

APPENDIX K
Groundwater Monitoring Results



RESULTS OF SOIL GAS INVESTIGATION

**The McKinley Village Property
Sacramento, California**

Prepared for:

RCI McKinley, LLC
and
Holland & Knight, LLP

13 June 2013



RESULTS OF SOIL GAS INVESTIGATION

The McKinley Village Property
Sacramento, California

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1 INTRODUCTION

Erler & Kalinowski, Inc. (“EKI”) is pleased to submit to Holland & Knight, LLP (“Counsel”) and its client, RCI McKinley (“Client”), this report on the soil gas investigation at the McKinley Village Property (“Subject Property”). This soil gas investigation was conducted in accordance with the Consulting Services Contract amongst RCI McKinley, Holland & Knight LLP and Erler & Kalinowski, Inc., dated 19 December 2012 and Amendment No. 1, dated 7 February 2013 (collectively, the “Agreement”).

2 BACKGROUND

The Subject Property is approximately 48.7 acres, located in the vicinity of Capital City Freeway and B Street, in Sacramento, California, and is currently vacant. In May 2007, EKI conducted a Phase II soil gas investigation of the Subject Property. The purpose of the 2007 soil gas survey was to screen the Subject Property for subsurface impacts of volatile organic chemicals (“VOCs”) and methane gas that may have potentially migrated beneath the Subject Property from the adjacent, closed City of Sacramento 28th Street Landfill (“landfill”).

During the 2007 investigation, methane concentrations in soil gas at the Subject Property were generally low or not detected. A single, site maximum concentration was collected at location E3, having a methane concentration of 0.64% methane (6,400 parts per million by volume (“ppmv”)), at the western end of the Subject Property (Figure 1). This 2013 soil gas survey was planned on behalf of Counsel and Client to assess whether elevated concentrations of methane exist in the western portion of the Subject Property.

In addition, soil gas survey locations were also included along the northern border of the Subject Property to confirm current methane concentrations, as reported by the existing landfill gas monitoring probes adjacent to the landfill and on the Subject Property.

3 SAMPLE LOCATING, UNDERGROUND CLEARANCE, AND PERMITTING

Prior to the 2013 soil gas survey, a total of 20 potential sample locations were marked by EKI in the field with wooden stakes (see Figure 1). EKI planned to collect soil gas samples for laboratory analysis for methane at up to 12 of these locations. EKI made inquiries to the property owner via Client regarding available information on potential underground utilities or other subgrade features. EKI also arranged for clearance of underground utilities or conflicts by a private locating service subcontracted to EKI. In addition to on-site clearance by the private locating service, EKI contacted Underground Services Alert (“USA”) to check the records of their consortium of utilities for potential known underground conflicts at the Subject Property. No underground utilities or



conflicts were identified at the planned sampling locations by the property owner, Client, the private locating service, or USA.

The Sacramento County Department of Environmental Management (“SCDEM”) rules require permits for boreholes that will be terminated within ten (10) feet of groundwater. Therefore, EKI obtained Well Permits 52370A through M on 7 February 2013 from SCDEM. SCDEM did not require an inspector to be present during abandonment and grouting of these sampling locations.

4 FEBRUARY 2013 SOIL GAS SURVEY METHODS

On 14 February 2013, EKI collected soil gas samples from soil gas probes installed on the Subject Property by EKI’s subcontractor, TEG Northern California (“TEG”). The sample collection strategy included the installation of up to 20 soil gas sample probes for field screening for methane and the collection of up to 12 soil gas samples for laboratory analysis for methane.

Soil gas sample collection involved using a direct-push drill rig to advance a 1-inch diameter hole in the soil to a depth of approximately 5-feet bgs and then building a temporary “mini-well” in the bottom of the hole. A small porous probe (similar to an aquarium filter) with tubing attached was lowered to within 6 inches of the bottom of the hole, surrounded by porous dry sand for a total depth interval of approximately 12 inches, and then sealed to the surface with a hydrated bentonite clay seal (to minimize ambient air entry to the probe inlet). After allowing a minimum of 2 hours for subsurface conditions to equilibrate, a measured amount of soil gas was purged from the probe in order to access undisturbed subsurface soil gas.

