June 15, 2012 *via email: Tom.Broderick@kiewit.com*

Kiewit/Kobayashi, a Joint Venture
680 Iwilei Road, Suite 420
Honolulu, Hawaii 96817

Attention: Mr. Tom Broderick

Reference: Soil Vapor Sampling Summary Letter
Honolulu Rail Transit Project
Maintenance and Storage Facility Design-Build Contract

EnviroServices & Training Center, LLC (ETC) was contracted by Kiewit/Kobayashi, a Joint Venture (KKJV) to collect five primary soil vapor samples and one field duplicate soil vapor sample at the Honolulu Rail Transit Project (HRTP) Maintenance and Storage Facility (MSF). The scope of work was based on direction provided by the Honolulu Authority for Rapid Transportation (HART).

Introduction

The Hawaii Department of Health (DOH) Hazard Evaluation and Emergency Response (HEER) Office sent a letter dated April 2, 2012 to the HART regarding *Management of Environmental Concerns at the Ewa Junction Fuel Drumming Facility during Construction of the Maintenance and Storage Facility*. In this letter, DOH HEER expressed its concern with a data gap regarding potential soil vapor emissions due to underlying petroleum impacts in the soil and groundwater. The DOH HEER Office suggested that HART "collect three to five soil vapor samples at 5-feet below ground surface from areas of the site with the highest concentrations of petroleum contamination..." As such, HART requested that KKJV perform soil vapor sampling activities. KKJV retained ETC to perform the sampling activities.

ETC prepared a brief *Soil Vapor Sampling and Analysis Plan* dated May 21, 2012 to describe the planned soil vapor sampling activities. The Plan provided a brief project background, sampling objectives, contaminants of concern, sample locations provided by HART, detailed description of the sample collection activities, the analyses to be run on the soil vapor samples, decontamination procedures, and data quality control methods. The work described in this summary letter followed the May 21, 2012 *Soil Vapor Sampling and Analysis Plan* except where noted herein.

The overall objective of the soil vapor sampling activities was to quantify volatile organic compound (VOC) concentrations in the shallow soil gas above and in the vicinity of the residual petroleum contaminated soil and groundwater plume known to exist in the subsurface at the MSF property. The data included herein will be used to fill in data gaps regarding potential contaminants in soil vapor that may constitute an environmental hazard to future users of the site.

Contaminants of Concern

Based on existing information about the project site, the following contaminants of potential concern (COPC) were identified for soil vapor sampling activities:

- Total petroleum hydrocarbons (TPH) as gasoline (TPH-G) (carbon range C5-C12, C5-C24)
- TPH as diesel (TPH-D) (carbon range C5-C24)
- Benzene, toluene, ethylbenzene, and xylenes (BTEX)
- Methyl tertiary-butyl ether (MtBE)
- Naphthalene
- Methane

Sample Locations

A total of five soil vapor sample locations were identified by HART and are shown in the attached figure. These locations were placed within the area where residual subsurface petroleum contamination is anticipated based on documents referenced in the March 2009 *Final Environmental Condition of Property* report (prepared by Environet, Inc. for NAVFAC Hawaii) and areas where there may be potential vapor intrusion concerns into planned, enclosed structures.

KKJV personnel used the locations provided by HART and plotted coordinates for the sample locations. These coordinates are provided in the table below. KKJV personnel also cleared vegetation from the interior roads and sample locations to allow access for the direct-push rig, marked the sample locations, and scanned the sample locations for the presence of any underground utility lines.

Coordinates – Soil Vapor Sample Locations

Sample Location	Northing	Easting
SV1	81029.7160	1644820.9845
SV2	81546.6695	1644824.1882
SV3	81841.9155	1644811.9092
SV4	81338.2299	1644567.7147
SV5	82037.5836	1644736.7217

Field Sampling Activities

This section provides information regarding specific field methods that ETC employed to complete soil vapor sampling activities at the MSF site. The activities described herein were performed in general accordance with the DOH's *Interim Final Technical Guidance Manual for the Implementation of the Hawaii State Contingency Plan*, November 2009 (TGM).

Soil Vapor Probe Installation

Collection of soil vapor samples was performed on June 4, 2012 with the assistance of GeoTek Hawaii (GTH). GTH drove a single, 5-foot steel rod to a depth of 5 feet below ground surface (bgs) using the hydraulic hammer on the direct push rig at each sample location. The rod was then removed from the borehole and AT86 Series perforated implants were placed at the bottom of each borehole. Implants were approximately 6-inches in length with a pore diameter of 0.145 mm. New Teflon™ lined tubing (0.25-inch inside diameter) was attached to each implant and extended through the borehole to approximately 4 feet beyond the ground surface. GTH then added Monterey sand to approximately 1-foot above the implant and hydrated bentonite was added in 1-foot lifts to seal the annular space to ground surface. Each vapor probe assembly was left to equilibrate for a minimum of 30 minutes before sample collection.

Soil Vapor Sample Collection

After allowing adequate equilibration time, the Teflon™ lined tubing was threaded through a hole cut into the bottom of an upended 5-gallon bucket placed directly over the borehole. A separate polyethylene tube was placed below the bucket assembly (between bucket lip and ground surface) to allow helium to be introduced into the enclosed space as a leak check compound. Hydrated bentonite was then added to seal the bucket lip-ground surface interface and around the Teflon™ lined tubing exiting the top of the upended bucket (with the objective of making the space under the bucket completely enclosed from the outside atmosphere).

The implant-Teflon™ lined tubing system was then purged of existing air. Initially, ETC personnel used a RAE Systems miniRAE 2000 photoionization detector (PID) operating at the manufacturer's specified 450- to 550-milliliter per minute pump rate. However, during purging of the first system (SV5), the PID became inoperable. Therefore, a new, 60-milliliter polyethylene syringe was used to purge each system. A total of 1,200-milliliters of air was removed from each system using the syringe (e.g., 20 syringe volumes). The total volume of air purged from each system exceeded the guideline of purging a minimum of three system volumes.

After system purging, a second length of Teflon™ lined tubing (0.25 inch outside diameter) was connected to 0.25-inch inside diameter Teflon™ lined tubing using a brass hose barb connector. The end of the second tubing was connected to the flow controller using a Swagelok® compression fitting, and the flow controller was connected to a new, 6-liter Summa canister. A hose clamp was then placed on the first length of tubing exiting the upended bucket, and the Summa canister valve was opened to check the system for leaks (system tightness testing). Any drop in vacuum pressure in the Summa canister would indicate the presence of a system leak. No leaks were found in any of the soil vapor sampling systems.

