

SSD/SVE SYSTEM OM&M AND VAPOR INTRUSION ASSESSMENT REPORT

**314 WENDELL AVENUE SITE
FAIRBANKS, AK
NTP 18-4002-11-036**

FINAL
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Prepared for:

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ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
AEHS	Association for Environmental Health and Sciences
AOC	area of contamination
bgs	below ground surface
cfm	Cubic feet per minute
cDCE	cis-1,2-dichloroethene
COPC	Contaminant of potential concern
CSM	conceptual site model
DW	depressurization well
ESL	ES Laundromat
°F	Degrees Fahrenheit
FNA	Fairbanks Native Association
GCL	groundwater cleanup level
IDW	investigation derived waste
inWC	inches of water column
LCS/LCSD	laboratory control spike/laboratory control spike duplicate
LEL	Lower explosive limit
µg/m ³	micrograms per cubic meter
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MRL	method reporting limit
NTP	Notice-to-Proceed
OASIS-ERM..	OASIS Environmental, Inc., an ERM Company
OM&M	operation, maintenance, and monitoring
OSHA	Occupational Safety and Health Administration
PCE	tetrachloroethene
PEL	Permissible Exposure Level
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
QAR	quality assurance review
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RFP	Request for Proposal
SAA	Satellite Accumulation Area
SCLs	soil cleanup levels
SFY	State Fiscal Year
SIM	Selective Ion Mode
SSD	sub-slab depressurization
SVE	soil vapor extraction
TCE	trichloroethene

tDCE..... trans-1,2-dichloroethene
TVH..... Total volatile hydrocarbons
UAF..... University of Alaska Fairbanks
USEPA..... United States Environmental Protection Agency
VC..... vinyl chloride
VI vapor intrusion
VMP vapor monitoring point

EXECUTIVE SUMMARY

OASIS Environmental, Inc., an ERM Company (OASIS-ERM) performed sub-slab depressurization (SSD) / soil vapor extraction (SVE) system operation, maintenance and monitoring (OM&M); and vapor intrusion (VI) assessment sampling at the Wendell Avenue contaminated site during State Fiscal Year (SFY) 2012 for the Alaska Department of Environmental Conservation (ADEC) under Notice-to-Proceed (NTP) 18-4002-11-036. The objectives of the SFY 2012 VI assessment activities were to evaluate the effectiveness of the SSD system in reducing indoor air exposure to chlorinated ethene vapors within the ES Laundromat (ESL) Building and evaluate the effectiveness of the SVE system in reducing source area vadose zone contaminant concentrations on the ESL Building property. This report includes a summary of SFY 2012 field activities and findings, as well as recommendations for future VI sampling and SSD/SVE operational scenarios at the Wendell Avenue Site.

The Wendell Avenue Site has had historical releases of tetrachloroethene (PCE) to the vadose zone from former dry cleaning operations and wood-stave sewer line leaks. These releases have created two vadose zone hot-spots of PCE contaminated soil: one at the southeast ESL Building property corner and another at the southwest corner of the ESL Building footprint, as well as a groundwater plume extending northwest toward the Chena River, as described in *Release Investigation, Wendell Avenue* (OASIS 2009), and *Additional Characterization, Wendell Avenue* (OASIS 2010a).

The contaminants of potential concern (COPC) at the Wendell Avenue Site are PCE and its degradation products: trichloroethylene (TCE), cis-1,2-dichloroethene (cDCE), trans-1,2-dichloroethene (tDCE) and vinyl chloride (VC). The conceptual site model (CSM) identifies the primary exposure pathway as VI, affecting both indoor and outdoor air. Additional exposure pathways include subsurface soil contact and ingestion, groundwater ingestion, and sediment and surface water contact and ingestion. A current CSM is presented in Section 2.4 of this document and in the *Chena River Monitoring Report* (OASIS 2012).

In SFY 2011, a SSD/SVE system was designed and installed at the 314 Wendell Avenue to mitigate the intrusion of chlorinated ethene vapors into the ESL Building and to extract contaminated vapors from the vadose zone soils beneath and around the building. OASIS completed the *Remediation System Installation Report, Wendell Avenue* (OASIS 2011) to detail the installation and present OM&M information on the startup and initial operation of the system.

The combined SSD and SVE systems have operated continuously for more than a year, and September VI sampling results indicated that the remedial action objectives (RAOs) had been achieved. As such, efforts to reduce operational costs are warranted. A shutdown test was performed in September/October 2012 to provide information regarding alternative operational scenarios for the system. Indoor air COPC concentrations remained below targets at the end of the shutdown test. Contaminant concentrations continue to exceed RAOs at some sub-slab soil gas and vadose zone

soil gas vapor monitoring point (VMP) locations at the end of the shutdown test. In particular, the sub-slab soil gas concentration in SS-4 was over 20 times the ADEC target level. The shutdown test indicates that continued operation of the system is warranted and potential exists for reducing operational costs.

In late 2012, the ESL owners closed the business, ADEC issued the *Final VI Guidance* document with new VI target levels, and VI assessment sampling results indicated that the new ADEC targets were being met during system operation.

Annual VI sampling plans as well as operational scenarios are recommended to provide ongoing assessment of SSD/SVE system efficacy at mitigating VI within the ESL Building and removing chlorinated ethene contamination in vadose zone soil at 314 Wendell Avenue.

1. INTRODUCTION

OASIS Environmental, Inc., an ERM Company (OASIS-ERM) performed remediation and monitoring activities at the Wendell Avenue contaminated site in State Fiscal Year (SFY) 2012 for the Alaska Department of Environmental Conservation (ADEC) under Notice-to-Proceed (NTP) 18-4002-11-036. The Wendell Avenue Site is a contaminated with tetrachloroethene (PCE) and the degradation products trichloroethene (TCE), cis-1,2-dichloroethene (cDCE), trans-1,2-dichloroethene (tDCE), and vinyl chloride (VC). Specifically, OASIS-ERM performed operation, maintenance, and monitoring (OM&M) of the combined sub-slab depressurization (SSD) and soil vapor extraction (SVE) system and vapor intrusion (VI) assessment sampling at the Wendell Avenue Site. This report presents a brief background of the site; a description of the field activities performed; and discusses the findings, conclusions, and recommendations resulting from the work performed.

1.1. Site Summary

The Wendell Avenue Site is located in Fairbanks, Alaska, as displayed in Figure 1. The site has had historical releases of PCE to the vadose zone from former dry cleaning operations and from the wood-stave sewer line leaks. Site investigation and characterization efforts have been conducted since 2001 to develop a conceptual understanding of the contaminant distribution at the site. The PCE releases have created a source zone composed of PCE contaminated soil in the vadose zone and an area of groundwater contamination that exceeds the ADEC groundwater cleanup levels (GCLs) by two orders of magnitude. The vadose zone source area consists of two vadose zone hot-spots: one at the southeast ESL Building property corner and another at the southwest corner of the ESL Building, as well as a groundwater plume extending northwest towards the Chena River, as described in *Release Investigation, Wendell Avenue* (OASIS 2009), and *Additional Characterization, Wendell Avenue* (OASIS 2010a).

Figure 2 presents the current conceptual areas of contamination and is the basis for the designations of the terms “source area” and “plume area” used in this report. The source area is considered that portion of the site where concentrations of chlorinated ethenes in vadose zone soil exceed the migration to water soil cleanup levels (SCLs) by at least an order of magnitude, or concentrations of chlorinated ethenes in groundwater exceed the GCLs by at least an order of magnitude. The plume area is the area where groundwater concentrations exceed the GCLs by less than an order of magnitude.

An SSD/SVE system was installed to mitigate VI into the ESL Building and remediate vadose zone soil in the source area around the ESL Building. The SSD/SVE system consists of six SSD wells, five SVE wells, a network of sub-slab soil gas and soil gas vapor monitoring points (VMPs), and an SSD/SVE system enclosure. OASIS completed the *Remediation System Installation Report, Wendell Avenue* (OASIS 2011) to detail the

installation and present OM&M information from the startup and initial operation of the system.

1.2. Project Organization

ADEC contracted OASIS-ERM to manage and execute this project. Laboratory analytical services and waste disposal were subcontracted. Project organization for remediation system OM&M and VI assessment sampling includes the following:

- Third-Party Environmental Assessor – OASIS-ERM, 825 W. 8th Avenue, Anchorage, AK 99501;
- Subcontractor for Air Sample Analyses – Eurofins, formerly Air Toxics, Ltd., 180 Blue Ravine Rd. Suite B, Folsom, CA 95630; and
- Waste Subcontractor – Emerald Alaska, Inc., 2020 Viking Drive, Anchorage, AK 99501.

1.3. Objectives

The purpose of the SFY 2012 project was to continue long-term monitoring and remediation at the Wendell Avenue Site. Objectives of the SFY 2012 activities are listed below.

- Operate and maintain the SSD/SVE system to reduce concentrations of chlorinated ethenes in the vadose zone at the ESL Building located at 314 Wendell Avenue (former MC Cleaners).
- Conduct VI assessment sampling at the ESL Building and within the Hoppner Building at 330 Wendell Avenue.
- Evaluate the capacity of the SSD/SVE system to meet remedial action objectives (RAOs) of the SSD/SVE system.

1.4. Scope of Work

The SFY 2012 Wendell Avenue Site project scope was framed in the Request for Proposal (RFP) issued by ADEC on June 13, 2011 and several additional modifications to the OM&M and VI assessment sampling scope. The collective scope of work related to OM&M and VI assessment sampling included the following tasks:

- Prepare a Site-specific Health, Safety, and Environmental Plan;
- Operate the SSD/SVE system;
- Perform OM&M inspections;
- Perform exhaust stack, outdoor air, and soil gas sampling;
- Conduct VI assessment sampling at ESL;
- Conduct VI assessment sampling at 330 Wendell Avenue;
- Conduct an SSD/SVE system shutdown test;

- Manage investigation derived waste (IDW); and
- Submit interim reports and an annual SSD/SVE OM&M and VI assessment report.

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2. BACKGROUND

This section summarizes the environmental setting, previous site work, the regulatory framework applicable to the site, and an updated conceptual site model (CSM). The environmental setting is based on information from various regional reports by the United States Geological Survey and from site-specific reports by OASIS-ERM. The presentation of previous site work summarizes activities presented in several key documents listed below. The regulatory framework and CSM are based on ADEC guidance documents included in the following list.

- Release Investigation, Wendell Avenue (OASIS 2009)
- Additional Characterization, Wendell Avenue (OASIS 2010a)
- Remediation System Installation Report, Wendell Avenue (OASIS 2011)
- Vapor Intrusion Report, 314 Wendell Avenue Site (OASIS 2012a)
- Vapor Intrusion Guidance for Contaminated Sites (ADEC 2012b)
- Policy Guidance on Developing Conceptual Site Models (ADEC 2010a)

2.1. Environmental Setting

The site is situated on the collective floodplain of the Tanana and Chena rivers. The surficial geology consists of unconsolidated silt, sand, and gravel of the Chena Alluvium. The Chena Alluvium is characterized by well-stratified layers of unconsolidated coarse sand and gravel inter-bedded with poorly stratified layers and lenses of unconsolidated silt and sandy silt. The poorly stratified sediments are present in sinuous swale and slough deposits, while the unconsolidated coarse sand and gravel are ubiquitous within the Tanana-Chena floodplain. Collectively, these unconsolidated deposits are more than 300 feet thick in the Tanana and Chena river valleys (Péwé et al. 1976).

Discontinuous permafrost of generally low ice content is characteristic of Chena Alluvium sediments. However, swale and slough deposits commonly have moderate-to-high ice (permafrost) content in the form of seams and lenses. Where present, permafrost ranges in depth from 2 to 40 feet below ground surface (bgs) (Péwé et al. 1976).

The unconfined, alluvial-plain Chena Alluvium aquifer is capable of yielding significant quantities of water in wells. The aquifer may seasonally exhibit confined conditions over localized areas from seasonal frosts. Also, where discontinuous permafrost is present, confined conditions may exist in subpermafrost groundwater within the alluvial plain aquifer (Péwé et al. 1976).

Recharge to the alluvial-plain aquifer occurs from the Tanana and Chena rivers, with a relatively small amount resulting from infiltration of precipitation. Groundwater levels in the alluvial-plain aquifer respond relatively quickly to increases in the stages of the Tanana and Chena rivers. The Tanana River is primarily glacial-fed and is generally at its highest during peak summer, whereas the Chena River is generally at its highest during spring snowmelt and late-summer precipitation.

2.2. Previous Site Work

Investigation and characterization efforts have been conducted at the site since 2001. Vapor intrusion assessment sampling was initiated in 2008 in the vicinity around 314 Wendell Avenue. Vapor Intrusion assessment sampling was performed at ESL, the Fairbanks Native Association (FNA) Community Services Building, and FNA Hannah Solomon Building. Permission to conduct VI assessment sampling was denied in 2008 for the law offices at 330 Wendell Avenue, the Midnite Mine at 308 Wendell Avenue, and the residence at 302 Wendell Avenue. However, permission was granted in 2012 to conduct limited VI assessment sampling at 330 Wendell Avenue, and results of that assessment are presented in this report. Figure 3 shows the air sample locations used for the VI assessment sampling at the Wendell Avenue Site and includes locations used by University of Alaska Fairbanks (UAF) for research purposes. The types of sample locations used for the VI assessment sampling include outdoor air, indoor air, crawlspace air, sub-slab soil gas, and soil gas. In this report, sub-slab soil gas samples are defined as having been obtained beneath building foundations. Soil gas samples are defined as having been obtained outside building foundations.

The results of the VI assessment sampling at the FNA Community Services Building and FNA Hannah Solomon Building from 2008 to 2010 indicate that the potential exists for VI. However, VI assessment sampling data indicates that although sub-slab soil gas PCE concentrations exceed the ADEC target levels, the indoor air PCE concentrations were below the recently issued ADEC target levels (ADEC 2012). The original findings from the VI assessment sampling efforts at the two FNA buildings were not as definitive since the results were compared to the draft ADEC target levels available at the time. The 2012 ADEC target levels are higher than the draft ADEC targets for PCE, TCE, and VC. The 2012 ADEC target levels are lower than the draft ADEC targets for cDCE and are unchanged for tDCE. Specific details on the VI assessment sampling conducted at the FNA buildings are presented in the *Vapor Intrusion Report, 314 Wendell Avenue Site* (OASIS 2012a). Cumulative results for VI assessment sampling are displayed in Appendix A.

The results of the VI assessment sampling at the ESL Building indicate that the VI pathway is complete. Indoor air, sub-slab soil gas, and soil gas PCE concentrations at the ESL Building were above the ADEC target levels during each of the VI assessment sampling events conducted from 2008 to 2011. A combined SSD/SVE system began operation in 2011 to mitigate VI at the ESL Building and to remediate source area vadose zone contamination. The SSD portion of the system began operation on February 15, 2011, and the SVE portion of the system began operation on June 23, 2011. Figure 4 displays the locations of system components.

2.3. Regulatory Framework

The primary contaminants of potential concern (COPCs) at 314 Wendell Avenue are PCE and its degradation products TCE, cDCE, tDCE, and VC. A regulatory framework

for this project has been developed using the following regulations and guidance documents:

- ADEC, 18 AAC 75, Oil and Other Hazardous Substances Pollution Control, Revised as of April 8, 2012 (ADEC 2012a);
- Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision. (Jones & Suter. 1997).

Table 1 presents the soil and GCLs applicable to the Wendell Avenue Site.

TABLE 1. SOIL AND GROUNDWATER CLEANUP LEVELS FOR CONTAMINANTS OF POTENTIAL CONCERN

Compound	Soil Cleanup Levels 18 AAC 75.341, Table B1, Under 40-inch (mg/kg)	Groundwater Cleanup Levels 18 AAC 75.345, Table C (mg/L)
PCE	0.024	0.005
TCE	0.020	0.005
cDCE	0.24	0.07
tDCE	0.37	0.10
VC	0.0085	0.002

mg/kg= milligrams per kilogram
mg/L= milligrams per liter

The regulatory framework for conducting VI assessment sampling and SSD/SVE system OM&M was developed following the draft and final versions of the *Vapor Intrusion Guidance for Contaminated Sites* (ADEC 2012b). Table 2 presents the ADEC Targets applicable to this site.

TABLE 2. VI TARGET LEVELS FOR CONTAMINANTS OF POTENTIAL CONCERN

Compound	ADEC Indoor Air Target Levels for Commercial Property ($\mu\text{g}/\text{m}^3$)	ADEC Sub-Slab or Shallow Soil Gas Target Levels for Commercial Property ($\mu\text{g}/\text{m}^3$)	ADEC Deep Soil Gas Target Levels for Commercial Property ($\mu\text{g}/\text{m}^3$)
PCE	180	1800	18,000
TCE	8.8	88	880
cDCE	31	310	3,100
tDCE	260	2,600	26,000
VC	28	280	2,800

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

2.4. Conceptual Site Model

The current human health CSM scoping and graphical forms prepared for the Wendell Avenue Site are presented in Appendix B. The CSM is based on the following discussion of exposure media and routes. In late 2012, the ESL owners closed the business. However, the closing of ESL did not result in changes to the CSM.

2.4.1. Incidental Soil Ingestion

Historical soil sampling conducted in the Wendell Avenue Site area has shown concentrations of chlorinated ethenes exceeding SCLs listed in 18 AAC 75.341, Table B1, under 40-inch zone for soil between 0 and 15 feet bgs. Potential receptors to contamination from the incidental soil ingestion exposure route include:

- current and future residents;
- current and future commercial or industrial workers;
- current and future site visitors, trespassers, or recreational users; and
- current and future construction workers.

2.4.2. Ingestion of Groundwater

Historical groundwater sampling conducted in the Wendell Avenue Site area has shown concentrations of chlorinated ethenes exceeding the GCLs listed in 18 AAC 75.345, Table C. Although the shallow groundwater at the Wendell Avenue Site is not used as a source of drinking water, all groundwater in Alaska is considered a potential drinking water source unless determined otherwise using the criteria presented in 18 AAC 75.350. No groundwater determination has been completed for this site under 18 AAC 75.350. Potential receptors to contamination from the ingestion of groundwater exposure route include:

- current and future residents;
- current and future commercial or industrial workers;
- current and future site visitors, trespassers, or recreational users; and
- current and future construction workers.

2.4.3. Inhalation of Outdoor and Indoor Air

Historical soil sampling conducted at the Wendell Avenue Site area has shown concentrations of chlorinated ethenes exceeding the SCLs for soil between 0 and 15 feet bgs. Vapor intrusion sampling at the ESL Building and the FNA Community Services has shown concentrations of chlorinated ethenes in sub-slab soil gas samples exceeding the target levels for shallow or sub-slab soil gas. Vapor intrusion sampling has also shown concentrations of chlorinated ethenes in indoor air at the ESL Building exceeding the ADEC target levels for indoor air. Operation of the SSD system has reduced sub-slab and indoor air concentrations of chlorinated ethenes in the ESL Building to below ADEC target levels. However, continued monitoring will be needed to confirm concentrations are consistently below target levels under differing operational scenarios. Potential receptors to contamination from the inhalation of outdoor and indoor air exposure routes include:

- current and future residents;
- current and future commercial or industrial workers;

- current and future site visitors, trespassers, or recreational users; and
- current and future construction workers.

2.4.4. Inhalation of Volatile Compounds in Tap Water

The presence of pumping wells in the Wendell Avenue Site area has not been determined. Therefore, it is assumed that they exist and could be used for indoor household purposes. Additionally, chlorinated ethenes for the Wendell Avenue Site are volatile. Potential receptors to contamination from the inhalation of volatile compounds in tap water exposure route include:

- current and future residents;
- current and future commercial or industrial workers;
- current and future site visitors, trespassers, or recreational users; and
- current and future construction workers.

2.4.5. Surface Water/Sediment

Groundwater sampling conducted at the Wendell Avenue Site and pore water sampling conducted on the south bank of the Chena River indicate that some chlorinated ethenes are present in groundwater that is hydrologically connected to the Chena River at concentrations exceeding a screening level of 1/10th the GCLs. Sediment samples collected from the Chena River bed contained concentrations of some chlorinated ethenes exceeding screening benchmark values. Therefore, ingestion of surface water and direct contact with sediment are considered complete exposure routes. Potential receptors to contamination from the ingestion of surface water and direct contact with sediment exposure routes include:

- current and future residents;
- current and future commercial or industrial workers;
- current and future site visitors, trespassers, or recreational users; and
- current and future construction workers.

2.4.6. Dermal Adsorption of Contaminants from Soil/Surface Water

The COPCs at the Wendell Avenue Site have a limited potential for adsorption through the skin and are not listed in Appendix B of *Policy Guidance on Developing Conceptual Site Models* (ADEC 2010a). Therefore, the dermal adsorption exposure routes are not considered complete.

2.4.7. Ingestion of Wild and Farmed Foods

The COPCs at the Wendell Avenue Site have a limited potential to bioaccumulate and are not listed in Appendix C of *Policy Guidance on Developing Conceptual Site Models* (ADEC 2010a). Therefore, the ingestion of wild and farmed foods exposure route is not considered complete.

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3. FIELD ACTIVITIES

Field activities performed during SFY 2012 included SSD/SVE system OM&M, a SSD/SVE system shutdown test, and VI assessment sampling. Investigation derived waste was managed in accordance with Resource Conservation and Recovery Act (RCRA) requirements throughout the performance of field activities. Guidance for OM&M of the vapor mitigation system is based on the operational targets listed in the *Remediation System Installation Report* (OASIS 2011b) and the *Long Term SSD/SVE System OM&M Work Plan* (OASIS 2011a), as well as on the overall objective of mitigating VI into the ESL Building.

3.1. SSD/SVE System OM&M

Operation, maintenance, and monitoring activities included monthly inspections, quarterly emissions sampling, semi-annual outdoor ambient air sampling, paying utility costs for system operation, responding to non-routine call-outs, troubleshooting and performing minor maintenance, and performing a shutdown test of the SSD/SVE system.

3.1.1. Monthly System Checks

Monthly OM&M activities were conducted at the SSD/SVE unit during the SFY 2012. Each monthly OM&M event consisted of documenting the operation of the system on an OM&M data sheet, comparison of operating parameters to operational targets, balancing operation if necessary, and performing routine maintenance. Specific operating parameters recorded and routine maintenance performed during each monthly OM&M event are listed below. OM&M data sheets and field notes are presented in Appendix C.

Overall SSD/SVE System

- Power usage was recorded from the electrical meter in Kilowatt-hours.
- The following data was recorded from the main control panel:
 - operating hours for SSD and SVE blowers, and
 - speeds of SSD and SVE blowers.
- Percent of the lower explosive limit (LEL) in the equipment room was recorded by reading the combustible gas meter.
- Status of heat trace was noted.
- The exhaust stack was checked for any accumulated water and drained if necessary.
- Oxygen concentration, CO₂ concentration, and total volatile hydrocarbons (TVH) were measured and recorded by connecting an RKL Eagle™ multi-gas meter to the combined exhaust stack sample port.
- Field screening for chlorinated solvent concentrations was executed by pulling exhaust from the exhaust stack sample port through a Gastec 133LL™ colorimetric tube using a Gastec™ plunger.

SVE System

- Flow rates from individual SVE wells were read from rotameters and adjusted with quarter-turn ball valves.
- Vacuum was recorded from vacuum gauges on conveyance piping from individual SVE wells.
- Oxygen concentration, CO₂ concentration, and TVH concentration from each SVE well was obtained by connecting an RKI Eagle™ multi-gas meter directly to the sample ports.
- Total flow of the SVE system effluent was read from a Dwyer Magnehelic™ gauge on the blower exhaust line.
- Manifold vacuum levels before and after the air filter were read from vacuum gauges.
- Blower exhaust temperature was read from the dial thermometer on the exhaust line and on the control board digital display.
- Moisture separator fluid level was observed in the sightglass attached to the knockout drum.
- Induced vacuum, O₂ concentration, CO₂ concentration, and TVH concentration was measured from soil gas VMPs located as follows: SG-2 at 4 and 8 feet bgs, SG-3 at 4 and 8 feet bgs, SG-7 at 5 and 8 feet bgs, SG-8 at 5 feet bgs. Induced vacuum was obtained by connecting a Dwyer Series 475 Mark III™ digital manometer to the VMPs. Soil gas compositions were field screened for O₂, CO₂, and TVH concentrations using an RKI Eagle™. Figure 3 shows the outdoor VMP locations.
- The air filter was checked and cleaned if necessary.

SSD System

- Flow rates from individual SSD wells were read from rotameters and adjusted with quarter-turn ball valves.
- Vacuum was read from vacuum gauges on conveyance piping from individual SSD wells.
- Oxygen concentration, CO₂ concentration, and TVH concentration from each SSD well was obtained. This was performed by connecting an RKI Eagle™ multi-gas meter directly to the sample ports.
- Total flow from the SSD system effluent was read from a Dwyer Magnehelic™ gauge on the blower exhaust line.
- Manifold vacuum levels before and after the air filter were read from vacuum gauges.
- Blower exhaust temperature was read from the dial thermometer on the exhaust line.

- Moisture separator fluid level was observed in the sightglass attached to the knockout drum.
- Pressure differential across the building slab, O₂ concentration, CO₂ concentration, and TVH concentration was measured from ten sub-slab VMPs in the ESL Building (SS-4 through SS-13). Pressure differential was measured by connecting a Dwyer Series 475 Mark III™ digital manometer to the VMPs. Sub-slab soil gas composition was measured by connecting an RKI Eagle™ multi-gas reader directly to the VMPs. Figure 3 shows the indoor VMP locations.
- The air filter was checked and cleaned if necessary.

3.1.2. Quarterly Emissions Sampling

Exhaust stack and outdoor air sampling was performed in SFY 2012 to estimate the mass removal rates of chlorinated ethenes from the SSD/SVE system and to ensure outdoor air in the breathing space was not being compromised by system emissions. Sampling was conducted according to Table 3.

TABLE 3. QUARTERLY EMISSIONS SAMPLING SCHEDULE

Timeframe	Exhaust Stack Sample (Method TO-15)	Outdoor Air Sample Location (Method TO-15 SIM)
October 2011	RS-1	AA-3
December 2011	RS-1	-
February 2012	RS-1	AA-3
May 2012	RS-1	-

All analytical services for the analysis of air samples are provided by Eurofins (formerly Air Toxics, LTD.), of Folsom, CA. Summa™ canisters were the only sample media being used in SFY 2012. Samples were analyzed by United States Environmental Protection Agency (USEPA) modified Method TO-15 or USEPA modified Method TO-15 Selective Ion Mode (SIM) for the following chlorinated ethenes: PCE, TCE, cDCE, tDCE, and VC. Exhaust stack and outdoor air sampling were conducted in accordance with the *Long Term SSD/SVE System OM&M Work Plan* (OASIS 2011a).

3.1.3. Maintenance

Routine system maintenance included inspecting rotameters for solids accumulation and management of condensate within the conveyance lines. Inlet filters were inspected and no large debris or filter cake trapped in the folds of the cartridge was observed. Rotameters that measure flow in the individual extraction lines periodically become clouded or clogged from moisture. However, rotameters did not require cleaning during SFY 2012. The heat trace on all SVE well conveyance piping and SSD conveyance

piping was energized from October 21, 2011 to May 9, 2012. Heat trace was energized again on October 16, 2012 for winter.

Non-routine maintenance included repair of broken piping at the SVE-4 wellhead on October 26, 2011. A problem with SVE-4 was suspected following an OM&M inspection at the end of the VI assessment sampling effort on October 21, 2011. A down-hole camera was used to identify cracked pipe where the conveyance piping connects to the well casing (Photograph 1, Appendix D). The soil around the wellhead was removed and new fittings were used to repair the well (Photograph 2). The frozen condition of the soil removed from around the wellhead prevented all the soil being returned to the hole. Approximately 20 gallons of surplus soil was placed just north of the propane tank for the ESL Building within the area of contamination (AOC).

Following recommendations made in the *Vapor Intrusion Report* (OASIS 2012a), sub-slab VMPs SS-4 and SS-5 were replaced to account for wear on the grout seal and probe threads. SS-5 was suspected of not penetrating the base of the slab. Upon replacement, it was found that SS-5 did penetrate the slab, but the probe was plugged. Both sub-slab soil gas points were reinstalled using an epoxy seal. Details of the reinstallation performed on March 12, 2012 are found in the field notes in Appendix C. Cement cuttings and old probes were placed in the Satellite Accumulation Area (SAA) at the SSD/SVE unit.

3.2. Vapor Intrusion Assessment Sampling

Vapor intrusion assessment sampling was performed on four occasions under the SFY 2012 scope of work. Vapor intrusion assessment sampling for three of the events was performed with the SSD/SVE system operating, and one event was performed after a planned system shutdown. Vapor intrusion assessment samples were collected from the ESL Building during each of the four events. Vapor intrusion assessment samples were collected from 330 Wendell Avenue only during the September 2012 event. Table 4 presents a summary of VI assessment samples collected under the SFY 2012 scope of work, and Figure 3 presents the locations of each sample. All samples were collected in accordance with the methodology listed in the *Long-Term SSD/SVE System Operation, Maintenance, and Monitoring Work Plan* (OASIS 2011a). Vapor intrusion assessment sampling included the collection of indoor air, sub-slab soil gas, and soil gas samples. Figure 5 illustrates the sampling setup for soil gas collection and Photograph 3 shows soil gas sample collection at location SG-3. Barometric pressure was tracked during the sampling to assist in interpreting results.

All analytical services for the analysis of air samples are provided by Eurofins (formerly Air Toxics, LTD.), of Folsom, CA. Summa™ canisters were the only sample media being used in SFY 2012. Samples were analyzed by USEPA modified Method TO-15 or USEPA modified Method TO-15 SIM for the following chlorinated ethenes: PCE, TCE, cDCE, tDCE, and VC.

TABLE 4: SFY 2012 VAPOR INTRUSION ASSESSMENT SAMPLE SUMMARY

Timeframe	Indoor Air Samples (Method TO-15 SIM)	Sub-Slab Air Samples (Method TO-15)	Soil Gas Samples (Method TO-15)
October 2011	IA-7, Duplicate, IA-8	SS-4, SS-5, SS-6, duplicate	SG-3 at 8-feet bgs
February 2012	IA-8, duplicate	SS-4, duplicate	SG-3 at 8-feet bgs
September 2012 - Shutdown Test	IA-11, duplicate, IA-8	SS-4	SG-2 at 8 feet bgs, SG-3 at 8 feet bgs
October 2012 - Shutdown Test	IA-8, duplicate	SS-4	SG-2 at 8 feet bgs, SG-3 at 8 feet bgs

3.3. 330 Wendell Ave – VI Assessment Sampling

The VI assessment sampling conducted at 330 Wendell Avenue was the result of an ADEC amendment request to the SFY 2012 scope of work. This and other scope amendments resulted in plans to collect indoor air, sub-slab, and soil gas samples in September, October, and December 2012 at 330 Wendell Avenue. The purpose of the additional sampling was to assess VI at 330 Wendell Avenue and the ESL Building during SSD/SVE operation, approximately one month after a SSD/SVE system shutdown, and during SSD/SVE system operation under winter conditions.

OASIS-ERM met with the building owner of 330 Wendell Avenue in August 2012 to explain the plans for VI assessment sampling. The owner did not grant permission to install sub-slab monitoring points in the building and only allowed a single indoor air sample to be collected in Suite B of the building.

OASIS-ERM conducted a partial VI building survey, collected an indoor air sample, and collected a soil gas sample on September 5, 2012. The building survey was only completed for Suite B, as access was only granted for this portion of the building. The indoor air sample was collected from the location IA-11, established in Suite B. The soil gas sample was collected from VMP location SG-2 located approximately 10 feet east of the building. The samples were collected with the SSD/SVE system in operation. A completed ADEC Building Survey form is presented in Appendix E. The samples were collected with methodologies listed in the *Long Term SSD/SVE System OM&M Work Plan* (OASIS 2011a).

Quality assurance/quality control (QA/QC) air samples included field duplicates obtained at a rate of 10 percent for SIM-certified Summa™ canisters. A laboratory supplied stainless steel SIM-certified duplicate tee was utilized at locations where duplicate samples were obtained with SIM-certified Summa™ canisters. The duplicate tee was attached to the inlets of two flow controllers, and both samples were drawn in through a common inlet (Photograph 4).

3.4. Shutdown Test

The project scope was amended in July 2012 to include the performance of an SSD/SVE system shutdown test. OASIS-ERM performed a shutdown test of the SSD/SVE system from September 7 to October 5, 2012. The shutdown test was performed to measure concentrations of COPCs in indoor air, sub-slab soil gas, and vadose zone soil gas with and without system operation for comparison with the target levels in the recently finalized *Vapor Intrusion Guidance* (ADEC 2012b). The results of the shutdown test will aid in determining the progress of soil remediation and the operational program for the SSD/SVE system in SFY 2013.

Vapor Intrusion assessment samples were collected prior to SSD/SVE system shutdown and approximately one month after shutdown. Soil gas composition and vacuum monitoring was also performed prior to system re-start to aid in estimating SSD/SVE treatment influence. Sampling methodology for the various sample types are presented in Section 3.2.

3.5. Investigation Derived Waste

All IDW generated at this site is considered a RCRA F-listed hazardous waste with facility identification number AKR000203042. The site is considered a small quantity generator. Detailed waste management procedures can be found in the *Long-Term SSD/SVE System Operation, Maintenance, and Monitoring Work Plan, November 2011* (OASIS 2011b). Investigation derived waste generated during the monthly OM&M events and the VI assessment sampling events are listed below along with the waste management details.

- Used Teflon™ tubing, nitrile sample gloves, colorimetric tubes, and paper towels were placed in an onsite SAA within the SSD/SVE system building for eventual removal by Emerald Alaska.
- Condensate removed from the SVE conveyance lines was placed in the SAA for eventual removal by Emerald Alaska.
- Approximately 20 gallons of surplus soil excavated from around the SVE-4 wellhead to complete repairs was placed just north of the propane tank for the ESL Building within the AOC.

On September 11, 2012 Emerald Alaska removed three 55-gallon drums of IDW under waste manifest #002949312. One drum contained purge water associated with sampling activities related to the Chena River Monitoring associated with the Wendell Avenue Site. One drum contained granulated activated carbon from the Allerair Industries RSU20CC™ air scrubber previously used inside the ESL Building and one drum contained disposable sampling materials.

3.6. Deviations from the Work Plan

Several deviations from the VI and OM&M work scope occurred during SFY 2012 and are briefly described below.

- OASIS-ERM was called out for waterline repairs occurring at the southwest corner of the ESL Building in May 2012. Andrew Weller of OASIS-ERM notified Fairbanks Pumping and Thawing at the site on May 7, 2012 to contact OASIS-ERM prior to performing any digging on the site. However, on an OM&M site visit on May 15, 2012, OASIS-ERM personnel observed excavation underway of a 10' x 10' x 4' area (Photograph 5 & 6). ADEC was notified of activities. Excavated soil remained on site and was used as backfill upon completion of excavation activities.
- Installation of sub-slab VMPs and the collection of VI assessment samples in October and December 2012 were not allowed by the 330 Wendell Avenue building owner. OASIS-ERM was only able to collect a single indoor air sample inside 300 Wendell Avenue.
- The ESL business discontinued operations in January 2012 and did not re-start the heating system in the fall of 2012. The distribution lines for the SSD system installed inside the ESL Building are not equipped with insulation or heat trace, and effective operation of the SSD system is problematic during freezing conditions. Therefore, the remediation system was placed in an SVE only mode throughout the winter or until building conditions change.

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4. RESULTS

The results of the SFY 2012 work scope include data collected during monthly OM&M events, analytical data from VI assessment sampling, and data from remediation system testing. These results document SSD/SVE system operation, provide data to assess effectiveness of mitigation efforts, and provide information to evaluate remedial progress. Analytical results spanning the operation of the SSD/SVE system are presented in Table 5 and are compared to the ADEC target levels for commercial buildings. Appendix A contains cumulative VI assessment sampling results from the Wendell Avenue Site from 2008 to 2012. Appendix F contains laboratory analytical reports for samples analyzed in SFY 2012. Appendix G contains a quality assurance review (QAR) of the analytical reports from SFY 2012 and completed ADEC Laboratory Data Checklists. Appendix H presents barometric pressure data during the VI assessment sampling events.

4.1. SSD/SVE System OM&M

Monthly OM&M data provide documentation of the operational performance of the SSD/SVE system during SFY 2012. The OM&M data are compared to operational targets established for the system in the *Wendell Avenue Remedial System Installation Report* (OASIS 2011b) to evaluate performance of the system. Monthly data sheets for SFY 2012 are included in Appendix C.

4.1.1. Monthly Operational Results

The system operational parameters were documented and balanced monthly in an attempt to maintain the operational targets presented in the *Wendell Avenue Remedial System Installation Report* (OASIS 2011b). The primary operational parameter for balancing the SSD/SVE system is the extraction flow rate. A minimum flow rate of 5 cubic feet per minute (cfm), and a target flow rate of 10 cfm are desired in all depressurization wells (DWs). A target flow rate of 15 cfm is desired in all SVE wells. Flow rates are adjusted when necessary to improve the sub-slab vacuum in nearby monitoring points. Graph 1 presents total system flow rate and total system vacuum for the SSD system. Graph 2 presents total system flow rate and total system vacuum for the SVE system from the monthly OM&M events. Minimum flow rates were maintained at all DWs, and flow rates remained above 80 percent of the target flow rate in all wells except DW-2 throughout SFY 2012. Since installation, depressurization well DW-2 has required significantly higher vacuum application than other DWs to achieve the minimum flow rate of 5 cfm. Flow rates in the SVE wells remained above 85 percent of the target flow rate during SFY 2012 with the exception of SVE-6, which operated at 50 percent of the target flow rate from June to September 2012.

Sub-slab vacuum monitoring was performed to measure the negative pressure envelope beneath the building created by the SSD/SVE system. The negative pressure envelope performance target for the SSD/SVE system is a sub-slab vacuum of 0.02 inches of

water column (inWC) as presented in the *Wendell Avenue Remediation System Installation Report* (OASIS 2011b). Vacuum monitoring was accomplished using a micromanometer to measure the vacuum at the sub-slab VMPs located throughout the building. Readings below the target occurred in SS-7, SS-10, SS-11, and SS-12, which are located in unheated portions of the ESL Building with a variety of compromises to the concrete slab. Compromises to the concrete slab vary from extensive cracking around SS-7 and SS-12 to open penetrations near SS-10 and SS-11.

Graphs 3 and 4 present the pressure differential readings from the VMPs during the monthly OM&M events. The average pressure differential across the entire slab in the ESL Building during system operation in SFY 2012 was a vacuum of approximately 0.2 inWC. SS-4 is located closely between two DWs and has an average pressure differential vacuum of 1.413 inWC. If this location is not averaged in, the entire slab average was a vacuum of 0.068 inWC.

Subsurface vacuum monitoring was performed to measure the vacuum induced throughout the vadose zone treatment area by the SVE system for comparison with the operational target of 0.10 inWC. Vacuum monitoring was accomplished using a micromanometer to measure vacuum at soil gas VMPs. Graph 5 presents the soil gas VMP readings obtained during the monthly OM&M inspections. Vacuum readings from all subsurface VMPs exceeded the operational target of 0.10 inWC in SFY 2012 except at SG-2 at 4 feet bgs.

4.1.2. Quarterly Emissions Results

Quarterly emission and outdoor air sampling results provide information on remediation system progress and impacts of SSD/SVE system operation on nearby air quality. Table 5 presents concentrations of COPCs in samples collected from the SSD/SVE system exhaust stack. Graph 6 presents the PCE mass emission estimate over the course of SSD/SVE system operation. Graph 7 presents soil gas and exhaust stack PCE concentration trends over the course of SSD/SVE system operation.

- **Exhaust Stack**

- Concentrations of PCE in the exhaust stack ranged from 14,000 to 44,000 $\mu\text{g}/\text{m}^3$ during SFY 2012. Concentrations of tDCE ranged from 140 to 440 $\mu\text{g}/\text{m}^3$. Exhaust stack TCE and cDCE concentrations were not detected above the method reporting limits (MRLs) ranging from 56 to 96 $\mu\text{g}/\text{m}^3$ and 42 to 71 $\mu\text{g}/\text{m}^3$, respectively. Concentrations of VC were not detected above the MRLs, ranging from 27 to 46 $\mu\text{g}/\text{m}^3$.

- **Ambient Air**

- Outdoor air PCE concentrations at AA-3 ranged from 0.76 $\mu\text{g}/\text{m}^3$ to 2.3 $\mu\text{g}/\text{m}^3$. Concentrations of TCE were not detected above the MRL with the highest MRL at 0.16 $\mu\text{g}/\text{m}^3$. Other daughter products were not detected above the MRL, with the highest MRL at 0.59 $\mu\text{g}/\text{m}^3$.

4.2. ESL Vapor Intrusion Assessment Results

Vapor intrusion assessment sampling was performed at the ESL Building on four occasions in SFY 2012. Each VI assessment sampling event included the collection of indoor air, sub-slab soil gas, and shallow and deep soil gas samples. The October 2011, February 2012, and September 2012 events were performed during SSD/SVE system operation. The October 2012 event was performed after a planned shutdown period of 28 days.

4.2.1. VI Assessment Sampling During SSD/SVE System Operation

The October 2011, February 2012, and September 2012 VI assessment sampling events included the collection of indoor air, sub-slab soil gas, and soil gas samples. The VI assessment sampling results from the three events conducted during system operation in SFY 2012 are presented in Table 5 and are summarized below. October 2011 VI assessment sampling results are depicted on Figure 6. February 2012 VI assessment sampling results are depicted on Figure 7. September 2012 VI assessment sampling results are depicted on Figure 8.

Indoor Air

- Indoor air samples were collected at locations IA-7 and IA-8 in October 2011.
- Indoor air samples were collected at location IA-8 in February and September 2012.
- Concentrations of PCE in indoor air samples were below the ADEC commercial indoor air target level of 180 $\mu\text{g}/\text{m}^3$, ranging from 3.5 to 66 $\mu\text{g}/\text{m}^3$. Concentrations of PCE in indoor air samples declined throughout SFY 2012 at IA-8.
- In September 2012, concentrations of cDCE were detected above the MRL in the sample from IA-8 at 0.23 $\mu\text{g}/\text{m}^3$. The detected concentration is below the ADEC commercial indoor air target level of 31 $\mu\text{g}/\text{m}^3$.
- Concentrations of all other COPCs in indoor air samples were not detected above the MRLs. The MRLs were below the ADEC commercial indoor air target levels.

Sub-Slab Soil Gas

- Sub-slab soil gas samples were collected at locations SS-4, SS-5, and SS-6 in October 2011.
- A sub-slab soil gas sample was collected at location SS-4 in February 2012 and September 2012.
- Concentrations of PCE in sub-slab soil gas samples were below the ADEC commercial indoor air target level of 1,800 $\mu\text{g}/\text{m}^3$, ranging from below an MRL of 5.6 $\mu\text{g}/\text{m}^3$ to 520 $\mu\text{g}/\text{m}^3$. Concentrations of PCE in sub-slab soil gas samples declined throughout SFY 2012 in SS-4.

- Concentrations of all other COPCs in sub-slab soil gas samples were not detected above the MRLs. The MRLs were below the ADEC commercial sub-slab soil gas target levels.

Soil Gas

- Soil gas samples were collected at locations SG-3 at 8 feet bgs in October 2011, February 2012, and September 2012.
- A soil gas sample was collected at location SG-2 at 8 feet bgs in September 2012.
- Concentrations of PCE in soil gas samples were below the ADEC commercial deep soil gas target level of 18,000 $\mu\text{g}/\text{m}^3$, ranging from 720 $\mu\text{g}/\text{m}^3$ to 2,300 $\mu\text{g}/\text{m}^3$.
- Concentrations of TCE in soil gas samples were below the ADEC commercial deep soil gas target level of 880 $\mu\text{g}/\text{m}^3$, ranging from 5.7 $\mu\text{g}/\text{m}^3$ to 15 $\mu\text{g}/\text{m}^3$.
- Concentrations of all other COPCs in soil gas samples were not detected above the MRLs. The MRLs were below the ADEC commercial deep soil gas target levels.

4.2.2. VI Assessment Sampling at End of Shutdown Test

A VI assessment sampling event was performed following a 28-day SSD/SVE system shutdown test. The VI assessment sampling event included the collection of indoor air, sub-slab soil gas, and deep soil gas samples on October 4-5, 2012. Results of the VI assessment sampling event performed at the end of the shutdown period are presented below. Detailed analytical results are included in Appendix A. The VI assessment sampling results from the end of the shutdown test are depicted on Figure 9.

Indoor Air

- An indoor air sample was collected at location IA-8.
- The concentration of PCE in the indoor air sample from IA-8 was 16 $\mu\text{g}/\text{m}^3$ in both the primary and duplicate samples. This concentration is below the ADEC commercial indoor air target level of 180 $\mu\text{g}/\text{m}^3$.
- The concentration of TCE in the indoor air sample from IA-8 was below the MRL of 0.15 $\mu\text{g}/\text{m}^3$ in the primary sample and 0.16 $\mu\text{g}/\text{m}^3$ in the duplicate sample. These concentrations are below the ADEC commercial indoor air target level of 8.8 $\mu\text{g}/\text{m}^3$.
- The concentration of cDCE was 0.98 $\mu\text{g}/\text{m}^3$ in the primary sample and 0.92 $\mu\text{g}/\text{m}^3$ in the duplicate sample. These concentrations are below the ADEC commercial indoor air target level of 31 $\mu\text{g}/\text{m}^3$.
- Concentrations of tDCE and VC were not detected at concentrations above the MRLs. The MRLs were below the ADEC commercial indoor target levels of 260 $\mu\text{g}/\text{m}^3$ for tDCE and 28 $\mu\text{g}/\text{m}^3$ for VC.

Sub-Slab Soil Gas

- A sub-slab soil gas sample was collected at location SS-4.
- The concentration of PCE in the sub-slab soil gas sample from SS-4 was 94,000 $\mu\text{g}/\text{m}^3$. This concentration is above the ADEC commercial sub-slab soil gas target level of 1,800 $\mu\text{g}/\text{m}^3$.
- The concentration of TCE in the sub-slab soil gas sample from SS-4 was not detected above the MRL of 310 $\mu\text{g}/\text{m}^3$. This MRL is above the ADEC commercial sub-slab soil gas target level of 88 $\mu\text{g}/\text{m}^3$.
- The concentration of cDCE in the sub-slab soil gas sample from SS-4 was 230 $\mu\text{g}/\text{m}^3$. This concentration is below the ADEC commercial sub-slab soil gas target level of 310 $\mu\text{g}/\text{m}^3$.
- The concentration of tDCE in the sub-slab soil gas sample from SS-4 was 230 $\mu\text{g}/\text{m}^3$. This concentration is below the ADEC commercial sub-slab soil gas target level of 2,600 $\mu\text{g}/\text{m}^3$.
- The concentration of VC in the sub-slab soil gas sample from SS-4 was below the MRL of 150 $\mu\text{g}/\text{m}^3$. The MRL is below the ADEC commercial sub-slab soil gas target level of 280 $\mu\text{g}/\text{m}^3$.

Soil Gas

- Soil gas samples were collected at SG-2 at 8-feet bgs and SG-3 at 8-feet bgs. Concentrations for PCE were 3,000 and 6,500 $\mu\text{g}/\text{m}^3$, respectively. The PCE concentrations were below the ADEC commercial deep soil gas target level of 18,000 $\mu\text{g}/\text{m}^3$.
- Concentrations of TCE in samples from both locations were 87 $\mu\text{g}/\text{m}^3$, below the ADEC commercial deep soil gas target level of 880 $\mu\text{g}/\text{m}^3$.
- Concentrations of cDCE in soil gas samples were 10 and 48 $\mu\text{g}/\text{m}^3$ at locations SG-2 and SG-3, respectively. These results were below the ADEC commercial deep soil gas target level of 3,100 $\mu\text{g}/\text{m}^3$.
- Concentrations of tDCE and VC were not detected above the MRLs. The MRLs were below the ADEC commercial deep soil gas target levels.

4.3. 330 Wendell Ave Vapor Intrusion Assessment Results

The limited VI assessment sampling at 330 Wendell Avenue was conducted on September 5, 2012. The limited VI assessment sampling event was conducted during operation of the SSD/SVE system at the ESL Building. The sampling included analysis of indoor air at location IA-11 in Suite B and deep soil gas at VMP SG-2 at 8 feet bgs. Analytical results are summarized below and detailed results are included in Appendix A. The VI assessment sampling results from 330 Wendell Avenue are depicted on Figure 8.

- The PCE concentrations in the indoor air sample and the duplicate sample were 1.2 $\mu\text{g}/\text{m}^3$, which is below the 180 $\mu\text{g}/\text{m}^3$ ADEC commercial indoor air target level. Concentrations of the remaining COPCs were not detected above the

MRLs in either the primary or duplicate samples. All MRLs were below the appropriate ADEC target levels.

- Concentrations of PCE and TCE in the soil gas sample were 930 $\mu\text{g}/\text{m}^3$ and 15 $\mu\text{g}/\text{m}^3$, respectively. Concentrations of cDCE, tDCE, and VC were not detected at concentrations above the MRLs. All MRLs were below the appropriate ADEC target levels.

4.4. Quality Assurance Review Summary

Laboratory QA/QC data associated with the analysis of project samples has been reviewed to evaluate the integrity of the analytical data generated during the SFY 2012 at the Wendell Avenue Site. Samples were collected, reported, and shipped in general accordance with the ADEC approved *Long Term SSD/SVE System OM&M Work Plan*, (OASIS 2011a).

All data were reviewed in accordance with USEPA National Functional Guidelines for Organic Methods (USEPA 2008), analytical methodology, and ADEC regulatory guidance documents (ADEC 2002; 2005; 2008; 2009b; 2010b). This data review focused on the following QC parameters and their effect on the quality of data and usability: sample handling and chain-of-custody documentation; holding time compliance; field QC (trip blanks and field duplicates); laboratory QC (method blanks, laboratory control spikes (LCS) and LCS duplicates, surrogates, MRLs); and completeness.

All data were determined acceptable for use. All requested analyses were performed in accordance with work plan specifications. No results were rejected. The overall project completeness is 100 percent. In general, the overall quality of data was acceptable for the objectives established for this project. A detailed QAR and completed ADEC Laboratory Data Checklists are provided in Appendix G.

5. FINDINGS

The objectives of the SFY 2012 Wendell Avenue Site project were to maintain operation of the SSD/SVE system, conduct VI assessment sampling, and evaluate the effectiveness of the SSD/SVE system. Monthly OM&M and periodic VI assessment sampling was performed in SFY 2012 to continue the assessment of mitigation and remediation effectiveness at the site. The basis for assessing the effectiveness of mitigation and remediation is by comparison of the analytical results to RAOs for the site. The effectiveness of VI mitigation was determined by the degree to which operation of the SSD/SVE system decreased concentrations of COPCs in indoor air, sub-slab soil gas, and nearby vadose zone soil gas. The effectiveness of remediation was assessed by sampling SSD/SVE system effluent and by sampling the sub-slab soil gas and nearby vadose zone soil gas during operation and at the end of a 28-day shutdown period.

Cumulative VI assessment sampling results for the ESL Building from before SSD/SVE system installation, during system operation, and at the end of the 2012 shutdown test are displayed in a series of graphs to highlight the changes in site conditions. Graphs 8 and 9 present the analytical results for the indoor air and sub-slab soil gas samples from the office area of the ESL Building. Graphs 10 and 11 present the analytical results for the indoor air and sub-slab soil gas samples from the main laundry room area of the ESL Building. Graph 12 presents vadose zone soil gas results from VMP location SG-3 at a depth of 8 feet bgs. Graph 13 presents SSD/SVE effluent results from the system exhaust stack.

5.1. ESL VI Mitigation

Findings from the SFY 2012 Wendell Avenue Site project indicate that the SSD/SVE system is effective at mitigating VI at the ESL Building and potential VI at 330 Wendell Avenue. Vapor intrusion assessment sampling conducted throughout the SSD/SVE system operation in SFY 2012 demonstrates that RAOs were achieved for indoor air, sub-slab soil gas, and deep vadose zone soil gas in all samples. Achievement of the mitigation objective is the result of two factors: (1) the finalization of the ADEC VI guidance document (ADEC 2012) resulted in increases in VI target levels and (2) concentrations of COPCs in VI assessment samples continued to decrease during the system operation.

Operation of the SSD/SVE system remains necessary, as demonstrated by results of the 28-day shutdown test performed in the fall of 2012. Samples collected from sub-slab VMP SS-4 at the end of the shutdown period contained PCE and potentially TCE concentrations that exceed the ADEC RAOs. However, potential exists for reducing operational costs.

The SSD/SVE system has shown the capability to create a negative pressure envelope below the heated and occupied portion of the ESL Building slab. It is anticipated that the negative pressure envelope will continue to exist with only the SVE system operating during winter. Future monitoring of VMPs will provide a better understanding of the

capability of the SVE system to maintain the negative pressure envelope while heat to the building is off. The vacuum data presented in this report is subject to widely varying site conditions resulting from loss of heat to the ESL Building and excavation activities during the summer of 2012.

5.2. Vadose Zone Remediation

Findings from the SFY 2012 Wendell Avenue Site project indicate that the SSD/SVE system is effectively remediating the vadose zone at the site. Vadose zone soil gas samples collected from the treatment area have decreased during system operation. SSD/SVE system exhaust stack PCE concentrations have decreased and become asymptotic during system operation. Results of the 2012 shutdown test indicate that soil gas COPC concentrations are at least an order-of-magnitude lower than pre-remediation concentrations.

Operation of the SSD/SVE system provides data demonstrating that this system does not create an unacceptable risk to ambient air quality or emit a sufficient mass to be considered a major source of hazardous air pollutants or criteria pollutants. Outdoor air sample results have remained within the range of concentrations observed prior to system startup at the AA-3 sample location. The PCE concentrations in system effluent are well below the Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL), which is an 8-hour time weighted average (TWA) of 100 parts per million (ppm; 678,000 µg/m³).

5.3. 330 Wendell Avenue

Findings from the limited VI assessment sampling conducted at 330 Wendell Avenue indicate that VI does not appear to be occurring while the SSD/SVE system is operating, and potential for VI without system operation is inconclusive. Results of the indoor air sample collected in Suite B during system operation were below the ADEC target levels. Results from samples collected from SG-2 at 8 feet bgs at the end of the SSD/SVE shutdown test were below the ADEC target levels. These findings are not definitive due to the limited nature of the VI assessment sampling that was permitted by the building owner.

6. RECOMMENDATIONS

Recommendations for future mitigation and remediation at the site include modification of SSD/SVE system operation and continued VI assessment sampling. Modification to SSD/SVE system operation is warranted to adjust to reduced COPC concentrations in soil gas and changes in operation of the ESL Building. Continued VI assessment sampling should be conducted at the ESL Building to verify mitigation effectiveness. A more complete VI assessment sampling event should be considered at the 330 Wendell Avenue building during a future shutdown of the SSD/SVE system to definitively assess the potential for VI.

Operation of the SSD/SVE system will require modification as a result of closure of the ESL business. Closure of the ESL business has made operation of the SSD portion of the system during the winter months problematic. The ESL Building is no longer heated during the winter and the SSD distribution lines are not insulated nor equipped with heat trace. Therefore, operation of the SSD portion of the system should be suspended during winter months as long as the ESL Building remains unheated. Operation of the SVE portion of the system should be maintained throughout the winter months to continue vadose zone remediation.

The ESL closure also changes the exposure scenario in that there are currently no commercial occupants of the building. Consequently, the primary objectives for the SSD/SVE system transition from VI mitigation to vadose zone remediation. System operation should be focused on extracting COPCs from the locations with the greatest concentrations. The greatest COPC contamination in soil gas remains beneath the ESL Building slab. Therefore, operation of the SSD portion of the system should be maintained when possible to achieve the maximum COPC remediation.