In accordance with the procedures described in the joint California EPA Department of Toxic Substances Control (“DTSC”) and Regional Water Quality Control Board, Los Angeles Region and San Francisco Bay Region (“RWQCB”) guidance, entitled *Advisory—Active Soil Gas Investigations*, dated April 2012, an organic leak check compound (1,1,1,2-Tetrafluoroethane (“TFA”) was sprayed into the plastic shroud which enclosed the aboveground sample tubing and sample canister just prior to sampling. To form an enclosed space to contain the leak check compound during sample collection, the sample tubing and canister were enclosed within a “shroud”, i.e., a 30-gallon plastic bag, which was then sealed with a zip tie.

The soil gas sample at each location was then collected into a pre-cleaned, evacuated 1-L stainless steel vacuum container (SUMMA™ canister) provided by the laboratory. The canister was filled in the field in approximately 15 minutes by opening the flow controller valve installed by the laboratory on the canister. Then the valve was closed. The resulting sample containers were sealed, labeled with a unique sample identification number, and then picked up by the laboratory courier under chain-of-custody procedures.



The soil gas sample containers were taken to K Prime, Inc. in Santa Rosa, California, for expedited chemical analysis of methane by EPA Method 18 and TFA by EPA Method 3.

5 ANALYTICAL RESULTS AND SCREENING CRITERION

5.1 Summary of Analytical Results

Samples were collected and analyzed from a total of 12 subsurface soil gas locations at a depth of 5 feet bgs. Methane concentrations based on the analyses of the contents of the SUMMA canisters are shown in attached Table 1. Sampling locations are shown on Figure 1. Methane was detected at only one sample location, SG-21, at a concentration of 0.156% methane (1,560 ppmv). Methane was not detected above the laboratory reporting limits (approximately 20 ppmv) in any of the other samples. Appendix A contains copies of complete analytical laboratory reports, Appendix B includes a QA/QC evaluation of the leak check results, and Appendix C contains field notes with field methane concentration measurements and pressure measurements.

At two sample locations, SG-11 and SG-18 on Figure 1, leak check compound concentrations were concluded to be unacceptably high and the methane results from these two samples were rejected; see further discussion of leak check protocols and results in Appendix B.

5.2 Methane Screening Criterion

Subsurface methane gas data as summarized in Table 1 are screened against the lower explosive limit of 50,000 ppmv or 5% by volume.

6 DISCUSSION OF RESULTS AND CONCLUSIONS

6.1 Discussion of Results

The February 2013 soil gas sampling results on the Subject Property, as summarized in Table 1, show the following:

- Methane was detected at a single sample location, SG-21, at a concentration of 1,560 ppmv. Methane was not detected above the laboratory reporting limits (approximately 20 ppmv) in any of the other samples analyzed. No methane gas was detected above methane's LEL, which is approximately five (5) percent by volume or 50,000 ppmv (i.e., approximately 32 times higher than the site maximum detected) in any of the soil gas sampling locations on the Subject Property.

- Methane pressure at sample location SG-21 was measured at 0.00 inches of water. High methane pressures can induce flow of methane into buildings.
- Methane was not detected above laboratory reporting limits in any of the samples collected near the City's existing Lennane gas probes. These results are consistent with the lack of methane detections in the Lennane probes.
- The single detection of 1,560 ppmv methane at location SG-21 is in the general vicinity of the prior soil gas sample location E3, which had a concentration of 6,400 ppmv methane in 2007. The results of the two investigations, separated by approximately 5 years, suggest that low levels of methane may be escaping at a localized area of the landfill and migrating beneath a small portion of the western edge of the Subject Property.

6.2 Conclusions

On the basis of the information summarized above, EKI provides the following conclusions:

- Low, but measurable, concentrations of methane gas in soil have been found on a limited portion of the western edge of the Subject Property in the past (2007) and recently (February 2013). Under current, undeveloped, bare ground site conditions, methane concentrations measured in February 2013 are more than an order of magnitude less than the LEL.
- Based on current known conditions, including methane concentrations and pressure, methane in soil does not represent a limitation to residential development so long as the City continues its legal obligations to control and monitor methane.

