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February 13, 2007

Re: Vapor Intrusion Assessment Report
Former American Beryllium Company Site
OGC #04-1328
Tallevast, Manatee County, Florida

Lockheed Martin Corporation is providing you with a copy of the *Vapor Intrusion Assessment Report* that was developed to address concerns expressed by residents of the Tallevast community regarding potential soil vapors associated with groundwater contamination in the vicinity of the former ABC facility.

The report summarizes both historic and recent investigation activities. Specifically, the following information was reviewed and is evaluated in this report:

- *Groundwater data as reported in the Site Assessment Report Addendum 3 (SARA 3);*
- *Soil gas data as reported in the SARA;*
- *Indoor air data as reported in the 2005 Vapor Intrusion Sampling Report;*
- *Soil gas and ambient air data collected in June 2006 and October 2006 per the Soil Vapor Survey Work Plan and Addendum; and*
- *Indoor air data collected and reported by the Manatee County Health Department (CHD), Florida Department of Health (FDOH), and the Agency for Toxic Substances and Disease Registry (ATSDR) in 2004.*

If you have any questions, please contact me at 301-214-9971, or tina.armstrong@lmco.com

Sincerely,

Tina Armstrong

Tina Armstrong, Ph.D.
Senior Manager, Environmental Remediation
Lockheed Martin Corporation

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Lockheed Martin Corporation

Vapor Intrusion Assessment Report

Former American Beryllium Company Site
Tallevast, Florida

February 2007

ARCADIS BBL

Vapor Intrusion Assessment Report

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Acronyms

1,1-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
µg/m^3	micrograms per cubic meter
ABC	American Beryllium Company
ATSDR	Agency for Toxic Substances and Disease Registry
BBL	Blasland, Bouck & Lee, Inc.
Bgs	below ground surface
CHD	County Health Department
cis-1,2-DCE	cis-1,2-dichloroethene
COCs	contaminants of concern
EDD	electronic data deliverable
eV	electron volt
FAC	Florida Administrative Code
FAS	Floridan Aquifer System
FDEP	Florida Department of Environmental Protection
FDOH	Florida Department of Health
GC/MS	gas chromatograph/mass spectrometer
GCTLs	Groundwater Cleanup Target Levels
GVP	gas vapor probe
Hg	mercury
IAS	Intermediate Aquifer System
J&E	Johnson & Ettinger
LCS	laboratory control sample
Lockheed Martin	Lockheed Martin Corporation
LSAS	Lower Surficial Aquifer System
MDL	Method Detection Limit
mL/min	milliliters per minute
MRL	Minimal Risk Level
NELAC	National Environmental Laboratory Accreditation Conference
OSHA	Occupational Safety and Health Administration

PCE	tetrachloroethene
PEL	Permissible Exposure Limit
PID	photoionization detector
Ppbv	parts per billion volume
QA/QC	quality assurance/quality control
QL	quantitation limit
RL	reporting limit
SARA	Site Assessment Report Addendum
SARA 2	Site Assessment Report Addendum 2
SARA 3	Site Assessment Report Addendum 3
SAS	Surficial Aquifer System
SOP	Standard Operating Procedure
TCE	trichloroethene
Tetra Tech	Tetra Tech, Inc.
USAS	Upper Surficial Aquifer System
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

1. Introduction

1.1 General

Lockheed Martin Corporation (Lockheed Martin) is responsible for the assessment and cleanup of environmental impacts relating to historical operations at the former American Beryllium Company (ABC) facility (facility) located at 1600 Tallevast Road in Tallevast, Manatee County, Florida, and adjoining impacted areas (site). These obligations are being conducted pursuant to the requirements detailed in Consent Order No. 04-1328, executed by and between Lockheed Martin and the Florida Department of Environmental Protection (FDEP), effective July 28, 2004. Furthermore, completion of these assessment activities complies with applicable sections of Chapter 62-780 of the Florida Administrative Code (F.A.C.) and Section 376.30701 of the Florida Statutes. As part of the obligations set forth by the Consent Order and the F.A.C., Blasland, Bouck and Lee, Inc. (BBL) prepared *Site Assessment Report Addendum 3* (SARA 3) (BBL, 2006a) on behalf of Lockheed Martin to complete site assessment activities in preparation for the development of a remedial action plan. SARA 3 builds upon previous site assessment activities and addresses specific comments made by the FDEP in a letter dated October 5, 2005 with respect to *Site Assessment Report Addendum 2* (SARA 2) (Tetra Tech, Inc. [Tetra Tech], 2005a).

SARA 3 evaluated both the current and potential future risk of exposure to humans and the environment, including multiple pathways of exposure to impacted media. In particular, site-impacted groundwater was evaluated with respect to ingestion, direct contact, and inhalation of compounds that volatilized from groundwater. Site-related contaminants of concern (COCs) were detected in groundwater at concentrations exceeding Florida Groundwater Cleanup Target Levels (GCTLs) in monitoring wells located at the site and in monitoring wells located on residential and light commercial/industrial properties in the vicinity of the facility. Exposure pathways for ingestion and direct contact of site-impacted groundwater have been addressed through control, closure, and/or abandonment of water supply wells in the site area. The exposure pathway via inhalation required further evaluation, which is the subject of this *Vapor Intrusion Assessment Report* (report). Specifically, site-related COCs have the potential to volatilize from the groundwater into the overlying soil vapor and atmosphere and, potentially, into buildings, thus creating a potential exposure pathway.

Three previous investigations have focused on the vapor intrusion pathway at the site: Manatee County Health Department (CHD) and Florida Department of Health (FDOH) indoor air sampling in 2004, with a subsequent report by the Agency for Toxic Substances and Disease Registry (ATSDR); the *Site Assessment Report Addendum* (SARA) that presented the results of soil vapor and groundwater sampling conducted and reported by Tetra Tech on behalf of Lockheed Martin in 2004; and the 2005 *Vapor Intrusion Sampling Report* (Tetra Tech, 2005b) that presented results of indoor air sampling conducted by Tetra Tech in the former ABC facility buildings. While these three previous investigations did not find any vapor intrusion, new groundwater information, compiled and evaluated as part of SARA 3 subsequent to the completion of the previous vapor investigations, prompted a re-evaluation of the vapor intrusion pathway.

Although vapor intrusion investigations are not specifically a part of the site characterization process described in F.A.C. 62-780, Lockheed Martin has voluntarily conducted additional vapor investigations at the site. Two additional work plans were developed to evaluate the presence of COCs in the vadose zone via soil vapor sampling at selected locations surrounding the facility. BBL collected soil vapor and ambient air samples in June and October 2006, as described in the *Soil Vapor Survey Work Plan* (BBL, 2006b) and the *Soil Vapor Survey Work Plan – Addendum #1* (BBL, 2006c), respectively.

This report provides background information, a description of the rationale and methodology for the investigations, the results of the investigations, and a discussion of the results.

2. Background and Previous Investigations

2.1 Background

From 1962 until 1996, the facility was owned by Loral Corporation, the parent company of ABC. The facility was operated by ABC as an ultra-precision machine parts manufacturing plant, where metals were milled, lathed, and drilled into various components. Some of the components were finished by electroplating, anodizing, and ultrasonic cleaning. Chemicals used and wastes generated at the facility included oils, fuels, solvents, acids, and metals. Following the acquisition of Loral and its assets (including the ABC facility), Lockheed Martin ceased manufacturing operations in 1996 and initiated site investigations. In 2000, Lockheed Martin sold the facility to BECSD, LLC.

Although no longer the owner, Lockheed Martin has maintained responsibility for past releases from the former ABC facility. Lockheed Martin continued site investigation activities at the site based on previous findings that indicated that there are groundwater impacts. These site investigations were performed by Lockheed Martin in accordance with applicable FDEP regulations and oversight.

Recent investigations (SARA 3 [BBL, 2006a]) included a supplemental groundwater investigation to examine the vertical and lateral extent of impacts in select and outlying perimeter areas. Additional monitoring wells were installed, a total of 95 new and existing monitoring wells (located within the upper surficial aquifer system [USAS]) were sampled, and the groundwater samples were submitted for laboratory analysis. The USAS is considered a significant feature relative to the potential for vapor intrusion because it is the most shallow groundwater unit in the area and has been found to contain site-related COCs.

A summary of results indicated that the horizontal extent of COCs in the USAS appears to be limited to within approximately 800 feet north, 1,400 feet east, 1,200 feet south, and 800 feet west of the facility and to extend beneath residences and light commercial/industrial properties. Based on the information obtained during the site characterization process and described in SARA 3, further investigation was conducted to evaluate the potential for vapor intrusion

2.2 Previous Investigations

In 2004, Tetra Tech, on behalf of Lockheed Martin, collected 12 soil vapor samples on the former ABC facility property and two samples at off-facility locations. Results were reported by Tetra Tech in the SARA (Tetra Tech, 2005a). The samples were collected at 2 feet below ground surface (bgs), using a gas vapor probe (GVP) kit, based on U.S. Environmental Protection Agency (USEPA) Standard Operating Procedures (SOPs) (USEPA, 2004). Soil vapor samples were collected in 1-liter SUMMA® canisters at the laboratory-set, regulator-controlled, low flow rate of 100 milliliters per minute (mL/min) for approximately 15 to 20 minutes and analyzed by USEPA Method TO-15 for the full suite of analytes. A helium tracer was used to determine the influence of ambient air on the sample. Helium was not detected in any of the samples; therefore, there was no evidence that ambient air was infiltrating the soil vapor samples. The analytical results were compared to Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs), the ATSDR's Minimal Risk Levels (MRLs), and the USEPA's Soil Gas Screening Levels for Scenario-Specific Vapor Attenuation Factors contained in the *OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* (Subsurface Vapor Intrusion Guidance) (USEPA, 2002). Tetra Tech (2004) concluded that all detected soil vapor analyte concentrations were less than the three screening criteria, except for one detection of benzene that slightly exceeded its respective ATSDR MRL but was less than its respective USEPA Soil Gas Screening Level. The report describing this study can be found at http://www.tallevast.info/.

In 2005, Tetra Tech, on behalf of Lockheed Martin, collected nine indoor air samples from the five buildings on the former ABC facility property. Results were reported by Tetra Tech in the *Indoor Air Assessment Report* (Tetra Tech, 2005b). Samples were collected over an approximately 24-hour period using SUMMA® canisters and were analyzed by USEPA Method TO-15. Tetra Tech concluded that only one site COC (trichloroethene [TCE]) was detected in indoor air. Tetra Tech noted that this detection was below the ATSDR MRL and that TCE was present in the chemicals that were being used in the workplace. The report describing this study can be found at http://www.tallevast.info/.

In August 2004, the FDOH and Manatee CHD collected indoor air samples from four buildings near the facility. Integrated indoor air samples were collected over a 24-hour period in 8-hour increments, and one grab sample was collected in the late afternoon at each location. Samples were collected using SUMMA® canisters and analyzed by USEPA Method TO-15. The ATSDR subsequently reported the results and

summarized the conclusions of this investigation (ATSDR, 2005). The ATSDR concluded that 25 volatile organic compounds (VOCs) were found in the indoor air in at least one of the four locations; however, VOCs found in the groundwater plume beneath the residences were not among those 25 constituents. Constituents detected in a background location identified outside the site-related plume and in homes overlying the plume were consistent, and these constituents are typical of those found in homes due to the everyday use of chemicals in cleaning products, paints, and petroleum products. The report describing this study can be found at http://www.doh.state.fl.us/ and http://www.tallevast.info/.

2.3 Sampling Rationale

In 2002, the USEPA released Subsurface Vapor Intrusion Guidance (USEPA, 2002) that recommends a tiered approach for evaluating the vapor intrusion pathway and includes a series of questions that guides users through a stepwise evaluation of the subsurface vapor intrusion pathway. The USEPA's recommended approach for assessment of the vapor intrusion pathway includes the evaluation of multiple lines of evidence, if available.

The first tier of the USEPA's approach to evaluation of the vapor intrusion pathway includes an assessment of COCs for volatility and potential for toxicity. The second tier includes a comparison of analytical data collected in groundwater or soil vapor to conservative screening levels. Target groundwater screening-level concentrations are back-calculated from risk-based target indoor air concentrations and an indoor air to groundwater attenuation factor of 0.001 (USEPA, 2002). If concentrations in groundwater exceed these screening levels, soil vapor samples may also be collected. The analytical data from these soil vapor samples are then compared to conservative soil vapor screening levels. If site conditions or data limitations preclude the use of these screening levels, or if a refined vapor pathway assessment is warranted, a site-specific vapor pathway assessment (Tier 3) may be conducted using the Johnson & Ettinger (J&E) model, additional site-specific data collection, or a combination of the two (USEPA, 2002). Appendix C of the Subsurface Vapor Intrusion Guidance (Appendix A of this report) contains a flow diagram depicting this tiered approach.

Concentrations of TCE, tetrachloroethene (PCE), and cis-1,2-dichloroethene (cis-1,2-DCE) in groundwater samples collected in 2006 from the USAS (as previously reported in SARA 3 [BBL, 2006a]) exceed USEPA Subsurface Vapor Intrusion Guidance (USEPA, 2002) groundwater screening levels. Based on these exceedances, soil vapor samples were collected to refine the vapor intrusion pathway assessment.

3. Investigation Methodology

Specific elements of the soil vapor investigation that was recently completed by BBL on behalf of Lockheed Martin are summarized below.

Background Information: Background information (e.g., site topography; building construction; location and use of historical and current underground storage tanks, septic systems, sumps, and basement and crawl space location[s]; past chemical usage and spill history at the former ABC facility; description of any localized flooding; historical groundwater data), including information provided by building/property owners, was obtained and compiled.

Pre-sampling Inspection and Surveying: Prior to the start of sampling activities, a field reconnaissance was performed in which BBL personnel inspected the areas proposed for sampling. Sampling locations were targeted based on the distribution of COCs detected in the USAS at concentrations greater than GCTLs. During the pre-sampling inspection, BBL identified and marked each soil vapor sampling location and two ambient air sampling locations (determined in the field) with a wooden stake or other appropriate marker.

Soil Vapor Sampling: Soil vapor samples were collected from a total of 23 temporary sampling points plus two duplicates in June 2006, and six locations were resampled in October 2006 (see Figure 1). One round of soil vapor samples was collected and analyzed for a subset of VOCs using USEPA Method TO-15 (i.e., six analytes representative of the groundwater plume [PCE, TCE, cis-1,2-DCE, 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), and 1,4-dioxane] in June 2006 and the same analytes in October 2006). Samples were analyzed by an Environmental Laboratory Approval Program-certified laboratory, and all SUMMA® canisters were certified clean. At each sampling point, the soil vapor sample was collected from the interval estimated to be 1 to 2 feet above the water table in the USAS. A helium tracer was used to determine whether ambient air was infiltrating the soil vapor samples. The water-table elevation was estimated using measurements obtained on each day of sampling from nearby upper surficial monitoring wells. Measurements from these wells were converted to elevation in the field and plotted on a scaled base map of the vicinity. Contour lines were interpolated and used to estimate the water-table elevation at each sampling location. Soil vapor sampling depths were determined based on this evaluation on each day of the sampling program for the samples scheduled to be collected on that day. The procedure followed during soil vapor sampling activities is

presented in Appendix B. Quality assurance/quality control (QA/QC) procedures used during this investigation are presented in Appendix C.

Background (Ambient Air) Sampling: Two ambient air samples from the same location were collected during the June 2006 soil vapor sampling activities, and three ambient air samples were collected from three independent locations during the October 2006 soil vapor sampling activities. The purpose of the ambient air sampling was to document background concentrations of VOCs in ambient air (using USEPA Method TO-15) that may have an impact on soil vapor results and/or vapor intrusion pathways. Pre-sampling inspection, sampling location marking, and a post-sampling survey for the ambient air sampling locations were performed concurrently with the soil vapor sampling activities.

Final Surveying: After sampling was completed, a licensed surveyor surveyed the sample coordinates and ground surface elevations for any sampling points that had to be relocated due to subsurface obstruction or other reasons.

4. Results

Soil vapor and ambient air samples were collected in June 2006 and October 2006 to evaluate the presence of COCs in the vadose zone (as briefly described in Section 3). Samples were collected in accordance with the following documents:

- *Soil Vapor Survey Work Plan* (BBL, 2006b)
- *Soil Vapor Survey Work Plan – Addendum #1* (BBL, 2006c)

This section summarizes the results from these two sampling events.

4.1 Soil Vapor Sampling Results – June 2006

ARCADIS BBL collected a total of 23 soil vapor samples and two ambient air samples on June 2, 2006 and June 5, 2006 (Figure 1). All samples were collected via methodologies presented in the *Soil Vapor Survey Work Plan* (BBL, 2006b) and analyzed for six site COCs representative of the groundwater plume (PCE, TCE, cis-1,2-DCE, 1,1-DCA, 1,1-DCE, and 1,4-dioxane) using USEPA Method TO-15.

Analytical results indicated no detections of the COCs at 17 of the 23 soil vapor sampling locations. However, detectable concentrations of PCE were identified at five locations (SG-2, SG-6, SG-13, SG-15, and SG-23) at concentrations ranging from 12 micrograms per cubic meter ($\mu g/m^3$) to 220 $\mu g/m^3$. In addition, 1,1-DCA was detected at SG-12 at a concentration of 15 $\mu g/m^3$. Results are summarized in Table 1, and the analytical laboratory report is provided as Appendix D.

4.2 Soil Vapor Sampling Results – October 2006

In October 2006, soil vapor samples were collected at the six locations that exhibited detectable soil vapor concentrations during the June 2006 event. The October 2006 sampling was performed to provide verification of prior sampling results.

A total of nine samples (six soil vapor samples and three ambient air samples) were collected on October 18, 2006 (Figure 2). All samples were collected via methodologies presented in the *Soil Vapor Survey Work Plan – Addendum #1* (BBL, 2006b) and analyzed for five COCs previously analyzed for in June 2006 (excluding 1,4-dioxane, due to non-detects during the first round) using USEPA Method TO-15.

In six of the nine samples (four soil vapor and two ambient air sampling locations), all results were below laboratory detection limits. One soil vapor sampling location (SG-

12RS) exhibited detectable concentrations of TCE and cis-1,2-DCE at 19 µg/m^3 and 4.4 µg/m^3, respectively. In addition, PCE was detected in one soil vapor sample (SG-23RS) at 15 µg/m^3. Results are summarized in Table 1, and the analytical laboratory report is provided as Appendix D. A comparison of the data from the six locations that were sampled during both the June and October 2006 events is summarized in Table 2.

4.3 Ambient Air Results

For the ambient air samples collected during June and October 2006, constituents were non-detect at all locations, except for one ambient air sample collected on June 2, 2006 (AA-6/2/06) and one ambient air sample collected on October 18, 2006 (AA-10/18 Downwind). Analysis of the June 2, 2006 ambient air sample reported concentrations of 3.5 µg/m^3 PCE, 9.5 µg/m^3 TCE, and 12 µg/m^3 cis-1,2-DCE. However, another sample collected on October 18, 2006 at the same location as AA-6/2/06 (AA-10/18 Upwind) was non-detect for these analytes. Analysis of the downwind ambient air sample collected on October 18, 2006 (AA-10/18 Downwind) reported 12 µg/m^3 PCE at a location where shallow USAS monitoring wells were non-detect for PCE. Results of the ambient air sampling are summarized in Table 1, and the analytical laboratory report is provided in Appendix D

4.3.1 Helium Tracer

A tracer vapor compound (helium) was used during the soil vapor sampling process to evaluate potential leakage of atmospheric air into the SUMMA® canisters used to collect the soil vapor samples. After the tubing was connected with the SUMMA® canisters and purging was complete, plastic sheeting was placed around the borehole, and helium was added beneath the sheeting near the top of the boring next to the bentonite/clay-sealed sampling point. A field helium detector soil vapor probe was used to evaluate potential seal issues. The data indicated that there was no evidence of outside infiltration. In addition, a photoionization detector (PID) was used to monitor atmospheric background prior to and during sample collection and only one PID reading was noted at one sampling location (see Appendix E).

4.3.2 Barometric Pressure

The influence of barometric pressure on the potential release of soil vapors to ambient air was also evaluated in this investigation. Cyclic changes in atmospheric pressure may cause “barometric pumping,” which creates a “piston-like” force on soil vapor,

possibly causing a cyclic up and down flow of contaminant vapors in the affected interval. The magnitude of a barometric pressure cycle is typically a small percentage of atmospheric pressure, and its effect decreases with depth. Soil texture, soil air permeability, and moisture content affect the depth to which the pressure change may affect vapor transport. Soil vapor compression and expansion in response to barometric pressure fluctuations may alternately enhance or inhibit vapor intrusion.

The barometric pressure readings were consistent during the sampling events conducted in June and October 2006 (i.e., approximately 29.84 inches on June 2, 2006; 29.95 inches on June 5, 2006; and 29.90 inches on October 18, 2006). In addition, ambient air samples collected in June and October 2006 were non-detect for TCE and PCE, except for the ambient air sample collected on June 2, 2006, which reported 3.5 µg/m^3 PCE, 9.5 µg/m^3 TCE, and 12 µg/m^3 cis-1,2-DCE; and the downwind ambient air sample collected on October 18, 2006, which reported 12 µg/m^3 PCE. No COCs were detected in soil vapor near an ambient air detection, except for PCE in SG-13. In addition, as noted above, another sample, collected on October 18, 2006 at the same location as the June 2, 2006 sample, was non-detect for these constituents. Thus, these detections are unlikely to be related to potential effects of barometric pumping on subsurface soil vapor.

5. Data Evaluation

This section presents a comprehensive evaluation of potential soil vapor intrusion associated with the site. This includes a discussion of whether there are exposure pathways present that may represent a risk to human health. This section presents a multi-tiered evaluation of the vapor intrusion pathway once the potential for such a pathway has been established. For the sake of providing a comprehensive evaluation, this discussion considers previous data in combination with new data.

5.1 Exposure Pathway

The first step in evaluating the potential for soil vapor intrusion is establishing whether a current or potential exposure pathway exists. This step required an examination of the shallow hydrogeology to determine whether VOCs were present in the shallow groundwater, where VOCs would potentially be capable of migrating into soil vapors. In addition, COCs detected during previous soil vapor investigations (described in Section 2.2) were compared with groundwater COCs identified during the site characterization process. The results are described in Section 5.1.2.

5.1.1 Shallow Hydrogeology

A key feature of the site hydrogeology is the presence of two distinct confining layers that limit the migration of constituents from the deeper water-bearing zones to the shallow groundwater. These two confining layers include a “hard streak” and the Venice Clay, as described further below.

Groundwater in the site area occurs in three previously defined hydrostratigraphic units: the Surficial Aquifer System (SAS), the Intermediate Aquifer System (IAS), and the Floridan Aquifer System (FAS). The SAS is subdivided into the USAS and Lower Surficial Aquifer System (LSAS). The USAS is located approximately 2 to 30 feet bgs and is unconfined. The LSAS is located approximately 35 to 45 feet bgs and is separated from the USAS by the hard streak, which was encountered at approximately 20 to 35 feet bgs. The hard streak is conceptualized as a nearly continuous layer throughout the area of investigation, with a depth that generally increases from north to south (ranging from 21 feet bgs in the northern portion of the area of investigation to 47.5 feet bgs in the southern portion). A downward hydraulic gradient has been measured across the hard streak, and groundwater in the LSAS is under confined conditions, indicating that the hard streak can restrict groundwater flow from the USAS to the LSAS. Based on a review of historical and current groundwater monitoring

results, the USAS is the appropriate hydrostratigraphic unit to reference with respect to shallow soil vapor.

The water table is first encountered in the USAS and may be as shallow as 2 feet bgs. Horizontal hydraulic gradients in the USAS have historically been toward the north, east, west, and south in a radial pattern. This radial flow pattern is the result of a combination of site-specific geologic and hydrologic characteristics, as well as historical and current groundwater extraction activities in the area. As described in SARA 3 (BBL, 2006a), the USAS has been shown to contain site-related COCs at concentrations greater than GCTLs. Thus, it is reasonable to conclude that the COCs in the USAS represent a potential source for a soil vapor intrusion pathway.

The SAS and IAS are separated by a 40- to 50-foot-thick clay layer known as the Venice Clay, which is the uppermost stratigraphic unit of the Peace River Formation at the site. A downward hydraulic gradient has been measured across the Venice Clay, indicating that it can restrict groundwater flow from the LSAS to the IAS. The Venice Clay is conceptualized as a continuous layer throughout the site. Given the depth and structure associated with the IAS and deeper units, these features are not considered to be a potential source of soil vapor.

5.1.2 Comparative COC Evaluation

For an exposure pathway to be complete, COCs must be detected in adjacent media (e.g., groundwater and soil vapor; soil vapor and indoor air). If this is not the case, the exposure pathway is likely incomplete. Three separate comparisons are presented below.

As reported in the SARA (Tetra Tech, 2004), Tetra Tech collected five pairs of co-located samples (one groundwater sample and one soil vapor sample from the same location) to help assess the potential for vapor intrusion. During this sampling event, no analytes were detected in both the soil vapor and the groundwater (see Section 3.7.3.2 of the SARA and Section 2.2 of this report).