Once the entire system was set up and system tightness testing was completed, helium from a compressed gas cylinder was introduced to the enclosed space beneath the upended bucket through the polyethylene tubing installed at the bucket lip-ground surface interface. The helium gas was used as a quantitative leak check to determine whether the soil vapor sample drawn into the sample containers included air from the ground surface surrounding the borehole.

To collect the first sample aliquot, the initial vacuum pressure in the Summa canister was recorded, the hose clamp was removed, and the valve on the Summa canister was opened. The flow controllers connected to the Summa canisters were all calibrated by the laboratory to allow a flow rate of no more than 100 milliliters per minute. The Summa canister valve was left open for 50 minutes. During this time period, ETC personnel constantly monitored the vacuum pressure in the canister to ensure that the pressure did not drop below 5 inches of mercury. After a period of 50 minutes, the end vacuum pressure was recorded, the hose clamp was placed on the tubing, and the Summa canister was detached and placed back into the packaging it arrived in from the laboratory pending shipment. The tag on the Summa canister was labeled with the sample name, initial vacuum, start time, end vacuum, and end time.

After detaching the Summa canister, the sorbent tube assembly was attached to the system tubing. The assembly included the sorbent tube attached to the tube holder, a three-way valve, and a 60 milliliter syringe. Prior to attaching the sorbent tube to the clamped tubing, a qualitative leak check was performed on the sorbent tube system. Specifically, the sorbent tube was inserted into the tube holder on the syringe assembly and the 'off' position of the valve was turned toward the valve vent. The plunger was then pulled to ensure that the system was leak-tight (plunger could not be pulled). Once the system had been leak checked, the cap was removed from the inlet of the sorbent tube and connected to a Swagelock® union, fitting and clamped tubing. The "off" position of the valve was then turned toward the valve vent and the plunger was pulled to the desired volume of 50 ml over a period of 30 seconds (rate of 100 milliliters per minute). The "off" position was then turned toward the sorbent tube and the tube was removed from the tube holder and recapped at both ends. The capped sorbent tubes were labeled, wrapped in aluminum foil, and boxed pending shipment to the laboratory.

The procedures described above were completed for all five soil vapor sample locations. In addition to the five primary samples, one duplicate sample was collected. Sample 11-2012.SV6 was a duplicate of sample 11-2012.SV1. The duplicate sample was collected in the same manner as the primary sample, using a "T" manifold for concurrent collection of the sample aliquots in the Summa canisters and collecting consecutive sample aliquots using the sorbent tubes. The various values recorded during sampling activities are summarized in the tables below.

Summa Canisters

Sample ID	Start Time	End Time	Duration (minutes)	Initial Vacuum	Final Vacuum	Lab Receipt Vacuum
11-2012.SV1	1400	1450	50	30	8	8.2
11-2012.SV2	1150	1240	50	30	7	7.8
11-2012.SV3	0950	1040	50	30	8	7.2
11-2012.SV4	1320	1410	50	30	8	8.6
11-2012.SV5	0910	1000	50	30	8	7.2
11-2012.SV6	1400	1450	50	30	8	8.0

Sorbent Tubes

Sample ID	Start Time	End Time	Duration (seconds)	Final Volume (mL)
11-2012.SV1	1500	1505	30	50
11-2012.SV2	1255	1300	30	50
11-2012.SV3	1050	1056	30	50
11-2012.SV4	1430	1435	30	50
11-2012.SV5	1015	1020	30	50
11-2012.SV6	1515	1520	30	50

Field personnel donned a new pair of disposable gloves (latex/vinyl/nitrile) prior to collection of each sample. All sample containers were labeled with the project name, sample identification number, date/time of sample collection, sampler's initials, and the requested analyses. The samples were kept in a sample storage container pending delivery to FedEx with completed chain of custody documentation.

Sample Analyses

All six soil vapor samples were shipped via FedEx on June 5, 2012 accompanied by completed chain of custody documentation to Eurofins Air Toxics, Inc. (EATI) in Folsom, California. Samples were received by EATI on June 6, 2012. ETC requested that EATI analyze the samples for total petroleum hydrocarbons (TPH) as gasoline (TPH-G), methyl tertiary butyl ether (MtBE), benzene, toluene, ethylbenzene, xylenes, and naphthalene via EPA Method TO-15 modified (Summa canisters); TPH-G and TPH as diesel (TPH-D) via EPA Method TO-17 VI modified (sorbent tubes); and methane and helium via Modified ASTM D-1946.

Decontamination and Investigation Derived Waste

Direct push rods used to install the soil vapor implants were decontaminated between boring locations by washing with a brush and potable water-Alconox™ solution, and triple rinsing with potable water.

Rinsate from equipment decontamination was poured over the various boring locations after completion of soil vapor sample collection activities. Other investigation derived waste, such as disposable PPE (nitrile/polyethylene/latex gloves) and disposable sampling equipment (Teflon-lined tubing) was placed into a trash bin for disposal as solid waste.

Data Quality Control

The standardized laboratory methods for sample analysis contain explicit quality control requirements that must be met. These requirements include specific procedures and criteria for evaluating accuracy and precision, demonstrating the ability of the analyst to generate acceptable accuracy and precision, and demonstrating that extraneous interferences are under control. The laboratory was required to document strict adherence to the general laboratory quality assurance/quality control requirements. Review of the quality control data reported by the laboratory did not identify any problems with laboratory methods.

In addition to method-specific and laboratory-specific quality control procedures, a duplicate soil vapor sample was collected from one of the five sample locations (sample 11-2012.SV6 collected as a duplicate of sample 11-2012.SV1) . Sample collection using the Summa canisters was simultaneous through the use of a "T" manifold. The sorbent tube duplicate was collected immediately following collection of the primary sample.

Furthermore, both qualitative and quantitative leak testing was performed to evaluate whether there may have been leaks within the soil vapor sample collection system or if air was being drawn from the ground surface through the soil pore space. Qualitative leak testing was performed by conducting tightness testing of the sample collection system prior to actual sample collection. This was accomplished clamping off the tubing coming out of the soil vapor probe, then either opening the Summa canister valve (check if any pressure change) or pulling the plunger of the syringe for the sorbent tube sample aliquot. Qualitative leak testing did not indicate the presence of any system leaks.