7 REFERENCES

DTSC and RWQCB, 2012, *Advisory – Active Soil Gas Investigations*, Department of Toxic Substances Control and California Regional Water Quality Control Board, Los Angeles Region and San Francisco Bay Region, April 2012.

TABLE 1
SUMMARY OF SOIL GAS RESULTS FOR METHANE
MCKINLEY VILLAGE, SACRAMENTO, CA

Sample Location	Sample Date	Analytical Results ^(a) (PPMV)
		Methane
SG-1	2/14/2013	<20
SG-3	2/14/2013	<20
SG-4	2/14/2013	<20
SG-7	2/14/2013	<20
SG-8	2/14/2013	<20
SG-11	2/14/2013	<20
SG-13	2/14/2013	<20
SG-16	2/14/2013	<20
SG-17	2/14/2013	<20
SG-18	2/14/2013	<20
SG-20	2/14/2013	<20
SG-21	2/14/2013	1,570
Lower Explosive Limit (LEL)		50,000

Abbreviations:

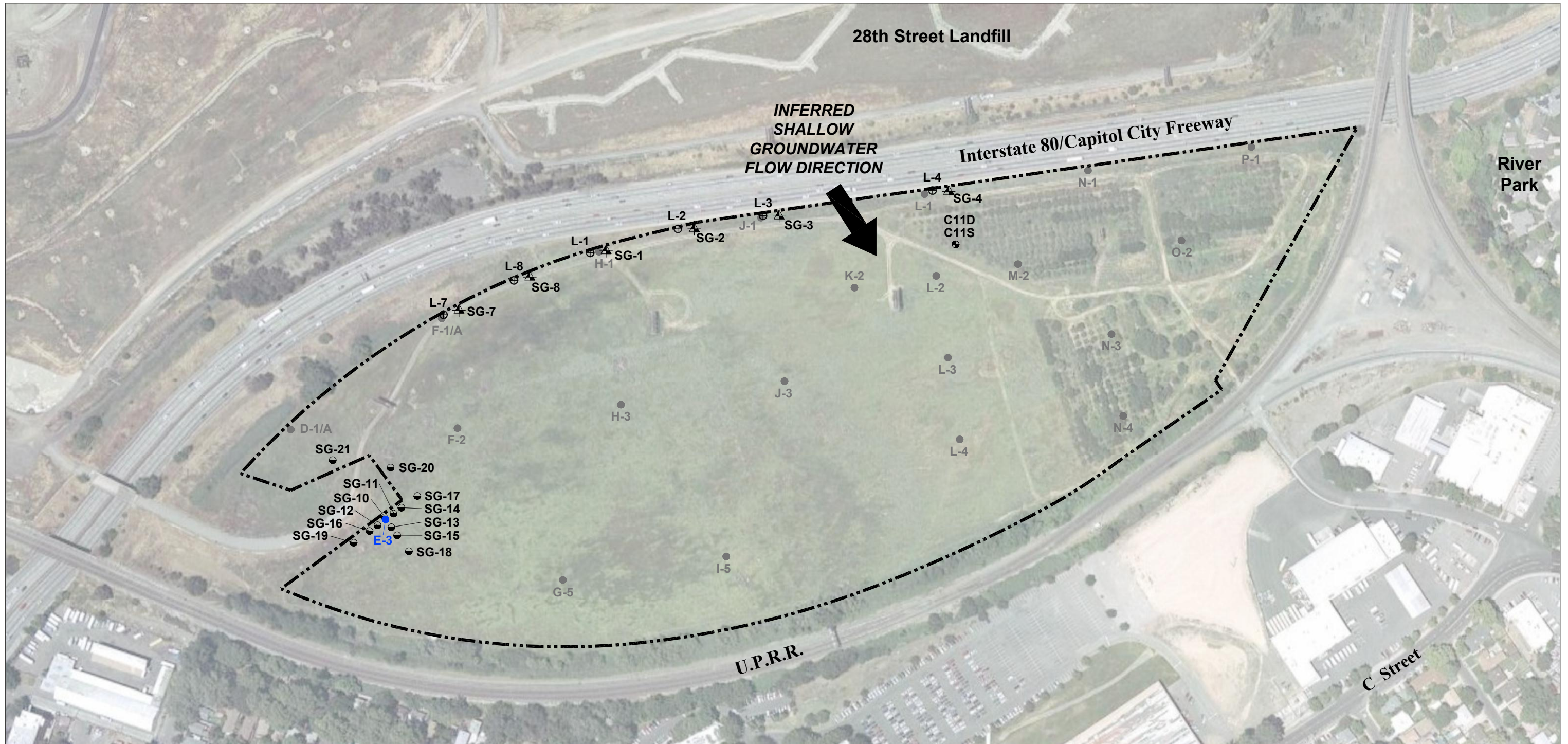
<20 - Compound not detected at or above indicated laboratory reporting limit.