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TABLES

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Table 5: OM&M and VI Assessment Analytical Results - October 2010 to September 2012
Wendell Avenue Site

Remediation System Status	Location	Sample ID	Date Measured	Sample Type	Matrix	Tetrachloroethene (µg/m³)			Trichloroethene (µg/m³)			cis-1,2-Dichloroethene (µg/m³)			trans-1,2-Dichloroethene (µg/m³)			Vinyl Chloride (µg/m³)		
						Result	MRL	Dataflag	Result	MRL	Dataflag	Result	MRL	Dataflag	Result	MRL	Dataflag	Result	MRL	Dataflag
Pre-Installation	IA-7	10WAS402IA	10/21/2010	Primary	Indoor Air	320	0.48		1.2	0.38		0.82	0.28			1.4	ND		0.09	ND
		10WAS403IA	10/21/2010	Duplicate	Indoor Air	320	0.5		1.2	0.39		0.81	0.29			1.4	ND		0.093	ND
SSD System Operating		11-WAS-006-IA	2/24/2011	Primary	Indoor Air	110	0.22		0.34	0.18		0.24	0.13		7.1	0.65			0.042	ND
		11-WAS-007-IA	2/24/2011	Duplicate	Indoor Air	110	0.24		0.32	0.19		0.24	0.14		6.9	0.71			0.046	ND
		11-WAS-047-IA	5/18/2011	Primary	Indoor Air	160	0.24		0.4	0.19		0.25	0.14		1.5	0.71			0.046	ND
		11-WAS-048-IA	5/18/2011	Duplicate	Indoor Air	160	0.29		0.41	0.23		0.25	0.17		1.5	0.85			0.055	ND
SSD/SVE System Operating	11-WAS-064-IA	10/20/2011	Primary	Indoor Air	27	0.23	ND		0.18	ND		0.14	ND		0.68	ND		0.044	ND	
	11-WAS-065-IA	10/20/2011	Duplicate	Indoor Air	27	0.24	ND		0.19	ND		0.14	ND		0.69	ND		0.045	ND	
Pre-Installation	IA-8	10WAS401IA	10/21/2010	Primary	Indoor Air	400	0.68		1.7	0.54		0.96	0.4			2	ND		0.13	ND
SSD System Operating		11-WAS-005-IA	2/24/2011	Primary	Indoor Air	180	0.24		0.53	0.19		0.32	0.14		8.1	0.69			0.045	ND
		11-WAS-049-IA	5/18/2011	Primary	Indoor Air	210	0.28		0.5	0.22		0.26	0.17		1.5	0.83			0.054	ND
SSD/SVE System Operating		11-WAS-063-IA	10/20/2011	Primary	Indoor Air	66	0.25			0.2	ND		0.14	ND		0.73	ND		0.047	ND
		12-WAS-074-IA	2/15/2012	Primary	Indoor Air	3.3	0.23			0.18	ND		0.13	ND		0.67	ND		0.043	ND
		12-WAS-075-IA	2/15/2012	Duplicate	Indoor Air	3.4	0.28			0.22	ND		0.16	ND		0.82	ND		0.053	ND
		12-WAS-129-IA	9/5/2012	Primary	Indoor Air	3.5	0.22			0.18	ND	0.23	0.13		0.65	ND		0.042	ND	
Post-Shutdown		12-WAS-133-IA	10/4/2012	Primary	Indoor Air	16	0.18			0.15	ND	0.98	0.11			0.54	ND		0.035	ND
		12-WAS-134-IA	10/4/2012	Duplicate	Indoor Air	16	0.2		0.16	0.15		0.92	0.11			0.57	ND		0.037	ND
ADEC Target Levels for Commercial Indoor Air						180			8.8			31			260			28		
Pre-Installation	SS-4	10WAS405SS	10/21/2010	Primary	Sub-Slab Soil Gas	5900000	5900		10000	4600		3400	ND		3400	ND		2200	ND	
SSD System Operating		11-WAS-008-SS	2/24/2011	Primary	Sub-Slab Soil Gas	12000	34			27	ND		20	ND		20	ND		13	ND
		11-WAS-052-SS	5/18/2011	Primary	Sub-Slab Soil Gas	2000	6.1			4.8	ND		3.5	ND		3.5	ND		2.3	ND
SSD/SVE System Operating		11-WAS-066-SS	10/21/2011	Primary	Sub-Slab Soil Gas	520	6.0			4.7	ND		3.5	ND		3.5	ND		2.2	ND
		12-WAS-076-SS	2/15/2012	Primary	Sub-Slab Soil Gas	390	5.0			4.0	ND		3.0	ND		3.0	ND		1.9	ND
		12-WAS-077-SS	2/15/2012	Duplicate	Sub-Slab Soil Gas	400	5.4			4.2	ND		3.1	ND		3.1	ND		2	ND
		12-WAS-130-SS	9/5/2012	Primary	Sub-Slab Soil Gas	240	6.6			5.3	ND		3.9	ND		3.9	ND		2.5	ND
Post-Shutdown	12-WAS-135-SS	10/5/2012	Primary	Sub-Slab Soil Gas	94000	390			310	ND		230	ND		230	ND		150	ND	
Pre-Installation	SS-5	10WAS404SS	10/21/2010	Primary	Sub-Slab Soil Gas	310000	490		3900	390		280	ND		280	ND		180	ND	
SSD System Operating		11-WAS-011-SS	2/24/2011	Primary	Sub-Slab Soil Gas	200	5.9			4.7	ND		3.5	ND		3.5	ND		2.2	ND
		11-WAS-053-SS	5/18/2011	Primary	Sub-Slab Soil Gas	61	7.4			5.8	ND		4.3	ND		4.3	ND		2.8	ND
SSD/SVE System Operating		11-WAS-067-SS	10/21/2011	Primary	Sub-Slab Soil Gas	19	6.7			5.3	ND		3.9	ND		3.9	ND		2.5	ND
Pre-Installation	SS-6	10WAS406SS	10/21/2010	Primary	Sub-Slab Soil Gas	14000	40			31	ND		23	ND		23	ND		15	ND
		10WAS407SS	10/21/2010	Duplicate	Sub-Slab Soil Gas	15000	43			34	ND		25	ND		25	ND		16	ND
SSD System Operating		11-WAS-009-SS	2/24/2011	Primary	Sub-Slab Soil Gas	19	5.2			4.1	ND		3	ND		3	ND		1.9	ND
		11-WAS-010-SS	2/24/2011	Duplicate	Sub-Slab Soil Gas	19	5.7			4.5	ND		3.3	ND		3.3	ND		2.1	ND
		11-WAS-050-SS	5/18/2011	Primary	Sub-Slab Soil Gas	21	5.5			4.3	ND		3.2	ND		3.2	ND		2	ND
		11-WAS-051-SS	5/18/2011	Duplicate	Sub-Slab Soil Gas	22	5.8			4.6	ND		3.4	ND		3.4	ND		2.2	ND
SSD/SVE System Operating		11-WAS-068-SS	10/21/2011	Primary	Sub-Slab Soil Gas		5.5	ND		4.4	ND		3.2	ND		3.2	ND		2.1	ND
		11-WAS-069-SS	10/21/2011	Duplicate	Sub-Slab Soil Gas		5.6	ND		4.4	ND		3.2	ND		3.3	ND		2.1	ND
ADEC Target Levels for Commercial Sub-Slab Soil Gas						1,800			88			310			2,600			280		

**Table 5: OM&M and VI Assessment Analytical Results - October 2010 to September 2012
Wendell Avenue Site**

Remediation System Status	Location	Sample ID	Date Measured	Sample Type	Matrix	Tetrachloroethene (µg/m³)			Trichloroethene (µg/m³)			cis-1,2-Dichloroethene (µg/m³)			trans-1,2-Dichloroethene (µg/m³)			Vinyl Chloride (µg/m³)		
						Result	MRL	Dataflag	Result	MRL	Dataflag	Result	MRL	Dataflag	Result	MRL	Dataflag	Result	MRL	Dataflag
SSD/SVE System Operating	SG-2 @ 8' bgs	12-WAS-132-SG	9/5/2012	Primary	Deep Soil Gas	930	6.6		15	5.3			3.9	ND		3.9	ND		2.5	ND
Post-Shutdown		12-WAS-137-SG	10/5/2012	Primary	Deep Soil Gas	3000	11		87	9		10	6.7			6.7	ND		4.3	ND
SSD System Operating	SG-3 @ 8' bgs	11-WAS-003-SG	2/18/2011	Primary	Deep Soil Gas	560000	1500		4800	1200		1600	860			860	ND		550	ND
SSD/SVE System Operating		11-WAS-054-SG	5/18/2011	Primary	Deep Soil Gas	91000	370		970	290		370	210			210	ND		140	ND
		11-WAS-058-SG	6/24/2011	Primary	Deep Soil Gas	150000	440		390	350			260	ND		260	ND		160	ND
		11-WAS-061-SG	7/22/2011	Primary	Deep Soil Gas	20000	91			72	ND		53	ND		53	ND		34	ND
		11-WAS-070-SG	10/21/2011	Primary	Deep Soil Gas	2300	9.7		10	7.7			5.7	ND		5.7	ND		3.6	ND
		12-WAS-078-SS	2/15/2012	Primary	Deep Soil Gas	720	5.5		5.7	4.3			3.2	ND		3.2	ND		2	ND
		12-WAS-131-SG	9/5/2012	Primary	Deep Soil Gas	1200	6.5		10	5.1			3.8	ND		3.8	ND		2.4	ND
Post-Shutdown		12-WAS-136-SG	10/5/2012	Primary	Deep Soil Gas	6500	26		87	21		48	15			15	ND		10	ND
ADEC Target Levels for Commercial Deep Soil Gas						18,000			880			3,100			26,000			2,800		
Pre-Installation	AA-3	10WAS400AA	10/21/2010	Primary	Outdoor Air	1.6	0.21			0.17	ND		0.12	ND		0.63	ND		0.04	ND
SSD System Operating		11WAS-001-AA	2/17/2011	Primary	Outdoor Air	1.7	0.17			0.13	ND		0.099	ND		0.5	ND		0.032	ND
		11-WAS-004-AA	2/24/2011	Primary	Outdoor Air	3.6	0.19			0.15	ND		0.11	ND		0.55	ND		0.036	ND
		11-WAS-046-AA	5/18/2011	Primary	Outdoor Air	1.5	0.21			0.17	ND		0.12	ND		0.61	ND		0.04	ND
SSD/SVE System Operating		11-WAS-056-AA	6/23/2011	Primary	Outdoor Air	1.2	0.23			0.18	ND		0.13	ND	0.7	0.67			0.043	ND
		11-WAS-062-AA	10/20/2011	Primary	Outdoor Air	0.76	0.2			0.16	ND		0.12	ND		0.59	ND		0.038	ND
		12-WAS-073-AA	2/15/2012	Primary	Outdoor Air	2.3	0.19			0.15	ND		0.11	ND		0.55	ND		0.036	ND
SSD System Operating	RS-1	11WAS-002-ES	2/17/2011	Primary	RS Exhaust Stack	130000	570			450	ND		330	ND		330	ND		210	ND
SSD/SVE System Operating		11-WAS-012-ES	2/25/2011	Primary	RS Exhaust Stack	120000	360		330	280			210	ND		210	ND		140	ND
		11-WAS-055-ES	5/19/2011	Primary	RS Exhaust Stack	57000	220			170	ND		120	ND		120	ND		81	ND
		11-WAS-057-ES	6/24/2011	Primary	RS Exhaust Stack	97000	350		450	280		260	200			200	ND		130	ND
		11-WAS-059-ES	7/1/2011	Primary	RS Exhaust Stack	93000	360			280	ND		210	ND		210	ND		140	ND
		11-WAS-060-ES	7/22/2011	Primary	RS Exhaust Stack	130000	450			350	ND		260	ND	2700	260			170	ND
		11-WAS-071-ES	10/21/2011	Primary	RS Exhaust Stack	44000	120			94	ND		69	ND	440	69			44	ND
		11-WAS-072-ES	12/20/2011	Primary	RS Exhaust Stack	22000	71			56	ND		42	ND	250	42			27	ND
		12-WAS-079-ES	2/15/2012	Primary	RS Exhaust Stack	14000	85			67	ND		50	ND	140	50			32	ND

Notes:

Significant figures may not have been retained from the original laboratory results

Bold values indicate exceedance of ADEC Target Levels

All samples were collected with Summa™ Canisters

Soil gas samples were taken at an interval of 7.5 - 8.0 feet below ground surface

' bgs = feet below ground surface

µg/m³ = micrograms per cubic meter

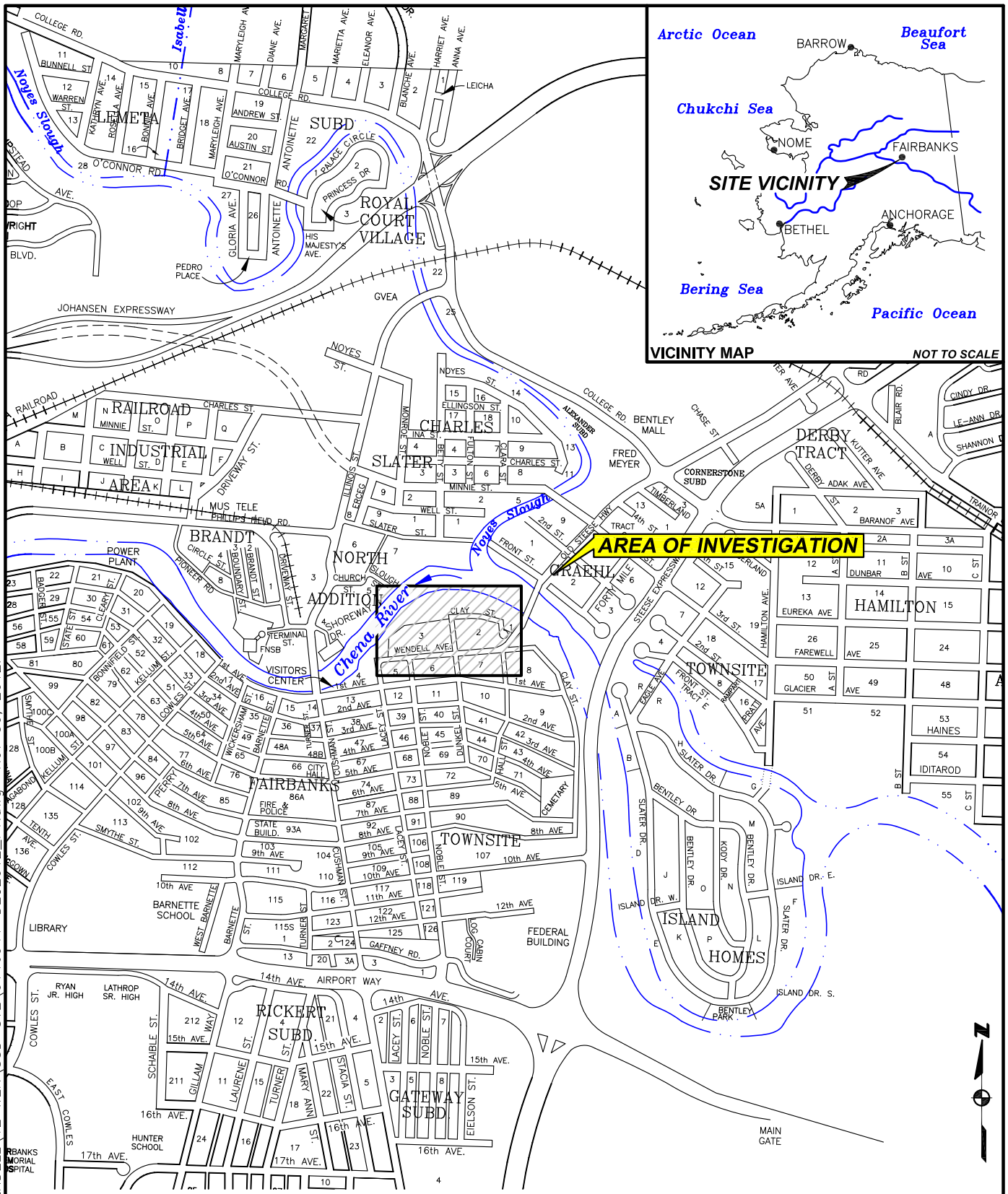
MRL = Method Reporting Limit

ND = Not detected above method reporting limit

FIGURES

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DATE: DEC. 2012
CHKD: C.T.B.
DRAWN: D.R.F.
PROJ. No.: 0146941
825 W. 8th Ave., Anchorage,
AK 99501, (907) 258-4880

SITE LOCATION MAP

SSD/SVE OM&M AND VI
ASSESSMENT REPORT
WENDELL AVENUE SITE
Fairbanks, Alaska

FIGURE

1

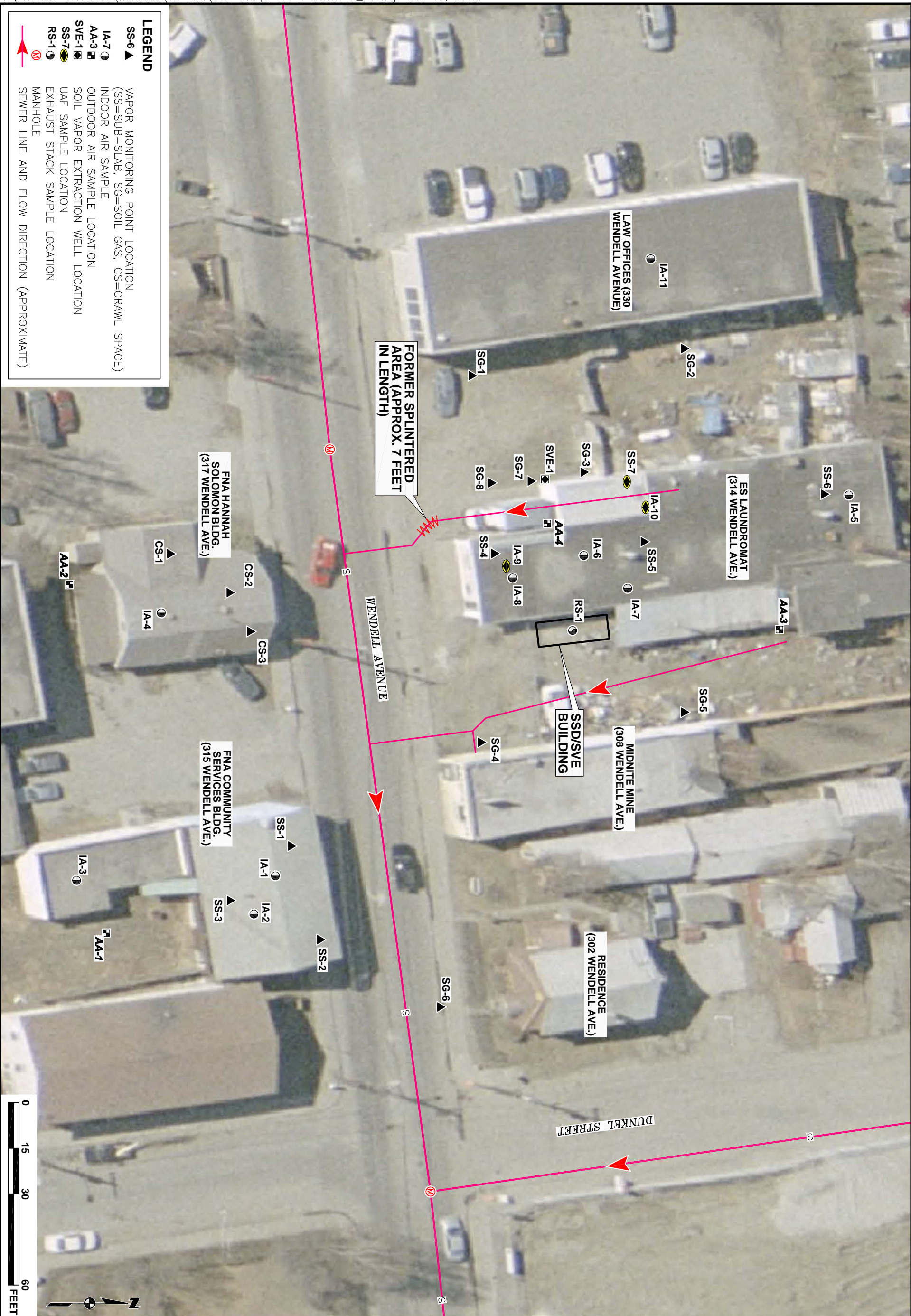
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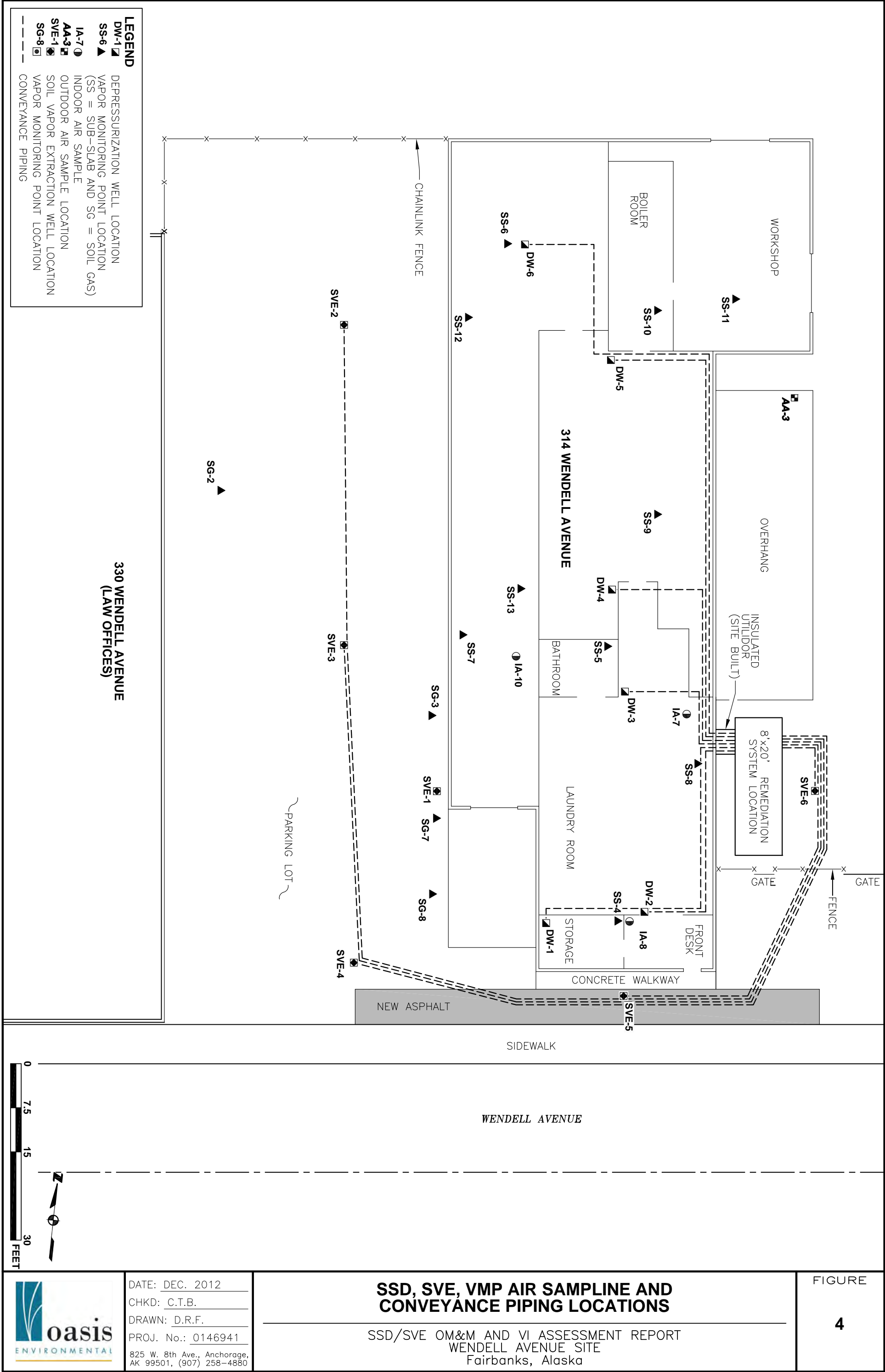
**SSD/SVE OM&M AND VI ASSESSMENT
SAMPLING LOCATIONS (2008-2012)**

SSD/SVE OM&M AND VI ASSESSMENT REPORT
WENDELL AVENUE SITE
Fairbanks, Alaska

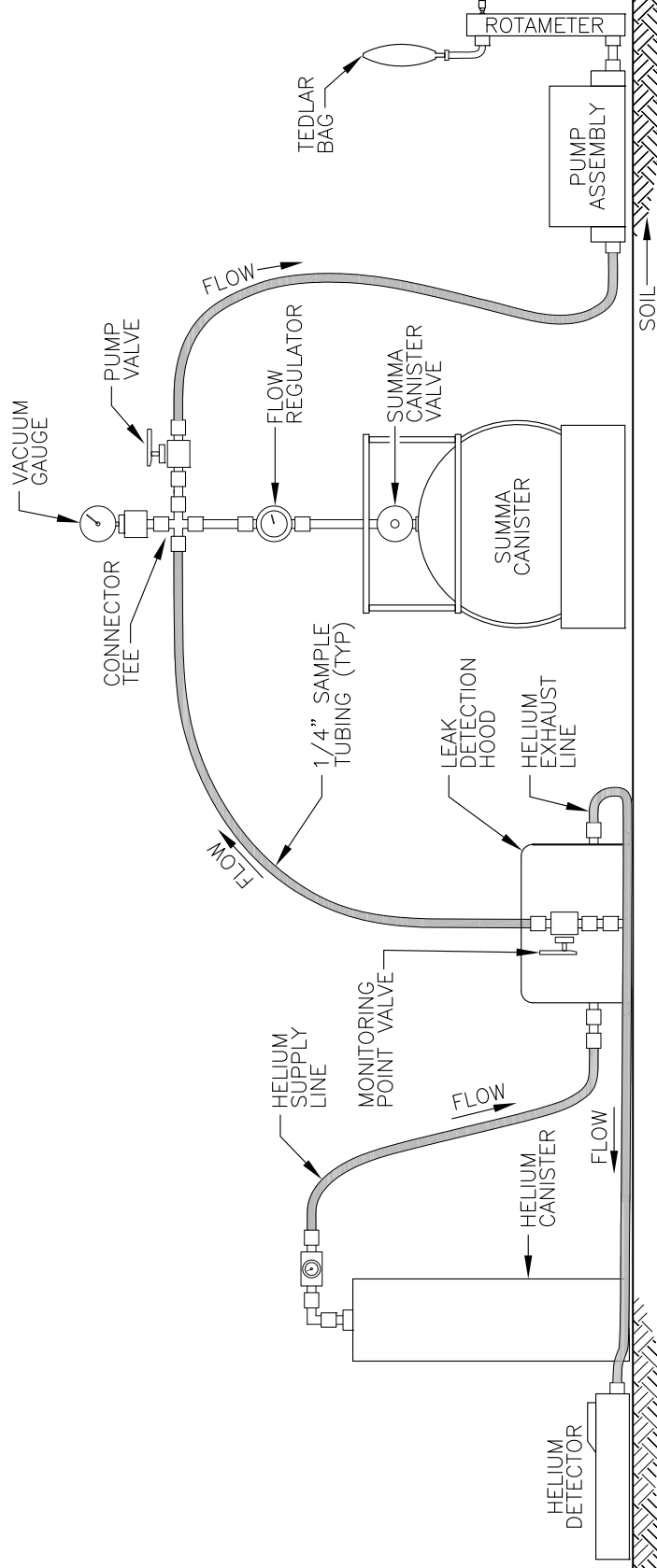
FIGURE

3

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FIGURE

5

LEAK DETECTION SCHEMATIC

SSD/SVE OM&M AND VI ASSESSMENT REPORT
WENDELL AVENUE SITE
Fairbanks, Alaska

DATE: DEC. 2012

CHKD: C.T.B.

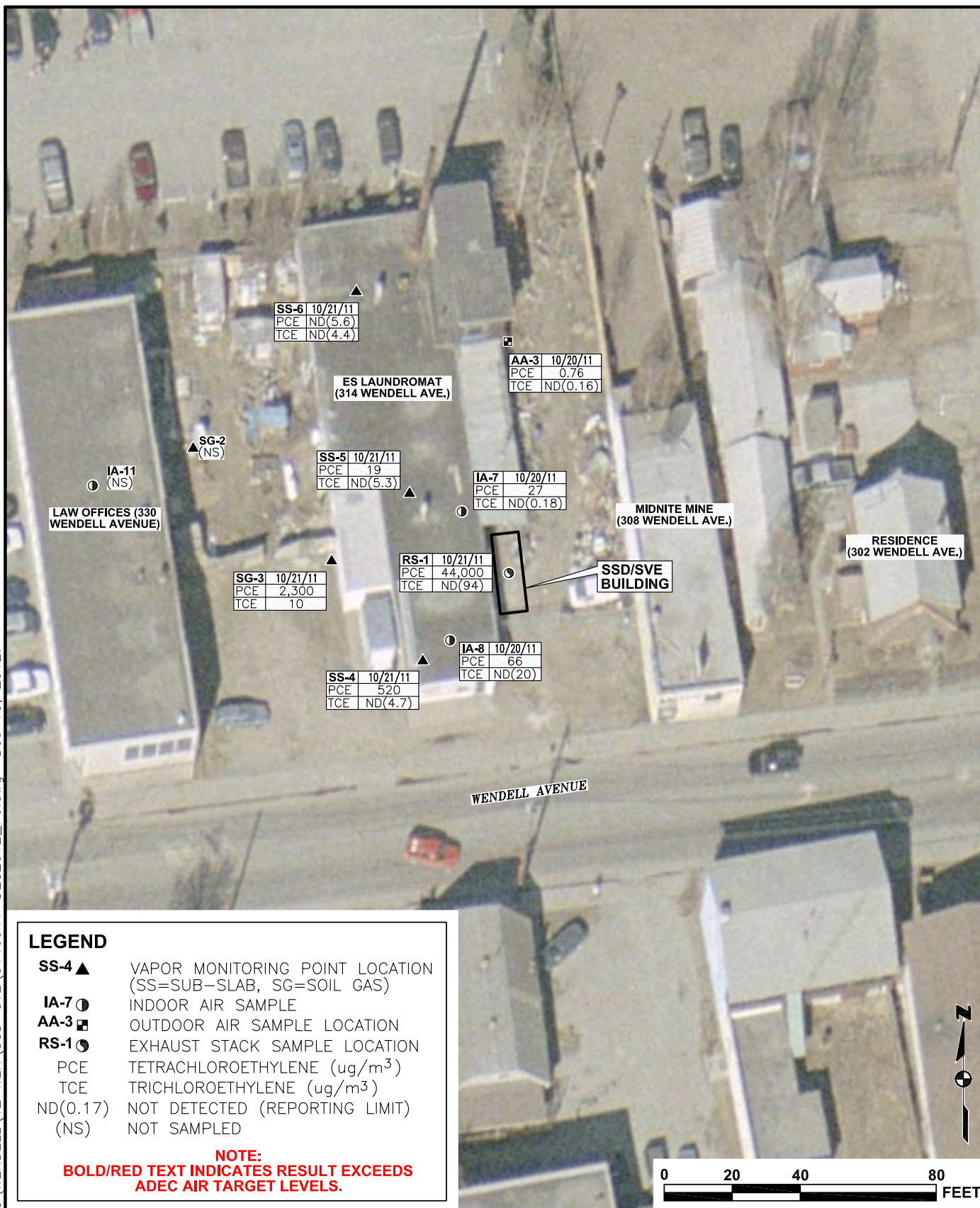
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 CHKD: C.T.B.
 DRAWN: D.R.F.
 PROJ. No.: 0146941
 825 W. 8th Ave., Anchorage,
 AK 99501, (907) 258-4880

PCE AND TCE ANALYTICAL RESULTS OCTOBER 2011

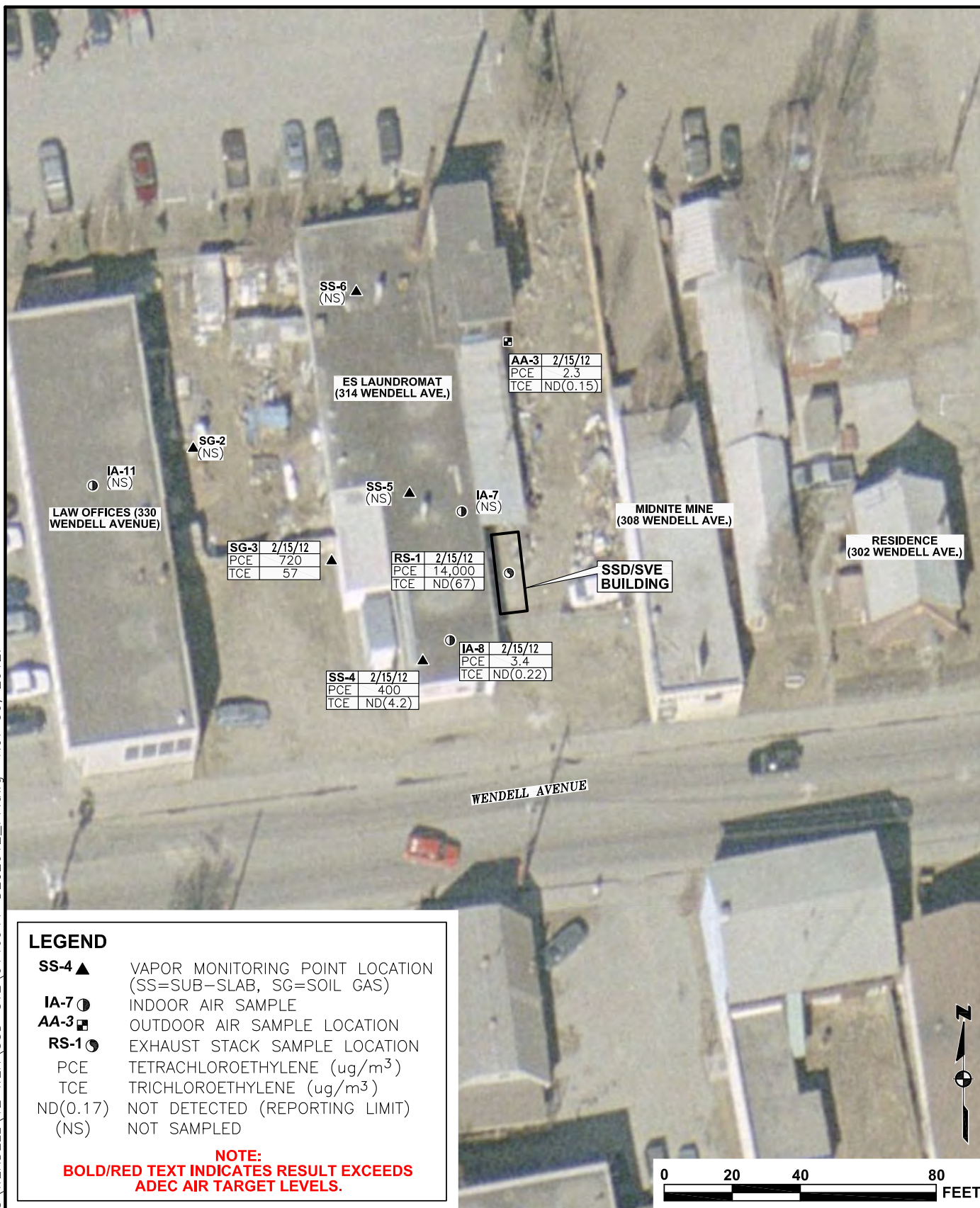
SSD/SVE OM&M AND VI ASSESSMENT REPORT
 WENDELL AVENUE SITE
 Fairbanks, Alaska

FIGURE

6

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DATE: DEC. 2012
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PROJ. No.: 0146941
825 W. 8th Ave., Anchorage,
AK 99501, (907) 258-4880

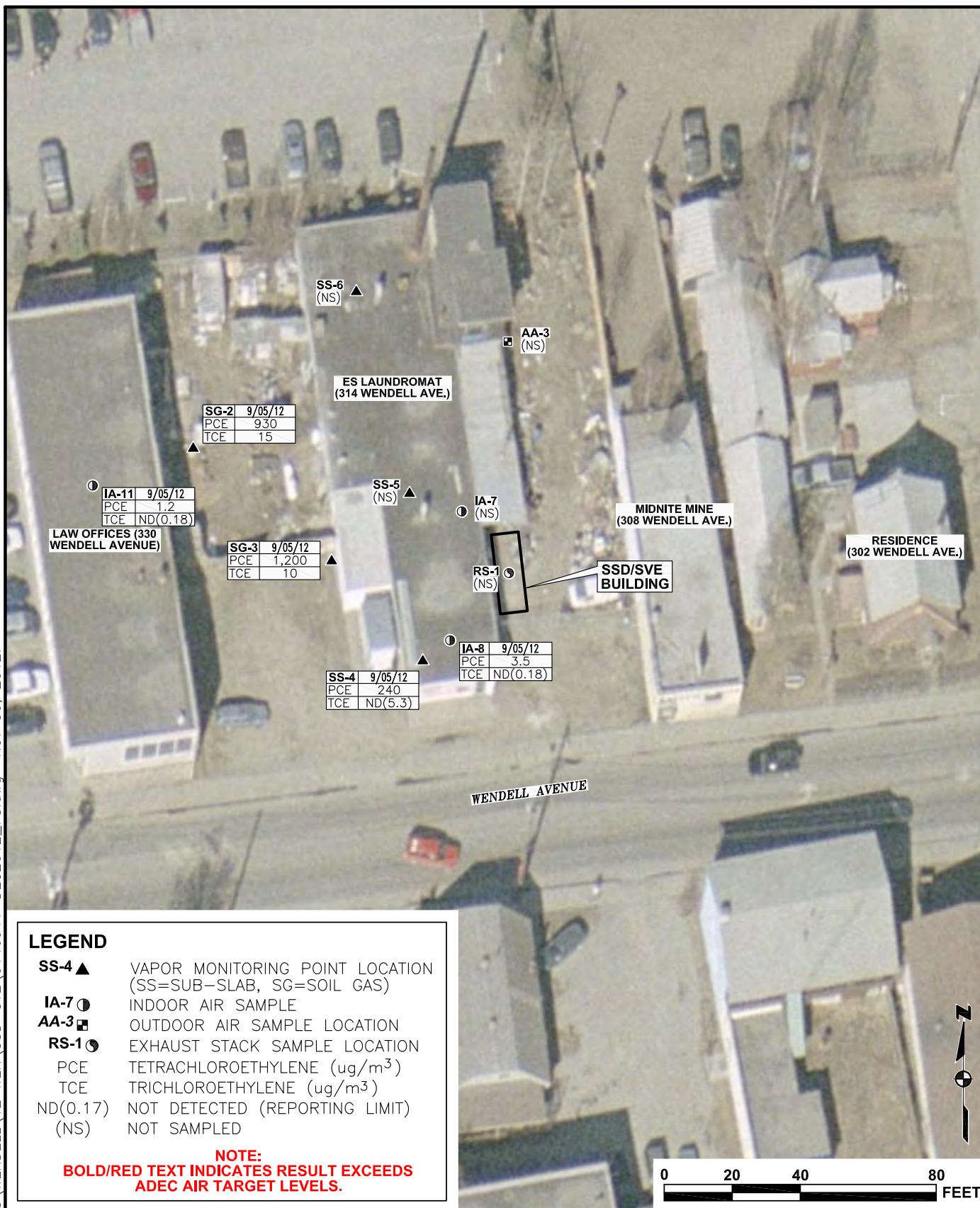
PCE AND TCE ANALYTICAL RESULTS FEBRUARY 2012

SSD/SVE OM&M AND VI ASSESSMENT REPORT
WENDELL AVENUE SITE
Fairbanks, Alaska

FIGURE

7

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 AK 99501, (907) 258-4880

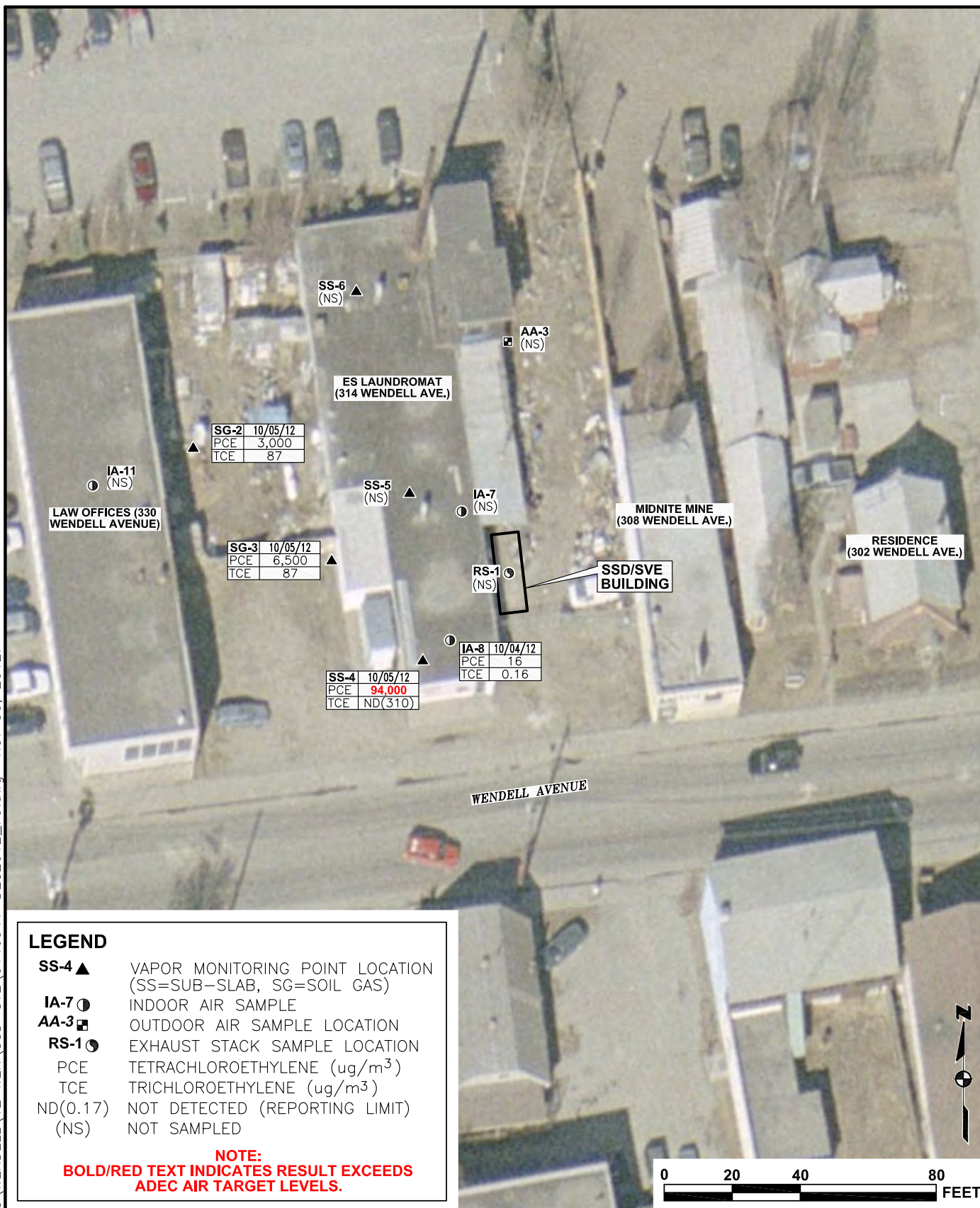
PCE AND TCE ANALYTICAL RESULTS SEPTEMBER 2012

SSD/SVE OM&M AND VI ASSESSMENT REPORT
 WENDELL AVENUE SITE
 Fairbanks, Alaska

FIGURE

8

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DATE: DEC. 2012
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 DRAWN: D.R.F.
 PROJ. No.: 0146941
 825 W. 8th Ave., Anchorage,
 AK 99501, (907) 258-4880

POST SSD/SVE SHUTDOWN RESULTS OCTOBER 2012

SSD/SVE OM&M AND VI ASSESSMENT REPORT
 WENDELL AVENUE SITE
 Fairbanks, Alaska

FIGURE

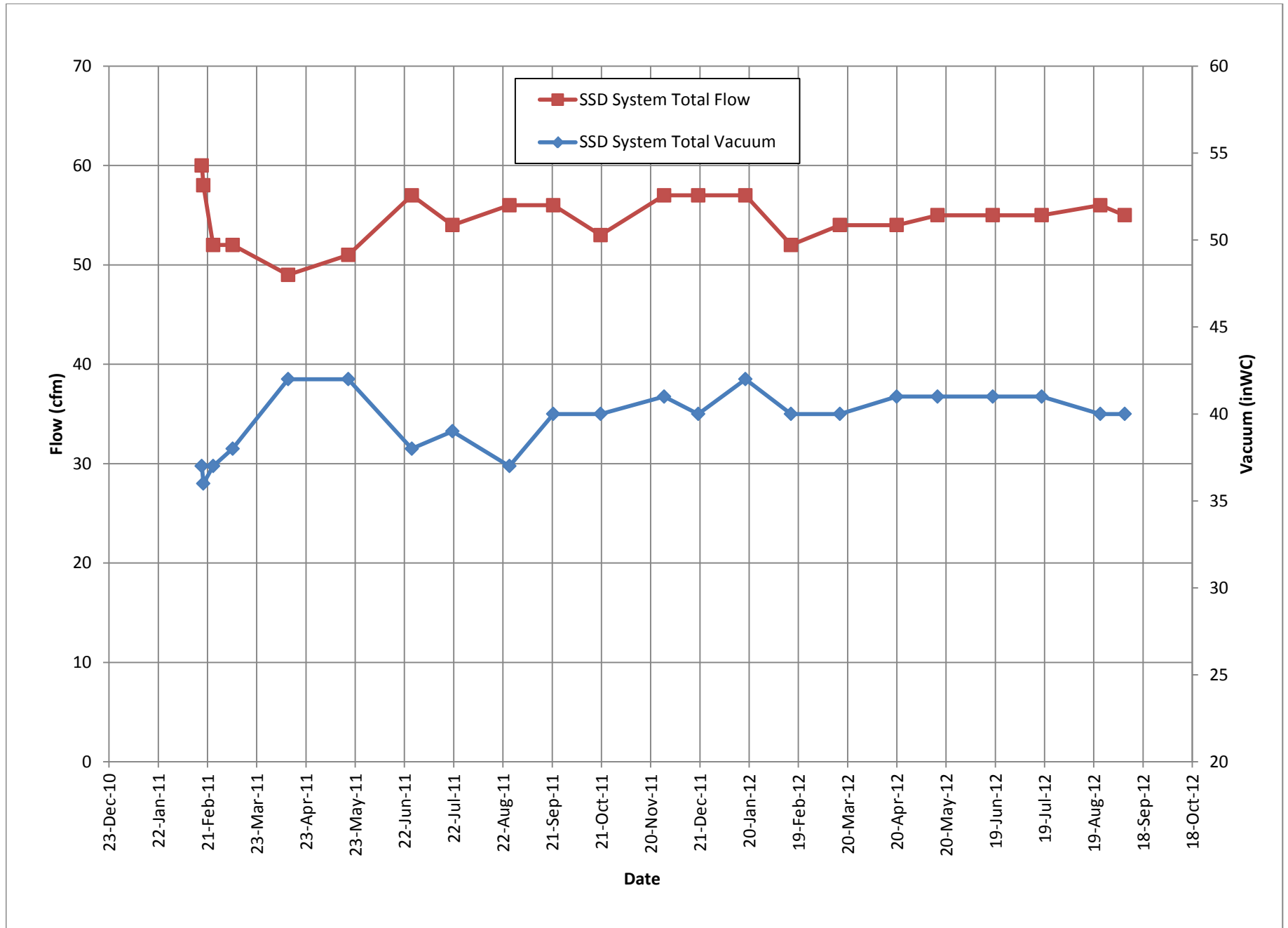
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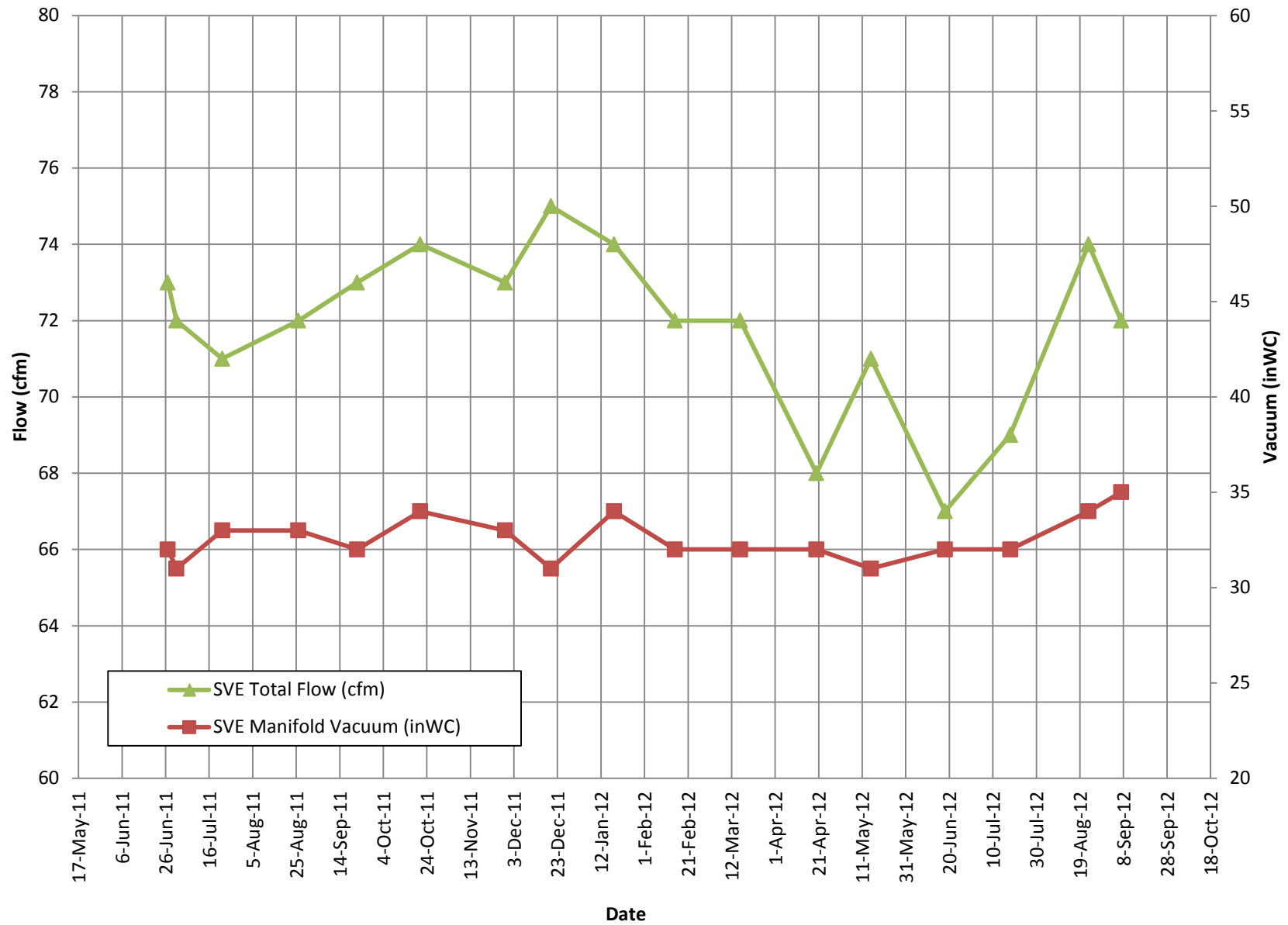
GRAPHS

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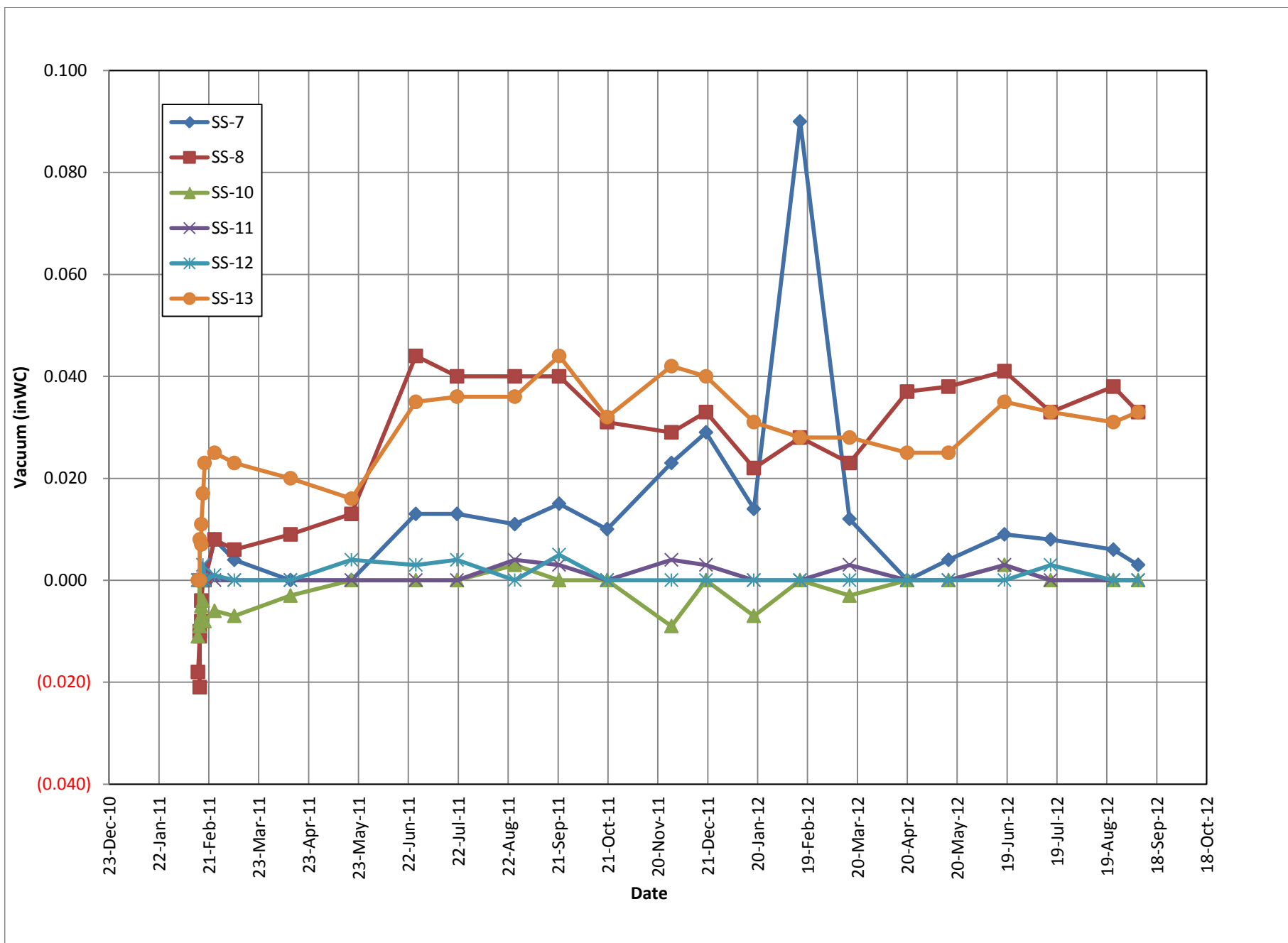
Graph 1 - SSD System Flow Rates and Vacuum
Wendell Avenue Site



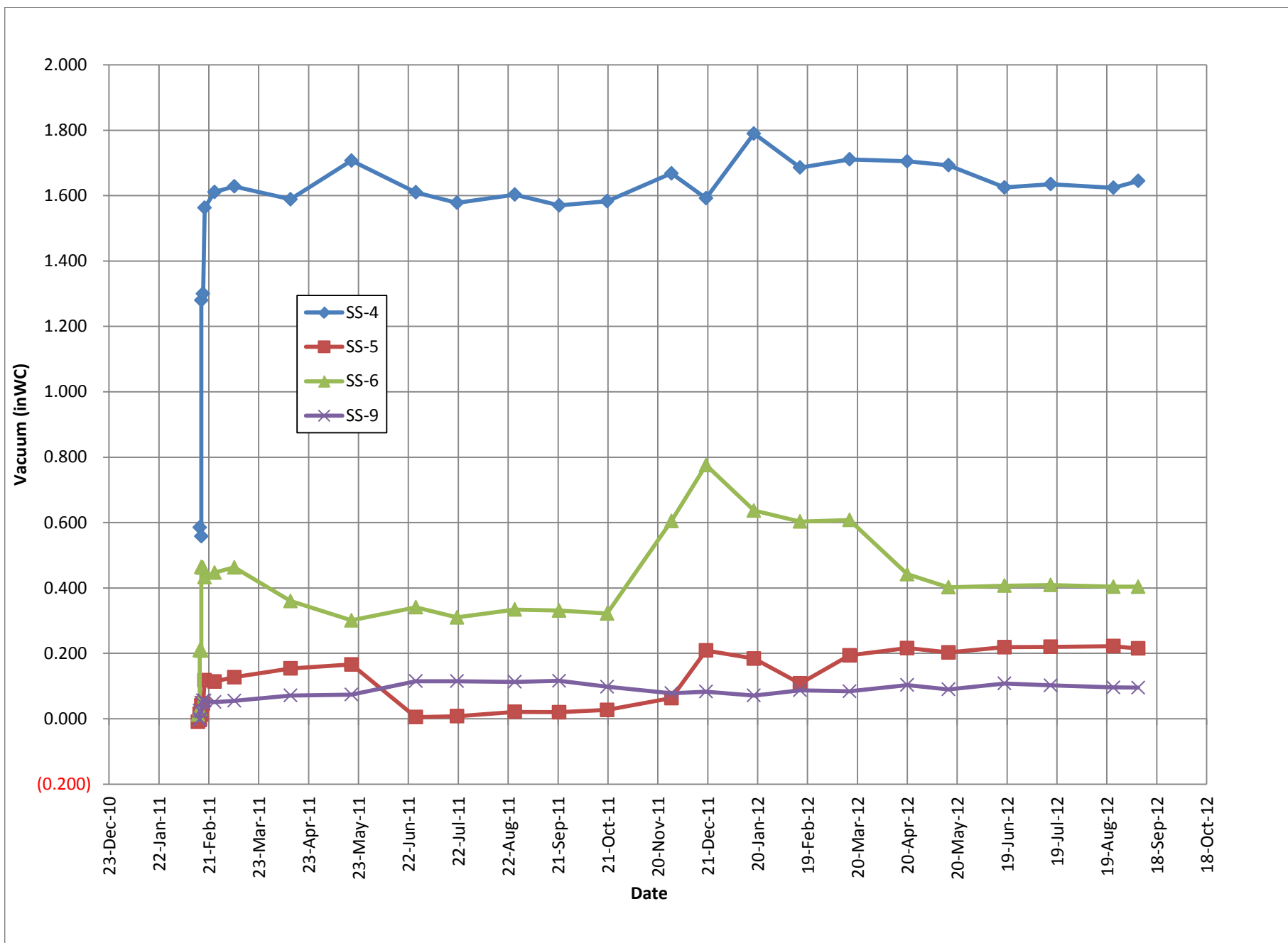
Graph 2 - SVE System Flow Rates and Vacuum
Wendell Avenue Site