In August 2004, the Manatee CHD and the FDOH conducted indoor air sampling at four locations in the vicinity of the facility. These four locations are above groundwater known to be impacted by site COCs. The ATSDR issued a report on the results of this sampling (ATSDR, 2005). Analytes detected in the indoor air at these locations did not correspond to the site COCs. These results are also discussed in Section 2.2 of this report.

Soil vapor and ambient air sampling was completed in June and October 2006 at multiple site locations. The soil vapor sampling locations were above groundwater known to be impacted by site COCs. Results of the sampling indicated that 17 of 23 soil vapor locations from the June sampling and four of the six soil vapor locations from the October sampling did not contain site COCs. The detection levels for the non-detect samples were below the USEPA shallow soil gas screening values in Table 2c of the Subsurface Vapor Intrusion Guidance Document (USEPA, 2002), except for TCE, which was detected at levels below the soil gas screening value in Table 3c-SG (see Section 5.2). Detections of site COCs, including PCE, 1,1-DCA, TCE, and cis-1,2-DCE, were noted in eight of the 29 soil vapor samples. Detections of site COCs, including PCE, TCE, and cis-1,2-DCE, were noted in two of five ambient air samples. These results are also discussed in Sections 4.1 and 4.2.

The results of these three investigations indicate that site COCs in groundwater are not typically detected in soil vapor or indoor air. However, recent (2006) soil vapor data indicated that the vapor intrusion pathway could, potentially, be complete at times. Therefore, further evaluation of the potential significance of this pathway was conducted.

5.2 Multiple Lines of Evidence Evaluation

Once the potential for a vapor intrusion pathway via the USAS was established, it was appropriate to evaluate whether physical and/or chemical processes completed this pathway and, if so, to evaluate the potential risk to human health. This section presents a discussion of multiple lines of evidence used in this evaluation. This evaluation is consistent with the USEPA's recommended approach for assessment of the vapor intrusion pathway, as described in Section 2.3. This tiered approach includes the following:

- Tier 1 – Screening – Assessment of the chemical and physical properties of the COCs for volatility and toxicity potential.

- Tier 2 – Site-Specific Data Evaluation – A comparison of analytical data collected in groundwater or soil vapor to conservative screening levels. Target groundwater screening-level concentrations are back-calculated from risk-based target indoor air concentrations and an indoor air to groundwater attenuation factor of 0.001 (USEPA, 2002). If concentrations in groundwater exceed these screening levels, soil vapor samples may also be collected. The

analytical data from these soil vapor samples are then compared to conservative soil gas screening levels.

- Tier 3 – Detailed Vapor Intrusion Pathway Assessment – If site conditions or data limitations preclude the use of these screening levels, or if a refined vapor pathway assessment is warranted, a site-specific vapor pathway assessment (Tier 3) may be conducted using the Johnson & Ettinger (J&E) model, additional site-specific data collection, or a combination of the two (USEPA, 2002).

Appendix C of the Subsurface Vapor Intrusion Guidance (Appendix A of this report) contains a flow diagram depicting this tiered approach.

5.2.1 Site-Specific Data Evaluation

Question 4(g) of the USEPA (2002) Subsurface Vapor Intrusion Guidance asks, "Do measured or reasonably estimated soil gas concentrations exceed generic target media-specific concentrations given in Tables 2(a), 2(b) or 2(c)?" The decision-making process used to answer this question is illustrated in Appendix C of the guidance document and is reproduced in Appendix A of this report. The following table presents a comparison of the screening levels in Table 2(c) of the guidance document to the maximum detected concentrations in shallow soil vapor.

Compound	Table 2c Screening Level (µg/m^3)	June 2006 Maximum Detected Concentration (µg/m^3)	October 2006 Maximum Detected Concentration (µg/m^3)
PCE	8.1	220 (SG-2)	15 (SG-23RS)
TCE	0.22	< 4 (Not Detected)	19 (SG-12RS)
cis-1,2-DCE	350	<4 (Not Detected)	4.4 (SG-12RS)
1,1-DCA	5,000	15 (SG-12)	< 4 (Not Detected)

The screening levels presented above include an attenuation factor of 0.1 and an incremental risk of $1x10^{-6}$. Concentrations detected in samples collected in June 2006 from locations SG-2, SG-6, SG-13, SG-15, and SG-23 exceeded the PCE criterion (see Section 4.2.3.1.1). In October 2006, concentrations detected in SG-23RS exceeded the PCE criterion, and concentrations detected in SG-12RS exceeded the TCE criterion (see Section 4.2.3.1.2).

If samples exceed screening criteria, the user may evaluate the results using scenario-specific attenuation factors under Question 5 of the USEPA guidance document; however, the USEPA notes that groundwater or soil vapor samples collected at depths less than 5 feet below building foundations should not be evaluated using this method. The June and October 2006 samples were collected at depths typically ranging between 3 and 3.5 feet due to the location of the water table; however, homes near the site are built slab on grade, and foundations do not interface directly with groundwater. Therefore, it was deemed acceptable to compare detected concentrations to the more refined screening levels found in Table 3c-SG (Question 5 the USEPA [2002] guidance document). The vapor attenuation factor (α) was selected from Figure 3a based on soil type and depth to contamination and was determined to be $2x10^{-3}$. The following table presents a comparison of the screening levels in Table 3(c) of the guidance document to the maximum detected concentrations in shallow soil vapor.

Compound	Table 3c Screening Level (µg/m^3)	June 2006 Maximum Detected Concentration (µg/m^3)	October 2006 Maximum Detected Concentration (µg/m^3)
PCE	410	220 (SG-2)	15 (SG-23RS)
TCE	11	< 4 (Not Detected)	19 (SG-12RS)
cis-1,2-DCE	18,000	< 4 (Not Detected)	4.4 (SG-12RS)
1,1-DCA	250,000	15 (SG-12)	< 4 (Not Detected)

All detected results for the June and October 2006 sampling events were below their respective criteria, except sample SG-12RS, which had a detection of TCE at 19 µg/m^3. Based on these results, a site-specific vapor risk assessment was conducted, as described below.

5.2.2 Detailed Vapor Intrusion Pathway Assessment

A site-specific vapor intrusion pathway assessment was conducted using the USEPA J&E model for soil gas based upon a conservative residential exposure scenario. This model assumes that there is a complete exposure pathway (i.e., vapors can migrate from sub-slab soils to indoor air). The exposure point concentrations used in the site-specific vapor assessment to predict indoor air concentrations were based on the average concentration of the June and October 2006 samples, using the full detection limit for non-detected analytes. All modeled indoor air concentrations resulted in predicted incremental risk below $1x10^{-6}$ and non-carcinogenic hazard indices of less than one.

The assumptions used in the J&E model were based on the depth of soil vapor samples, sandy geology, and other default USEPA assumptions. The estimation of indoor air concentration was completed using the J&E model default parameters indicated below:

- Soil vapor sampling depth below grade = 80 centimeters (3 feet)
- Total Porosity = 0.385
- Bulk Density = 1.63 grams per cubic centimeter ($g\ cm^{-3}$)
- Water-filled Porosity = 0.197

Cancer risk calculations for the resulting exposure point concentration were performed within the USEPA J&E model using equations from the USEPA *Risk Assessment Guidance for Superfund (RAGS)* (USEPA 1989):

- Unit Risk Factors for TCE and PCE = $1.1x10^{-4}$ and $5.9x10^{-6}$ $(\mu g/m^3)^{-1}$
- Body Weight = 70 kilograms
- Averaging Time = 25,550 days (70 years for carcinogens); 10,950 days (30 years for non-carcinogens)
- Exposure Duration = 30 years (residential; most conservative)
- Inhalation Rate = 20 cubic meters per day

The output from the J&E model is provided in Appendix F. These results indicate that it is unlikely that the COCs dissolved in groundwater beneath the businesses and residential properties in the vicinity of the former ABC facility lead to elevated risk from exposure to indoor air.

5.3 Ambient Air

This section discusses the results of ambient air sampling and analysis as they relate to the vapor intrusion assessment. Analysis of outdoor ambient air provides an indication of contaminant levels in the atmosphere that may be present due to human activities unrelated to the presence of COCs in the subsurface. Emissions from

everyday activities, such as those from automobiles, commercial properties, or industrial activities, are regularly present in the ambient air.

As summarized in Section 4.3, ambient air samples were collected during the June 2006 and October 2006 investigations. TCE, PCE, and cis-1,2-DCE were detected in ambient air samples during these events. TCE, PCE, and cis-1,2-DCE detected in ambient air on June 2, 2006 were not detected in ambient air on June 5, 2006. Additionally, there were no detections of TCE or cis-1,2-DCE in the soil vapor during the June events. During the October 18, 2006 sampling event, PCE was the only compound detected in one of three ambient air samples collected. There were no detections of PCE in the soil vapor sample (SG-6RS) nearest this ambient air location. This indicates that, although these COCs can periodically be found in background ambient air, the location and magnitude of the detections are not consistent across sampling events and do not seem to be co-located with detections in soil vapor.

Pinellas and Hillsborough counties conduct a regional toxic air pollutant monitoring program at various monitoring stations. This sampling is part of the USEPA National Air Toxics Trend Sites monitoring program that provides information regarding compound concentrations in different parts of the country. A summary of VOC data detected in Pinellas County in 2000 is provided in Appendix G. These data indicate that chlorinated compounds such as TCE and PCE are found in background ambient air in other parts of Florida.

The intermittent detection of COCs in ambient air during the site investigation and the detection of similar COCs in regional background ambient air samples collected by the Pinellas County Department of Environmental Management (DEM) indicates that background concentrations of VOCs in ambient air may be attributable to local, ubiquitous sources, such as dry cleaners, automobile repair and paint shops, furniture stripping/painting/varnishing operations, and other light industrial and/or commercial operations. Although cis-1,2-DCE, which is not as frequently associated with ubiquitous sources as TCE or PCE, was detected in the ambient air sample collected during the June 2, 2006 event, it was not detected in the ambient air during the June 5, 2006 or October 18, 2006 events. Additionally, there were no detections of cis-1,2-DCE in the soil vapor samples collected during the June 2 or June 5 event, indicating that the presence of cis-1,2-DCE in ambient air is not likely the result of barometric pumping. These data indicate that the ambient air detections of TCE, PCE, and cis-1,2-DCE are infrequent, sporadic in nature, and are likely not due to site COCs.

6. Conclusions and Recommendations

The multiple lines of evidence described in Section 5 demonstrate that subsurface vapor intrusion does not pose an elevated risk to human health in the vicinity of the former ABC facility.

The multiple lines of evidence supporting this conclusion are summarized below:

- The hydrology of the site indicates that only COCs in the USAS could potentially be available for vapor migration. Previous investigation results for co-located groundwater and soil vapor samples indicated no correlation between analytes detected in groundwater and analytes detected in soil vapor. In the most recent sampling (October 2006), only two compounds at one location (TCE and cis-1,2-DCE at SG-12RS) and one compound at another location (PCE at SG-23RS) were detected in both the groundwater and soil vapor. These results indicate that COCs in groundwater are not typically present in soil vapor.

- In the 2004 soil vapor sampling results, there were no exceedances of three different sets of screening levels (OSHA PELs, ATSDR MRLs, and USEPA soil gas screening levels), except for benzene, which was reported at concentrations greater than the ATSDR MRL at one location. Benzene is not a site-related COC.

- Indoor air sampling conducted by the FDOH and the Manatee CHD in August 2004 did not detect any of the site COCs in indoor air samples.

- Indoor air sampling conducted by Tetra Tech on behalf of Lockheed Martin in 2005 did not detect any of the site COCs in indoor air samples at concentrations greater than ATSDR MRLs.

- The soil vapor sampling conducted in June 2006 detected no site COCs in 17 of the 23 locations sampled. Confirmation sampling of the other six locations in October 2006 detected a concentration of TCE in SG-12RS that was slightly greater than the USEPA's TCE refined screening level. Further evaluation of this detection using the J&E model predicted an incremental risk of less than $1x10^{-6}$ from this detection. Levels of COCs in the other five resampled locations were below the applicable USEPA screening levels.

- Ambient air sampling results indicate that background PCE, TCE, and cis-1,2-DCE concentrations may be present on an infrequent basis. However, detections of these compounds are not consistent from event to event and do not appear to be co-located with COC detections in soil vapor, indicating that it is unlikely that their presence is related to site conditions.

In combination, these multiple lines of evidence support elimination of the vapor intrusion pathway from further consideration.

7. References

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Tables

TABLE 1
SOIL-VAPOR ANALYTICAL RESULTS
JUNE 2006
VAPOR INTRUSION ASSESSMENT REPORT
ABC COMPANY - TALLEVAST, FLORIDA
(Results presented in µg/m3)

Sample ID:	AA-6/2/06	AA-6/5/06	FB-6/6/06	SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7
Date Collected:	06/02/06	06/05/06	06/06/06	06/05/06	06/05/06	06/05/06	06/05/06	06/05/06	06/05/06	06/05/06
Tetrachloroethene	**3.5**	<1.4	<1.4	<6.8	**220**	<6.8	<6.8	<6.8	**12**	<6.8
Trichloroethene	**9.5**	<1.1	<1.1	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4
1,1-Dichloroethane	<0.81	<0.81	<0.81	<4	<4	<4	<4	<4	<4	<4
1,1-Dichloroethene	<0.79	<0.79	<0.79	<4	<4	<4	<4	<4	<4	<4
cis-1,2-Dichloroethene	**12**	<0.79	<0.79	<4	<4	<4	<4	<4	<4	<4
1,4-Dioxane	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP

Sample ID:	SG-8	SG-9	SG-9D	SG-10	SG-11	SG-12	SG-13	SG-14	SG-15	SG-17
Date Collected:	06/05/06	06/05/06	06/05/06	06/05/06	06/02/06	06/02/06	06/02/06	06/02/06	06/05/06	06/05/06
Tetrachloroethene	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	**32**	<6.8	**89**	<6.8
Trichloroethene	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4
1,1-Dichloroethane	<4	<4	<4	<4	<4	**15**	<4	<4	<4	<4
1,1-Dichloroethene	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
cis-1,2-Dichloroethene	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
1,4-Dioxane	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP

Sample ID:	SG-18	SG-18D	SG-20	SG-21	SG-22	SG-23	SG-24	SG-25
Date Collected:	06/05/06	06/05/06	06/05/06	06/05/06	06/05/06	06/05/06	06/05/06	06/05/06
Tetrachloroethene	<6.8	<6.8	<6.8	<6.8	<6.8	**30**	<6.8	<6.8
Trichloroethene	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4
1,1-Dichloroethane	<4	<4	<4	<4	<4	<4	<4	<4
1,1-Dichloroethene	<4	<4	<4	<4	<4	<4	<4	<4
cis-1,2-Dichloroethene	<4	<4	<4	<4	<4	<4	<4	<4
1,4-Dioxane	NP	NP	NP	NP	NP	NP	NP	NP

Notes:
µg/m3 - micrograms per cubic meter
AA - Ambient Air Samples
NP - Not Present in Tentatively Identified Compound Search
FB - Field Blank
SG-9D and SG-18D are duplicate samples of SG-9 and SG-18, respectively.
ND - Not Detected
1.4 Dioxane not included within current volatile and toxic chemical listing and therefore no risk factors exist (Draft Guidance For Evaluating the Vapor Intrusion to Indoor Air Pathway From Groundwater and Soils - EPA, 2002)

TABLE 1
SOIL-VAPOR ANALYTICAL RESULTS
OCTOBER 2006
VAPOR INTRUSION ASSESSMENT REPORT
ABC COMPANY - TALLEVAST, FLORIDA
(Results presented in µg/m3)

Sample ID:	AA-10/18 Upwind	AA-10/18 Mid	AA-10/18 Downwind	SG-2RS	SG-6RS	SG-12RS	SG-13RS	SG-15RS	SG-23RS
Tetrachloroethene	<1.4	<1.4	**12**	<6.8	<6.8	<6.8	<6.8	<6.8	**15**
Trichloroethene	<1.1	<1.1	<1.1	<5.4	<5.4	**19**	<5.4	<5.4	<5.4
1,1-Dichloroethane	<0.81	<0.81	<0.81	<4	<4	<4	<4	<4	<4
1,1-Dichloroethene	<0.79	<0.79	<0.79	<4	<4	<4	<4	<4	<4
cis-1,2-Dichloroethene	<0.79	<0.79	<0.79	<4	<4	**4.4**	<4	<4	<4

Notes:
µg/m3 - micrograms per cubic meter
AA - Ambient Air Samples
FB - Field Blank
< - Below laboratory detection limit (laboratory detection limit shown).
Samples collected on October 18, 2006

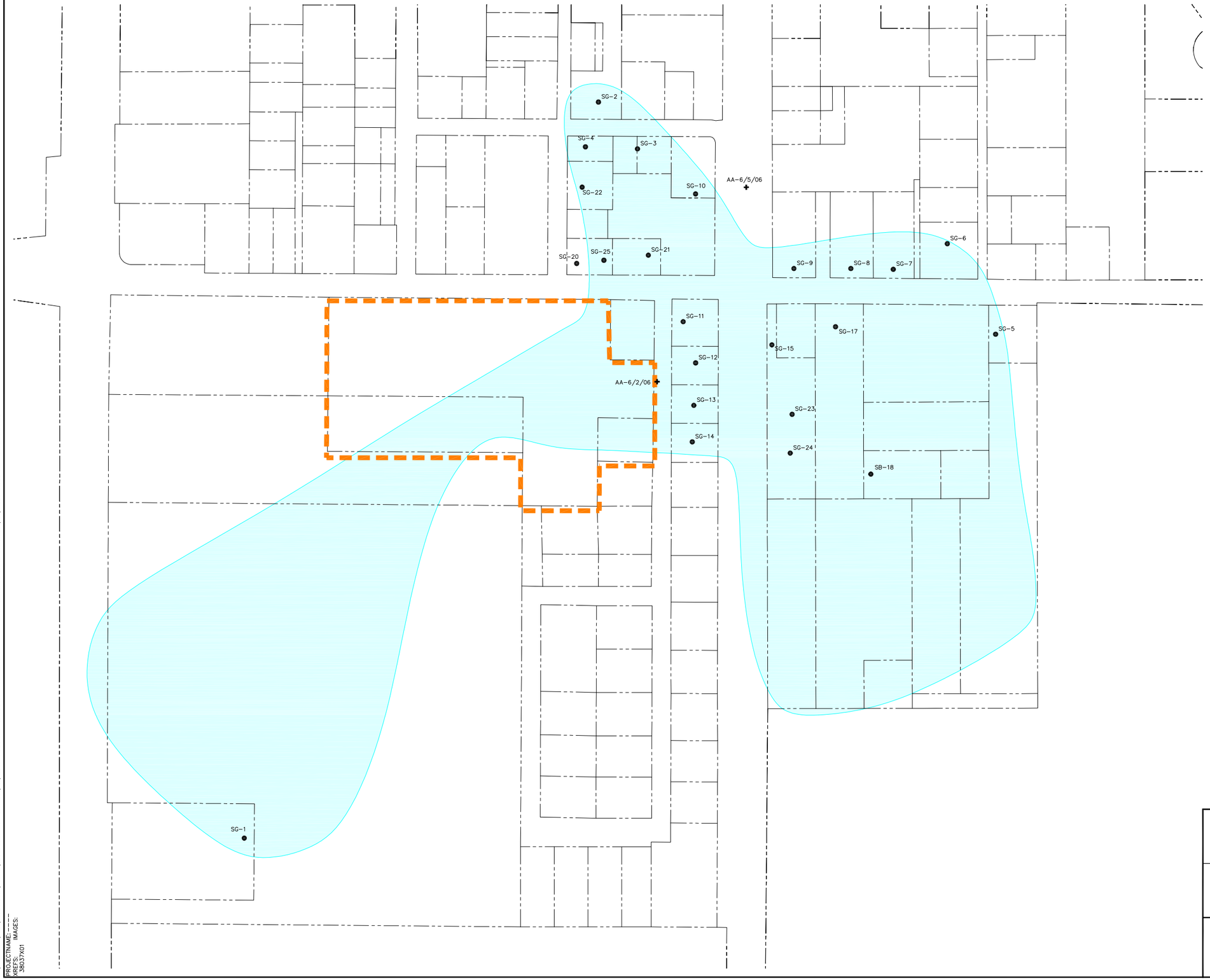
TABLE 2
SOIL-VAPOR ANALYTICAL RESULTS
COMPARISON OF JUNE 2006 TO OCTOBER 2006 RESULTS AT SAME LOCATIONS
VAPOR INTRUSION ASSESSMENT REPORT
ABC COMPANY - TALLEVAST, FLORIDA
(Results presented in µg/m3)

Sample ID:	SG-2RS	SG-XRS	SG-2	SG-6RS	SG-6	SG-12RS	SG-12
DATE	10/06	10/06	06/06	10/06	06/06	10/06	06/06
Tetrachloroethene	<6.8	<6.8	**220**	<6.8	**12**	<6.8	<6.8
Trichloroethene	<5.4	<5.4	<5.4	<5.4	<5.4	**19**	<5.4
1,1-Dichloroethane	<4	<4	<4	<4	<4	<4	**15**
1,1-Dichloroethene	<4	<4	<4	<4	<4	<4	<4
cis-1,2-Dichloroethene	<4	<4	<4	<4	<4	**4.4**	<4

Sample ID:	SG-13RS	SG-13	SG-15RS	SG-15	SG-23RS	SG-23
DATE	10/06	06/06	10/06	06/06	10/06	06/06
Tetrachloroethene	<6.8	**32**	<6.8	**89**	**15**	**30**
Trichloroethene	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4
1,1-Dichloroethane	<4	<4	<4	<4	<4	<4
1,1-Dichloroethene	<4	<4	<4	<4	<4	<4
cis-1,2-Dichloroethene	<4	<4	<4	<4	<4	<4

Notes:
µg/m3 - micrograms per cubic meter
AA - Ambient Air Samples
FB - Field Blank
< - Below laboratory detection limit (laboratory detection limit shown).