DTSC - Department of Toxic Substances Control

PPMV - Parts Per Million by Volume

Notes:

(a) Analyses performed by K Prime, Inc. at their Santa Rosa, California, laboratory using EPA Method 18.

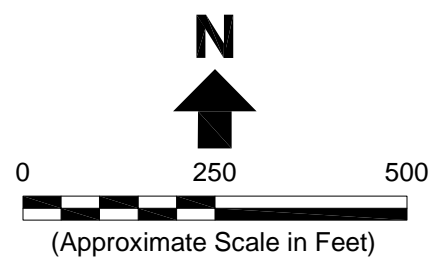


Legend:

- Approximate Subject Property Boundary
- ⊕ L-1 Location of Existing Landfill Gas Monitoring Probe (See Note 3)
- ⬢ C11D Approximate Monitoring Well Location (Existing by Others)
- ▲ SG-7 Location of 2013 Soil Gas Sampling Locations
- SG-10 2013 E-3 Step-Out Soil Gas Sampling Locations
- G-5 2007 Soil Gas Sample Location
- E-3 2007 Soil Gas Sample Location E-3 (6,400 ppmv Methane)

Notes:

1. All locations are approximate.
2. Basemap source: Google Earth Pro, Sanborn Image, 2007



Erler & Kalinowski, Inc.

Soil Gas Sampling Locations

McKinley Village
 Sacramento, CA
 25 February 2013
 EKI A70016.01

Figure 1

APPENDIX A

Laboratory Analytical Reports

K PRIME, Inc.

CONSULTING ANALYTICAL CHEMISTS

3621 Westwind Blvd.
Santa Rosa CA 95403
Phone: 707 527 7574
FAX: 707 527 7879

TRANSMITTAL

DATE: 2/20/2013

TO: MS. MICHELLE KING
MR. ROGER LION
MR. BRUCE CASTLE
ERLER & KALINOWSKI, INC.
1870 OGDEN DRIVE
BURLINGAME, CA 94010

ACCT: 9115
PROJ: A70016.01

Phone: 650-292-9100
Fax: 650-552-9012
Email: mkking@ekiconsult.com
rdlion@ekiconsult.com
bcastle@ekiconsult.com

FROM: Richard A. Kage1, Ph.D. *RAK 2/20/2013*
Laboratory Director

SUBJECT: LABORATORY RESULTS FOR YOUR PROJECT A70016.01

Enclosed please find K Prime's laboratory reports for the following samples:

SAMPLE ID	TYPE	DATE	TIME	KPI LAB #
SG-1	AIR	2/14/2013	14:32	109293
SG-3	AIR	2/14/2013	14:02	109294
SG-4	AIR	2/14/2013	13:42	109295
SG-7	AIR	2/14/2013	14:46	109296
SG-8	AIR	2/14/2013	17:36	109297
SG-11	AIR	2/14/2013	16:20	109298
SG-13	AIR	2/14/2013	15:42	109299
SG-16	AIR	2/14/2013	16:52	109300

The above listed sample group was received on 2/15/2013 and tested as requested on the chain of custody document.

Please call me if you have any questions or need further information.
Thank you for this opportunity to be of service.

