	Division:	Quality Criteria:	Type:
27−AUG−10	Radiochemistry	Specifications	Process
Instrument Type:	**Test / Method:**	**Matrix Type:**	**Client Code:**
GFPC	GL−RAD−A−033	Liquid	PIKA, URSC
Batch ID:	**Sample Numbers:**		
1014218	See Below		

Potentially affected work order(s)(SDG): 258763,258847

Application Issues:

RDL less than MDA

Specification and Requirements Exception Description:	DER Disposition:
1. Samples 258763001, 258847001(MW−1), 258847002(MW−2), 258847003(MW−3), and 1202190508 do not meet the required Cl−36 detection limit due to reduced sample aliquots. Sample aliquots have been reduced due to the matrix of the samples. The samples counted for 500 minutes.	1. Reporting results.

Originator's Name:

Van Culpepper 27−AUG−10

Data Validator/Group Leader:

Nat Long 27−AUG−10

PIKA
International, Inc.

Chain of Custody Record

258847

Page ____ of ____

Quote Number	GELP08-0262rev6	Project Fax	510-268-8654
Project Name	GLAVA	Req'd Report Date	
Project Manager	Joel I. Cehn	Lab Contact	Anne Skradski
Project Phone	510-914-6262	Lab Phone	843-556-8171

BILLING ADDRESS:	SEND REPORT TO:	LAB ADDRESS:
Pika Int'l., Inc. 12723 Capricorn Dr. #500 Stafford, TX 77477	Pika Int'l., Inc. Joel Cehn 5025 Arnold Ave. Sacramento, CA 95652	Gen. Eng. Labs 2040 Savage Rd. Charleston, SC 29407 843-556-8171

#	Sample ID# and Description	MAT-RIX		CONTAINER TYPE (G, P)	VOLUME	PRESERV-ATIVE	ANALYSIS REQUESTED										DATE & TIME COLLECTED	SPECIAL INSTRUCTIONS / NOTES
		AQUEOUS	SOIL					C-14	Cl-36	Ra-226	Ra-228							
	MW-1	x			2L	Yes		x		x	x						8-6-2010, 9:00AM	
	MW-1	x			1L	No			x								"	
	MW-2	x			2L	Yes		x		x	x						8-6-2010, 10:00AM	
	MW-2	x			1L	No			x								"	
	MW-3	x			2L	Yes		x		x	x						8-6-2010, 12:00PM	
	MW-3	x			1L	No			x								"	
		x			2L	Yes		x		x	x							
		x			1L	No			x									

Sample TAT Req'd: 21d	Sample Disposal:	☐ Archive for _____ Months.	☒ Disposal by Lab	☐ Return to origin	QC Requirements: per quotation
Notes/Comments:					
Samples collected by Romeo Balbas, ~~951-284-7100~~ 951-888-5424					

CUSTODY TRACKING

1) Relinquished By:	[signature]	Date: 8-10-2010	Time: 15:30	Received By:	[signature]	Date: 81210	Time: 850
2) Relinquished By:		Date:	Time:	Received By:		Date:	Time:
3) Relinquished By:		Date:	Time:	Received By:		Date:	Time:

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: PIKA	SDG/AR/COC/Work Order: 258847
Received By: H. Taylor	Date Received: 12AUG10

Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
COC/Samples marked as radioactive?		✓	Maximum Counts Observed*: 4cpm
Classified Radioactive II or III by RSO?		✓	
COC/Samples marked containing PCBs?		✓	
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		✓	

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation within (0 ≤ 6 deg. C)?		✓		Preservation Method: Ice bags Blue ice Dry ice None Other (describe) 23
2a	Daily check performed and passed on IR temperature gun?	✓			Temperature Device Serial #: 41502209 Secondary Temperature Device Serial # (If Applicable):
3	Chain of custody documents included with shipment?	✓			
4	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?	✓			Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6	VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7	Are Encore containers present?		✓		(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?		✓		Sample ID's affected: no date and time on containers
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	✓			
13	Carrier and tracking number.	✓			Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 8341 0289 8717

Comments (Use Continuation Form if needed):

PM (or PMA) review: Initials AMS Date 8/12/10 Page 1 of 1

List of current GEL Certifications as of 31 August 2010

State	Certification
Arizona	AZ0668
Arkansas	88–0651
CLIA	42D0904046
California – NELAP	01151CA
Colorado	GEL
Connecticut	PH–0169
Dept. of Navy	NFESC 413
EPA Region 5	WG–15J
Florida – NELAP	E87156
Georgia	E87156 (FL/NELAP)
Georgia DW	967
Hawaii	N/A
ISO 17025	2567.01
Idaho	SC00012
Illinois – NELAP	200029
Indiana	C–SC–01
Kansas – NELAP	E–10332
Kentucky	90129
Louisiana – NELAP	03046
Maryland	270
Massachusetts	M–SC012
Nevada	SC00012
New Jersey – NELAP	SC002
New Mexico	FL NELAP E87156
New York – NELAP	11501
North Carolina	233
North Carolina DW	45709
Oklahoma	9904
Pennsylvania – NELAP	68–00485
South Carolina	10120001/10120002
Tennessee	TN 02934
Texas – NELAP	T104704235–07B–TX
U.S. Dept. of Agriculture	S–52597
Utah – NELAP	GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

APPENDIX 7

SOIL ANALYTICAL REPORTS – VOCs

(SEE VOLUME 2)

APPENDIX 8

GROUNDWATER ANALYTICAL REPORT – VOCs

(SEE VOLUME 3)

APPENDIX 9

RADIOLOGICAL ANALYTICAL RESULTS

(SEE VOLUME 3)