Figures



LEGEND:

- PARCEL BOUNDARY
- PROPERTY BOUNDARY
- SG-5 ● SOIL GAS SAMPLING LOCATION
- AA-6/2/06 ✚ AMBIENT AIR SAMPLING LOCATION
- APPROXIMATE TCE PLUME ABOVE TARGET GROUNDWATER CONCENTRATION CORRESPONDING TO TARGET INDOOR AIR CONCENTRATIONS (5 µg/L)

0 100' 200'
GRAPHIC SCALE

FORMER AMERICAN BERYLLIUM COMPANY
TALLEVAST, FLORIDA

VAPOR INTRUSION ASSESSMENT REPORT

SOIL VAPOR AND AMBIENT AIR SAMPLING LOCATIONS JUNE 2006

ARCADIS BBL
Infrastructure, environment, facilities

FIGURE
1

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XREFS:
IMAGES:
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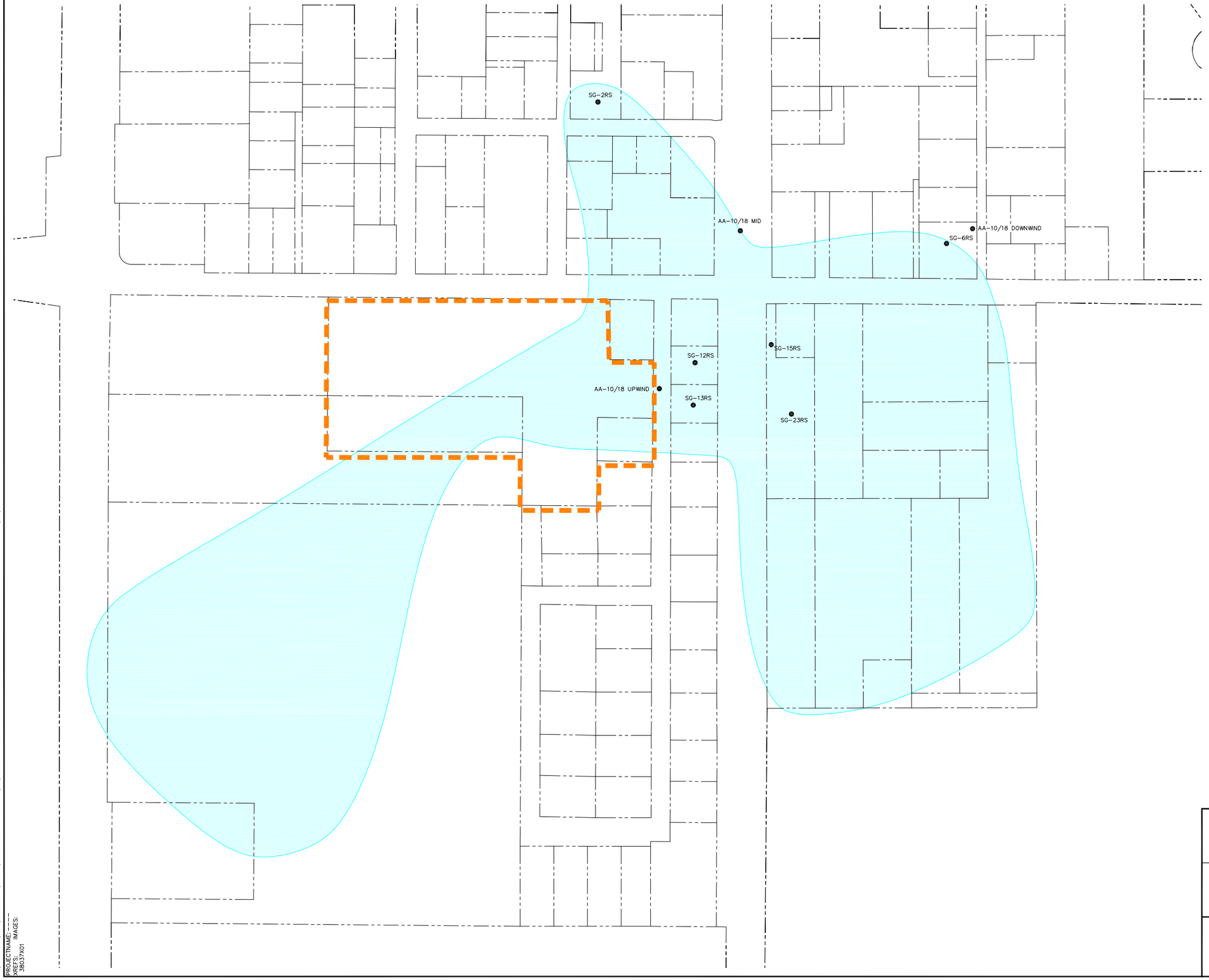

LEGEND:

- PARCEL BOUNDARY
- PROPERTY BOUNDARY
- SG-5RS ● SOIL GAS SAMPLING LOCATION
- APPROXIMATE TCE PLUME ABOVE TARGET GROUNDWATER CONCENTRATION CORRESPONDING TO TARGET INDOOR AIR CONCENTRATIONS (5 µg/L)

0 100' 200'
GRAPHIC SCALE

FORMER AMERICAN BERYLLIUM COMPANY
TALLEVAST, FLORIDA

VAPOR INTRUSION ASSESSMENT REPORT

SOIL VAPOR AND AMBIENT AIR SAMPLING LOCATIONS OCTOBER 2006

ARCADIS BBL
Infrastructure, environment, facilities

FIGURE
2

TAM-85-JAR LAYER: ON=*, OFF=*REF*
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IMAGES:
38037X01

ARCADIS BBL

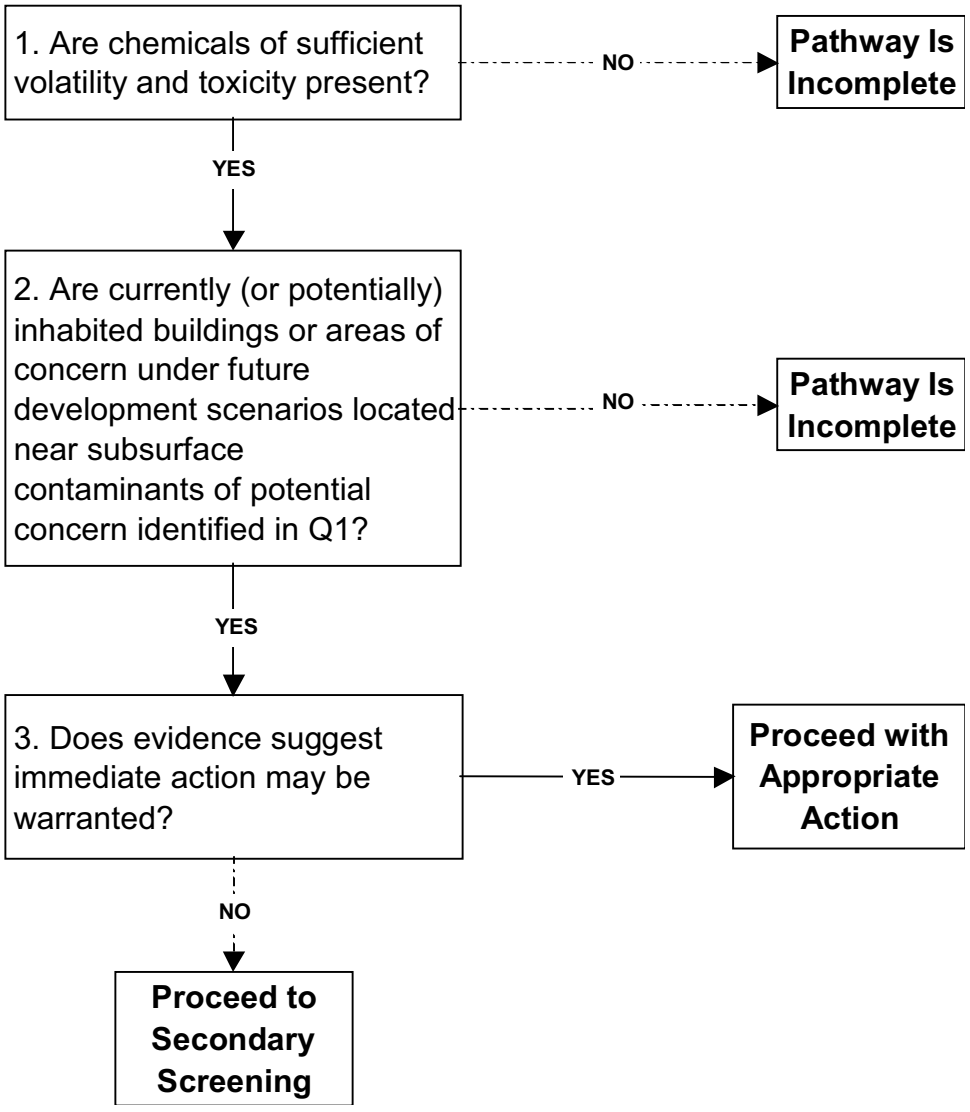
Appendix A

USEPA Subsurface Vapor
Intrusion Guidance, Appendix C

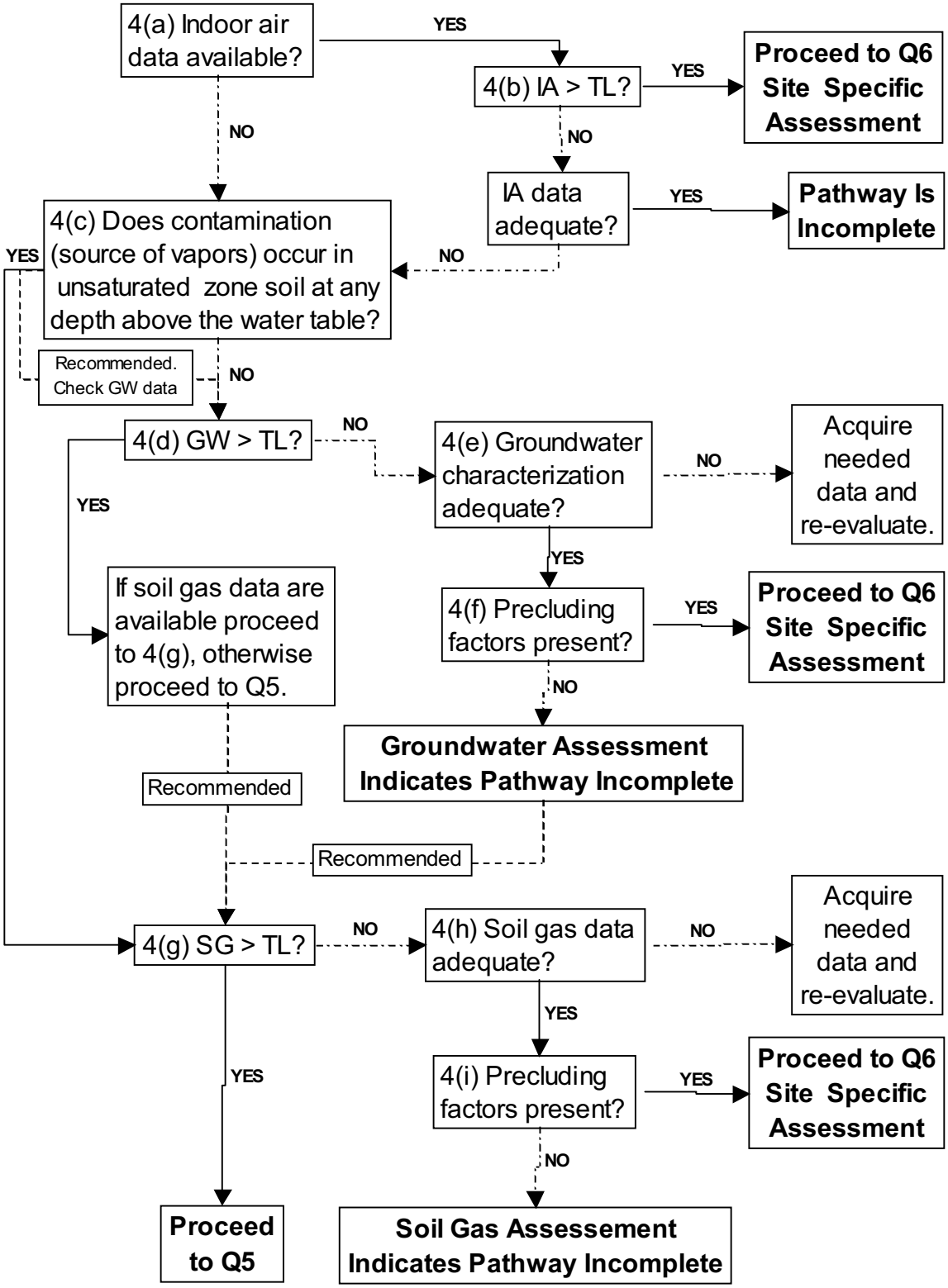
APPENDIX C

DETAILED FLOW DIAGRAMS OF THE EVALUATION APPROACH USED IN THE GUIDANCE

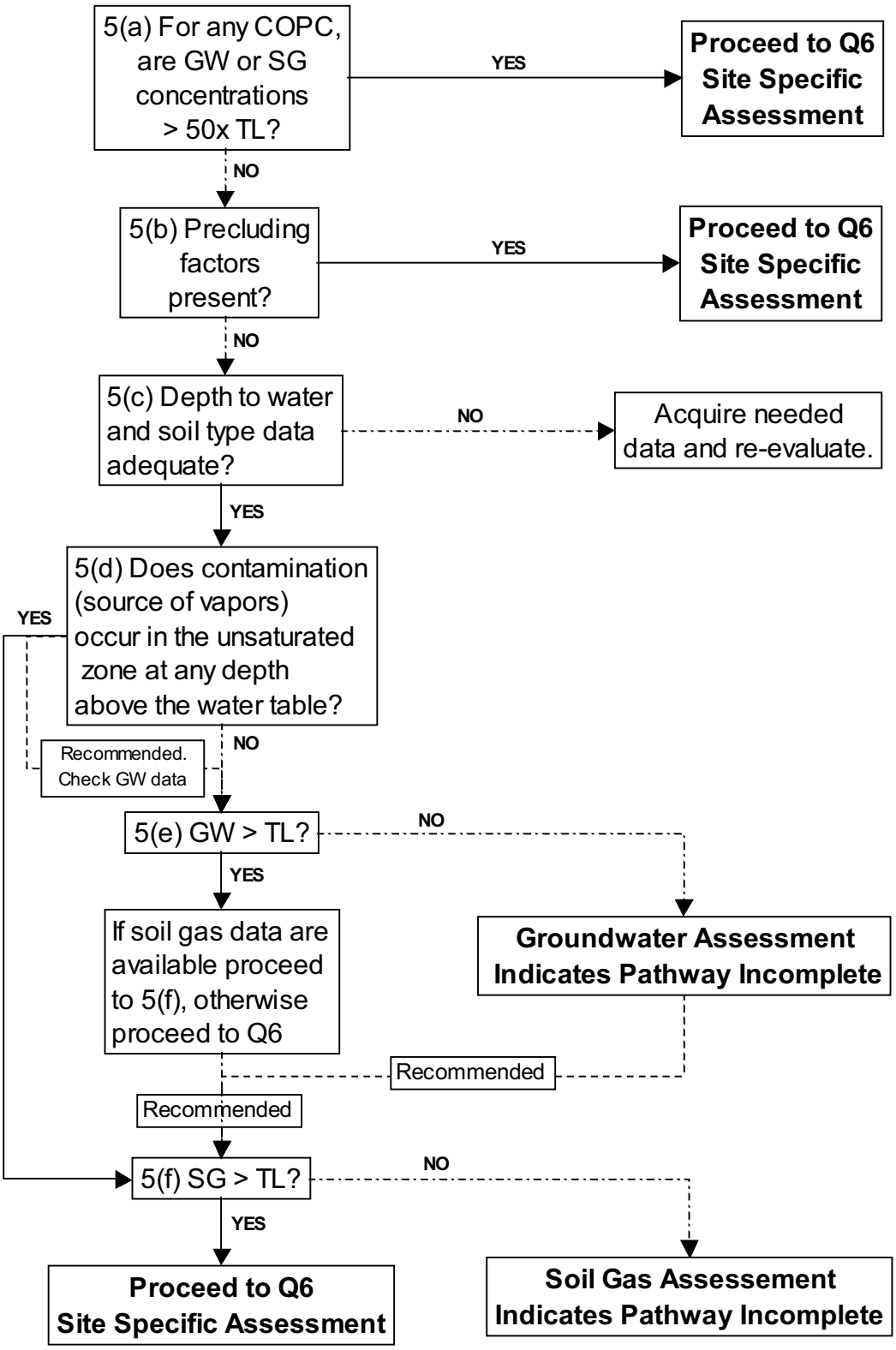
PRIMARY SCREENING



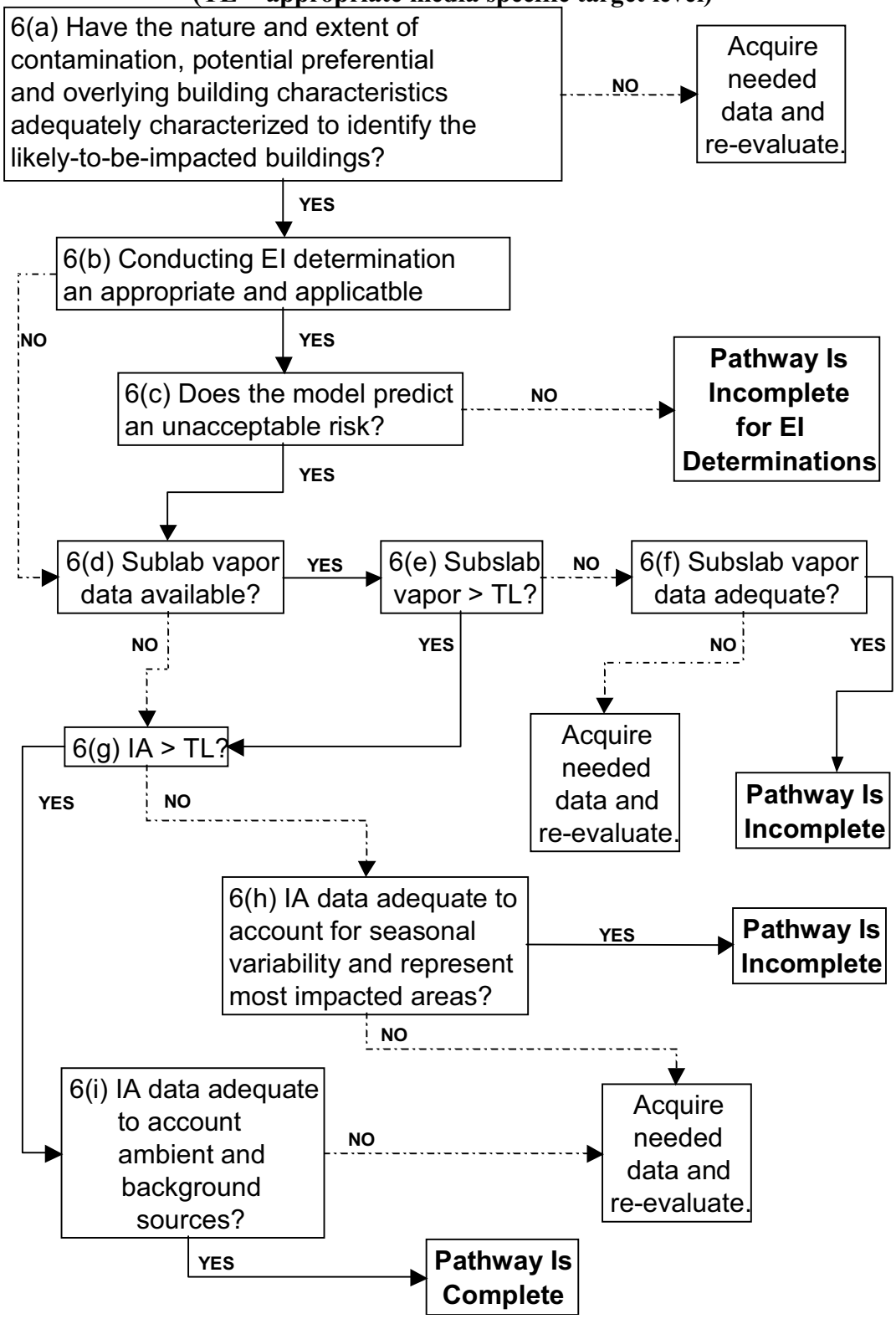
SECONDARY SCREENING
Question 4 – Generic Screening
(TL = appropriate media specific target level)



SECONDARY SCREENING
Question 5 – Semi-Site Specific Screening
(TL = appropriate media specific target level)



SITE SPECIFIC SCREENING
Question 6
(TL = appropriate media specific target level)



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Appendix B

Standard Operating Procedure:
Soil-Gas Sampling Using USEPA
Method TO-15

B.1 SCOPE AND APPLICATION

This Standard Operating Procedure (SOP) describes the procedures to collect soil vapor samples for the analysis of volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method TO-15 (TO-15). The TO-15 method uses a 6-liter SUMMA® passivated stainless-steel canister. An evacuated 6-liter SUMMA® canister (<28 inches of mercury [Hg]) will provide a recoverable whole-gas sample of approximately 5.5 liters when allowed to fill to a vacuum of 2 inches of Hg. The whole-air sample will be analyzed for VOCs using a quadrupole or ion-trap gas chromatograph/mass spectrometer (GC/MS) system to provide compound detection limits of 0.5 parts per billion volume (ppbv).

The following sections list the necessary equipment and provide detailed instructions for the installation of soil vapor probes and the collection of soil vapor samples for VOC analysis during the offsite soil vapor investigation performed by Lockheed Martin Corporation at the former American Beryllium Company facility (facility) in Tallevast, Florida.

B.2 PERSONNEL QUALIFICATIONS

Field sampling personnel will have current health and safety training.

B.3 EQUIPMENT LIST

Temporary Soil Vapor Probe

The equipment required to install a temporary soil vapor probe is presented below:

- hand auger with a 1- or 2-inch bucket
- preassembled soil vapor probe (Geoprobe® or similar)
- photoionization detector (with a lamp of 11.7 electron volts [eV])
- ¼-inch tubing (Teflon®, polyethylene, or similar)
- clean sand (or similar fill)
- bentonite

- air tight seal
- wooden stake

Soil Vapor Collection

The equipment required for soil vapor sample collection is presented below:

- 6-liter, stainless-steel SUMMA® canisters (at least two extra canisters will be available during sampling)
- flow controllers with in-line particulate filters and vacuum gauges. Flow controllers are pre-calibrated to specified sample duration (e.g., 60 minutes) or flow rate (e.g., 100 milliliters per minute [mL/min]). Confirm with lab that the flow controller comes with in-line particulate filter and pressure gauge (order at least one extra, if feasible)
- ¼-inch tubing (Teflon®, polyethylene, or similar)
- stainless steel "T" fitting (for connection to SUMMA® canisters and Teflon® tubing to collect duplicate samples)
- portable vacuum pump (or syringe) capable of producing very low flow rates (e.g., 100 mL/min)
- flow meter
- helium gas canister
- field helium detector
- plastic sheeting
- PID (with a lamp of 11.7 eV)
- 9/16-inch open-end wrench
- field camera

- chain-of-custody forms
- soil vapor sample collection log (a blank log is attached)
- field notebook

B.4 SAMPLING CARE

Care will be used during all aspects of sample collection to minimize sampling error and obtain high-quality data. For example, care will be used to properly seal around the soil vapor probe at the ground surface to prevent leakage of atmospheric air into the probe during purging and sampling. In addition, the sampling team will avoid actions (e.g., fueling vehicles, using permanent marking pens, and wearing freshly dry-cleaned clothing or personal fragrances) that could potentially cause sample interference in the field.

B.5 HEALTH AND SAFETY CONSIDERATIONS

Field sampling personnel will follow and adhere to all procedures and requirements as outlined in the project-specific *Health and Safety Plan*.

B.6 PROCEDURES

Temporary Soil Vapor Probe Installation

1. Measure nearby upper surficial aquifer monitoring wells and calculate current water elevation. Advance a hand auger with a 1- or 2-inch diameter to 1.5 to 2 feet above the local water elevation.

2. Attach tubing to pre-assembled soil vapor probe, lower into borehole, and hold probe upright until sand pack is added.

3. Fill annular space between the pre-assembled soil vapor probe with clean sand to approximately 1 foot above the vapor probe. Fill remaining borehole with bentonite.

4. Allow at least 30 minutes for bentonite mixture to hydrate and proceed to soil vapor sample collection.

5. When soil vapor sampling is complete, remove the drive rods and backfill the boring with native soil or clean sand.

Soil Vapor Sample Collection

1. Record the following information in the field notebook and on the Field Sampling Logs from a suitable information source [e.g., www.weatherunderground.com]:

   - wind speed and direction
   - ambient temperature
   - barometric pressure
   - relative humidity

2. Use a tracer gas compound (helium) during the soil vapor sampling process to evaluate potential leakage of atmospheric air into the SUMMA® canisters used to collect the soil vapor samples. After the tubing has been connected with the SUMMA® canister and purging is complete, place plastic sheeting around the borehole and begin to add helium beneath the sheeting near the top of the boring – next to the bentonite/clay-sealed sampling point. Attach field helium detector to soil vapor probe to evaluate potential seal issues. If seal issues are identified (over 20%), adjust as appropriate.

3. Connect a portable vacuum pump (or syringe) to the sample tubing. Purge one to two volumes (target 1.5 volumes) of air from the vapor probe and sampling line using a portable pump at a rate of approximately 100 mL/min and measure organic vapor levels with a PID.

   The purge volumes should be estimated using the following calculation:

   Equation (1) **Purge Volume = 1.5 π r^2 h**

   Where:

   Purge volume is in cubic feet

   π is 3.14159 (unitless)

r is radius of borehole (feet)

h is height from bottom of borehole (feet)

4. Connect the flow controller with in-line particulate filter and vacuum gauge to the SUMMA® canister. Do not open the valve on the SUMMA® canister. Record the flow controller number with the appropriate SUMMA® canister number in the field notebook. Collect duplicate samples sequentially.

5. Connect the sample collection tubing to the flow controller and the SUMMA® canister valve. Record in the field notebook the time sampling began and the canister pressure. The first samples collected will be carefully observed to verify that the canister is filling at an appropriate rate (i.e., between 100 and 200 mL/min).

6. Arrive at the SUMMA® canister location at least 15 minutes prior to the end of the sampling interval (30 to 60 minutes). Record the final vacuum pressure. Stop collecting the sample by closing the SUMMA® canister valves. Confirm that the canister has a minimum amount of vacuum (approximately 2 inches of Hg or slightly greater). Leaving some vacuum in the canister provides a way to assess whether the canister leaks while in transit to the laboratory.

7. Disconnect the sample collection tubing from the flow controller. Remove the flow controller with in-line particulate filter and vacuum gauge from the SUMMA® canister. Package the canister and flow controller in the shipping container supplied by the laboratory for return shipment to the laboratory. The SUMMA® canister does not require preservation with ice or refrigeration during shipment.

8. Complete the appropriate forms (e.g., chain of custody) and sample labels. Properly attach sample labels to each SUMMA® canister and include all appropriate forms into shipping containers. Secure each shipping container (e.g., with packing tape) and attach appropriate shipping labels.

Ship all containers via overnight courier. As soon as reasonably possible, verify laboratory receipt of the sample shipment.

B.7 WASTE MANAGEMENT

Field personnel will collect and remove all investigation-derived waste materials (including disposable equipment) for proper disposal.

B.8 DATA RECORDING AND MANAGEMENT

Measurements will be recorded in the field notebook and Field Sampling Logs at the time of measurement with notations of project name, sample date, sample start and finish time, sampling location (e.g., global positioning system coordinates), canister serial number, flow controller serial number, initial vacuum reading, and final pressure reading. Field sampling logs and chain-of-custody records will be referenced in the project report submitted to the agencies. An example of the Field Sampling Log is attached.

B.9 QUALITY ASSURANCE/QUALITY CONTROL

Soil vapor sample analysis will be performed using USEPA TO-15 methodology. This method uses a quadrupole or ion-trap GC/MS with a capillary column to provide optimum detection limits. The GC/MS system requires a 1-liter gas sample (which can easily be recovered from a 6-liter canister) to provide the specified detection limit (see Table C-1). The 6-liter canister also provides several additional 1-liter samples in case subsequent re-analyses or dilutions are required. This system also offers the advantage of the GC/MS detector, which confirms the identity of detected compounds by evaluating their mass spectra.