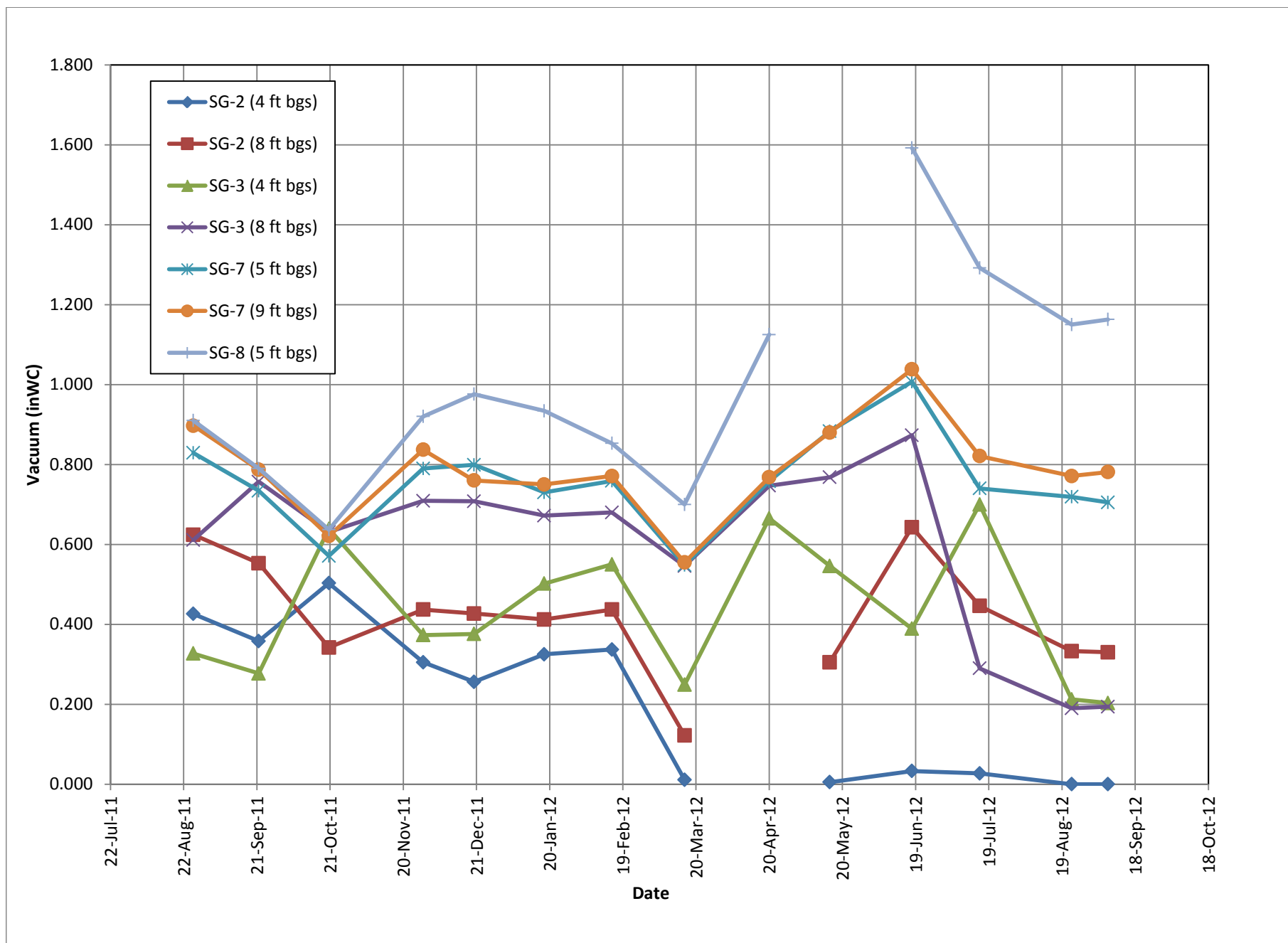
Graph 3 - Differential Pressure Across Slab (lower range)
Wendell Avenue Site



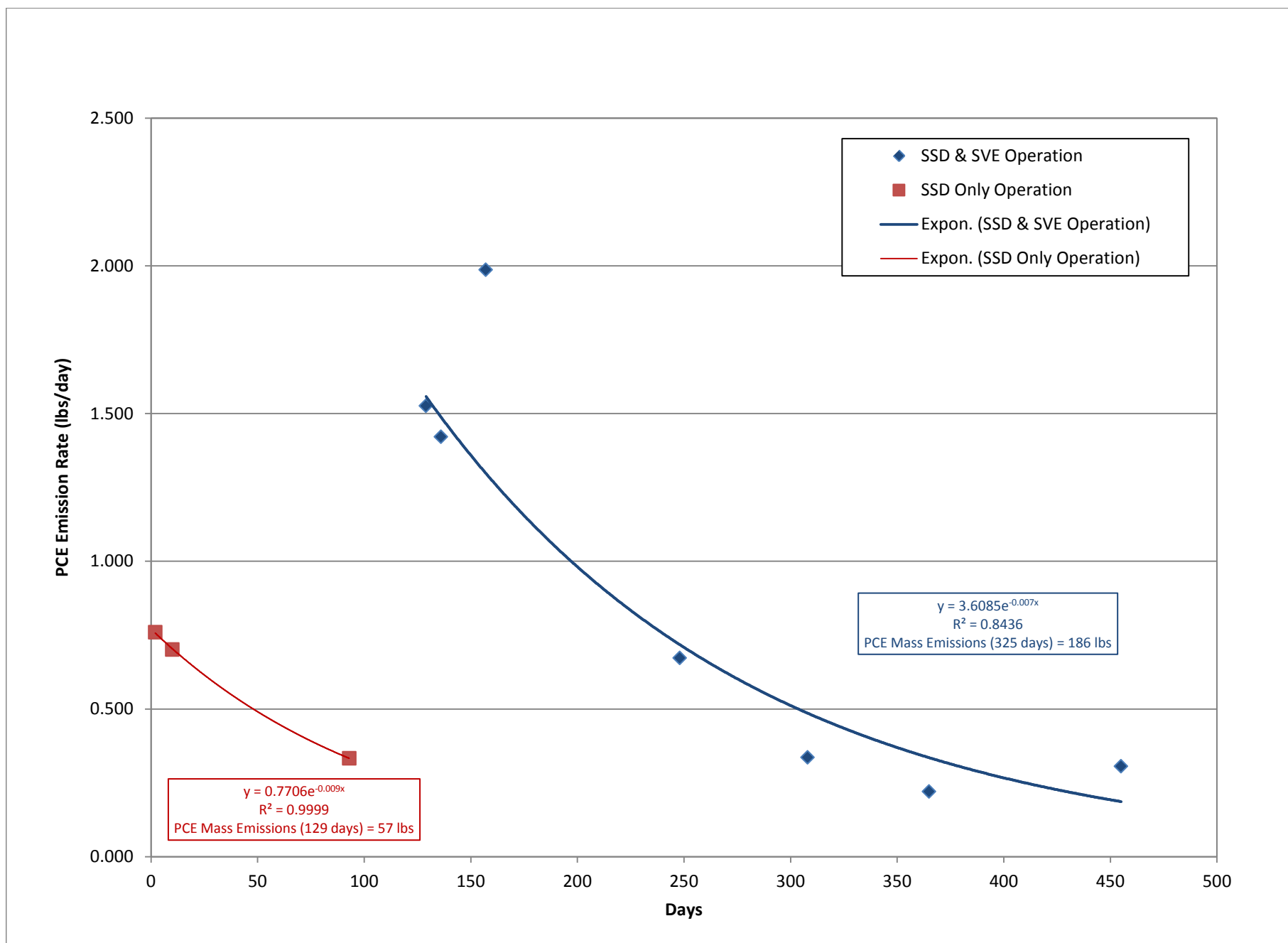
Graph 4 - Differential Pressure Across Slab (higher range)
Wendell Avenue Site



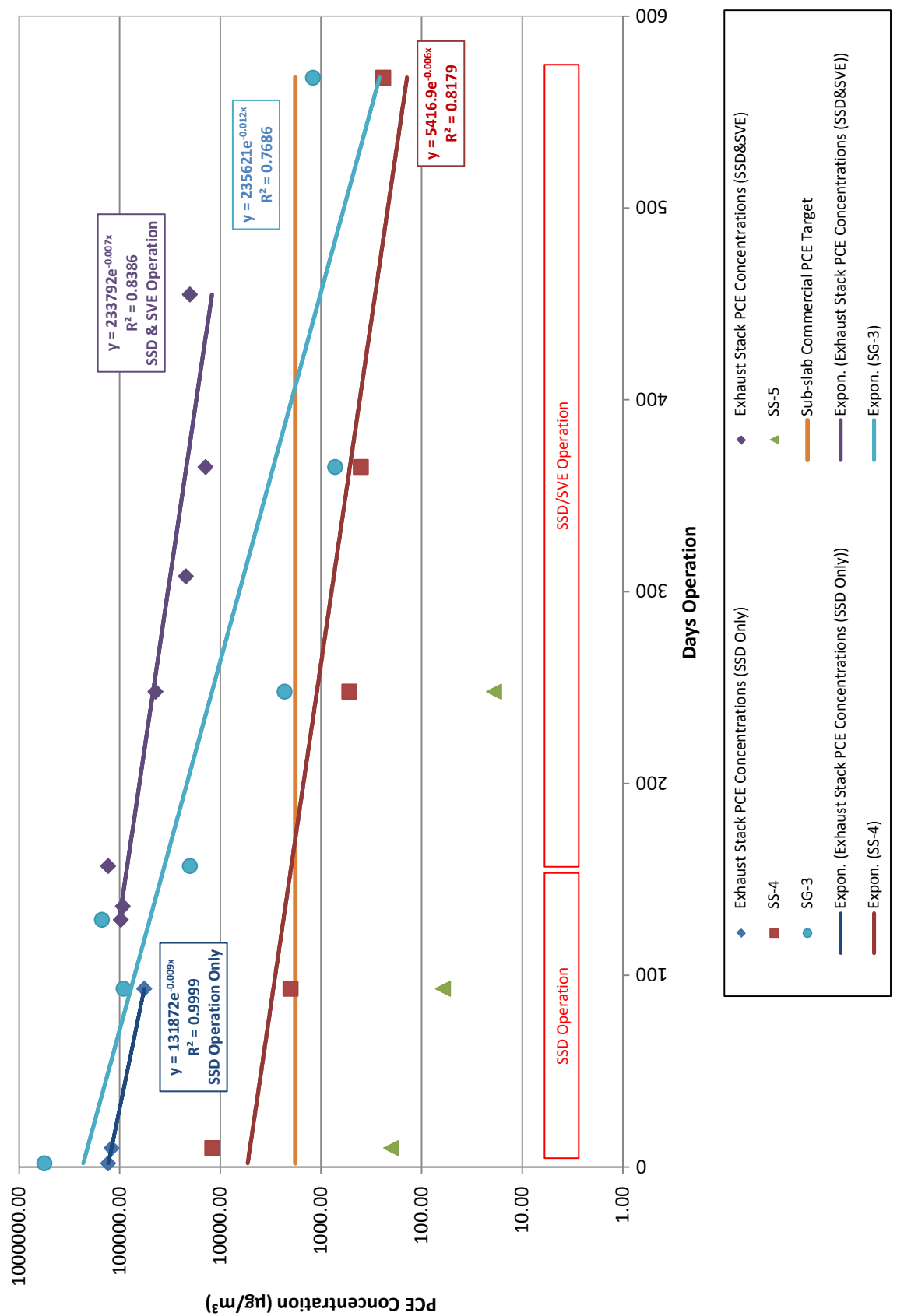
Graph 5 - Soil Gas VMP Vacuum Readings
Wendell Avenue Site



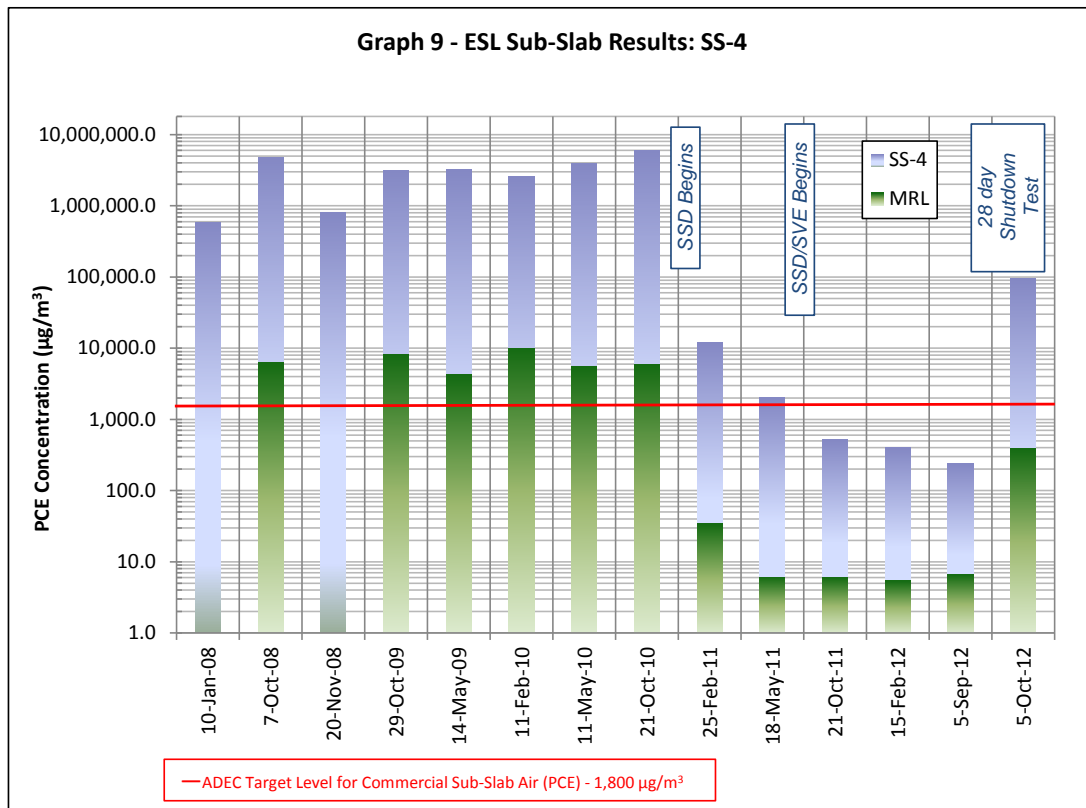
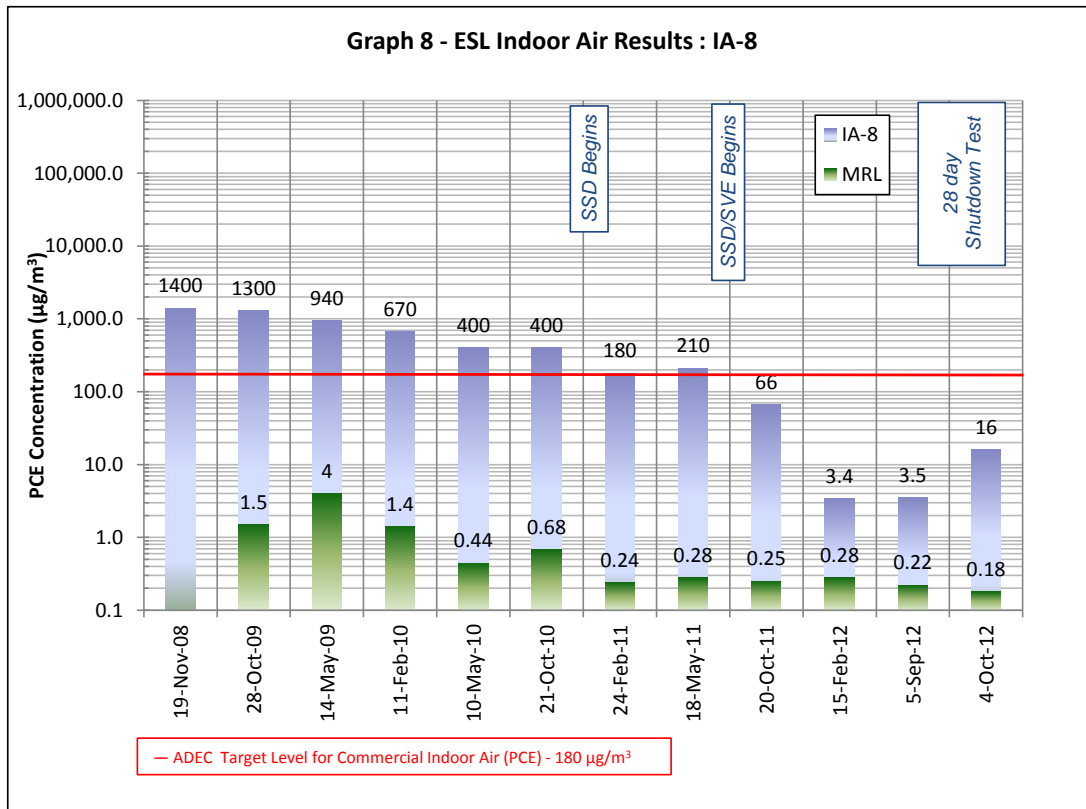
Graph 6 - SSD/SVE System PCE Emission Mass Estimate
Wendell Avenue Site



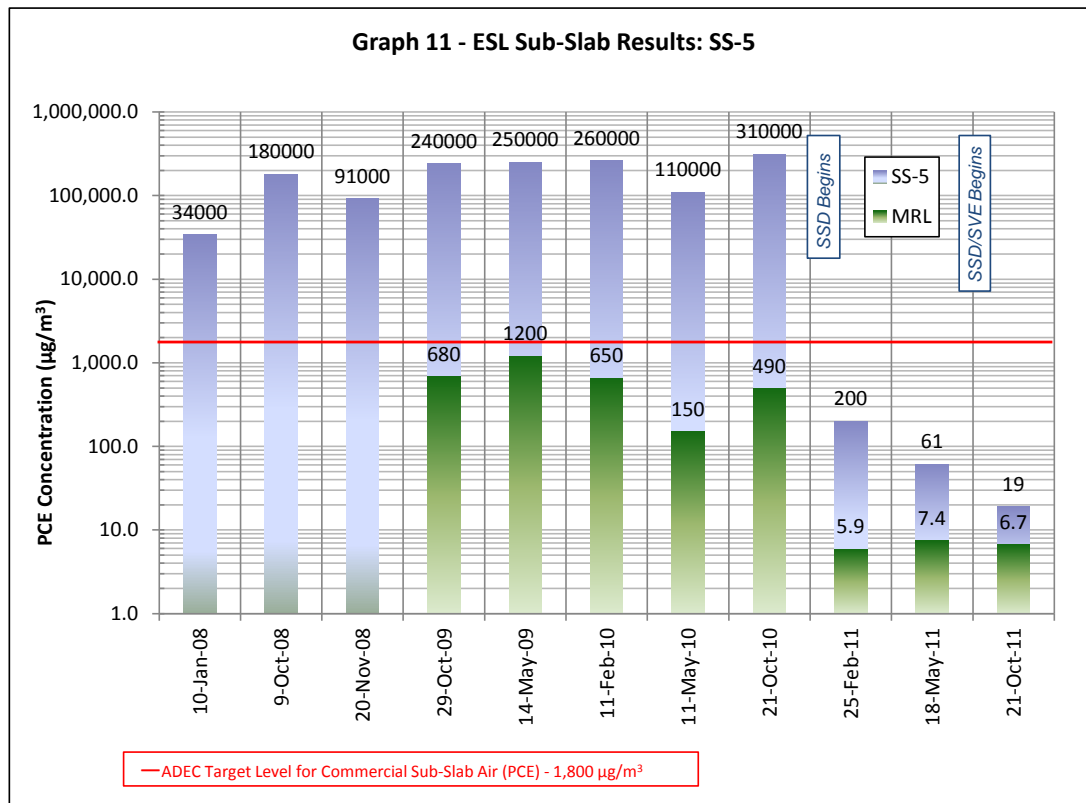
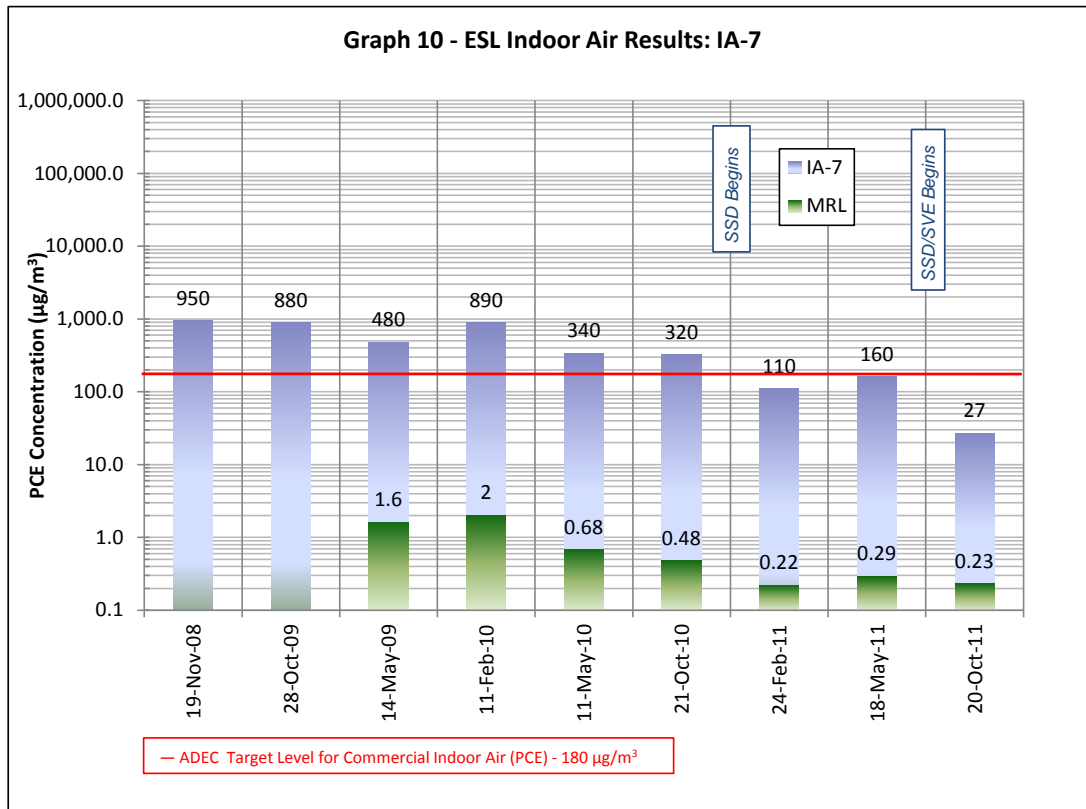
Graph 7 - Soil Gas and Exhaust Stack PCE Concentration Trends
Wendell Avenue Site



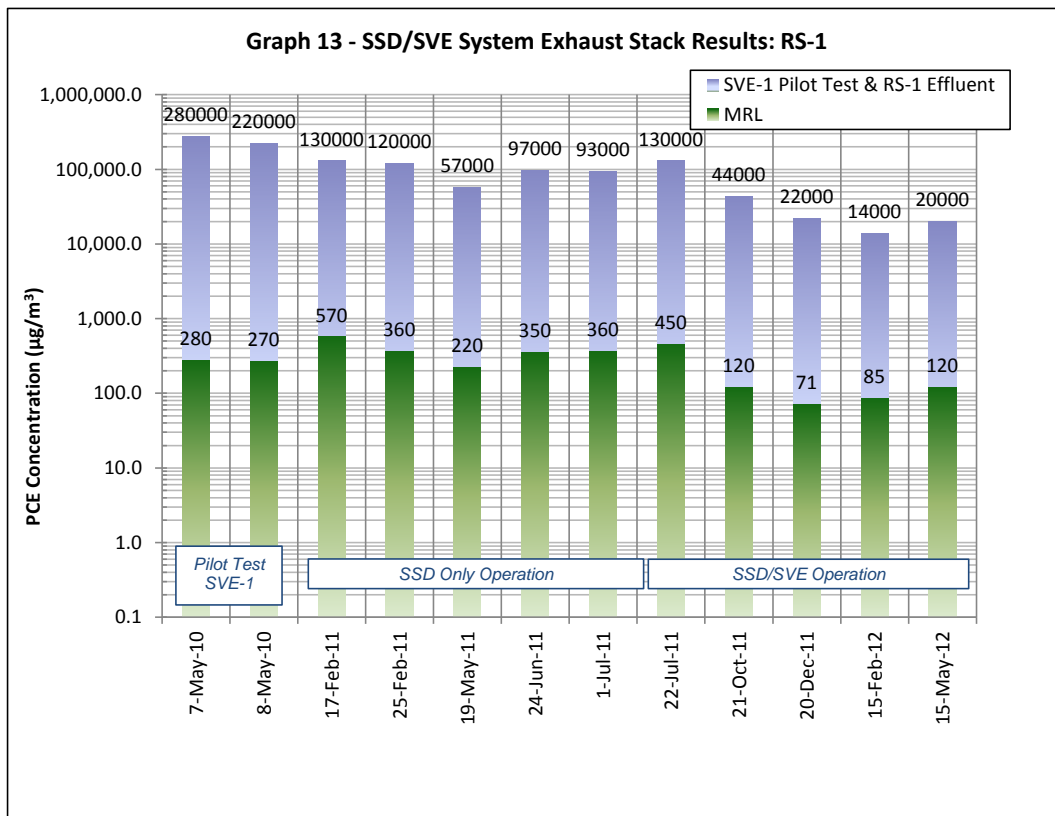
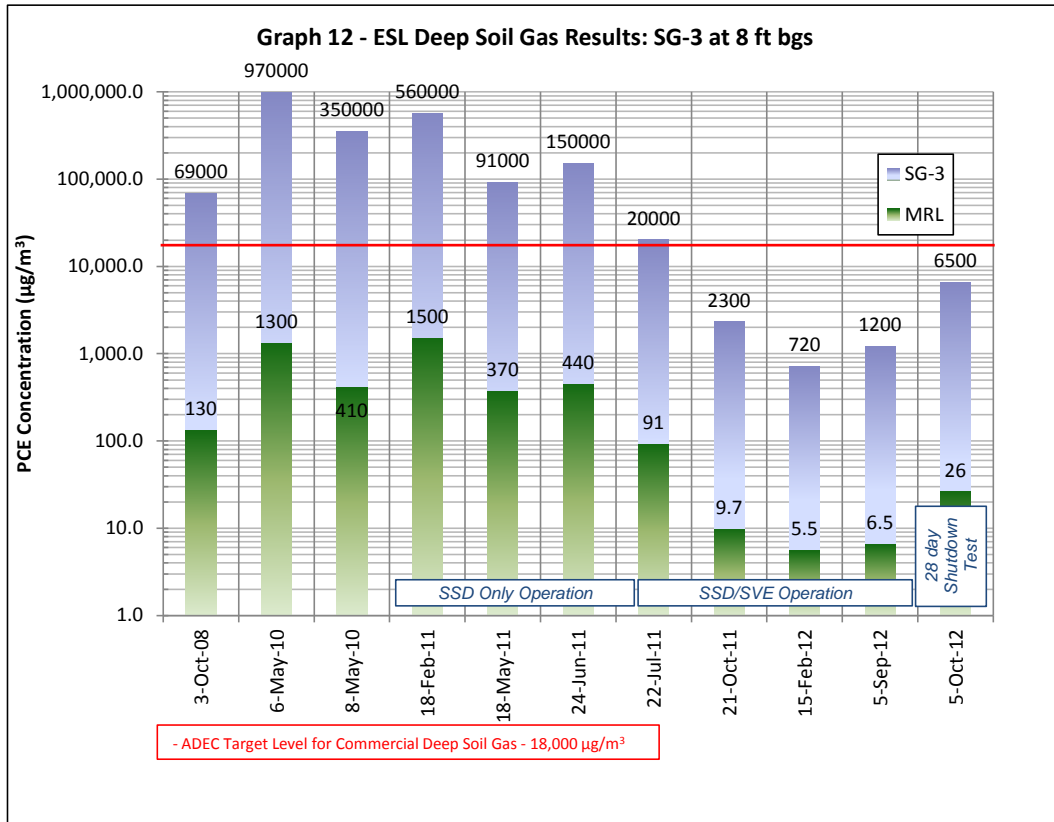
**Graphs 8 and 9 - Cumulative Indoor and Sub-Slab PCE Results
ESL Office Area**



**Graphs 10 and 11 - Cumulative Indoor and Sub-Slab PCE Concentrations
Main Laundry Room**



**Graphs 12 and 13 : SSD/SVE System OM&M Results
Deep Soil Gas and SSD/SVE System Exhaust Stack**



APPENDIX A

CUMMULATIVE SSD/SVE OM&M AND VI ASSESSMENT SAMPLING RESULTS TABLE

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Cumulative SSD/SVE OM&M and VI Assessment Sampling Results (2008 - 2012)

Wendell Avenue Site

Location ID	Sample ID	Sample Date	Sample Type	Matrix	Tetrachloroethene (µg/m3)			Trichloroethene (µg/m3)			cis-1,2-Dichloroethene (µg/m3)			trans-1,2-Dichloroethene (µg/m3)			Vinyl chloride (µg/m3)		
					Result	MRL	Data	Result	MRL	Data	Result	MRL	Data	Result	MRL	Data	Result	MRL	Data
Vapor Intrusion Assessment Samples																			
IA-1	08WAS1011A	1/9/2008	Primary	Indoor Air	12			0.73	ND		0.54	ND		0.54	ND		0.35	ND	
IA-1	08WAS2121A	5/7/2008	Primary	Indoor Air	24			1.7	ND		1.3	ND		1.3	ND		0.82	ND	
IA-1	08WAS5051A	10/2/2008	Primary	Indoor Air	12														
IA-1	09WAS2321A	10/29/2009	Primary	Indoor Air	9.6	0.22		0.18	ND		0.13	ND		0.65	ND		0.042	ND	
IA-1	10WAS1461A	5/10/2010	Primary	Indoor Air	3.2	0.69		0.55	ND		0.4	ND		2	ND		0.13	ND	
IA-2	08WAS1031A	1/9/2008	Primary	Indoor Air	8.4		J	0.72	ND		0.53	ND		0.53	ND		0.34	ND	
IA-2	08WAS1041A	1/9/2008	Duplicate	Indoor Air	8.5			1.0	ND		0.76	ND		0.76	ND		0.49	ND	
IA-2	08WAS2041A	5/7/2008	Primary	Indoor Air	9.8			1.4	ND		1.1	ND		1.1	ND		0.68	ND	
IA-2	08WAS2051A	5/7/2008	Duplicate	Indoor Air	12			2.0	ND		1.5	ND		1.5	ND		0.98	ND	
IA-2	08WAS5061A	10/2/2008	Duplicate	Indoor Air	3.7														
IA-2	08WAS5071A	10/2/2008	Primary	Indoor Air		3.7	ND												
IA-2	09WAS2331A	10/29/2009	Primary	Indoor Air		0.73	ND	0.19	ND		0.14	ND		0.71	ND		0.046	ND	
IA-2	09WAS2341A	10/29/2009	Duplicate	Indoor Air	2.3		JA	0	JA	1.2	0.11	ND		0.53	ND		0.034	ND	
IA-2	10WAS1021A	2/10/2010	Primary	Indoor Air	4.2	0.48		0.38	ND		0.28	ND		1.4	ND		0.092	ND	
IA-2	10WAS1471A	5/10/2010	Primary	Indoor Air	12	0.59		0.47	ND		0.35	ND		1.7	ND		0.11	ND	
IA-3	08WAS1021A	1/9/2008	Primary	Indoor Air	5.1			0.94	ND		0.69	ND		0.69	ND		0.45	ND	
IA-3	08WAS2071A	5/7/2008	Primary	Indoor Air	8			1.8	ND		1.3	ND		1.3	ND		0.86	ND	
IA-3	08WAS5041A	10/2/2008	Primary	Indoor Air		3.7	ND												
IA-4	08WAS1121A	1/9/2008	Primary	Indoor Air	8.5			1.0	ND		0.74	ND		0.74	ND		0.48	ND	
IA-4	08WAS2081A	5/7/2008	Primary	Indoor Air	15			1.7	ND		1.3	ND		1.3	ND		0.82	ND	
IA-4	08WAS5221A	10/6/2008	Primary	Indoor Air	5.2														
IA-4	09WAS2301A	10/29/2009	Primary	Indoor Air	3.6	0.4		0.32	ND		0.24	ND		1.2	ND		0.076	ND	
IA-4	10WAS1051A	2/10/2010	Primary	Indoor Air	4.5	0.61		0.48	ND		0.36	ND		1.8	ND		0.11	ND	
IA-4	10WAS1521A	5/10/2010	Primary	Indoor Air	6.1	0.23		0.18	ND		0.13	ND		0.67	ND		0.043	ND	
IA-5	08WAS1161A	1/10/2008	Primary	Indoor Air	39000	150		120	ND		88	ND		88	ND		57	ND	
IA-6	08WAS1151A	1/10/2008	Primary	Indoor Air	19000	73	J	58	ND		43	ND		43	ND		28	ND	
IA-7	08WAS6021A	11/19/2008	Primary	Indoor Air	870			3.1											
IA-7	08WAS6031A	11/19/2008	Duplicate	Indoor Air	950			4.6	ND										
IA-7	09WAS2231A	10/28/2009	Primary	Indoor Air	880		J	2			1.1		J						
IA-7	09WAS2241A	10/28/2009	Duplicate	Indoor Air	600	0.99		2.1	0.78		0.78	0.58		2.9	ND		0.19	ND	
IA-7	09WAS6111A	5/14/2009	Primary	Indoor Air	470	1.4		1.8	1.1		1.3	0.83		0.83	ND		0.54	ND	
IA-7	09WAS6121A	5/14/2009	Duplicate	Indoor Air	480	1.6		1.5	1.2		1.3	0.93		0.93	ND		0.60	ND	
IA-7	10WAS1121A	2/11/2010	Primary	Indoor Air	880	1.1		2	0.89		0.65	ND		3.3	ND		0.21	ND	
IA-7	10WAS1131A	2/11/2010	Duplicate	Indoor Air	890	2		2.1	1.6			1.2	ND		5.8	ND		0.38	ND
IA-7	10WAS1561A	5/11/2010	Primary	Indoor Air	340	0.43		1.3	0.34		0.83	0.25		1.2	ND		0.081	ND	
IA-7	10WAS1571A	5/11/2010	Duplicate	Indoor Air	340	0.68		1.3	0.54		0.89	0.4		2	ND		0.13	ND	
IA-7	10WAS4021A	10/21/2010	Primary	Indoor Air	320	0.48		1.2	0.38		0.82	0.28		1.4	ND		0.090	ND	
IA-7	10WAS4031A	10/21/2010	Duplicate	Indoor Air	320	0.50		1.2	0.39		0.81	0.29		1.4	ND		0.093	ND	
IA-7	11-WAS-006-IA	2/24/2011	Primary	Indoor Air	110	0.22		0.34	0.18		0.24	0.13		7.1	0.65		0.042	ND	
IA-7	11-WAS-007-IA	2/24/2011	Duplicate	Indoor Air	110	0.24		0.32	0.19		0.24	0.14		6.9	0.71		0.046	ND	
IA-7	11-WAS-047-IA	5/18/2011	Primary	Indoor Air	160	0.24		0.4	0.19		0.25	0.14		1.5	0.71		0.046	ND	
IA-7	11-WAS-048-IA	5/18/2011	Duplicate	Indoor Air	160	0.29		0.41	0.23		0.25	0.17		1.5	0.85		0.055	ND	
IA-7	11-WAS-064-IA	10/20/2011	Primary	Indoor Air	27	0.23			0.18	ND		0.14	ND		0.68	ND		0.044	ND
IA-7	11-WAS-065-IA	10/20/2011	Duplicate	Indoor Air	27	0.24			0.19	ND		0.14	ND		0.69	ND		0.045	ND
ADEC Commercial Indoor Air Target Levels					180			8.8			31			260			28		

Cumulative SSD/SVE OM&M and VI Assessment Sampling Results (2008 - 2012)

Wendell Avenue Site

Location ID	Sample ID	Sample Date	Sample Type	Matrix	Tetrachloroethene (µg/m3)			Trichloroethene (µg/m3)			cis-1,2-Dichloroethene (µg/m3)			trans-1,2-Dichloroethene (µg/m3)			Vinyl chloride (µg/m3)		
					Result	MRL	Data	Result	MRL	Data	Result	MRL	Data	Result	MRL	Data	Result	MRL	Data
Vapor Intrusion Assessment Samples																			
IA-8	08WAS604IA	11/19/2008	Primary	Indoor Air	1400				6.3	ND									
IA-8	09WAS222IA	10/28/2009	Primary	Indoor Air	1300	1.5		2.1	1.2			0.86	ND		4.3	ND	0.28		
IA-8	09WAS610IA	5/14/2009	Primary	Indoor Air	940	4.0			3.1	ND		2.3	ND		2.3	ND	1.5		
IA-8	10WAS114IA	2/11/2010	Primary	Indoor Air	670	1.4		1.9	1.1			0.79	ND		4	ND	0.26		
IA-8	10WAS158IA	5/10/2010	Primary	Indoor Air	400	0.44		1	0.35		0.63	0.26			1.3	ND	0.082		
IA-8	10WAS401IA	10/21/2010	Primary	Indoor Air	400	0.68		1.7	0.54		0.96	0.40			2.0	ND	0.13		
IA-8	11-WAS-005-IA	2/24/2011	Primary	Indoor Air	180	0.24		0.53	0.19		0.32	0.14		8.1	0.69		0.045		
IA-8	11-WAS-049-IA	5/18/2011	Primary	Indoor Air	210	0.28		0.5	0.22		0.26	0.17		1.5	0.83		0.054		
IA-8	11-WAS-063-IA	10/20/2011	Primary	Indoor Air	66	0.25			0.20	ND		0.14	ND		0.73	ND	0.047		
IA-8	12-WAS-074-IA	2/15/2012	Primary	Indoor Air	3.3	0.23			0.18	ND		0.13	ND		0.67	ND	0.043		
IA-8	12-WAS-075-IA	2/15/2012	Duplicate	Indoor Air	3.4	0.28			0.22	ND		0.16	ND		0.82	ND	0.053		
IA-8	12-WAS-129-IA	9/5/2012	Primary	Indoor Air	3.5	0.22			0.18	ND	0.23	0.13			0.65	ND	0.042		
IA-8	12-WAS-133-IA	10/4/2012	Primary	Indoor Air	16	0.18			0.15	ND	0.98	0.11			0.54	ND	0.035		
IA-8	12-WAS-134-IA	10/4/2012	Duplicate	Indoor Air	16	0.20		0.16	0.15		0.92	0.11			0.57	ND	0.037		
IA-11	12-WAS-127-IA	9/5/2012	Primary	Indoor Air	1.2	0.22			0.18	ND		0.13	ND		0.65	ND	0.042		
IA-11	12-WAS-128-IA	9/5/2012	Duplicate	Indoor Air	1.2	0.24			0.19	ND		0.14	ND		0.69	ND	0.045		
CS-1	08WAS110SA	1/9/2008	Primary	Crawl Space	13				0.73	ND		0.54	ND		0.54	ND	0.35		
CS-1	08WAS209CS	5/7/2008	Primary	Crawl Space	28				2.3	ND		1.7	ND		1.7	ND	1.1		
CS-1	08WAS523CS	10/6/2008	Primary	Crawl Space	13														
CS-1	09WAS229CS	10/29/2009	Primary	Crawl Space	13	0.24			0.19	ND		0.14	ND		0.69	ND	0.045		
CS-1	10WAS106CS	2/10/2010	Primary	Crawl Space	13	0.23			0.18	ND		0.13	ND		0.67	ND	0.043		
CS-1	10WAS153CS	5/10/2010	Primary	Crawl Space	14	0.27			0.22	ND		0.16	ND		0.8	ND	0.051		
CS-2	08WAS114SA	1/9/2008	Primary	Crawl Space	15		J		0.70	ND		0.52	ND		0.52	ND	0.33		
CS-2	08WAS210CS	5/7/2008	Primary	Crawl Space	27				2.8	ND		2.0	ND		2.0	ND	1.3		
CS-2	08WAS524CS	10/6/2008	Primary	Crawl Space	12														
CS-2	09WAS236CS	10/29/2009	Primary	Crawl Space	8.9		JA	2.3		JA		0.11	ND		0.53	ND	0.034		
CS-3	08WAS113SA	1/9/2008	Primary	Crawl Space	15		J		0.72	ND		0.53	ND		0.53	ND	0.34		
CS-3	08WAS211CS	5/7/2008	Primary	Crawl Space	8.3				1.0	ND		0.75	ND		0.75	ND	0.48		
CS-3	09WAS235CS	10/29/2009	Primary	Crawl Space	11	0.23			0.18	ND		0.14	ND		0.68	ND	0.044		
CS-3	10WAS107CS	2/10/2010	Primary	Crawl Space	12	0.25			0.2	ND		0.14	ND		0.73	ND	0.047		
CS-3	10WAS154CS	5/10/2010	Primary	Crawl Space	11	0.5			0.39	ND		0.29	ND		1.4	ND	0.093		
ADEC Commercial Indoor Air Target Levels					180			8.8			31			260			28		

Cumulative SSD/SVE OM&M and VI Assessment Sampling Results (2008 - 2012)

Wendell Avenue Site

Location ID	Sample ID	Sample Date	Sample Type	Matrix	Tetrachloroethene (µg/m3)		Trichloroethene (µg/m3)		cis-1,2-Dichloroethene (µg/m3)		trans-1,2-Dichloroethene (µg/m3)		Vinyl chloride (µg/m3)				
					Result	MRL	Data	Result	MRL	Data	Result	MRL	Data	Result	MRL	Data	
Vapor Intrusion Assessment Samples																	
SS-1	08WAS106SA	1/9/2008	Primary	Sub-Slab Soil Gas	3500			10	ND		7.6	ND		7.6	ND	4.9	ND
SS-1	08WAS107SA	1/9/2008	Duplicate	Sub-Slab Soil Gas	4000			10	ND		7.7	ND		7.7	ND	5.0	ND
SS-1	08WAS213SS	5/8/2008	Primary	Sub-Slab Soil Gas	8300			23	ND		17	ND		17	ND	11	ND
SS-1	08WAS214SS	5/8/2008	Duplicate	Sub-Slab Soil Gas	9200			25	ND		18	ND		18	ND	12	ND
SS-1	08WAS508SS	10/2/2008	Primary	Sub-Slab Soil Gas	9800	45		36	ND		26	ND		26	ND	17	ND
SS-1	09WAS225SS	10/30/2009	Primary	Sub-Slab Soil Gas	11000	29		23	ND		17	ND		17	ND	11	ND
SS-1	10WAS108SS	2/11/2010	Primary	Sub-Slab Soil Gas	9600	25		20	ND		14	ND		14	ND	9.4	ND
SS-1	10WAS148SS	5/10/2010	Primary	Sub-Slab Soil Gas	12000	33		26	ND		19	ND		19	ND	12	ND
SS-2	08WAS108SA	1/9/2008	Primary	Sub-Slab Soil Gas	980			4.8	ND		3.5	ND		3.5	ND	2.3	ND
SS-2	08WAS203SS	5/7/2008	Primary	Sub-Slab Soil Gas	21			0.90	ND		0.67	ND		0.67	ND	0.43	ND
SS-2	08WAS509SS	10/2/2008	Primary	Sub-Slab Soil Gas	5300	83		66	ND		48	ND		48	ND	31	ND
SS-2	09WAS226SS	10/30/2009	Primary	Sub-Slab Soil Gas	4700	62		49	ND		36	ND		36	ND	23	ND
SS-2	10WAS109SS	2/11/2010	Primary	Sub-Slab Soil Gas	2800	14		12	ND		8.5	ND		8.5	ND	5.5	ND
SS-2	10WAS149SS	5/10/2010	Primary	Sub-Slab Soil Gas	3600	18		14	ND		11	ND		11	ND	6.9	ND
SS-3	08WAS109SA	1/9/2008	Primary	Sub-Slab Soil Gas	1400		J	7.2	ND		5.3	ND		5.3	ND	3.4	ND
SS-3	08WAS201SS	5/7/2008	Primary	Sub-Slab Soil Gas	2700			10	ND		7.8	ND		7.8	ND	5.0	ND
SS-3	08WAS528SS	10/7/2008	Primary	Sub-Slab Soil Gas	3000	16		13	ND		9.5	ND		9.5	ND	6.1	ND
SS-3	09WAS227SS	10/30/2009	Primary	Sub-Slab Soil Gas	2600			9.8	ND		9.6	ND		9.6	ND	6.2	ND
SS-3	10WAS110SS	2/11/2010	Primary	Sub-Slab Soil Gas	2500	13		10	ND		7.8	ND		7.8	ND	5	ND
SS-3	10WAS150SS	5/10/2010	Primary	Sub-Slab Soil Gas	3200	13		10	ND		7.6	ND		7.6	ND	4.9	ND
SS-4	08WAS120SA	1/10/2008	Primary	Sub-Slab Soil Gas	590000			1400	ND		1000	ND		1000	ND	660	ND
SS-4	08WAS525SS	10/7/2008	Primary	Sub-Slab Soil Gas	4700000	6200		7200	4900		3600	ND		3600	ND	2300	ND
SS-4	08WAS526SS	10/7/2008	Duplicate	Sub-Slab Soil Gas	4100000	5900		6300	4700		3500	ND		3500	ND	2200	ND
SS-4	08WAS607SS	11/20/2008	Primary	Sub-Slab Soil Gas	810000			3600	ND								
SS-4	09WAS217SS	10/29/2009	Primary	Sub-Slab Soil Gas	3100000	8200		6500	ND		4800	ND		4800	ND	3100	ND
SS-4	09WAS617SS	5/14/2009	Primary	Sub-Slab Soil Gas	3200000	4200		6100	3300		2400	ND		2400	ND	1600	ND
SS-4	10WAS115SS	2/11/2010	Primary	Sub-Slab Soil Gas	2600000	10000		8200	ND		6000	ND		6000	ND	3900	ND
SS-4	10WAS160SS	5/11/2010	Primary	Sub-Slab Soil Gas	3900000	5600		5500	4400		3300	ND		3300	ND	2100	ND
SS-4	10WAS405SS	10/21/2010	Primary	Sub-Slab Soil Gas	5900000	5900		10000	4600		3400	ND		3400	ND	2200	ND
SS-4	11-WAS-008-SS	2/25/2011	Primary	Sub-Slab Soil Gas	12000	34		27	ND		20	ND		20	ND	13	ND
SS-4	11-WAS-052-SS	5/18/2011	Primary	Sub-Slab Soil Gas	2000	6.1		4.8	ND		3.5	ND		3.5	ND	2.3	ND
SS-4	11-WAS-066-SS	10/21/2011	Primary	Sub-Slab Soil Gas	520	6.0		4.7	ND		3.5	ND		3.5	ND	2.2	ND
SS-4	12-WAS-076-SS	2/15/2012	Primary	Sub-Slab Soil Gas	390	5.0		4.0	ND		3.0	ND		3.0	ND	1.9	ND
SS-4	12-WAS-077-SS	2/15/2012	Duplicate	Sub-Slab Soil Gas	400	5.4		4.2	ND		3.1	ND		3.1	ND	2.0	ND
SS-4	12-WAS-130-SS	9/5/2012	Primary	Sub-Slab Soil Gas	240	6.6		5.3	ND		3.9	ND		3.9	ND	2.5	ND
SS-4	12-WAS-135-SS	10/5/2012	Primary	Sub-Slab Soil Gas	94000	390		310	ND		230	ND		230	ND	150	ND
ADEC Commercial Sub-Slab and Shallow Soil Gas Air Target Levels					1800			88			310			2600		280	

Cumulative SSD/SVE OM&M and VI Assessment Sampling Results (2008 - 2012)

Wendell Avenue Site

Location ID	Sample ID	Sample Date	Sample Type	Matrix	Tetrachloroethene (µg/m3)			Trichloroethene (µg/m3)			cis-1,2-Dichloroethene (µg/m3)			trans-1,2-Dichloroethene (µg/m3)			Vinyl chloride (µg/m3)		
					Result	MRL	Data	Result	MRL	Data	Result	MRL	Data	Result	MRL	Data	Result	MRL	Data
Vapor Intrusion Assessment Samples																			
SS-5	08WAS119SA	1/10/2008	Primary	Sub-Slab Soil Gas	34000				100	ND			76	ND		76	ND	49	ND
SS-5	08WAS532SS	10/9/2008	Primary	Sub-Slab Soil Gas	180000			2200											
SS-5	08WAS608SS	11/20/2008	Primary	Sub-Slab Soil Gas	91000			1300											
SS-5	09WAS220SS	10/29/2009	Primary	Sub-Slab Soil Gas	240000	680		1700	540			400	ND		400	ND		260	ND
SS-5	09WAS616SS	5/14/2009	Primary	Sub-Slab Soil Gas	250000	1200		2000	960			700	ND		700	ND		460	ND
SS-5	10WAS118SS	2/11/2010	Primary	Sub-Slab Soil Gas	260000	650		2200	510			380	ND		380	ND		240	ND
SS-5	10WAS163SS	5/11/2010	Primary	Sub-Slab Soil Gas	110000	150		1200	120			86	ND		86	ND		55	ND
SS-5	10WAS404SS	10/21/2010	Primary	Sub-Slab Soil Gas	310000	490		3900	390			280	ND		280	ND		180	ND
SS-5	11-WAS-011-SS	2/25/2011	Primary	Sub-Slab Soil Gas	200	5.9			4.7	ND		3.5	ND		3.5	ND		2.2	ND
SS-5	11-WAS-053-SS	5/18/2011	Primary	Sub-Slab Soil Gas	61	7.4			5.8	ND		4.3	ND		4.3	ND		2.8	ND
SS-5	11-WAS-067-SS	10/21/2011	Primary	Sub-Slab Soil Gas	19	6.7			5.3	ND		3.9	ND		3.9	ND		2.5	ND
SS-6	08WAS118SA	1/10/2008	Primary	Sub-Slab Soil Gas	57000	230			180	ND		130	ND		130	ND		86	ND
SS-6	08WAS527SS	10/7/2008	Primary	Sub-Slab Soil Gas	24000	59			47	ND		35	ND		35	ND		22	ND
SS-6	08WAS605SS	11/20/2008	Primary	Sub-Slab Soil Gas	890				17	ND									
SS-6	08WAS606SS	11/20/2008	Duplicate	Sub-Slab Soil Gas	890				17	ND									
SS-6	09WAS218SS	10/29/2009	Primary	Sub-Slab Soil Gas	13000	38			30	ND		22	ND		22	ND		14	ND
SS-6	09WAS219SS	10/29/2009	Duplicate	Sub-Slab Soil Gas	11000	40			32	ND		24	ND		24	ND		15	ND
SS-6	09WAS614SS	5/14/2009	Primary	Sub-Slab Soil Gas	13000	79			63	ND		46	ND		46	ND		30	ND
SS-6	09WAS615SS	5/14/2009	Duplicate	Sub-Slab Soil Gas	12000	50			40	ND		29	ND		29	ND		19	ND
SS-6	10WAS116SS	2/11/2010	Primary	Sub-Slab Soil Gas	1900	12			9.6	ND		7.1	ND		7.1	ND		4.6	ND
SS-6	10WAS117SS	2/11/2010	Duplicate	Sub-Slab Soil Gas	2000	6.2			4.9	ND		3.6	ND		3.6	ND		2.3	ND
SS-6	10WAS161SS	5/11/2010	Primary	Sub-Slab Soil Gas	13000	42			33	ND		24	ND		24	ND		16	ND
SS-6	10WAS162SS	5/11/2010	Duplicate	Sub-Slab Soil Gas	13000	42			33	ND		24	ND		24	ND		16	ND
SS-6	10WAS406SS	10/21/2010	Primary	Sub-Slab Soil Gas	14000	40			31	ND		23	ND		23	ND		15	ND
SS-6	10WAS407SS	10/21/2010	Duplicate	Sub-Slab Soil Gas	15000	43			34	ND		25	ND		25	ND		16	ND
SS-6	11-WAS-009-SS	2/25/2011	Primary	Sub-Slab Soil Gas	19	5.2			4.1	ND		3.0	ND		3.0	ND		1.9	ND
SS-6	11-WAS-010-SS	2/25/2011	Duplicate	Sub-Slab Soil Gas	19	5.7			4.5	ND		3.3	ND		3.3	ND		2.1	ND
SS-6	11-WAS-050-SS	5/18/2011	Primary	Sub-Slab Soil Gas	21	5.5			4.3	ND		3.2	ND		3.2	ND		2.0	ND
SS-6	11-WAS-051-SS	5/18/2011	Duplicate	Sub-Slab Soil Gas	22	5.8			4.6	ND		3.4	ND		3.4	ND		2.2	ND
SS-6	11-WAS-068-SS	10/21/2011	Primary	Sub-Slab Soil Gas		5.5	ND		4.4	ND		3.2	ND		3.2	ND		2.1	ND
SS-6	11-WAS-069-SS	10/21/2011	Duplicate	Sub-Slab Soil Gas		5.6	ND		4.4	ND		3.3	ND		3.3	ND		2.1	ND
SS-7	10WAS137SS	5/6/2010	Primary	Sub-Slab Soil Gas	15000	46		250	36			27	ND		27	ND		17	ND
SS-7	10WAS138SS	5/6/2010	Duplicate	Sub-Slab Soil Gas	15000	52		260	42			31	ND		31	ND		20	ND
SS-7	10WAS144SS	5/8/2010	Primary	Sub-Slab Soil Gas	4000	15		74	12			8.9	ND		8.9	ND		5.7	ND
SG-1	08WAS501SG	10/1/2008	Primary	Shallow Soil Gas	1800	9.0		19	7.1			5.2	ND		5.2	ND		3.4	ND
SG-2	08WAS530SG	10/8/2008	Primary	Shallow Soil Gas	3300	13		36	10			7.4	ND		7.4	ND		4.8	ND
SG-3	08WAS517SG	10/3/2008	Primary	Shallow Soil Gas	5900	36			28	ND		21	ND		21	ND		14	ND
SG-4	08WAS515SG	10/3/2008	Primary	Shallow Soil Gas	710	9.0			7.1	ND		5.2	ND		5.2	ND		3.4	ND
SG-5	08WAS512SG	10/3/2008	Primary	Shallow Soil Gas	7100	25			20	ND		14	ND		14	ND		9.4	ND
SG-5	08WAS513SG	10/3/2008	Duplicate	Shallow Soil Gas	5900	24			19	ND		14	ND		14	ND		9.2	ND
SG-6	08WAS519SG	10/4/2008	Primary	Shallow Soil Gas	1100	9.4		25	7.4			5.5	ND		5.5	ND		3.5	ND
ADEC Commercial Sub-Slab and Shallow Soil Gas Air Target Levels					1800			88			310			2600			280		

Cumulative SSD/SVE OM&M and VI Assessment Sampling Results (2008 - 2012)

Wendell Avenue Site

Location ID	Sample ID	Sample Date	Sample Type	Matrix	Tetrachloroethene (µg/m3)			Trichloroethene (µg/m3)			cis-1,2-Dichloroethene (µg/m3)			trans-1,2-Dichloroethene (µg/m3)			Vinyl chloride (µg/m3)		
					Result	MRL	Data	Result	MRL	Data	Result	MRL	Data	Result	MRL	Data	Result	MRL	Data
Vapor Intrusion Assessment Samples																			
SG-1	08WAS502SG	10/1/2008	Primary	Deep Soil Gas	79000	170		2100	140		320	100		250	100		65	ND	
SG-2	08WAS531SG	10/8/2008	Primary	Deep Soil Gas	8200	39		790	31		150	23		73	23		15	ND	
SG-2	12-WAS-132-SG	9/5/2012	Primary	Deep Soil Gas	930	6.6		15	5.3			3.9	ND		3.9	ND	2.5	ND	
SG-2	12-WAS-137-SG	10/5/2012	Primary	Deep Soil Gas	3000	11		87	9.0		10	6.7			6.7	ND	4.3	ND	
SG-3	08WAS518SG	10/3/2008	Primary	Deep Soil Gas	69000	130		900	100		190	76			76	ND	49	ND	
SG-3	10WAS135SG	5/6/2010	Primary	Deep Soil Gas	970000	1300		5700	1000		2000	760			760	ND	490	ND	
SG-3	10WAS143SG	5/8/2010	Primary	Deep Soil Gas	350000	410		4000	320		660	240			240	ND	150	ND	
SG-3	11WAS-003-SG	2/18/2011	Primary	Deep Soil Gas	560000	1500		4800	1200		1600	860			860	ND	550	ND	
SG-3	11-WAS-054-SG	5/18/2011	Primary	Deep Soil Gas	91000	370		970	290		370	210			210	ND	140	ND	
SG-3	11-WAS-058-SG	6/24/2011	Primary	Deep Soil Gas	150000	440		390	350			260	ND		260	ND	160	ND	
SG-3	11-WAS-061-SG	7/22/2011	Primary	Deep Soil Gas	20000	91			72	ND		53	ND		53	ND	34	ND	
SG-3	11-WAS-070-SG	10/21/2011	Primary	Deep Soil Gas	2300	9.7		10	7.7			5.7	ND		5.7	ND	3.6	ND	
SG-3	12-WAS-078-SG	2/15/2012	Primary	Deep Soil Gas	720	5.5		5.7	4.3			3.2	ND		3.2	ND	2.0	ND	
SG-3	12-WAS-131-SG	9/5/2012	Primary	Deep Soil Gas	1200	6.5		10	5.1			3.8	ND		3.8	ND	2.4	ND	
SG-3	12-WAS-136-SG	10/5/2012	Primary	Deep Soil Gas	6500	26		87	21		48	15			15	ND	10	ND	
SG-4	08WAS516SG	10/3/2008	Primary	Deep Soil Gas	20000	58		350	46			34	ND		34	ND	22	ND	
SG-5	08WAS514SG	10/3/2008	Primary	Deep Soil Gas	890	8.8		7.3	6.9			5.1	ND		5.1	ND	3.3	ND	
SG-6	08WAS520SG	10/4/2008	Primary	Deep Soil Gas	5100	61		210	48		35	35	J		35	ND	23	ND	
ADEC Commercial Deep Soil Gas Air Target Levels					18000			880			3100			26000			2800		
Outdoor Ambient Air Samples																			
AA-1	08WAS105OA	1/9/2008	Primary	Outdoor Air	3.8				0.75	ND		0.55	ND		0.55	ND		0.36	ND
AA-1	08WAS202AA	5/7/2008	Primary	Outdoor Air	5.1				0.72	ND		0.53	ND		0.53	ND		0.34	ND
AA-1	08WAS503AA	10/2/2008	Primary	Outdoor Air		1.0	ND												
AA-1	09WAS231AA	10/29/2009	Primary	Outdoor Air	0.47	0.18			0.15	ND		0.11	ND		0.54	ND	0.035	ND	
AA-1	10WAS101AA	2/10/2010	Primary	Outdoor Air	2.4				1.3	ND		0.94	ND		4.7	ND	0.3	ND	
AA-1	10WAS145AA	5/10/2010	Primary	Outdoor Air	0.32	0.21			0.16	ND		0.12	ND		0.6	ND	0.039	ND	
AA-2	08WAS111OA	1/9/2008	Primary	Outdoor Air	3				0.73	ND		0.54	ND		0.54	ND	0.35	ND	
AA-2	08WAS206AA	5/7/2008	Primary	Outdoor Air	6.4				0.88	ND		0.65	ND		0.65	ND	0.42	ND	
AA-2	08WAS521AA	10/6/2008	Primary	Outdoor Air		0.91	ND												
AA-2	09WAS228AA	10/29/2009	Primary	Outdoor Air	1		JA		0.14	ND		0.1	ND		0.52	ND	0.033	ND	
AA-2	10WAS104AA	2/10/2010	Primary	Outdoor Air	2.4	0.19			0.15	ND		0.11	ND		0.57	ND	0.036	ND	
AA-2	10WAS151AA	5/10/2010	Primary	Outdoor Air	0.43	0.22			0.17	ND		0.13	ND		0.64	ND	0.041	ND	
AA-3	08WAS117OA	1/10/2008	Primary	Outdoor Air	25				0.80	ND		0.59	ND		0.59	ND	0.38	ND	
AA-3	08WAS6011AA	11/19/2008	Primary	Outdoor Air	1.2				0.65	ND									
AA-3	09WAS221AA	10/28/2009	Primary	Outdoor Air	1.2		JA	0.15	0	JA		0.11	ND		0.53	ND	0.034	ND	
AA-3	09WAS613AA	5/14/2009	Primary	Outdoor Air	1.4	1.3			1.0	ND		0.78	ND		0.78	ND	0.50	ND	
AA-3	10WAS111AA	2/11/2010	Primary	Outdoor Air	5.4	0.18			0.15	ND		0.11	ND		0.54	ND	0.035	ND	
AA-3	10WAS155AA	5/10/2010	Primary	Outdoor Air	0.76	0.22			0.17	ND		0.13	ND		0.64	ND	0.041	ND	
AA-3	10WAS400AA	10/21/2010	Primary	Outdoor Air	1.6	0.21			0.17	ND		0.12	ND		0.63	ND	0.040	ND	
AA-3	11WAS-001-AA	2/17/2011	Primary	Outdoor Air	1.7	0.17			0.13	ND		0.099	ND		0.50	ND	0.032	ND	
AA-3	11-WAS-004-AA	2/24/2011	Primary	Outdoor Air	3.6	0.19			0.15	ND		0.11	ND		0.55	ND	0.036	ND	
AA-3	11-WAS-046-AA	5/18/2011	Primary	Outdoor Air	1.5	0.21			0.17	ND		0.12	ND		0.61	ND	0.040	ND	
AA-3	11-WAS-056-AA	6/23/2011	Primary	Outdoor Air	1.2	0.23			0.18	ND		0.13	ND	0.7	0.67		0.043	ND	
AA-3	11-WAS-062-AA	10/20/2011	Primary	Outdoor Air	0.76	0.20			0.16	ND		0.12	ND		0.59	ND	0.038	ND	
AA-3	12-WAS-073-AA	2/15/2012	Primary	Outdoor Air	2.3	0.19			0.15	ND		0.11	ND		0.55	ND	0.036	ND	
AA-4	10WAS159AA	5/11/2010	Primary	Outdoor Air	4	0.25			0.2	ND		0.15	ND		0.74	ND	0.048	ND	

Cumulative SSD/SVE OM&M and VI Assessment Sampling Results (2008 - 2012)

Wendell Avenue Site

Location ID	Sample ID	Sample Date	Sample Type	Matrix	Tetrachloroethene (µg/m3)			Trichloroethene (µg/m3)			cis-1,2-Dichloroethene (µg/m3)			trans-1,2-Dichloroethene (µg/m3)			Vinyl chloride (µg/m3)		
					Result	MRL	Data	Result	MRL	Data	Result	MRL	Data	Result	MRL	Data	Result	MRL	Data
Remediation System Effluent Samples																			
SVE-1	10WAS139ES	5/7/2010	Primary	Effluent	240000	320		1200	260		580	190			190	ND		120	ND
SVE-1	10WAS140ES	5/7/2010	Primary	Effluent	280000	280		1200	220		630	160			160	ND		100	ND
SVE-1	10WAS141ES	5/7/2010	Primary	Effluent	220000	260		1000	200		490	150			150	ND		97	ND
SVE-1	10WAS142ES	5/8/2010	Primary	Effluent	220000	270		990	210		480	160			160	ND		100	ND
RS-1	11WAS-002-ES	2/17/2011	Primary	Effluent	130000	570			450	ND		330	ND		330	ND		210	ND
RS-1	11-WAS-012-ES	2/25/2011	Primary	Effluent	120000	360		330	280			210	ND		210	ND		140	ND
RS-1	11-WAS-055-ES	5/19/2011	Primary	Effluent	57000	220			170	ND		120	ND		120	ND		81	ND
RS-1	11-WAS-057-ES	6/24/2011	Primary	Effluent	97000	350		450	280		260	200			200	ND		130	ND
RS-1	11-WAS-059-ES	7/1/2011	Primary	Effluent	93000	360			280	ND		210	ND		210	ND		140	ND
RS-1	11-WAS-060-ES	7/22/2011	Primary	Effluent	130000	450			350	ND		260	ND	2700	260			170	ND
RS-1	11-WAS-071-ES	10/21/2011	Primary	Effluent	44000	120			94	ND		69	ND	440	69			44	ND
RS-1	11-WAS-072-ES	12/20/2011	Primary	Effluent	22000	71			56	ND		42	ND	250	42			27	ND
RS-1	12-WAS-079-ES	2/15/2012	Primary	Effluent	14000	85			67	ND		50	ND	140	50			32	ND
RS-1	12-WAS-110-ES	5/15/2012	Primary	Effluent	20000	120			96	ND		71	ND	260	71			46	ND

Notes:

Bold values indicate exceedance of ADEC Target Levels

All samples were collected with Summa™ canisters

µg/m3 = micrograms per cubic meter

MRL = Method Reporting Limit

ND = Not detected above the method reporting limit

See QAR for explanation of data flags

APPENDIX B

CONCEPTUAL SITE MODEL

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Human Health Conceptual Site Model Scoping Form

Site Name: 314 Wendell Avenue, Fairbanks, Alaska

File Number: Hazard ID: 3821

Completed by: OASIS Environmental, Inc.