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9115
CLIENT PROJECT: A70016.01

METHOD: METHANE
REFERENCE: EPA METHOD 18

SAMPLE TYPE: AIR
UNITS: PPMV

SAMPLE ID	LAB NO.	DATE SAMPLED	TIME SAMPLED	BATCH ID	DATE ANALYZED	MRL	SAMPLE CONC
SG-1	109293	02/14/2013	14:32	021913A1	02/19/2013	20.0	ND
SG-3	109294	02/14/2013	14:02	021913A1	02/19/2013	20.0	ND
SG-4	109295	02/14/2013	13:42	021913A1	02/19/2013	20.0	ND
SG-7	109296	02/14/2013	14:46	021913A1	02/19/2013	20.0	ND
SG-8	109297	02/14/2013	17:36	021913A1	02/19/2013	20.0	ND
SG-11	109298	02/14/2013	16:20	021913A1	02/19/2013	20.0	ND
SG-13	109299	02/14/2013	15:42	021913A1	02/19/2013	20.0	ND
SG-16	109300	02/14/2013	16:52	021913A1	02/19/2013	20.0	ND

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
MRL - METHOD REPORTING LIMIT

APPROVED BY: AMC
DATE: 2/20/13

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9115
CLIENT PROJECT: A70016.01

METHOD: 1,1,1,2-TETRAFLUOROETHANE
REFERENCE: EPA TO 3

UNITS: PPMV

SAMPLE ID	LAB NO.	SAMPLE TYPE	DATE SAMPLED	BATCH ID	DATE ANALYZED	MRL	SAMPLE CONC
SG-1	109293	AIR	02/14/2013	021413A2	02/14/2013	10.0	ND
SG-3	109294	AIR	02/14/2013	021413A2	02/14/2013	10.0	ND
SG-4	109295	AIR	02/14/2013	021413A2	02/14/2013	10.0	ND
SG-7	109296	AIR	02/14/2013	021413A2	02/14/2013	10.0	ND
SG-8	109297	AIR	02/14/2013	021413A2	02/14/2013	10.0	18.2
SG-11	109298	AIR	02/14/2013	021413A2	02/14/2013	10.0	19700
SG-13	109299	AIR	02/14/2013	021413A2	02/14/2013	10.0	ND
SG-16	109300	AIR	02/14/2013	021413A2	02/14/2013	10.0	74.3

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
MRL - METHOD REPORTING LIMIT

APPROVED BY: *PM*
DATE: 2/20/13

K PRIME, INC.
LABORATORY QC REPORT

METHOD BLANK ID: B021913A1
LAB CONTROL SAMPLE ID: L021913A1
LAB CONTROL DUPLICATE ID: D021913A1
BATCH ID: 021913A1

METHOD: C1-C3 HYDROCARBONS
REFERENCE: EPA METHOD 18

SAMPLE TYPE: AIR
UNITS: PPM -V/V

METHOD BLANK

COMPOUND NAME	REPORTING LIMIT	SAMPLE CONC
METHANE	10.0	ND
ETHANE	1.00	ND
PROPANE	1.00	ND

ACCURACY (LAB CONTROL SAMPLE)

COMPOUND NAME	EXPECTED CONC	MEASURED CONC	PERCENT RECOVERY	LIMITS (PERCENT)
METHANE	1000	1130	113	60-140
ETHANE	1000	1140	114	60-140
PROPANE	1000	1190	119	60-140

PRECISION (LAB CONTROL DUPLICATE)

COMPOUND NAME	SAMPLE RESULT	DUPLICATE RESULT	RPD (PERCENT)	LIMITS (PERCENT)
METHANE	1130	1080	4.5	±30
ETHANE	1140	1100	3.6	±30
PROPANE	1190	1150	3.4	±30

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE

K PRIME, INC.
LABORATORY QC REPORT

METHOD BLANK ID: B021413A2
LAB CONTROL SAMPLE ID: L021413A2
LAB CONTROL DUPLICATE ID: D021413A2
BATCH ID: 021413A2

METHOD: 1,1,1,2-TETRAFLUOROETHANE
REFERENCE: EPA TO 3

SAMPLE TYPE: AIR
UNITS: PPM -V/V

METHOD BLANK

COMPOUND NAME	REPORTING LIMIT	SAMPLE CONC
1,1,1,2-TETRAFLUOROETHANE	10.0	ND

ACCURACY (LAB CONTROL SAMPLE)