Quantitative leak testing was conducted by saturating the enclosed space beneath the upended bucket with helium (leak detection compound). All samples collected were analyzed for helium (using aliquot from Summa canisters) to determine whether there were elevated helium concentrations in the soil vapor samples. Laboratory data indicated that helium was not detected in any of the samples at laboratory reporting limits.

Analytical Data

Laboratory reports were received by ETC on June 13, 2012 and June 14, 2012. Results are summarized in the attached tables. Included in the tables are the Fall 2011 DOH Environmental Action Levels (EALs) for Shallow Soil Gas. KKJV and ETC were instructed by HART to provide these EALs for comparison and evaluation.

If there are any questions regarding this summary letter, please contact me at 839-7222.

Respectfully,

ENVIROSERVICES & TRAINING CENTER, LLC

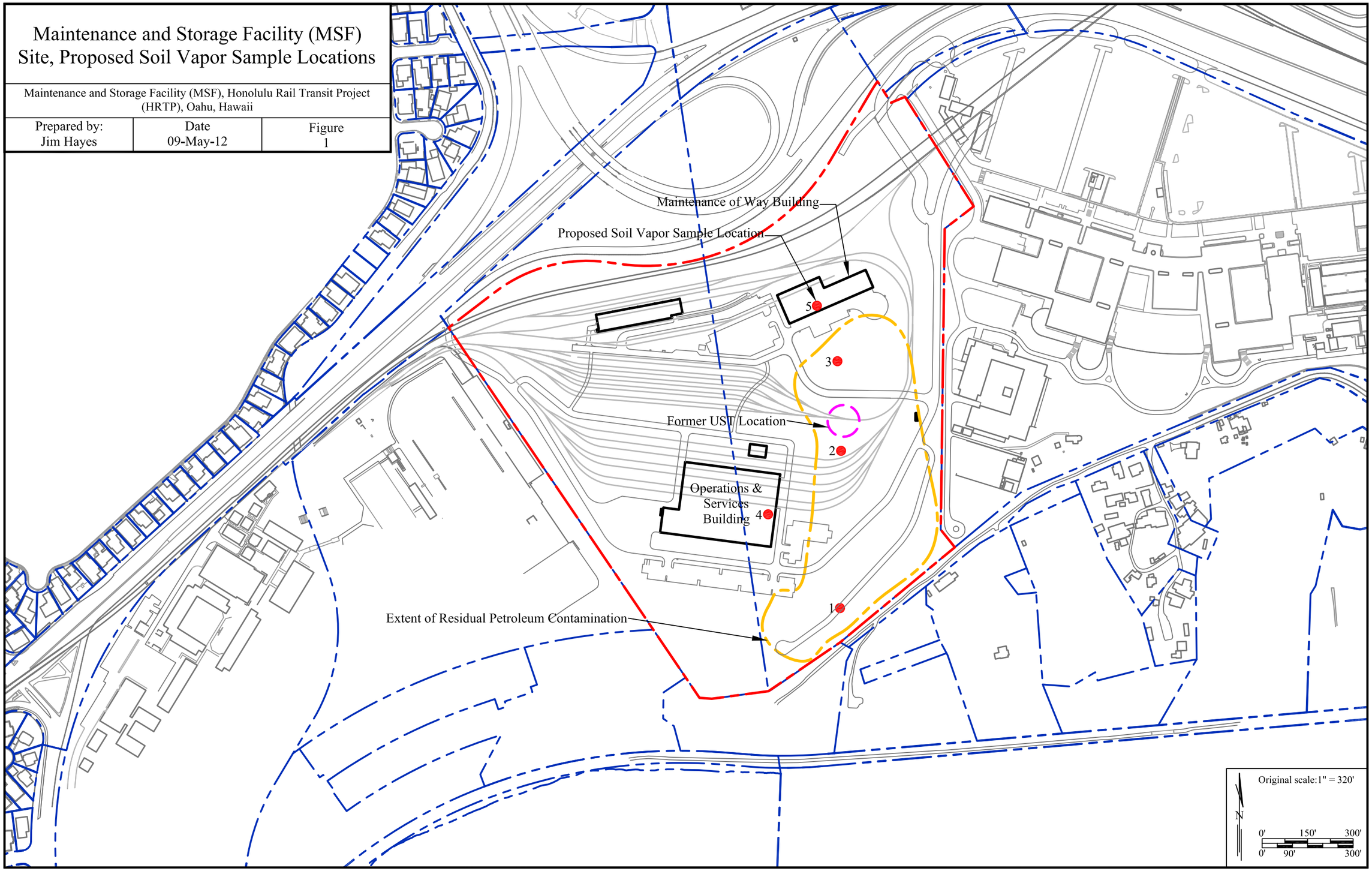
Damon Hamura
Principal

Attachments: Figure 1 – Soil Vapor Sample Locations
Soil Vapor Data Table – TPH and VOCs
Soil Vapor Date Table – Methane and Helium
Photographic Documentation
Laboratory Reports

Maintenance and Storage Facility (MSF) Site, Proposed Soil Vapor Sample Locations

Maintenance and Storage Facility (MSF), Honolulu Rail Transit Project (HRTP), Oahu, Hawaii

Prepared by:	Date	Figure
Jim Hayes	09-May-12	1



Soil Vapor Data Table - TPH and VOCs

EPA TO-15 (Summa Canister), EPA TO-17 (Sorbent Tube)