Duplicate and split samples will not be collected as part of this project and as advised by the agencies.

Additional information regarding quality assurance/quality control may be found in Appendix C.

B.10 REFERENCES

Environmental Protection Agency. 2002. *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils*.

BBL®
BLASLAND, BOUCK & LEE, INC.
engineers, scientists, economists

Soil Gas Sample Collection Log

Sample ID:

Client:		**Date/Day:**	
Project:		**Weather:**	
Location:		**Temperature:**	
Project #:		**Wind Speed/Direction:**	
Samplers:		**Subcontractor:**	
Logged By:		**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	Dry / Moist
Sampling Depth:		**Approximate Purge Volume:**	
Time of Collection:		**Background PID Ambient Air Reading:**	

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)

SUMMA Canister Information

Size (circle one): **1 L** **6 L**

Canister ID: _____

Flow Controller ID: _____

Tracer Gas Information (if applicable)

Tracer Gas: _____

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Appendix C

Quality Assurance/Quality Control Procedures

This attachment summarizes the quality assurance/quality control (QA/QC) procedures to be implemented in conjunction with the soil vapor sampling and analysis activities at the former American Beryllium Company Facility (facility) located in Tallevast, Florida. A summary of compounds to be analyzed and a summary of the *Sampling and Analysis Plan* are provided as Table C-1 and C-2, respectively.

C.1 LABORATORY QUALIFICATIONS

Analytical laboratory services must be provided by a qualified Environmental Laboratory Approval Program-certified laboratory experienced in the analyses of soil vapor, ambient air, and groundwater samples using the methods specified herein.

C.2 LABORATORY QA/QC REQUIREMENTS

C.2.1 Quality Assurance/Quality Control for Laboratory Analysis

Specific procedures related to project-specific QA/QC for soil vapor and ambient air samples are described in the following subsections.

Method Blank Samples

A method blank will be analyzed by the laboratory at a frequency of 1 per 20 (or fewer) analyses. The method blank (consisting of an aliquot of humidified volatile organic compound-free air or nitrogen) will be carried through the entire analytical procedures.

Laboratory Control Samples

A Laboratory Control Sample (LCS) will be analyzed by the laboratory at a frequency of 1 per 20 (or fewer) investigative samples or once per tune period for the mass spectrometer, whichever is more frequent. The LCS will consist of a known standard prepared from a source other than the supplier of the calibration standard. The LCS will be used to evaluate accuracy of the analytical system, based on consistency with the control limits listed below. The following compounds will be part of the LCS standard: benzene, 1,4-dichlorobenzene, ethylbenzene, 1,1,1-trichloroethane, trichloroethene, and vinyl chloride.

Analyte	Concentration Spiked (ppbv)	Lower Control Limit %	Upper Control Limit %
Benzene	10.65	70	150
1,4-Dichlorobenzene	10.6	37	149
Ethylbenzene	10.9	65	145
1,1,1-Trichloroethane	10.9	81	157
Trichloroethene	10.9	65	144
Vinyl chloride	10.25	68	135

Note:
ppbv – parts per billion volume

Trip Blanks

A trip blank sample will accompany field samples at a rate of one trip blank per shipment container. Trip blanks will originate at the analytical laboratory. Each trip blank will consist of a canister identical to those used for the sampling. Each trip blank canister will be provided as evacuated canister, sent to the field with other canisters, and returned without being opened. The canister will be filled with humidified nitrogen (the same gas used for method blanks) upon return to the laboratory and will be analyzed. The trip blanks will accompany the sample containers throughout transport and sampling activities and will be returned to the laboratory with the field samples.

Duplicate Samples

Duplicate samples will be collected at a rate of 1 per 20 samples. Duplicate samples will be collected from one borehole and will employ the use of a "T" fitting to properly split the sample between SUMMA® canisters.

C.2.2 Calibration Procedures and Frequency

Calibration of instrumentation is required to ensure that the analytical system is operating correctly and functioning at the property sensitivity to meet established quantitation and reporting limits.

The quantitation limit (QL) is the value at which an instrument or method can measure an analyte at a specified level of accuracy. The QL is established by the upper and lower limits of the calibration range with the lower QL set at the concentration of the low calibration standard. Due to the significant amount of error

(~±100%) associated with results near the Method Detection Limit (MDL), the lower QL should be at least three times the MDL or greater.

The reporting limit (RL) is a threshold value for which results are reported as non-detected. In the absence of project-specific or method requirements, the laboratory sets the RL at the same value as the QL (i.e., the RL is associated with the low calibration standard). When project specific RLs are established below the QL, sample results below the QL are qualified as estimated. If very low levels of quantitation are required, and data cannot be estimated due to a risk assessment or compliance issue, the laboratory will analyze a RL check standard (taken through appropriate sample prep procedures) upon client request to assess accuracy at this concentration. The performance criteria and/or any method modifications required to achieve a project RL are determined in conjunction with the client.

This procedure is based on 40 Code of Federal Regulations Part 136, Appendix B and is intended to meet the requirements of the National Environmental Laboratory Accreditation Conference (NELAC) Quality Systems Standard, July 2001; the Department of Defense *Quality Systems Manual*, Final Version, June 2002; and the United States Army Corps of Engineers Shell for Analytical Chemistry.

Each instrument will be calibrated with certified standard solutions, and the linear range will be established for the analytical method. The frequency of calibration and the concentration of calibration standards will be determined by the analytical method.

Standards containing the compounds of interest will be analyzed at various concentrations to establish the linear range of the detector, the limit of detection, and the retention time windows. All calibrations will be performed using either average response factors or first-order linear regression. Higher-order fits will be allowed if permitted by the method if method criteria are met. The resulting calibration curves must meet all method-specified criteria prior to sample analyses.

The calibration curve or average response factor will be verified each day at a frequency specified in the appropriate analytical method. The response from the continuing calibration standard will be checked against the average response factors or calibration curve established during initiation calibration.

C.2.3 Data Validation

Data assessment will be accomplished by the joint efforts of the Project QA/QC Officer and the Project Manager. The data assessment of the Project Manager will be based on the criteria that the sample was properly collected and handled according to the Standard Operating Procedure: Soil Vapor Sampling Using USEPA Method TO-15 (Appendix B). The Project Manager will review field notebooks, Field Sampling Logs, and sampling reports to monitor the integrity of all field operations.

All analytical data will be reported by the laboratory with the appropriate, project-defined deliverables package. An electronic data deliverable (EDD) will also be provided by the laboratory. The EDD will facilitate transfer of date into the existing project database for the site. A copy of the laboratory data package and/or the EDD will be provided to the agencies upon request.

A chemist(s) not employed by the analytical laboratory will validate the data generated by the contract laboratory. The chemist(s) will be experienced in performing data validations and will be familiar with the analytical methods used. The applicable analytical methods and the following document will be used to validate all data generated by the laboratory:

- USEPA. 1999. *Contract Laboratory Program National Functional Guidelines for Organic Data Review.* EPA 540/R-99-008 (October 1999).

C.3 DATA DOCUMENTATION AND REPORTING

A project file will be maintained that contains project plans, field notebooks, Field Sampling Logs and data records, maps and drawings, sample identification documents, chain-of-custody records, the entire analytical data package provided by the laboratory (including QA/QC documentation, data validation notes, references, and literature), report notes and calculations, progress and technical reports, correspondence, and other pertinent information. A project file will be kept at ARCADIS BBL's office in Syracuse, New York, and the file will be maintained for the duration of the project.

The analytical laboratory will review appropriate QC data to verify the validity of the analytical results. The analytical laboratory will prepare and retain full analytical and QA/QC documentation and required by the analytical methods used.

All results of chemical analyses will be supplied in a laboratory report that includes the following items: custody documentation; methodology review, non-conformance summary; sample results summary; QC summary, including method blank, matrix spike, duplicate and laboratory control sample results; and initial and continuing calibration results. The analytical laboratory will supply one hard copy of the analytical and QA/QC documentation to ARCADIS BBL, and it will be included with the reports of analyses in the project file.

C.4 REFERENCES

United States Environmental Protection Agency. 2002. *Draft Guidance for Evaluating Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils*.

40 Code of Federal Regulations Part 136, Appendix B.

Department of Defense. 2002. *Quality Systems Manual*, Final Version (June 2002).

United States Army Corps of Engineers. 2001. Shell for Analytical Chemistry

TABLE C-1
SOIL VAPOR SURVEY
FORMER AMERICAN BERYLLIUM COMPANY
TALLEVAST, FLORIDA

SOIL-VAPOR SAMPLING AND ANALYSIS SUMMARY

Sample Matrix	Analytical Parameter	Analytical Method	Investigative Samples	Method Blanks	Laboratory Control Samples	Trip Blanks	Duplicate Samples	Equipment Rinse Blanks	MS/MSD
Soil-Gas	Volatile Organic Compounds	TO-15	21	1	1	1 per shipping container	2	NA [1]	NA [2]

Notes:

[1] - QA/QC samples for soil-gas will include method blanks, laboratory control samples, trip blanks, and field duplicates; no rinse blanks for the soil-gas samples will be necessary.

[2] - Because the use of SUMMA® canisters does not allow for "spiking" air samples, a matrix spike/matrix spike duplicate (MS/MSD) analysis cannot be performed on the soil-gas samples.

TABLE C-2

SOIL VAPOR SURVEY
FORMER AMERICAN BERYLLIUM COMPANY
TELLEVAST, FLORIDA

METHOD DETECTION LIMITS / LIMITS OF QUANTITATION

Compound	CAS Number	Molecular Weight	Reporting Limit ppbv	Reporting Limit ug/m^3
Acetone (2-propanone)	67-64-1	58.08	5.0	12
Benzene	71-43-2	78.11	0.20	0.64
Bromodichloromethane	75-27-4	163.83	0.20	1.3
Bromoethene	593-60-2	106.96	0.20	0.87
Bromoform	75-25-2	252.75	0.20	2.1
Bromomethane (Methyl bromide)	74-83-9	94.95	0.20	0.78
1,3-Butadiene	106-99-0	60.14	0.20	0.49
2-Butanone (Methyl ethyl ketone)	78-93-3	72.11	0.50	1.5
Carbon disulfide	75-15-0	76.14	0.50	1.6
Carbon tetrachloride	56-23-5	153.84	0.20	1.3
Chlorobenzene	108-90-7	112.56	0.20	0.92
Chloroethane	75-00-3	64.52	0.20	0.53
Chloroform	67-66-3	119.39	0.20	0.98
Chloromethane (Methyl chloride)	74-87-3	50.49	0.20	0.41
3-Chloropropene (allyl chloride)	107-05-1	76.53	0.20	0.63
2-Chlorotoluene (o-Chlorotoluene)	95-49-8	126.59	0.20	1.04
Cyclohexane	110-82-7	84.16	0.20	0.69
Dibromochloromethane	124-48-1	242.74	0.20	2.0
1,2-Dibromoethane	106-93-4	187.88	0.20	1.5
1,2-Dichlorobenzene	95-50-1	147.01	0.20	1.2
1,3-Dichlorobenzene	541-73-1	147.01	0.20	1.2
1,4-Dichlorobenzene	106-46-7	147.01	0.20	1.2
Dichlorodifluoromethane (Freon 12)	75-71-8	120.92	0.20	0.99
1,1-Dichloroethane	75-34-3	98.97	0.20	0.81
1,2-Dichloroethane	107-06-2	98.96	0.20	0.81
1,1-Dichloroethene	75-35-4	96.95	0.20	0.79
cis-1,2-Dichloroethene	156-59-2	96.95	0.20	0.79
trans-1,2-Dichloroethene	156-60-5	96.95	0.20	0.79
1,2-Dichloropropane	78-87-5	112.99	0.20	0.92
cis-1,3-Dichloropropene	10061-01-5	110.98	0.20	0.91
trans-1,3-Dichloropropene	10061-02-6	110.98	0.20	0.91
1,2-Dichlorotetrafluoroethane (Freon 114)	76-14-2	170.93	0.20	1.4
Ethylbenzene	100-41-4	106.16	0.20	0.87
4-Ethyltoluene (p-Ethyltoluene)	622-96-8	120.2	0.20	0.98
n-Heptane	142-82-5	101.2	0.20	0.83
Hexachlorobutadiene	87-68-3	260.76	0.20	2.1
n-Hexane	110-54-3	86.18	0.20	0.70
Methylene chloride	75-09-2	84.94	0.50	1.7
4-Methyl-2-pentanone (MIBK)	108-10-1	100.16	0.50	2.05
MTBE (Methyl tert-butyl ether)	1634-04-4	88.15	0.50	1.8
Styrene	100-42-5	104.14	0.20	0.85
Tertiary butyl alcohol (TBA)	75-65-0	74.12	5.0	15
1,1,2,2-Tetrachloroethane	79-34-5	167.86	0.20	1.4
Tetrachloroethene (PCE)	127-18-4	165.85	0.20	1.4
Toluene	108-88-3	92.13	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1	181.46	0.50	3.7
1,1,1-Trichloroethane	71-55-6	133.42	0.20	1.1
1,1,2-Trichloroethane	79-00-5	133.42	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon TF)	76-13-1	187.38	0.20	1.5
Trichloroethene (TCE)	79-01-6	131.4	0.20	1.07
Trichlorofluoromethane (Freon 11)	75-69-4	137.38	0.20	1.1
1,2,4-Trimethylbenzene	95-63-6	120.19	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8	120.19	0.20	0.98
2,2,4-Trimethylpentane	540-84-1	132.38	0.20	1.08
Vinyl chloride	75-01-4	62.5	0.20	0.51
Xylenes (m&p)	1330-20-7	106.16	0.20	0.87
Xylenes (o)	95-47-6	106.16	0.20	0.87
1,2-Dichloroethene (total)	540-59-0	96.95	0.20	0.79
1,4-Dioxane	123-91-1	88.11	5.0	18
Isopropyl Alcohol	67-63-0	61.09	5.0	12.5
Methyl Butyl Ketone	591-78-6	100.16	0.50	2.05
Methyl methacrylate (upon request only)	80-62-6	100.1	0.50	2.05
Naphthalene (upon request only)	91-20-3	142.2	0.50	2.9
Tetrahydrofuran	109-99-9	72.11	5.0	15

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Appendix D

Data Review for June and October 2006 Soil Gas Results

DATA REVIEW FOR

FORMER AMERICAN BERYLLIUM COMPANY SITE

TALLEVAST, MANATEE COUNTY, FLORIDA

SDG #H6F070221

AIR VOLATILE ANALYSES

Analyses performed by:

Severn Trent Laboratories
Knoxville, Tennessee

Review performed by:

ARCADIS BBL
Infrastructure, environment, facilities

Syracuse, New York
Report #5803R

Summary

The following is an assessment of the data package for Sample Delivery Group (SDG) #H6F070221 for sampling from the Former American Beryllium Company site. Included with this assessment are the data review check sheets used in the review of the package and corrected sample results. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Date	Analysis				
				VOC	SVOC	PCB	MET	MISC
SG-18	H6WD81AA	Air	6/5/2006	X				
AA-6/5/06	H6WE21AA	Air	6/5/2006	X				
SG-25	H6WE71AA	Air	6/5/2006	X				
SG-12	H6WED1AA	Air	6/2/2006	X				
SG-14	H6WEH1AA	Air	6/2/2006	X				
SG-11	H6WEJ1AA	Air	6/2/2006	X				
SG-10	H6WEV1AA	Air	6/5/2006	X				
SG-18D	H6WF11AA	Air	6/5/2006	X				
SG-13	H6WF31AA	Air	6/2/2006	X				
SG-17	H6WF41AA	Air	6/2/2006	X				
AA-6/2/06	H6WF51AA	Air	6/2/2006	X				
SG-2	H6WF61AA	Air	6/5/2006	X				
SG-24	H6WF71AA	Air	6/5/2006	X				
SG-20	H6WF81AA	Air	6/5/2006	X				
SG-3	H6WFC1AA	Air	6/5/2006	X				
SG-21	H6WFF1AA	Air	6/5/2006	X				
SG-15	H6WFG1AA	Air	6/5/2006	X				
SG-5	H6WFM1AA	Air	6/5/2006	X				
SG-1	H6WFR1AA	Air	6/5/2006	X				
SG-9D	H6WFT1AA	Air	6/5/2006	X				
SG-9	H6WFW1AA	Air	6/5/2006	X				
SG-23	H6WFX1AA	Air	6/5/2006	X				
SG-7	H6WGD1AA	Air	6/5/2006	X				
SG-8	H6WGE1AA	Air	6/5/2006	X				
SG-22	H6WGF1AA	Air	6/5/2006	X				
SG-4	H6WGG1AA	Air	6/5/2006	X				
FB 6/6/06	H6WGH1AA	Air	6/6/2006	X				
SG-6	H6WGL1AA	Air	6/5/2006	X				

AIR VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

Introduction

Analyses were performed according to (United Stated Environmental Protection Agency) USEPA Method TO-15. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

E The compound was quantitated above the calibration range.

D Concentration is based on a diluted sample analysis.

UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Data Assessment

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Method TO-15	Air	14 days from collection to analysis	Ambient temperature

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method, trip, and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure contamination of samples during shipment. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

No compounds were detected in the associated blanks.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less then the control limit (30%) and RRF value greater than control limit (0.05).

All calibration criteria were within the control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 40% or less than 40% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

8. Laboratory Duplicates (Laboratory Replicates)

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for air matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for air matrices.

Laboratory duplicates were not performed as part of this SDG.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 20% for air matrices, 50% for water matrices and 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SG-9/SG-9D	All compounds	ND	ND	AC
SG-18/SG-18D	All compounds	ND	ND	AC

ND = Not detected.
AC = The field duplicate RPD is acceptable when the RPD between parent sample and field duplicate sample is less than two times the RL and where the parent sample and/or duplicate concentration is less than five times the RL.

The calculated RPDs between the parent sample and field duplicate were acceptable.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria. All samples within this SDG were subject to a library search to identify the presence or absence of 1,4-Dioxane. The laboratory instrumentation was not calibrated for the 1,4-Dioxane; therefore the ability of the laboratory to detect or not detect the compound was not demonstrated. The associate 1,4-Dioxane sample results were changed from nondetect to not present.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

CORRECTED SAMPLE ANALYSIS DATA SHEETS

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-18

GC/MS Volatiles

Lot-Sample # H6F070221 - 001 **Work Order #** H6WD81AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/7/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6159645
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-Dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	121	70 - 130
Toluene-d8	106	70 - 130
4-Bromofluorobenzene	91	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-12

GC/MS Volatiles

Lot-Sample # H6F070221 - 002 **Work Order #** H6WED1AA **Matrix.....:** AIR

Date Sampled...: 6/2/06 **Date Received..:** 6/7/06
Prep Date.....: 6/7/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6159645
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	**3.6**	**1.0**	**15**	**4.0**
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-Dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	115	70 - 130
Toluene-d8	102	70 - 130
4-Bromofluorobenzene	101	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-14

GC/MS Volatiles

Lot-Sample # H6F070221 - 003 **Work Order #** H6WEH1AA **Matrix.....:** AIR

Date Sampled...: 6/2/06 **Date Received..:** 6/7/06
Prep Date.....: 6/7/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6159645
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-Dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	114	70 - 130
Toluene-d8	101	70 - 130
4-Bromofluorobenzene	99	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-11

GC/MS Volatiles

Lot-Sample # H6F070221 - 004 **Work Order #** H6WEJ1AA **Matrix.....:** AIR

Date Sampled...: 6/2/06 **Date Received..:** 6/7/06
Prep Date.....: 6/7/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6159645
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-Dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	116	70 - 130
Toluene-d8	102	70 - 130
4-Bromofluorobenzene	101	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-10

GC/MS Volatiles

Lot-Sample # H6F070221 - 006 **Work Order #** H6WEV1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/7/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6159645
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-Dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	116	70 - 130
Toluene-d8	103	70 - 130
4-Bromofluorobenzene	95	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: AA-6/5/06

GC/MS Volatiles

Lot-Sample # H6F070221 - 007 **Work Order #** H6WE21AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6160070
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	0.20	ND	1.4
Trichloroethene	ND	0.20	ND	1.1
1,1-Dichloroethane	ND	0.20	ND	0.81
1,1-Dichloroethene	ND	0.20	ND	0.79
cis-1,2-Dichloroethene	ND	0.20	ND	0.79

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	115	70 - 130
Toluene-d8	106	70 - 130
4-Bromofluorobenzene	95	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-25

GC/MS Volatiles

Lot-Sample # H6F070221 - 008 **Work Order #** H6WE71AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6162038
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-Dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	99	70 - 130
Toluene-d8	103	70 - 130
4-Bromofluorobenzene	95	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-3

GC/MS Volatiles

Lot-Sample # H6F070221 - 009 **Work Order #** H6WFC1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06
Prep Date.....: 6/8/06
Prep Batch #.....: 6162038
Dilution Factor.: 5

Date Received..: 6/7/06
Analysis Date... 6/8/06
Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-Dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	98	70 - 130
Toluene-d8	104	70 - 130
4-Bromofluorobenzene	99	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-21

GC/MS Volatiles

Lot-Sample # H6F070221 - 010 **Work Order #** H6WFF1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06
Prep Date.....: 6/8/06
Prep Batch #.....: 6162038
Dilution Factor.: 5

Date Received..: 6/7/06
Analysis Date... 6/8/06

Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-Dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	100	70 - 130
Toluene-d8	104	70 - 130
4-Bromofluorobenzene	97	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-15

GC/MS Volatiles

Lot-Sample # H6F070221 - 011 **Work Order #** H6WFG1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6162038
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	**13**	**1.0**	**89**	**6.8**
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-Dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	105	70 - 130
Toluene-d8	104	70 - 130
4-Bromofluorobenzene	96	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-5

GC/MS Volatiles

Lot-Sample # H6F070221 - 012 **Work Order #** H6WFM1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6162038
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-Dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	101	70 - 130
Toluene-d8	104	70 - 130
4-Bromofluorobenzene	101	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-1

GC/MS Volatiles

Lot-Sample # H6F070221 - 013 **Work Order #** H6WFR1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/9/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	120	70 - 130
Toluene-d8	101	70 - 130
4-Bromofluorobenzene	105	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-9D

GC/MS Volatiles

Lot-Sample # H6F070221 - 014 **Work Order #** H6WFT1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	116	70 - 130
Toluene-d8	101	70 - 130
4-Bromofluorobenzene	98	70 - 130

The 'Result' in ug/m3 is calculated using the following equation; Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-9

GC/MS Volatiles

Lot-Sample # H6F070221 - 015 **Work Order #** H6WFW1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	119	70 - 130
Toluene-d8	95	70 - 130
4-Bromofluorobenzene	99	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-23

GC/MS Volatiles

Lot-Sample # H6F070221 - 016 **Work Order #** H6WFX1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	**4.5**	**1.0**	**30**	**6.8**
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	117	70 - 130
Toluene-d8	100	70 - 130
4-Bromofluorobenzene	97	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-18D

GC/MS Volatiles

Lot-Sample # H6F070221 - 017 **Work Order #** H6WF11AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	122	70 - 130
Toluene-d8	98	70 - 130
4-Bromofluorobenzene	101	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-13

GC/MS Volatiles

Lot-Sample # H6F070221 - 018 **Work Order #** H6WF31AA **Matrix.....:** AIR

Date Sampled...: 6/2/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/8/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	**4.7**	**1.0**	**32**	**6.8**
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	120	70 - 130
Toluene-d8	99	70 - 130
4-Bromofluorobenzene	102	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-17

GC/MS Volatiles

Lot-Sample # H6F070221 - 019 **Work Order #** H6WF41AA **Matrix.....:** AIR

Date Sampled...: 6/2/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/9/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	120	70 - 130
Toluene-d8	101	70 - 130
4-Bromofluorobenzene	99	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: AA-6/2/06

GC/MS Volatiles

Lot-Sample # H6F070221 - 020 **Work Order #** H6WF51AA **Matrix.....:** AIR

Date Sampled...: 6/2/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/9/06
Prep Batch #.....: 6160070
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	**0.51**	**0.20**	**3.5**	**1.4**
Trichloroethene	**1.8**	**0.20**	**9.5**	**1.1**
1,1-Dichloroethane	ND	0.20	ND	0.81
1,1-Dichloroethene	ND	0.20	ND	0.79
cis-1,2-Dichloroethene	**2.9**	**0.20**	**12**	**0.79**

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	118	70 - 130
Toluene-d8	103	70 - 130
4-Bromofluorobenzene	97	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-2

GC/MS Volatiles

Lot-Sample # H6F070221 - 021 **Work Order #** H6WF61AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/9/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	**33**	**1.0**	**220**	**6.8**
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	125	70 - 130
Toluene-d8	98	70 - 130
4-Bromofluorobenzene	98	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-24

GC/MS Volatiles

Lot-Sample # H6F070221 - 022 **Work Order #** H6WF71AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/9/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	122	70 - 130
Toluene-d8	98	70 - 130
4-Bromofluorobenzene	101	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-20

GC/MS Volatiles

Lot-Sample # H6F070221 - 023 **Work Order #** H6WF81AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/9/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	126	70 - 130
Toluene-d8	98	70 - 130
4-Bromofluorobenzene	99	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-7

GC/MS Volatiles

Lot-Sample # H6F070221 - 024 **Work Order #** H6WGD1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/9/06
Prep Batch #....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	122	70 - 130
Toluene-d8	98	70 - 130
4-Bromofluorobenzene	100	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-8

GC/MS Volatiles

Lot-Sample # H6F070221 - 025 **Work Order #** H6WGE1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/9/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	121	70 - 130
Toluene-d8	104	70 - 130
4-Bromofluorobenzene	98	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-22

GC/MS Volatiles

Lot-Sample # H6F070221 - 026 **Work Order #** H6WGF1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/9/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	117	70 - 130
Toluene-d8	100	70 - 130
4-Bromofluorobenzene	100	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-4

GC/MS Volatiles

Lot-Sample # H6F070221 - 027 **Work Order #** H6WGG1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/9/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	114	70 - 130
Toluene-d8	104	70 - 130
4-Bromofluorobenzene	98	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: FB 6/6/06

GC/MS Volatiles

Lot-Sample # H6F070221 - 028 **Work Order #** H6WGH1AA **Matrix.....:** AIR

Date Sampled...: 6/6/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/9/06
Prep Batch #.....: 6160070
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	0.20	ND	1.4
Trichloroethene	ND	0.20	ND	1.1
1,1-Dichloroethane	ND	0.20	ND	0.81
1,1-Dichloroethene	ND	0.20	ND	0.79
cis-1,2-Dichloroethene	ND	0.20	ND	0.79

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	113	70 - 130
Toluene-d8	105	70 - 130
4-Bromofluorobenzene	99	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-6

GC/MS Volatiles

Lot-Sample # H6F070221 - 029 **Work Order #** H6WGL1AA **Matrix.....:** AIR

Date Sampled...: 6/5/06 **Date Received..:** 6/7/06
Prep Date.....: 6/8/06 **Analysis Date...** 6/9/06
Prep Batch #.....: 6160070
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	**1.7**	**1.0**	**12**	**6.8**
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ Not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	116	70 - 130
Toluene-d8	101	70 - 130
4-Bromofluorobenzene	100	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

SAMPLE COMPLIANCE REPORT

SAMPLE COMPLIANCE REPORT

Sample Delivery Group	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB/PEST/ HERB	MET	MISC	
H6F070221	6/5/2006	TO-15	SG-18	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	AA-6/5/06	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-25	Air	Yes	--	--	--	--	
H6F070221	6/2/2006	TO-15	SG-12	Air	Yes	--	--	--	--	
H6F070221	6/2/2006	TO-15	SG-14	Air	Yes	--	--	--	--	
H6F070221	6/2/2006	TO-15	SG-11	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-10	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-18D	Air	Yes	--	--	--	--	
H6F070221	6/2/2006	TO-15	SG-13	Air	Yes	--	--	--	--	
H6F070221	6/2/2006	TO-15	SG-17	Air	Yes	--	--	--	--	
H6F070221	6/2/2006	TO-15	AA-6/2/06	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-2	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-24	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-20	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-3	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-21	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-15	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-5	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-1	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-9D	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-9	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-23	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-7	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-8	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-22	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-4	Air	Yes	--	--	--	--	
H6F070221	6/6/2006	TO-15	FB 6/6/06	Air	Yes	--	--	--	--	
H6F070221	6/5/2006	TO-15	SG-6	Air	Yes	--	--	--	--	

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

CHAIN OF CUSTODY

STL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

Severn Trent Laboratories, Inc. (STL) assumes no liability with respect to the collection and shipment of these samples.