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

General Instructions: *Follow the italicized instructions in each section below.*

1. General Information:

Sources *(check potential sources at the site)*

- | | |
|--|---|
| <input type="checkbox"/> USTs | <input type="checkbox"/> Vehicles |
| <input type="checkbox"/> ASTs | <input type="checkbox"/> Landfills |
| <input type="checkbox"/> Dispensers/fuel loading racks | <input type="checkbox"/> Transformers |
| <input type="checkbox"/> Drums | <input checked="" type="checkbox"/> Other: Former Dry Cleaning Operations |

Release Mechanisms *(check potential release mechanisms at the site)*

- | | |
|--|--|
| <input checked="" type="checkbox"/> Spills | <input checked="" type="checkbox"/> Direct discharge |
| <input checked="" type="checkbox"/> Leaks | <input type="checkbox"/> Burning |
| | <input type="checkbox"/> Other: |

Impacted Media *(check potentially-impacted media at the site)*

- | | |
|---|---|
| <input checked="" type="checkbox"/> Surface soil (0-2 feet bgs*) | <input checked="" type="checkbox"/> Groundwater |
| <input checked="" type="checkbox"/> Subsurface soil (>2 feet bgs) | <input checked="" type="checkbox"/> Surface water |
| <input checked="" type="checkbox"/> Air | <input type="checkbox"/> Biota |
| <input checked="" type="checkbox"/> Sediment | <input type="checkbox"/> Other: |

Receptors *(check receptors that could be affected by contamination at the site)*

- | | |
|--|---|
| <input checked="" type="checkbox"/> Residents (adult or child) | <input checked="" type="checkbox"/> Site visitor |
| <input checked="" type="checkbox"/> Commercial or industrial worker | <input checked="" type="checkbox"/> Trespasser |
| <input checked="" type="checkbox"/> Construction worker | <input checked="" type="checkbox"/> Recreational user |
| <input type="checkbox"/> Subsistence harvester (i.e. gathers wild foods) | <input type="checkbox"/> Farmer |
| <input type="checkbox"/> Subsistence consumer (i.e. eats wild foods) | <input type="checkbox"/> Other: |

2. Exposure Pathways: *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

If the box is checked, label this pathway complete:

Complete

Comments:

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☐

If both boxes are checked, label this pathway complete:

Comments:

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future? ☒

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☒

If both boxes are checked, label this pathway complete:

Complete

Comments:

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future?

☒

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities).

☒

If both boxes are checked, label this pathway complete:

Complete

Comments:

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods?

☒

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)?

☐

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.)

☒

If all of the boxes are checked, label this pathway complete:

Comments:

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.)

☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)?

☒

If both boxes are checked, label this pathway complete:

Complete

Comments:

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminated soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures)



Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)?



If both boxes are checked, label this pathway complete:

Complete

Comments:

3. Additional Exposure Pathways: *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are assumed to be protective of this pathway.

Check the box if further evaluation of this pathway is needed:

☐

Comments:

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are assumed to be protective of this pathway.

Check the box if further evaluation of this pathway is needed:

☐

Comments:

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM₁₀). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.
- Chromium is present in soil that can be dispersed as dust particles of any size.

Generally, DEC direct contact soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because it is assumed most dust particles are incidentally ingested instead of inhaled to the lower lungs. The inhalation pathway only needs to be evaluated when very small dust particles are present (e.g., along a dirt roadway or where dusts are a nuisance). This is not true in the case of chromium. Site specific cleanup levels will need to be calculated in the event that inhalation of dust containing chromium is a complete pathway at a site.

Check the box if further evaluation of this pathway is needed:

☐

Comments:

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed:

☒

Comments:

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

APPENDIX C

SFY 2012 FIELD NOTES AND DATASHEETS

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CONTENTS

PAGE

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Coc

And

Will

Jin

65 °F, Sun

Rhodes

Wendell Ave

9-21-11

1205 Rhodes on-site to perform O&M check. Upon arrival find that the SVE & SSD systems are not operating:

- VFD's have OL3 error message, exactly what happened in July.
- Both SVE & SSD "system running" indicator lights are illuminated, Not the "SVE fault" or "SSD fault"
- Hourmeters are both still running, no idea how long systems have shut down.

1220 Start up SVE & SSD blowers and bring up to operating speeds will call JT for suggestions.

1230 Notice that hissing sound is coming from SVE-2, 3 & 4 Monuments. fairly significant amount of air being pulled into monument, should probably try to find source of vacuum.

1250 Will perform O&M on 9-22-11 Rhodes off-site.

WR

Will Rhodes 9-21-11

Notes on this form

1/1

9-22-11

50°F, Cloudy

Wendell Ave

Rhodes

1200 Rhodes on-site to perform O&M check. See O&M Data sheet for results. Following O&M routine, will try to determine "Leaking" SVE well locations.

1530 O&M check complete, begin investigating "Leaky" SVE Well monuments.

1540 Weller on-site.

- Air flow can be heard seeping through monuments @ SVE-2, 3, 4.
- After pulling monument lid on SVE-2, no apparent source of leak.
- decide that leak must be short circuiting effect, air is being pulled along casing and/or through pea gravel in annular space.
- Poured 5-gal of H₂O into monument; leaking stopped momentarily and began again within 1 minute

1620 Rhodes & Weller off-site.

With Rhodes

WR

35°F, cloudy

Wendell Ave

10-14-11

Rhodes
Ballou

1200 OASIS on-site to locate & remove Temp. Loggers associated w/ pore water samplers.

1245 Recover Temp logger @ PW-4.
Rebury pore water sampler.

1315 Cannot locate pw-2 sampler, no tubing present. Move on to PW-5

1330 Locate & recover Temp logger @ PW-5. Attempt to locate PW-8 & 9. Channel & bar have changed and apparently scoured & eroded PW-8 and 9. Locations were in 1.5 to 2.5 feet of water, channel drops steeply, closer to the bank relative to last fall during installation.

1400 OASIS off-site.

With Rhodes 10-14-11

11/11

30°F, Clear

10-20-11

Wendell Ave

Rhodes

1605 Rhodes on-site to set out 24 hr Air
Samples (Summa), IA-7, IA-8 & AA-3.

1610 Set out Summa @ AA-3

ID: 11-WAS-062-AA @ 1610, 10-20-11

Canister 5753

Initial Vac 27

Final vac 4.5

Pickup Date/Time 1610, 10-21-11

1620 Set out Summa @ IA-8

ID: 11-WAS-063-IA @ 1620, 10-20-11

Canister 12713

Initial Vac 27

Final vac 7.5

Pickup Date/Time 10-21-11, 1620

1630 Set out Summa & Duplicate @ IA-7

Primary ID: 11-WAS-064-IA @ 1630, 10-20-11

Canister 35144

Initial Vac 27.5

Final Vac 6

Duplicate ID: 11-WAS-065-IA @ 1640, 10-20-11

Canister 32118

Initial Vac 27

Final Vac 5.5

Pickup Date/Time 10-21-11/1630

With Rhodes 10-20-11

1/1

10°F, Clear

Rhodes
Weller

Wendell Ave

10-21-11

0745 OASIS on-site for VI Assessment

and OM&M, calibrate RKI Eaye, Tailgate
Safety Meeting

0805 Rig up on SS-4

Pre-purge pressure/vac - 1.578 "wc Vac

manifold leak check - OK

Helium leak check - 5.5%/70% = 7.8% OK

air purifier is running

Hex: 600 ppm O₂ 20.4% CO₂ 0.0%

ID: 11-WAS-066-SS @ 0840, 10/21/11

canister 34327

initial vac 27

final vac 5

0840 Rig up on SS-5

Pressure/Vac - 0.027 "wc vac

Manifold Leak Check OK

did not notice any chemicals stating they
contain chlorinated solvents - see photos

Helium Leak check - OK, 8.8%

Hex: 870 O₂: 19.9 CO₂: 0.0

ID: 11-WAS-067-SS @ 0910, 10-21-11

Canister 35278

Initial Vac 27 Final Vac 6.5

With Rhodes 10-21-11

1/3

10-21-11

10°F, Clear

Wendell

Rhodes
Weller

0915 Rig up on SS-6

Pressure/Vac - 0.322 in Hg Vac

Manifold Leak check - OK

Helium Leak check - 0.3%/70% = 0.4% - OK

Hex: 25ppm O₂: 20.9% CO₂: 0.0%

Primary ID: 11-WAS-068-SS @ 0940, 10/21/11

canister 14123

initial vac 27

final vac 2

Duplicate ID: 11-WAS-069-SS @ 1000, 10/21/11

canister 22512

initial vac 27

final vac 2 (1 liter summa,
5 minute regulator)

1000 Rig up on SG-3 @ 8'

Pressure/Vac - 0.663 in Hg Vac

Manifold Leak check - OK

Helium Leak check - OK, 0%

Hex: 45 O₂: 20.9 CO₂: 0.2

ID: 11-WAS-070-SG @ 1030, 10-21-11

Canister 34586

Initial Vac 27

Final Vac 2

1015 Weller off-site

(2/3)

Dillon Rhodes 10-21-11

20°F, Clear

Rhodes

Wendell

10-21-11

1115 Rig up on Exhaust Stack (1 liter summa)

Manifold Leak check - OK

ID: 11-WAS-071-ES @ 1125, 10-21-11

Canister 35653

Initial Vac 26

Final Vac 1.5

* Vacuum dropped very quickly upon opening valve on summa canister, only took several seconds to drop to Final Vac. Noshok gauge read 0.0, Air Tox. supplied gauge read 1.5" Hg.

1145 Begin SSD/SVE O₂ check.

See Data sheet for results.

1400 Weller on-site w/ shop vac to

Remove Condensate from SVE

Lines. pulled ~6 gal of water

from SVE-2, 3 & 5. Found that

SVE-4 was cracked at the T using

a camera snake. Apparently

crushed during lot grading.

1700 OASIS off-site

Dillon Rhodes 10-21-11

(3/3)

Return to the Norm

+20°F, cloudy

10/25/11

SFV 2012 Wendell Ave

Weller

Oct. 2011 VI sample summary

ID (11-WAS-)	location	time	date	analysis
06A- C				
062-AA	AA-3	1610	10/20/11	TO-15 SIM
063-IA	IA-8	1620	10/20/11	TO-15 SIM
064-IA	IA-7	1630	10/20/11	TO-15 SIM
065-IA (dup)	IA-7	1640	10/20/11	TO-15 SIM
066-SS	SS-4	0840	10/21/11	TO-15
067-SS	SS-5	0910	10/21/11	TO-15
068-SS	SS-6	0940	10/21/11	TO-15
069-SS (dup)	SS-6	1000	10/21/11	TO-15
070-SG	SG-3e8'	1030	10/21/11	TO-15
071-ES	exhaust stack	1125	10/21/11	TO-15

* see note regarding 11-WAS-071-ES on
page 3 of 3 from 10/21/11 entry *
shipped on air bill 8723 1427 1184

+25°F, snow

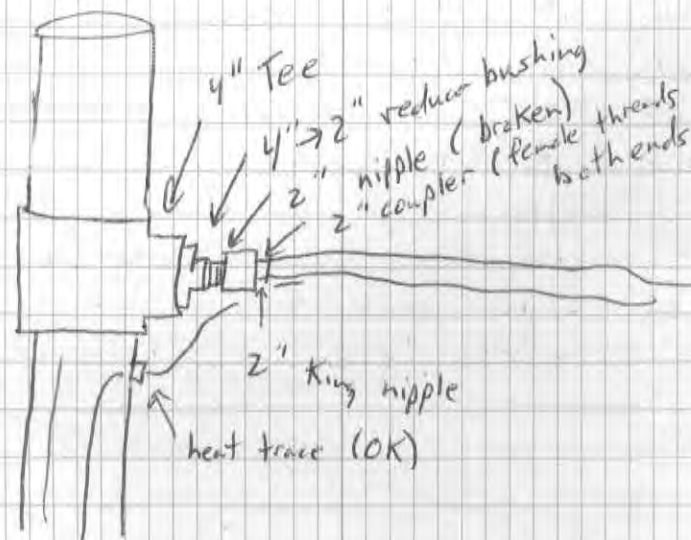
Weller

Wendell Ave

10/26/11

0800 Pick up jackhammer + generator
from Independent Rental

0815 Onsite to repair SVE-4
Heat trace in SVE-4 is operating
in well. Turn off all heat trace
as precaution. Tailgate Safety Meeting.
Conc and snow fence around SVE-4.
Shut off flow to SVE-4. Expose 4"
Tee on SVE-4. 2" nipple coming out



of 4" → 2" reducer bushing is broken. Well
appeared to have sunk ~1". Suck out small
amount of pea gravel from Tigerflex

Andrew Weller

4/2

+25°F, Snow

10/26/11

Wendell

Weller

1130 W. Rhodes onsite to assist. Pickup another 4" Tee, 4" Coupler, 4" → 2" reducer bushing, and 2' nipple and 4" pipe. Cut riser below Tee, install coupling, and 4" pipe. Install 4" pipe into Tee and tap for, heat trace vapor tight fitting, use same pipe above tee. Install heat trace (Had to cut end and install new termination, Test well-OK, Backfill and turn on heat trace on all wells and utilidor, Compact with 2x4 and van. Did not have to remove monument. Put 4 each, 5 gallon buckets of frozen material that could not fit in excavation behind Jersey Barriers by propane tank.

1630 Offsite

2/2

Andrew Z. Weller

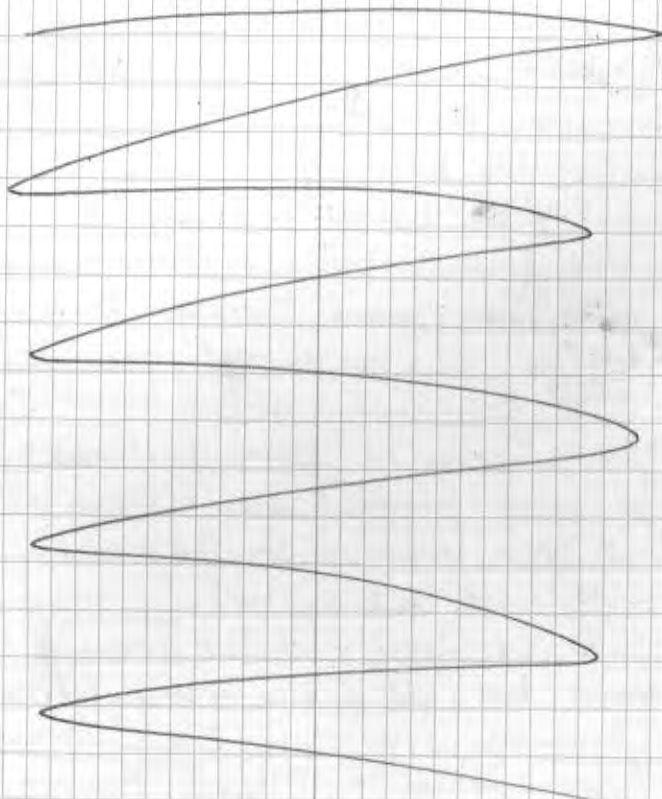
+5°F, Sun

Weller

Wendell O+M

11/29/11

1115 Weller onsite for monthly O+M. Calibrated RKS Eagle prior to leaving office. Tailgate Safety Meeting. Remove SVE well caps and pull water with Shy-Vac prior to check. → Did not get @ after any water. Tried on SVE-2,3,4,5.
1515 offsite



Andrew Z. Weller

12 (a)
10-20-11 20°F, overcast
Wendell Ave Rhodes

1030 Rhodes onsite to perform.
Monthly O&M event. Will also
collect Exhaust Stack Sample. See
O&M Data Sheet for O&M data.

1045 Rig up for Exhaust stack
Sample.

- Manifold leak check - OK

1110 Collect ES Sample

ID: 11-WAS-072-ES @ 1110, 12-20-11
Canister 8007

Initial Vac 28.5 "Hg

Final Vac ~~4.0 "Hg~~^{WR} 3.5 "Hg

* Vac dropped quickly when sample
valve was opened. Dropped from initial
to final in a matter of seconds.

— Summary Notes —

Opened ferroc on DW-6 & chunks of
ice were present on bottom of
well. No obstruction to screen
✓ SVS lines 2 & 3, hot to touch,
lines increasingly cooler from 2 to 6.
Must be heat trace accumulation

- Cleaning will close Jan - March 2012
1530 Rhodes off-site

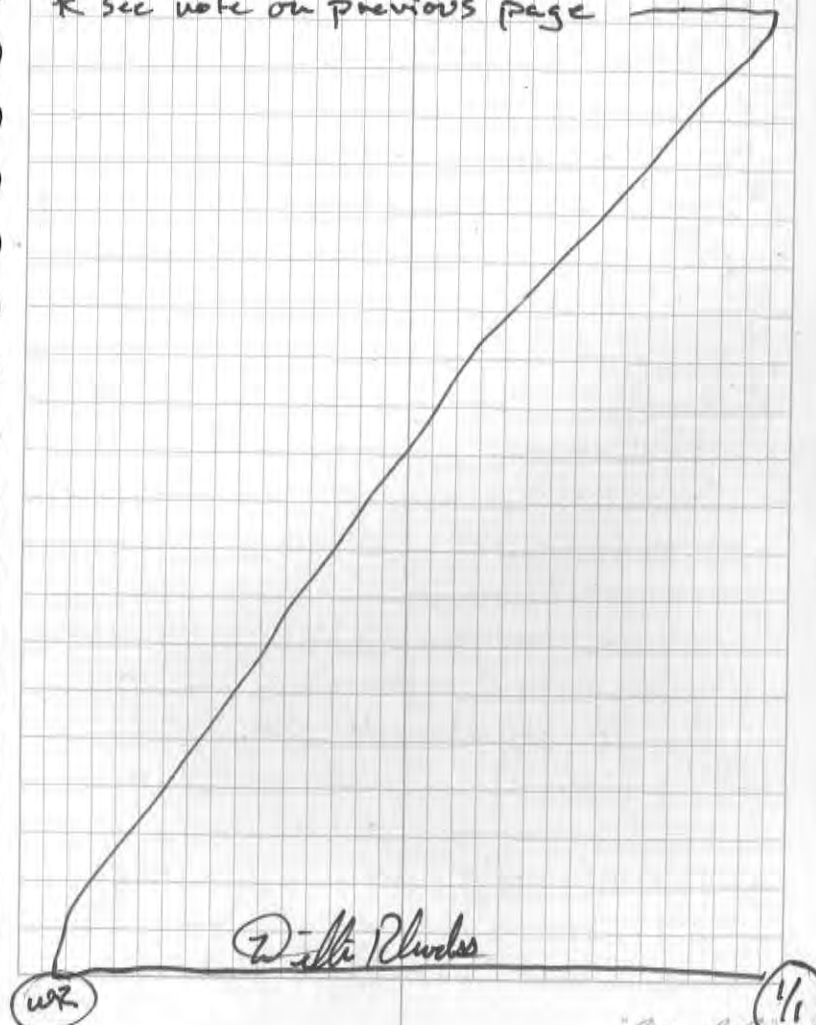
With Rhodes

- 20°F
Rhodes Wendell Ave 12-27-11

December 2011 Sample Summary

ID	Location	Time	Date	Analysis
11-WAS-072-ES	ES	1110	12-20-11	TO-15

* See note on previous page



1-10-11

20°F, Cloudy
Wendell AveBarnes
Rhodes

1600 Rhodes on site w/ D. Barnes
To collect Thermistor Data logger
and Baro logger

1635 Instruments located and
collected. Rhodes/Barnes off-site

Della Rhodes

4/1

WR

Rhodes
Davis-40°F, Clear w/ ice fog
Wendell Ave

1-18-12

1015 Rhodes & Davis on-site to
Perform SVE/SSD O&M check.
Complete tailgate safety meeting
→ Get to work!

See O&M Data sheet for
inspection Details / Results.

1300 Take lunch Break

1345 Back on-site. continue w/ soil
gas points.

1515 Rhodes & Davis complete O&M
off-site

Della Rhodes

WR

1/1

"Not in the house"

-30°F
1-31-12 Wendell Ave Weller
Rhodes
1330 OASIS on-site to inspect
SVE/SSD system status following
Extreme cold weather (-50°F
and colder)
System operating as normal.
Slight Condensate in SVE-5, and
DW-4, and SVE-2, Not problematic.

1350 OASIS off site

Weller Rhodes

+10°F
2-15-12 Wendell Ave Bullock
Rhodes

0945 OASIS on site to clo OASIS
and VI.

Laundry mat closed since 11/12

0950 Set up for Ambient Air

Sample. ¹⁸IA-AA

1000 Collect ~~ES~~ Sample @ 443

10:12 WAS-073-AA @ 1000, 2-15-12

canister: 25238

initial vac: 29

Final Vac: 3.5

Pick up Date/Time 2/16/12 @ 1000

1005 Rig up on IA-8 w/ Duplicate

Primary ID: 12-WAS-074-IA @ 1010, 2-15-12

Canister 5589

Initial Vac 29.5

Final Vac 6.5

Pick up date & time - 2/16/12 @ 1010

Duplicate ID: 12-WAS-075-IA @ 1020, 2-15-12

Canister 5698

Initial Vac 28

Final Vac 10

~~1020~~ ^{WR} Pick up date & time - 2/16/12 @ 1010

Murphy

+10

Bulku
Rhodes

2/15/12

Wendell

1020 Rig up on SS-4 w/ Duplicate

- Pre-purge Vac - 1.686 Vac ("WC)
- Manifold leak check - OK
- Helium leak check - $4.2\% / 70\% = 6\%$

Hex: 620 O₂: 20.1 CO₂: 0.0

ID: 12-WAS-076-SS @ 1240, 2-15-12

Canister 5753

Initial Vac 27.5

Final Vac 0.5

Dup ID: 12-WAS-077-SS @ 1250, 2-15-12

Canister 36039

Initial Vac 27.5

Final Vac 1.5

1315 Begin rigging up on SG-3 @ 8.0'

Pre-purge Vac: 0.462 "WC Vac

Manifold leak: OK

Helium leak check: $6\% / 70 = 8.5\%$ Hex: 35 O₂: 20.9 CO₂: 0.0

ID: 12-WAS-078-SG @ 1410, 2-15-12

Canister 33901 (6 liter Summa (and))

Initial Vac 27.5

Final Vac 3

ID: 12-WAS-079-ES @ 1545, 2-15-12

Canister: 34668

Initial Vac 27 Final Vac 4.5

(243)

(119)

Ballan
Rhodes

Wendell

2/15/12

Manifold leak check was ok on ES

1350 Complete O₂M check.1645 O₂M complete

See data sheet

OASIS off site.

Mallin Ballan

(113)

(3/3)

+105

2/16/12

0945

Wendell

Ballou

Ballou on site to
pick up 24-hr Summa
VI canisters from 2/15/12

1020

off site

Neel Ballou

(Y1)

(B)

Ballou

Wendell

2/16/12

Feb 15, 2012 VI Samples:

ID (12-WAS)	Location	Time	Date	Analysis
073-AA	AA-3	1000	2/15/12	TO-15 S/M
074-IA	IA-8	1010	2/15/12	TO-15 S/M
075-IA	IA-8	1020	2/15/12	TO-15 S/M
076-SG	SGSS-4	1240	2/15/12	TO-15
077-SS	SS-4	1250	2/15/12	TO-15
078-SG	SG-3	1410	2/15/12	TO-15
079-ES	ES	1545	2/15/12	TO-15

PS. 12-WAS-078-SG taken with
6 liter Summa - @

Neel Ballou

(Y1)

(B)

0°F, overcast

3/12/12

Wendell SVE

Weller

1020 Weller on-site to replace SS-4 and SS-5 in ES Laundromat. (SS-4 has bad threads + seal, SS-5 does not penetrate slab) This work is a mod under SFY2011 contract. Have tailgate safety meeting. See below Shovel show from front doors of cleaners and SVE units.

Photo 1033 - SS-5 existing

Photos 1030-1032 - cracks in SW corner of storage room behind front desk

Photo 1029 - SS-4 existing

1200 Finish removing both probes. Both probes were older Parker-Brand fittings. Replace with Swagelok $\frac{1}{4}$ " SS tubing with and $\frac{1}{8}$ " NPT Female adapter (Swagelok P/N SS-400-7-2)

Hex plug (P/N SS-2-HP)

SS-4 slab is $\sim 4\frac{1}{4}$ " thick - trimmed carpet + padding ~ 1 " around hole, - no cracks in slab there

SS-5 - slab is ~ 4 " thick here. Drilled to 1' below slab to see if additional concrete exists - none, Conclusion - SS-5 did penetrate slab, but probe was plugged.

(1/2) Andrew Z. Weller

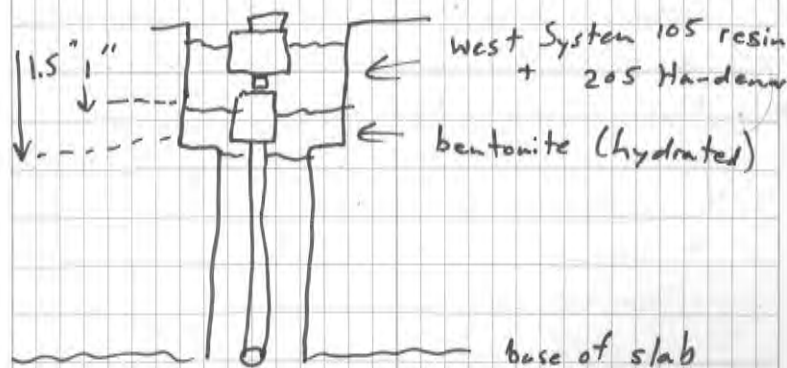
10°F, overcast

Weller

Wendell SVE

3/12/12

completed SS-4 and SS-5 according to following figure



- Epoxy in place at 13:30 - touch-up paint on floor around SS-5 (can of grey spray paint in back room)
- Placed cement cuttings + old probes in SAA 1400 offsite

Andrew Z. Weller (2/2)

+10°F, Sun

3/13/12

Wendell

Weller

1230 Onsite to shovel out/locate monitoring wells PW locations - Tailgate safety meeting - Locate pore water spring tie points - place OSHA cap over rebar - mark all with lathe. Locate and dig out MW10S/M, MW4S/M/D, MW11S/M, MW12S/M/D
1515 offsite

(1/1)

Andrew Z. Weller

+10°F, overcast

Weller

Wendell

3/14/12

1015 0920 Pick up 1 closed-top and 1 open-top 55-gallon drums from Emerald.
1015 onsite - tailgate safety meeting. Continue locating and digging out wells.
1200 Lunch
1230 Back at it, finish locating and digging out monitoring wells and soil gas points. (ESL roof was shoveled yesterday - see photos of snow piles). Also shoveled access to unit and cleared snow off utilidor. Staged drums with labels under shed roof N of unit (SAA).
1415 offsite

Today dug out MW8S/D, MW9S/M, PP-5, MW-6, MW-7, MW-5, PP-2, PP-3, MW-1

Andrew Z. Weller

(1/1)

3/15/12

00F, sun

Wendell

Weller

0945 Weller onsite to open walls, check TD's (ice buildup) - tailgate safety meeting.

Well	time	TD	comments + DTW
MW-1	1602	14.80	13.83, need 1, 3/16" bolt
PP-2	1130	12.89	dry, microwell
PP-5	1600	21.24	17.17, microwell
MW-1	1145	19.61	13.20, need two, 9/16" bolts
MW-4S	1625	19.68	12.03, PT, BL
MW-4M	1615	29.87	11.87, PT
MW-4D	1640	29.43	11.73, PT
MW-5	1114	14.90	14.22, need 1.5" well cap
PP-2 Ant to ice @	5.7'		
MW-7	1015	14.62	14.38, need 1, 9/16" bolt
MW-8S	1545	14.57	13.95, PT
MW-8D	1525	39.70	13.92, PT
MW-9S	1510	14.88	13.80, PT
MW-9M	1455	29.93	13.84, PT
MW-10S	1650	16.15	11.29
MW-10M	1700	24.92	11.29
MW-11S	1710	16.26	9.57
MW-11M	1730	24.95	9.76
MW-12S	1425	19.68	12.78, PT
MW-12M	1445	29.76	12.87
MW-12D	1435	39.67	12.82, PT

Adrian 3 Weller

20-11F, sun

Weller

Wendell

3/15/12

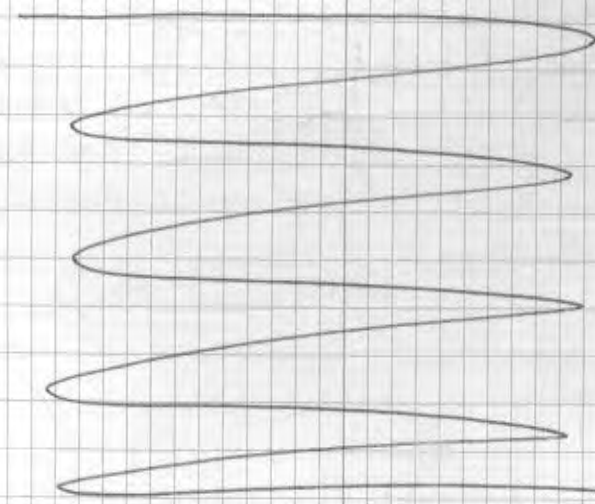
MW-1 casing is ~ 1/4" above soil in bottom of monument cover - good chance for surface water run-off to enter casing, although it is in a sloped, paved parking lot also need 2" well cap for MW-1

1200 offsite

1410 Back onsite

- MW-8S needs to be retapped to help keep out meltwater

- Some hear frost on barometer in MW-4S
1800 offsite



Adrian 3 Weller (3/15/12)

+10°F, Sun

3/16/12

Wendell

Weller

0900 Weller onsite - use PVC cement to glue on coupler and additional pipe to raise MW-1 ~ 6" to help keep out surface water. Open PP-2 and gauge - ice at 5.7'. This monument is difficult to remove and close

1500 make up Pressure transducer assemblies for MW-1, MW-11S, and MW-11M in office

All are programmed to begin recording at 1800 today and record in 6 hr increments.

MW depth of Pressure initial DTW final DTW Pressure transducer below and time and time transducer top of casing

MW	depth	Pressure	initial DTW	final DTW	Pressure	transducer below	and time	and time	transducer	top of casing	Serial #
MW-1	15.01'	13.61'	17:20	13.61'	17:25	0022005622					
MW-11S	15.01'	9.58'	17:03	9.57'	17:10	0022006032					
MW-11M	15.02'	9.74'	17:03	9.74'	17:10	00210 33888					

1730 offsite

(1/2)

Robert J. Weller

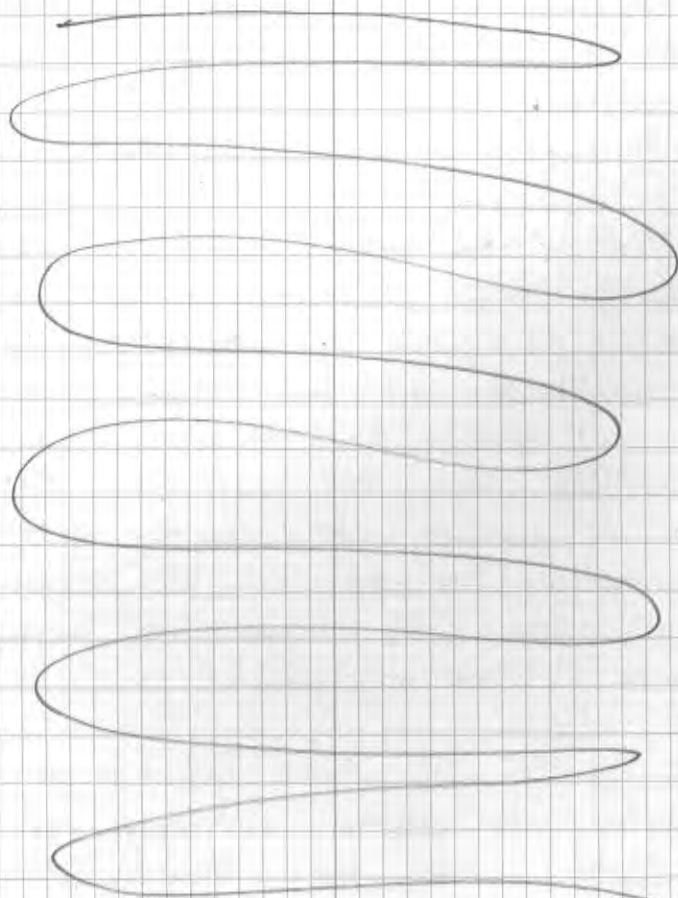
+10°F, Sun

Weller

Wendell

3/16/12

Leslie Davis did an O&M check today - calibrated RKE Eagle in morning - tailgate safety meeting - Davis onsite from 1015 - 1510 - see O&M data sheet.



Robert J. Weller

Return the 1/2 (2/2)

+5°F, Sun

3/26/12

Wendell

Weller

0800 Pick up ice auger at Rental Zone

0830 Onsite - tailgate safety meeting
Park at Immaculate Conception Church
and sled equipment

Auger through ice for porewater sampling tomorrow.

PW-2 - no ice, silt bank directly under
snow cover

PW-3 - ~4^{1/2}" of ice, grounded

PW-9 - ~2.2' of ice, grounded

- tried to pound rod into frozen silt
riverbank with hand sledge, no go,
need jackhammer tomorrow.

- drilled hole 30' out from PW-2
for surface water elevation later
today. Ice here is 1.3' thick*

- Spoke with C. Black and left message
with J. Fish re: grounded ice.

1100 offsite

1215 onsite with Nellie Ballou to get
surface water elevation and gauge wells.

* did not totally break through bottom
of ice - just enough that water

(1/2)

Andrew Z. Weller

Ballou

Weller

+15°F, Sun

Wendell

3/26/12

infiltrated the hole

Height from transit to surface water
17.40'

* Height from transit to PW-3 - 19.98'

* Height from transit to PW-9 - 18.04'

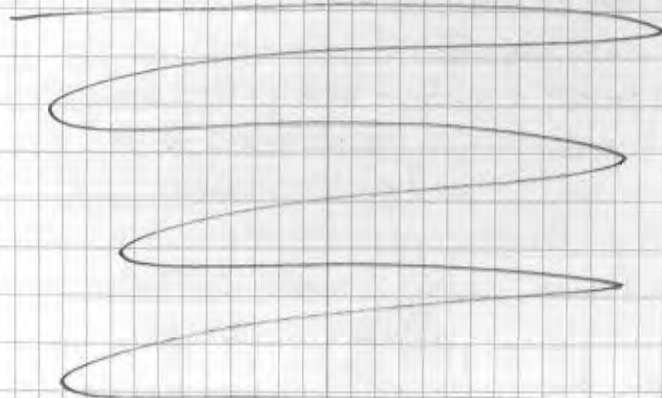
* Height from transit to PW-2 - 19.00'

Height from transit to MW-4m TOC - 4.56'

Begin gaging DTW in wells
see data sheet

1600 empty gloves and decan water in
drums behind unit (SAA) - started
270 day dock

* The heights are from the transit
to the silt bank elevation.



Andrew Z. Weller

(2/2)

3/27/12

+ 100°F, sun

Wendell Ave

Ballou
Weller

0950 Weller, Ballou onsite for groundwater

Sampling - calibrated YSI + ODO meter
(YSI ProODO meter) in morning

0955 Tailgate safety meeting

Rig up on MW-1

Took primary sample 12-WAS-083-GW

@ 10:25, 3/27/12

see sample data sheet

1115 Rig up on MW-10M

Primary sample 12-WAS-084-GW

@ 1135, 3/27/12

see sample data sheet

1215 Rig up on MW-4M

Primary sample 12-WAS-085-GW

@ 1250, 3/27/12

1335 Rig up on MW-11M

took 3 extra VOA's for MS/MSD

Primary sample 12-WAS-086-GW

@ 1410, 3/27/12

1515 Rig up on MW-5

Primary sample 12-WAS-087-GW

@ 1555, 3/27/12

Place IDW in CAA

1640 offsite

(1/1) Aden Z Weller

Davis
Weller

+ 150°F, sun

Wendell

3/28/12

0930 calibrate YSI 556 + YSI

Pro Odo meter in office.

Today will sample MW-12M, MW-9M,
MW-6, MW-8S

1100 onsite - tailgate safety meeting

1130 Rig up on MW-12M

Take duplicate for VOC's here

Primary ID: 12-WAS-088-GW @ 1220, 3/28/12

Duplicate ID: 12-WAS-092-GW @ 1240, 3/28/12

1300 Rig up on MW-9M

Primary ID: 12-WAS-089-GW @ 1345, 3/28/12

Duplicate ID: 12-WAS-093-GW @ 1400, 3/28/12

Duplicate for VOC's only

1445 Rig up on MW-6

Primary ID: 12-WAS-090-GW @ 1530, 3/28/12

1616 Rig up on MW-8S

ID: 12-WAS-091-GW @ 1705, 3/28/12

put purge water and sampling gear
in CAA

- see data sheets for today

1745 offsite

Aden Z Weller

3/29/12

+200°F, sun

Wendell

Davis
Weller

1130 Davis + Weller onsite for parameter sampling - calibrated YSI earlier, tailgate safety meeting onsite.

Screens are stainless steel, 6" long, poly tubing to surface

- decessed rod in morning
- bottom of screen is 1.5" above the bottom of the rod when the screen is in the rod

PW-2 - rod is 3' long

- drive rod tip 18" below bank at PW-2 with gas powered jack hammer

- pull up rod ~ 8" - screen appeared to stay in place

- tried to pull H₂O, no water

- drive rod additional 6" to total of 24" with sledge hammer.

- pull up rod ~ 6"

- tried to pull H₂O, sludge came up, water appeared afterwards very slow recharge.

- screen is 1.85 to 1.35 ft. below surface of river bank

1/3

Leslie Davis

3/29/12

+35°F, sun

Wendell

Davis
Weller

- Took sample at PW-2

LD 12 - WAS-080-PW

© 1320

- Pulled out rod, screen came out too. Actual sample depth was about 1.6 ft below river bank surface.

~~PW-3~~ Drive rod at PW-3

Drive down 29". Pulled up 5". Tried to pump - no H₂O.

Disposable tip unthreaded while driving. Pulled out tubing and re-ran.

- Tried again w/ retractable tip. No go, plugged up w/silt. run again w/ screen.

- Drove down 2.1 ft.

- pulled up to 1.7' no water

- pulled out rod, screen stayed in place. Let screen soak. Moved to PW-9

PW-9 - Drove down 2'

- Pulled up to 1.8 ft. got H₂O. Ripped up sample.

Leslie Davis

Return the box 7/3

3/29-12

35 F, sunny

Wendell

Davis
Weller

- Took sample at PW-9

ID: 12-WAS-081-PW @ 1530

- screen stayed on and left in place

PW-3 - tried pump again, still no H₂O.

- moved over 6" and try again.

- Drove 30" and pulled up 6" no H₂O, screen sheared due to tough ponding

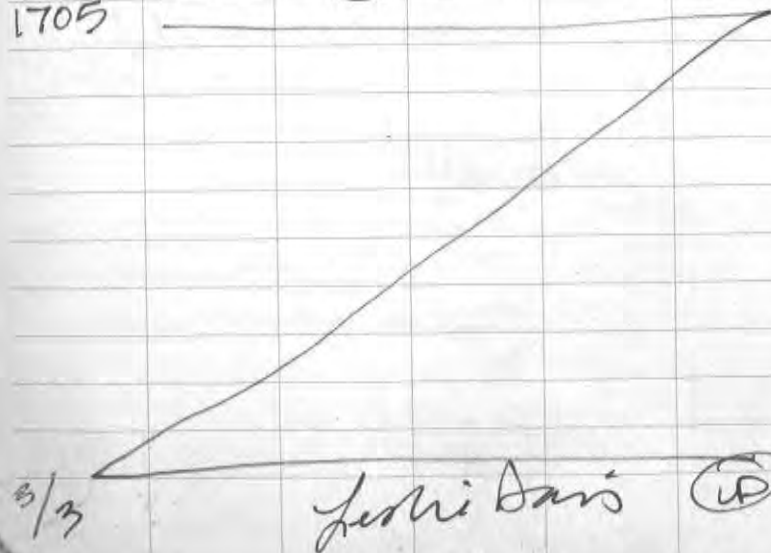
- Packed up and heading offsite

- Dumped IDW in CAA

1805 Davis & Weller headed offsite

(D)

1705



Weller

Wendell

3/30/12

- Spoke with Cody Black regarding whether to ^{try to} sample PW-3 again. We will try to sample at PW-10

- Calibrate YSI in morning

- 1000 Weller onsite. Tailgate safety meeting - locate PW-10 - area through

- ice at PW-10 - ice is grounded - ice is 2.15' thick here.

- drive rod with 6" SS screen into silt bank - drove in 2.1' (got softer after ~1') -

- got water here without pulling up. Take sample at PW-10

ID: 12-WAS-082-PW @ 1200, 3/30/12

1230 Take surface water parameters from 30' out into riser from PW-2

Time	Temp (°C)	Spec Cond (µS/cm)	Cond (µS/cm)	DO mg/L	pH	ORP (mV)
1238	1.75	0.245	136	9.03	6.52	40.5
1242	1.68	0.239	132	6.87	5.52	15.9
1245	1.25	0.240	131	6.35	5.94	96.3

These readings are from the flow through cell

The reading below is in situ

1248	0.04	0.237	124	7.22	5.60	125.3
------	------	-------	-----	------	------	-------

8/30/12

+ 25°F, P. Sunny

Weller

Wendell

1300 remove rod. Screen + tubing
remained in hole - cap for possible
future use

1310 Pack up

1330 empty purge water + IDW at CAA

Return ice auger + jackhammer

Pickup ice

1415 R. Bryan onsite to take PW-10 elevation

Height from transit to PW-10 riverbank - 17.88'

Height from transit to MW-4M TOC - 4.46'

1445 offsite

@
(2/2) (2/4) Robert S. Weller

Weller

Wendell

3/30/12

Sample Summary for late March Chena River Monitoring

All wells and porewater locations were
sampled for the following:

VOC's by 8260 (Onsite) - 3 VOA's / sample

TOC by 9060 (Keystone) - 4 VOA's / sample

N:trate/N:trite by 353.2 (Keystone) - 1 poly / sample

Total Mn/Fe (Keystone) - 1 poly / sample

Dissolved Mn/Fe (Keystone) - 1 field filtered poly / sample

Sulfate by 9056 - 1 poly / sample

Alkalinity by 2320

One exception: only two VOA's submitted
for sample 12-WAS-089-GW

Robert S. Weller (3/4)

3/30/12

Wendell

Weller

Sample Summary

location	ID (12-WAS-xxx-xx)	Date	time
MW-1	083-GW	3-27	1025
MW-4M	085-GW	3-27	1250
MW-10M	084-GW	3-27	1135
MW-11M	086-GW	3-27	1410
↑ 3 extra VOC's VOAc for MS/MSD			
MW-5	087-GW	3-27	1555
MW-12M	088-GW	3-28	1220
↑ (dup for VOCs)	092-GW	3-28	1240
MW-9M	089-GW	3-28	1345
↑ (dup for VOCs)	093-GW	3-28	1400
MW-6	090-GW	3-28	1530
MW-8S	091-GW	3-28	1705
PW-2	080-PW	3-29	1320
PW-9	081-PW	3-29	1530
PW-10	082-PW	3-30	1200

Added 12-WAS-094-TB

(1/4)

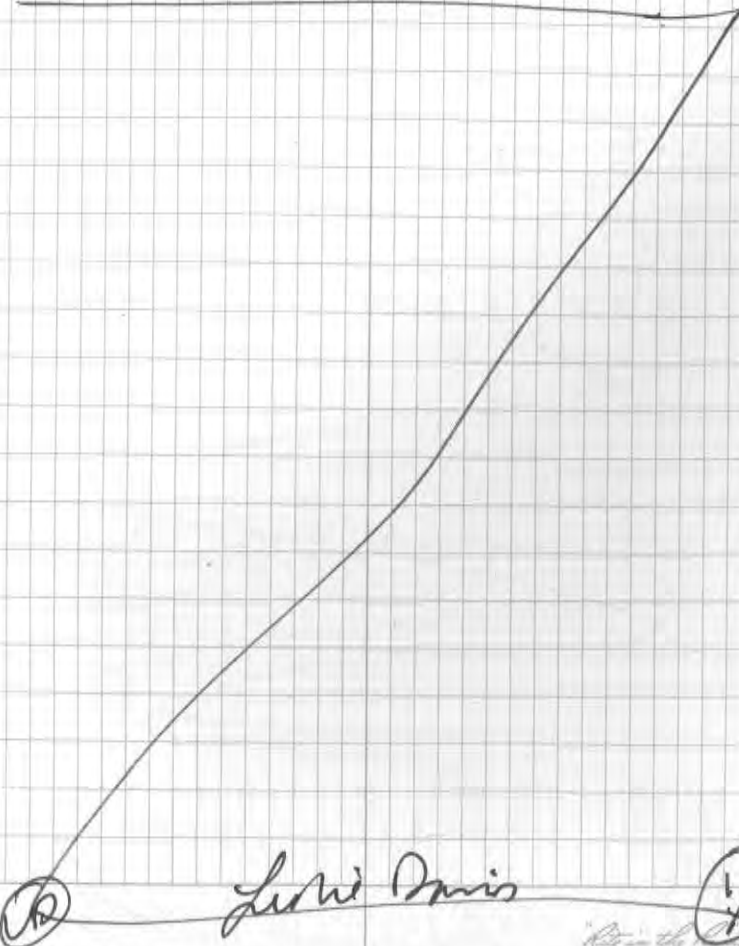
Andrew Z. [Signature]

4-6-12

(10) Davis-Wendell

Davis

12:45 Davis + Weller on site for
 that waste check - ALL secured
 - 1 drum of purge water
 - 1 drum of disposable PPE &
 sampling materials.



(10) Luke Davis (1/1)

+740°F, sun

4/9/12

Wendell

Weller

1200 A. Weller stopped by to pick up
Shop-Vac. No water in any lines.
Haz waste check - two drums secure.
1205 offsite

(11)

Robert Zeller

+750°F, sun

Weller

Wendell

4/12/12

1445 A. Weller onsite to give tour
to ADEC (Janice Weigers, Larry Dietrick,
Bill James, and Steve Bainbridge)
1545 offsite

Robert Zeller

"Robert Zeller"

4-20-12

50°F, sunny

Wendall

DAVIS

10:30 Davis on site for O+M and
Hazard waste check. Calibrated
RKH Eagle. Tailgate safety
performed. See Data sheet.
- ADDED Labels to pre + post
filters.

11:50 - Lunch Break

12:05 - Back to work

15:00 - Finished w/ O+M SG-2
was covered w/ H₂O. Unable to
pump out water due to snow
removal pile directly next to SG-2.
- Haz waste inspection
- 2 drums secure

15:05 - Davis offsite

Leah Davis

+ 50°F, sun

Weller

Wendell

4/24/12

11:15 Weller onsite to gage wells
and take surface water elevation
during high water stage.

- Tailgate Safety meeting
- Using Solinst ~~Opt~~ interface probe
model 101 OASIS# SWL-1

- see data sheet for DTW's

1400 dump decon water, nitrile gloves +
paper towels in CAA. Head to office
to pick up transit, tripod + rod for
Chena surface water elevation.

1430 Return with M. Ballou - got surface
water elevation at PW-2 - found out
that riverbed is frozen

1500 Drop M. Ballou at office

1530 Return to thaw wells

- pumped ~ 4 gallons hot water into MW-1
- cleared MW-5 with ~ 2 gallons hot water
- cleared MW-4M with ~ 2 gallons hot water
- cleared MW-5 with ~ 1 gallon hot water

1715 offsite

Robert Weller

4/25/12

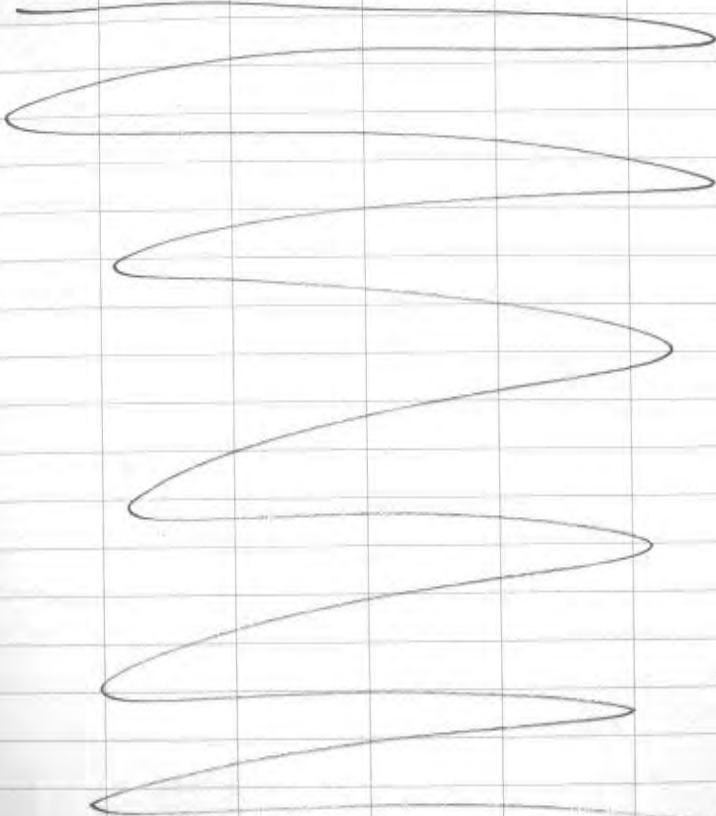
+55°F, sun

Wendell

Weller

0715 Weller tries a test drive with hand-drive Geoprobe and hand-sledge at PW-10 - no go - river bed is frozen

0815 Spoke with C. Black - we will wait until next week to try again



(1/1)

Andrew Z Weller

DAVIS

50°F Sunny

4-27-12

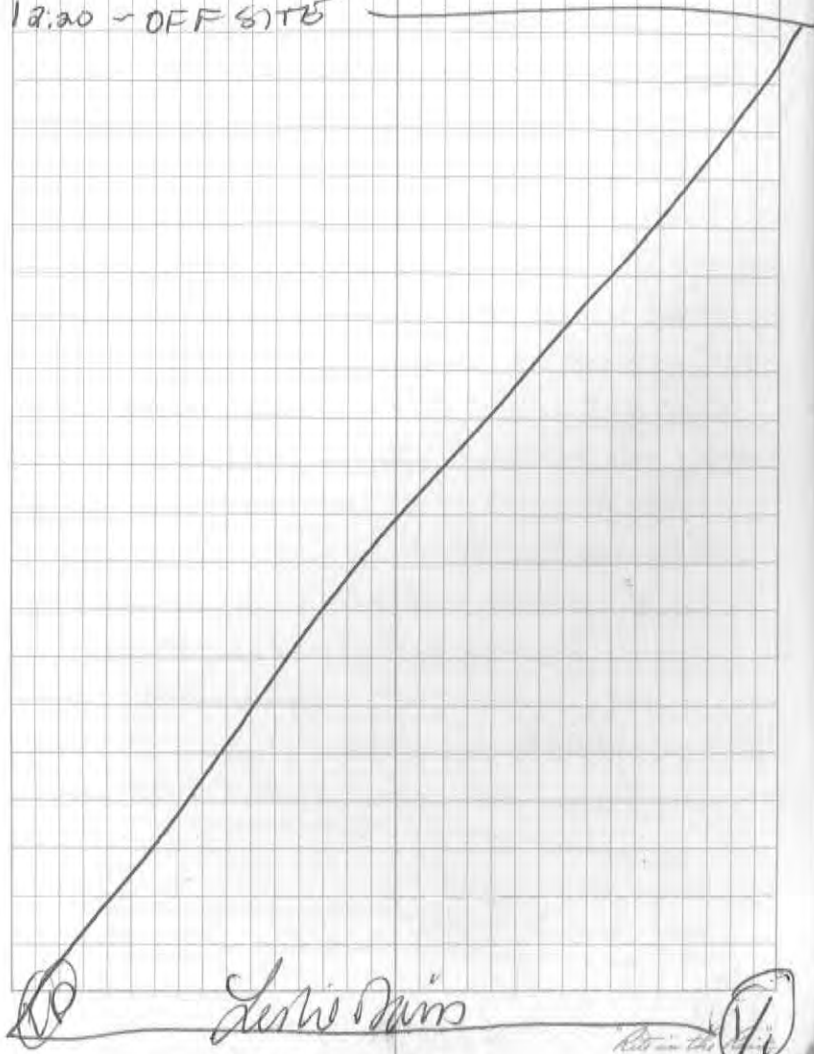
Wendall

4-27-12

12:15 Davis on site for Haz-waste inspection.