Sample ID	**11-2012.SV1**	**11-2012.SV6**	**11-2012.SV2**	**11-2012.SV3**	**11-2012.SV4**	**11-2012.SV5**	***DOH EAL (Residential)**	***DOH EAL (Commercial/ Industrial)**
Lab ID	**1206096A-01A 1206096C-07A**	**1206096A-06A 1206096C-12A**	**1206096A-02A 1206096C-08A**	**1206096A-03A 1206096C-09A**	**1206096A-04A 1206096C-10A**	**1206096A-05A 1206096C-11A**		
Date Collected	**6/4/2012**	**6/4/2012**	**6/4/2012**	**6/4/2012**	**6/4/2012**	**6/4/2012**		
	µg/m^3	**µg/m^3**	**µg/m^3**	**µg/m^3**	**µg/m^3**	**µg/m^3**	**µg/m^3**	**µg/m^3**
Methyl Tert-butyl ether	*nd<4.0*	*nd<3.3*	*nd<3.3*	*nd<3.2*	*nd<3.4*	*nd<3.2*	**9,400**	**31,000**
Benzene	3.0	*nd<2.9*	*nd<2.9*	*nd<2.8*	5.7	3.5	**310**	**1,000**
Toluene	7.2	7.7	*nd<3.4*	4.0	*nd<3.5*	5.7	**1,000,000**	**2,900,000**
Ethylbenzene	*nd<4.0*	*nd<4.0*	*nd<3.9*	*nd<3.8*	*nd<4.1*	*nd<3.8*	**970**	**3,300**
m,p-Xylenes	4.7	4.9	*nd<3.9*	*nd<3.8*	*nd<4.1*	*nd<3.8*	**NA**	**NA**
o-Xylenes	*nd<4.0*	*nd<4.0*	*nd<3.9*	*nd<3.8*	*nd<4.1*	*nd<3.8*	**NA**	**NA**
Xylenes, total	4.7	4.9	*nd<3.9*	*nd<3.8*	*nd<4.1*	*nd<3.8*	**21,000**	**58,000**
Naphthalene	*nd<19*	*nd<19*	*nd<19*	*nd<18*	*nd<20*	*nd<18*	**72**	**240**
TPH-G (MW=100)	270	*nd<190*	360	320	*nd<190*	*nd<180*	**130,000**	**370,000**
TPH-G (Sorbent Tube)	26,000	*nd<20,000*	*nd<20,000*	*nd<20,000*	22,000	*nd<20,000*	**130,000**	**370,000**
TPH-D (Sorbent Tube)	*nd<20,000*	*nd<20,000*	*nd<20,000*	*nd<20,000*	*nd<20,000*	*nd<20,000*	**130,000**	**370,000**

All results presented in micrograms per cubic meter (µg/m^3) as noted

*DOH EALs based on information provided by HART and approved by the DOH HEER Office.

DOH EAL = Fall 2011 Hawaii Department of Health (DOH) Environmental Action Levels (EALs) for Shallow Soil Gas in areas of residential and commercial/industrial land use.

Sample SV6 is a field duplicate of SV1

Xylenes, total = sum of m,p-Xylenes and o-Xylenes

Italicized values = Not Detected at the MDL, MDL value listed

Soil Vapor Data Table - Methane and Helium

Modified ASTM D-1946 (Methane/Helium)

Sample ID	Lab ID	Date Collected	Methane		Helium	
			%(v/v)	ppmv	%(v/v)	ppmv
11-2012.SV1	1206096B-01A	6/4/2012	0.00047	4.7	*nd<0.092*	*nd<920*
11-2012.SV6 (SV1 Dup)	1206096B-06A	6/4/2012	0.00046	4.6	*nd<0.092*	*nd<920*
11-2012.SV2	1206096B-02A	6/4/2012	*nd<0.00018*	*nd<1.8*	*nd<0.090*	*nd<900*
11-2012.SV3	1206096B-03A	6/4/2012	*nd<0.00018*	*nd<1.8*	*nd<0.088*	*nd<880*
11-2012.SV4	1206096B-04A	6/4/2012	*nd<0.00018*	*nd<1.8*	*nd<0.094*	*nd<940*
11-2012.SV5	1206096B-05A	6/4/2012	*nd<0.00018*	*nd<1.8*	*nd<0.088*	*nd<880*
***Action Level**			**NA**	**5,000**	**NA**	**NA**

All results presented in percent and parts per million by volume (ppmv)

*Action Level based on information provided by HART and approved by DOH HEER Office.

Action Level = 10% of the lower explosive limit (LEL) for methane.

Photograph 1: GeoTek Hawaii installing soil vapor probe using direct push rig.

Photograph 2: View of tubing connected to soil vapor probe exiting ground surface.

Photograph 3: Tubing from soil vapor probe being connected to flow controller and Summa canister.

Photograph 4: Duplicate sample collection using “T” manifold to connect two Summa conisters.

Photograph 5: Sample collection setup with helium cylinder in foreground next to Summa canister.

Photograph 6: Sample collection setup with helium cylinder in foreground and Summa canister in background.

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6/14/2012
Ms. Sharla Nakashima
EnviroServices & Training Center LLC
505 Ward Ave # 202

Honolulu HI 96814

Project Name: KKJV MSF Soil Vapor
Project #: 11-2012
Workorder #: 1206096A

Dear Ms. Sharla Nakashima

The following report includes the data for the above referenced project for sample(s) received on 6/6/2012 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

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WORK ORDER #: 1206096A

Work Order Summary

CLIENT:	Ms. Sharla Nakashima EnviroServices & Training Center LLC 505 Ward Ave # 202 Honolulu, HI 96814	**BILL TO:**	Ms. Sharla Nakashima EnviroServices & Training Center LLC 505 Ward Ave # 202 Honolulu, HI 96814
PHONE:	(808) 839-7222	**P.O. #**	11-2012
FAX:	808-839-4455	**PROJECT #**	11-2012 KKJV MSF Soil Vapor
DATE RECEIVED:	06/06/2012	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	06/14/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	11-2012.SV1	Modified TO-15	8.2 "Hg	5 psi
02A	11-2012.SV2	Modified TO-15	7.8 "Hg	5 psi
03A	11-2012.SV3	Modified TO-15	7.2 "Hg	5 psi
04A	11-2012.SV4	Modified TO-15	8.6 "Hg	5 psi
05A	11-2012.SV5	Modified TO-15	7.2 "Hg	5 psi
06A	11-2012.SV6	Modified TO-15	8.0 "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: Linda D. Freeman

DATE: 06/14/12

Laboratory Director

Certfication 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

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
EnviroServices & Training Center LLC
Workorder# 1206096A

Six 6 Liter Summa Canister samples were received on June 06, 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

Per client's request, a single calibration for TPH (Gasoline Range) was analyzed from Isopentane to Naphthalene for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

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

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

Client Sample ID: 11-2012.SV1

Lab ID#: 1206096A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.92	0.94	2.9	3.0
Toluene	0.92	1.9	3.5	7.2
m,p-Xylene	0.92	1.1	4.0	4.7
TPH ref. to Gasoline (MW=100)	46	66	190	270

Client Sample ID: 11-2012.SV2

Lab ID#: 1206096A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
TPH ref. to Gasoline (MW=100)	45	88	180	360

Client Sample ID: 11-2012.SV3

Lab ID#: 1206096A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	0.88	1.1	3.3	4.0
TPH ref. to Gasoline (MW=100)	44	78	180	320

Client Sample ID: 11-2012.SV4

Lab ID#: 1206096A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.94	1.8	3.0	5.7

Client Sample ID: 11-2012.SV5

Lab ID#: 1206096A-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.88	1.1	2.8	3.5
Toluene	0.88	1.5	3.3	5.7