SEVERN TRENT STL

H6F070221

Client Contact Information	Project Manager: Jason Shirer	Sampled By: Shirer	5 of 5 COCs
Company: BBL	Phone: 813-505-3340		
Address: 3350 Buschwood Park Dr Ste 100	Site Contact: Shirer		
City/State/Zip Tampa FL	STL Contact: S. Harris / J Reynolds		
Phone: 813-933 0647			
FAX: 813-932 9514			
Project Name: Tallevast Soil Vapor	Analysis Turnaround Time		
Site: Tallevast	Standard (Specify)		
PO #	X Rush (Specify) 30 Day		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	+ Flow Controller ID	Canister ID	TO-15 *	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SG-18	6/5/06	1628	1658	-30	-7	N/A	6388	X									X		
SG-12	6/2/06	1315	1345	-29	-5	V143	2985	X									X		
SG-14	6/2/06	1310	1340	-25	-3	3928	2987	X									X		
SG-11	6/2/06	1317	1343	-30	-4	10	11207	X									X		

Temperature (Fahrenheit)			
	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)			
	Interior	Ambient	
Start			
Stop			

CUSTODY SEALS INTACT
RECEIVED AT AMBIENT TEMP
bKD 6-7-06
9 BOXES UPS
12 867 W36 01 4609 5581
4706 6684
4640 1632
4582 4968
4673 7011
4527 3041
4694 1620
4587 1805

36 CANS / 32 FLOWS / 2 TEE'S

RUSH TAT!

Special Instructions/QC Requirements & Comments:
* TO 15 Analysis to include TCE, DCE, 1,1 DCE, cis 1,2 DCE, 1,1 DCA + 1,4 Dioxane
+ - A number of FCs did not have IDs -NA=Not Available
SG-14-Dup Submitted - Place on Hold

Canisters Shipped by: Jason Shirer	Date/Time: 6-6-06 / 1630	Canisters Received by:
Samples Relinquished by:	Date/Time: 6-6-06 / 1630	Received by: [illegible] 6-7-06 09:00
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

STL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

Severn Trent Laboratories, Inc. (STL) assumes no liability with respect to the collection and shipment of these samples.

SEVERN TRENT STL

H6F070221

Client Contact Information	Project Manager: Jason Shirer	Sampled By: Shirer	4 of 5 COCs
Company: BBL	Phone: 813-505-3340		
Address: 3350 Buschwood Park Dr Ste 195	Site Contact: Shirer - SAA		
City/State/Zip Tampa FL	STL Contact: Harris/Reynolds		
Phone: 813-933-0697			
FAX: 813-932-9514			
Project Name: Tallevast - Soil Vapor	Analysis Turnaround Time		
Site: Tallevast	Standard (Specify)		
PO #	X Rush (Specify) 3 Day		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID †	Canister ID	TO-15 *	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type: Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SG-10	6/5/06	1500	1530	-30	-3	HF62	11408	X								X		
AA-6/5/06	6/5/06	930	1330	-30	-4	STL K237	11351	X							X			
SG-23	6/5/06	1530	1555	-30	-5	02	02646	X								X		
SG-3	6/5/06	1440	1515	-29	-3	HF82	93156	X								X		
SG-21	6/5/06	1525	1550	-30	-2	01	11151	X								X		
SG-15	6/5/06	982	958	-30	-5	NA †	92021	X										

Temperature (Fahrenheit)			
	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)			
	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:
*TO-15 Analysis to include TCE, PCE, 1,1DCE, cis-1,2DCE, 1,1DCA + 1,4 Dioxane

† - A number of Flow Controllers did not have IDs - NA=Not Available

RUSH TAT!

Canisters Shipped by: Jason Shirer /	Date/Time: 6/6/06 - 1630	Canisters Received by:
Samples Relinquished by:	Date/Time: 6/6/06 - 1630	Received by: 10-7-06 09:20
Relinquished by:	Date/Time:	Received by:

Lab Use Only **Shipper Name:** **Opened by:** **Condition:**

STL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

SEVERN TRENT STL

Severn Trent Laboratories, Inc. (STL) assumes no liability with respect to the collection and shipment of these samples.

46F070221

Client Contact Information	Project Manager: Jason Shirer	Sampled By: Shirer	2 of 5 COCs
Company: BBL	Phone: 813-505-3390		
Address: 3350 Buschwood Park Dr	Site Contact: Shirer		
City/State/Zip Tampa FL	STL Contact: Harris/Reynolds		
Phone: 813-933-0647			
FAX: 813-932-9514			
Project Name: Tallevast Soil Vapor	Analysis Turnaround Time		
Site: Tallevast	Standard (Specify)		
PO #	X Rush (Specify) 30 day		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	+ Flow Controller ID	Canister ID	TO-15 *	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SG-5	6/5/06	1143	1203	-30	-2	HF53	43A	X									X		
SG-1	6/5/06	1720	1750	-30	-5	NA	1525	X									X		
SG-9D	6/5/06	1148	1225	-30	-5	NA	3397	X									X		
SG-9	6/5/06	1148	1225	-30	-5	NA	03843	X									X		
SG-23	6/5/06	930	959	-21	-5	NA	3389	X									X		
SG-18D	6/5/06	1628	1658	-30	-7	NA	6388	X									X		

Temperature (Fahrenheit)			
	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)			
	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

*TO 15 Analysis to include TCE, PCE, 1,1DCE, LS 1,2DCE, 1,1DCA + 1,4 Dioxane

+ - A number of FCs did not have IDs - NA = Not Available

RUSH TAT!

Canisters Shipped by: Jason Shirer	Date/Time: 6/6/06 1630	Canisters Received by:
Samples Relinquished by:	Date/Time: 6/6/06 1630	Received by: 1-7-06 09:00
Relinquished by:	Date/Time:	Received by:

Lab Use Only **Shipper Name:** **Opened by:** **Condition:**

STL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

Severn Trent Laboratories, Inc. (STL) assumes no liability with respect to the collection and shipment of these samples.

SEVERN TRENT STL

H6F070221

Client Contact Information	Project Manager: Jason Shiver	Sampled By: Shiver	3 of 5 COCs
Company: BBL	Phone: 813 505 · 3340		
Address: 3350 Buschwood Park Dr	Site Contact: Shiver		
City/State/Zip Tampa FL	STL Contact: Harris / Reynolds		
Phone: 813 · 933 · 0697			
FAX: 813 932 · 9514			
Project Name: Tallevast Soil Vapor	Analysis Turnaround Time		
Site: Tallevast	Standard (Specify)		
PO #	X Rush (Specify) 3 DAY		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	+ Flow Controller ID	Canister ID	TO-15 *	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SG-13	6/2/06	1312	1350	-30	-1	HF113	93165	X									X		
SG-17	6/5/06	926	956	-30	-4	NA	12175	X									X		
AA · 6/2/06	6/2/06	1110	1330	-30	-18	130677 (HF12)	2994	X								X			
SG-2	6/5/06	1415	1440	-30	-5	12	12815	X									X		
SG-24	6/5/06	931	958	-30	-5	NA	1523	X									X		
SG-20	6/5/06	1400	1400	-30	-5	HF 90	1456	X									X		

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:
* TO-15 Analysis TCE, PCE, 1,1DCE, cis 1,2 DCE, 1,1 DCA + 1,4 Dioxane
+ - Number of Flow Controllers did not have IDs - NA = Not Available

RUSH TAT!

Canisters Shipped by: Jason Shiver	Date/Time: 6·6·06 / 1630	Canisters Received by:
Samples Relinquished by:	Date/Time: 6·6·06 / 1630	Received by: 6-7-06 09:00
Relinquished by:	Date/Time:	Received by

Lab Use Only Shipper Name: Opened by: Condition:

STL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

HGF070221

SEVERN TRENT STL

Severn Trent Laboratories, Inc. (STL) assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Jason Shirer	Sampled By: Shirer	1 of 5 COCs
Company: BBL	Phone: 813-505-3340		
Address: 3350 Buschwood Park Dr	Site Contact: Shirer		
City/State/Zip: Tampa FL	STL Contact: Harris / Reynolds		
Phone: 813-933-0697			
FAX: 813-932-4514			
Project Name: Tallevast - Soil Vapor	Analysis Turnaround Time		
Site: Tallevast	Standard (Specify)		
PO #	X Rush (Specify) 30 Day		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15 *	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SG-7	6/5/06	1110	1140	-30	-3	19	51494	X									X		
SG-8	6/5/06	1112	1142	-30	-3	13	2968	X									X		
SG-22	6/5/06	1355	1425	-30	-5	HF 98	51495	X									X		
SG-4	6/5/06	1410	1445	-30	-5	17	6137	X									X		
FB 6/6/06	6/6/06	—	—	—	—	—	1514	X								X			
SG-6	6/5/06	1145	1215	-30	-2	HF 113	2052	X									X		

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

- *TO-15 Analysis to include TCE, DCE, 1,1DCE, cis 1,2 DCE, 1,1DCA + 1,4 Dioxane
- FB 6/6/06 to be filled in Lab
- A number of FCs did not have IDs

Rush TAT

Canisters Shipped by: Jason Shirer / [illegible]	Date/Time: 6-6-06	Canisters Received by:
Samples Relinquished by: [illegible]	Date/Time: 6-6-06	Received by: [illegible] 6-7-06 09:00
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

DATA REVIEW FOR

FORMER AMERICAN BERYLLIUM COMPANY SITE

TALLEVAST, MANATEE COUNTY, FLORIDA

SDG #H6J200177

AIR VOLATILE ANALYSES

Analyses performed by:

Severn Trent Laboratories
Knoxville, Tennessee

Review performed by:

Syracuse, New York
Report #6242R

Summary

The following is an assessment of the data package for Sample Delivery Group (SDG) #H6J200177 for sampling from the Former American Beryllium Company site. Included with this assessment are the data review check sheets used in the review of the package and corrected sample results. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Date	Analysis				
				VOC	SVOC	PCB	MET	MISC
SG-12RS	H6J200177-001	Air	10/18/06	X				
SG-13RS	H6J200177-002	Air	10/18/06	X				
SG-15RS	H6J200177-003	Air	10/18/06	X				
SG-23RS	H6J200177-004	Air	10/18/06	X				
SG-6RS	H6J200177-005	Air	10/18/06	X				
SG-2RS	H6J200177-006	Air	10/18/06	X				
SG-XRS	H6J200177-007	Air	10/18/06	X				
AA-10/18 DOWNWIND	H6J200177-008	Air	10/18/06	X				
AA-10/18 UPWIND	H6J200177-009	Air	10/18/06	X				
AA-10/18 MID	H6J200177-010	Air	10/18/06	X				
FB-10/18	H6J200177-011	Air	10/18/06	X				

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

Introduction

Analyses were performed according to (United Stated Environmental Protection Agency) USEPA Method TO-15. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.

JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.

E The compound was quantitated above the calibration range.

D Concentration is based on a diluted sample analysis.

UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Data Assessment

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Method TO-15	Air	14 days from collection to analysis	Ambient temperature

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method, trip, and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure contamination of samples during shipment. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

No compounds were detected in the associated blanks.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less then the control limit (30%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Compound	Initial/Continuing	Criteria
SG-12RS SG-13RS SG-15RS SG-23RS SG-6RS SG-2RS SG-XRS AA-10/18 DOWNWIND AA-10/18 UPWIND AA-10/18 MID FB-10/18	1,1-Dichloroethane	CCV %D	35.5

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.005[1] RRF <0.01[2]	Non-detect	R
		Detect	J
	RRF >0.05 RRF >0.005[1] RRF >0.01[2]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
Continuing Calibration	%D >20% (50% for 1,4-Dioxane) (increase in sensitivity)	Non-detect	No Action
		Detect	J
Continuing Calibration	%D >20% (50% for 1,4-Dioxane) (decrease in sensitivity)	Non-detect	UJ
		Detect	J

1. RRF of 0.005 is applied to 1,4-Dioxane as referenced in Exhibit D of Analytical Method for the Analysis of Trace Concentrations of Volatile Organic Compounds.
2. RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e. ketones, etc.)

5. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than 40% or less than 40% of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

6. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
SG-12RS SG-13RS SG-15RS SG-23RS SG-6RS SG-2RS SG-XRS AA-10/18 DOWNWIND AA-10/18 UPWIND AA-10/18 MID FB-10/18	1,1-Dichloroethane	>UL

The criteria used to evaluate the LCS recoveries are presented in the following table. In the case of an LCS deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	J
	Detect	J
< 10%	Non-detect	R
	Detect	J

7. Laboratory Duplicates (Laboratory Replicates)

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for air matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for air matrices.

Laboratory duplicates were not performed on a sample location within this SDG.

8. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 20% for air matrices, 50% for water matrices and 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate.

Field duplicates were not performed on a sample location within this SDG.

9. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria. All samples within this SDG were subject to a library search to identify the presence or absence of 1,4-Dioxane. The laboratory instrumentation was not calibrated for the 1,4-Dioxane; therefore the ability of the laboratory to detect or not detect the compound was not demonstrated. The associate 1,4-Dioxane sample results were changed from nondetect to not present.

All identified compounds met the specified criteria.

10. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

CORRECTED SAMPLE ANALYSIS DATA SHEETS

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-12RS

GC/MS Volatiles

Lot-Sample # H6J200177 - 001 **Work Order #** JGWHG1AA **Matrix.....:** AIR

Date Sampled...: 10/18/06
Prep Date.....: 10/23/06
Prep Batch #.....: 6297184
Dilution Factor.: 5

Date Received..: 10/20/06
Analysis Date... 10/23/06

Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	**3.5**	**1.0**	**19**	**5.4**
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	**1.1**	**1.0**	**4.4**	**4.0**

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ not Present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	117	70 - 130
Toluene-d8	116	70 - 130
4-Bromofluorobenzene	100	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-13RS

GC/MS Volatiles

Lot-Sample # H6J200177 - 002 **Work Order #** JGWHJ1AA **Matrix.....:** AIR

Date Sampled...: 10/18/06 **Date Received..:** 10/20/06
Prep Date.....: 10/23/06 **Analysis Date...** 10/23/06
Prep Batch #.....: 6297184
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	114	70 - 130
Toluene-d8	116	70 - 130
4-Bromofluorobenzene	97	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-15RS

GC/MS Volatiles

Lot-Sample # H6J200177 - 003 **Work Order #** JGWHT1AA **Matrix.....:** AIR

Date Sampled...: 10/18/06
Prep Date.....: 10/23/06
Prep Batch #.....: 6297184
Dilution Factor.: 5

Date Received..: 10/20/06
Analysis Date... 10/23/06

Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	116	70 - 130
Toluene-d8	114	70 - 130
4-Bromofluorobenzene	100	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-23RS

GC/MS Volatiles

Lot-Sample # H6J200177 - 004 **Work Order #** JGWHW1AA **Matrix.....:** AIR

Date Sampled...: 10/18/06
Prep Date.....: 10/23/06
Prep Batch #.....: 6297184
Dilution Factor.: 5

Date Received..: 10/20/06
Analysis Date... 10/23/06
Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	**2.2**	**1.0**	**15**	**6.8**
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	118	70 - 130
Toluene-d8	114	70 - 130
4-Bromofluorobenzene	100	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-6RS

GC/MS Volatiles

Lot-Sample # H6J200177 - 005 **Work Order #** JGWH01AA **Matrix.....:** AIR

Date Sampled...: 10/18/06
Prep Date.....: 10/23/06
Prep Batch #.....: 6297184
Dilution Factor.: 5

Date Received..: 10/20/06
Analysis Date... 10/23/06
Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	116	70 - 130
Toluene-d8	113	70 - 130
4-Bromofluorobenzene	99	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-2RS

GC/MS Volatiles

Lot-Sample # H6J200177 - 006 **Work Order #** JGWH21AA **Matrix.....:** AIR

Date Sampled...: 10/18/06 **Date Received..:** 10/20/06
Prep Date.....: 10/23/06 **Analysis Date...** 10/23/06
Prep Batch #.....: 6297184
Dilution Factor.: 5 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ NOT present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	118	70 - 130
Toluene-d8	114	70 - 130
4-Bromofluorobenzene	99	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: SG-XRS

GC/MS Volatiles

Lot-Sample # H6J200177 - 007 **Work Order #** JGWH41AA **Matrix.....:** AIR

Date Sampled...: 10/18/06
Prep Date.....: 10/23/06
Prep Batch #.....: 6297184
Dilution Factor.: 5

Date Received..: 10/20/06
Analysis Date... 10/23/06
Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	1.0	ND	6.8
Trichloroethene	ND	1.0	ND	5.4
1,1-Dichloroethane	ND	1.0	ND	4.0
1,1-Dichloroethene	ND	1.0	ND	4.0
cis-1,2-Dichloroethene	ND	1.0	ND	4.0

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	117	70 - 130
Toluene-d8	114	70 - 130
4-Bromofluorobenzene	98	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: AA-10/18 DOWNWIND

GC/MS Volatiles

Lot-Sample # H6J200177 - 008 **Work Order #** JGWH51AA **Matrix.....:** AIR

Date Sampled...: 10/18/06
Prep Date.....: 10/23/06
Prep Batch #.....: 6297184
Dilution Factor.: 1

Date Received..: 10/20/06
Analysis Date... 10/23/06

Method.....: TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	**1.8**	**0.20**	**12**	**1.4**
Trichloroethene	ND	0.20	ND	1.1
1,1-Dichloroethane	ND	0.20	ND	0.81
1,1-Dichloroethene	ND	0.20	ND	0.79
cis-1,2-Dichloroethene	ND	0.20	ND	0.79

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	114	70 - 130
Toluene-d8	115	70 - 130
4-Bromofluorobenzene	96	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: AA-10/18 UPWIND

GC/MS Volatiles

Lot-Sample # H6J200177 - 009 **Work Order #** JGWH71AA **Matrix.....:** AIR

Date Sampled...: 10/18/06 **Date Received..:** 10/20/06
Prep Date.....: 10/23/06 **Analysis Date...** 10/23/06
Prep Batch #.....: 6297184
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	0.20	ND	1.4
Trichloroethene	ND	0.20	ND	1.1
1,1-Dichloroethane	ND	0.20	ND	0.81
1,1-Dichloroethene	ND	0.20	ND	0.79
cis-1,2-Dichloroethene	ND	0.20	ND	0.79

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	115	70 - 130
Toluene-d8	117	70 - 130
4-Bromofluorobenzene	99	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: AA-10/18 MID

GC/MS Volatiles

Lot-Sample # H6J200177 - 010 **Work Order #** JGWJD1AA **Matrix.....:** AIR

Date Sampled...: 10/18/06 **Date Received..:** 10/20/06
Prep Date.....: 10/23/06 **Analysis Date...** 10/23/06
Prep Batch #.....: 6297184
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	0.20	ND	1.4
Trichloroethene	ND	0.20	ND	1.1
1,1-Dichloroethane	ND	0.20	ND	0.81
1,1-Dichloroethene	ND	0.20	ND	0.79
cis-1,2-Dichloroethene	ND	0.20	ND	0.79

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	117	70 - 130
Toluene-d8	113	70 - 130
4-Bromofluorobenzene	96	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: FB-10/18

GC/MS Volatiles

Lot-Sample # H6J200177 - 011 **Work Order #** JGWJF1AA **Matrix.....:** AIR

Date Sampled...: 10/18/06 **Date Received..:** 10/20/06
Prep Date.....: 10/23/06 **Analysis Date...** 10/24/06
Prep Batch #.....: 6297184
Dilution Factor.: 1 **Method.....:** TO-15

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)
Tetrachloroethene	ND	0.20	ND	1.4
Trichloroethene	ND	0.20	ND	1.1
1,1-Dichloroethane	ND	0.20	ND	0.81
1,1-Dichloroethene	ND	0.20	ND	0.79
cis-1,2-Dichloroethene	ND	0.20	ND	0.79

TENTATIVELY INDENTIFIED COMPOUNDS	RESULT	UNITS
1,4-dioxane	~~ND~~ not present	ppb(v/v)

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
1,2-Dichloroethane-d4	115	70 - 130
Toluene-d8	114	70 - 130
4-Bromofluorobenzene	93	70 - 130

The 'Result' in ug/m3 is calculated using the following equation: Amount Found(before rounding)*(Molecular Weight/24.45)

The 'Reporting Limit' in ug/m3 is calculated using the following equation: (Reporting Limit(before rounding) * Dilution Factor) * (Molecular Weight/24.45)

SAMPLE COMPLIANCE REPORT

SAMPLE COMPLIANCE REPORT

Sample Delivery Group	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB/PEST/ HERB	MET	MISC	
H6J200177	10/18/2006	TO-15	SG-12RS	Air	Yes	--	--	--	--	
H6J200177	10/18/2006	TO-15	SG-13RS	Air	Yes	--	--	--	--	
H6J200177	10/18/2006	TO-15	SG-15RS	Air	Yes	--	--	--	--	
H6J200177	10/18/2006	TO-15	SG-23RS	Air	Yes	--	--	--	--	
H6J200177	10/18/2006	TO-15	SG-6RS	Air	Yes	--	--	--	--	
H6J200177	10/18/2006	TO-15	SG-2RS	Air	Yes	--	--	--	--	
H6J200177	10/18/2006	TO-15	SG-XRS	Air	Yes	--	--	--	--	
H6J200177	10/18/2006	TO-15	AA-10/18 DOWNWIND	Air	Yes	--	--	--	--	
H6J200177	10/18/2006	TO-15	AA-10/18 UPWIND	Air	Yes	--	--	--	--	
H6J200177	10/18/2006	TO-15	AA-10/18 MID	Air	Yes	--	--	--	--	
H6J200177	10/18/2006	TO-15	FB-10/18	Air	Yes	--	--	--	--	

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

CHAIN OF CUSTODY

STL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

HGJ200177

Canister Samples Chain of Custody Record

SEVERN TRENT STL

Severn Trent Laboratories, Inc. (STL) assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: J. Shirer / B Foster	Sampled By: Shirer
Company: BBL	Phone: 813-933 0697 / 813 505-3396	1 of 2 COCs
Address: 3350 Buschwood Park Dr - 100	Site Contact: J Shirer	
City/State/Zip Tampa FL 33618	STL Contact: S Harris	
Phone: 813 933-0697		
FAX: 813 932-9514		
Project Name: Tallevast - SG 2	Analysis Turnaround Time	
Site: Tallevast	✓ Standard (Specify)	
PO # 38037	Rush (Specify)	

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Summa Can	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SG-12RS	10-18	1425	1450	-30	-4	4	93149	✓									✓		
SG-13RS		1420	1445	-30	-5	18	01476	✓									✓		
SG-15RS		1430	1500	-30+	-5	19	179	✓									✓		
SG-23RS		1432	1512	-30	-3	16	93121	✓									✓		
SG-6RS		1424	1509	-30	-2	[illegible] 12	0184	✓									✓		
SG-2RS	↓	1422	1452	-30+	-2	[illegible] 10	6347	✓									✓		

All samples collected outside

Temperature (Fahrenheit)	Interior	Ambient	
Start		86°F	
Stop		86°F	

Pressure (inches of Hg)	Interior	Ambient	
Start		29.88	
Stop		29.88	

CUSTODY SEALS INTACT
RECEIVED AT AMBIENT TEMP
AKO 10-20-06
3 BOXES VPS#

1286TW3601470462 34
1286TW3601475736 15
1286TW3601475022 27

Special Instructions/QC Requirements & Comments:

12 CANS / 10 FLOW / 1 TEE

Canisters Shipped by:	Date/Time: 10/19 10:00	Canisters Received by:
Samples Relinquished by:	Date/Time:	Received by: 10-20-06 09:30
Relinquished by:	Date/Time:	Received by:

Lab Use Only — Shipper Name: Opened by: Condition:

STL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

HGJ200177

Canister Samples Chain of Custody Record

SEVERN TRENT STL

Severn Trent Laboratories, Inc. (STL) assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	**Project Manager:** Sampled By: Shiver	2 of 2 COCs
Company:	**Phone:**	
Address:	**Site Contact:** See page 1	
City/State/Zip	**STL Contact:**	
Phone: See page 1		
FAX:		
Project Name:	**Analysis Turnaround Time**	
Site:	Standard (Specify)	
PO #	Rush (Specify)	

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SG-XRS	10-18	1422	1452	-30+	-2	10	A281	✓									✓		
AA-10/18 downwind	10-18	1415	1523	-30	-4	23	12831	✓								✓			
AA-10/18 upwind	10-18	1415	1510	-30	-6	61	0040	✓								✓			
AA-10/18 mid	10-18	1412	1518	-30	-4	24	12454	✓								✓			
FB-10/18	10-18	—	—	—	—	—	1400	✓											✓

All samples collected outside

Temperature (Fahrenheit)	Interior	Ambient	
Start		86F	
Stop		86F	

Pressure (inches of Hg)	Interior	Ambient	
Start		29.88	
Stop		29.88	

Special Instructions/QC Requirements & Comments:
FB-10/18 needs filled w/ laboratory supplied Analyte free Air.