- 2 drums secure.

12:20 - OFF SITE



(1/1)

Lester Davis

(1/1)

+40°F, cloudy

4/30/12

Wendell

Weller

0705 Weller checked condition of Chena River-bed. At PW-10 and closer to the bank, there is ~3" of unfrozen silt above frozen riverbed. Tried to drive rod w/ retractable tip w/ hand sledge - no go. At PW-10, water is waist deep.

0720 offsite

- 0900 Discuss sampling with Jim Fish + Caly Black will wait until water level rises (if it does next week)

1045 Black + Weller onsite to reset SVE-4 and SB-2 permanent covers. Did not reset SB-2 as it is -8" bgs

just reset SVE-4.

Haz waste check -

1 drum of solid waste

and 1 drum of liquid waste

1100 offsite

(1/1)

Andrew Zeller

+40°F, P. cloudy

Weller

Wendell

5/7/12

0715 Weller onsite to check if riverbed is thawed at porewater sampling locations. Noticed an excavation is occurring at SE SW corner of ES Landmat (probably working on water line that was frozen)

@ PW-2 riverbed is dry to ~10' from the bank here.

Riverbed is thawed to 12" below surface

@ PW-9 - under water, knee deep.

Riverbed frozen ~3" below surface.

Tubing from March 2012 is visible

@ PW-10 - under water, knee deep

Riverbed frozen ~3" below surface

Tubing from March 2012 and Fall 2010 is visible

0750 offsite

0915 onsite with N. Bullen

- attempt to pump PW-9 with per-pump

- no go - frozen or plugged

- attempt to pump PW-10 - got water out of the 3/16" tubing - the 1/4" tubing was plugged.

Andrew Zeller

(1/2)

5/7/12

+40°F, Sun

Wendell

Weller

0945 Leave message on backhoe int

ES Landronat to call Weller
before digging

0950 offsite

1200- Decide to postpone sampling

Left message with Joanna of

ES Landronat re: digging

(2/2)

Andrew Z Weller

+50°F, P. Sun

Weller

Wendell

5/8/12

1130

Haz Waste check

1 drum of disposable PPE

1 drum of purge water

both intact

Identified and labeled heat trace
circuits.

Turned off circuit for
heat trace on utilidor,

SWE-2 + SVE-3

Andrew Z Weller (1/1)

5/9/12

+60°F, sun

Wendell

Wella

1645 Turned off SVE-4, SVE-5 + SVE-6
heat trace

Andrew Z. Weller

(1/1)

Andrew Z. Weller

Davis
Ballou

60°F

Wendall

Davis
Ballou

5-14-12

1330 Onsite for air sample setup - instruction.
Investigated current construction / dig
going on in front of site. Called
Cody Black regarding excavation.
Excavators stopped dig. Their
contact info: Jeremy - FBX Plumbing.
A subcontractor for complete services.
460-2745. Will complete O+M
tomorrow. Send Pictures to Cody
1230 Davis / Ballou offsite.

Leslie Davis

(1/1)

cloudy, 52°F

5-15-12

Wendall

Davis

10:15 Davis on site for Monthly O+M & exhaust stack sample, + haz waste check. Tailgate safety performed
See data sheets.

— Took exhaust stack sample

Sample ID: 12-WAS-110-ES

Canister # 34160

initial vac: 25.75

Final vac: 5.0 @

10:45: time: 10:45 to 5-15-12

14:30 HAZ WASTE CHECK:

- 2 drums - ALL SECURE

14:35 Davis offsite

Loni Davis

DAVIS

WENDELL

5-15-12

MAY 15, 2012 ES SAMPLE

ID (12-WAS)	location	Time	DATE	ANALYSIS
110-ES	ES	1045	5-15-12	TO-15
— SEE NOTES ON PREVIOUS PG.				

"Rite in the Rain"

5-25-12

Rain, 50°F

Wendell

Weller
DAVIS

0900 Davis & Weller on site to

mark w/ lathe pore water locations PW-1 to PW-6 for design AK survey. Weller offsite after initial locations were established and inspection of excavation work at front of laundry.

12:00 - break for lunch

12:45 - back to work. Picked up traffic sign from Design Alaska for work around PP-6.

13:40 PW-2 surface water measurement taken

- PP-6 total depth 10.96
No water encountered. Possibly hit jam. Disposed of IDW.

- Decanted (10)

HAZ WASTE CHECK

- 2 Drums

All Secure

14:45 - DAVIS OFF SITE

(1/1)

Weller Davis

10

+ 50°F, rain

Weller

Weller

6/1/12

1800

Haz Waste Check
1 each, closed top drum of purge water

1 each, open top drum of disposable sampling materials intact



Weller Davis

Weller Davis

(1/1)

6/4/12

+60°F, P. Sunny

Wendell

Weller
Davis

0845 OASIS onsite for gaging +
porewater sampling, calibrated YSI 556
in morning - see calibration log.
Have Tailgate Safety meeting.
Gage all wells - see datasheet for 6/4/12.
Davis offsite at 0945.

1100 Weller finished gaging - check river stage
height to decide whether to wade
or use raft for porewater sampling.
- Need raft

1130 Weller offsite to pickup lines and
anchoring supplies

1230 On site. Stage gear at riverbank.
Noticed hole in raft. Went to get
canoe.

1445 Back on site w/ canoe. Locate PW-2

1445 Take surface H₂O parameters thru
flow thru cell:

• temp 10.98°C • cond. 93 μ S/cm
• Spec Cond. 0.128 μ S/cm • DO: 14.95 pH: 5.94
• ORP 240.1

- PW-2 ^(CP) 10.5" H₂O depth to River bed
Pushed rod 22" below River bed.

- Pulled up 6" ^(CP) began pumping

(1/3) Loris Davis

Weller
Davis

+50°F, It rain

Wendell

6/4/12

thru SS screen.

1545 PW-2 Sample ID: 12-WAS-095-GW
1545

1700 Move to PW-9 - break
during thunderstorm

1730 Back on river - set up on
PW-9 - water depth - 57"

screen 23-29" below sediment surface
Take PW-9 sample at 1830
ID: 12-WAS-096-PW

1930 set up on PW-10
water depth 53"

screen 26-32" below sediment surface
Take PW-10 sample at 20:30 20:10

ID: 12-WAS-097-PW

All porewater samples submitted for:
3 x 40mL VOAs, HCl for 8260

4 x 4mL VOAs, H₂SO₄ for TOC (9060)

1 x 250 mL Poly, no preservative (sulfate 9056
alkalinity 2320)

1 x 250 mL Poly, H₂SO₄, nitrate/nitrite (3532)

1 x 250 mL Poly, HNO₃, Total Fe, Mn (ICA)

1 x 250 mL Poly, HNO₃, filtered, dissolved Fe, Mn
(ICP)

John Zulu

(2/3)

6/4/12

2130 offsite

+55°F, overcast

Wendell

Pavis
Waller

Andrew Z. Weller

(3/3)

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6/5/12 -

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PAGE

REFERENCE

DATE _____

+ 60°F, sun

Ballon

Wendell Ave

6/5/12

0845 OASIS onsite for groundwater sampling. Calibrated YSI 556 + YSI Pro 000 meter in morning tailgate safety meeting. see sample data sheets

0900 rig up on MW-1

MW-1 sample @ 0930

ID: 12-WAS-098-6W

1000 rig up on MW-11M - took M/LMSD
MW-11M sample taken at 1030 for VOCs

ID: 12-WAS-099-GW

1100 rig up on MW-10M

NW-10M sample taken at 1130

ID: 12-WAS-100-GW

1200 rig up on MW-4M

MW-4M sample taken at 1230

IO: 12-WAS-101-GW

1315 rig up on MW-12M

MW-12M sample taken at 1345 (primary)

Primary ID: 12-WAS-102-GW

duplicate for vocs taken here

Duplicate ID: 12-WAS-107-6W at 1400

1415 rig up on MW-9M

NW-9m sample at 1430 primary

ID: 12-WAS-103-GW

duplicate for VOCs ID: 12-WAS-108-GW @ 1500

Adm 3 Wale

 $\frac{1}{2}$

+ 70°F, Sun

Weller
Ballou

6/5/12

Wendell

1520 Rig up on MW-5
MW-5 sampled at 1600
ID: 12-WAS-104-GW

1615 Rig up on MW-6
MW-6 sampled at 1645
ID: 12-WAS-105-GW

1655 Rig up on MW-8S
MW-8S sampled at 1730
ID: 12-WAS-106-GW

- Disposed of approximately 15 gallons
purge water, gloves, tubing in CAA

Haz Waste check

- 1 open top and 1 closed top
drum secure

- Spoke with Dane of Complete Services
- Pro ODO meter stopped working
on MW-8S (last well).
- Dissolved Fe/Mn was not field filtered
at MW-8S (12-WAS-106-GW)

1815 OASIS offsite

(2/2)

Andrew Z. Loh

Weller

Wendell

6/6/12

- Have trip blank ID: 12-WAS-109-TB
on 6/4/12 at 1200
Last sequential sample number is 12-WAS-
110-ES

Sample Summary

All wells and pore water locations
were sampled for the following
methods unless otherwise noted:

VOC's by 8260 (Onsite) - 3 VOAs / sample
TOC by 9060 (Keystone) - 4 VOAs / sample
Nitrate/Nitrite by 353.2 (Keystone) - 1 poly / sample
Total Mn/Fe (Keystone) - 1 poly / sample (6010)
Dissolved Mn/Fe (Keystone) - 1 field filtered poly/
sample (6010)
Sulfate by 9056 } - 1 poly / sample
Alkalinity by 2320 }

Andrew Z. Loh

(1/3)

location	Wendell	Date	Weller
MW-1 [@]	ID (12-WAS-XXX-XX)		Time
PW-2	-095-PW	6/4	1545
PW-9	-096-PW	6/4	1830
PW-10	-097-PW	6/4	2010
MW-1	[@] -098-PW -098-GW	6/5	0930
MW-11M	-099-GW (ms/msa)	6/5	1030
MW-10M	-100-GW	6/5	1130
MW-4M	-101-GW	6/5	1230
MW-12M	-102-GW (Primary)	6/5	1345
MW-12M	-107-GW (duplicate)	6/5	1400
MW-9M	-103-GW (Primary)	6/5	1430
MW-9M	-108-GW (duplicate)	6/5	1500
MW-5	-104-GW	6/5	1600
MW-6	-105-GW	6/5	1645
MW-8S	-106-GW	6/5	1730
Trip blank	-109-GW [@] TB	6/5 [@]	
		6/4	1200

(2/3)

Archer 2 Weller

+60°F, rain

Weller Wendell 6/6/12

1200 Onsite to deploy Microcosms from Microbial Insights with J. Fish & Catherine of ADEC - need to pick up rod to push in microcosms.

1430 Deployed ORC/Acetate on bottom and control on top in MW-4M. Microcosms are 26 to 29.5' bgs. Note: The ORC/Acetate biotrap has an HRC tag on it - confirmed with Anita at lab that it is correct (ORC/Acetate is powdery)

1500 Deployed HRC only in MW-12 M - depth 27-28'

1515 Deployed HRC + MNA (control) in MW-9M - depth 25.5-29' (control on top) (HRC had an ORC tag on it)

1530 Deployed HRC in MW-8S with no weight to get it close to bottom bottom of Bio-trap - 6" above pressure transducer. The pressure transducer may not be in the same location as before.

- decon rod and place IDW (gloves, paper towels in CAA)

1615 offsite

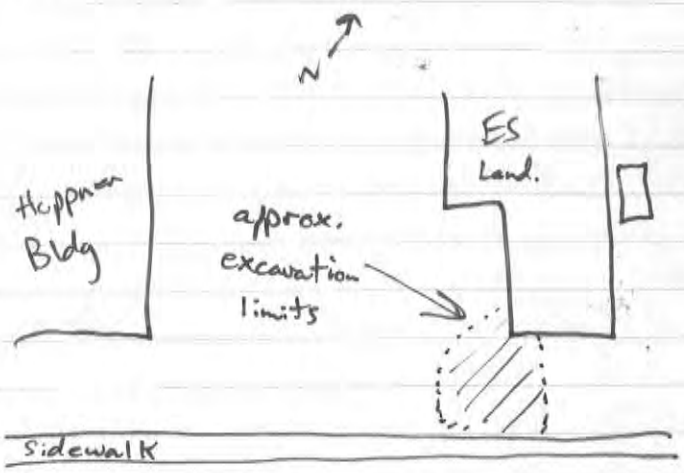
Archer 2 Weller

(3/3)

6/12/12 ^eWetter Wendell Weller

Note regarding excavation of water line at ES Laundromat:

First noticed excavation at SW corner of ES Laundromat on 5/2/12. The excavation was first noticed that it was backfilled on 6/11/12. The excavation was approx. 4' deep and 10' x 10'



← Wendell Ave →

(1/1) After 2 Ltr ~

+60°F, sun

Weller
1915

Wendell

6/15/12

Haz Waste inspection

- 1 drum of purge water +
- 1 drum of disposable sampling materials secure

After 2 Ltr (1/1)

6-18-12

Wendell

Davis

10:30 Davis on site for Monthly OM+M.

Tailgate meeting performed. See
Data sheet for observations.11:30 leave site for lunch. Back to office
for tools.

12:00 Back on site.

13:45 OM+M complete. Haz Waste
Inspection:

1- drum of purge water

1- drum of disposable sampling
materialAll Secure

14:00 Davis offsite

(1/1)

Leslie Davis

(1/2)

Davis

Weller

Wendell

6/25/12

1230 Davis + Weller onsite for manual
gauging. Catherine Grover of ADEC joined
for ~1 hour to observe. See data
sheet. Placed decon water + gloves +
paper towels in CAA. Also placed water
from SAA (condensate) and SVE-4
broken parts in CAA.

1545 offsite



Andrew S. Weller

(1/1)

Partly cloudy. Rain 65°F Davis
 6-26-12 Wendell Ave. Rhodes

08:00 OASIS onsite for groundwater sampling.
 Calibrated YSI + YSI Pro ODO meter
 in the morning. Performed tailgate
 meeting. See sample data sheets.

0810: Rig up on MW-1
 MW-1 sample @ 8:50
 Glover from DEC (intern) observed
 gw. sampling.

0845 Glover offsite. Continue w/sampling.
 MW-1 sample @ 08:50
 ID: 12-WAS-110-GW

0930 Rig up @ MW-10M
 MW-10M sampled @ 10:00
 ID: 12-WAS-111-GW

10:25 Rig up on MW-11M
 MW-11M sampled @ 10:45
 ID: 12-WAS-112-GW

11:30 Break for lunch & back to
 office for rain gear.

12:30 Rig up on MW-5
 MW-5 sampled @ 12:55
 ID: 12-WAS-114-GW

1320 Rig up on MW-6
 MW-6 sampled @ 13:35
 ID: 12-WAS-113-GW

(1/2) Leslie Davis

6-26-12
 Davis Kana 60°F
 Rhodes Wendell Ave

1350 Pack up. Dispose of IDW + decon
 equipment. All IDW placed in CAA.

14:10 Oasis departs site. Disposed of
 approx 7 gallons of IDW purge water
 at CAA.

Leslie Davis (2/2)

6-27-12 Wendell Ave Davis

SAMPLE SUMMARY

All well locations sampled for the following methods & sent to Keystone.

- TOC by 9060 - 4 VOA / sample
- Nitrate/Nitrite by 353.2 - 1 poly / sample
- Total Mn/Fe by 6010 - 1 poly / sample
- Dissolved Mn/Fe by 6010 - 1 field filtered poly per sample
- Sulfate by 9056 } 1 poly / sample
- Alkalinity by 2320 }

Location	ID (12-WAS-XX-XX)	Date	Time
MW-1	-110-GW	6-26-12	8:50
MW-10M	-111-GW	6-26-12	10:00
MW-11M	-112-GW	6-26-12	10:45
MW-5	-114-GW	6-26-12	12:55
MW-6	-113-GW	6-26-12	13:35

①

Lishe Davis

①

65°F, cloudy

Davis

Wendell Ave

7-8-12

12:15 Davis onsite for hazwaste check.

- 1 drum of purge water
- 1 drum of sampling material
- All secure.

12:30 Davis offsite

①

Lishe Davis

①

7/16/12

Wendell Otm Davis

1330 Davis onsite for monthly Otm calibrated RKI Eagle in morning. Tailgate safety meeting - see Otm data sheet. Weller stopped by at 1600 to listen to blowers' vibration. Turned down SSD blower slowly then off - vibration appears to be caused by SVE blower. Turned down SVE blower (initial speed was 39 Hz - vibrating) at 37 Hz, vibration lessened. No scrubbing of impeller at very low speed before shutting off. Start up SSD blower - no vibration at operating speed (57 Hz). Start up SVE blower no vibrating until 39 Hz. Turned up to 41 Hz → vibrating stopped - left it at this speed.

Haz Waste Check

- 1 closed top drum of purge/decon water
- 1 open top drum of disposable sampling equipment + supplies

Both intact

1615 offsite

Andrew Z Weller

(1/1)

Rhodes
Weller

Wendell Ave

7/23/12

1600 Picked up air scrubber from storage room behind front desk at ES Loundronet. Emptied carbon into 2 5-gallon DOT-approved lidded buckets and put haz waste labels on them

Haz Waste Check

- 2 buckets of GAC
 - 1 drum of purge water
 - 1 drum of disposable sampling materials
- 1700 offsite

Andrew Z Weller

(1/1)

8/7/12 2012 Wendell Ave Weller
1315 Haz Waste Check

- 1 closed top drum - purge water
- 1 open top drum - disposable sampling materials

2 buckets - carbon

all secure

Spoke with Ted Hoppner - mentioned we will do vapor intrusion later in month or September.

(1/1)

Andrew Z. Weller

Weller 2012 Wendell Ave 8/13/12

0830 Weller onsite. Tailgate safety meeting.

Gauge all site wells - See manual gauging sheet for 8/13/12

1145 Put gloves, paper towels, decon water in CAA

1200 offsite

Andrew Z. Weller (1/1)

8/14/12

2012 Wendell Ave

1730 OASIS onsite - calibrator YSI 556 &
YSI ProODO meter prior - tailgate safety
meeting.

1750 Rig up on MW-4M

Pull Biotraps

MNA Biotrap ID: 12-WAS-115-BT @ 1800, 8/14/12

ORC/Acetate Biotrap ID: 12-WAS-116-BT @ 1805, 8/14/12

(The tag on the ORC/Acetate Biotrap read
HRC, but it was confirmed that it was
ORC/Acetate)

Place them in silver zippered bags on ice
take ODO readings and purge - see
data sheet.

* The baffles on the Biotraps pulled
water out of the well during removal -
DTW's while purging reflect recharge after
Biotrap removal

* Pressure transducer data is suspect.

* Moderate amount of silt on Biotraps

Groundwater sample ID: 12-WAS-117-GW @ 1830, 8/14/12

see data sheet for analyses

(1/2)

Michael J. Weller

2012 Wendell

8/14/12

1945 Rig up on MW-12M

Pull HRC Biotrap, ID: 12-WAS-118-BT @ 1945, 8/14/12

see sample data sheet

Groundwater sample ID: 12-WAS-119-GW @ 2030

Duplicate ID for VOCs: 12-WAS-120-GW @ 2045

Take ms/msd for geochemical parameters
and for VOC's → ID: 12-WAS-119-GW @ 2030

2125 Rig up on MW-9M

Pull MNA Biotrap, ID: 12-WAS-121-BT @ 2125

Pull HRC Biotrap, ID: 12-WAS-122-BT @ 2130

Groundwater ID: 12-WAS-123-GW @ ²²¹⁵~~1015~~, 8/14/12

see sample data sheet

2330 Rig up on MW-8S

Pull HRC Biotrap, ID: 12-WAS-124-BT @ 2330, 8/14/12

It appeared that ~ 1/2 of the HRC was still
in the Biotrap.

Groundwater ID: 12-WAS-¹²⁵~~124~~-GW @ 2355, 8/14/12

see sample data sheet

Have trip blank for VOCs

ID: 12-WAS-126-TB @ 1600, 8/14/12

Place purge water + disposable sampling materials
in CAA.

OASIS on 8/15/12 offsite

Michael J. Weller

(2/2)

8/15/12

2012 Wendell

Davis
Waller

0930 Chat w/ C. Black + J. Fish about sampling yesterday. Pack + ship Biofilters + Biotraps

- General Notes on Sampling -

Recommend hanging Biotraps on line with sufficient strength ~ estimated 30-40 pounds of force to pull them out. Pulling them out brought out a column of water above the screened section and increased turbidity in wells. Stabilization of water quality parameters took just slightly longer than usual, but not significant. The turbidity increased time to use Biofilters. Biofilters were sampled last out of the analyses. Water was low to moderate turbidity. The first 50 ml filtered easily, then became very slow. On MW-12M and MW-9M, I used one filter each, filtering 600 + 500 ml, respectively. It took ~ 45 minutes for each of these. As the filters started plugging after 50 ml, I elected not to use additional filters.

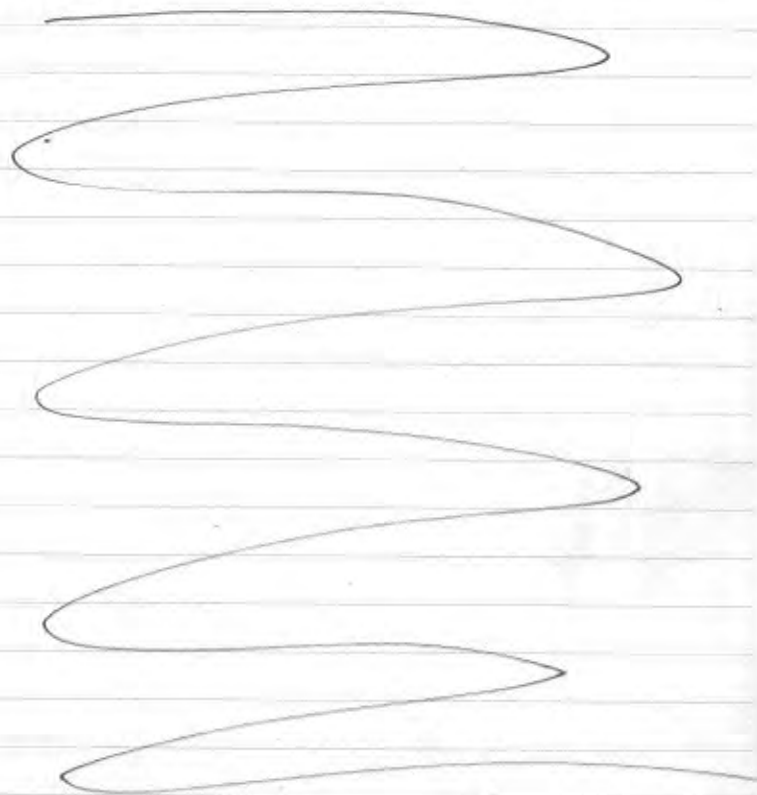
In MW-8S, the BioTrap was not
Andrew 2/4

Davis
Waller

2012 Wendell

8/15/12

completely submerged upon removal. HRC appeared to remain in the upper half of the BioTrap. Silt was packed around the remaining BioTraps so I could not see if substrate remained.



Andrew 2/4

(2/4)

0146941

Wendell Avenue Site Groundwater
Sample Summary8/15/12
DAVIS

Sample ID	TIME	DATE	Well	Primary	Duplicate	N/S/MSD	Diss. Fe/Mn	Nitrate-Nitrite	Sulfate/alkalinity	Total Fe/Mn	TOC	VOCs	CSIA (C12/C13)	MEE	Total # bottles
12-WAS-117-GW	1830	8-14-12	MW-11M	X	X	X	1	1	1	1	4	3	9	4	24
12-WAS-119-GW	2030	8-14-12	MW-12M	X		X	2	2	2	2	8	9	9	4	38
12-WAS-120-GW	2045	8-14-12	MW-12M		X		0	0	0	0	0	3	0	0	3
12-WAS-123-GW	2215	8-14-12	MW-9M	X			1	1	1	1	4	3	9	4	24
12-WAS-125-GW	2355	8-14-12	MW-8S	X			1	1	1	1	4	3	9	4	24

DAVIS

Wendell Avenue Site
Biotrap Sample Summary

8-15-12

Sample ID	Time	Date	Well	Type- HRC, MNA, PRC/Acetate	Date Deployed	Time Deployed	Analyses
12-WAS-115-BT	1800	8-14-12	MW-4M	MNA	6-6-12	14:30	MOB/ SMMD
12-WAS-116-BT	1805	8-14-12	MW-4M	PRC/Ace	6-6-12	14:30	MOB/ SMMD
12-WAS-118-BT	1945	8-14-12	MW-12M	HRC	6-6-12	1500	
12-WAS-121-BT	2125	8-14-12	MW-9M	MNA	6-6-12	1515	DHC(TCE, BV, VC)
12-WAS-122-BT	2130	8-14-12	MW-9M	HRC	6-6-12	1515	
12-WAS-124-BT	2330	8-14-12	MW-8S	HRC	6-6-12	1530	

Biofilter Sample Summary

Sample ID	Time	Date	Well	MOB/SMMD OR DHC(TCE, BV, VC)	Volume Filtered
12-WAS-117-GW	1830	8-14-12	MW-4M	MOB/SMMD	1 liter
12-WAS-119-GW	2030	8-14-12	MW-12M	DHC(TCE, BV, VC)	600 mL
12-WAS-123-GW	2215	8-14-12	MW-9M	DHC(TCE, BV, VC)	500 mL
12-WAS-125-GW	2355	8-14-12	MW-8S	DHC(TCE, BV, VC)	1 Liter

Asher 3/4/12

(4/4)

8/16/12

2012 Wendell

1215 OASIS onsite to download dataloggers.
See data sheet - redeploy dataloggers
after downloading.

Download MW-1 + MW-115 - started to
rain on laptop - Return tomorrow to download.

- Transfer GAC from 2, 5-gallon buckets
to 55 gallon steel drum in CAA
- Decon the buckets

HAZ Waste Check

- 2, 55 gallon bung-top drums of
purge water
- 2, open top 55 gallon drums (one with
GAC and one with disposable sampling
materials)

1340 offsite

①

Andrew Z. Weller

2012 Wendell

8-17-12

1145 OASIS on site to download data loggers
Tailgate safety performed. See
data sheet - redeploy data loggers after
downloading.

Methodology

- Gauge BTW's with dataloggers downhole.
- measure length of datalogger cable from
inside of hook to middle line on
dataloggers



- remeasure if different from deployment
length (tried to mimic hanging tension)
- Download dataloggers
- re deploy
- Moved barologger (S/N 0021049166) to
MW-95 - hung 7.88' BTOL to get
below frost line.
- Put decon water + disposable nitrile
gloves + paper towels in CAA.
- double checked datalogger S/N's
- did not erase any old data from datalogger

1400 offsite

Andrew Z. Weller

①

70°F sunny

8-23-12

Wendell

Davis

1115 OASIS on site for monthly amir.

Tailgate meeting performed.

See data sheet for details.

01215 offsite for lunch

1300 Back on site.

1400 OASIS off site

Laurie Davis

55°F, cloudy

Rhodes

Wendell Ave

8-29-12

1300 Rhodes On-site for Haz-Waste
check.

- 2- 55 gal Bung tops

- 2- 55 gal open tops

Safe & intact.

1315 Rhodes off-site

Dale Rhodes

9/4/12

2012 Wendell Ave Weller

1000 - Weller onsite to meet ADEC for

Building survey at 330 Wendell Ave.

Have tailgate safety meeting.

Jim Fish stops by to chat with

Ted Hoppner. Ted Hoppner only allowed

access to Suite B. We decided to

only perform building survey in Suite B.

We will revisit additional sampling

if results indicate there is VI

occurring.

Perform ADEC building survey. Establish

indoor air sampling location IA-11 in center

of conference table in 330 Wendell

Suite B. Last sample ID was

12-WAS-126-TB.

1300 offsite

(1/1)

Andrew Zeller

Weller
Rhodes

2012 Wendell Ave 9/5/12

0815 - Weller onsite to deploy primary
and duplicate Indoor air samples at
IA-11 in 330 Wendell, Suite B.- Spoke with Ted Hoppner - we filled
P-traps before starting sampling

Primary ID: 12-WAS-127-IA @ 0830, 9/5/12

canister 1587

initial vac 24.5

final vac 6

Picked up at: 9/6/12 @ 0830

Duplicate ID: 12-WAS-128-IA @ 0900, 9/5/12

canister 5642 (set out at 0830)

initial vac 25

final vac 8

Picked up at: 9/6/12 @ 0830

0915 Rhodes on-site for VI Assessment.

One indoor air, two soil gas, one

Substrate sample.

0930 Deploy Indoor Air sample @ IA-8

ID: 12-WAS-129-IA @ 0930, 9-5-12

Canister 10769

Initial Vac ~~25.5~~^{wa} 25.5

Final Vac 6

picked up at: 1010, 9-6-12 (Late)

(WR)

Della Rhodes

(1/3)

9-5-12

Wendell Ave

Rhodes

0935 Begin rigging up on Sub-Slab

Sample, SS-4

- Vac before purging 1.630"WC Vac
- Manifold leak check - OK
- Helium leak check - 0.0%, OK

O₂: 20.9 CO₂: 0.0 Hex: 00 ppm

ID: 12-WAS-130-SS @ 1040, 9-5-12

Canister 34032

Initial Vac 24.5

Final Vac 4.5

1045 Pack up & Move to SG-3 @ 8',
begin rigging up.

- Vac before purging 0.740"WC Vac
- Manifold leak check - OK
- Helium leak check - 0.0%, OK

O₂: 20.9% CO₂: 0.1% Hex: 0.0 ppm

ID: 12-WAS-131-SG @ 1130, 9-5-12

Canister 34008

Initial Vac 24.5

Final Vac 4.5

1150 Begin rigging up on SG-2 @ 8'

- Vac before purging - 0.468"WC Vac
- Manifold leak check - OK
- Helium leak check - 0.0% OK

(2/3)

With Rhodes

(WR)

Wendell Ave

9-5-12

1150 Continued

O₂: 20.7% CO₂: 0.5% Hex: 75 ppm

ID: 12-WAS-132-SG @ 1300, 9-5-12

Canister 34311

Initial Vac 24.5

Final Vac 5.5

1400 Pack-up, put spent teflon
tubing in SAA. Rhodes off-site.

With Rhodes

(3/3)

9/6/12

2012 Wendell

0830 Weller picks up indoor air sample
primary + duplicate from 330 Wendell,
Suite B. Return Suite Key to male
employee of Hopper.

Haz Waste Check

2 drums purge water

1 drum GAC

1 drum disposable sampling materials

all intact

1000 Rhodes on-site to pick-up
Indoor air sample @ IA-8

1010 Rhodes off-site

330 Wendell VI Sample Summary

Sample ID	Summary	Date	Time	Vac		
12-WAS-	Serial #			Initial	Final	Analysis
127-IA	1587	9-5-12	0830	24.5	6	To-15 Sim
128-IA	5642	9-5-12	0900	25	8	To-15 Sim
129-IA	10769	9-5-12	0930	25.5	6	To-15 Sim
130-SS	34032	9-5-12	1040	24.5	4.5	To-15
131-SG	34008	9-5-12	1130	24.5	4.5	To-15
132-SG	34311	9-5-12	1300	24.5	4.5	To-15

(1/1)

D. Rhodes

(1/1)

Rhodes

2012 Wendell

9-7-12

1000 Rhodes on-site to perform
OM & M inspection. Will also
shot-down SVE & SSD blowers
upon OM & M completion. See
Data sheet for OM & M details.

1230 Shot Down SVE/SSD Blower

SVE Hourmeter 2682 hr 53 min

(SSD Hourmeter 2684 hr 52 min)

1250 Rhodes off-site

D. Rhodes

(1/1)

9-11-12

Wendell Ave.

Davis

1100 OASIS + Ian w/ Emerald AK on site to remove waste

- 1 drum 55 gal of purge water
- 1 drum 55 gal of disposable sampling materials
- 1 drum 55 gal GAC.

Manifest delivered to Emerald Alaska.

3 signed. Generator copied was already pulled. Emerald will send an electronic signed copies.

1115 OASIS offsite

Leslie Davis

Davis

Wendell

9-24-12

1400 OASIS on site for Hazwaste

Inspection:

- 1 55 gal bring top drum
- All secure. OASIS offsite

Leslie Davis

50°F, Cloudy

10-4-12

Wendell Ave

Rhodes

1605 Rhodes on-site to deploy indoor

Air sample + Dup @ IA-8

ID: 12-WAS-133-IA @ 1615, 10-4-12

Canister 35155

Initial Vac 28.5

Final Vac 0.5

Dup ID: 12-WAS-134-IA @ 1645, 10-4-12

Canister ~~35134~~⁶¹⁸ 34258

Initial Vac 29.5

Final Vac 4.0

Picked up @ 1615, 10-5-12

D. H. Rhodes

(MR)

40°F, cloudy

Rhodes

Wendell Ave

10-5-12

0930 Rhodes on-site for VI

Assessment, One Indoor Air
+ Dup, One sub-slab, and
two soil gas samples. Begin
rigging up on SS-4

- Vac before purging: 0.000 in WC

- Manifold leak check: OK

- Helium leak check: 0.0, OK

O₂: 19.4 CO₂: 0.0 Hex: 0.0ID: 12-WAS-~~134~~¹³⁵-SS @ 1005, 10-5-12

Canister 05704

Initial Vac 26

Final Vac

1010 Begin rigging up on SG-3 @ 8'

- Vac before purging: 0.011 in WC vac

- Manifold leak check: OK

- Helium leak check: 0.0, OK

O₂: 17.7 CO₂: 0.8 Hex: 40ID: 12-WAS-~~135~~¹³⁶-SG @ 1045, 10-5-12

Canister 12682

Initial Vac 26

Final Vac

45°F, Cloudy

10-5-12

Wendell Ave

Rhodes

1055 Begin rigging up on SG-2 @ 8'

- Vac before purging: 0.019 in WC Vac

- Manifold Leak check: OK

- Helium Leak check:

O₂: 16.9% CO₂: 1.4% Hex: 130ID: 12-WAS-¹³⁷~~136~~-SG @ 1140, 10-5-12

Canister 34316

Initial Vac: 26

Final Vac:

1155 Check Soil gas & VMP O₂, CO₂, Hex

Point	O ₂ %	CO ₂ %	Hex ppm	Vac"WC
SG-8 @ 5'	19.3	0.2	10	0.015
SG-3 @ 8'	17.6	0.8	50	0.000
@ 4' SG-3 @ 8'	18.8	0.2	5	0.009 vac
SG-2 @ 8'	16.5	1.6	90	0.020 vac
SG-2 @ 4'	19.1	0.7	190	0.000
SS-8	20.2	0.0	0	0.000
Bathroom SS-5	20.6	0.0	0	0.000
SS-9	20.5	0.0	0	0.000
SS-10	20.8	0.0	0	0.000
SS-11	20.9	0.0	0	0.000
SS-6	20.0	0.0	0	0.000
SS-12	20.4	0.0	0	0.000
SS-13	20.8	0.0	0	0.000
SS-7	20.9	0.0	0	0.000

45°F, Cloudy

Rhodes

Wendell Ave

10-5-12

1250 Rhodes off-site following
Drum inspection.

- One 55-gal bung top - Secure.

1610 Rhodes Back on-site to
pick up IA-8 & re-start
SVE/SSD system.1730 Pull Exhaust Stack Color-tec
Tube:

3.0 ppm, 50 mL, LL-Tube

* For LL tube @ 50 mL multiply
reading by 3:

$$3.0 \text{ ppm} \times 3 = \underline{9.0 \text{ ppm}}$$

1740 Rhodes off-site

With Rhodes

10-8-12

Wendell Ave

Rhodes

1440 Rhodes onsite to pull color-tec

tube Exhaust stack sample

- 3 ppm, 12-tube, 50 mL = 9 ppm

1450 Rhodes off-site

VI Assessment Sample Summary

Sample ID

Location date/time deployed date/time retrieved

(12-WAS-)

133-IA	IA-8	10/4 @ 1615	10/5 @ 1615
134-IA	dup at IA-8	10/4 @ 1615	10/5 @ 1615
135-SS	SS-4	10/5 @ 1005	10/5 @ 1035
136-SG	SG-3 @ 8'	10/5 @ 1045	10/5 @ 1115
137-SG	SG-2 @ 8'	10/5 @ 1140	10/5 @ 1210

Note duplicate sample 12-WAS-134-IA
was submitted with a date/time of
10/4 @ 1645

(1/1)

Andrew Z. L. for Will Rhodes

Weller

Wendell Ave

10/11/12

0930 A. Weller onsite to apply

HRC primer + mw-9M and deploy

2 biotrap (standard, unnamed Biotraps)

Initial DTW = 12.58

Well screened from 25'-30'

Place tubing at 27' and purge

0955 purging

Time	temp	pH	DO	sp. cond	ORP
0957	4.65	6.88	11.0	0.964	56.6
1000	4.41	6.75	11.1	0.964	50.7
1015	4.10	6.69	8.00	0.982	47.8

↳ goto page 42

- pH in with above plays 1.88
- DTW after pulling out plunger 13.53
- water looked clear

hang one biotrap @ 26'

hang one biotrap @ 28'

The deeper biotrap has a mark on
the top carabiner

Total HRC primer volume
added to mw-9M was 3 gallons

Andrew Z. L. Weller

1/3

10/11/12

Wendell Ave

Weller

- 1015 - Tim Fish + intern arrive to assist - discuss MSDS for HRC Primer - have eyewash if needed.

1030 Begin pumping HRC Primer from Regenesis into well (tubing at 27' bgs)

- Primer is too slick to pump with peristaltic pump - the tubing was poly tubing wants to disconnect from the silicone tubing on the outlet. After pumping approx. 2 liters, dump remainder of HRC Primer into well with funnel - This worked well.
- Pushed plunger down to 25' bgs once and remove. Water was above plunger when pulling out. Pumped out water above plunger (~1 Liter), see water pH on page 41

- Hang Biotraps on separate lines
shallower Biotrap @ 26' bgs
deeper Biotrap @ 28' bgs

The deeper Biotrap has a sharpie mark on the carabiner attached to the top of the casing.

Plan to remove shallow Biotrap in January + deeper in April

Adrian Zuber

Weller

Wendell

10/11/12

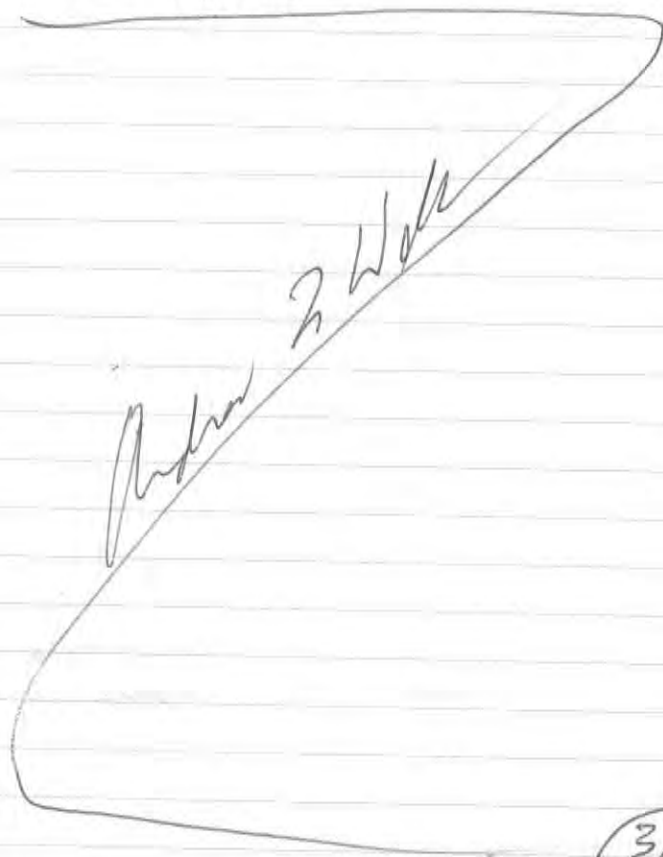
1130 ADEC offsite, decon equipment and pickups.

1200 Put purge/decon water in CAA, Put gloves/tubing/paper towels in SAA.

H/A2 Waste Check

1 closed top drum secure

1215 Offsite



10/16/12

2012 Wendell Ave

Wella

1530 Turn on heat trace (both circuits)

Slight amount of condensation in SVE-5

Haz waste check:

1 op^e closed top drum intact

Robert 2 Vets

Wendell Ave SVE/SSD System OM&M Data Sheet

Wendell Ave - SVE/SSD OM&M Data Sheet													
Date:		Time:		Ambient Temp (°F):		Technician:		Field Instrument Used/Last Calibrated:					
SSD System													
Depressurization Wells							Indoor Vapor Monitoring Points					SSD System Mechanical Parameters	
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Hex (ppm)	% CO2	% O2	Dilution Valve % open 0	
DW-1	17	9	50	65	0.0	20.9	SS-4	1.583	25	0.0	20.9	Knockout drum level BBSG	
DW-2	27	6	100	120	0.0	20.9	SS-5	0.027	100	0.0	20.9	Manifold Vacuum (inWC) 40	
DW-3	8	9	50	110	0.0	20.9	SS-6	0.322	0	0.0	20.9	Blower Vacuum (inWC) 42	
DW-4	17	10	50	130	0.0	20.9	SS-7	0.010	35	0.0	20.9	Exhaust Temp Digital (°F) 111.8	
DW-5	2	9	50	75	0.0	20.9	SS-8	0.031	50	0.0	20.9	Exhaust Temp Gauge (°F) 120	
DW-6	5	10	50	80	0.0	20.9	SS-9	0.098	75	0.0	20.9	Exhaust Flow (cfm) 70	
Spare							SS-10	0.000	65	0.0	20.9	Filters Checked/Cleaned? No	
Spare							SS-11	0.000	35	0.0	20.9		
Field Notes:							SS-12	0.000	0	0.0	20.9		
							SS-13	0.032	30	0.0	20.9		
SVE System													
Extraction Wells							Outdoor Vapor Monitoring Points					SVE System Mechanical Parameters	
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Vac While Sampling (inWC)	Hex (ppm)	%CO2	%O2	Dilution Valve % open 0
SVE-2	14	15	70	210	0.7	20.7	SG-2 @ 4' bgs	0.503		75	0.2	20.9	Knockout drum level BBSG
SVE-3	7	15	70	170	0.5	20.9	SG-2 @ 8' bgs	0.342		100	0.4	20.2	Manifold Vacuum (inWC) 34
SVE-4	4	14	70	100	0	20.9	SG-3 @ 4' bgs	0.639		40	0	20.9	Blower Vacuum (inWC) 37
SVE-5	10	15		210	0.6	20.9	SG-3 @ 8' bgs	0.631		35	0	20.9	Exhaust Temp Digital (°F) 102
SVE-6	21	15	100	160	0.5	20.9	SG-7 @ 5' bgs	0.571		50	0	20.9	Exhaust Temp Gauge (°F) 116
Spare							SG-7 @ 9' bgs	0.621		75	0.1	20.9	Exhaust Flow (cfm) 100
Spare							SG-8 @ 5' bgs	0.637		120	0.3	20.9	Filters Checked/Cleaned? No
Field Notes: SVE-5 had slight condensation in rotameter. Vac and Flow were bouncing - vac was 10 to 25 and flow was 5 to 30, due to a slug of water surging in line.													
Following removal of the water SVE-5 flow and vacuum were recorded.													
Removed about 6 gallons of water from SVE-2, SVE-3 and SVE-4. Discovered SVE-4 was broken at tee.													
Additional Mechanical and Shared Elements													
Control Room			SSD System		SVE System		Exhaust Stack/Heat Trace				Laboratory Sample		
Parameter			SSD System		SVE System		Exhaust Stack Drained? Yes				Effluent Sample ID 11-WAS-071-ES		
Motor Speed (Hz)			56		40		Exhaust Stack (Hex (ppm), %O2, %CO2) 160, 20.9, 0.2				Summa Canister ID 35653		
IDEC Hourmeter Reading/Time			5938.63 / 1210		2879.06 / 1210		Exhaust Stack Colortec (ppm) 8 ppm, L tube, 100 mL				Time/Date 1125/10-21-11		
Hobbs Hourmeter Reading/Time			5943.9 / 1210		2882.2 / 1210		Heat Trace On? Yes, turned on today				Initial Vacuum (inHg) 26		
Previous IDEC Hr. Reading/Date/Time			5243.4 / 1240 / 9-22-11		2184.3 / 1240 / 9-22-11		LEL Monitor Reading (%LEL) 0				Final Vacuum (inHg) 1.5		
Previous Hobbs Hr. Reading/Date/Time			5248.6 / 1240 / 9-22-11		2187.3 / 1240 / 9-22-11		GVEA Meter Reading (kW-hr) 16586						
Total Hours Since Last Event IDEC/Hobbs			695.2 / 695.3		694.8 / 694.9								
Percent Operability			100		100								
Field Notes: Removed condensate from lines with shop vac. A total of 6 gallons from SVE-2,3 and 5. SVE-4 and 6 were dry, however SVE-4 had pea gravel in the line. We investigated and found that the fitting had broken at the T.													

Notes:
 45 /53 = "/" between readings indicates gauge reading "before and after adjustment
 NR = Not Recorded

Wendell Ave SVE/SSD System OM&M Data Sheet

Wendell Ave - SVE/SSD OM&M Data Sheet												
Date: 11/29/11		Time: 1130		Ambient Temp (°F): 5 above		Technician: Weller		Field Instrument Used/Last Calibrated: RKI Eagle / 11/29/11				
SSD System												
Depressurization Wells							Indoor Vapor Monitoring Points				SSD System Mechanical Parameters	
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Hex (ppm)	% CO2	% O2	
DW-1	19	10	70	0	0.0	20.9	SS-4	1.668	35	0.0	20.9	Dilution Valve % open 0
DW-2	29	7	100	45	0.0	20.9	SS-5	0.063	100	0.0	20.9	Knockout drum level empty
DW-3	8	10	50	50	0.0	20.9	SS-6	0.605	25	0.0	20.9	Manifold Vacuum (inWC) 41
DW-4	16	10	50	60	0.0	20.9	SS-7	0.023	35	0.0	20.9	Blower Vacuum (inWC) 44
DW-5	2 / 2	9 / 10	50 / 60	10	0.0	20.9	SS-8	0.029	45	0.0	20.9	Exhaust Temp Digital (°F) 110.3
DW-6	13 / 19	7 / 10	50 / 60	15	0.0	20.9	SS-9	0.078	40	0.0	20.9	Exhaust Temp Gauge (°F) 118
Spare							SS-10	(0.009)	30	0.0	20.9	Exhaust Flow (cfm) 70
Spare							SS-11	0.004	25	0.0	20.9	Filters Checked/Cleaned? No
Field Notes:							SS-12	0.000	20	0.0	20.9	
							SS-13	0.042	30	0.0	20.9	
SVE System												
Extraction Wells							Outdoor Vapor Monitoring Points				SVE System Mechanical Parameters	
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Vac While Sampling (inWC)	Hex (ppm)	%CO2	%O2
SVE-2	7 / 7	16 / 15	70 / 60	60	0.3	20.9	SG-2 @ 4' bgs	0.305	NR	40	0.0	20.9
SVE-3	6	15	70	90	0.4	20.9	SG-2 @ 8' bgs	0.437		110	0.4	20.9
SVE-4	7	15	80	65	0.3	20.9	SG-3 @ 4' bgs	0.373		0	0.0	20.9
SVE-5	11	15	80	110	0.6	20.9	SG-3 @ 8' bgs	0.709		10	0.0	20.9
SVE-6	19	13	100	110	0.5	20.8	SG-7 @ 5' bgs	0.790		40	0.1	20.9
Spare							SG-7 @ 9' bgs	0.837		50	0.1	20.9
Spare							SG-8 @ 5' bgs	0.920	30	0.1	20.9	
Field Notes:												
Additional Mechanical and Shared Elements												
Control Room			Exhaust Stack/Heat Trace		Laboratory Sample							
Parameter	SSD System	SVE System	Exhaust Stack Drained?	yes, empty	Effluent Sample ID							
Motor Speed (Hz)	56	40	Exhaust Stack (Hex (ppm), %O2, %CO2)	65, 20.9%, 0.2%	Summa Canister ID							
IDEC Hourmeter Reading/Time	6875 hr 16 min / 1200	3814 hr 57 min / 1200	Exhaust Stack Colortec (ppm)	4 ppm / L tube / 100 cc	Time/Date	NR						
Hobbs Hourmeter Reading/Time	6880.6 / 1200	3818.1 / 1200	Heat Trace On?	yes	Initial Vacuum (inHg)							
Previous IDEC Hr. Reading/Date/Time	5938.63 / 1210	2879.06 / 1210	LEL Monitor Reading (%LEL)	0%	Final Vacuum (inHg)							
Previous Hobbs Hr. Reading/Date/Time	5943.9 / 1210	2882.2 / 1210	GVEA Meter Reading (kW-hr)	23726 @ 1200								
Total Hours Since Last Event IDEC/Hobbs	936.6 / 936.7	935.9 / 935.9										
Percent Operability	100	100										
Field Notes:												
Can feel a slight vibration on both blowers												
Air filter near SS-4 was off upon arrival - turned it on low speed												
Removed well caps from SVE-2, SVE-3, SVE-4 and SVE-5 and pulled for about 5 minutes each with Shop-Vac - no water												
Repaired SVE-4 on 10/26/11												

Notes:

45 / 53 = "/" between readings indicates gauge reading "before and after adjustment

NR = Not Recorded

Wendell Ave SVE/SSD System OM&M Data Sheet

Wendell Ave - SVE/SSD OM&M Data Sheet												
Date: 12/20/11		Time: 1145		Ambient Temp (°F): 16		Technician: Rhodes		Field Instrument Used/Last Calibrated:		RKI Eagle / 12-20-11		
Depressurization Wells							SSD System					SSD System Mechanical Parameters
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Hex (ppm)	% CO2	% O2	
DW-1	18/20	9/10	60	80	0.0	20.9	SS-4	1.592	60	0.0	20.9	Dilution Valve % open
DW-2	26/28	6/7	100	120	0.0	20.9	SS-5	0.209	100	0.0	20.9	Knockout drum level
DW-3	8	10	50	110	0.0	20.9	SS-6	0.776	5	0.0	20.9	Manifold Vacuum (inWC)
DW-4	15	10	50	130	0.0	20.9	SS-7	0.029	10	0.0	20.9	Blower Vacuum (inWC)
DW-5	2	10	50	65	0.0	20.9	SS-8	0.033	65	0.0	20.9	Exhaust Temp Digital (°F)
DW-6	11/8	13/10	60	60	0.0	20.9	SS-9	0.083	90	0.0	20.9	Exhaust Temp Gauge (°F)
Spare							SS-10	0.000	45	0.0	20.9	Exhaust Flow (cfm)
Spare							SS-11	0.003	15	0.0	20.9	Filters Checked/Cleaned?
Field Notes:							SS-12	0.000	0	0.0	20.9	Checked/OK
BBSG = below bottom of sight glass							SS-13	0.040	5	0.0	20.9	
Baseline Hexane in laundromat approx. 55 - 70 ppm												
SVE System												
Extraction Wells							Outdoor Vapor Monitoring Points					SVE System Mechanical Parameters
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Vac While Sampling (inWC)	Hex (ppm)	%CO2	%O2
SVE-2	6/7	14/15	60	110	0.4	20.9	SG-2 @ 4' bgs	0.256		30	0.0	20.9
SVE-3	5	14/15	60	140	0.5	20.9	SG-2 @ 8' bgs	0.427		60	0.1	20.9
SVE-4	6	14/15	60	100	0.2	20.9	SG-3 @ 4' bgs	0.376		20	0.0	20.9
SVE-5	10/11	13/15	70	160	0.5	20.7	SG-3 @ 8' bgs	0.708		20	0.0	20.9
SVE-6	13/8	19/15	100	120	0.2	20.9	SG-7 @ 5' bgs	0.799		15	0.0	20.9
Spare							SG-7 @ 9' bgs	0.760		35	0.0	20.9
Spare							SG-8 @ 5' bgs	0.976		40	0.0	20.9
Field Notes:												
Additional Mechanical and Shared Elements												
Control Room			Exhaust Stack/Heat Trace		Laboratory Sample							
Parameter	SSD System	SVE System	Exhaust Stack Drained?	YES	Effluent Sample ID	11-WAS-072-ES						
Motor Speed (Hz)	56	40	Exhaust Stack (Hex (ppm), %O2, %CO2)	100, 20.9, 0.2	Summa Canister ID	8007						
IDEC Hourmeter Reading/Time	7378.8 / 1145	4318.1 / 1145	Exhaust Stack Colortec (ppm)	4 ppm, L tube, 100 mL	Time/Date	1110 / 12-20-11						
Hobbs Hourmeter Reading/Time	7384.2 / 1145	4321.3 / 1145	Heat Trace On?	Yes	Initial Vacuum (inHg)	28.5						
Previous IDEC Hr. Reading/Date/Time	6875.3 / 11-29-11 / 1200	3815 / 11-29-11 / 1200	LEL Monitor Reading (%LEL)	0	Final Vacuum (inHg)	4						
Previous Hobbs Hr. Reading/Date/Time	6880.6 / 11-29-11 / 1200	3818.1 / 11-29-11 / 1200	GVEA Meter Reading (kW-hr)	27395								
Total Hours Since Last Event IDEC/Hobbs	503.5 / 503.6	503.1 / 503.2										
Percent Operability	100	100										
Field Notes:												

Notes:

45 / 53 = "/" between readings indicates gauge reading "before and after adjustment

NR = Not Recorded

Wendell Ave SVE/SSD System OM&M Data Sheet

Wendell Ave - SVE/SSD OM&M Data Sheet														
Date: 1/18/12		Time: 1040		Ambient Temp (°F): -40		Technician: Rhodes/Davis		Field Instrument Used/Last Calibrated: RKI Eagle/ 1-18-12						
SSD System														
Depressurization Wells							Indoor Vapor Monitoring Points					SSD System Mechanical Parameters		
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Hex (ppm)	% CO2	% O2			
DW-1	20	9	75	25	0.0	20.9	SS-4	1.790	15	0.0	20.9	Dilution Valve % open	0	
DW-2	29	7	100	55	0.0	20.9	SS-5	0.184	70	0.0	20.9	Knockout drum level	BBSG	
DW-3	8	10	60	50	0.0	20.9	SS-6	0.637	5	0.0	20.9	Manifold Vacuum (inWC)	42	
DW-4	15	11	50	70	0.0	20.9	SS-7	0.014	15	0.0	20.9	Blower Vacuum (inWC)	44	
DW-5	3	10	50	15	0.0	20.9	SS-8	0.022	50	0.0	20.9	Exhaust Temp Digital (°F)	105.7	
DW-6	7	10	60	10	0.0	20.9	SS-9	0.071	70	0.0	20.9	Exhaust Temp Gauge (°F)	110	
Spare							SS-10	(0.007)	50	0.0	20.9	Exhaust Flow (cfm)	75	
Spare							SS-11	0.000	0	0.0	20.9	Filters Checked/Cleaned?	NO	
Field Notes:							SS-12	0.000	0	0.0	20.9			
							SS-13	0.031	20	0.1	20.9			
SVE System														
Extraction Wells							Outdoor Vapor Monitoring Points					SVE System Mechanical Parameters		
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Vac While Sampling (inWC)	Hex (ppm)	%CO2	%O2		
SVE-2	6	15	60	90	0.3	20.9	SG-2 @ 4' bgs	0.325		65	0.0	20.9	Dilution Valve % open	0
SVE-3	6	15	60	120	0.4	20.9	SG-2 @ 8' bgs	0.412		120	0.3	20.9	Knockout drum level	BBSG
SVE-4	6	15	60	85	0.1	20.9	SG-3 @ 4' bgs	0.502		45	0.0	20.9	Manifold Vacuum (inWC)	34
SVE-5	11	15	60	150	0.5	20.6	SG-3 @ 8' bgs	0.672		60	0.0	20.9	Blower Vacuum (inWC)	36
SVE-6	6	14	60	90	0.1	20.9	SG-7 @ 5' bgs	0.730		60	0.0	20.9	Exhaust Temp Digital (°F)	106.7
Spare							SG-7 @ 9' bgs	0.750		100	0.2	20.9	Exhaust Temp Gauge (°F)	118
Spare							SG-8 @ 5' bgs	0.934		120	0.0	20.9	Exhaust Flow (cfm)	100
Field Notes:													Filters Checked/Cleaned?	NO
Additional Mechanical and Shared Elements														
Control Room						Exhaust Stack/Heat Trace				Laboratory Sample				
Parameter		SSD System		SVE System										
Motor Speed (Hz)		56		40		Exhaust Stack Drained? yes				Effluent Sample ID				
IDEC Hourmeter Reading/Time		8073h 40m / 1040		5012h 20m / 1040		Exhaust Stack (Hex (ppm), %O2, %CO2) 60, 20.9, 0				Summa Canister ID				
Hobbs Hourmeter Reading/Time		8079.2 / 1040		5015.7 / 1040		Exhaust Stack Colortec (ppm) 3 ppm, LL tube, 100 mL				Time/Date				
Previous IDEC Hr. Reading/Date/Time		7378.8 / 12-20-11 / 1145		4318.1 / 12-20-11 / 1145		Heat Trace On? yes				Initial Vacuum (inHg)				
Previous Hobbs Hr. Reading/Date/Time		7384.2 / 12-20-11 / 1145		4321.3 / 12-20-11 / 1145		LEL Monitor Reading (%LEL) 0				Final Vacuum (inHg)				
Total Hours Since Last Event IDEC/Hobbs		694.9 / 694.9		694.9 / 694.9		GVEA Meter Reading (kW-hr) 32804								
Percent Operability		100		100										
Field Notes:														