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

Client Sample ID: 11-2012.SV6

Lab ID#: 1206096A-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	0.92	2.0	3.4	7.7
m,p-Xylene	0.92	1.1	4.0	4.9

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Client Sample ID: 11-2012.SV1

Lab ID#: 1206096A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060908**	**Date of Collection:**	**6/4/12 2:00:00 PM**
Dil. Factor:	**1.84**	**Date of Analysis:**	**6/9/12 03:29 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.92	0.94	2.9	3.0
Ethyl Benzene	0.92	Not Detected	4.0	Not Detected
Toluene	0.92	1.9	3.5	7.2
m,p-Xylene	0.92	1.1	4.0	4.7
o-Xylene	0.92	Not Detected	4.0	Not Detected
Methyl tert-butyl ether	0.92	Not Detected	3.3	Not Detected
Naphthalene	3.7	Not Detected	19	Not Detected
TPH ref. to Gasoline (MW=100)	46	66	190	270

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: 11-2012.SV2

Lab ID#: 1206096A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060909**	**Date of Collection:**	**6/4/12 11:50:00 AM**
Dil. Factor:	**1.81**	**Date of Analysis:**	**6/9/12 04:02 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.90	Not Detected	2.9	Not Detected
Ethyl Benzene	0.90	Not Detected	3.9	Not Detected
Toluene	0.90	Not Detected	3.4	Not Detected
m,p-Xylene	0.90	Not Detected	3.9	Not Detected
o-Xylene	0.90	Not Detected	3.9	Not Detected
Methyl tert-butyl ether	0.90	Not Detected	3.3	Not Detected
Naphthalene	3.6	Not Detected	19	Not Detected
TPH ref. to Gasoline (MW=100)	45	88	180	360

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: 11-2012.SV3

Lab ID#: 1206096A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060910**	**Date of Collection:**	**6/4/12 9:50:00 AM**
Dil. Factor:	**1.76**	**Date of Analysis:**	**6/9/12 04:29 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.88	Not Detected	2.8	Not Detected
Ethyl Benzene	0.88	Not Detected	3.8	Not Detected
Toluene	0.88	1.1	3.3	4.0
m,p-Xylene	0.88	Not Detected	3.8	Not Detected
o-Xylene	0.88	Not Detected	3.8	Not Detected
Methyl tert-butyl ether	0.88	Not Detected	3.2	Not Detected
Naphthalene	3.5	Not Detected	18	Not Detected
TPH ref. to Gasoline (MW=100)	44	78	180	320

Container Type: 6 Liter Summa Canister

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

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Client Sample ID: 11-2012.SV4

Lab ID#: 1206096A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060913**	**Date of Collection:**	**6/4/12 1:20:00 PM**
Dil. Factor:	**1.88**	**Date of Analysis:**	**6/9/12 05:29 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.94	1.8	3.0	5.7
Ethyl Benzene	0.94	Not Detected	4.1	Not Detected
Toluene	0.94	Not Detected	3.5	Not Detected
m,p-Xylene	0.94	Not Detected	4.1	Not Detected
o-Xylene	0.94	Not Detected	4.1	Not Detected
Methyl tert-butyl ether	0.94	Not Detected	3.4	Not Detected
Naphthalene	3.8	Not Detected	20	Not Detected
TPH ref. to Gasoline (MW=100)	47	Not Detected	190	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: 11-2012.SV5

Lab ID#: 1206096A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060912**	**Date of Collection:**	**6/4/12 9:10:00 AM**
Dil. Factor:	**1.76**	**Date of Analysis:**	**6/9/12 05:10 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.88	1.1	2.8	3.5
Ethyl Benzene	0.88	Not Detected	3.8	Not Detected
Toluene	0.88	1.5	3.3	5.7
m,p-Xylene	0.88	Not Detected	3.8	Not Detected
o-Xylene	0.88	Not Detected	3.8	Not Detected
Methyl tert-butyl ether	0.88	Not Detected	3.2	Not Detected
Naphthalene	3.5	Not Detected	18	Not Detected
TPH ref. to Gasoline (MW=100)	44	Not Detected	180	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: 11-2012.SV6

Lab ID#: 1206096A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060914**	**Date of Collection:**	**6/4/12 2:00:00 PM**
Dil. Factor:	**1.83**	**Date of Analysis:**	**6/9/12 06:07 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.92	Not Detected	2.9	Not Detected
Ethyl Benzene	0.92	Not Detected	4.0	Not Detected
Toluene	0.92	2.0	3.4	7.7
m,p-Xylene	0.92	1.1	4.0	4.9
o-Xylene	0.92	Not Detected	4.0	Not Detected
Methyl tert-butyl ether	0.92	Not Detected	3.3	Not Detected
Naphthalene	3.7	Not Detected	19	Not Detected
TPH ref. to Gasoline (MW=100)	46	Not Detected	190	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1206096A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060907**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/9/12 02:40 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.50	Not Detected	1.6	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected
TPH ref. to Gasoline (MW=100)	25	Not Detected	100	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	96	70-130

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Client Sample ID: CCV

Lab ID#: 1206096A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060902**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/9/12 11:53 AM**	

Compound	**%Recovery**
Benzene	91
Ethyl Benzene	94
Toluene	92
m,p-Xylene	96
o-Xylene	95
Methyl tert-butyl ether	86
Naphthalene	90
TPH ref. to Gasoline (MW=100)	100

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: LCS

Lab ID#: 1206096A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060903**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/9/12 12:31 PM**	

Compound	**%Recovery**
Benzene	97
Ethyl Benzene	97
Toluene	94
m,p-Xylene	100
o-Xylene	98
Methyl tert-butyl ether	86
Naphthalene	67
TPH ref. to Gasoline (MW=100)	Not Spiked

Container Type: NA - Not Applicable

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

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Client Sample ID: LCSD

Lab ID#: 1206096A-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p060904**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/9/12 12:49 PM**	

Compound	**%Recovery**
Benzene	96
Ethyl Benzene	97
Toluene	93
m,p-Xylene	99
o-Xylene	98
Methyl tert-butyl ether	95
Naphthalene	68
TPH ref. to Gasoline (MW=100)	Not Spiked

Container Type: NA - Not Applicable

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

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CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager: Damon Hamura
Collected by: (Print and Sign) Mitchell Martello
Company: Enviro Services Email: damon@gotoetc.com
Address: 505 Ward Ave #202 City: Honolulu State: HI Zip: 96814
Phone: 808-839-7222 Fax: 808-839-4455