Canisters Shipped by:	Date/Time: 10/19 10 00	Canisters Received by:
Samples Relinquished by:	Date/Time:	Received by: Dwight Vernon 10.20.16 09:30
Relinquished by:	Date/Time:	Received by:

Lab Use Only: Shipper Name: Opened by: Condition:

ARCADIS BBL

Appendix E

Photoionization Detector Data

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Soil Gas Sample Collection Log

Sample ID: SG-6

Client:	Lockheed Martin Fellsmere	**Date/Day:**	6/15/06
Project:		**Weather:**	Sunny Hot
Location:		**Temperature:**	89
Project #:		**Wind Speed/Direction:**	
Samplers:	Green	**Subcontractor:**	
Logged By:	Green	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:		**Approximate Purge Volume:**	
Time of Collection:	1145 - 1215	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-16D	2.7
MW-63	3.28

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 2052

Flow Controller ID: HF 113

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):

Reported By Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection
-.68	-30	-2

Tracer Gas Concentration (if applicable):

Measured in Purge Effluent	Measured in 'Concentrated' Area Prior to Sample Collection	Measured in 'Concentrated' Area Following Sample Collection
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-7

Client:	Lockheed Martin	**Date/Day:**	6/5/06
Project:	Hillcrest	**Weather:**	Sunny / Hot
Location:		**Temperature:**	89
Project #:		**Wind Speed/Direction:**	
Samplers:	Green	**Subcontractor:**	
Logged By:	Green	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:		**Approximate Purge Volume:**	
Time of Collection:	1110 - 1140	**Background PID Ambient Air Reading:**	ND

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-16D	2.7
MW-63	3.28

SUMMA Canister Information

Size (circle one): 1 L (6L)

Canister ID: 5-1494

Flow Controller ID: 19

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
1.5	-30	-3

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-5

Client:	Lockheed Martin	**Date/Day:**	6/5/00
Project:	Tallevast	**Weather:**	Sunny / Hot
Location:		**Temperature:**	84
Project #:		**Wind Speed/Direction:**	
Samplers:	Green	**Subcontractor:**	
Logged By:	Green	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	2.5	**Approximate Purge Volume:**	
Time of Collection:	1143 - 1203	**Background PID Ambient Air Reading:**	ND

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-64	3.1
MW-27	~~3.0~~ 2.74

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 43A

Flow Controller ID: 4F53

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
168	-30 / -2	-2

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-1

Client:	Lockheed Martin	**Date/Day:**	
Project:	Tallevast	**Weather:**	
Location:		**Temperature:**	
Project #:	~~SG~~	**Wind Speed/Direction:**	Weather Attached
Samplers:	Shiver	**Subcontractor:**	
Logged By:	Shiver	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	Dry / (Moist)
Sampling Depth:	2.5	**Approximate Purge Volume:**	
Time of Collection:	1720 - 1750	**Background PID Ambient Air Reading:**	

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-74	2.25
MW-100	2.1

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 1525

Flow Controller ID: N/A

Tracer Gas Information (if applicable)

Tracer Gas: Helium

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
(.75)	-30+ /	-5 /

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-3

Client:	Lockheed Martin	**Date/Day:**	6/5/06
Project:	Tellwest	**Weather:**	Sunny/Hot
Location:		**Temperature:**	90°
Project #:		**Wind Speed/Direction:**	
Samplers:	Green	**Subcontractor:**	
Logged By:	Green	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) Moist
Sampling Depth:	3'	**Approximate Purge Volume:**	
Time of Collection:	ON: 2:40 OFF: 3:15	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-135	3.67
MW-67	4.09

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 93156

Flow Controller ID: HF 82

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
.68	-29	-3

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-4

Client:	Lockheed Martin	**Date/Day:**	6/5/06
Project:	Tallevast	**Weather:**	Sunny Hot
Location:		**Temperature:**	90's
Project #:		**Wind Speed/Direction:**	
Samplers:	Green	**Subcontractor:**	
Logged By:	Green	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	3.1	**Approximate Purge Volume:**	
Time of Collection:	ON: 2:10 OFF: 2:45	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-135	3.67
MW-67	4.09

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: - 6137

Flow Controller ID: 17

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
.68	-30	-5

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-22

Client:	Lockheed Martin	**Date/Day:**	6/5/06
Project:	Tall West	**Weather:**	Sunny / Hot
Location:		**Temperature:**	90°
Project #:		**Wind Speed/Direction:**	
Samplers:	Grea	**Subcontractor:**	
Logged By:	Grea	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	bw: 155 3.1	**Approximate Purge Volume:**	
Time of Collection:	off: 825	**Background PID Ambient Air Reading:**	NO

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-135	3.67
MW-67	4.09

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: S-1495

Flow Controller ID: HF 98

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
.62	-30	-5

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-2

Client:	Lockheed Martin	**Date/Day:**	6/5/06
Project:	Tallevast	**Weather:**	Sunny Hot
Location:		**Temperature:**	92°
Project #:		**Wind Speed/Direction:**	
Samplers:	Green	**Subcontractor:**	
Logged By:	Green	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	3.1	**Approximate Purge Volume:**	
Time of Collection:	ON 2:15 OFF: 2:40	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-135	3.67
MW-67	4.09

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 12815

Flow Controller ID: 12

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
.60	-30	-5

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-10

Client:	Lockheed Martin	**Date/Day:**	6/15/06
Project:	Tallevast	**Weather:**	Sunny / Hot
Location:		**Temperature:**	92°
Project #:		**Wind Speed/Direction:**	
Samplers:	Green	**Subcontractor:**	
Logged By:	Green	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	2.9'	**Approximate Purge Volume:**	
Time of Collection:	ON: 3:00 OFF: 3:30	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-14S	3.5
MW-17S	3.82

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 11408

Flow Controller ID: HF 62

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
-29.4	-30	-3

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-21

Client:	Lockheed Martin	**Date/Day:**	6/5/06
Project:	Tallevast	**Weather:**	Sunny 1160F
Location:		**Temperature:**	92°
Project #:		**Wind Speed/Direction:**	
Samplers:	Green	**Subcontractor:**	
Logged By:	Green	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	3.2'	**Approximate Purge Volume:**	
Time of Collection:	ON: 3:25 OFF: 3:50	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-4	3.75
MW-70	4.2

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 11151

Flow Controller ID: 01

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
.81	-30	-2

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	KI	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-8

Client:	Lockheed Martin	**Date/Day:**	6/5/06
Project:	Tolleson	**Weather:**	Sunny / Hot
Location:		**Temperature:**	84
Project #:		**Wind Speed/Direction:**	
Samplers:	Green	**Subcontractor:**	
Logged By:	Green	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) Moist
Sampling Depth:	2.5	**Approximate Purge Volume:**	
Time of Collection:	1112 - 1142	**Background PID Ambient Air Reading:**	ND

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-16D	2.7
MW-63	3.28

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 2968

Flow Controller ID: 13

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
-5	-30	-3

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-17

Client:	Lockheed Martin	**Date/Day:**	6/5/06
Project:	Tallevast	**Weather:**	Sunny warm
Location:		**Temperature:**	
Project #:		**Wind Speed/Direction:**	
Samplers:	Green	**Subcontractor:**	
Logged By:	Green	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	3.2'	**Approximate Purge Volume:**	
Time of Collection:	ON : 0926 OFF : 0956	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-15S	4.87
MW-28	~~N/A~~ 4.89

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 12175

Flow Controller ID: N/A

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
-1.68	-30	-4

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	N/A	

General Observations/Notes:

Weather Sheets Attached

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-23

Client:	Lockheed Martin	**Date/Day:**	6/5/06
Project:	Tallevast	**Weather:**	Sunny / Hot 92°
Location:		**Temperature:**	
Project #:		**Wind Speed/Direction:**	
Samplers:	Green	**Subcontractor:**	
Logged By:	Green	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	3.1	**Approximate Purge Volume:**	
Time of Collection:	ON: 3:30 OFF: 3:55	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-47	3.67
MW-155	4.87
MW-77	3.98

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 02646

Flow Controller ID: 02

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):

Reported By Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection
.62	-30 /	-5

Tracer Gas Concentration (if applicable):

Measured in Purge Effluent	Measured in 'Concentrated' Area Prior to Sample Collection	Measured in 'Concentrated' Area Following Sample Collection
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-18

Client:	Lockheed Martin	**Date/Day:**	6/15/06
Project:	Tallevast	**Weather:**	Sunny warm
Location:	Tallevast	**Temperature:**	
Project #:	38037	**Wind Speed/Direction:**	
Samplers:	Shiver Davidson	**Subcontractor:**	
Logged By:	Shiver	**Equipment:**	
Coordinates:	SG-18 (WAD property)	**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	3.1	**Approximate Purge Volume:**	410 ccs
Time of Collection:	1628-1688	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-104	2.65
MW-27	~~3.0~~ 2.74

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 6388

Flow Controller ID: N/A

Tracer Gas Information (if applicable)

Tracer Gas: Helium

Canister Pressure (inches Hg):

Reported By Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection
8.7	-30	-7 Hg

Tracer Gas Concentration (if applicable):

Measured in Purge Effluent	Measured in 'Concentrated' Area Prior to Sample Collection	Measured in 'Concentrated' Area Following Sample Collection
—	ND	—

General Observations/Notes:

Duplicate SG-18D collected, went to -4 Hg in 15 min

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-20

Client:	Lockheed Martin	**Date/Day:**	6/5/06
Project:	Fallevast	**Weather:**	Sunny / Hot
Location:		**Temperature:**	90
Project #:		**Wind Speed/Direction:**	
Samplers:	Green	**Subcontractor:**	
Logged By:	Green	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	2'	**Approximate Purge Volume:**	
Time of Collection:	ON: 2:00 OFF: 2:20	**Background PID Ambient Air Reading:**	ND

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-4	3.75
MW-70	4.2

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 1456

Flow Controller ID: HF 90

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):

Reported By Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection
.62	-30	-5

Tracer Gas Concentration (if applicable):

Measured in Purge Effluent	Measured in 'Concentrated' Area Prior to Sample Collection	Measured in 'Concentrated' Area Following Sample Collection
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-9

Client:	Lockheed Martin Fallevast	**Date/Day:**	6/5/06
Project:		**Weather:**	Sunny Hot
Location:		**Temperature:**	84
Project #:		**Wind Speed/Direction:**	
Samplers:	Green	**Subcontractor:**	
Logged By:	Green	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) Moist
Sampling Depth:	3.3'	**Approximate Purge Volume:**	
Time of Collection:	1148 - 1225	**Background PID Ambient Air Reading:**	ND

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-15S	4.87
MW-28	4.89

SUMMA Canister Information

Size (circle one): 1 L (6 L) x2

Canister ID: (1) 03843 (2) 03397 - 9D

Flow Controller ID: N/A

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
(1) .75 (2) .62	-30	-5

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Dup collected / weather sheets ATTACHED

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-24

Client:	Lockheed Martin	**Date/Day:**	6/5/06
Project:	Tallevast	**Weather:**	Sunny warm
Location:		**Temperature:**	80-85 °F
Project #:	38037	**Wind Speed/Direction:**	
Samplers:	Slicer / Green / Davidson	**Subcontractor:**	
Logged By:	Slicer	**Equipment:**	HA / Ams Points
Coordinates:	SG-24 1804 Tallevast	**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	34'	**Approximate Purge Volume:**	40cc
Time of Collection:	ON: 9:31 OFF: 9:58	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-15S	4.87
MW-28	4.89 (5/31)

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 1523

Flow Controller ID: N/A

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):

Reported By Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection
-.52	-30	-5

Tracer Gas Concentration (if applicable):

Measured in Purge Effluent	Measured in 'Concentrated' Area Prior to Sample Collection	Measured in 'Concentrated' Area Following Sample Collection

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-~~20~~23

Client:	Lockheed Martin	**Date/Day:**	6-5-06
Project:	Tallevast	**Weather:**	Sunny Warm
Location:	Tallevast	**Temperature:**	80-85°F
Project #:	38037	**Wind Speed/Direction:**	
Samplers:	Davidson / Green	**Subcontractor:**	—
Logged By:	Shiver	**Equipment:**	Hand Auger / Amsp point
Coordinates:	SG-23 1804 Tallevast Rd	**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	~~3~~ 3.2'	**Approximate Purge Volume:**	40ccs
Time of Collection:	ON: 9:30 OFF: ~~9:54~~ 9:59	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-15S	4.87
MW-28	4.89 (5/31)

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 3389

Flow Controller ID: N/A

Tracer Gas Information (if applicable)

Tracer Gas: Helium

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
-.94	-21	-5

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-14 DUPE1

Client:	COCHRAN HAVEN	**Date/Day:**	6/2/06
Project:	TRUEMART	**Weather:**	SUNNY WARM NO RAIN
Location:	TAUNTON, FL	**Temperature:**	85-90
Project #:	38037 SNIDER/DAVIDSON	**Wind Speed/Direction:**	6 mph / VARIABLE
Samplers:		**Subcontractor:**	
Logged By:		**Equipment:**	HAND AUGER/ ATS IMPLANTS
Coordinates:	SG14 DUPE1 BRMNT 7711 TRUMART DR E	**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	3.5FT	**Approximate Purge Volume:**	
Time of Collection:	ON 13:29 HRS OF 14:00 HRS	**Background PID Ambient Air Reading:**	ND

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW71	5.96
MW76	5.91

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 12170

Flow Controller ID: HF 64

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
0.94 in Hg	-30	~~0~~ -5 INCH

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-14

Client:	Lockheed Martin	**Date/Day:**	6-2-06
Project:	Tallevast	**Weather:**	Sunny Warm
Location:	Tallevast FL	**Temperature:**	80-85
Project #:	38037	**Wind Speed/Direction:**	Comp / Variable
Samplers:	Shire / Davidson	**Subcontractor:**	-
Logged By:		**Equipment:**	Hand Auger / Amsinplants
Coordinates:	7711 17th STCTE SG-14 - BRYANT	**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	3.5FT	**Approximate Purge Volume:**	N/A
Time of Collection:	ON 13:10 HRS OFF 13:40 HRS	**Background PID Ambient Air Reading:**	ND

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-71	5.46
MW-76	5.41

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 2987

Flow Controller ID: 392F

Tracer Gas Information (if applicable)

Tracer Gas: Helium

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
0.68 mm	-25 Inch	-3 Inch

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: AA - 6/2/06

Client:	LOCKHEED - MARTIN	**Date/Day:**	JUNE 2/06 FRIDAY
Project:	TALLEVAST	**Weather:**	SUNNY / WINDY / NO RAIN
Location:	TALLEVAST, FL	**Temperature:**	80 - 85°F
Project #:	3803 7	**Wind Speed/Direction:**	VARIABLE
Samplers:	SHIRER / DAVIDSON	**Subcontractor:**	—
Logged By:		**Equipment:**	SUMMA CANISTER
Coordinates:	TALLEVAST RD / 17 ST CT E TALLEVAST, FL	**Moisture Content of Sampling Zone (circle one):**	Dry / Moist
Sampling Depth:	2.0 FT AMBIENT	**Approximate Purge Volume:**	—
Time of Collection:	ON 11:30 HRS OFF 12:00 HRS	**Background PID Ambient Air Reading:**	388 PPB

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
	NA
	NA

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 2994

Flow Controller ID: 130677 / STC 2212

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):

Reported By Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection
.62 MM	-30 INCH	-18 INCH

Tracer Gas Concentration (if applicable):

Measured in Purge Effluent	Measured in 'Concentrated' Area Prior to Sample Collection	Measured in 'Concentrated' Area Following Sample Collection
NA	~~NA~~	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-13

Client:	Lockheed Martin	**Date/Day:**	6-2-06
Project:	Tallevast	**Weather:**	Sunny Warm
Location:	Tallevast FL	**Temperature:**	80-85
Project #:	38037	**Wind Speed/Direction:**	Smpl / variable
Samplers:	Shirer / Davidson	**Subcontractor:**	-
Logged By:		**Equipment:**	Hand Auger / AMS Implants
Coordinates:	7707 12th ST CTE SG-13 SEIDE / MC CORMICK	**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	3ft 7inches	**Approximate Purge Volume:**	
Time of Collection:	On 13:12 hrs Off 13:50 hrs	**Background PID Ambient Air Reading:**	ND

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-71	5.46
MW-76	5.41

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 9365

Flow Controller ID: MF113

Tracer Gas Information (if applicable)

Tracer Gas: Helium

Canister Pressure (inches Hg):

Reported By Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection
0.62 mm	-30 Inch	0 INCH

Tracer Gas Concentration (if applicable):

Measured in Purge Effluent	Measured in 'Concentrated' Area Prior to Sample Collection	Measured in 'Concentrated' Area Following Sample Collection
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-12

Client:	Lockheed Martin	**Date/Day:**	6/2/06
Project:	Tallevast	**Weather:**	Sunny warm
Location:	Tallevast FL	**Temperature:**	80 - 85
Project #:	38037	**Wind Speed/Direction:**	6mph / variable
Samplers:	SHIPER / DAVIDSON	**Subcontractor:**	~
Logged By:		**Equipment:**	Hand auger / Ams implants
Coordinates:	7705 17th STCTE SG-12 BING/THORNE	**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	3 ft 11 inches	**Approximate Purge Volume:**	
Time of Collection:	On 13:15 hrs Off 13:45 hrs	**Background PID Ambient Air Reading:**	ND

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-71	5.46
MW-76	5.41

SUMMA Canister Information

Size (circle one): 1 L (6L)

Canister ID: 2989

Flow Controller ID: V-143

Tracer Gas Information (if applicable)

Tracer Gas: Helium

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
0.55 mm	-29 inch	-5 inch

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	Open ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-11

Client:	Lockheed Martin	**Date/Day:**	6-2-06
Project:	Tallevast	**Weather:**	Sunny warm
Location:	Tallevast FL	**Temperature:**	80-85
Project #:	88037	**Wind Speed/Direction:**	6 mph / variable
Samplers:	Shiver / Davidson	**Subcontractor:**	—
Logged By:		**Equipment:**	Hand Auger / Ams implants
Coordinates:	SG-11 7703 17th St CIR BALDWIN / GREEN TAL, FL	**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	3.5 ft	**Approximate Purge Volume:**	
Time of Collection:	13:17 hrs 13:48 hrs	**Background PID Ambient Air Reading:**	0 ppm ND

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-71	5.46
MW-76	5.41

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: ~~2987~~ 11207

Flow Controller ID: ~~3928~~ 10

Tracer Gas Information (if applicable)

Tracer Gas: ~~#####~~ Helium

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
0.68 mm Hg	-30 inch	-5 inch

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	~~0 ppm~~ ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: AA - 6/5/06

Client:	Lockheed Martin	**Date/Day:**	6/5/06
Project:	Tallevast	**Weather:**	Sunny warm
Location:		**Temperature:**	
Project #:		**Wind Speed/Direction:**	
Samplers:	Shiver	**Subcontractor:**	
Logged By:	Shiver	**Equipment:**	Summa
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	4' AGS	**Approximate Purge Volume:**	4cc
Time of Collection:	ON: 9:30 OFF: 1330	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
NA	

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 11351

Flow Controller ID: STL 1237

Tracer Gas Information (if applicable)

Tracer Gas: N/A

Canister Pressure (inches Hg):

Reported By Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection
-.52	-4.30	~~-4.5~~ -.4

Tracer Gas Concentration (if applicable):

Measured in Purge Effluent	Measured in 'Concentrated' Area Prior to Sample Collection	Measured in 'Concentrated' Area Following Sample Collection
	N/A	

General Observations/Notes:

Weather Sheets Attached

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-15

Client:	Lockheed Martin	**Date/Day:**	6/5/06
Project:	Tallevast	**Weather:**	Sunny warm
Location:	Tallevast	**Temperature:**	80-85 °F
Project #:	38037	**Wind Speed/Direction:**	
Samplers:	Davidson Green Shive	**Subcontractor:**	
Logged By:		**Equipment:**	HA / Amms Pts
Coordinates:	1804 Tallevast Rd	**Moisture Content of Sampling Zone (circle one):**	(Dry) / Moist
Sampling Depth:	3.1'	**Approximate Purge Volume:**	40ccs
Time of Collection:	ON : 9:36 Off : 9:58	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-15S	4.87
MW-28	4.89 (5/31)

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 92021

Flow Controller ID: N/A

Tracer Gas Information (if applicable)

Tracer Gas: Helium

Canister Pressure (inches Hg):

Reported By Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection
-51	-30	-5

Tracer Gas Concentration (if applicable):

Measured in Purge Effluent	Measured in 'Concentrated' Area Prior to Sample Collection	Measured in 'Concentrated' Area Following Sample Collection
	ND	

General Observations/Notes:

Weather Sheets Attached

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-18D

Client:		**Date/Day:**	
Project:		**Weather:**	
Location:		**Temperature:**	
Project #:		**Wind Speed/Direction:**	
Samplers:		**Subcontractor:**	
Logged By:		**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	Dry / Moist
Sampling Depth:		**Approximate Purge Volume:**	
Time of Collection:		**Background PID Ambient Air Reading:**	ND

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
Ref	

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 93037

Flow Controller ID: N/A

Tracer Gas Information (if applicable)

Tracer Gas: Helium

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
-30	-30	-7

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	0.0	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

History for Sarasota, Florida

Friday, June 2, 2006 — View Current Conditions

Jump to Data:

Date: June 2 2006 Go Round 1 Airport Code: Go

Recently Viewed Airport Codes: KSRQ

Daily | Weekly | Monthly | Custom | Trip Planner

« Previous Day **Daily Summary** for **June 2, 2006** Next Day »