Notes:

45 /53 = "/" between readings indicates gauge reading "before and after adjustment

NR = Not Recorded

Wendell Ave SVE/SSD System OM&M Data Sheet

Wendell Ave - SVE/SSD OM&M Data Sheet													
Date: 2/15/12		Time: 1500		Ambient Temp (°F): 10		Technician: Rhodes/Ballou		Field Instrument Used/Last Calibrated:			RKI Eagle/2-15-12		
SSD System													
Depressurization Wells							Indoor Vapor Monitoring Points					SSD System Mechanical Parameters	
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Hex (ppm)	% CO2	% O2		
DW-1	21	9	50	40	0.0	20.9	SS-4	1.686	620	0.0	20.1	Dilution Valve % open 0	
DW-2	26	6	100	60	0.0	20.9	SS-5	0.108	45	0.0	20.9	Knockout drum level BBSG	
DW-3	8	10	50	50	0.0	20.9	SS-6	0.603	15	0.0	20.9	Manifold Vacuum (inWC) 40	
DW-4	15	10	50	60	0.0	20.9	SS-7	0.090	5	0.0	20.9	Blower Vacuum (inWC) 43	
DW-5	0	8	50	30	0.0	20.9	SS-8	0.028	10	0.0	20.9	Exhaust Temp Digital (°F) 113.5	
DW-6	6	9	50	20	0.0	20.9	SS-9	0.087	35	0.0	20.9	Exhaust Temp Gauge (°F) 124	
Spare							SS-10	0.000	0	0.0	20.9	Exhaust Flow (cfm) 10	
Spare							SS-11	0.000	0	0.0	20.9	Filters Checked/Cleaned? OK	
Field Notes:							SS-12	0.000	15	0.0	20.9		
							SS-13	0.028	25	0.0	20.9		
SVE System													
Extraction Wells							Outdoor Vapor Monitoring Points					SVE System Mechanical Parameters	
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Vac While Sampling (inWC)	Hex (ppm)	%CO2	%O2	
SVE-2	6	15	50	75	0.1	20.9	SG-2 @ 4' bgs	0.337		20	0.1	20.9	Dilution Valve % open 0
SVE-3	6	14	50	100	0.2	20.9	SG-2 @ 8' bgs	0.437		20	0.0	20.9	Knockout drum level BBSG
SVE-4	5	15	50	60	0	20.9	SG-3 @ 4' bgs	0.550		20	0.0	20.9	Manifold Vacuum (inWC) 32
SVE-5	9	15	50	90	0.1	20.9	SG-3 @ 8' bgs	0.680		35	0.0	20.9	Blower Vacuum (inWC) 35
SVE-6	5	13	50	80	0	20.9	SG-7 @ 5' bgs	0.759		0	0.0	20.9	Exhaust Temp Digital (°F) 120
Spare							SG-7 @ 9' bgs	0.771		120	0.2	20.9	Exhaust Temp Gauge (°F) 125
Spare							SG-8 @ 5' bgs	0.853		60	0.0	20.9	Exhaust Flow (cfm) 60
Field Notes:							Filters Checked/Cleaned? OK						
Additional Mechanical and Shared Elements													
Control Room			Exhaust Stack/Heat Trace					Laboratory Sample					
Parameter			SSD System		SVE System			Exhaust Stack Drained?			Effluent Sample ID		
Motor Speed (Hz)			56		40			Yes			12-WAS-079-ES		
IDEC Hourmeter Reading/Time			8747.2 / 1625		5685.4 / 1625			Exhaust Stack (Hex (ppm), %O2, %CO2) 10, 20.9, 0.1			Summa Canister ID 34668		
Hobbs Hourmeter Reading/Time			8752.7 / 1610		5688.8 / 1610			Exhaust Stack Colortec (ppm) 2.5, LL, 100			Time/Date 1545 / 2/15/2012		
Previous IDEC Hr. Reading/Date/Time			8073.7 / 1-18-12 / 1040		5012.3 / 1-18-12 / 1040			Heat Trace On? Yes			Initial Vacuum (inHg) 27		
Previous Hobbs Hr. Reading/Date/Time			8079.2 / 1-18-12 / 1040		5015.7 / 1-18-12 / 1040			LEL Monitor Reading (%LEL) 0			Final Vacuum (inHg) 4.5		
Total Hours Since Last Event IDEC/Hobbs			673.5 / 673.5		673.1 / 673.1			GVEA Meter Reading (kW-hr) 37724					
Percent Operability			100		100								
Field Notes:													

Notes:
 45 /53 = "/" between readings indicates gauge reading "before and after adjustment
 NR = Not Recorded

Wendell Ave SVE/SSD System OM&M Data Sheet

Wendell Ave - SVE/SSD OM&M Data Sheet													
Date: 3/16/12		Time: 1015		Ambient Temp (°F): 10		Technician: Davis		Field Instrument Used/Last Calibrated:			RKI Eagle/ 3-16-12		
SSD System													
Depressurization Wells							Indoor Vapor Monitoring Points					SSD System Mechanical Parameters	
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Hex (ppm)	% CO2	% O2		
DW-1	22	9	50	85	0.0	20.9	SS-4	1.711	30	0.0	20.9	Dilution Valve % open 0	
DW-2	28	6	100	140	0.0	20.9	SS-5	0.194	60	0.0	20.9	Knockout drum level BBSG	
DW-3	8	10	50	110	0.0	20.9	SS-6	0.608	15	0.0	20.9	Manifold Vacuum (inWC) 40	
DW-4	11	10	50	130	0.0	20.9	SS-7	0.012	25	0.0	20.9	Blower Vacuum (inWC) 43	
DW-5	0	10	50	40	0.0	20.9	SS-8	0.023	35	0.0	20.9	Exhaust Temp Digital (°F) 115	
DW-6	6	9	50	55	0.0	20.9	SS-9	0.084	110	0.0	20.9	Exhaust Temp Gauge (°F) 124	
Spare							SS-10	(0.003)	80	0.0	20.9	Exhaust Flow (cfm) 70	
Spare							SS-11	0.003	15	0.0	20.9	Filters Checked/Cleaned? NO	
Field Notes:							SS-12	0.000	5	0.0	20.9		
							SS-13	0.028	30	0.0	20.9		
SVE System													
Extraction Wells							Outdoor Vapor Monitoring Points					SVE System Mechanical Parameters	
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Vac While Sampling (inWC)	Hex (ppm)	%CO2	%O2	
SVE-2	6	15	50	130	0.3	20.9	SG-2 @ 4' bgs	0.011	NR	20*	0.0	20.9	Dilution Valve % open 0
SVE-3	6	14	50	160	0.4	20.9	SG-2 @ 8' bgs	0.122		25*	0.0	20.9	Knockout drum level BBSG
SVE-4	6	15	50	110	0.1	20.9	SG-3 @ 4' bgs	0.249		5*	0.0	20.9	Manifold Vacuum (inWC) 32
SVE-5	8	15	50	140	0.2	20.9	SG-3 @ 8' bgs	0.546		130	0.2	20.9	Blower Vacuum (inWC) 34
SVE-6	5	13	50	120	0.1	20.9	SG-7 @ 5' bgs	0.548		130	0.1	20.9	Exhaust Temp Digital (°F) 113.6
Spare							SG-7 @ 9' bgs	0.555		170	0.4	20.9	Exhaust Temp Gauge (°F) 126
Spare							SG-8 @ 5' bgs	0.700		110	0.0	20.9	Exhaust Flow (cfm) 100
													Filters Checked/Cleaned? no
Field Notes:													
* Readings are suspect, RKI Eagle may have gotten too cold?													
Additional Mechanical and Shared Elements													
Control Room			Exhaust Stack/Heat Trace				Laboratory Sample						
Parameter			SSD System	SVE System	Exhaust Stack Drained? yes			Effluent Sample ID					
Motor Speed (Hz)			57	40	Exhaust Stack (Hex (ppm), %O2, %CO2) 85, 20.9, 0.1			Summa Canister ID					
IDEC Hourmeter Reading/Time			9461.7 / 1155	6399.3 / 1155	Exhaust Stack Colortec (ppm) 2.25 / LL / 100			Time/Date					
Hobbs Hourmeter Reading/Time			9467.3 / 1150	6402.8 / 1150	Heat Trace On? yes			Initial Vacuum (inHg)					
Previous IDEC Hr. Reading/Date/Time			8747.2 / 2-15-12 / 1625	5685.4 / 2-15-12/ 1625	LEL Monitor Reading (%LEL) 0			Final Vacuum (inHg)					
Previous Hobbs Hr. Reading/Date/Time			8752.7 / 2-15-12 / 1610	5688.8 / 2-15-12 / 1610	GVEA Meter Reading (kW-hr) 042681 @ 12:00								
Total Hours Since Last Event IDEC/Hobbs			715.5 / 715.7	715.5 / 715.7									
Percent Operability			100	100									
Field Notes:													

Notes:

45 / 53 = "/" between readings indicates gauge reading "before and after adjustment

NR = Not Recorded

Wendell Ave SVE/SSD System OM&M Data Sheet

Wendell Ave - SVE/SSD OM&M Data Sheet														
Date: 4/20/12		Time: 10:30		Ambient Temp (°F): 50		Technician: Davis		Field Instrument Used/Last Calibrated: RKI Eagle/ 4/20/12						
SSD System														
Depressurization Wells							Indoor Vapor Monitoring Points					SSD System Mechanical Parameters		
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Hex (ppm)	% CO2	% O2			
DW-1	22	9	50	110	0.0	20.9	SS-4	1.705	15	0.0	20.9	Dilution Valve % open 0		
DW-2	28	6	100	25	0.0	20.9	SS-5	0.216	20	0.0	20.9	Knockout drum level BBSG		
DW-3	8	10	50	25	0.0	20.9	SS-6	0.442	25	0.0	20.9	Manifold Vacuum (inWC) 41		
DW-4	15	10	50	45	0.0	20.9	SS-7	0.000	30	0.0	20.9	Blower Vacuum (inWC) 43		
DW-5	0	10	50	5	0.0	20.9	SS-8	0.037	25	0.0	20.9	Exhaust Temp Digital (°F) 111.6		
DW-6	5	9	50	0	0.0	20.9	SS-9	0.103	75	0.0	20.9	Exhaust Temp Gauge (°F) 121		
Spare							SS-10	0.000	60	0.0	20.9	Exhaust Flow (cfm) 70		
Spare							SS-11	0.000	30	0.0	20.9	Filters Checked/Cleaned? NO		
Field Notes:							SS-12	0.000	5	0.0	20.9			
							SS-13	0.025	35	0.0	20.9			
SVE System														
Extraction Wells							Outdoor Vapor Monitoring Points					SVE System Mechanical Parameters		
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Vac While Sampling (inWC)	Hex (ppm)	%CO2	%O2		
SVE-2	7	14	50	80	0.4	20.9	SG-2 @ 4' bgs	SEE NOTES					Dilution Valve % open 0	
SVE-3	7	13	50	70	0.3	20.9	SG-2 @ 8' bgs	SEE NOTES					Knockout drum level BBSG	
SVE-4	8	14	50	80	0.4	20.9	SG-3 @ 4' bgs	0.665	N/R	30	0.0	20.9	Manifold Vacuum (inWC) 32	
SVE-5	11	14	50	110	0.7	20.7	SG-3 @ 8' bgs	0.747	N/R	40	0.0	20.9	Blower Vacuum (inWC) 34	
SVE-6	9	13	50	35	0	20.9	SG-7 @ 5' bgs	0.758	N/R	110	0.0	20.9	Exhaust Temp Digital (°F) 109.9	
Spare							SG-7 @ 9' bgs	0.768	N/R	80	0.1	20.8	Exhaust Temp Gauge (°F) 119	
Spare							SG-8 @ 5' bgs	1.125	N/R	85	0.0	20.9	Exhaust Flow (cfm) 90	
													Filters Checked/Cleaned? NO	
Field Notes: SG-2 submerged in water, attempted to pump water out, but next to snow removal pile and water drained back in.														
SG-7 shallow has small amount of condensation in line														
Additional Mechanical and Shared Elements														
Control Room			Exhaust Stack/Heat Trace				Laboratory Sample							
Parameter			SSD System		SVE System									
Motor Speed (Hz)			57		39		Exhaust Stack Drained? yes							
IDEC Hourmeter Reading/Time			10301.5 / 1145		7238.4 / 1145		Exhaust Stack (Hex (ppm), %O2, %CO2) 55 / 0.2 / 20.9							
Hobbs Hourmeter Reading/Time			10307.3 / 1145		7242.1 / 11:45		Exhaust Stack Colortec (ppm) 3.2 / LL /100							
Previous IDEC Hr. Reading/Date/Time			9461.7 / 3-16-12 / 1155		6399.3 / 3-16-12 / 1155		Heat Trace On? YES							
Previous Hobbs Hr. Reading/Date/Time			9467.3 / 3-16-12 / 1150		6402.8 / 3-16-12 / 1150		LEL Monitor Reading (%LEL) 0							
Total Hours Since Last Event IDEC/Hobbs			839.8 / 839.9		839.8 / 839.9		GVEA Meter Reading (kW-hr) 48207 / 11:45							
Percent Operability			100 /		100									
Field Notes: SSD hourmeters rolled over to 10,000 units.														

Notes:
 45 /53 = "/" between readings indicates gauge reading "before and after adjustment"
 NR = Not Recorded

Wendell Ave SVE/SSD System OM&M Data Sheet

Wendell Ave - SVE/SSD OM&M Data Sheet														
Date: 5/15/12		Time: 1015		Ambient Temp (°F): 50		Technician: Davis		Field Instrument Used/Last Calibrated:			RKI Eagle / 5-15-12			
SSD System														
Depressurization Wells							Indoor Vapor Monitoring Points					SSD System Mechanical Parameters		
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Hex (ppm)	% CO2	% O2			
DW-1	22	9	50	20	0.0	20.9	SS-4	1.693	0	0.0	20.9	Dilution Valve % open 0		
DW-2	28	6	100	40	0.0	20.9	SS-5	0.203	5	0.0	20.9	Knockout drum level BBSG		
DW-3	8	10	50	25	0.0	20.9	SS-6	0.402	30	0.0	20.9	Manifold Vacuum (inWC) 41		
DW-4	15	10	50	35	0.0	20.9	SS-7	0.004	30	0.0	20.9	Blower Vacuum (inWC) 44		
DW-5	0	11	50	0	0.0	20.9	SS-8	0.038	10	0.0	20.9	Exhaust Temp Digital (°F) 108		
DW-6	5	9	50	20	0.0	20.9	SS-9	0.090	35	0.0	20.9	Exhaust Temp Gauge (°F) 114		
Spare							SS-10	0.000	30	0.0	20.9	Exhaust Flow (cfm) 75		
Spare							SS-11	0.000	35	0.1	20.9	Filters Checked/Cleaned? NO		
Field Notes:							SS-12	0.000	15	0.0	20.9	BBSG = Below Bottom of Safety Glass		
							SS-13	0.025	35	0.0	20.9			
Excavation in front of building started @ 12:30. Same time as SS and SG Samples were collected.														
SVE System														
Extraction Wells							Outdoor Vapor Monitoring Points					SVE System Mechanical Parameters		
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Vac While Sampling (inWC)	Hex (ppm)	%CO2	%O2		
SVE-2	6	15	50	65	0.4	20.9	SG-2 @ 4' bgs	0.005		45	0.0	20.9	Dilution Valve % open 0	
SVE-3	6	16	50	35	0.2	20.9	SG-2 @ 8' bgs	0.305		50	0.0	20.9	Knockout drum level BBSG	
SVE-4	10	14	50	80	0.4	20.9	SG-3 @ 4' bgs	0.546		35	0.1	20.9	Manifold Vacuum (inWC) 31	
SVE-5	11	15	50	80	0.5	20.9	SG-3 @ 8' bgs	0.768*		35	0.1	20.9	Blower Vacuum (inWC) 34	
SVE-6	7	11	50	25	0	20.9	SG-7 @ 5' bgs	0.883*		70	0.1	20.9	Exhaust Temp Digital (°F) 99.5	
Spare							SG-7 @ 9' bgs	0.880*		75	0.3	20.9	Exhaust Temp Gauge (°F) 104	
Spare							SG-8 @ 5' bgs	Covered by excavation dirt, unable to sample					Exhaust Flow (cfm) 100	
Field Notes:							Manometer did not stabilize very well for readings at SG-3 @ 8 bgs and both SG-7 samples							
Additional Mechanical and Shared Elements														
Control Room			Exhaust Stack/Heat Trace				Laboratory Sample							
Parameter	SSD System	SVE System												
Motor Speed (Hz)	57	39	Exhaust Stack Drained? NO				Effluent Sample ID 12-WAS-110-ES							
IDEC Hourmeter Reading/Time	10900.6 / 11:05	7837.0 / 11:05	Exhaust Stack (Hex (ppm), %O2, %CO2) 140 / 20.9 / 0.2				Summa Canister ID 34160							
Hobbs Hourmeter Reading/Time	10906.6 / 11:05	7840.9 / 11:05	Exhaust Stack Colortec (ppm) * 4 / L / 100ml				Time/Date 5/15/2012 10:45							
Previous IDEC Hr. Reading/Date/Time	10301.5 / 4-20-11/ 1145	7238.4 / 4-20-11/ 1145	Heat Trace On? no - See Notes				Initial Vacuum (inHg) 25.75							
Previous Hobbs Hr. Reading/Date/Time	10307.3 / 4-20-11/ 1145	7242.1 / 4-20-11/ 1145	LEL Monitor Reading (%LEL) 0				Final Vacuum (inHg) 5							
Total Hours Since Last Event IDEC/Hobbs	599.3	599.3	GVEA Meter Reading (kW-hr) 51584 / 11:05											
Percent Operability	100	100												
Field Notes: Heat Trace Off: Utilidor, SVE 2 thru 6.														
*First used 133LL/100ml and observed reading > 4. Resampled with 133L / 1000ml to get the recorded reading														

Notes:

45 /53 = "/" between readings indicates gauge reading "before and after adjustment

NR = Not Recorded

Wendell Ave SVE/SSD System OM&M Data Sheet

Wendell Ave - SVE/SSD OM&M Data Sheet													
Date:		Time:		Ambient Temp (°F):		Technician:		Field Instrument Used/Last Calibrated:					
SSD System													
Depressurization Wells							Indoor Vapor Monitoring Points				SSD System Mechanical Parameters		
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Hex (ppm)	% CO2	% O2		
DW-1	22	10	50	20	0.0	20.9	SS-4	1.625	0	0.0	20.9	Dilution Valve % open 0	
DW-2	28	6	100	30	0.0	20.9	SS-5	0.219	0	0.0	20.9	Knockout drum level BBSG	
DW-3	8	10	50	15	0.0	20.9	SS-6	0.407	5	0.0	20.9	Manifold Vacuum (inWC) 41	
DW-4	16	10	50	20	0.0	20.9	SS-7	0.009	10	0.0	20.9	Blower Vacuum (inWC) 43	
DW-5	<2	10	50	0	0.0	20.9	SS-8	0.041	0	0.0	20.9	Exhaust Temp Digital (°F) 113.9	
DW-6	6	9	50	5	0.0	20.9	SS-9	0.108	10	0.0	20.9	Exhaust Temp Gauge (°F) 124	
Spare							SS-10	0.003	5	0.0	20.9	Exhaust Flow (cfm) 75	
Spare							SS-11	0.003	25	0.2	20.9	Filters Checked/Cleaned? NO	
Field Notes:							SS-12	0.000	5	0.0	20.9		
							SS-13	0.035	10	0.0	20.9		
SVE System													
Extraction Wells							Outdoor Vapor Monitoring Points				SVE System Mechanical Parameters		
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Vac While Sampling (inWC)	Hex (ppm)	%CO2	%O2	
SVE-2	9	14	50	50	0.9	20.3	SG-2 @ 4' bgs	0.033	NR	30	0.0	20.9	Dilution Valve % open 0
SVE-3	7	15	50	15	0.5	20.9	SG-2 @ 8' bgs	0.643		50	0.2	20.9	Knockout drum level BBSG
SVE-4	11	14	50	25	0.5	20.7	SG-3 @ 4' bgs	0.389		25	0.0	20.9	Manifold Vacuum (inWC) 32
SVE-5	12	15	50	5	0.4	20.9	SG-3 @ 8' bgs	0.873		35	0.0	20.9	Blower Vacuum (inWC) 34
SVE-6	12	9	50	0	0.1	20.9	SG-7 @ 5' bgs	1.007		90	0.0	20.9	Exhaust Temp Digital (°F) 105.5
Spare							SG-7 @ 9' bgs	1.038		35	0.2	20.9	Exhaust Temp Gauge (°F) 114
Spare							SG-8 @ 5' bgs	1.592		40	0.0	20.9	Exhaust Flow (cfm) 95
Field Notes:													Filters Checked/Cleaned? NO
Additional Mechanical and Shared Elements													
Control Room							Exhaust Stack/Heat Trace				Laboratory Sample		
Parameter	SSD System		SVE System				Exhaust Stack Drained? yes				Effluent Sample ID		
Motor Speed (Hz)	57		39				Exhaust Stack (Hex (ppm), %O2, %CO2) 30 / 20.9 / 0.3				Summa Canister ID		
IDEC Hourmeter Reading/Time	11739.9 / 11:15		739.5 11:15				Exhaust Stack Colortec (ppm) 5 ppm / L / 10x				Time/Date		
Hobbs Hourmeter Reading/Time	11719.8 / 11:15		8653.6 / 11:15				Heat Trace On? no				Initial Vacuum (inHg)		
Previous IDEC Hr. Reading/Date/Time	10900.6 / 5-15-12 / 11:05		7837.0 / 5-15-12 / 11:05				LEL Monitor Reading (%LEL) 0				Final Vacuum (inHg)		
Previous Hobbs Hr. Reading/Date/Time	10906.6 / 5-15-12 / 11:05		7840.9 / 5-15-12 / 11:05				GVEA Meter Reading (KW-hr) 54527 / 11:17						
Total Hours Since Last Event IDEC/Hobbs	816.17		816.17										
Percent Operability	100		100										
Field Notes:							SSD system rolled over to 11,000. SVE IDEC reading is suspect. SVE percent operability calculated using Hobbs readings.						

Notes:
 45 /53 = "/" between readings indicates gauge reading "before and after adjustment
 NR = Not Recorded

Wendell Ave SVE/SSD System OM&M Data Sheet

Wendell Ave - SVE/SSD OM&M Data Sheet														
Date:	7/16/12	Time:	13:45	Ambient Temp (°F):	60	Technician:	Davis	Field Instrument Used/Last Calibrated:	RKI Eagle 7-16-2012					
SSD System														
Depressurization Wells							Indoor Vapor Monitoring Points					SSD System Mechanical Parameters		
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Hex (ppm)	% CO2	% O2	Dilution Valve % open 0		
DW-1	22	10	50	20	0.0	20.9	SS-4	1.635	0	0.0	20.9	Knockout drum level BBSG		
DW-2	28	6	100	35	0.0	20.9	SS-5	0.220	0	0.0	20.9	Manifold Vacuum (inWC) 41		
DW-3	8	9	50	15	0.0	20.9	SS-6	0.409	0	0.0	20.9	Blower Vacuum (inWC) 44		
DW-4	11	10	50	25	0.0	20.9	SS-7	0.008	10	0.0	20.9	Exhaust Temp Digital (°F) 112.8		
DW-5	2	11	50	0	0.0	20.9	SS-8	0.033	5	0.0	20.9	Exhaust Temp Gauge (°F) 121		
DW-6	5	9	50	10	0.0	20.9	SS-9	0.102	10	0.0	20.9	Exhaust Flow (cfm) 75		
Spare							SS-10	0.000	5	0.0	20.9	Filters Checked/Cleaned? YES		
Spare							SS-11	0.000	35	0.2	20.9			
Field Notes: DW-5 - Dirty Rotometer							SS-12	0.003	0	0.0	20.9			
							SS-13	0.033	10	0.0	20.9			
SVE System														
Extraction Wells							Outdoor Vapor Monitoring Points					SVE System Mechanical Parameters		
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Vac While Sampling (inWC)	Hex (ppm)	%CO2	%O2	Dilution Valve % open 0	
SVE-2	7	16	50	45	0.4	20.9	SG-2 @ 4' bgs	0.027		25	0.0	20.9	Knockout drum level BBSG	
SVE-3	7	16	50	50	0.6	20.5	SG-2 @ 8' bgs	0.446		70	0.5	20.9	Manifold Vacuum (inWC) 32	
SVE-4	10	14	50	70	0.9	19.8	SG-3 @ 4' bgs	0.700		25	0.1	20.9	Blower Vacuum (inWC) 34	
SVE-5	12	15	50	55	0.7	20.2	SG-3 @ 8' bgs	0.290		30	0.1	20.9	Exhaust Temp Digital (°F) 105.1	
SVE-6	12	8	50	35	0.2	20.9	SG-7 @ 5' bgs	0.740		25	0.0	20.9	Exhaust Temp Gauge (°F) 112	
Spare							SG-7 @ 9' bgs	0.821		25	0.2	20.9	Exhaust Flow (cfm) 95	
Spare							SG-8 @ 5' bgs	1.292		130	0.2	20.9	Filters Checked/Cleaned? YES	
Field Notes:														
Additional Mechanical and Shared Elements														
Control Room			SSD System		SVE System		Exhaust Stack/Heat Trace			Laboratory Sample				
Parameter														
Motor Speed (Hz)			57		39 / 41		Exhaust Stack Drained? yes			Effluent Sample ID				
IDECC Hourmeter Reading/Time			**1414.5 / 13:55		***1413.5 / 13:55		Exhaust Stack (Hex (ppm), %O2, %CO2) 35ppm, 20.9, 0.3			Summa Canister ID				
Hobbs Hourmeter Reading/Time			12394.4 / 13:55		9327.6 / 13:55		Exhaust Stack Colortec (ppm) 6 / L / 100mL			Time/Date				
Previous IDECC Hr. Reading/Date/Time			11739.9 / 11:15		739.5 11:15		Heat Trace On? no			Initial Vacuum (inHg)				
Previous Hobbs Hr. Reading/Date/Time			11719.8 / 11:15		8653.6 / 11:15		LEL Monitor Reading (%LEL) 0			Final Vacuum (inHg)				
Total Hours Since Last Event IDECC/Hobbs			674.6666667		674.6666667		GVEA Meter Reading (kW-hr) 56993							
Percent Operability			100											
Field Notes: Turned SVE motor speed to 41 Hz - Vibration stopped- left running at this speed														
**SDD IDECC reads 1414.5, assumed to be 12414.5, accounting for rollover. Percent operability calculated from Hobbs meter readings														
***SVE IDECC reading seems to have reset at 10,000. Values are giving correct percent operability														

Notes:

45 / 53 = "/" between readings indicates gauge reading "before and after adjustment

NR = Not Recorded

Wendell Ave SVE/SSD System OM&M Data Sheet

Wendell Ave - SVE/SSD OM&M Data Sheet														
Date: 8/23/12		Time: 1130		Ambient Temp (°F): 60		Technician: davis		Field Instrument Used/Last Calibrated:		RKI EAGLE/ 8-23-12				
SSD System														
Depressurization Wells							Indoor Vapor Monitoring Points					SSD System Mechanical Parameters		
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Hex (ppm)	% CO2	% O2			
DW-1	22	10	50	25	0.0	20.9	SS-4	1.624	5	0.0	20.9	Dilution Valve % open 0		
DW-2	22	6	100	50	0.0	20.9	SS-5	0.222	5	0.0	20.9	Knockout drum level BBSG		
DW-3	9	10	50	35	0.0	20.9	SS-6	0.404	10	0.0	20.9	Manifold Vacuum (inWC) 40		
DW-4	16	10	50	45	0.0	20.9	SS-7	0.006	10	0.0	20.9	Blower Vacuum (inWC) 43		
DW-5	2	11	50	20	0.0	20.9	SS-8	0.038	15	0.0	20.9	Exhaust Temp Digital (°F) 115.6		
DW-6	5	9	50	40	0.0	20.9	SS-9	0.096	15	0.0	20.9	Exhaust Temp Gauge (°F) 124		
Spare							SS-10	0.000	10	0.0	20.9	Exhaust Flow (cfm) 75		
Spare							SS-11	0.000	45	0.2	20.9	Filters Checked/Cleaned? NO		
Field Notes:							SS-12	0.000	0	0.0	20.9			
							SS-13	0.031	10	0.0	20.9			
SVE System														
Extraction Wells							Outdoor Vapor Monitoring Points					SVE System Mechanical Parameters		
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Vac While Sampling (inWC)	Hex (ppm)	%CO2	%O2		
SVE-2	7	17	50	60	0.4	20.9	SG-2 @ 4' bgs	0.000		70	0.0	20.9	Dilution Valve % open 0	
SVE-3	7	17	50	85	0.7	20.7	SG-2 @ 8' bgs	0.333		80	0.1	20.9	Knockout drum level BBSG	
SVE-4	11	15	50	110	1.2	19.6	SG-3 @ 4' bgs	0.212		45	0.0	20.9	Manifold Vacuum (inWC) 34	
SVE-5	12	16	50	100	0.8	20.4	SG-3 @ 8' bgs	0.190		15	0.0	20.9	Blower Vacuum (inWC) 37	
SVE-6	14	9	50	80	0.3	20.9	SG-7 @ 5' bgs	0.719		45	0.0	20.9	Exhaust Temp Digital (°F) 110.6	
Spare							SG-7 @ 9' bgs	0.771		90	0.1	20.9	Exhaust Temp Gauge (°F) 120	
Spare							SG-8 @ 5' bgs	1.150		95	0.3	20.9	Exhaust Flow (cfm) 100	
Field Notes:														
Additional Mechanical and Shared Elements														
Control Room						Exhaust Stack/Heat Trace			Laboratory Sample					
Parameter			SSD System		SVE System									
Motor Speed (Hz)			57		41		Exhaust Stack Drained? yes			Effluent Sample ID				
IDEC Hourmeter Reading/Time			*2323.9 / 1125		2322.3 / 1125		Exhaust Stack (Hex (ppm), %O2, %CO2) 70, 20.9, 0.4			Summa Canister ID				
Hobbs Hourmeter Reading/Time			**3309.9 / 1125		**0236.4 / 1125		Exhaust Stack Colortec (ppm) 6 / L / 100 mL			Time/Date				
Previous IDEC Hr. Reading/Date/Time			12414.5 / 1355		1413.5 / 1355		Heat Trace On? no			Initial Vacuum (inHg)				
Previous Hobbs Hr. Reading/Date/Time			12394.4 / 13:55		9327.6 / 13:55		LEL Monitor Reading (%LEL) 0			Final Vacuum (inHg)				
Total Hours Since Last Event IDEC/Hobbs			909.5		909.5		GVEA Meter Reading (kW-hr) 06586 / 1125							
Percent Operability			100		100									
Field Notes: * Due to continued rollover issues, IDEC meter reading is 13323.9 vs the read-out 2323.9, Will continue to correct														
** Accounting for rollover, SDD Hobbs meter reading is 13309.9 and SVE Hobbs meter reading is actually 10236.4.														

Notes:

45 /53 = "/" between readings indicates gauge reading "before and after adjustment

NR = Not Recorded

Wendell Ave SVE/SSD System OM&M Data Sheet

Wendell Ave - SVE/SSD OM&M Data Sheet													
Date: 9/7/12		Time: 1000		Ambient Temp (°F): 45		Technician: Rhodes		Field Instrument Used/Last Calibrated:			RKI Eagle/9-7-12		
SSD System													
Depressurization Wells							Indoor Vapor Monitoring Points					SSD System Mechanical Parameters	
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Hex (ppm)	% CO2	% O2	Dilution Valve % open 0	
DW-1	22	10	60	50	0.0	20.9	SS-4	1.645	5	0.0	20.9	Knockout drum level BBSG	
DW-2	27	6	100	70	0.0	20.9	SS-5	0.215	15	0.0	20.9	Manifold Vacuum (inWC) 40	
DW-3	8	9/10	50	50	0.0	20.9	SS-6	0.404	5	0.0	20.9	Blower Vacuum (inWC) 43	
DW-4	16	10	50	55	0.0	20.9	SS-7	0.003	10	0.0	20.9	Exhaust Temp Digital (°F) 114.5	
DW-5	2	11/10	50	25	0.0	20.9	SS-8	0.033	5	0.0	20.9	Exhaust Temp Gauge (°F) 124	
DW-6	6	9/10	50	35	0.0	20.9	SS-9	0.095	5	0.0	20.9	Exhaust Flow (cfm) 70	
Spare							SS-10	0.000	10	0.0	20.9	Filters Checked/Cleaned? Checked, OK	
Spare							SS-11	0.000	30	0.1	20.9		
Field Notes:							SS-12	0.000	5	0.0	20.9		
							SS-13	0.033	5	0.0	20.9		
SVE System													
Extraction Wells							Outdoor Vapor Monitoring Points					SVE System Mechanical Parameters	
Line	Vacuum (inWC)	Flow (scfm)	Valve % Open	Hex (ppm)	% CO2	%O2	Point ID	Vacuum (inWC)	Vac While Sampling (inWC)	Hex (ppm)	%CO2	%O2	Dilution Valve % open 0
SVE-2	7/6	17/15	60	70	0.4	20.9	SG-2 @ 4' bgs	0.000		80	0.0	20.9	Knockout drum level BBSG
SVE-3	7	17/15	60	100	0.7	20.5	SG-2 @ 8' bgs	0.330		80	0.1	20.9	Manifold Vacuum (inWC) 35
SVE-4	12	15	60	130	1.2	19.5	SG-3 @ 4' bgs	0.203		55	0.1	20.9	Blower Vacuum (inWC) 38
SVE-5	12	15	60	110	0.7	20.2	SG-3 @ 8' bgs	0.194		25	0.0	20.9	Exhaust Temp Digital (°F) 109.5
SVE-6	14/19	8/11	60/100	100	0.3	20.8	SG-7 @ 5' bgs	0.705		50	0.0	20.9	Exhaust Temp Gauge (°F) 118
Spare							SG-7 @ 9' bgs	0.781		80	0.1	20.9	Exhaust Flow (cfm) 100
Spare							SG-8 @ 5' bgs	1.163		90	0.1	20.9	Filters Checked/Cleaned? Checked, OK
Field Notes:													
Additional Mechanical and Shared Elements													
Control Room			Exhaust Stack/Heat Trace			Laboratory Sample							
Parameter	SSD System	SVE System	Exhaust Stack Drained? Yes			Effluent Sample ID NA							
Motor Speed (Hz)	57	41	Exhaust Stack (Hex (ppm), %O2, %CO2) 70, 20.8, 0.3			Summa Canister ID							
IDEC Hourmeter Reading/Time	2683.5 / 1100	2681.5 / 1100	Exhaust Stack Colortec (ppm) >3, <9 ppm, LL tube, 100mL			Time/Date							
Hobbs Hourmeter Reading/Time	3663.4 / 1100	595.7 / 1100	Heat Trace On? No			Initial Vacuum (inHg)							
Previous IDEC Hr. Reading/Date/Time	2323.9 / 8-23-12 / 1125	2322.3 / 8-23-12 / 1125	LEL Monitor Reading (%LEL) 0			Final Vacuum (inHg)							
Previous Hobbs Hr. Reading/Date/Time	3309.9 / 8-23-12 / 1125	0236.4 / 8-23-12 / 1125	GVEA Meter Reading (kW-hr) 61987										
Total Hours Since Last Event IDEC/Hobbs	100/ 98	100/100											
Percent Operability													
Field Notes:													

Notes:

45 /53 = "/" between readings indicates gauge reading "before and after adjustment

NR = Not Recorded

APPENDIX D

PHOTOGRAPH LOG

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PHOTOGRAPH 1: SVE-4 CRACKED PIPE WHERE CONVEYANCE PIPING CONNECTS TO WELL CASING.



PHOTOGRAPH 2: SVE-4 WELL REPAIR WITH NEW FITTINGS.



PHOTOGRAPH 3: SUMMA™ CANISTER AT LOCATION SG-3 DURING FEBRUARY VAPOR INTRUSION EVENT.



PHOTOGRAPH 4: SUMMA™ CANISTERS CONNECTED WITH DUPLICATE SAMPLING TEE AT LOCATION IA-8 DURING FEBRUARY SAMPLING EVENT.



PHOTOGRAPH 5: EXCAVATION PROGRESS IN FRONT OF ESL BUILDING.



PHOTOGRAPH 6: SOIL REMOVED DURING EXCAVATION IN FRONT OF ESL BUILDING.

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APPENDIX E

330 WENDELL AVE BUILDING SURVEY

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**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
BUILDING INVENTORY AND INDOOR AIR SAMPLING QUESTIONNAIRE**

This form should be prepared by a person familiar with indoor air assessments with assistance from a person knowledgeable about the building. Complete this form for each building in which interior samples (e.g., indoor air, crawl space, or subslab soil gas samples) will be collected. Section I of this form should be used to assist in choosing an investigative strategy during workplan development. Section II should be used to assist in identification of complicating factors during a presampling building walkthrough.

Preparer's Name Andrew Weller Date/Time Prepared 9/4/12 / 10:00
Preparer's Affiliation OASIS - ERM Phone No. 907-458-8274
Purpose of Investigation ADEC Term Contract, 314 Wendell Ave Project, SFY 2012

SECTION I: BUILDING INVENTORY

1. OCCUPANT OR BUILDING PERSONNEL:

Interviewed ☒ Y / ☐ N

Last Name Happner First Name Ted

Address 330 Wendell Ave

County Fairbanks, AK 99701

Phone No. 907-452-2492

Number of Occupants/persons at this location Suite B is unoccupied Age of Occupants N/A

estimate 20 persons in entire buildings with Age (25-55 years old)

2. OWNER or LANDLORD: (Check if same as occupant ☒ X)

Interviewed: Y / ☐ N

Last Name _____ First Name _____

Address _____

County _____

Phone No. _____

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential
Industrial

School
Church

Commercial/Multi-use
Other _____

primarily law offices

If the property is residential, type? (Circle appropriate response)

Ranch
Raised Ranch
Cape Cod
Duplex
Modular

2-Family
Split Level
Contemporary
Apartment House
Log Home

3-Family
Colonial
Mobile Home
Townhouses/Condos
Other _____

If multiple units, how many? 25

If the property is commercial, type?

Business Types(s) Law offices (in five suites, appears 3 are occupied)

Does it include residences (i.e., multi-use)? Y ☒ N

If yes, how many? _____

Other characteristics:

Number of floors 2

1st floor built in 1960's 2nd floor built in 1970's
Building age

Is the building insulated? Y ☒ N

How air tight? Tight / Average / Not Tight

Have occupants noticed chemical odors in the building?

Y ☒ N

If yes, please describe: _____

4. AIRFLOW

Use air current tubes, tracer smoke, or knowledge about the building to evaluate airflow patterns and qualitatively describe:

Airflow between floors

N/A

Airflow in building near suspected source

N/A

Outdoor air infiltration

Air enters suite at front door leading into office.
Front door near entryway is airtight.

Infiltration into air ducts

Air leaves the suite via the shower drain (P-trap probably dry),
vent in storage room (ventilation is off, but air still enters the duct),
and the baseboard heater.

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

- a. Above grade construction: wood frame log concrete brick on slab
 constructed on pilings with enclosed air space constructed on pilings with open air space
- b. Basement type: full crawlspace slab-on-grade other _____
- c. Basement floor: concrete dirt stone other N/A
- d. Basement floor: unsealed sealed sealed with N/A
- e. Foundation walls: ~~poured~~ block stone other N/A
- f. Foundation walls: unsealed sealed sealed with N/A
- g. The basement is: wet damp dry N/A
- h. The basement is: finished unfinished partially finished N/A
- i. Sump present? Y / N N/A
- j. Water in sump? Y / N / not applicable N/A

Basement/Lowest level depth below grade no basement (feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

drains in kitchen + bathroom

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (Circle all that apply – not primary)

Hot air circulation Heat pump Hot water baseboard
 Space Heaters Stream radiation Radiant floor
 Electric baseboard Wood stove Outdoor wood boiler Other _____

The primary type of fuel used is:

Natural Gas Fuel Oil Kerosene hot water from Aurora Energy
 Electric Propane Solar
 Wood Coal

Domestic hot water tank fueled by N/A

Boiler/furnace located in: Basement Outdoors Main Floor Other _____

Do any of the heating appliances have cold-air intakes? Y / N N/A

Type of air conditioning or ventilation used in this building:

Central Air Window units Open Windows None

all A/C units I-3 are currently off

Commercial HVAC

Heat-recovery system

Passive air system

Are there air distribution ducts present?

Y N No ventilation operating in Suite B

Describe the ventilation system in the building, its condition where visible, and the tightness of duct joints. Indicate the locations of air supply and exhaust points on the floor plan.

one duct in Suite B - not operating although
air flows into it.

Is there a radon mitigation system for the building/structure? Y / N Date of Installation _____

Is the system active or passive?

Active/Passive

N/A

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level General Use of Each Floor (e.g. family room, bedroom, laundry, workshop, storage)

Basement N/A

1st Floor office suites

2nd Floor office suites

3rd Floor N/A

8. WATER AND SEWAGE

Water Supply:

Public Water

Drilled Well

Driven Well

Dug Well

Other _____

Sewage Disposal:

Public Sewer

Septic Tank

Leach Field

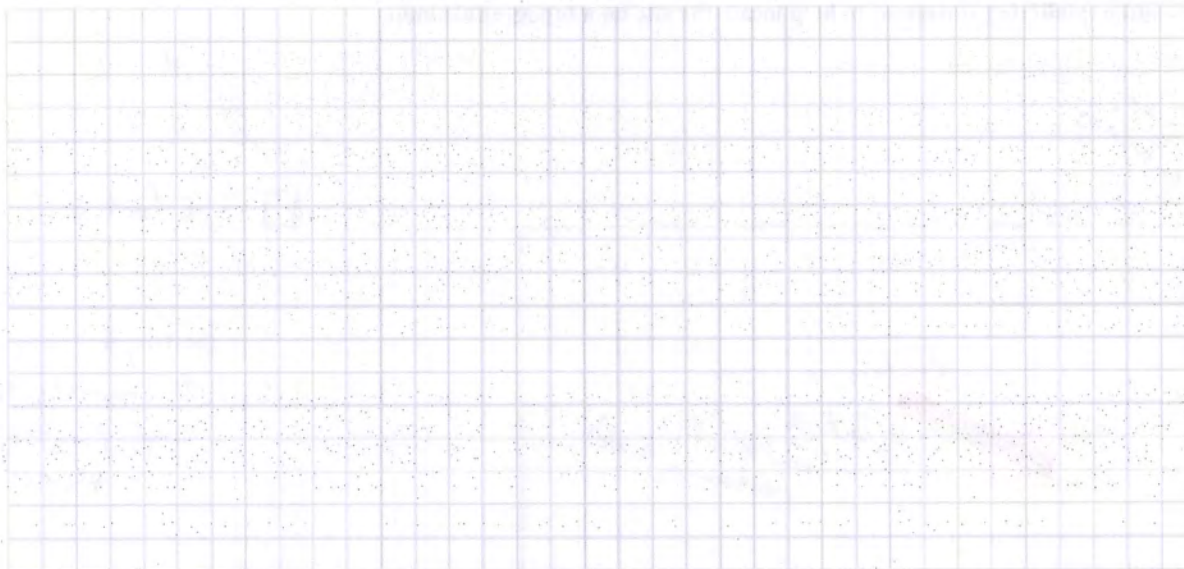
Dry Well

Other _____

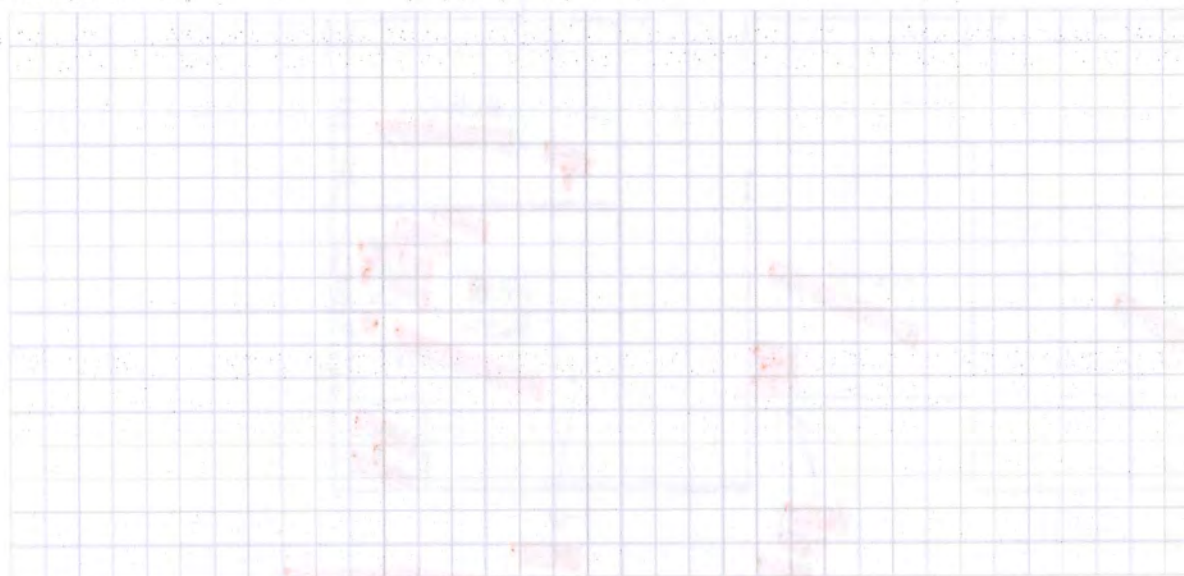
9. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:



First Floor:

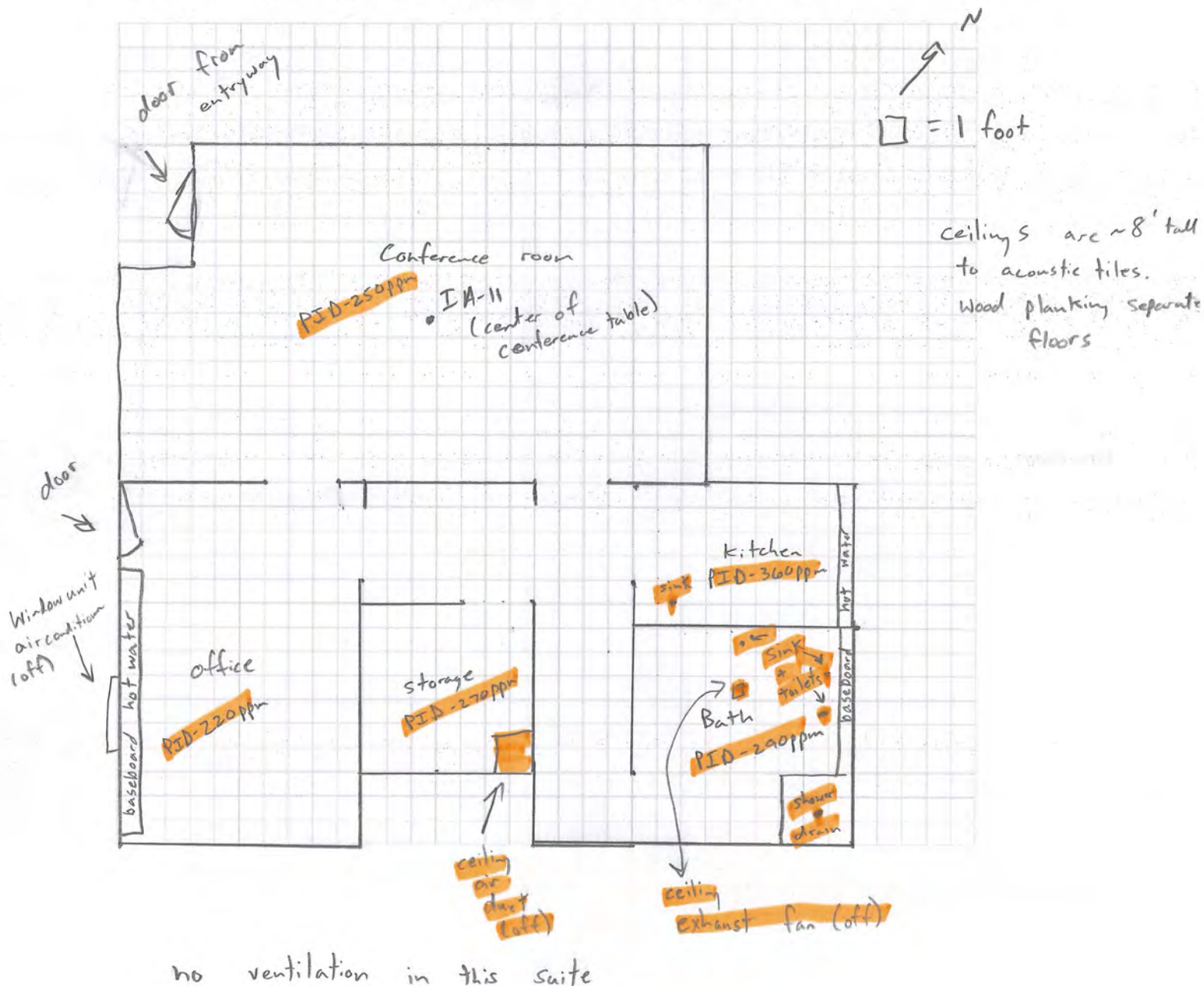


Indoor @

10. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

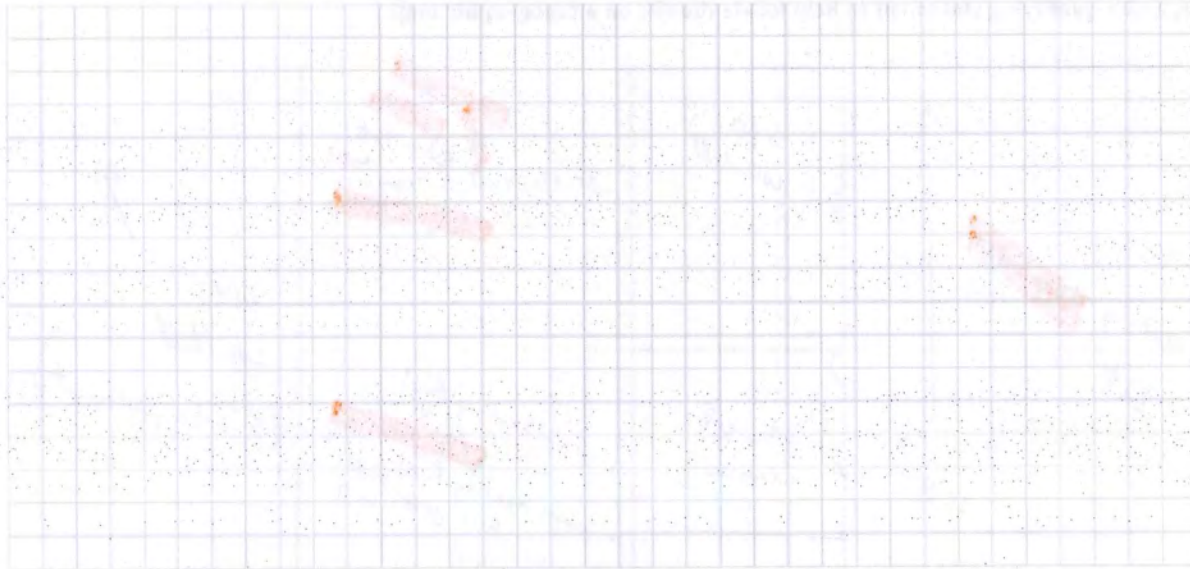
Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



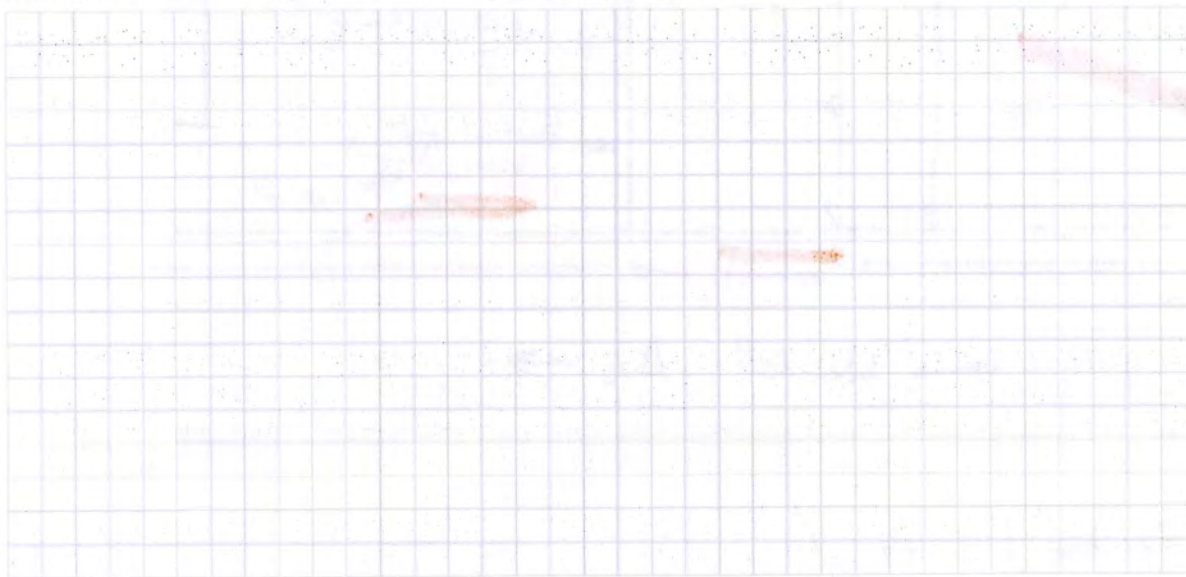
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Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:



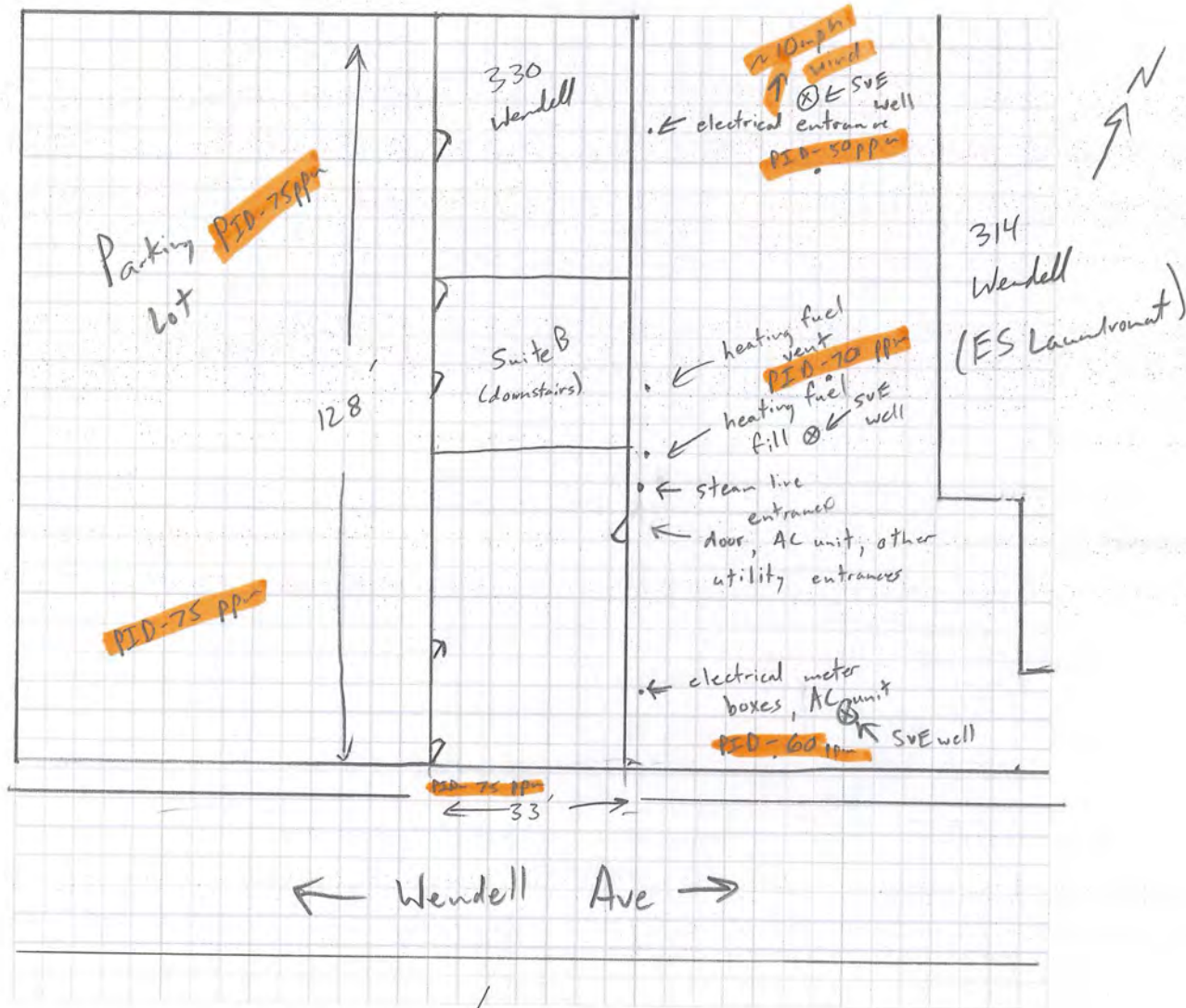
First Floor:



10. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



□ one box = 5-ft

⌞ = door

gas station ~ 150 ft to South

SECTION II: INDOOR AIR SAMPLING QUESTIONNAIRE

This section should be completed during a presampling walkthrough. If indoor air sources of COCs are identified and removed, consider ventilating the building prior to sampling. However, ventilation and heating systems should be operating normally for 24 hours prior to sampling.

a) 1. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

Is there an attached garage?