Project Info:
P.O. #
Project # 11-2012
Project Name: KKJV MSF Soil Vapor

Turn Around Time:
☐ Normal
☒ Rush 5-day (specify)

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	11-2012 SV1	33993	6/4/12	1400	• TPH-G, BTEX, MtBE,	30	8		
02A	11-2012.SV2	34330	6/4/12	1150	& Naphthalene (TO-15)	30	7		
03A	11-2012.SV3	25240	6/4/12	0950	• Methane (1946)	30	8		
04A	11-2012.SV4	14111	6/4/12	1320	• Helium (1946)	30	8		
05A	11-2012.SV5	35148	6/4/12	0910	(• For all samples)	30	8		
06A	11-2012.SV6	5735	6/4/12	1400	Pls report TPH-G w/	30	8		
	LAST ENTRY				C2 to C12				

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Mitchell Martello	6/5/12 0930	Fedex	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
		MB AR	6/6/12 0945
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Notes:
Per Quote No. Q1205193351RO

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	FED Ex		NA	GOOD	Yes No None	1206096

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6/13/2012
Ms. Sharla Nakashima
EnviroServices & Training Center LLC
505 Ward Ave # 202

Honolulu HI 96814

Project Name: KKJV MSF Soil Vapor
Project #: 11-2012
Workorder #: 1206096B

Dear Ms. Sharla Nakashima

The following report includes the data for the above referenced project for sample(s) received on 6/6/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 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

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WORK ORDER #: 1206096B

Work Order Summary

CLIENT:	Ms. Sharla Nakashima EnviroServices & Training Center LLC 505 Ward Ave # 202 Honolulu, HI 96814	**BILL TO:**	Ms. Sharla Nakashima EnviroServices & Training Center LLC 505 Ward Ave # 202 Honolulu, HI 96814
PHONE:	(808) 839-7222	**P.O. #**	11-2012
FAX:	808-839-4455	**PROJECT #**	11-2012 KKJV MSF Soil Vapor
DATE RECEIVED:	06/06/2012	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	06/13/2012		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	11-2012.SV1	Modified ASTM D-1946	8.2 "Hg	5 psi
02A	11-2012.SV2	Modified ASTM D-1946	7.8 "Hg	5 psi
03A	11-2012.SV3	Modified ASTM D-1946	7.2 "Hg	5 psi
04A	11-2012.SV4	Modified ASTM D-1946	8.6 "Hg	5 psi
05A	11-2012.SV5	Modified ASTM D-1946	7.2 "Hg	5 psi
06A	11-2012.SV6	Modified ASTM D-1946	8.0 "Hg	5 psi
07A	Lab Blank	Modified ASTM D-1946	NA	NA
07B	Lab Blank	Modified ASTM D-1946	NA	NA
08A	LCS	Modified ASTM D-1946	NA	NA
08AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Linda D. Freeman

Laboratory Director

DATE: 06/13/12

Certfication 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

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

LABORATORY NARRATIVE
Modified ASTM D-1946
EnviroServices & Training Center LLC
Workorder# 1206096B

Six 6 Liter Summa Canister samples were received on June 06, 2012. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and Helium in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

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

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
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 detection limit.
M - Reported value may be biased due to apparent matrix interferences.
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

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: 11-2012.SV1

Lab ID#: 1206096B-01A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00018	0.00047

Client Sample ID: 11-2012.SV2

Lab ID#: 1206096B-02A

No Detections Were Found.

Client Sample ID: 11-2012.SV3

Lab ID#: 1206096B-03A

No Detections Were Found.

Client Sample ID: 11-2012.SV4

Lab ID#: 1206096B-04A

No Detections Were Found.

Client Sample ID: 11-2012.SV5

Lab ID#: 1206096B-05A

No Detections Were Found.

Client Sample ID: 11-2012.SV6

Lab ID#: 1206096B-06A

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00018	0.00046

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Client Sample ID: 11-2012.SV1

Lab ID#: 1206096B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9060712**	**Date of Collection:**	**6/4/12 2:00:00 PM**
Dil. Factor:	**1.84**	**Date of Analysis:**	**6/7/12 03:08 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00018	0.00047
Helium	0.092	Not Detected

Container Type: 6 Liter Summa Canister

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Client Sample ID: 11-2012.SV2

Lab ID#: 1206096B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9060713**	**Date of Collection:**	**6/4/12 11:50:00 AM**
Dil. Factor:	**1.81**	**Date of Analysis:**	**6/7/12 03:30 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00018	Not Detected
Helium	0.090	Not Detected

Container Type: 6 Liter Summa Canister

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Client Sample ID: 11-2012.SV3

Lab ID#: 1206096B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9060714**	**Date of Collection:**	**6/4/12 9:50:00 AM**
Dil. Factor:	**1.76**	**Date of Analysis:**	**6/7/12 03:58 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00018	Not Detected
Helium	0.088	Not Detected

Container Type: 6 Liter Summa Canister

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Client Sample ID: 11-2012.SV4

Lab ID#: 1206096B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9060715**	**Date of Collection:**	**6/4/12 1:20:00 PM**
Dil. Factor:	**1.88**	**Date of Analysis:**	**6/7/12 04:22 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00019	Not Detected
Helium	0.094	Not Detected

Container Type: 6 Liter Summa Canister

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Client Sample ID: 11-2012.SV5

Lab ID#: 1206096B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9060716**	**Date of Collection:**	**6/4/12 9:10:00 AM**
Dil. Factor:	**1.76**	**Date of Analysis:**	**6/7/12 04:45 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00018	Not Detected
Helium	0.088	Not Detected

Container Type: 6 Liter Summa Canister

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Client Sample ID: 11-2012.SV6

Lab ID#: 1206096B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9060717**	**Date of Collection:**	**6/4/12 2:00:00 PM**
Dil. Factor:	**1.83**	**Date of Analysis:**	**6/7/12 05:07 PM**

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00018	0.00046
Helium	0.092	Not Detected

Container Type: 6 Liter Summa Canister

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Client Sample ID: Lab Blank

Lab ID#: 1206096B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9060704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/7/12 07:43 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Methane	0.00010	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: Lab Blank

Lab ID#: 1206096B-07B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9060703b**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/7/12 06:40 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Helium	0.050	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1206096B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9060702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 6/7/12 06:06 AM**	

Compound	**%Recovery**
Methane	98
Helium	100

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1206096B-08AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9060725**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 6/7/12 09:10 PM**