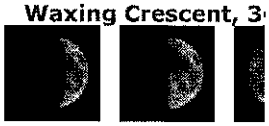
	Actual	Average	Record
Temperature			
Mean Temperature	**79** °F / **26** °C	**79** °F / **26** °C	
Max Temperature	**87** °F / **30** °C	**89** °F / **31** °C	**97** °F / **36** °C (1971)
Min Temperature	**70** °F / **21** °C	**69** °F / **20** °C	**58** °F / **14** °C (1984)
Degree Days			
Heating Degree Days	0	0	
Month to date heating degree days	0	0	
Since 1 July heating degree days	433	538	
Cooling Degree Days	14	14	
Month to date cooling degree days	29	28	
Year to date cooling degree days	871	816	
Growing Degree Days	28 (Base 50)		
Moisture			
Dew Point	**69** °F / **20** °C		
Average Humidity	78		
Maximum Humidity	97		
Minimum Humidity	65		
Precipitation			
Precipitation	**0.06** in / **0.15** cm	**0.18** in / **0.46** cm	**1.45** in / **3.68** cm (1999)
Month to date precipitation	1.52	0.36	
Year to date precipitation	10.98	14.00	
Sea Level Pressure			
Sea Level Pressure	**29.95** in / **1014** hPa		
Wind			
Wind Speed	**8** mph / **12** km/h (WSW)		
Max Wind Speed	**13** mph / **21** km/h		
Max Gust Speed	**15** mph / **24** km/h		
Visibility	**9** miles / **15** kilometers		
Events			

T = Trace of Precipitation, **MM** = Missing Value **Source:** NWS Daily Summary

Astronomy History:

June 2, 2006	Rise
Actual Time	10:3
Civil Twilight	10:0
Nautical Twilight	9:37
Astronomical Twilight	9:0
Moon	4:2((6/2
Length Of Visible Light:	14h
Length of Day	13h

Waxing Crescent, 3



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First Quarter

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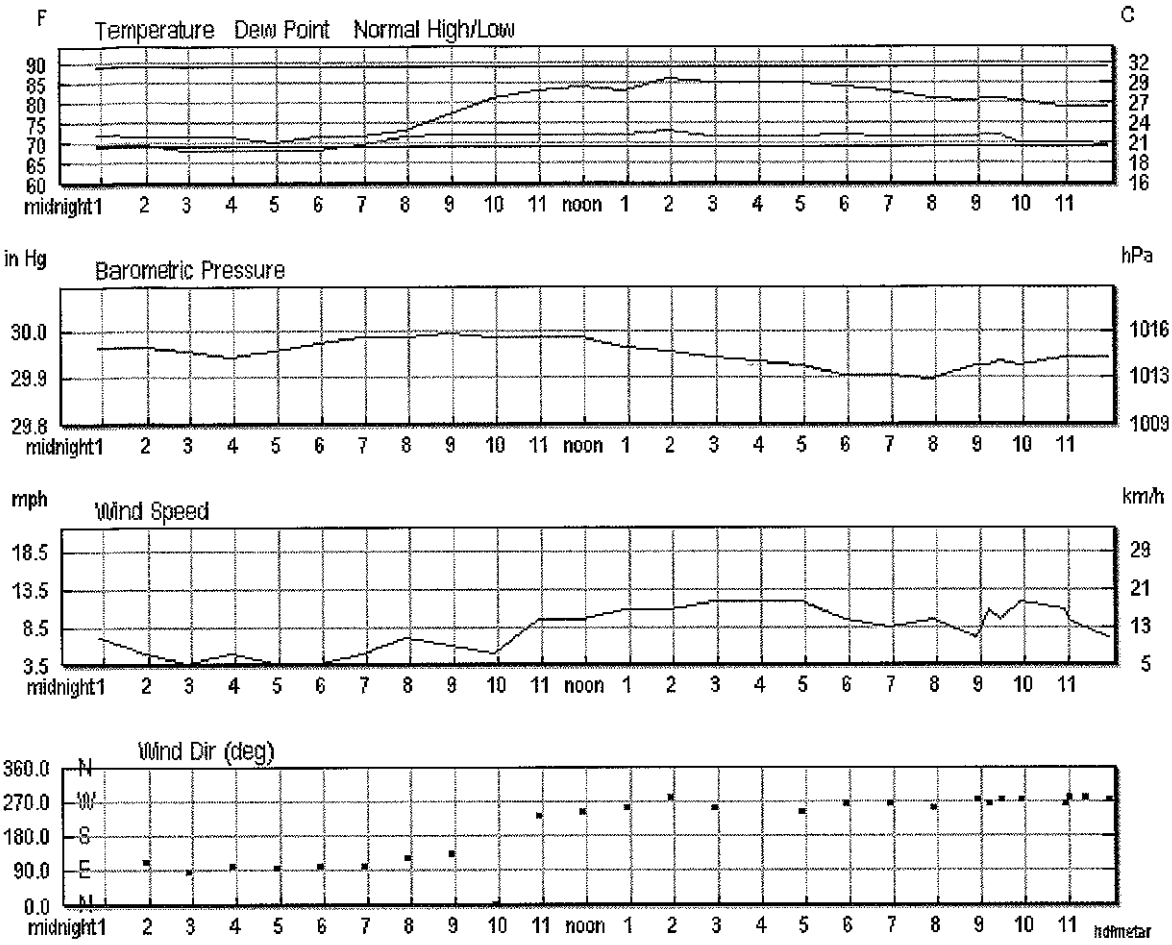

Hourly Observations

Time (EDT)	Temperature	Dew Point	Humidity	Sea Level Pressure	Visibility	Wind Direction	Wind Speed	Gust Speed	Precipita
12:53 AM	**72.0** °F / **22.2** °C	**69.1** °F / **20.6** °C	91%	**29.96** in / **1014.5** hPa	**10.0** miles / **16.1** kilometers	ESE	**6.9** mph / **11.1** km/h	-	**0.02** in , **0.1** cm
1:53 AM	**71.1** °F / **21.7** °C	**69.1** °F / **20.6** °C	93%	**29.96** in / **1014.4** hPa	**10.0** miles / **16.1** kilometers	ESE	**4.6** mph / **7.4** km/h	-	**0.02** in , **0.1** cm
2:53 AM	**71.1** °F / **21.7** °C	**68.0** °F / **20.0** °C	90%	**29.95** in / **1014.2** hPa	**10.0** miles / **16.1** kilometers	East	**3.5** mph / **5.6** km/h	-	N/A
3:53 AM	**71.1** °F / **21.7** °C	**68.0** °F / **20.0** °C	90%	**29.94** in / **1013.9** hPa	**10.0** miles / **16.1** kilometers	East	**4.6** mph / **7.4** km/h	-	**0.01** in , **0.0** cm
4:53 AM	**70.0** °F / **21.1** °C	**68.0** °F / **20.0** °C	93%	**29.95** in / **1014.1** hPa	**8.0** miles / **12.9** kilometers	East	**3.5** mph / **5.6** km/h	-	N/A
5:53 AM	**71.1** °F / **21.7** °C	**68.0** °F / **20.0** °C	90%	**29.97** in / **1014.7** hPa	**7.0** miles / **11.3** kilometers	East	**3.5** mph / **5.6** km/h	-	N/A
6:53 AM	**71.1** °F / **21.7** °C	**69.1** °F / **20.6** °C	93%	**29.98** in / **1015.0** hPa	**6.0** miles / **9.7** kilometers	East	**4.6** mph / **7.4** km/h	-	N/A
7:53 AM	**73.0** °F / **22.8** °C	**71.1** °F / **21.7** °C	93%	**29.98** in / **1015.0** hPa	**10.0** miles / **16.1** kilometers	ESE	**6.9** mph / **11.1** km/h	-	N/A
8:53 AM	**77.0** °F / **25.0** °C	**72.0** °F / **22.2** °C	84%	**29.99** in / **1015.3** hPa	**10.0** miles / **16.1** kilometers	SE	**5.8** mph / **9.3** km/h	-	N/A
9:53 AM	**81.0** °F / **27.2** °C	**72.0** °F / **22.2** °C	74%	**29.98** in / **1015.0** hPa	**10.0** miles / **16.1** kilometers	Variable	**4.6** mph / **7.4** km/h	-	N/A

10:53 AM	**82.9** °F / **28.3** °C	**72.0** °F / **22.2** °C	69%	**29.98** in / **1015.0** hPa	**10.0** miles / **16.1** kilometers	SW	**9.2** mph / **14.8** km/h	-	**0.01** in , **0.0** cm
11:53 AM	**84.0** °F / **28.9** °C	**72.0** °F / **22.2** °C	67%	**29.98** in / **1015.1** hPa	**10.0** miles / **16.1** kilometers	WSW	**9.2** mph / **14.8** km/h	-	N/A
12:53 PM	**82.9** °F / **28.3** °C	**72.0** °F / **22.2** °C	69%	**29.96** in / **1014.6** hPa	**10.0** miles / **16.1** kilometers	WSW	**10.4** mph / **16.7** km/h	-	N/A
1:53 PM	**86.0** °F / **30.0** °C	**73.0** °F / **22.8** °C	65%	**29.95** in / **1014.0** hPa	**10.0** miles / **16.1** kilometers	West	**10.4** mph / **16.7** km/h	-	N/A
2:53 PM	**84.9** °F / **29.4** °C	**71.1** °F / **21.7** °C	63%	**29.94** in / **1013.6** hPa	**10.0** miles / **16.1** kilometers	WSW	**11.5** mph / **18.5** km/h	-	**0.01** in , **0.0** cm
4:53 PM	**84.9** °F / **29.4** °C	**71.1** °F / **21.7** °C	63%	**29.92** in / **1013.1** hPa	**10.0** miles / **16.1** kilometers	WSW	**11.5** mph / **18.5** km/h	-	N/A
5:53 PM	**84.0** °F / **28.9** °C	**72.0** °F / **22.2** °C	67%	**29.90** in / **1012.4** hPa	**10.0** miles / **16.1** kilometers	West	**9.2** mph / **14.8** km/h	-	**0.01** in , **0.0** cm
6:53 PM	**82.9** °F / **28.3** °C	**71.1** °F / **21.7** °C	67%	**29.90** in / **1012.4** hPa	**10.0** miles / **16.1** kilometers	West	**8.1** mph / **13.0** km/h	-	N/A
7:53 PM	**81.0** °F / **27.2** °C	**71.1** °F / **21.7** °C	72%	**29.89** in / **1012.1** hPa	**10.0** miles / **16.1** kilometers	WSW	**9.2** mph / **14.8** km/h	-	N/A
8:53 PM	**80.1** °F / **26.7** °C	**71.1** °F / **21.7** °C	74%	**29.92** in / **1013.1** hPa	**10.0** miles / **16.1** kilometers	West	**6.9** mph / **11.1** km/h	-	N/A
9:09 PM	**80.6** °F / **27.0** °C	**71.6** °F / **22.0** °C	74%	**29.92** in / **1013.1** hPa	**10.0** miles / **16.1** kilometers	West	**10.4** mph / **16.7** km/h	-	N/A
9:25 PM	**80.6** °F / **27.0** °C	**71.6** °F / **22.0** °C	74%	**29.93** in / **1013.4** hPa	**10.0** miles / **16.1** kilometers	West	**9.2** mph / **14.8** km/h	-	N/A
9:53 PM	**80.1** °F / **26.7** °C	**70.0** °F / **21.1** °C	71%	**29.92** in / **1013.2** hPa	**10.0** miles / **16.1** kilometers	West	**11.5** mph / **18.5** km/h	-	N/A
10:53 PM	**79.0** °F / **26.1** °C	**70.0** °F / **21.1** °C	74%	**29.94** in / **1013.8** hPa	**10.0** miles / **16.1** kilometers	West	**10.4** mph / **16.7** km/h	-	N/A
11:00 PM	**78.8** °F / **26.0** °C	**69.8** °F / **21.0** °C	74%	**29.94** in / **1013.8** hPa	**10.0** miles / **16.1** kilometers	West	**9.2** mph / **14.8** km/h	-	N/A
11:20 PM	**78.8** °F / **26.0** °C	**69.8** °F / **21.0** °C	74%	**29.94** in / **1013.8** hPa	**10.0** miles / **16.1** kilometers	West	**8.1** mph / **13.0** km/h	-	N/A
11:53 PM	**79.0** °F / **26.1** °C	**69.1** °F / **20.6** °C	72%	**29.94** in / **1013.7** hPa	**10.0** miles / **16.1** kilometers	West	**6.9** mph / **11.1** km/h	-	N/A

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History for Sarasota, Florida

Monday, June 5, 2006 — View Current Conditions

Jump to Data:

Date: June 5 2006 Go Round 1 Airport Code: Go

Recently Viewed Airport Codes: KSRQ

Daily | Weekly | Monthly | Custom | Trip Planner

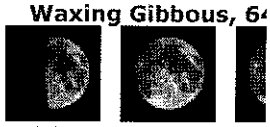
« Previous Day	Daily Summary for June 5, 2006		Next Day »
	Actual	**Average**	**Record**
Temperature			
Mean Temperature	**80** °F / **26** °C	**80** °F / **26** °C	
Max Temperature	**86** °F / **30** °C	**90** °F / **32** °C	**95** °F / **35** °C (1989)
Min Temperature	**74** °F / **23** °C	**69** °F / **20** °C	**62** °F / **16** °C (1955)
Degree Days			
Heating Degree Days	0	0	
Month to date heating degree days	0	0	
Since 1 July heating degree days	433	538	
Cooling Degree Days	15	15	
Month to date cooling degree days	75	71	
Year to date cooling degree days	917	859	
Growing Degree Days	30 (Base 50)		
Moisture			
Dew Point	**70** °F / **21** °C		
Average Humidity	68		
Maximum Humidity	79		
Minimum Humidity	55		
Precipitation			
Precipitation	**0.00** in / **0.00** cm	**0.20** in / **0.51** cm	**2.98** in / **7.57** cm (1999)
Month to date precipitation	1.52	0.95	
Year to date precipitation	10.98	14.59	
Sea Level Pressure			
Sea Level Pressure	**29.84** in / **1010** hPa		
Wind			
Wind Speed	**9** mph / **14** km/h (WNW)		
Max Wind Speed	**16** mph / **26** km/h		
Max Gust Speed	**20** mph / **32** km/h		
Visibility	**10** miles / **15** kilometers		
Events	Rain		

T = Trace of Precipitation, **MM** = Missing Value **Source:** NWS Daily Summary

Astronomy History:

June 5, 2006	Rise
Actual Time	10:3
Civil Twilight	10:(
Nautical Twilight	9:3(
Astronomical Twilight	9:0:
Moon	6:5((6/5
Length Of Visible Light:	14h
Length of Day	13h

Waxing Gibbous, 6



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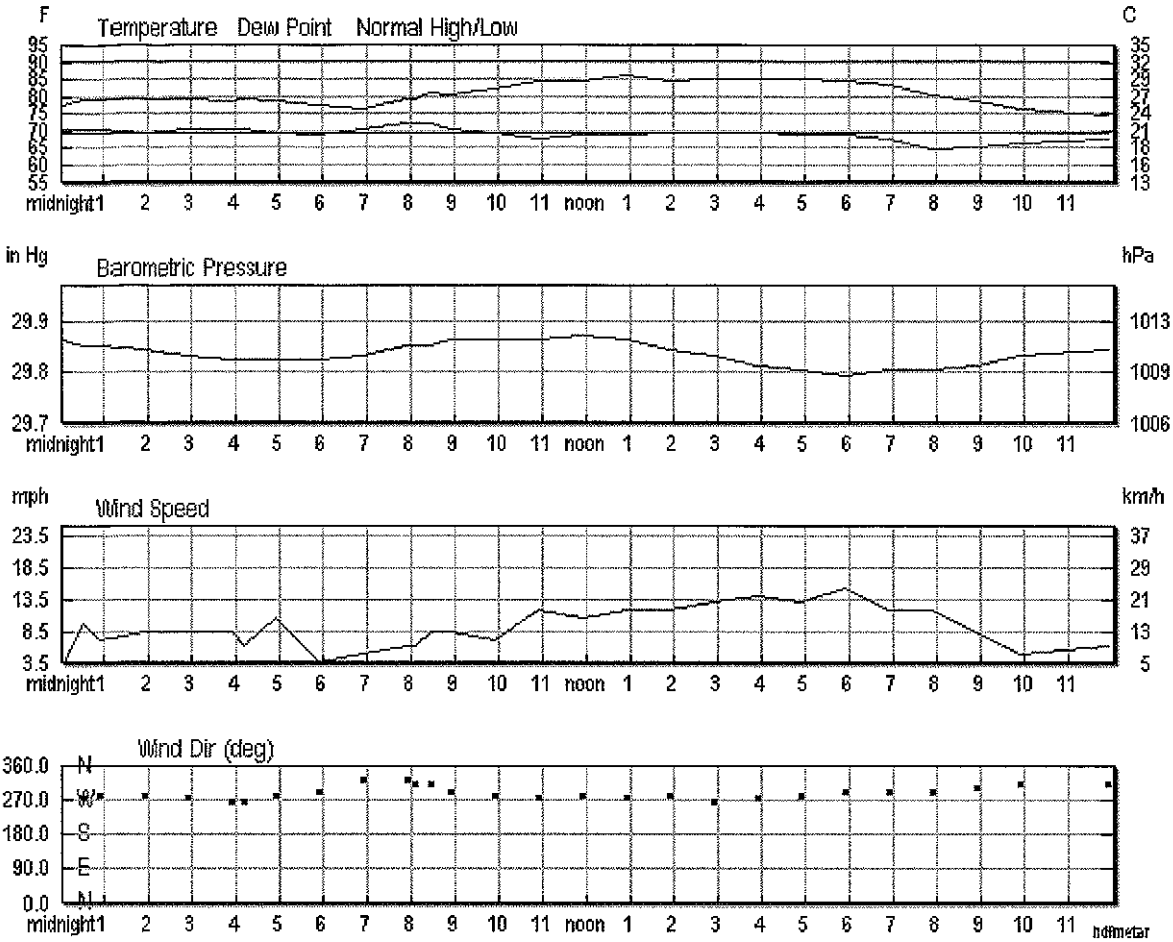

Hourly Observations

Time (EDT)	Temperature	Dew Point	Humidity	Sea Level Pressure	Visibility	Wind Direction	Wind Speed	Gust Speed	Precipita
12:05 AM	**77.0** °F / **25.0** °C	**69.8** °F / **21.0** °C	78%	**29.86** in / **1011.1** hPa	**10.0** miles / **16.1** kilometers	WNW	**3.5** mph / **5.6** km/h	-	N/A
12:32 AM	**78.8** °F / **26.0** °C	**69.8** °F / **21.0** °C	74%	**29.85** in / **1010.7** hPa	**10.0** miles / **16.1** kilometers	West	**9.2** mph / **14.8** km/h	-	N/A
12:53 AM	**79.0** °F / **26.1** °C	**70.0** °F / **21.1** °C	74%	**29.85** in / **1010.7** hPa	**10.0** miles / **16.1** kilometers	West	**6.9** mph / **11.1** km/h	-	N/A
1:53 AM	**79.0** °F / **26.1** °C	**69.1** °F / **20.6** °C	72%	**29.84** in / **1010.3** hPa	**10.0** miles / **16.1** kilometers	West	**8.1** mph / **13.0** km/h	-	N/A
2:53 AM	**79.0** °F / **26.1** °C	**70.0** °F / **21.1** °C	74%	**29.83** in / **1009.9** hPa	**10.0** miles / **16.1** kilometers	West	**8.1** mph / **13.0** km/h	-	N/A
3:53 AM	**78.1** °F / **25.6** °C	**70.0** °F / **21.1** °C	76%	**29.82** in / **1009.6** hPa	**10.0** miles / **16.1** kilometers	West	**8.1** mph / **13.0** km/h	-	N/A
4:10 AM	**78.8** °F / **26.0** °C	**69.8** °F / **21.0** °C	74%	**29.82** in / **1009.7** hPa	**10.0** miles / **16.1** kilometers	West	**5.8** mph / **9.3** km/h	-	N/A
4:53 AM	**78.1** °F / **25.6** °C	**69.1** °F / **20.6** °C	74%	**29.82** in / **1009.6** hPa	**10.0** miles / **16.1** kilometers	West	**10.4** mph / **16.7** km/h	-	N/A
5:53 AM	**77.0** °F / **25.0** °C	**68.0** °F / **20.0** °C	74%	**29.82** in / **1009.6** hPa	**10.0** miles / **16.1** kilometers	WNW	**3.5** mph / **5.6** km/h	-	**0.00** in , **0.0** cm
6:53 AM	**75.9** °F / **24.4** °C	**70.0** °F / **21.1** °C	82%	**29.83** in / **1010.1** hPa	**8.0** miles / **12.9** kilometers	NW	**4.6** mph / **7.4** km/h	-	**0.00** in , **0.0** cm

7:53 AM	**79.0** °F / **26.1** °C	**72.0** °F / **22.2** °C	79%	**29.85** in / **1010.6** hPa	**8.0** miles / **12.9** kilometers	NW	**5.8** mph / **9.3** km/h	-	N/A
8:04 AM	**78.8** °F / **26.0** °C	**71.6** °F / **22.0** °C	78%	**29.85** in / **1010.7** hPa	**9.0** miles / **14.5** kilometers	NW	**5.8** mph / **9.3** km/h	-	N/A
8:27 AM	**80.6** °F / **27.0** °C	**71.6** °F / **22.0** °C	74%	**29.85** in / **1010.7** hPa	**10.0** miles / **16.1** kilometers	NW	**8.1** mph / **13.0** km/h	-	N/A
8:53 AM	**80.1** °F / **26.7** °C	**70.0** °F / **21.1** °C	71%	**29.86** in / **1010.9** hPa	**10.0** miles / **16.1** kilometers	WNW	**8.1** mph / **13.0** km/h	-	N/A
9:53 AM	**82.0** °F / **27.8** °C	**69.1** °F / **20.6** °C	65%	**29.86** in / **1011.2** hPa	**10.0** miles / **16.1** kilometers	West	**6.9** mph / **11.1** km/h	-	N/A
10:53 AM	**84.0** °F / **28.9** °C	**66.9** °F / **19.4** °C	56%	**29.86** in / **1011.1** hPa	**10.0** miles / **16.1** kilometers	West	**11.5** mph / **18.5** km/h	-	N/A
11:53 AM	**84.0** °F / **28.9** °C	**68.0** °F / **20.0** °C	58%	**29.87** in / **1011.3** hPa	**10.0** miles / **16.1** kilometers	West	**10.4** mph / **16.7** km/h	-	**0.01** in / **0.0** cm
12:53 PM	**86.0** °F / **30.0** °C	**68.0** °F / **20.0** °C	55%	**29.86** in / **1011.1** hPa	**10.0** miles / **16.1** kilometers	West	**11.5** mph / **18.5** km/h	-	N/A
1:53 PM	**84.0** °F / **28.9** °C	**69.1** °F / **20.6** °C	61%	**29.84** in / **1010.5** hPa	**10.0** miles / **16.1** kilometers	West	**11.5** mph / **18.5** km/h	-	N/A
2:53 PM	**84.9** °F / **29.4** °C	**69.1** °F / **20.6** °C	59%	**29.83** in / **1009.9** hPa	**10.0** miles / **16.1** kilometers	West	**12.7** mph / **20.4** km/h	-	N/A
3:53 PM	**84.9** °F / **29.4** °C	**69.1** °F / **20.6** °C	59%	**29.81** in / **1009.4** hPa	**10.0** miles / **16.1** kilometers	West	**13.8** mph / **22.2** km/h	-	N/A
4:53 PM	**84.9** °F / **29.4** °C	**68.0** °F / **20.0** °C	57%	**29.80** in / **1009.0** hPa	**10.0** miles / **16.1** kilometers	West	**12.7** mph / **20.4** km/h	-	N/A
5:53 PM	**84.0** °F / **28.9** °C	**68.0** °F / **20.0** °C	58%	**29.79** in / **1008.6** hPa	**10.0** miles / **16.1** kilometers	WNW	**15.0** mph / **24.1** km/h	-	N/A
6:53 PM	**82.9** °F / **28.3** °C	**66.9** °F / **19.4** °C	58%	**29.80** in / **1009.0** hPa	**10.0** miles / **16.1** kilometers	WNW	**11.5** mph / **18.5** km/h	-	N/A
7:53 PM	**80.1** °F / **26.7** °C	**64.0** °F / **17.8** °C	58%	**29.80** in / **1009.1** hPa	**10.0** miles / **16.1** kilometers	WNW	**11.5** mph / **18.5** km/h	-	N/A
8:53 PM	**78.1** °F / **25.6** °C	**64.9** °F / **18.3** °C	64%	**29.81** in / **1009.4** hPa	**10.0** miles / **16.1** kilometers	WNW	**8.1** mph / **13.0** km/h	-	N/A
9:53 PM	**75.9** °F / **24.4** °C	**66.0** °F / **18.9** °C	71%	**29.83** in / **1009.9** hPa	**10.0** miles / **16.1** kilometers	NW	**4.6** mph / **7.4** km/h	-	N/A
11:53 PM	**73.9** °F / **23.3** °C	**66.9** °F / **19.4** °C	79%	**29.84** in / **1010.4** hPa	**10.0** miles / **16.1** kilometers	NW	**5.8** mph / **9.3** km/h	-	N/A

Show full METARS | METAR FAQ | Comma Delimited File

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Soil Gas Sample Collection Log