Y / ☒ N

Does the garage have a separate heating unit?

Y / N / ☒ NA

Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car)

Y / N / ☒ NA

Please specify _____

Has the building ever had a fire?

Y / ☒ N When? _____

Is a kerosene or unvented gas space heater present?

Y / ☒ N Where? _____

Is there a workshop or hobby/craft area?

Y / ☒ N Where & Type _____

Is there smoking in the building?

Y / ☒ N How frequently? _____

Has painting/staining been done in the last 6 months?

Y / N Where & When? possibly in kitchen

Is there new carpet, drapes or other textiles?

Y / ☒ N Where & When? _____

Is there a kitchen exhaust fan?

Y / ☒ N If yes, where vented? _____

Is there a bathroom exhaust fan?

☒ Y / N If yes, where vented? @ roof. roof?

Is there a clothes dryer?

Y / ☒ N If yes, is it vented outside? Y / N

Are cleaning products, cosmetic products, or pesticides used that could interfere with indoor air sampling? ☒ Y / N

If yes, please describe one bottle of Joy + one bottle of Zep Stainless Steel Cleaner - little PID response on both (see page I-8) - left them in place during sampling

Do any of the building occupants use solvents at work? Y / ☒ N

(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist)

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? Y / ☒ N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

☒ Yes, use dry-cleaning regularly (weekly)

No

Yes, use dry-cleaning infrequently (monthly or less)

Unknown

Yes, work at a dry-cleaning services

In other suites in this building, occupants occasionally use dry cleaning services.

2. PRODUCT INVENTORY FORM (For use during building walkthrough)

Make & Model of field instrument used PPB Rae plus PID

List specific products found in the residence that have the potential to affect indoor air quality:

[illegible]

* Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**

** Photographs of the front and back of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

This form modified from:

ITRC (Interstate Technology & Regulatory Council). 2007. *Vapor Intrusion Pathway: A Practical Guideline*. VI-1. Washington, D.C.: Interstate Technology & Regulatory Council, Vapor Intrusion Team. www.itrcweb.org.

The Alaska Department of Environmental Conservation's Contaminated Sites Program protects human health and the environment by managing the cleanup of contaminated soil and groundwater in Alaska. For more information, please contact our staff at the Contaminated Site program closest to you:

Juneau: 907-465-5390 / Anchorage: 907-269-7503

Fairbanks: 907-451-2153 / Kenai: 907-262-5210

APPENDIX F

SFY 2012 AIR SAMPLE LABORATORY REPORTS

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11/8/2011

Mr. Cody Black

Oasis Environmental, Inc.

825 W. 8th Avenue

Suite 200

Anchorage AK 99501

Project Name: SFY 2012 Wendell Ave

Project #: 14-210-2-2

Workorder #: 1110542A

Dear Mr. Cody Black

The following report includes the data for the above referenced project for sample(s) received on 10/26/2011 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kelly Buettner

Project Manager

WORK ORDER #: 1110542A

Work Order Summary

CLIENT: Mr. Cody Black
Oasis Environmental, Inc.
825 W. 8th Avenue
Suite 200
Anchorage, AK 99501

BILL TO: Mr. Cody Black
Oasis Environmental, Inc.
825 W. 8th Avenue
Suite 200
Anchorage, AK 99501

PHONE: 907-258-4880

P.O. # 1592

FAX:

PROJECT # 14-210-2-2 SFY 2012 Wendell Ave

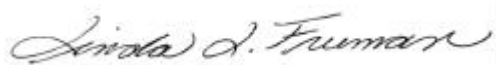
DATE RECEIVED: 10/26/2011

CONTACT: Kelly Buettner

DATE COMPLETED: 11/08/2011

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	11-WAS-062-AA	Modified TO-15 SIM	3.0 "Hg	5 psi
02A	11-WAS-063-IA	Modified TO-15 SIM	8.2 "Hg	5 psi
03A	11-WAS-064-IA	Modified TO-15 SIM	6.6 "Hg	5 psi
04A	11-WAS-065-IA	Modified TO-15 SIM	7.0 "Hg	5 psi
05A	Lab Blank	Modified TO-15 SIM	NA	NA
06A	CCV	Modified TO-15 SIM	NA	NA
07A	LCS	Modified TO-15 SIM	NA	NA
07AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY:



Laboratory Director

DATE: 11/08/11

Certification numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 SIM
Oasis Environmental, Inc.
Workorder# 1110542A

Four 6 Liter Summa Canister (100% Certified) samples were received on October 26, 2011. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	$\leq 30\%$ RSD with 2 compounds allowed out to $< 40\%$ RSD	Project specific; default criteria is $\leq 30\%$ RSD with 10% of compounds allowed out to $< 40\%$ RSD
Daily Calibration	$\pm 30\%$ Difference	Project specific; default criteria is $\leq 30\%$ Difference with 10% of compounds allowed out up to $\leq 40\%$; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: 11-WAS-062-AA

Lab ID#: 1110542A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.030	0.11	0.20	0.76

Client Sample ID: 11-WAS-063-IA

Lab ID#: 1110542A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.037	9.8	0.25	66

Client Sample ID: 11-WAS-064-IA

Lab ID#: 1110542A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.034	3.9	0.23	27

Client Sample ID: 11-WAS-065-IA

Lab ID#: 1110542A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.035	3.9	0.24	27

Client Sample ID: 11-WAS-062-AA

Lab ID#: 1110542A-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	c102816	Date of Collection: 10/20/11 4:10:00 PM
Dil. Factor:	1.49	Date of Analysis: 10/28/11 09:10 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.015	Not Detected	0.038	Not Detected
cis-1,2-Dichloroethene	0.030	Not Detected	0.12	Not Detected
Trichloroethene	0.030	Not Detected	0.16	Not Detected
Tetrachloroethene	0.030	0.11	0.20	0.76
trans-1,2-Dichloroethene	0.15	Not Detected	0.59	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: 11-WAS-063-IA

Lab ID#: 1110542A-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	c102817	Date of Collection: 10/20/11 4:20:00 PM
Dil. Factor:	1.84	Date of Analysis: 10/28/11 09:49 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.018	Not Detected	0.047	Not Detected
cis-1,2-Dichloroethene	0.037	Not Detected	0.14	Not Detected
Trichloroethene	0.037	Not Detected	0.20	Not Detected
Tetrachloroethene	0.037	9.8	0.25	66
trans-1,2-Dichloroethene	0.18	Not Detected	0.73	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: 11-WAS-064-IA

Lab ID#: 1110542A-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	c102818	Date of Collection: 10/20/11 4:30:00 PM
Dil. Factor:	1.72	Date of Analysis: 10/28/11 10:29 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.044	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
Tetrachloroethene	0.034	3.9	0.23	27
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	110	70-130

Client Sample ID: 11-WAS-065-IA

Lab ID#: 1110542A-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	c102819	Date of Collection: 10/20/11 4:40:00 PM
Dil. Factor:	1.75	Date of Analysis: 10/28/11 11:11 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.018	Not Detected	0.045	Not Detected
cis-1,2-Dichloroethene	0.035	Not Detected	0.14	Not Detected
Trichloroethene	0.035	Not Detected	0.19	Not Detected
Tetrachloroethene	0.035	3.9	0.24	27
trans-1,2-Dichloroethene	0.18	Not Detected	0.69	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: Lab Blank

Lab ID#: 1110542A-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	c102810	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/28/11 03:23 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: CCV

Lab ID#: 1110542A-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	c102804	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/28/11 10:10 AM

Compound	%Recovery
Vinyl Chloride	110
cis-1,2-Dichloroethene	99
Trichloroethene	85
Tetrachloroethene	88
trans-1,2-Dichloroethene	92

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	126	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	108	70-130

Client Sample ID: LCS

Lab ID#: 1110542A-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	c102805	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/28/11 11:08 AM

Compound	%Recovery
Vinyl Chloride	113
cis-1,2-Dichloroethene	100
Trichloroethene	86
Tetrachloroethene	87
trans-1,2-Dichloroethene	102

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	118	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	112	70-130

Client Sample ID: LCSD

Lab ID#: 1110542A-07AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	c102806	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/28/11 11:49 AM

Compound	%Recovery
Vinyl Chloride	113
cis-1,2-Dichloroethene	106
Trichloroethene	89
Tetrachloroethene	88
trans-1,2-Dichloroethene	109

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	119	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	105	70-130

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11/8/2011

Mr. Cody Black

Oasis Environmental, Inc.

825 W. 8th Avenue

Suite 200

Anchorage AK 99501

Project Name: SFY 2012 Wendell Ave

Project #: 14-210-2-2

Workorder #: 1110542B

Dear Mr. Cody Black

The following report includes the data for the above referenced project for sample(s) received on 10/26/2011 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kelly Buettner

Project Manager

WORK ORDER #: 1110542B

Work Order Summary

CLIENT: Mr. Cody Black
Oasis Environmental, Inc.
825 W. 8th Avenue
Suite 200
Anchorage, AK 99501

BILL TO: Mr. Cody Black
Oasis Environmental, Inc.
825 W. 8th Avenue
Suite 200
Anchorage, AK 99501

PHONE: 907-258-4880

P.O. # 1592

FAX:

PROJECT # 14-210-2-2 SFY 2012 Wendell Ave

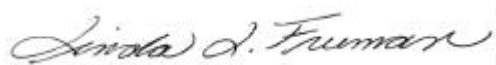
DATE RECEIVED: 10/26/2011

CONTACT: Kelly Buettner

DATE COMPLETED: 11/08/2011

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
05A	11-WAS-066-SS	Modified TO-15	7.2 "Hg	5 psi
06A	11-WAS-067-SS	Modified TO-15	9.6 "Hg	5 psi
07A	11-WAS-068-SS	Modified TO-15	5.4 "Hg	5 psi
08A	11-WAS-069-SS	Modified TO-15	5.6 "Hg	5 psi
09A	11-WAS-070-SG	Modified TO-15	3.6 "Hg	5 psi
10A	11-WAS-071-ES	Modified TO-15	1.0 "Hg	5 psi
11A	Lab Blank	Modified TO-15	NA	NA
11B	Lab Blank	Modified TO-15	NA	NA
12A	CCV	Modified TO-15	NA	NA
12B	CCV	Modified TO-15	NA	NA
13A	LCS	Modified TO-15	NA	NA
13AA	LCSD	Modified TO-15	NA	NA
13B	LCS	Modified TO-15	NA	NA
13BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



DATE: 11/08/11

Laboratory Director

Certification numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP - CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11, Expiration date: 06/30/12.

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE
EPA Method TO-15
Oasis Environmental, Inc.
Workorder# 1110542B**

Four 6 Liter Summa Canister (SIM Certified) and two 1 Liter Summa Canister samples were received on October 26, 2011. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on sample 11-WAS-071-ES due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds EPA METHOD TO-15 GC/MS

Client Sample ID: 11-WAS-066-SS

Lab ID#: 1110542B-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.88	77	6.0	520

Client Sample ID: 11-WAS-067-SS

Lab ID#: 1110542B-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.98	2.8	6.7	19

Client Sample ID: 11-WAS-068-SS

Lab ID#: 1110542B-07A

No Detections Were Found.

Client Sample ID: 11-WAS-069-SS

Lab ID#: 1110542B-08A

No Detections Were Found.

Client Sample ID: 11-WAS-070-SG

Lab ID#: 1110542B-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	1.4	1.9	7.7	10
Tetrachloroethene	1.4	340	9.7	2300

Client Sample ID: 11-WAS-071-ES

Lab ID#: 1110542B-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	17	6500	120	44000
trans-1,2-Dichloroethene	17	110	69	440

Client Sample ID: 11-WAS-066-SS

Lab ID#: 1110542B-05A

EPA METHOD TO-15 GC/MS

File Name:	m102710	Date of Collection: 10/21/11 8:40:00 AM
Dil. Factor:	1.76	Date of Analysis: 10/27/11 04:26 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.88	Not Detected	2.2	Not Detected
cis-1,2-Dichloroethene	0.88	Not Detected	3.5	Not Detected
Trichloroethene	0.88	Not Detected	4.7	Not Detected
Tetrachloroethene	0.88	77	6.0	520
trans-1,2-Dichloroethene	0.88	Not Detected	3.5	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	82	70-130
4-Bromofluorobenzene	97	70-130

Client Sample ID: 11-WAS-067-SS

Lab ID#: 1110542B-06A

EPA METHOD TO-15 GC/MS

File Name:	m102711	Date of Collection: 10/21/11 9:10:00 AM
Dil. Factor:	1.97	Date of Analysis: 10/27/11 05:04 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.98	Not Detected	2.5	Not Detected
cis-1,2-Dichloroethene	0.98	Not Detected	3.9	Not Detected
Trichloroethene	0.98	Not Detected	5.3	Not Detected
Tetrachloroethene	0.98	2.8	6.7	19
trans-1,2-Dichloroethene	0.98	Not Detected	3.9	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	90	70-130
4-Bromofluorobenzene	97	70-130

Client Sample ID: 11-WAS-068-SS

Lab ID#: 1110542B-07A

EPA METHOD TO-15 GC/MS

File Name:	m102712	Date of Collection: 10/21/11 9:40:00 AM
Dil. Factor:	1.63	Date of Analysis: 10/27/11 05:41 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.82	Not Detected	2.1	Not Detected
cis-1,2-Dichloroethene	0.82	Not Detected	3.2	Not Detected
Trichloroethene	0.82	Not Detected	4.4	Not Detected
Tetrachloroethene	0.82	Not Detected	5.5	Not Detected
trans-1,2-Dichloroethene	0.82	Not Detected	3.2	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	86	70-130
Toluene-d8	79	70-130
4-Bromofluorobenzene	95	70-130

Client Sample ID: 11-WAS-069-SS

Lab ID#: 1110542B-08A

EPA METHOD TO-15 GC/MS

File Name:	m102713	Date of Collection: 10/21/11 10:00:00 A
Dil. Factor:	1.65	Date of Analysis: 10/27/11 06:19 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.82	Not Detected	2.1	Not Detected
cis-1,2-Dichloroethene	0.82	Not Detected	3.3	Not Detected
Trichloroethene	0.82	Not Detected	4.4	Not Detected
Tetrachloroethene	0.82	Not Detected	5.6	Not Detected
trans-1,2-Dichloroethene	0.82	Not Detected	3.3	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	89	70-130
4-Bromofluorobenzene	95	70-130

Client Sample ID: 11-WAS-070-SG

Lab ID#: 1110542B-09A

EPA METHOD TO-15 GC/MS

File Name:	o103013	Date of Collection: 10/21/11 10:30:00 A
Dil. Factor:	2.86	Date of Analysis: 10/31/11 09:04 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.4	Not Detected	3.6	Not Detected
cis-1,2-Dichloroethene	1.4	Not Detected	5.7	Not Detected
Trichloroethene	1.4	1.9	7.7	10
Tetrachloroethene	1.4	340	9.7	2300
trans-1,2-Dichloroethene	1.4	Not Detected	5.7	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: 11-WAS-071-ES

Lab ID#: 1110542B-10A

EPA METHOD TO-15 GC/MS

File Name:	m102714	Date of Collection: 10/21/11 11:25:00 A
Dil. Factor:	34.8	Date of Analysis: 10/27/11 06:56 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	17	Not Detected	44	Not Detected
cis-1,2-Dichloroethene	17	Not Detected	69	Not Detected
Trichloroethene	17	Not Detected	94	Not Detected
Tetrachloroethene	17	6500	120	44000
trans-1,2-Dichloroethene	17	110	69	440

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	89	70-130
4-Bromofluorobenzene	94	70-130

Client Sample ID: Lab Blank

Lab ID#: 1110542B-11A

EPA METHOD TO-15 GC/MS

File Name:	m102708	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/27/11 12:32 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	85	70-130
4-Bromofluorobenzene	96	70-130

Client Sample ID: Lab Blank

Lab ID#: 1110542B-11B

EPA METHOD TO-15 GC/MS

File Name:	o103006	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/30/11 07:42 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	97	70-130

Client Sample ID: CCV

Lab ID#: 1110542B-12A

EPA METHOD TO-15 GC/MS

File Name:	m102702	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/27/11 08:47 AM

Compound	%Recovery
Vinyl Chloride	103
cis-1,2-Dichloroethene	100
Trichloroethene	105
Tetrachloroethene	99
trans-1,2-Dichloroethene	102

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	85	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: CCV

Lab ID#: 1110542B-12B

EPA METHOD TO-15 GC/MS

File Name:	o103002	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/30/11 05:34 PM

Compound	%Recovery
Vinyl Chloride	114
cis-1,2-Dichloroethene	111
Trichloroethene	99
Tetrachloroethene	101
trans-1,2-Dichloroethene	114

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: LCS

Lab ID#: 1110542B-13A

EPA METHOD TO-15 GC/MS

File Name:	m102703	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/27/11 09:24 AM

Compound	%Recovery
Vinyl Chloride	102
cis-1,2-Dichloroethene	98
Trichloroethene	102
Tetrachloroethene	97
trans-1,2-Dichloroethene	111

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	89	70-130
Toluene-d8	85	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: LCSD

Lab ID#: 1110542B-13AA

EPA METHOD TO-15 GC/MS

File Name: m102704
Dil. Factor: 1.00

Date of Collection: NA
Date of Analysis: 10/27/11 10:02 AM

Compound	%Recovery
Vinyl Chloride	101
cis-1,2-Dichloroethene	97
Trichloroethene	101
Tetrachloroethene	96
trans-1,2-Dichloroethene	110

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	84	70-130
Toluene-d8	80	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: LCS

Lab ID#: 1110542B-13B

EPA METHOD TO-15 GC/MS

File Name:	o103003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/30/11 06:14 PM

Compound	%Recovery
Vinyl Chloride	107
cis-1,2-Dichloroethene	104
Trichloroethene	94
Tetrachloroethene	90
trans-1,2-Dichloroethene	117

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: LCSD

Lab ID#: 1110542B-13BB

EPA METHOD TO-15 GC/MS

File Name:	o103004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/30/11 06:31 PM

Compound	%Recovery
Vinyl Chloride	103
cis-1,2-Dichloroethene	101
Trichloroethene	92
Tetrachloroethene	90
trans-1,2-Dichloroethene	115

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130

1/5/2012

Mr. Cody Black

Oasis Environmental, Inc.

825 W. 8th Avenue

Suite 200

Anchorage AK 99501

Project Name: SFY 2012 Wendell Ave.

Project #: 0146941-2-1

Workorder #: 1112584

Dear Mr. Cody Black

The following report includes the data for the above referenced project for sample(s) received on 12/28/2011 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kelly Buettner

Project Manager

WORK ORDER #: 1112584

Work Order Summary

CLIENT:	Mr. Cody Black Oasis Environmental, an ERM company 825 W. 8th Avenue Suite 200 Anchorage, AK 99501 907-258-4880	BILL TO:	Accounts Payable ERM-West 1277 Treat Blvd Suite 500 Walnut Creek, CA 94597
PHONE:		P.O. #	1755
FAX:		PROJECT #	0146941-2-1 SFY 2012 Wendell Ave.
DATE RECEIVED:	12/28/2011	CONTACT:	Kelly Buettner
DATE COMPLETED:	01/05/2012		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	11-WAS-072-ES	Modified TO-15	6.0 "Hg	5 psi
02A	Lab Blank	Modified TO-15	NA	NA
03A	CCV	Modified TO-15	NA	NA
04A	LCS	Modified TO-15	NA	NA
04AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



Laboratory Director

DATE: 01/05/12

Certification numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE
EPA Method TO-15
Oasis Environmental, Inc.
Workorder# 1112584**

One 1 Liter Summa Canister sample was received on December 28, 2011. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on sample 11-WAS-072-ES due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Summary of Detected Compounds
EPA METHOD TO-15 GC/MS**

Client Sample ID: 11-WAS-072-ES

Lab ID#: 1112584-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	10	3300	71	22000
trans-1,2-Dichloroethene	10	64	42	250

Client Sample ID: 11-WAS-072-ES

Lab ID#: 1112584-01A

EPA METHOD TO-15 GC/MS

File Name:	m122919	Date of Collection: 12/20/11 11:10:00 A
Dil. Factor:	21.0	Date of Analysis: 12/29/11 07:13 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	10	Not Detected	27	Not Detected
cis-1,2-Dichloroethene	10	Not Detected	42	Not Detected
Trichloroethene	10	Not Detected	56	Not Detected
Tetrachloroethene	10	3300	71	22000
trans-1,2-Dichloroethene	10	64	42	250

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	84	70-130
Toluene-d8	82	70-130
4-Bromofluorobenzene	99	70-130

Client Sample ID: Lab Blank

Lab ID#: 1112584-02A

EPA METHOD TO-15 GC/MS

File Name:	m122908	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/29/11 11:51 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	83	70-130
Toluene-d8	83	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: CCV

Lab ID#: 1112584-03A

EPA METHOD TO-15 GC/MS

File Name:	m122902	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/29/11 08:06 AM

Compound	%Recovery
Vinyl Chloride	88
cis-1,2-Dichloroethene	99
Trichloroethene	100
Tetrachloroethene	99
trans-1,2-Dichloroethene	101

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	86	70-130
Toluene-d8	84	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: LCS

Lab ID#: 1112584-04A

EPA METHOD TO-15 GC/MS

File Name:	m122903	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/29/11 08:43 AM

Compound	%Recovery
Vinyl Chloride	80
cis-1,2-Dichloroethene	90
Trichloroethene	93
Tetrachloroethene	94
trans-1,2-Dichloroethene	103

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	83	70-130
Toluene-d8	84	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: LCSD

Lab ID#: 1112584-04AA

EPA METHOD TO-15 GC/MS

File Name:	m122904	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 12/29/11 09:21 AM

Compound	%Recovery
Vinyl Chloride	80
cis-1,2-Dichloroethene	90
Trichloroethene	91
Tetrachloroethene	92
trans-1,2-Dichloroethene	102

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	83	70-130
Toluene-d8	84	70-130
4-Bromofluorobenzene	103	70-130

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3/5/2012

Mr. Cody Black
Oasis Environmental, Inc.
825 W. 8th Avenue
Suite 200
Anchorage AK 99501

Project Name: SFY 2012 Wendell Ave.
Project #: 0146941-2-2
Workorder #: 1202432A

Dear Mr. Cody Black

The following report includes the data for the above referenced project for sample(s) received on 2/20/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kelly Buettner
Project Manager

WORK ORDER #: 1202432A

Work Order Summary

CLIENT:	Mr. Cody Black Oasis Environmental, an ERM company 825 W. 8th Avenue Suite 200 Anchorage, AK 99501 907-258-4880	BILL TO:	Accounts Payable ERM-West 1277 Treat Blvd Suite 500 Walnut Creek, CA 94597
PHONE:		P.O. #	1774
FAX:		PROJECT #	0146941-2-2 SFY 2012 Wendell Ave.
DATE RECEIVED:	02/20/2012	CONTACT:	Kelly Buettner
DATE COMPLETED:	03/05/2012		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	12-WAS-073-AA	Modified TO-15 SIM	1.0 "Hg	5 psi
02A	12-WAS-074-IA	Modified TO-15 SIM	6.0 "Hg	5 psi
03A	12-WAS-075-IA	Modified TO-15 SIM	10.5 "Hg	5 psi
04A	Lab Blank	Modified TO-15 SIM	NA	NA
05A	CCV	Modified TO-15 SIM	NA	NA
06A	LCS	Modified TO-15 SIM	NA	NA
06AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY:



Laboratory Director

DATE: 03/05/12

Certification numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 SIM
Oasis Environmental, Inc.
Workorder# 1202432A

Three 6 Liter Summa Canister (SIM Certified) samples were received on February 20, 2012. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	$\leq 30\%$ RSD with 2 compounds allowed out to $< 40\%$ RSD	Project specific; default criteria is $\leq 30\%$ RSD with 10% of compounds allowed out to $< 40\%$ RSD
Daily Calibration	$\pm 30\%$ Difference	Project specific; default criteria is $\leq 30\%$ Difference with 10% of compounds allowed out up to $\leq 40\%$; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: 12-WAS-073-AA

Lab ID#: 1202432A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.028	0.34	0.19	2.3

Client Sample ID: 12-WAS-074-IA

Lab ID#: 1202432A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.034	0.49	0.23	3.3

Client Sample ID: 12-WAS-075-IA

Lab ID#: 1202432A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.041	0.50	0.28	3.4



Air Toxics

Client Sample ID: 12-WAS-073-AA

Lab ID#: 1202432A-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	v022214sim	Date of Collection: 2/15/12 10:00:00 AM
Dil. Factor:	1.39	Date of Analysis: 2/23/12 01:18 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.014	Not Detected	0.036	Not Detected
cis-1,2-Dichloroethene	0.028	Not Detected	0.11	Not Detected
Trichloroethene	0.028	Not Detected	0.15	Not Detected
Tetrachloroethene	0.028	0.34	0.19	2.3
trans-1,2-Dichloroethene	0.14	Not Detected	0.55	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	91	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: 12-WAS-074-IA

Lab ID#: 1202432A-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	v022215sim	Date of Collection:	2/15/12 10:10:00 AM
Dil. Factor:	1.68	Date of Analysis:	2/23/12 02:10 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
Trichloroethene	0.034	Not Detected	0.18	Not Detected
Tetrachloroethene	0.034	0.49	0.23	3.3
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	91	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: 12-WAS-075-IA

Lab ID#: 1202432A-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	v022216sim	Date of Collection:	2/15/12 10:20:00 AM
Dil. Factor:	2.06	Date of Analysis:	2/23/12 03:01 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.021	Not Detected	0.053	Not Detected
cis-1,2-Dichloroethene	0.041	Not Detected	0.16	Not Detected
Trichloroethene	0.041	Not Detected	0.22	Not Detected
Tetrachloroethene	0.041	0.50	0.28	3.4
trans-1,2-Dichloroethene	0.21	Not Detected	0.82	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	91	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1202432A-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	v022206sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/22/12 10:29 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	90	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1202432A-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: v022202sim
Dil. Factor: 1.00

Date of Collection: NA
Date of Analysis: 2/22/12 07:37 PM

Compound	%Recovery
Vinyl Chloride	89
cis-1,2-Dichloroethene	92
Trichloroethene	86
Tetrachloroethene	90
trans-1,2-Dichloroethene	92

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1202432A-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: v022203sim
Dil. Factor: 1.00

Date of Collection: NA
Date of Analysis: 2/22/12 08:29 PM

Compound	%Recovery
Vinyl Chloride	87
cis-1,2-Dichloroethene	90
Trichloroethene	83
Tetrachloroethene	86
trans-1,2-Dichloroethene	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	92	70-130
4-Bromofluorobenzene	107	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1202432A-06AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: v022204sim
Dil. Factor: 1.00

Date of Collection: NA
Date of Analysis: 2/22/12 09:05 PM

Compound	%Recovery
Vinyl Chloride	88
cis-1,2-Dichloroethene	90
Trichloroethene	84
Tetrachloroethene	86
trans-1,2-Dichloroethene	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	92	70-130
4-Bromofluorobenzene	111	70-130

3/5/2012

Mr. Cody Black
Oasis Environmental, Inc.
825 W. 8th Avenue
Suite 200
Anchorage AK 99501

Project Name: SFY 2012 Wendell Ave.
Project #: 0146941-2-2
Workorder #: 1202432B

Dear Mr. Cody Black

The following report includes the data for the above referenced project for sample(s) received on 2/20/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kelly Buettner
Project Manager

WORK ORDER #: 1202432B

Work Order Summary

CLIENT: Mr. Cody Black
Oasis Environmental, an ERM
company
825 W. 8th Avenue
Suite 200
Anchorage, AK 99501
PHONE: 907-258-4880

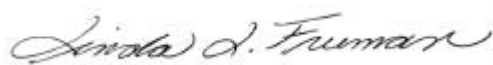
BILL TO: Accounts Payable
ERM-West
1277 Treat Blvd
Suite 500
Walnut Creek, CA 94597

FAX:
DATE RECEIVED: 02/20/2012
DATE COMPLETED: 03/05/2012

P.O. # 1774
PROJECT # 0146941-2-2 SFY 2012 Wendell Ave.
CONTACT: Kelly Buettner

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
04A	12-WAS-076-SS	Modified TO-15	3.0 "Hg	5 psi
05A	12-WAS-077-SS	Modified TO-15	4.5 "Hg	5 psi
06A	12-WAS-078-SG	Modified TO-15	5.0 "Hg	5 psi
07A	12-WAS-079-ES	Modified TO-15	10.0 "Hg	5 psi
08A	Lab Blank	Modified TO-15	NA	NA
08B	Lab Blank	Modified TO-15	NA	NA
09A	CCV	Modified TO-15	NA	NA
09B	CCV	Modified TO-15	NA	NA
10A	LCS	Modified TO-15	NA	NA
10AA	LCSD	Modified TO-15	NA	NA
10B	LCS	Modified TO-15	NA	NA
10BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



Laboratory Director

DATE: 03/05/12

Certification numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Oasis Environmental, Inc.
Workorder# 1202432B

Three 6 Liter Summa Canister (100% Certified) and one 1 Liter Summa Canister samples were received on February 20, 2012. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on sample 12-WAS-079-ES due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds EPA METHOD TO-15 GC/MS

Client Sample ID: 12-WAS-076-SS

Lab ID#: 1202432B-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.74	58	5.0	390

Client Sample ID: 12-WAS-077-SS

Lab ID#: 1202432B-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.79	59	5.4	400

Client Sample ID: 12-WAS-078-SG

Lab ID#: 1202432B-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	0.80	1.1	4.3	5.7
Tetrachloroethene	0.80	110	5.5	720

Client Sample ID: 12-WAS-079-ES

Lab ID#: 1202432B-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	12	2000	85	14000
trans-1,2-Dichloroethene	12	36	50	140



Air Toxics

Client Sample ID: 12-WAS-076-SS

Lab ID#: 1202432B-04A

EPA METHOD TO-15 GC/MS

File Name:	m022220	Date of Collection: 2/15/12 12:40:00 PM
Dil. Factor:	1.49	Date of Analysis: 2/22/12 08:51 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.74	Not Detected	1.9	Not Detected
cis-1,2-Dichloroethene	0.74	Not Detected	3.0	Not Detected
Trichloroethene	0.74	Not Detected	4.0	Not Detected
Tetrachloroethene	0.74	58	5.0	390
trans-1,2-Dichloroethene	0.74	Not Detected	3.0	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: 12-WAS-077-SS

Lab ID#: 1202432B-05A

EPA METHOD TO-15 GC/MS

File Name:	m022221	Date of Collection:	2/15/12 12:50:00 PM	
Dil. Factor:	1.58	Date of Analysis:	2/22/12 09:29 PM	
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.79	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.79	Not Detected	3.1	Not Detected
Trichloroethene	0.79	Not Detected	4.2	Not Detected
Tetrachloroethene	0.79	59	5.4	400
trans-1,2-Dichloroethene	0.79	Not Detected	3.1	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: 12-WAS-078-SG

Lab ID#: 1202432B-06A

EPA METHOD TO-15 GC/MS

File Name:	m022222	Date of Collection:	2/15/12 2:10:00 PM
Dil. Factor:	1.61	Date of Analysis:	2/22/12 10:07 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.80	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.80	Not Detected	3.2	Not Detected
Trichloroethene	0.80	1.1	4.3	5.7
Tetrachloroethene	0.80	110	5.5	720
trans-1,2-Dichloroethene	0.80	Not Detected	3.2	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: 12-WAS-079-ES

Lab ID#: 1202432B-07A

EPA METHOD TO-15 GC/MS

File Name:	m022316	Date of Collection:	2/15/12 3:45:00 PM
Dil. Factor:	25.1	Date of Analysis:	2/23/12 10:14 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	12	Not Detected	32	Not Detected
cis-1,2-Dichloroethene	12	Not Detected	50	Not Detected
Trichloroethene	12	Not Detected	67	Not Detected
Tetrachloroethene	12	2000	85	14000
trans-1,2-Dichloroethene	12	36	50	140

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	97	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1202432B-08A

EPA METHOD TO-15 GC/MS

File Name:	m022206	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/22/12 11:17 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	97	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1202432B-08B

EPA METHOD TO-15 GC/MS

File Name:	m022306	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/12 12:23 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	97	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1202432B-09A

EPA METHOD TO-15 GC/MS

File Name: m022202

Date of Collection: NA

Dil. Factor: 1.00

Date of Analysis: 2/22/12 08:47 AM

Compound	%Recovery
Vinyl Chloride	94
cis-1,2-Dichloroethene	92
Trichloroethene	97
Tetrachloroethene	99
trans-1,2-Dichloroethene	92

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1202432B-09B

EPA METHOD TO-15 GC/MS

File Name:	m022302	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/12 09:53 AM

Compound	%Recovery
Vinyl Chloride	99
cis-1,2-Dichloroethene	95
Trichloroethene	102
Tetrachloroethene	102
trans-1,2-Dichloroethene	98

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1202432B-10A

EPA METHOD TO-15 GC/MS

File Name:	m022203	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/22/12 09:24 AM

Compound	%Recovery
Vinyl Chloride	101
cis-1,2-Dichloroethene	98
Trichloroethene	106
Tetrachloroethene	103
trans-1,2-Dichloroethene	112

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: LCSD

Lab ID#: 1202432B-10AA

EPA METHOD TO-15 GC/MS

File Name:	m022204	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/22/12 10:02 AM

Compound	%Recovery
Vinyl Chloride	101
cis-1,2-Dichloroethene	99
Trichloroethene	105
Tetrachloroethene	101
trans-1,2-Dichloroethene	111

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: LCS

Lab ID#: 1202432B-10B

EPA METHOD TO-15 GC/MS

File Name:	m022303	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/12 10:30 AM

Compound	%Recovery
Vinyl Chloride	100
cis-1,2-Dichloroethene	96
Trichloroethene	102
Tetrachloroethene	102
trans-1,2-Dichloroethene	108

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	102	70-130

Client Sample ID: LCSD

Lab ID#: 1202432B-10BB

EPA METHOD TO-15 GC/MS

File Name:	m022304	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/12 11:08 AM

Compound	%Recovery
Vinyl Chloride	99
cis-1,2-Dichloroethene	95
Trichloroethene	102
Tetrachloroethene	99
trans-1,2-Dichloroethene	108

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	100	70-130

5/24/2012

Mr. Cody Black
Oasis Environmental, Inc.
825 W. 8th Avenue
Suite 200
Anchorage AK 99501

Project Name: Wendell Ave.
Project #: 0146941-2-1 SFY2012
Workorder #: 1205334

Dear Mr. Cody Black

The following report includes the data for the above referenced project for sample(s) received on 5/17/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kelly Buettner
Project Manager

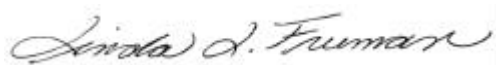
WORK ORDER #: 1205334

Work Order Summary

CLIENT:	Mr. Cody Black Oasis Environmental, an ERM company 825 W. 8th Avenue Suite 200 Anchorage, AK 99501 907-258-4880	BILL TO:	Accounts Payable ERM-West 1277 Treat Blvd Suite 500 Walnut Creek, CA 94597
PHONE:		P.O. #	1774
FAX:		PROJECT #	0146941-2-1 SFY2012 Wendell Ave.
DATE RECEIVED:	05/17/2012	CONTACT:	Kelly Buettner
DATE COMPLETED:	05/24/2012		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	12-WAS-110-ES	Modified TO-15	7.6 "Hg	5 psi
02A	Lab Blank	Modified TO-15	NA	NA
03A	CCV	Modified TO-15	NA	NA
04A	LCS	Modified TO-15	NA	NA
04AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



Laboratory Director

DATE: 05/24/12

Certification numbers: AZ Licensure AZ0719, CA NELAP - 02110CA, LA NELAP - 02089,
NY NELAP - 11291, TX NELAP - T104704434-11-3, UT NELAP -CA009332011-1, WA NELAP - C935
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/11 , Expiration date: 06/30/12.

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
Oasis Environmental, Inc.
Workorder# 1205334

One 1 Liter Summa Canister sample was received on May 17, 2012. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on sample 12-WAS-110-ES due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds EPA METHOD TO-15 GC/MS

Client Sample ID: 12-WAS-110-ES

Lab ID#: 1205334-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	18	3000	120	20000
trans-1,2-Dichloroethene	18	65	71	260



Air Toxics

Client Sample ID: 12-WAS-110-ES

Lab ID#: 1205334-01A

EPA METHOD TO-15 GC/MS

File Name:	6052016	Date of Collection: 5/15/12 10:45:00 AM
Dil. Factor:	35.9	Date of Analysis: 5/20/12 07:49 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	18	Not Detected	46	Not Detected
cis-1,2-Dichloroethene	18	Not Detected	71	Not Detected
Trichloroethene	18	Not Detected	96	Not Detected
Tetrachloroethene	18	3000	120	20000
trans-1,2-Dichloroethene	18	65	71	260

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	76	70-130
Toluene-d8	86	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1205334-02A

EPA METHOD TO-15 GC/MS

File Name:	6052007	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/20/12 01:54 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	76	70-130
Toluene-d8	88	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1205334-03A

EPA METHOD TO-15 GC/MS

File Name:	6052005	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/20/12 12:39 PM

Compound	%Recovery
Vinyl Chloride	90
cis-1,2-Dichloroethene	86
Trichloroethene	80
Tetrachloroethene	84
trans-1,2-Dichloroethene	84

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	74	70-130
Toluene-d8	90	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1205334-04A

EPA METHOD TO-15 GC/MS

File Name:	6052003	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/20/12 10:25 AM

Compound	%Recovery
Vinyl Chloride	92
cis-1,2-Dichloroethene	85
Trichloroethene	79
Tetrachloroethene	82
trans-1,2-Dichloroethene	92

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	75	70-130
Toluene-d8	88	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1205334-04AA

EPA METHOD TO-15 GC/MS

File Name:	6052004	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 5/20/12 11:02 AM

Compound	%Recovery
Vinyl Chloride	88
cis-1,2-Dichloroethene	83
Trichloroethene	80
Tetrachloroethene	81
trans-1,2-Dichloroethene	90

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	72	70-130
Toluene-d8	89	70-130
4-Bromofluorobenzene	98	70-130

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9/23/2012

Mr. Cody Black
Oasis Environmental, Inc.
825 W. 8th Avenue
Suite 200
Anchorage AK 99501

Project Name: 2012 Wendell
Project #: 0146941-8
Workorder #: 1209143A

Dear Mr. Cody Black

The following report includes the data for the above referenced project for sample(s) received on 9/10/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kelly Buettner
Project Manager

WORK ORDER #: 1209143A

Work Order Summary

CLIENT:	Mr. Cody Black Oasis Environmental, an ERM company 825 W. 8th Avenue Suite 200 Anchorage, AK 99501 907-258-4880	BILL TO:	Accounts Payable ERM-West 1277 Treat Blvd Suite 500 Walnut Creek, CA 94597
PHONE:		P.O. #	1774
FAX:		PROJECT #	0146941-8 2012 Wendell
DATE RECEIVED:	09/10/2012	CONTACT:	Kelly Buettner
DATE COMPLETED:	09/23/2012		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	12-WAS-127-IA	Modified TO-15 SIM	5.5 "Hg	5 psi
02A	12-WAS-128-IA	Modified TO-15 SIM	7.0 "Hg	5 psi
03A	12-WAS-129-IA	Modified TO-15 SIM	5.5 "Hg	5 psi
04A	Lab Blank	Modified TO-15 SIM	NA	NA
05A	CCV	Modified TO-15 SIM	NA	NA
06A	LCS	Modified TO-15 SIM	NA	NA
06AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY:



Technical Director

DATE: 09/23/12

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NY NELAP - 11291,
TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, WA NELAP - C935

Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005, Effective date: 10/18/2011, Expiration date: 10/17/2012.

Eurofins Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020



LABORATORY NARRATIVE
Modified TO-15 SIM
Oasis Environmental, Inc.
Workorder# 1209143A

Three 6 Liter Summa Canister (SIM Certified) samples were received on September 10, 2012. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	$\leq 30\%$ RSD with 2 compounds allowed out to $< 40\%$ RSD	Project specific; default criteria is $\leq 30\%$ RSD with 10% of compounds allowed out to $< 40\%$ RSD
Daily Calibration	$\pm 30\%$ Difference	Project specific; default criteria is $\leq 30\%$ Difference with 10% of compounds allowed out up to $\leq 40\%$; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: 12-WAS-127-IA

Lab ID#: 1209143A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.033	0.18	0.22	1.2

Client Sample ID: 12-WAS-128-IA

Lab ID#: 1209143A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.035	0.18	0.24	1.2

Client Sample ID: 12-WAS-129-IA

Lab ID#: 1209143A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.033	0.058	0.13	0.23
Tetrachloroethene	0.033	0.51	0.22	3.5



Air Toxics

Client Sample ID: 12-WAS-127-IA

Lab ID#: 1209143A-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	e091413sim	Date of Collection:	9/5/12 8:30:00 AM
Dil. Factor:	1.64	Date of Analysis:	9/14/12 05:55 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	Not Detected	0.042	Not Detected
cis-1,2-Dichloroethene	0.033	Not Detected	0.13	Not Detected
Trichloroethene	0.033	Not Detected	0.18	Not Detected
Tetrachloroethene	0.033	0.18	0.22	1.2
trans-1,2-Dichloroethene	0.16	Not Detected	0.65	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	108	70-130



Air Toxics

Client Sample ID: 12-WAS-128-IA

Lab ID#: 1209143A-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	e091414sim	Date of Collection: 9/5/12 9:00:00 AM
Dil. Factor:	1.75	Date of Analysis: 9/14/12 06:42 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.018	Not Detected	0.045	Not Detected
cis-1,2-Dichloroethene	0.035	Not Detected	0.14	Not Detected
Trichloroethene	0.035	Not Detected	0.19	Not Detected
Tetrachloroethene	0.035	0.18	0.24	1.2
trans-1,2-Dichloroethene	0.18	Not Detected	0.69	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	108	70-130



Air Toxics

Client Sample ID: 12-WAS-129-IA

Lab ID#: 1209143A-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	e091415sim	Date of Collection: 9/5/12 9:30:00 AM
Dil. Factor:	1.64	Date of Analysis: 9/14/12 07:31 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	Not Detected	0.042	Not Detected
cis-1,2-Dichloroethene	0.033	0.058	0.13	0.23
Trichloroethene	0.033	Not Detected	0.18	Not Detected
Tetrachloroethene	0.033	0.51	0.22	3.5
trans-1,2-Dichloroethene	0.16	Not Detected	0.65	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1209143A-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	e091406sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/14/12 11:17 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1209143A-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: e091402sim
Dil. Factor: 1.00

Date of Collection: NA
Date of Analysis: 9/14/12 08:23 AM

Compound	%Recovery
Vinyl Chloride	93
cis-1,2-Dichloroethene	100
Trichloroethene	80
Tetrachloroethene	84
trans-1,2-Dichloroethene	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	113	70-130

Client Sample ID: LCS

Lab ID#: 1209143A-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	e091403sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/14/12 09:09 AM

Compound	%Recovery
Vinyl Chloride	82
cis-1,2-Dichloroethene	90
Trichloroethene	72
Tetrachloroethene	74
trans-1,2-Dichloroethene	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	109	70-130
4-Bromofluorobenzene	109	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1209143A-06AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: e091404sim
Dil. Factor: 1.00

Date of Collection: NA
Date of Analysis: 9/14/12 09:47 AM

Compound	%Recovery
Vinyl Chloride	81
cis-1,2-Dichloroethene	90
Trichloroethene	71
Tetrachloroethene	73
trans-1,2-Dichloroethene	95

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	109	70-130
4-Bromofluorobenzene	109	70-130

9/23/2012

Mr. Cody Black
Oasis Environmental, Inc.
825 W. 8th Avenue
Suite 200
Anchorage AK 99501

Project Name: 2012 Wendell
Project #: 0146941-8
Workorder #: 1209143B

Dear Mr. Cody Black

The following report includes the data for the above referenced project for sample(s) received on 9/10/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kelly Buettner
Project Manager

WORK ORDER #: 1209143B

Work Order Summary

CLIENT:	Mr. Cody Black Oasis Environmental, an ERM company 825 W. 8th Avenue Suite 200 Anchorage, AK 99501 907-258-4880	BILL TO:	Accounts Payable ERM-West 1277 Treat Blvd Suite 500 Walnut Creek, CA 94597
PHONE:		P.O. #	1774
FAX:		PROJECT #	0146941-8 2012 Wendell
DATE RECEIVED:	09/10/2012	CONTACT:	Kelly Buettner
DATE COMPLETED:	09/23/2012		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
04A	12-WAS-130-SS	Modified TO-15	9.5 "Hg	5 psi
05A	12-WAS-131-SG	Modified TO-15	9.0 "Hg	5 psi
06A	12-WAS-132-SG	Modified TO-15	9.5 "Hg	5 psi
07A	Lab Blank	Modified TO-15	NA	NA
08A	CCV	Modified TO-15	NA	NA
09A	LCS	Modified TO-15	NA	NA
09AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



Technical Director

DATE: 09/23/12

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NY NELAP - 11291,
TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, WA NELAP - C935

Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005, Effective date: 10/18/2011, Expiration date: 10/17/2012.

Eurofins Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020



LABORATORY NARRATIVE
EPA Method TO-15
Oasis Environmental, Inc.
Workorder# 1209143B

Three 6 Liter Summa Canister (100% Certified) samples were received on September 10, 2012. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds EPA METHOD TO-15 GC/MS

Client Sample ID: 12-WAS-130-SS

Lab ID#: 1209143B-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.98	36	6.6	240

Client Sample ID: 12-WAS-131-SG

Lab ID#: 1209143B-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	0.96	1.9	5.1	10
Tetrachloroethene	0.96	180	6.5	1200

Client Sample ID: 12-WAS-132-SG

Lab ID#: 1209143B-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	0.98	2.9	5.3	15
Tetrachloroethene	0.98	140	6.6	930



Air Toxics

Client Sample ID: 12-WAS-130-SS

Lab ID#: 1209143B-04A

EPA METHOD TO-15 GC/MS

File Name:	p091509	Date of Collection:	9/5/12 10:40:00 AM
Dil. Factor:	1.96	Date of Analysis:	9/15/12 02:34 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.98	Not Detected	2.5	Not Detected
cis-1,2-Dichloroethene	0.98	Not Detected	3.9	Not Detected
Trichloroethene	0.98	Not Detected	5.3	Not Detected
Tetrachloroethene	0.98	36	6.6	240
trans-1,2-Dichloroethene	0.98	Not Detected	3.9	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	98	70-130



Air Toxics

Client Sample ID: 12-WAS-131-SG

Lab ID#: 1209143B-05A

EPA METHOD TO-15 GC/MS

File Name:	p091510	Date of Collection:	9/5/12 11:30:00 AM
Dil. Factor:	1.91	Date of Analysis:	9/15/12 03:00 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.96	Not Detected	2.4	Not Detected
cis-1,2-Dichloroethene	0.96	Not Detected	3.8	Not Detected
Trichloroethene	0.96	1.9	5.1	10
Tetrachloroethene	0.96	180	6.5	1200
trans-1,2-Dichloroethene	0.96	Not Detected	3.8	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	116	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	95	70-130



Air Toxics

Client Sample ID: 12-WAS-132-SG

Lab ID#: 1209143B-06A

EPA METHOD TO-15 GC/MS

File Name:	p091511	Date of Collection:	9/5/12 1:00:00 PM
Dil. Factor:	1.96	Date of Analysis:	9/15/12 03:19 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.98	Not Detected	2.5	Not Detected
cis-1,2-Dichloroethene	0.98	Not Detected	3.9	Not Detected
Trichloroethene	0.98	2.9	5.3	15
Tetrachloroethene	0.98	140	6.6	930
trans-1,2-Dichloroethene	0.98	Not Detected	3.9	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	93	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1209143B-07A

EPA METHOD TO-15 GC/MS

File Name:	p091508	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/15/12 01:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	98	70-130

Client Sample ID: CCV

Lab ID#: 1209143B-08A

EPA METHOD TO-15 GC/MS

File Name:	p091502	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/15/12 08:45 AM

Compound	%Recovery
Vinyl Chloride	95
cis-1,2-Dichloroethene	91
Trichloroethene	89
Tetrachloroethene	97
trans-1,2-Dichloroethene	94

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1209143B-09A

EPA METHOD TO-15 GC/MS

File Name:	p091503	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/15/12 09:58 AM

Compound	%Recovery
Vinyl Chloride	104
cis-1,2-Dichloroethene	93
Trichloroethene	91
Tetrachloroethene	95
trans-1,2-Dichloroethene	106

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1209143B-09AA

EPA METHOD TO-15 GC/MS

File Name:	p091504	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/15/12 10:26 AM

Compound	%Recovery
Vinyl Chloride	100
cis-1,2-Dichloroethene	93
Trichloroethene	90
Tetrachloroethene	94
trans-1,2-Dichloroethene	106

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	100	70-130

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10/22/2012

Mr. Cody Black
Oasis Environmental, Inc.
825 W. 8th Avenue
Suite 200
Anchorage AK 99501

Project Name: Wendell 2012
Project #: 0146941-2
Workorder #: 1210210A

Dear Mr. Cody Black

The following report includes the data for the above referenced project for sample(s) received on 10/10/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kelly Buettner
Project Manager

WORK ORDER #: 1210210A

Work Order Summary

CLIENT:	Mr. Cody Black Oasis Environmental, an ERM company 825 W. 8th Avenue Suite 200 Anchorage, AK 99501 907-258-4880	BILL TO:	Accounts Payable ERM-West 1277 Treat Blvd Suite 500 Walnut Creek, CA 94597
PHONE:		P.O. #	1774
FAX:		PROJECT #	0146941-2 Wendell 2012
DATE RECEIVED:	10/10/2012	CONTACT:	Kelly Buettner
DATE COMPLETED:	10/22/2012		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	12-WAS-133-IA	Modified TO-15 SIM	0.5 "Hg	5 psi
02A	12-WAS-134-IA	Modified TO-15 SIM	2.0 "Hg	5 psi
03A	Lab Blank	Modified TO-15 SIM	NA	NA
04A	CCV	Modified TO-15 SIM	NA	NA
05A	LCS	Modified TO-15 SIM	NA	NA
05AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY:



Technical Director

DATE: 10/22/12

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NY NELAP - 11291,
TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, WA NELAP - C935

Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005, Effective date: 10/18/2011, Expiration date: 10/17/2012.

Eurofins Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020



LABORATORY NARRATIVE
Modified TO-15 SIM
Oasis Environmental, Inc.
Workorder# 1210210A

Two 6 Liter Summa Canister (SIM Certified) samples were received on October 10, 2012. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	$\leq 30\%$ RSD with 2 compounds allowed out to $< 40\%$ RSD	Project specific; default criteria is $\leq 30\%$ RSD with 10% of compounds allowed out to $< 40\%$ RSD
Daily Calibration	$\pm 30\%$ Difference	Project specific; default criteria is $\leq 30\%$ Difference with 10% of compounds allowed out up to $\leq 40\%$; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: 12-WAS-133-IA

Lab ID#: 1210210A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.027	0.25	0.11	0.98
Tetrachloroethene	0.027	2.3	0.18	16

Client Sample ID: 12-WAS-134-IA

Lab ID#: 1210210A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.029	0.23	0.11	0.92
Trichloroethene	0.029	0.030	0.15	0.16
Tetrachloroethene	0.029	2.4	0.20	16



Air Toxics

Client Sample ID: 12-WAS-133-IA

Lab ID#: 1210210A-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a101513sim	Date of Collection:	10/4/12 4:15:00 PM
Dil. Factor:	1.36	Date of Analysis:	10/15/12 06:32 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.014	Not Detected	0.035	Not Detected
cis-1,2-Dichloroethene	0.027	0.25	0.11	0.98
Trichloroethene	0.027	Not Detected	0.15	Not Detected
Tetrachloroethene	0.027	2.3	0.18	16
trans-1,2-Dichloroethene	0.14	Not Detected	0.54	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	103	70-130



Air Toxics

Client Sample ID: 12-WAS-134-IA

Lab ID#: 1210210A-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a101514sim	Date of Collection: 10/4/12 4:45:00 PM
Dil. Factor:	1.44	Date of Analysis: 10/15/12 08:05 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.014	Not Detected	0.037	Not Detected
cis-1,2-Dichloroethene	0.029	0.23	0.11	0.92
Trichloroethene	0.029	0.030	0.15	0.16
Tetrachloroethene	0.029	2.4	0.20	16
trans-1,2-Dichloroethene	0.14	Not Detected	0.57	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1210210A-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	a101506sim	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/15/12 10:37 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: CCV

Lab ID#: 1210210A-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: a101502sim
Dil. Factor: 1.00

Date of Collection: NA
Date of Analysis: 10/15/12 07:21 AM

Compound	%Recovery
Vinyl Chloride	88
cis-1,2-Dichloroethene	92
Trichloroethene	89
Tetrachloroethene	91
trans-1,2-Dichloroethene	97

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1210210A-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: a101503sim
Dil. Factor: 1.00

Date of Collection: NA
Date of Analysis: 10/15/12 08:12 AM

Compound	%Recovery
Vinyl Chloride	82
cis-1,2-Dichloroethene	87
Trichloroethene	84
Tetrachloroethene	85
trans-1,2-Dichloroethene	106

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	105	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1210210A-05AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: a101504sim
Dil. Factor: 1.00

Date of Collection: NA
Date of Analysis: 10/15/12 09:10 AM

Compound	%Recovery
Vinyl Chloride	84
cis-1,2-Dichloroethene	88
Trichloroethene	84
Tetrachloroethene	83
trans-1,2-Dichloroethene	101

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	103	70-130

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10/22/2012

Mr. Cody Black
Oasis Environmental, Inc.
825 W. 8th Avenue
Suite 200
Anchorage AK 99501

Project Name: Wendell 2012

Project #: 0146941-2

Workorder #: 1210210B

Dear Mr. Cody Black

The following report includes the data for the above referenced project for sample(s) received on 10/10/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Kelly Buettner
Project Manager

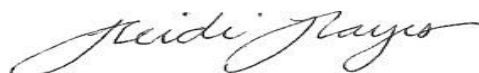
WORK ORDER #: 1210210B

Work Order Summary

CLIENT:	Mr. Cody Black Oasis Environmental, an ERM company 825 W. 8th Avenue Suite 200 Anchorage, AK 99501 907-258-4880	BILL TO:	Accounts Payable ERM-West 1277 Treat Blvd Suite 500 Walnut Creek, CA 94597
PHONE:		P.O. #	1774
FAX:		PROJECT #	0146941-2 Wendell 2012
DATE RECEIVED:	10/10/2012	CONTACT:	Kelly Buettner
DATE COMPLETED:	10/22/2012		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
03A	12-WAS-135-SS	Modified TO-15	5.2 "Hg	5 psi
04A	12-WAS-136-SG	Modified TO-15	4.2 "Hg	5 psi
05A	12-WAS-137-SG	Modified TO-15	6.0 "Hg	5 psi
06A	Lab Blank	Modified TO-15	NA	NA
07A	CCV	Modified TO-15	NA	NA
08A	LCS	Modified TO-15	NA	NA
08AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:



Technical Director

DATE: 10/22/12

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NY NELAP - 11291,
TX NELAP - T104704434-12-5, UT NELAP CA009332012-3, WA NELAP - C935

Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)

Accreditation number: CA300005, Effective date: 10/18/2011, Expiration date: 10/17/2012.