Compound	%Recovery
Methane	98
Helium	100

Container Type: NA - Not Applicable

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Sample Transportation Notice
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180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager: Damon Hamura
Collected by: (Print and Sign) Mitchell Martello
Company: Enviro Services Email: damon@gotoetc.com
Address: 505 Ward Ave #202 City: Honolulu State: HI Zip: 96814
Phone: 808-839-7222 Fax: 808-839-4455

Project Info:
P.O. #
Project # 11-2012
Project Name: KKJV MSF Soil Vapor

Turn Around Time:
☐ Normal
☒ Rush 5-day (specify)

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	11-2012 SV1	33993	6/4/12	1400	• TPH-G, BTEX, MtBE,	30	8		
02A	11-2012.SV2	34330	6/4/12	1150	& Naphthalene (TO-15)	30	7		
03A	11-2012.SV3	25240	6/4/12	0950	• Methane (1946)	30	8		
04A	11-2012.SV4	14111	6/4/12	1320	• Helium (1946)	30	8		
05A	11-2012.SV5	35148	6/4/12	0910	(• For all samples)	30	8		
06A	11-2012.SV6	5735	6/4/12	1400	Pls report TPH-G w/	30	8		
	LAST ENTRY				C2 to C12				

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Mitchell Martello	6/5/12 0930	Fedex	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
		MB AR	6/6/12 0945
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Notes:
Per Quote No. Q1205193351RO

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	FED Ex		NA	GOOD	Yes No None	1206096

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6/13/2012
Ms. Sharla Nakashima
EnviroServices & Training Center LLC
505 Ward Ave # 202

Honolulu HI 96814

Project Name: KKJV MSF Soil Vapor
Project #: 11-2012
Workorder #: 1206096C

Dear Ms. Sharla Nakashima

The following report includes the data for the above referenced project for sample(s) received on 6/6/2012 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-17 VI 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

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WORK ORDER #: 1206096C

Work Order Summary

CLIENT:	Ms. Sharla Nakashima EnviroServices & Training Center LLC 505 Ward Ave # 202 Honolulu, HI 96814	**BILL TO:**	Ms. Sharla Nakashima EnviroServices & Training Center LLC 505 Ward Ave # 202 Honolulu, HI 96814
PHONE:	(808) 839-7222	**P.O. #**	11-2012
FAX:	808-839-4455	**PROJECT #**	11-2012 KKJV MSF Soil Vapor
DATE RECEIVED:	06/06/2012	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	06/13/2012		

FRACTION #	NAME	TEST
07A	11-2012.SV1	Modified TO-17 VI
08A	11-2012.SV2	Modified TO-17 VI
09A	11-2012.SV3	Modified TO-17 VI
10A	11-2012.SV4	Modified TO-17 VI
11A	11-2012.SV5	Modified TO-17 VI
12A	11-2012.SV6	Modified TO-17 VI
13A	Lab Blank	Modified TO-17 VI
14A	CCV	Modified TO-17 VI
15A	LCS	Modified TO-17 VI

CERTIFIED BY: Linda D. Freeman DATE: 06/13/12

Laboratory Director

Certfication 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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(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified EPA Method TO-17 (VI Tubes)
EnviroServices & Training Center LLC
Workorder# 1206096C

Six TO-17 VI Tube samples were received on June 06, 2012. The laboratory performed the analysis via modified EPA Method TO-17 using GC/MS in the full scan mode. TO-17 'VI' sorbent tubes are thermally desorbed onto a secondary trap. The trap is thermally desorbed to elute the components into the GC/MS system for further separation.

A modification that may be applied to EPA Method TO-17 at the client's discretion is the requirement to transport sorbent tubes at 4 deg C. Laboratory studies demonstrate a high level of stability for VOCs on the TO-17 'VI' tube at room temperature for periods of up to 14 days. Tubes can be shipped to and from the field site at ambient conditions as long as the 14-day sample hold time is upheld. Trip blanks and field surrogate spikes are used as additional control measures to monitor recovery and background contribution during tube transport.

Since the TO-17 VI application significantly extends the scope of target compounds addressed in EPA Method TO-15 and TO-17, the laboratory has implemented several method modifications outlined in the table below. Specific project requirements may over-ride the laboratory modifications.

Requirement	***TO-17***	***ATL Modifications***
Initial Calibration	%RSD</=30% with 2 allowed out up to 40%	VOC list: %RSD</=30% with 2 allowed out up to 40% SVOC list: %RSD</=30% with 2 allowed out up to 40%
Daily Calibration	%D for each target compound within +/-30%.	Fluorene, Phenanthrene, Anthracene, Fluoranthene, and Pyrene within +/-40%D
Audit Accuracy	70-130%	Second source recovery limits for Fluorene, Phenanthrene, Anthracene, Fluoranthene, and Pyrene = 60-140%.
Distributed Volume Pairs	Collection of distributed volume pairs required for monitoring ambient air to insure high quality.	If site is well-characterized or performance previously verified, single tube sampling may be appropriate. Distributed pairs may be impractical for soil gas collection due to configuration and volume constraints.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

A sampling volume of 0.050 L was used to convert ng to ug/m3 for the associated Lab Blank.

The reported CCV and LCS for each daily batch may be derived from more than one analytical file.

Per client's request, a single point calibration for TPH (Gasoline Range) and TPH (Diesel Range) was each analyzed from carbons C5-C24 for the daily analytical batch. Recovery is reported as 100% in the associated results for the CCV.

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-17

Client Sample ID: 11-2012.SV1

Lab ID#: 1206096C-07A

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
TPH (Gasoline Range)	1000	20000	1300	26000

Client Sample ID: 11-2012.SV2

Lab ID#: 1206096C-08A

No Detections Were Found.

Client Sample ID: 11-2012.SV3

Lab ID#: 1206096C-09A

No Detections Were Found.

Client Sample ID: 11-2012.SV4

Lab ID#: 1206096C-10A

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
TPH (Gasoline Range)	1000	20000	1100	22000

Client Sample ID: 11-2012.SV5

Lab ID#: 1206096C-11A

No Detections Were Found.

Client Sample ID: 11-2012.SV6

Lab ID#: 1206096C-12A

No Detections Were Found.