Sample ID: SG-12RS

Client:	Lockheed Martin	**Date/Day:**	Wed, 10-18-06
Project:	Former ABC Plant	**Weather:**	
Location:	7705 17th St Ct E	**Temperature:**	82° F
Project #:		**Wind Speed/Direction:**	7mph 200° SSW
Samplers:	Shirer	**Subcontractor:**	
Logged By:	Coates	**Equipment:**	hand auger, He detector, SUMA
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	Dry (Moist)
Sampling Depth:	3'	**Approximate Purge Volume:**	
Time of Collection:	1425 - 1450	**Background PID Ambient Air Reading:**	0ppb

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-42	3.82
MW-15S	2.93
MW-77	4.06

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 93149 (ITC # 064797)

Flow Controller ID: 4

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
	-30	-4

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-2RS

Client:	Lockheed Martin	**Date/Day:**	Wed, 10-18-06
Project:	Former ABC Plant	**Weather:**	
Location:	7605 76th Dr E	**Temperature:**	82°
Project #:		**Wind Speed/Direction:**	7mph 200° SSW
Samplers:	Shirer	**Subcontractor:**	
Logged By:	Coatley	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	Dry / (Moist)
Sampling Depth:	2 ft	**Approximate Purge Volume:**	
Time of Collection:	1422 - 1452	**Background PID Ambient Air Reading:**	0ppb

Nearby Groundwater Monitoring Wells/Water Levels: *

Well ID	Depth to Groundwater (feet)
MW-67	3.70
MW-145	2.74

dup

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 6347, A781 (*dup)

Flow Controller ID: 10 + splitter

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
-.40	-30+	-2+

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Duplicate SG-2RS + SG-[redacted]XRS

* Reading was collected -2 bot+

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-6RS

Client:	Lockheed Martin	**Date/Day:**	Wed 10-18-06
Project:	Former ABC Plant	**Weather:**	
Location:	7624 19th St E	**Temperature:**	82
Project #:		**Wind Speed/Direction:**	7mph 200° SSW
Samplers:	Shiner	**Subcontractor:**	
Logged By:	Coates	**Equipment:**	Hand auger, Hedelator, SUMA
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	Dry (Moist)
Sampling Depth:	2'0"	**Approximate Purge Volume:**	
Time of Collection:	1424 - 1509	**Background PID Ambient Air Reading:**	Oppb

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-16D	2.69
MW-63	2.88

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 0184 (ITC # 06335S4)

Flow Controller ID: 12

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
.37	-30	-2

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-23RS

Client:	Lockheed Martin	**Date/Day:**	10-18-06
Project:	Tallevast	**Weather:**	
Location:	SG-23RS	**Temperature:**	
Project #:		**Wind Speed/Direction:**	See Weather Sheets
Samplers:	Slater	**Subcontractor:**	
Logged By:	Coates	**Equipment:**	
Coordinates:	—	**Moisture Content of Sampling Zone (circle one):**	(Dry) Moist
Sampling Depth:	2.6'	**Approximate Purge Volume:**	
Time of Collection:	1432 - 1512	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-42	3.82
MW-15S	2.93
MW-77	4.06

SUMMA Canister Information

Size (circle one): 1 L 6 L

Canister ID: 93121

Flow Controller ID: 16

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
-1.45	-30	-3

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
-	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: SG-15RS

Client:	Lockheed Martin	**Date/Day:**	Wed 10-18-06
Project:	Former ABC Plant	**Weather:**	
Location:	1802 Tallevast Rd	**Temperature:**	82
Project #:		**Wind Speed/Direction:**	7mph 202° SSW
Samplers:		**Subcontractor:**	
Logged By:		**Equipment:**	handauger, He detector, SUMA
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	Dry / (Moist)
Sampling Depth: 10-18-06 ~~1'0"~~	2'10"	**Approximate Purge Volume:**	
Time of Collection:	1430 - 1500	**Background PID Ambient Air Reading:**	0.0

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-42	3.82
MW-15S	2.93
MW-77	4.06

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 179

Flow Controller ID: 19

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):

Reported By Laboratory	Measured Prior to Sample Collection	Measured Following Sample Collection
.48	-30+	-5

Tracer Gas Concentration (if applicable):

Measured in Purge Effluent	Measured in 'Concentrated' Area Prior to Sample Collection	Measured in 'Concentrated' Area Following Sample Collection
	ND	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

7707 17th St Ct E

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Soil Gas Sample Collection Log

Sample ID: SG-13RS

Client:	Lockheed Martin	**Date/Day:**	Wed, 10-18-06
Project:	Former ABC	**Weather:**	
Location:	7707 ~~Tallevast Rd~~ 17th St Ct E	**Temperature:**	82° F
Project #:		**Wind Speed/Direction:**	7mph 200° SSW
Samplers:	Ryan Tuttle, Jason Shiver	**Subcontractor:**	
Logged By:	Amy Coats	**Equipment:**	Hand auger, He detector, SUMA
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	Dry / (Moist)
Sampling Depth:	2'	**Approximate Purge Volume:**	
Time of Collection:	1420 - 1445	**Background PID Ambient Air Reading:**	0 ppb

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)
MW-42	3.82
MW-15S	2.93
MW-77	4.06

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 04176

Flow Controller ID: ~~727~~ 18

Tracer Gas Information (if applicable)

Tracer Gas: He

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
-.45	-30	-5

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	NO	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: AA-10/18 (Mid)

Client:	Lockheed Martin	**Date/Day:**	10·18
Project:	Tallevast	**Weather:**	
Location:		**Temperature:**	See weather
Project #:		**Wind Speed/Direction:**	
Samplers:	Shirer	**Subcontractor:**	
Logged By:	Coates	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	Dry / Moist
Sampling Depth:		**Approximate Purge Volume:**	
Time of Collection:	1412 / 1518	**Background PID Ambient Air Reading:**	

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 12454

Flow Controller ID: 24

Tracer Gas Information (if applicable)

Tracer Gas: –

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
	-30	-4

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: FB-10/18

Client:		**Date/Day:**	
Project:		**Weather:**	
Location:		**Temperature:**	
Project #:		**Wind Speed/Direction:**	
Samplers:		**Subcontractor:**	
Logged By:		**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	Dry / Moist
Sampling Depth:		**Approximate Purge Volume:**	
Time of Collection:	N/A	**Background PID Ambient Air Reading:**	

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)

SUMMA Canister Information

Size (circle one): 1 L 6 L

Canister ID: 1400

Flow Controller ID: _____

Tracer Gas Information (if applicable)

Tracer Gas: _____

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: AA-10/18 Dawnwind

Client:	Lockheed Martin	**Date/Day:**	10-18
Project:	Tallevast	**Weather:**	
Location:		**Temperature:**	
Project #:		**Wind Speed/Direction:**	
Samplers:	Shirar	**Subcontractor:**	
Logged By:	Coates	**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	Dry / Moist
Sampling Depth:	~ (1.0' AGS)	**Approximate Purge Volume:**	
Time of Collection:	1415 - 1523	**Background PID Ambient Air Reading:**	

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)

SUMMA Canister Information

Size (circle one): 1 L 6 L

Canister ID: 12831

Flow Controller ID: 23

Tracer Gas Information (if applicable)

Tracer Gas: ✓

1415
1523

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
.23	-30	-4

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**
	N/A	

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

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Soil Gas Sample Collection Log

Sample ID: AA - 10/18 upwind

Client:	Lockheed Martin	**Date/Day:**	10.18
Project:	Tallevast	**Weather:**	
Location:		**Temperature:**	Weather Attached
Project #:	Shiver	**Wind Speed/Direction:**	
Samplers:	Coates	**Subcontractor:**	
Logged By:		**Equipment:**	
Coordinates:		**Moisture Content of Sampling Zone (circle one):**	Dry / Moist
Sampling Depth:		**Approximate Purge Volume:**	
Time of Collection:	1415 - 1510	**Background PID Ambient Air Reading:**	

Nearby Groundwater Monitoring Wells/Water Levels:

Well ID	Depth to Groundwater (feet)

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 0040

Flow Controller ID: 81

Tracer Gas Information (if applicable)

Tracer Gas:

Canister Pressure (inches Hg):		
Reported By Laboratory	**Measured Prior to Sample Collection**	**Measured Following Sample Collection**
-40	-30	-6

Tracer Gas Concentration (if applicable):		
Measured in Purge Effluent	**Measured in 'Concentrated' Area Prior to Sample Collection**	**Measured in 'Concentrated' Area Following Sample Collection**

General Observations/Notes:

Approximating One-Well Volume (for purging):
When using 1¼-inch "Dummy Point" and a 6-inch sampling interval, the sampling space will have a volume of approximately 150 mL.
Each foot of ¼-inch tubing will have a volume of approximately 10 mL.

History for Sarasota, Florida

Wednesday, October 18, 2006 — View Current Conditions

Jump to Data:

Date: October 18 2006 Go Round 2 Airport Code: Go

Recently Viewed Airport Codes: KSRQ

Daily | Weekly | Monthly | Custom | Trip Planner

« Previous Day | **Daily Summary** for **October 18, 2006** | Next Day »

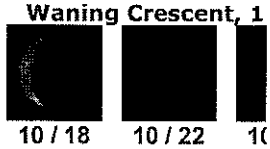
	Actual	Average	Record
Temperature			
Mean Temperature	**78** °F / **25** °C	**74** °F / **23** °C	
Max Temperature	**85** °F / **29** °C	**85** °F / **29** °C	**93** °F / **33** °C (1989)
Min Temperature	**71** °F / **21** °C	**64** °F / **17** °C	**44** °F / **6** °C (1977)
Degree Days			
Heating Degree Days	0	0	
Month to date heating degree days	0	0	
Since 1 July heating degree days	0	0	
Cooling Degree Days	13	10	
Month to date cooling degree days	218	205	
Year to date cooling degree days	3159	2985	
Growing Degree Days	28 (Base 50)		
Moisture			
Dew Point	**69** °F / **20** °C		
Average Humidity	78		
Maximum Humidity	90		
Minimum Humidity	65		
Precipitation			
Precipitation	**0.00** in / **0.00** cm	**0.08** in / **0.20** cm	**1.54** in / **3.91** cm (1968)
Month to date precipitation	0.00	1.98	
Year to date precipitation	43.90	48.42	
Sea Level Pressure			
Sea Level Pressure	**29.90** in / **1012** hPa		
Wind			
Wind Speed	**6** mph / **9** km/h (South)		
Max Wind Speed	**13** mph / **21** km/h		
Max Gust Speed	**15** mph / **24** km/h		
Visibility	**10** miles / **16** kilometers		
Events			

T = Trace of Precipitation, **MM** = Missing Value **Source:** NWS Daily Summary

Astronomy History:

October 18, 2006	Rise
Actual Time	11:3
Civil Twilight	11:(
Nautical Twilight	10:4
Astronomical Twilight	10:'
Moon	8:2((10/
Length Of Visible Light:	12h
Length of Day	11h

Waning Crescent, 1



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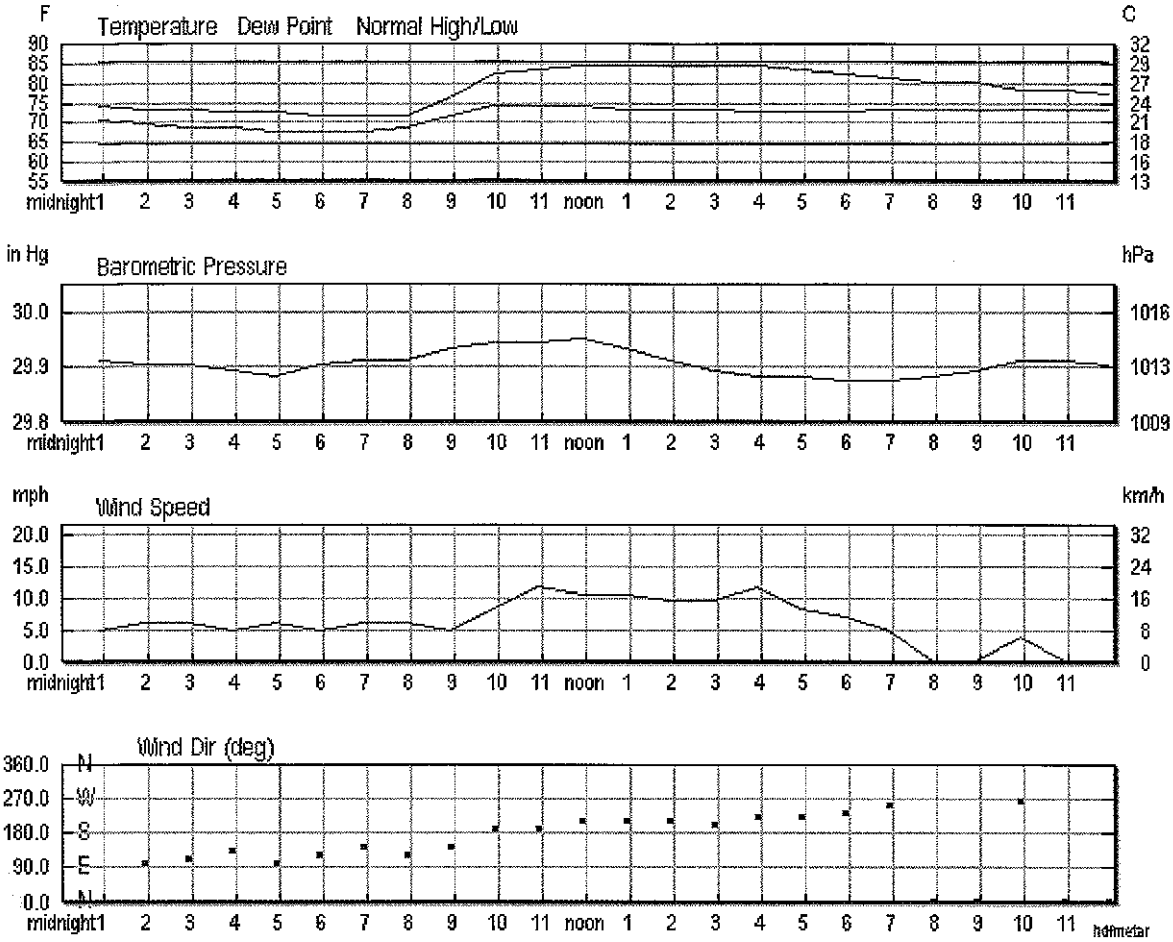

Hourly Observations

Time (EDT)	Temperature	Dew Point	Humidity	Sea Level Pressure	Visibility	Wind Direction	Wind Speed	Gust Speed	Precipi
12:53 AM	**73.9** °F / **23.3** °C	**70.0** °F / **21.1** °C	87%	**29.91** in / **1012.8** hPa	**10.0** miles / **16.1** kilometers	SE	**4.6** mph / **7.4** km/h	-	N/A
1:53 AM	**73.0** °F / **22.8** °C	**69.1** °F / **20.6** °C	87%	**29.90** in / **1012.5** hPa	**10.0** miles / **16.1** kilometers	East	**5.8** mph / **9.3** km/h	-	N/A
2:53 AM	**73.0** °F / **22.8** °C	**68.0** °F / **20.0** °C	84%	**29.90** in / **1012.4** hPa	**10.0** miles / **16.1** kilometers	ESE	**5.8** mph / **9.3** km/h	-	N/A
3:53 AM	**72.0** °F / **22.2** °C	**68.0** °F / **20.0** °C	87%	**29.89** in / **1012.0** hPa	**10.0** miles / **16.1** kilometers	SE	**4.6** mph / **7.4** km/h	-	N/A
4:53 AM	**72.0** °F / **22.2** °C	**66.9** °F / **19.4** °C	84%	**29.88** in / **1011.9** hPa	**10.0** miles / **16.1** kilometers	East	**5.8** mph / **9.3** km/h	-	N/A
5:53 AM	**71.1** °F / **21.7** °C	**66.9** °F / **19.4** °C	87%	**29.90** in / **1012.4** hPa	**10.0** miles / **16.1** kilometers	ESE	**4.6** mph / **7.4** km/h	-	N/A
6:53 AM	**71.1** °F / **21.7** °C	**66.9** °F / **19.4** °C	87%	**29.91** in / **1012.7** hPa	**10.0** miles / **16.1** kilometers	SE	**5.8** mph / **9.3** km/h	-	N/A
7:53 AM	**71.1** °F / **21.7** °C	**68.0** °F / **20.0** °C	90%	**29.91** in / **1012.8** hPa	**8.0** miles / **12.9** kilometers	ESE	**5.8** mph / **9.3** km/h	-	N/A
8:53 AM	**75.9** °F / **24.4** °C	**71.1** °F / **21.7** °C	85%	**29.93** in / **1013.4** hPa	**10.0** miles / **16.1** kilometers	SE	**4.6** mph / **7.4** km/h	-	N/A
9:53 AM	**82.0** °F / **27.8** °C	**73.9** °F / **23.3** °C	76%	**29.94** in / **1013.6** hPa	**10.0** miles / **16.1** kilometers	South	**8.1** mph / **13.0** km/h	-	N/A

10:53 AM	**82.9** °F / **28.3** °C	**73.9** °F / **23.3** °C	74%	**29.94** in / **1013.8** hPa	**10.0** miles / **16.1** kilometers	South	**11.5** mph / **18.5** km/h	-	N/A
11:53 AM	**84.0** °F / **28.9** °C	**73.9** °F / **23.3** °C	72%	**29.95** in / **1014.0** hPa	**10.0** miles / **16.1** kilometers	SSW	**10.4** mph / **16.7** km/h	-	N/A
12:53 PM	**84.0** °F / **28.9** °C	**73.0** °F / **22.8** °C	69%	**29.93** in / **1013.4** hPa	**10.0** miles / **16.1** kilometers	SSW	**10.4** mph / **16.7** km/h	-	N/A
1:53 PM	**84.0** °F / **28.9** °C	**73.0** °F / **22.8** °C	69%	**29.91** in / **1012.9** hPa	**10.0** miles / **16.1** kilometers	SSW	**9.2** mph / **14.8** km/h	-	N/A
2:53 PM	**84.0** °F / **28.9** °C	**73.0** °F / **22.8** °C	69%	**29.89** in / **1012.2** hPa	**10.0** miles / **16.1** kilometers	SSW	**9.2** mph / **14.8** km/h	-	N/A
3:53 PM	**84.0** °F / **28.9** °C	**72.0** °F / **22.2** °C	67%	**29.88** in / **1011.6** hPa	**10.0** miles / **16.1** kilometers	SW	**11.5** mph / **18.5** km/h	-	N/A
4:53 PM	**82.9** °F / **28.3** °C	**72.0** °F / **22.2** °C	69%	**29.88** in / **1011.6** hPa	**10.0** miles / **16.1** kilometers	SW	**8.1** mph / **13.0** km/h	-	N/A
5:53 PM	**82.0** °F / **27.8** °C	**72.0** °F / **22.2** °C	71%	**29.87** in / **1011.4** hPa	**10.0** miles / **16.1** kilometers	SW	**6.9** mph / **11.1** km/h	-	N/A
6:53 PM	**81.0** °F / **27.2** °C	**73.0** °F / **22.8** °C	77%	**29.87** in / **1011.4** hPa	**10.0** miles / **16.1** kilometers	WSW	**4.6** mph / **7.4** km/h	-	N/A
7:53 PM	**80.1** °F / **26.7** °C	**73.0** °F / **22.8** °C	79%	**29.88** in / **1011.6** hPa	**10.0** miles / **16.1** kilometers	Calm	Calm	-	N/A
8:53 PM	**80.1** °F / **26.7** °C	**73.0** °F / **22.8** °C	79%	**29.89** in / **1012.1** hPa	**10.0** miles / **16.1** kilometers	Calm	Calm	-	N/A
9:53 PM	**78.1** °F / **25.6** °C	**73.0** °F / **22.8** °C	84%	**29.91** in / **1012.8** hPa	**10.0** miles / **16.1** kilometers	West	**3.5** mph / **5.6** km/h	-	N/A
10:53 PM	**78.1** °F / **25.6** °C	**73.0** °F / **22.8** °C	84%	**29.91** in / **1012.8** hPa	**10.0** miles / **16.1** kilometers	Calm	Calm	-	N/A
11:53 PM	**77.0** °F / **25.0** °C	**73.0** °F / **22.8** °C	88%	**29.90** in / **1012.3** hPa	**10.0** miles / **16.1** kilometers	Calm	Calm	-	N/A

Show full METARS | METAR FAQ | Comma Delimited File

ARCADIS BBL

Appendix F

Johnson & Ettinger Model Results

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	1.20E+01			Trichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	80	10	C		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SC	1.63	0.385	0.197	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.90E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	1.1E-04	4.0E-02	131.39

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
65	0.188	0.345	2.26E-09	0.808	1.83E-09	4,000	1.20E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm-m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,557	4.78E-03	2.06E-01	1.75E-04	2.04E-03	65

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.20E+01	0.10	8.33E+01	2.04E-03	4.00E+02	#NUM!	1.35E-03	1.62E-02

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.1E-04	4.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
7.3E-07	3.9E-04

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.13E+02			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	80	10	C		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
SC	1.63	0.385	0.197	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
65	0.188	0.345	2.26E-09	0.808	1.83E-09	4,000	1.13E+02	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm-m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,553	7.81E-03	3.36E-01	1.75E-04	1.86E-03	65

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.13E+02	0.10	8.33E+01	1.86E-03	4.00E+02	#NUM!	1.26E-03	1.42E-01

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.4E-07	2.3E-04

MESSAGE SUMMARY BELOW:

END

ARCADIS BBL

Appendix G

Pinellas County 2000 VOC Data Summary

Pinellas County 2000 VOC Data Summary

	24 Hour Max Concentration				Annual Average Concentration			
	Azalea Park	Gateway	Azalea Park	Gateway	Azalea Park	Gateway	Azalea Park	Gateway
Compound	(ppbv)	(ppbv)	(µg/m³)	(µg/m³)	(ppbv)	(ppbv)	(µg/m³)	(µg/m³)
Freon 114	nd	nd	nd	nd	nd	nd	nd	nd
† vinyl chloride	nd	nd	nd	nd	nd	nd	nd	nd
† methyl bromide	1.17	0.85	4.52	3.32	0.08	0.08	0.32	0.32
† chloroethane	0.12	0.37	0.31	0.96	0.03	0.04	0.08	0.10
Freon 11	5.79	1.47	32.55	8.25	0.68	0.42	3.80	2.35
† 1,1-dichloroethene	nd	nd	nd	nd	nd	nd	nd	nd
† methylene chloride	0.31	0.28	1.07	0.98	0.14	0.14	0.48	0.50
Freon 113	0.11	0.11	0.80	0.81	0.08	0.08	0.63	0.65
† 1,1-dichloroethane	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,2- dichloroethylene	nd	nd	nd	nd	nd	nd	nd	nd
† chloroform	0.21	0.09	1.04	0.45	0.04	0.04	0.21	0.18
† 1,2-dichloroethane	nd	nd	nd	nd	nd	nd	nd	nd
† 1,1,1-trichloroethane	0.41	0.10	2.23	0.53	0.06	0.05	0.34	0.25
† benzene	1.16	1.73	3.69	5.52	0.34	0.68	1.08	2.18
† carbon tetrachloride	0.12	0.11	0.77	0.68	0.10	0.09	0.60	0.58
† 1,2-dichloropropane	nd	nd	nd	nd	nd	nd	nd	nd
† trichloroethylene	1.37	0.09	nd	0.47	0.05	0.03	nd	0.16
† cis-1,3-dichloropropene	nd	nd	nd	nd	nd	nd	nd	nd
† trans-1,3-dichloropropene	nd	nd	nd	nd	nd	nd	nd	nd
† 1,1,2-trichloroethane	nd	0.11	nd	0.61	nd	0.02	nd	0.09
† toluene	3.00	4.32	11.29	16.28	0.80	1.57	3.02	5.90
† 1,2 dibromoethane	nd	nd	nd	nd	nd	nd	nd	nd
† tetrachloroethene	0.12	0.18	0.81	1.19	0.03	0.04	0.22	0.25
† chlorobenzene	nd	nd	nd	nd	nd	nd	nd	nd
† ethylbenzene	0.41	0.40	1.76	1.72	0.11	0.18	0.50	0.79
† m & p -xylene	1.29	1.33	5.60	5.78	0.39	0.61	1.68	2.66
† styrene	0.39	3.98	1.68	16.97	0.08	0.40	0.35	1.69
† 1,1,2,2-tetrachloroethane	nd	nd	nd	nd	nd	nd	nd	nd
† o-xylene	0.44	0.46	1.92	1.98	0.11	0.19	0.47	0.82
1,3,5-trimethylbenzene	0.21	0.23	1.04	1.15	0.05	0.08	0.23	0.39
1,2,4-trimethylbenzene	0.75	0.83	3.71	4.10	0.19	0.31	0.93	1.52
1,3-dichlorobenzene	0.04	0.03	0.22	0.16	0.01	0.01	0.06	0.05
† 1,4-dichlorobenzene	0.08	0.05	0.49	0.29	0.02	0.02	0.15	0.11
1,2-dichlorobenzene	0.02	nd	0.10	nd	0.01	nd	0.04	nd
† 1,2,4-trichlorobenzene	0.04	nd	0.33	nd	0.02	nd	0.11	nd
† hexachloro-1,3-butadiene	nd	nd	nd	nd	nd	nd	nd	nd