Eurofins Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563

(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020



LABORATORY NARRATIVE
EPA Method TO-15
Oasis Environmental, Inc.
Workorder# 1210210B

Three 6 Liter Summa Canister (100% Certified) samples were received on October 10, 2012. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on samples 12-WAS-135-SS, 12-WAS-136-SG, and 12-WAS-137-SG due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV and/or LCS.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Summary of Detected Compounds EPA METHOD TO-15 GC/MS

Client Sample ID: 12-WAS-135-SS

Lab ID#: 1210210B-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	58	14000	390	94000

Client Sample ID: 12-WAS-136-SG

Lab ID#: 1210210B-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	3.9	12	15	48
Trichloroethene	3.9	16	21	87
Tetrachloroethene	3.9	960	26	6500

Client Sample ID: 12-WAS-137-SG

Lab ID#: 1210210B-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	1.7	2.6	6.7	10
Trichloroethene	1.7	16	9.0	87
Tetrachloroethene	1.7	450	11	3000



Air Toxics

Client Sample ID: 12-WAS-135-SS

Lab ID#: 1210210B-03A

EPA METHOD TO-15 GC/MS

File Name:	o101224	Date of Collection:	10/5/12 10:05:00 AM	
Dil. Factor:	116	Date of Analysis:	10/13/12 08:58 AM	
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	58	Not Detected	150	Not Detected
cis-1,2-Dichloroethene	58	Not Detected	230	Not Detected
Trichloroethene	58	Not Detected	310	Not Detected
Tetrachloroethene	58	14000	390	94000
trans-1,2-Dichloroethene	58	Not Detected	230	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	92	70-130
4-Bromofluorobenzene	107	70-130



Air Toxics

Client Sample ID: 12-WAS-136-SG

Lab ID#: 1210210B-04A

EPA METHOD TO-15 GC/MS

File Name:	o101225	Date of Collection:	10/5/12 10:45:00 AM
Dil. Factor:	7.80	Date of Analysis:	10/13/12 09:35 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	3.9	Not Detected	10	Not Detected
cis-1,2-Dichloroethene	3.9	12	15	48
Trichloroethene	3.9	16	21	87
Tetrachloroethene	3.9	960	26	6500
trans-1,2-Dichloroethene	3.9	Not Detected	15	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	90	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: 12-WAS-137-SG

Lab ID#: 1210210B-05A

EPA METHOD TO-15 GC/MS

File Name:	o101226	Date of Collection:	10/5/12 11:40:00 AM
Dil. Factor:	3.36	Date of Analysis:	10/13/12 10:12 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.7	Not Detected	4.3	Not Detected
cis-1,2-Dichloroethene	1.7	2.6	6.7	10
Trichloroethene	1.7	16	9.0	87
Tetrachloroethene	1.7	450	11	3000
trans-1,2-Dichloroethene	1.7	Not Detected	6.7	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	90	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1210210B-06A

EPA METHOD TO-15 GC/MS

File Name:	o101208	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/12/12 03:44 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	88	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: CCV

Lab ID#: 1210210B-07A

EPA METHOD TO-15 GC/MS

File Name:	o101202	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/12/12 11:26 AM

Compound	%Recovery
Vinyl Chloride	98
cis-1,2-Dichloroethene	96
Trichloroethene	95
Tetrachloroethene	92
trans-1,2-Dichloroethene	98

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	88	70-130
4-Bromofluorobenzene	107	70-130

Client Sample ID: LCS

Lab ID#: 1210210B-08A

EPA METHOD TO-15 GC/MS

File Name:	o101203	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/12/12 12:03 PM

Compound	%Recovery
Vinyl Chloride	91
cis-1,2-Dichloroethene	86
Trichloroethene	87
Tetrachloroethene	84
trans-1,2-Dichloroethene	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	90	70-130
4-Bromofluorobenzene	106	70-130

Client Sample ID: LCSD

Lab ID#: 1210210B-08AA

EPA METHOD TO-15 GC/MS

File Name:	o101204	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 10/12/12 01:17 PM

Compound	%Recovery
Vinyl Chloride	88
cis-1,2-Dichloroethene	81
Trichloroethene	82
Tetrachloroethene	79
trans-1,2-Dichloroethene	94

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	85	70-130
4-Bromofluorobenzene	104	70-130

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APPENDIX G

SFY 2012 AIR SAMPLE QAR AND ADEC CHECKLISTS

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1. QUALITY ASSURANCE REVIEW

Laboratory Quality Assurance/ Quality Control (QA/QC) data associated with the analysis of project samples has been reviewed to evaluate the integrity of the analytical data generated during the October, December 2011; February, May, September and October 2012 air sampling. Air samples were collected under the Soil Vapor Extraction/ Sub Slab Depressurization System Operation, Maintenance and Monitoring Work Plan (OASIS 2011).

Eurofins Air Toxics, Inc. (formerly Air Toxics LTD) of Folsom, California performed TO-15 and TO-15-SIM analysis for air samples. October 2011 results were reported in work orders 1110542A and 1110542B. December 2011 results were reported in work order 1112584. February 2012 results were reported in work orders 1202432A and 1202432B. May 2012 results were reported in work order 1205334. September 2012 results were reported in work orders 1209143A and 1209143B. October 2012 results were reported in work orders 1210210A and 1210210B.

Samples were collected, reported, and shipped to in general accordance with the ADEC-approved work plan (OASIS 2011).

All data were reviewed in accordance with EPA National Functional Guidelines for Organic Methods (EPA 2008), EPA National Functional Guidelines for Inorganic Methods (EPA 2010), and Alaska Department of Environmental Conservation (ADEC) regulatory guidance documents (ADEC 2009; 2010a; 2010b). This data review focused on the following QC parameters and their effect on the quality of data and usability: sample handling and chain-of-custody (CoC) documentation; holding time compliance; field QC (field duplicates); laboratory QC (method blanks, laboratory control samples [LCS] and LCS duplicates [LCSD], surrogates); method reporting limits; and completeness.

1.1. Data Quality Assessment

In general, the overall quality of the data was acceptable for the objectives established for this project. The details of this review and qualification of the data are summarized in the following sections. Sample results are considered usable for project objectives. The overall project completeness is 100%. The details of this review and qualification of the data are summarized in the following sections.

1.2. Data Qualification

Based on the data assessment results the laboratory analytical results are flagged with qualifiers to indicate potential problems with the qualified results. The following table is a list of data qualifiers that were used in this report. A definition of the data qualifier meaning is also provided.

TABLE 1-1: DATA QUALIFIERS

Qualifier	Description
B	Blank contamination in trip blank. If result was within 5 times the amount detected in trip blank, the result has been changed to non-detect at the detected.
J	Analytical result considered estimated.
JA	Analytical result considered estimated due because canister received at laboratory with ambient pressure.
JB	Analytical results considered estimated due to blank contamination.
JD	Analytical result considered estimated due to MS/MSD %R or RPD outside quality control limits.
JE	Analytical result considered estimated because exceeds instrument calibration range.
JF	Analytical result considered estimated because it is between detection limit (MDL) and reporting limit (RL).
JM	Analytical result considered estimated due to MS/MSD %R or RPD outside quality control limits.
JS	Analytical result considered estimated due to associated surrogate outside quality control limits.
ND	Analytical result considered not detected.

1.3. Sample Handling and Chain of Custody

The sample coolers were delivered with custody seals in place, unbroken and intact. All sample containers in the sample coolers were received at the laboratory intact, with proper documentation. Samples were received at the laboratory within the specified temperature range of 4°C +/- 2°C.

1.4. Holding Time Compliance

All samples were extracted, digested and analyzed within the holding time criteria for the applicable analytical methods and in accordance with Work Plan specifications.

1.5. Field QA/QC

Field QA/QC protocols are designed to measure for potential sample bias as a result of sampling procedures and possible contamination during collection and transport of samples. Trip blanks are used to monitor sample containers and possible cross-contamination of samples. Collection and analysis of field duplicates facilitates an evaluation of precision that takes into account potential variables associated with sampling procedures, site heterogeneity and laboratory analyses. For this project, trip blanks were used and field duplicates were collected during field sampling.

1.5.1. Trip Blanks

Trip blanks were prepared by the laboratory, shipped to the site with the empty sample bottles/containers, stored with sample containers during the field event, and transported with the collected samples back to the laboratory for analysis.

Trip blanks were placed in the cooler with associated matrix specific volatile organics samples and analytes detected in the trip blanks were below the practical quantitation limit (PQL) for all analytes.

1.5.2. Field Duplicates

Collection and analysis of field duplicates also facilitates an evaluation of precision that takes into account potential variables associated with sampling procedures and laboratory analyses. Relative percent differences (RPDs) between primary and field duplicates were calculated.

- 1110542A: Three primary samples and one field duplicate sample were submitted – primary 11-WAS-064-IA with duplicate 11-WAS-065-IA.
- 1110542B: Five primary samples and one field duplicate sample were submitted – primary 11-WAS-068-SS with duplicate 11-WAS-069-SS.
- 1202432A: Two primary samples and one field duplicate were submitted – primary 12-WAS-074-IA with duplicate 12-WAS-075-IA.
- 1202432B: Three primary samples and one field duplicate were submitted – primary 12-WAS-076-SS with duplicate 12-WAS-077-SS.
- 1209143A and 1209143B: Four primary samples and one field duplicate were submitted – primary 12-WAS-127-IA with duplicate 12-WAS-128-IA.
- 1210210A and 1210210B: Four primary samples and one field duplicate were submitted – primary 12-WAS-133-IA with duplicate 12-WAS-134-IA.
- 1112584 and 1205334: Duplicate samples were not collected for these sample events as specified in the ADEC approved work plan for this project (OASIS 2011).

The frequency of field duplicate collection met the 10% frequency requirements specified in the work plan. The calculable RPD values for the analytical result pairs are shown in Table 1-2. The RPD values between primary and duplicate results were within acceptance criteria of 25 percent. Overall, there was adequate comparability of field duplicate results to meet project data quality objectives.

TABLE 1-2: FIELD DUPLICATE SAMPLE CALCULABLE RPD VALUES

Sample Location	Analyte	units	Sample Result	Duplicate Result	Sample-Dup RPD	Control Limits
1110542A: 11-WAS-064-IA/11-WAS-065-IA						
IA-7	Vinyl Chloride	ug/m3	ND	ND	NC	25%
	cis-1,2-Dichloroethene	ug/m3	ND	ND	NC	25%
	Trichloroethene	ug/m3	ND	ND	NC	25%
	Tetrachloroethene	ug/m3	27	27	0%	25%
	trans-1,2-Dichloroethene	ug/m3	ND	ND	NC	25%
1110542B: 11-WAS-068-SS/11-WAS-067-SS						
SS-6	Vinyl Chloride	ug/m3	ND	ND	NC	25%
	cis-1,2-Dichloroethene	ug/m3	ND	ND	NC	25%
	Trichloroethene	ug/m3	ND	ND	NC	25%
	Tetrachloroethene	ug/m3	ND	ND	NC	25%
	trans-1,2-Dichloroethene	ug/m3	ND	ND	NC	25%
1202432A: 12-WAS-074-IA/12-WAS-075-IA						
IA-8	Vinyl Chloride	ug/m3	ND	ND	NC	25%
	cis-1,2-Dichloroethene	ug/m3	ND	ND	NC	25%
	Trichloroethene	ug/m3	ND	ND	NC	25%
	Tetrachloroethene	ug/m3	3.3	3.4	3%	25%
	trans-1,2-Dichloroethene	ug/m3	ND	ND	NC	25%
1202432B: 12-WAS-076-SS/12-WAS-077-SS						
SS-4	Vinyl Chloride	ug/m3	ND	ND	NC	25%
	cis-1,2-Dichloroethene	ug/m3	ND	ND	NC	25%
	Trichloroethene	ug/m3	ND	ND	NC	25%
	Tetrachloroethene	ug/m3	390	400	3%	25%
	trans-1,2-Dichloroethene	ug/m3	ND	ND	NC	25%
1209143A: 12-WAS-127-IA/12-WAS-128-IA						
IA-11	Vinyl Chloride	ug/m3	ND	ND	NC	25%
	cis-1,2-Dichloroethene	ug/m3	1.2	1.2	0%	25%
	Trichloroethene	ug/m3	ND	ND	NC	25%
	Tetrachloroethene	ug/m3	16	16	0%	25%
	trans-1,2-Dichloroethene	ug/m3	ND	ND	NC	25%
1210210A: 12-WAS-133-IA/12-WAS-134-IA						
IA-8	Vinyl Chloride	ug/m3	ND	ND	NC	25%
	cis-1,2-Dichloroethene	ug/m3	0.98	0.92	6%	25%
	Trichloroethene	ug/m3	ND	0.16	NC	25%
	Tetrachloroethene	ug/m3	16	16	0%	25%
	trans-1,2-Dichloroethene	ug/m3	ND	ND	NC	25%

1.6. Laboratory QC

1.6.1. Laboratory/Method Blanks

Laboratory/Method blanks were analyzed concurrent with a batch of 20 or fewer primary samples for each of the analytical procedures performed for this project. Method blanks were analyzed at the required frequency and target analyses were not detected (ND) in the blanks at concentrations above the analytical reporting limit (RL) or practical quantitation limit (PQL).

1.6.2. Laboratory Control Samples

Analysis of laboratory control samples (LCS) and LCS duplicates (LCSD) for target analytes met laboratory and project QC goals for target analytes.

1.6.3. Matrix Spike/Matrix Spike Duplicates

Analysis of matrix spike (MS) and MS duplicates (MSD) for target analytes met laboratory and project QC goals for target analytes. All data is suitable for use.

1.6.4. Surrogates

Surrogate recovery indicates overall method performance. Surrogate recoveries were within prescribed control limits for all primary samples and LCS/LCSD.

1.6.5. Method Reporting Limits (Sensitivity)

Method Reporting Limits (MRLs) and PQLs met or were below established criteria specified for all analyses in the project work plans. The reporting limits were also below the ADEC established target levels.

1.7. Analytical Methods

The following subsections summarize whether quality control criteria were met for each analytical method. Laboratory result flags indicating QC deficiencies are also provided next to analytical results. Sample results below the method detection limits are flagged non-detect, "ND" at the PQL. No results were rejected.

1.8. Precision and Accuracy

Precision criteria monitor analytical reproducibility. Accuracy criteria monitor agreement of measured results with "true values" established by spiking applicable samples with a known quantity of analyte or surrogate. Precision and accuracy were evaluated by comparing LCS/LCSDs and field duplicate pairs for this project. Field duplicates were collected in accordance with Work Plan specifications. Field duplicate RPDs met applicable control limits. Recoveries and RPDs for all LCS/LCSD samples were within required limits. Data Quality Objectives (DQO) of an overall 95% accuracy in QC samples was met.

1.9. Completeness

Data completeness is defined as the percentage of usable data (usable data divided by the total possible data). The overall project completeness goal is 90%:

$$\% \text{ completeness} = \frac{\text{number of valid (i.e., non-R flagged) results}}{\text{number of possible results}}$$

No results were qualified as unusable (i.e., "R"). The completeness for this project is 100%.

1.10. Representativeness

Data representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or environmental condition. The number and selection of samples were specified in the Work Plan and verified in the field to account accurately for site variations and sample matrices. The DQO for representativeness was met.

1.11. Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared to another. Data produced for this project followed applicable field sampling techniques and specific analytical methodology. The DQO for comparability was met.

1.12. Data Quality Summary

Based upon the information provided, the data are acceptable for use. All requested analyses were performed in accordance with work plan specifications. No results were rejected. The overall project completeness is 100%. In general, the overall quality of the data was acceptable for the objectives established for this project.

2. REFERENCES

- ADEC. 2009. Technical Memorandum: Environmental Laboratory Data and Quality Assurance Requirements. March.
- ADEC. 2010a. Laboratory Data Review Checklist for Air Samples. January.
- ADEC. 2010b. Laboratory Data Review Checklist. January.
- EPA. 2008. *Contract Laboratory Program National Functional Guidelines for Organic Data Review* (EPA 540/R-94/012). June.
- EPA. 2010. *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA 540-R-10-011). January.
- OASIS. 2011. Long Term Soil Vapor Extraction / Sub Slab Depressurization System Operation and Monitoring Work Plan, 314 Wendell Avenue Site, Fairbanks, Alaska. November.

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Laboratory Data Review Checklist for Air Samples

Completed By:	Melissa Pike
Title:	Associate Environmental Scientist
Date:	01/03/2012
CS Report Name:	Wendell Ave Remediation and Monitoring
Report Date:	January 2012
Consultant Firm:	OASIS Environmental, Inc
Laboratory Name:	Air Toxics LTD
Laboratory Report Number:	1110542A
ADEC File Number:	
ADEC Hazard ID:	

1. Laboratory

- a. Did a NELAP certified laboratory receive and
- perform
- all of the submitted sample analyses?

☒ Yes☐ No

Comments:

--

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses NELAP approved?

☐ Yes☒ No

Comments:

No samples were transferred or subcontracted.

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?

☒ Yes☐ No

Comments:

--

- b. Correct analyses requested?

☒ Yes☐ No

Comments:

--

Laboratory Data Review Checklist for Air Samples

3. Laboratory Sample Receipt Documentation

- a. Sample condition documented- Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

☒ Yes☐ No

Comments:

- b. If there were any discrepancies, were they documented? For example, incorrect sample containers, sample holding times outside of acceptable range, insufficient of missing samples, canister not holding a vacuum, etc.?

☒ Yes☐ No

Comments:

- c. Data quality or usability affected? Please explain.

☐ Yes☒ No

Comments:

Data quality and usability is not affected with respect to the laboratory sample receipt documentation.

4. Case Narrative

- a. Present and understandable?

☒ Yes☐ No

Comments:

- b. Discrepancies, errors or QC failures identified by the lab?

☐ Yes☒ No

Comments:

There are no discrepancies, errors or QC failures.

- c. Were all corrective actions documented?

☐ Yes☒ No

Comments:

There are no corrective actions.

- d. What is the effect on data quality/usability according to the case narrative?

☐ Yes☒ No

Comments:

Data quality and usability is not affected with respect to the case narrative.

5. Sample Results

- a. Correct analyses performed/reported as requested on COC?

☒ Yes☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

b. Samples analyzed within 30 days of collection or within the time required by the method?

☒ Yes

☐ No

Comments:

c. Is the data reported in micrograms per meter cube volume ($\mu\text{g}/\text{m}^3$)?

☒ Yes

☐ No

Comments:

d. Are the reported PQLs less than the Target Screening Level or the minimum required detection level for the project?

☒ Yes

☐ No

Comments:

e. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported sample results.

6. QC Samples

a. Method Blank

i. One method blank reported per analysis and 20 samples?

☒ Yes

☐ No

Comments:

ii. All method blank results less than PQL?

☒ Yes

☐ No

Comments:

iii. If above PQL, what samples are affected?

☐ Yes

☒ No

Comments:

NA. No results are above the PQL.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes

☒ No

Comments:

NA. No results are above the PQL.

v. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported method blank results.

Laboratory Data Review Checklist for Air Samples

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics - One LCS/LCSD or one LCS and a sample/sample duplicate pair reported per analysis and 20 samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iii. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iv. If % R or RPD is outside of acceptable limits, what samples are affected?

☐ Yes ☒ No

Comments:

- v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☒ No

Comments:

- vi. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

c. Surrogates - Organics Only

- i. Are surrogate recoveries reported for organic analyses - QC and laboratory samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits?

☒ Yes ☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No

Comments:

NA. There are no failed surrogate recoveries.

iv. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected with respect to the reported surrogate results.

d. Field Duplicate

i. One field duplicate submitted per analysis and 10 soil gas or indoor air samples?

☒ Yes ☐ No

Comments:

Primary 11-WAS-064-IA and duplicate 11-WAS-065-IA.

ii. Submitted blind to lab?

☒ Yes ☐ No

Comments:

iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 25%)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

☒ Yes ☐ No

Comments:

iv. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected.

7. Other Data Flags/Qualifiers

a. Defined and appropriate?

☐ Yes ☒ No

Comments:

There are no other data flags or qualifiers.

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Laboratory Data Review Checklist for Air Samples

Completed By:	Melissa Pike
Title:	Associate Environmental Scientist
Date:	01/03/2012
CS Report Name:	Wendell Ave Remediation and Monitoring
Report Date:	January 2012
Consultant Firm:	OASIS Environmental, Inc
Laboratory Name:	Air Toxics LTD
Laboratory Report Number:	1110542B
ADEC File Number:	
ADEC Hazard ID:	

1. Laboratory

- a. Did a NELAP certified laboratory receive and
- perform
- all of the submitted sample analyses?

☒ Yes☐ No

Comments:

--

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses NELAP approved?

☐ Yes☒ No

Comments:

No samples were transferred or subcontracted.

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?

☒ Yes☐ No

Comments:

--

- b. Correct analyses requested?

☒ Yes☐ No

Comments:

--

Laboratory Data Review Checklist for Air Samples

3. Laboratory Sample Receipt Documentation

- a. Sample condition documented- Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

☒ Yes☐ No

Comments:

- b. If there were any discrepancies, were they documented? For example, incorrect sample containers, sample holding times outside of acceptable range, insufficient of missing samples, canister not holding a vacuum, etc.?

☒ Yes☐ No

Comments:

- c. Data quality or usability affected? Please explain.

☐ Yes☒ No

Comments:

Data quality and usability is not affected with respect to the laboratory sample receipt documentation.

4. Case Narrative

- a. Present and understandable?

☒ Yes☐ No

Comments:

- b. Discrepancies, errors or QC failures identified by the lab?

☐ Yes☒ No

Comments:

There are no discrepancies, errors or QC failures.

- c. Were all corrective actions documented?

☐ Yes☒ No

Comments:

There are no corrective actions.

- d. What is the effect on data quality/usability according to the case narrative?

☐ Yes☒ No

Comments:

Data quality and usability is not affected with respect to the case narrative.

5. Sample Results

- a. Correct analyses performed/reported as requested on COC?

☒ Yes☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

b. Samples analyzed within 30 days of collection or within the time required by the method?

☒ Yes

☐ No

Comments:

c. Is the data reported in micrograms per meter cube volume ($\mu\text{g}/\text{m}^3$)?

☒ Yes

☐ No

Comments:

d. Are the reported PQLs less than the Target Screening Level or the minimum required detection level for the project?

☒ Yes

☐ No

Comments:

e. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported sample results.

6. QC Samples

a. Method Blank

i. One method blank reported per analysis and 20 samples?

☒ Yes

☐ No

Comments:

ii. All method blank results less than PQL?

☒ Yes

☐ No

Comments:

iii. If above PQL, what samples are affected?

☐ Yes

☒ No

Comments:

NA. No results are above the PQL.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes

☒ No

Comments:

NA. No results are above the PQL.

v. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported method blank results.

Laboratory Data Review Checklist for Air Samples

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics - One LCS/LCSD or one LCS and a sample/sample duplicate pair reported per analysis and 20 samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iii. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iv. If % R or RPD is outside of acceptable limits, what samples are affected?

☐ Yes ☒ No

Comments:

- v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☒ No

Comments:

- vi. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

c. Surrogates - Organics Only

- i. Are surrogate recoveries reported for organic analyses - QC and laboratory samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits?

☒ Yes ☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No

Comments:

NA. There are no failed surrogate recoveries.

iv. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected with respect to the reported surrogate results.

d. Field Duplicate

i. One field duplicate submitted per analysis and 10 soil gas or indoor air samples?

☒ Yes ☐ No

Comments:

primary 11-WAS-068-SS with duplicate 11-WAS-069-SS

ii. Submitted blind to lab?

☒ Yes ☐ No

Comments:

iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 25%)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

☒ Yes ☐ No

Comments:

iv. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected.

7. Other Data Flags/Qualifiers

a. Defined and appropriate?

☐ Yes ☒ No

Comments:

There are no other data flags or qualifiers.

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Laboratory Data Review Checklist for Air Samples

Completed By:	Melissa Pike
Title:	Environmental Scientist II
Date:	01/04/2012
CS Report Name:	Wendell Avenue, Soil Vapor Extraction/ Sub Slab Depressurization System Report
Report Date:	January 2012
Consultant Firm:	OASIS Environmental Inc
Laboratory Name:	Air Toxics LTD
Laboratory Report Number:	1112584
ADEC File Number:	
ADEC Hazard ID:	

1. Laboratory

- a. Did a NELAP certified laboratory receive and
- perform
- all of the submitted sample analyses?

☒ Yes☐ No

Comments:

--

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses NELAP approved?

☐ Yes☒ No

Comments:

Samples were not transferred to another network laboratory or subcontracted.
--

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?

☒ Yes☐ No

Comments:

--

- b. Correct analyses requested?

☒ Yes☐ No

Comments:

--

Laboratory Data Review Checklist for Air Samples

3. Laboratory Sample Receipt Documentation

- a. Sample condition documented- Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

☒ Yes☐ No

Comments:

Samples arrived in good condition.

- b. If there were any discrepancies, were they documented? For example, incorrect sample containers, sample holding times outside of acceptable range, insufficient of missing samples, canister not holding a vacuum, etc.?

☐ Yes☐ No

Comments:

NA. There are no discrepancies.

- c. Data quality or usability affected? Please explain.

☐ Yes☒ No

Comments:

Data quality and usability was not affected with respect to the laboratory sample receipt documentation.

4. Case Narrative

- a. Present and understandable?

☒ Yes☐ No

Comments:

- b. Discrepancies, errors or QC failures identified by the lab?

☐ Yes☐ No

Comments:

NA. There are no discrepancies, errors or QC failures.

- c. Were all corrective actions documented?

☐ Yes☐ No

Comments:

NA. There were no corrective actions.

- d. What is the effect on data quality/usability according to the case narrative?

☐ Yes☒ No

Comments:

Data quality and usability is not affected with respect to the case narrative.

5. Sample Results

- a. Correct analyses performed/reported as requested on COC?

☒ Yes☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

b. Samples analyzed within 30 days of collection or within the time required by the method?

☒ Yes

☐ No

Comments:

c. Is the data reported in micrograms per meter cube volume ($\mu\text{g}/\text{m}^3$)?

☒ Yes

☐ No

Comments:

d. Are the reported PQLs less than the Target Screening Level or the minimum required detection level for the project?

☒ Yes

☐ No

Comments:

e. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported sample results.

6. QC Samples

a. Method Blank

i. One method blank reported per analysis and 20 samples?

☒ Yes

☐ No

Comments:

ii. All method blank results less than PQL?

☒ Yes

☐ No

Comments:

iii. If above PQL, what samples are affected?

☐ Yes

☐ No

Comments:

NA. No results were above the PQL.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes

☐ No

Comments:

NA. No results were above the PQL.

v. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported method blank results.

Laboratory Data Review Checklist for Air Samples

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics - One LCS/LCSD or one LCS and a sample/sample duplicate pair reported per analysis and 20 samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iii. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iv. If % R or RPD is outside of acceptable limits, what samples are affected?

☐ Yes ☐ No

Comments:

NA. All results were within %R and RPD limits.

- v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No

Comments:

NA. All results were within %R and RPD limits.

- vi. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected with respect to the reported

c. Surrogates - Organics Only

- i. Are surrogate recoveries reported for organic analyses - QC and laboratory samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits?

☒ Yes ☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No

Comments:

NA. There are no failed surrogate recoveries.

iv. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected with respect to the reported surrogate results.

d. Field Duplicate

i. One field duplicate submitted per analysis and 10 soil gas or indoor air samples?

☐ Yes ☒ No

Comments:

No field duplicate was submitted with this SDG.

ii. Submitted blind to lab?

☐ Yes ☐ No

Comments:

NA. No field duplicate was submitted with this SDG.

iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 25%)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

☐ Yes ☐ No

Comments:

NA. No field duplicate was submitted with this SDG.

iv. Data quality or usability affected? Please explain.

☐ Yes ☐ No

Comments:

NA. No field duplicate was submitted with this SDG.

7. Other Data Flags/Qualifiers

a. Defined and appropriate?

☐ Yes ☐ No

Comments:

NA. There are no additional data flags or qualifiers.

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Laboratory Data Review Checklist for Air Samples

Completed By:	Melissa Pike
Title:	Environmental Scientist/ Data Manager
Date:	May 9, 2012
CS Report Name:	Wendell Ave 2012
Report Date:	May 2012
Consultant Firm:	OASIS Environmental, Inc, an ERM Company
Laboratory Name:	Eurofins Air Toxics
Laboratory Report Number:	1202432A
ADEC File Number:	
ADEC Hazard ID:	

1. Laboratory

- a. Did a NELAP certified laboratory receive and
- perform
- all of the submitted sample analyses?

☒ Yes☐ No

Comments:

--

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses NELAP approved?

☐ Yes☒ No

Comments:

No samples were transferred for analysis.

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?

☒ Yes☐ No

Comments:

--

- b. Correct analyses requested?

☒ Yes☐ No

Comments:

--

Laboratory Data Review Checklist for Air Samples

3. Laboratory Sample Receipt Documentation

- a. Sample condition documented- Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

☒ Yes

☐ No

Comments:

Samples arrived in good condition.

- b. If there were any discrepancies, were they documented? For example, incorrect sample containers, sample holding times outside of acceptable range, insufficient of missing samples, canister not holding a vacuum, etc.?

☐ Yes

☒ No

Comments:

There were no discrepancies.

- c. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the laboratory receipt documentation.

4. Case Narrative

- a. Present and understandable?

☒ Yes

☐ No

Comments:

- b. Discrepancies, errors or QC failures identified by the lab?

☐ Yes

☐ No

Comments:

There were no discrepancies, errors or QC failures.

- c. Were all corrective actions documented?

☐ Yes

☐ No

Comments:

NA. There were no corrective actions.

- d. What is the effect on data quality/usability according to the case narrative?

☐ Yes

☐ No

Comments:

There is no affect on data quality or usability.

5. Sample Results

- a. Correct analyses performed/reported as requested on COC?

☒ Yes

☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

b. Samples analyzed within 30 days of collection or within the time required by the method?

☒ Yes

☐ No

Comments:

c. Is the data reported in micrograms per meter cube volume ($\mu\text{g}/\text{m}^3$)?

☒ Yes

☐ No

Comments:

d. Are the reported PQLs less than the Target Screening Level or the minimum required detection level for the project?

☒ Yes

☐ No

Comments:

e. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per analysis and 20 samples?

☒ Yes

☐ No

Comments:

ii. All method blank results less than PQL?

☒ Yes

☐ No

Comments:

iii. If above PQL, what samples are affected?

☐ Yes

☐ No

Comments:

NA. No sample results were above the PQL.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes

☐ No

Comments:

NA. No sample results were above the PQL.

v. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the method blank results.

Laboratory Data Review Checklist for Air Samples

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics - One LCS/LCSD or one LCS and a sample/sample duplicate pair reported per analysis and 20 samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iii. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iv. If % R or RPD is outside of acceptable limits, what samples are affected?

☐ Yes ☐ No

Comments:

NA. All %R and RPDs are within acceptable limits.

- v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No

Comments:

NA. All %R and RPDs are within acceptable limits.

- vi. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected with respect to the LCS/LCSD results.

c. Surrogates - Organics Only

- i. Are surrogate recoveries reported for organic analyses - QC and laboratory samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits?

☒ Yes ☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No

Comments:

NA. There are no failed surrogate recoveries.

iv. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected with respect to the reported surrogate results.

d. Field Duplicate

i. One field duplicate submitted per analysis and 10 soil gas or indoor air samples?

☒ Yes ☐ No

Comments:

primary 12-WAS-074-IA with duplicate 12-WAS-075-IA

ii. Submitted blind to lab?

☒ Yes ☐ No

Comments:

iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 25%)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

☒ Yes ☐ No

Comments:

iv. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability are not affected with respect to the reported field duplicate results.

7. Other Data Flags/Qualifiers

a. Defined and appropriate?

☐ Yes ☐ No

Comments:

There are no additional data flags or qualifiers within this data package.

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Laboratory Data Review Checklist for Air Samples

Completed By:	Melissa Pike
Title:	Environmental Scientist/ Data Manager
Date:	May 9, 2012
CS Report Name:	Wendell Ave 2012
Report Date:	May 2012
Consultant Firm:	OASIS Environmental, Inc, an ERM Company
Laboratory Name:	Eurofins Air Toxics
Laboratory Report Number:	1202432B
ADEC File Number:	
ADEC Hazard ID:	

1. Laboratory

- a. Did a NELAP certified laboratory receive and
- perform
- all of the submitted sample analyses?

☒ Yes☐ No

Comments:

--

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses NELAP approved?

☐ Yes☒ No

Comments:

No samples were transferred for analysis.

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?

☒ Yes☐ No

Comments:

--

- b. Correct analyses requested?

☒ Yes☐ No

Comments:

--

Laboratory Data Review Checklist for Air Samples

3. Laboratory Sample Receipt Documentation

- a. Sample condition documented- Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

☒ Yes

☐ No

Comments:

Samples arrived in good condition.

- b. If there were any discrepancies, were they documented? For example, incorrect sample containers, sample holding times outside of acceptable range, insufficient of missing samples, canister not holding a vacuum, etc.?

☐ Yes

☒ No

Comments:

There were no discrepancies.

- c. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the laboratory receipt documentation.

4. Case Narrative

- a. Present and understandable?

☒ Yes

☐ No

Comments:

- b. Discrepancies, errors or QC failures identified by the lab?

☐ Yes

☐ No

Comments:

There were no discrepancies, errors or QC failures.

- c. Were all corrective actions documented?

☐ Yes

☐ No

Comments:

NA. There were no corrective actions.

- d. What is the effect on data quality/usability according to the case narrative?

☐ Yes

☐ No

Comments:

There is no affect on data quality or usability.

5. Sample Results

- a. Correct analyses performed/reported as requested on COC?

☒ Yes

☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

b. Samples analyzed within 30 days of collection or within the time required by the method?

☒ Yes

☐ No

Comments:

c. Is the data reported in micrograms per meter cube volume ($\mu\text{g}/\text{m}^3$)?

☒ Yes

☐ No

Comments:

d. Are the reported PQLs less than the Target Screening Level or the minimum required detection level for the project?

☒ Yes

☐ No

Comments:

e. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per analysis and 20 samples?

☒ Yes

☐ No

Comments:

ii. All method blank results less than PQL?

☒ Yes

☐ No

Comments:

iii. If above PQL, what samples are affected?

☐ Yes

☐ No

Comments:

NA. No sample results were above the PQL.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes

☐ No

Comments:

NA. No sample results were above the PQL.

v. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the method blank results.

Laboratory Data Review Checklist for Air Samples

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics - One LCS/LCSD or one LCS and a sample/sample duplicate pair reported per analysis and 20 samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iii. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iv. If % R or RPD is outside of acceptable limits, what samples are affected?

☐ Yes ☐ No

Comments:

NA. All %R and RPDs are within acceptable limits.

- v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No

Comments:

NA. All %R and RPDs are within acceptable limits.

- vi. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected with respect to the LCS/LCSD results.

c. Surrogates - Organics Only

- i. Are surrogate recoveries reported for organic analyses - QC and laboratory samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits?

☒ Yes ☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☐ Yes

☐ No

Comments:

NA. There are no failed surrogate recoveries.

iv. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported surrogate results.

d. Field Duplicate

i. One field duplicate submitted per analysis and 10 soil gas or indoor air samples?

☒ Yes

☐ No

Comments:

primary 12-WAS-076-SS with duplicate 12-WAS-077-SS

ii. Submitted blind to lab?

☒ Yes

☐ No

Comments:

iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 25%)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

☒ Yes

☐ No

Comments:

iv. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability are not affected with respect to the reported field duplicate results.

7. Other Data Flags/Qualifiers

a. Defined and appropriate?

☐ Yes

☐ No

Comments:

There are no additional data flags or qualifiers within this data package.

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Laboratory Data Review Checklist for Air Samples

Completed By:	Melissa Pike
Title:	Associate Environmental Scientist
Date:	08/10/12
CS Report Name:	Wendell Ave Remediation and Monitoring
Report Date:	August 2012
Consultant Firm:	OASIS Environmental, Inc
Laboratory Name:	Eurofins Air Toxics Inc
Laboratory Report Number:	1205334
ADEC File Number:	
ADEC Hazard ID:	

1. Laboratory

- a. Did a NELAP certified laboratory receive and
- perform
- all of the submitted sample analyses?

☒ Yes☐ No

Comments:

--

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses NELAP approved?

☐ Yes☒ No

Comments:

No samples were transferred or subcontracted.

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?

☒ Yes☐ No

Comments:

--

- b. Correct analyses requested?

☒ Yes☐ No

Comments:

--

Laboratory Data Review Checklist for Air Samples

3. Laboratory Sample Receipt Documentation

- a. Sample condition documented- Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

☒ Yes☐ No

Comments:

- b. If there were any discrepancies, were they documented? For example, incorrect sample containers, sample holding times outside of acceptable range, insufficient of missing samples, canister not holding a vacuum, etc.?

☒ Yes☐ No

Comments:

- c. Data quality or usability affected? Please explain.

☐ Yes☒ No

Comments:

Data quality and usability is not affected with respect to the laboratory sample receipt documentation.

4. Case Narrative

- a. Present and understandable?

☒ Yes☐ No

Comments:

- b. Discrepancies, errors or QC failures identified by the lab?

☐ Yes☒ No

Comments:

There are no discrepancies, errors or QC failures.

- c. Were all corrective actions documented?

☐ Yes☒ No

Comments:

There are no corrective actions.

- d. What is the effect on data quality/usability according to the case narrative?

☐ Yes☒ No

Comments:

Data quality and usability is not affected with respect to the case narrative.

5. Sample Results

- a. Correct analyses performed/reported as requested on COC?

☒ Yes☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

b. Samples analyzed within 30 days of collection or within the time required by the method?

☒ Yes

☐ No

Comments:

c. Is the data reported in micrograms per meter cube volume ($\mu\text{g}/\text{m}^3$)?

☒ Yes

☐ No

Comments:

d. Are the reported PQLs less than the Target Screening Level or the minimum required detection level for the project?

☒ Yes

☐ No

Comments:

e. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported sample results.

6. QC Samples

a. Method Blank

i. One method blank reported per analysis and 20 samples?

☒ Yes

☐ No

Comments:

ii. All method blank results less than PQL?

☒ Yes

☐ No

Comments:

iii. If above PQL, what samples are affected?

☐ Yes

☒ No

Comments:

NA. No results are above the PQL.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes

☒ No

Comments:

NA. No results are above the PQL.

v. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported method blank results.

Laboratory Data Review Checklist for Air Samples

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics - One LCS/LCSD or one LCS and a sample/sample duplicate pair reported per analysis and 20 samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iii. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iv. If % R or RPD is outside of acceptable limits, what samples are affected?

☐ Yes ☒ No

Comments:

- v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☒ No

Comments:

- vi. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

c. Surrogates - Organics Only

- i. Are surrogate recoveries reported for organic analyses - QC and laboratory samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits?

☒ Yes ☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No

Comments:

NA. There are no failed surrogate recoveries.

iv. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected with respect to the reported surrogate results.

d. Field Duplicate

i. One field duplicate submitted per analysis and 10 soil gas or indoor air samples?

☐ Yes ☒ No

Comments:

There are no field duplicates submitted with this SDG.

ii. Submitted blind to lab?

☐ Yes ☐ No

Comments:

NA. There are no field duplicates submitted with this SDG.

iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 25%)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

☐ Yes ☐ No

Comments:

NA. There are no field duplicates submitted with this SDG.

iv. Data quality or usability affected? Please explain.

☐ Yes ☐ No

Comments:

NA. There are no field duplicates submitted with this SDG.

7. Other Data Flags/Qualifiers

a. Defined and appropriate?

☐ Yes ☒ No

Comments:

There are no other data flags or qualifiers.

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Contaminated Sites Program
Spill Prevention and Response Division
Alaska Department of Environmental Conservation

Laboratory Data Review Checklist for Air Samples

Completed by:	<input type="text" value="Elsie King"/>		
Title:	<input type="text" value="Chemist"/>	Date:	<input type="text" value="11/2/2012"/>
CS Report Name:	<input type="text" value="Wendell Ave Remediation and Monitoring"/>	Report Date:	<input type="text" value="November 2012"/>
Consultant Firm:	<input type="text" value="OASIS Environmental, Inc"/>		
Laboratory Name:	<input type="text" value="Air Toxics LTD"/>	Laboratory Report Number:	<input type="text" value="1209143A"/>
DEC File Number:	<input type="text"/>	DEC Haz ID:	<input type="text"/>

1. Laboratory

- a. Did a NELAP-certified laboratory receive and perform all of the submitted sample analyses?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses NELAP-approved?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

2. Chain of Custody (COC)

- a. Was the COC information completed, signed and dated (including released/received by)?

☒ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- b. Was the correct analyses requested?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

3. Laboratory Sample Receipt Documentation

- a. Was the sample condition documented? Were samples collected in gas-tight, opaque/dark Summa canisters or other DEC-approved containers? Was the canister vacuum/pressure checked, recorded upon receipt and were there no open valves?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- b. If there were any discrepancies, were they documented? Examples include incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- c. Was the data quality or usability affected? (Please explain.)

Comments:

Data quality and usability is not affected with respect to the laboratory sample receipt documentation.

4. Case Narrative

- a. Is there a case narrative and is it understandable?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- b. Were there any discrepancies, errors or QC failures identified by the lab?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- c. Were all corrective actions documented?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

There are no discrepancies, errors or QC failures.

- d. What is the effect on data quality/usability according to the case narrative?

Comments:

Data quality and usability is not affected with respect to the case narrative.

5. Samples Results

a. Was the correct analyses performed/reported as requested on COC?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

b. Were the samples analyzed within 30 days of collection or within the time required by the method?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

c. Are the reported PQLs less than the Target Screening Level or the minimum required detection level for the project?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

d. Was the data quality or usability affected?

Comments:

Data quality and usability is not affected with respect to the reported sample results.

6. QC Samples

a. Method Blank

i. Was one method blank reported per analysis and 20 samples?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

ii. Were all method blank results less than PQL?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

iii. If above PQL, what samples are affected?

Comments:

- iv. Do the affected sample(s) have data flags and, if so, are the data flags clearly defined?
☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- v. Was the data quality or usability affected? (Please explain.)

Comments:

Data quality and usability is not affected with respect to the reported method blank results.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Was there one LCS/LCSD or one LCS and a sample/sample duplicate pair reported per analysis and 20 samples?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- ii. Accuracy – Were all percent recoveries (%R) reported and within method or laboratory limits? What were the project specified DQOs, if applicable?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- iii. Precision – Were all relative percent differences (RPD) reported and were they less than method or laboratory limits? What were the project-specified DQOs, if applicable.

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- iv. If the %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

- v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

vi. Is the data quality or usability affected? (Please explain.)

Comments:

c. Surrogates

i. Are surrogate recoveries reported for field, QC and laboratory samples?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits?
What were the project-specified DQOs, if applicable?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

iv. Was the data quality or usability affected? (Please explain.)

Comments:

d. Field Duplicate

i. Was one field duplicate submitted per analysis and 10 type (soil gas, indoor air, etc.) samples?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

ii. Were they or was it submitted blind to the lab?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- iii. Precision – Were all relative percent differences (RPD) less than the specified DQOs?
(Recommended: 25 %)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- iv. Was the data quality or usability affected? (Please explain.)

Comments:

- e. Field Blank (If not used, explain why.)

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- i. Were all results less than the PQL?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

- ii. If above PQL, what samples are affected?

Comments:

- iii. Was the data quality or usability affected? (Please explain.)

Comments:

7. Other Data Flags/Qualifiers

- a. Were other data flags/qualifiers defined and appropriate?

☐ Yes ☐ No ☐ N/A (Please explain.)

Comments:

Laboratory Data Review Checklist for Air Samples

Completed By:	Elsie King
Title:	Chemist
Date:	10/31/2012
CS Report Name:	Wendell Ave Remediation and Monitoring
Report Date:	November 2012
Consultant Firm:	OASIS Environmental, Inc
Laboratory Name:	Air Toxics LTD
Laboratory Report Number:	1209143B
ADEC File Number:	
ADEC Hazard ID:	

1. Laboratory

- a. Did a NELAP certified laboratory receive and
- perform
- all of the submitted sample analyses?

☒ Yes☐ No

Comments:

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- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses NELAP approved?

☐ Yes☒ No

Comments:

No samples were transferred or subcontracted.

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?

☒ Yes☐ No

Comments:

--

- b. Correct analyses requested?

☒ Yes☐ No

Comments:

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Laboratory Data Review Checklist for Air Samples

3. Laboratory Sample Receipt Documentation

- a. Sample condition documented- Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

☒ Yes☐ No

Comments:

- b. If there were any discrepancies, were they documented? For example, incorrect sample containers, sample holding times outside of acceptable range, insufficient of missing samples, canister not holding a vacuum, etc.?

☒ Yes☐ No

Comments:

- c. Data quality or usability affected? Please explain.

☐ Yes☒ No

Comments:

Data quality and usability is not affected with respect to the laboratory sample receipt documentation.

4. Case Narrative

- a. Present and understandable?

☒ Yes☐ No

Comments:

- b. Discrepancies, errors or QC failures identified by the lab?

☐ Yes☒ No

Comments:

There are no discrepancies, errors or QC failures.

- c. Were all corrective actions documented?

☐ Yes☒ No

Comments:

There are no corrective actions.

- d. What is the effect on data quality/usability according to the case narrative?

☐ Yes☒ No

Comments:

Data quality and usability is not affected with respect to the case narrative.

5. Sample Results

- a. Correct analyses performed/reported as requested on COC?

☒ Yes☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

b. Samples analyzed within 30 days of collection or within the time required by the method?

☒ Yes

☐ No

Comments:

c. Is the data reported in micrograms per meter cube volume ($\mu\text{g}/\text{m}^3$)?

☒ Yes

☐ No

Comments:

d. Are the reported PQLs less than the Target Screening Level or the minimum required detection level for the project?

☒ Yes

☐ No

Comments:

e. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported sample results.

6. QC Samples

a. Method Blank

i. One method blank reported per analysis and 20 samples?

☒ Yes

☐ No

Comments:

ii. All method blank results less than PQL?

☒ Yes

☐ No

Comments:

iii. If above PQL, what samples are affected?

☐ Yes

☒ No

Comments:

NA. No results are above the PQL.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes

☒ No

Comments:

NA. No results are above the PQL.

v. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported method blank results.

Laboratory Data Review Checklist for Air Samples

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics - One LCS/LCSD or one LCS and a sample/sample duplicate pair reported per analysis and 20 samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iii. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iv. If % R or RPD is outside of acceptable limits, what samples are affected?

☐ Yes ☒ No

Comments:

- v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☒ No

Comments:

- vi. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

c. Surrogates - Organics Only

- i. Are surrogate recoveries reported for organic analyses - QC and laboratory samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits?

☒ Yes ☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No

Comments:

NA. There are no failed surrogate recoveries.

iv. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected with respect to the reported surrogate results.

d. Field Duplicate

i. One field duplicate submitted per analysis and 10 soil gas or indoor air samples?

☒ Yes ☐ No

Comments:

See Report 1209143A; Duplicate pair: 12-WAS-127-IA and 12-WAS-128-IA

ii. Submitted blind to lab?

☒ Yes ☐ No

Comments:

iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 25%)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

☒ Yes ☐ No

Comments:

iv. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected.

7. Other Data Flags/Qualifiers

a. Defined and appropriate?

☐ Yes ☒ No

Comments:

There are no other data flags or qualifiers.

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Laboratory Data Review Checklist for Air Samples

Completed By:	Elsie King
Title:	Chemist
Date:	10/31/2012
CS Report Name:	Wendell Ave Remediation and Monitoring
Report Date:	November 2012
Consultant Firm:	OASIS Environmental, Inc
Laboratory Name:	Air Toxics LTD
Laboratory Report Number:	1210210A
ADEC File Number:	
ADEC Hazard ID:	

1. Laboratory

- a. Did a NELAP certified laboratory receive and
- perform
- all of the submitted sample analyses?

☒ Yes☐ No

Comments:

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- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses NELAP approved?

☐ Yes☒ No

Comments:

No samples were transferred or subcontracted.

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?

☒ Yes☐ No

Comments:

--

- b. Correct analyses requested?

☒ Yes☐ No

Comments:

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Laboratory Data Review Checklist for Air Samples

3. Laboratory Sample Receipt Documentation

- a. Sample condition documented- Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

☒ Yes☐ No

Comments:

- b. If there were any discrepancies, were they documented? For example, incorrect sample containers, sample holding times outside of acceptable range, insufficient of missing samples, canister not holding a vacuum, etc.?

☒ Yes☐ No

Comments:

- c. Data quality or usability affected? Please explain.

☐ Yes☒ No

Comments:

Data quality and usability is not affected with respect to the laboratory sample receipt documentation.

4. Case Narrative

- a. Present and understandable?

☒ Yes☐ No

Comments:

- b. Discrepancies, errors or QC failures identified by the lab?

☐ Yes☒ No

Comments:

There are no discrepancies, errors or QC failures.

- c. Were all corrective actions documented?

☐ Yes☒ No

Comments:

There are no corrective actions.

- d. What is the effect on data quality/usability according to the case narrative?

☐ Yes☒ No

Comments:

Data quality and usability is not affected with respect to the case narrative.

5. Sample Results

- a. Correct analyses performed/reported as requested on COC?

☒ Yes☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

b. Samples analyzed within 30 days of collection or within the time required by the method?

☒ Yes

☐ No

Comments:

c. Is the data reported in micrograms per meter cube volume ($\mu\text{g}/\text{m}^3$)?

☒ Yes

☐ No

Comments:

d. Are the reported PQLs less than the Target Screening Level or the minimum required detection level for the project?

☒ Yes

☐ No

Comments:

e. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported sample results.

6. QC Samples

a. Method Blank

i. One method blank reported per analysis and 20 samples?

☒ Yes

☐ No

Comments:

ii. All method blank results less than PQL?

☒ Yes

☐ No

Comments:

iii. If above PQL, what samples are affected?

☐ Yes

☒ No

Comments:

NA. No results are above the PQL.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes

☒ No

Comments:

NA. No results are above the PQL.

v. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported method blank results.

Laboratory Data Review Checklist for Air Samples

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics - One LCS/LCSD or one LCS and a sample/sample duplicate pair reported per analysis and 20 samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iii. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iv. If % R or RPD is outside of acceptable limits, what samples are affected?

☐ Yes ☒ No

Comments:

All are within limits.

- v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☒ No

Comments:

No data is affected; no data has been flagged.

- vi. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected with respect to the reported LCS/LCSD results.

c. Surrogates - Organics Only

- i. Are surrogate recoveries reported for organic analyses - QC and laboratory samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits?

☒ Yes ☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

- iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☐ Yes

☐ No

Comments:

NA. There are no failed surrogate recoveries.

- iv. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported surrogate results.

d. Field Duplicate

- i. One field duplicate submitted per analysis and 10 soil gas or indoor air samples?

☒ Yes

☐ No

Comments:

12-WAS-133-IA and 12-WAS-134-IA

- ii. Submitted blind to lab?

☒ Yes

☐ No

Comments:

- iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 25%)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

☒ Yes

☐ No

Comments:

- iv. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected.

7. Other Data Flags/Qualifiers

- a. Defined and appropriate?

☐ Yes

☒ No

Comments:

There are no other data flags or qualifiers.

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Laboratory Data Review Checklist for Air Samples

Completed By:	Elsie King
Title:	Chemist
Date:	10/31/2012
CS Report Name:	Wendell Ave Remediation and Monitoring
Report Date:	November 2012
Consultant Firm:	OASIS Environmental, Inc
Laboratory Name:	Air Toxics LTD
Laboratory Report Number:	1210210B
ADEC File Number:	
ADEC Hazard ID:	

1. Laboratory

- a. Did a NELAP certified laboratory receive and
- perform
- all of the submitted sample analyses?

☒ Yes☐ No

Comments:

--

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses NELAP approved?

☐ Yes☒ No

Comments:

No samples were transferred or subcontracted.

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?

☒ Yes☐ No

Comments:

--

- b. Correct analyses requested?

☒ Yes☐ No

Comments:

--

Laboratory Data Review Checklist for Air Samples

3. Laboratory Sample Receipt Documentation

- a. Sample condition documented- Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

☒ Yes☐ No

Comments:

- b. If there were any discrepancies, were they documented? For example, incorrect sample containers, sample holding times outside of acceptable range, insufficient of missing samples, canister not holding a vacuum, etc.?

☒ Yes☐ No

Comments:

- c. Data quality or usability affected? Please explain.

☐ Yes☒ No

Comments:

Data quality and usability is not affected with respect to the laboratory sample receipt documentation.

4. Case Narrative

- a. Present and understandable?

☒ Yes☐ No

Comments:

- b. Discrepancies, errors or QC failures identified by the lab?

☐ Yes☒ No

Comments:

There are no discrepancies, errors or QC failures.

- c. Were all corrective actions documented?

☐ Yes☒ No

Comments:

There are no corrective actions.

- d. What is the effect on data quality/usability according to the case narrative?

☐ Yes☒ No

Comments:

Data quality and usability is not affected with respect to the case narrative.

5. Sample Results

- a. Correct analyses performed/reported as requested on COC?

☒ Yes☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

b. Samples analyzed within 30 days of collection or within the time required by the method?

☒ Yes

☐ No

Comments:

c. Is the data reported in micrograms per meter cube volume ($\mu\text{g}/\text{m}^3$)?

☒ Yes

☐ No

Comments:

d. Are the reported PQLs less than the Target Screening Level or the minimum required detection level for the project?

☒ Yes

☐ No

Comments:

e. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

6. QC Samples

a. Method Blank

i. One method blank reported per analysis and 20 samples?

☒ Yes

☐ No

Comments:

ii. All method blank results less than PQL?

☒ Yes

☐ No

Comments:

iii. If above PQL, what samples are affected?

☐ Yes

☒ No

Comments:

NA. No results are above the PQL.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes

☒ No

Comments:

NA. No results are above the PQL.

v. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported method blank results.

Laboratory Data Review Checklist for Air Samples

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

- i. Organics - One LCS/LCSD or one LCS and a sample/sample duplicate pair reported per analysis and 20 samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iii. Precision - All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable.

☒ Yes ☐ No

Comments:

- iv. If % R or RPD is outside of acceptable limits, what samples are affected?

☐ Yes ☒ No

Comments:

All are within limits.

- v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☒ No

Comments:

No data is affected; no data has been flagged.

- vi. Data quality or usability affected? Please explain.

☐ Yes ☒ No

Comments:

Data quality and usability is not affected with respect to the reported LCS/LCSD results.

c. Surrogates - Organics Only

- i. Are surrogate recoveries reported for organic analyses - QC and laboratory samples?

☒ Yes ☐ No

Comments:

- ii. Accuracy - All percent recoveries (%R) reported and within method or laboratory limits?

☒ Yes ☐ No

Comments:

Laboratory Data Review Checklist for Air Samples

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☐ Yes

☐ No

Comments:

NA. There are no failed surrogate recoveries.

iv. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected with respect to the reported surrogate results.

d. Field Duplicate

i. One field duplicate submitted per analysis and 10 soil gas or indoor air samples?

☒ Yes

☐ No

Comments:

See report 210210A: 12-WAS-133-IA and 12-WAS-134-IA

ii. Submitted blind to lab?

☒ Yes

☐ No

Comments:

iii. Precision - All relative percent differences (RPD) less than specified DQOs?
(Recommended: 25%)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

☒ Yes

☐ No

Comments:

iv. Data quality or usability affected? Please explain.

☐ Yes

☒ No

Comments:

Data quality and usability is not affected.

7. Other Data Flags/Qualifiers

a. Defined and appropriate?

☐ Yes

☒ No

Comments:

There are no other data flags or qualifiers.

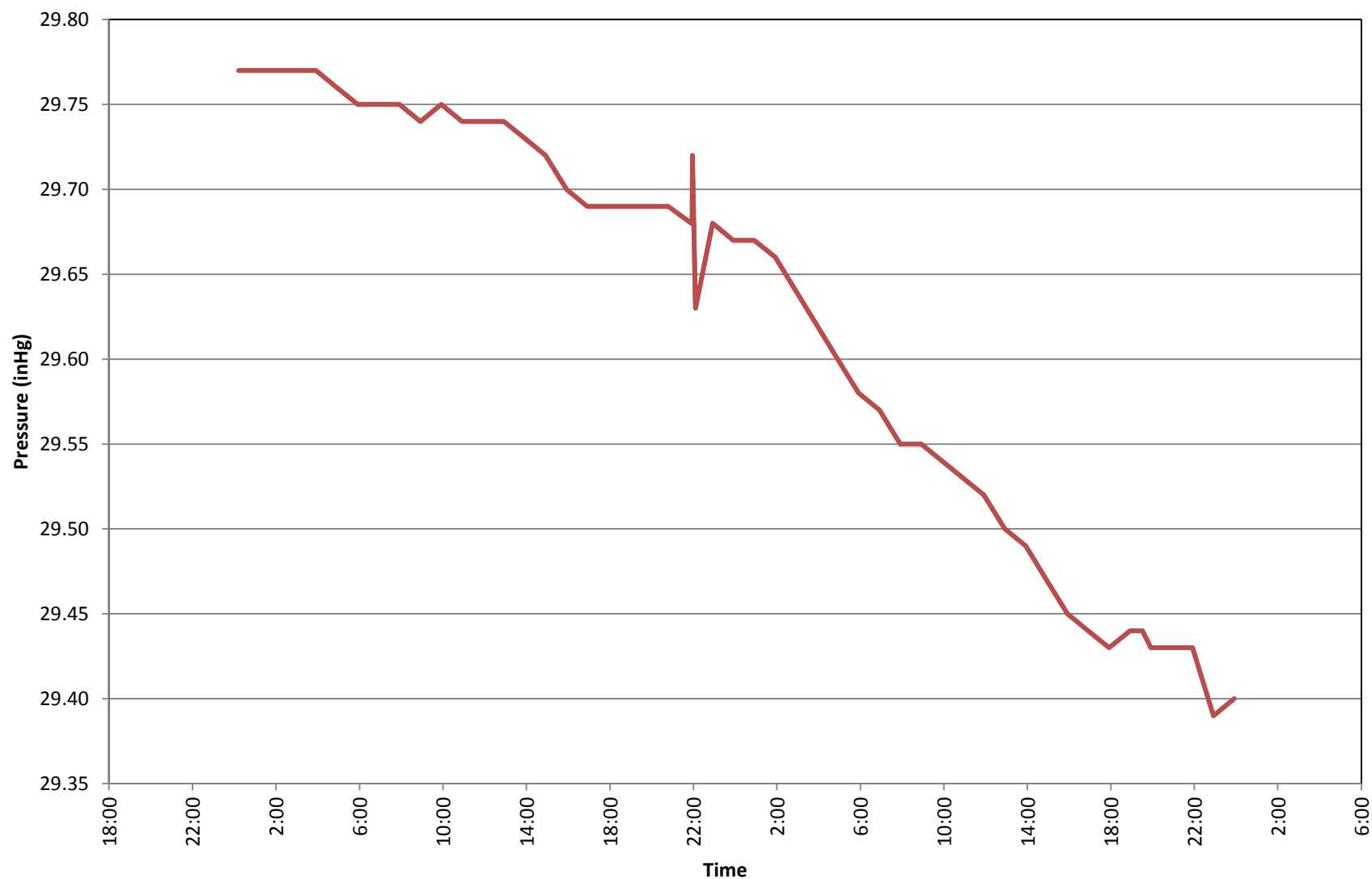
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APPENDIX H

BAROMETRIC PRESSURE TRENDS

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Barometric Pressure Readings for Air Sampling October 20, 2011 - October 21, 2011



**Barometric Pressure Readings for Air Sampling
February 15, 2012- February 16, 2012**