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Client Sample ID: 11-2012.SV1

Lab ID#: 1206096C-07A

EPA METHOD TO-17

File Name:	**11060610s**	**Date of Extraction: NA**	**Date of Collection: 6/4/12 3:05:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/6/12 05:07 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
TPH (Gasoline Range)	1000	20000	1300	26000
TPH (Diesel Range C10-C24)	1000	20000	Not Detected	Not Detected

Air Sample Volume(L): 0.0500
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	50-150
Toluene-d8	102	50-150
Naphthalene-d8	109	50-150

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Client Sample ID: 11-2012.SV2

Lab ID#: 1206096C-08A

EPA METHOD TO-17

File Name:	**11060611s**	**Date of Extraction: NA**	**Date of Collection: 6/4/12 1:00:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/6/12 05:47 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
TPH (Gasoline Range)	1000	20000	Not Detected	Not Detected
TPH (Diesel Range C10-C24)	1000	20000	Not Detected	Not Detected

Air Sample Volume(L): 0.0500
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	50-150
Toluene-d8	100	50-150
Naphthalene-d8	113	50-150

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Client Sample ID: 11-2012.SV3

Lab ID#: 1206096C-09A

EPA METHOD TO-17

File Name:	**11060612s**	**Date of Extraction: NA**	**Date of Collection: 6/4/12 10:56:00 AM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/6/12 06:28 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
TPH (Gasoline Range)	1000	20000	Not Detected	Not Detected
TPH (Diesel Range C10-C24)	1000	20000	Not Detected	Not Detected

Air Sample Volume(L): 0.0500
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	50-150
Toluene-d8	101	50-150
Naphthalene-d8	112	50-150

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Client Sample ID: 11-2012.SV4

Lab ID#: 1206096C-10A

EPA METHOD TO-17

File Name:	**11060613s**	**Date of Extraction: NA**	**Date of Collection: 6/4/12 2:35:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/6/12 07:09 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
TPH (Gasoline Range)	1000	20000	1100	22000
TPH (Diesel Range C10-C24)	1000	20000	Not Detected	Not Detected

Air Sample Volume(L): 0.0500
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	50-150
Toluene-d8	102	50-150
Naphthalene-d8	105	50-150

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Client Sample ID: 11-2012.SV5

Lab ID#: 1206096C-11A

EPA METHOD TO-17

File Name:	**11060614s**	**Date of Extraction: NA**	**Date of Collection: 6/4/12 10:20:00 AM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/6/12 07:50 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
TPH (Gasoline Range)	1000	20000	Not Detected	Not Detected
TPH (Diesel Range C10-C24)	1000	20000	Not Detected	Not Detected

Air Sample Volume(L): 0.0500
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	50-150
Toluene-d8	103	50-150
Naphthalene-d8	119	50-150

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Client Sample ID: 11-2012.SV6

Lab ID#: 1206096C-12A

EPA METHOD TO-17

File Name:	**11060632s**	**Date of Extraction: NA**	**Date of Collection: 6/4/12 3:20:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/7/12 07:55 AM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
TPH (Gasoline Range)	1000	20000	Not Detected	Not Detected
TPH (Diesel Range C10-C24)	1000	20000	Not Detected	Not Detected

Air Sample Volume(L): 0.0500
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	50-150
Toluene-d8	105	50-150
Naphthalene-d8	125	50-150

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Client Sample ID: Lab Blank

Lab ID#: 1206096C-13A

EPA METHOD TO-17

File Name:	**11060608**	**Date of Extraction: NA**	**Date of Collection: NA**
Dil. Factor:	**1.00**		**Date of Analysis: 6/6/12 02:28 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
TPH (Gasoline Range)	1000	20000	Not Detected	Not Detected
TPH (Diesel Range C10-C24)	1000	20000	Not Detected	Not Detected

Air Sample Volume(L): 0.0500
Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	50-150
Toluene-d8	97	50-150
Naphthalene-d8	124	50-150

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Client Sample ID: CCV
Lab ID#: 1206096C-14A
EPA METHOD TO-17

File Name:	**11060605aa**	**Date of Extraction: NA**	**Date of Collection: NA**
Dil. Factor:	**1.00**		**Date of Analysis: 6/6/12 12:26 PM**

Compound	**%Recovery**
TPH (Gasoline Range)	100
TPH (Diesel Range C10-C24)	100

Air Sample Volume(L): 1.00
Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	95	50-150
Toluene-d8	94	50-150
Naphthalene-d8	93	50-150

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Client Sample ID: LCS
Lab ID#: 1206096C-15A
EPA METHOD TO-17

File Name:	**11060606a**	**Date of Extraction: NA**	**Date of Collection: NA**
Dil. Factor:	**1.00**		**Date of Analysis: 6/6/12 01:06 PM**

Compound	**%Recovery**
TPH (Gasoline Range)	Not Spiked
TPH (Diesel Range C10-C24)	121

Air Sample Volume(L): 1.00
Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	103	50-150
Toluene-d8	103	50-150
Naphthalene-d8	98	50-150

SORBENT SAMPLE COLLECTION

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922.

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(916) 985-1000 FAX (916) 985-1020

Project Manager: Damon Hamura
Collected by: (Print and Sign) Mitchell Martello
Company: Enviro Services Email: damon@gotoets.com
Address: 585 Ward Ave #202 City: Honolulu State: HI Zip: 96814
Phone: 808 839 1222 Fax: 808 839 4455

Project Info:
P.O. #:
Project #: 11-2012
Project Name: KKJV MSF Soil Vapor

Turn Around Time:
☐ Normal
☒ Rush 5-day (specify)

Circle Reporting Units:
ppbv ppmv
ug/m3 mg/m3

Lab I.D.	Field Sample I.D. (Location)	Tube # / Cartridge #	Date of Collection	Start Time	End Time	Duration	Final Volume	Analysis Requested
07A	11-2012.SV1	G0147055	6/4/12	1500	1505	0:30	50 ml	TO-17
08A	11-2012.SV2	G0151132		1255	1300	0:30	50 ml	TPH-G and TPH-D (Pls
09A	11-2012.SV3	G0143473		1050	1056	0:30	50 ml	report to C5 to C24)
10A	11-2012.SV4	G0145537		1430	1435	0:30	50 ml	
11A	11-2012.SV5	G0149674		1015	1020	0:30	50 ml	
12A	11-2012.SV6	G0143490		1515	1520	0:30	50 ml	
				LAST	ENTRY			

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Mitchell Martello	6/5/12 0930	Fedex	
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
		B.A. Shuttleworth ARL	6/6/12 0945
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Pump Calibration Information
Pre-test Flow Rate:
Post-test Flow Rate:
Average Flow Rate:
Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fedex		1.4°C	Good	Yes No None	1206096