COMPOUND NAME	EXPECTED CONC	MEASURED CONC	PERCENT RECOVERY	LIMITS (PERCENT)
1,1,1,2-TETRAFLUOROETHANE	10000	10000	100	60-140

PRECISION (LAB CONTROL DUPLICATE)

COMPOUND NAME	SAMPLE RESULT	DUPLICATE RESULT	RPD (PERCENT)	LIMITS (PERCENT)
1,1,1,2-TETRAFLUOROETHANE	10000	11900	17.4	±30

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE

CHAIN OF CUSTODY RECORD

Project Name		McKinley Village		Project No.		EKIA70016.01		ANALYSES REQUESTED				COC No.			
Project Location		Sacramento, CA		Laboratory		K-prime, Inc. Santa Rosa, CA		TO-15 for VOCs		ASTM D-1946 for Methane		TO-3 for 1,1,1,2-TeFA		EXPECTED TURNAROUND	
Report Results to:		No EDF		Sampled By:		Roger Lion								Remarks	
Field Sample Identification		Lab Sample No.		Date		Time		Type of Sample		No. of Containers / Preservative					
SG-1	109293	2/14/13	14:32	air	1-ea 1-L. Summa(TM) canister			X	X	X				48 HR 5-day	SUMMA # S-515
SG-3	109294	2/14/13	14:02	air	1-ea 1-L. Summa(TM) canister			X	X	X				48 HR 5-day	SUMMA # S-310
SG-4	109295	2/14/13	13:42	air	1-ea 1-L. Summa(TM) canister			X	X	X				48 HR 5-day	SUMMA # S-357
SG-7	109296	2/14/13	14:46	air	1-ea 1-L. Summa(TM) canister			X	X	X				48 HR 5-day	SUMMA # S-255
SG-8	109297	2/14/13	17:36	air	1-ea 1-L. Summa(TM) canister			X	X	X				48 HR 5-day	SUMMA # S-230
SG-11	109298	2/14/13	16:20	air	1-ea 1-L. Summa(TM) canister			X	X	X				48 HR 5-day	SUMMA # S-233
SG-13	109299	2/14/13	15:42	air	1-ea 1-L. Summa(TM) canister			X	X	X				48 HR 5-day	SUMMA # S-311
SG-16	109300	2/14/13	16:52	air	1-ea 1-L. Summa(TM) canister			X	X	X				48 HR 5-day	SUMMA # S-601

Special Instructions:

Relinquished by: (Signature)	<i>[Signature]</i>	Date	2/14/13	Time	2:02	Received by: (Signature)	<i>[Signature]</i>
Relinquished by: (Signature)	<i>[Signature]</i>	Date	2/15/13	Time	11:00	Received by: (Signature)	<i>[Signature]</i>
Relinquished by: (Signature)	<i>[Signature]</i>	Date	2/15/13	Time	12:31	Received by: (Signature)	<i>[Signature]</i>

K PRIME, Inc.

CONSULTING ANALYTICAL CHEMISTS

3621 Westwind Blvd.
Santa Rosa CA 95403
Phone: 707 527 7574
FAX: 707 527 7879

TRANSMITTAL

DATE: 2/20/2013

TO: MS. MICHELLE KING
MR. ROGER LION
MR. BRUCE CASTLE
ERLER & KALINOWSKI, INC.
1870 OGDEN DRIVE
BURLINGAME, CA 94010

ACCT: 9115
PROJ: A70016.01

Phone: 650-292-9100
Fax: 650-552-9012
Email: mkking@ekiconsult.com
rdlion@ekiconsult.com
bcastle@ekiconsult.com

FROM: Richard A. Kageł, Ph.D. *RAK 2/20/2013*
Laboratory Director

SUBJECT: LABORATORY RESULTS FOR YOUR PROJECT A70016.01

Enclosed please find K Prime's laboratory reports for the following samples:

SAMPLE ID	TYPE	DATE	TIME	KPI LAB #
SG-17	AIR	2/14/2013	16:35	109302
SG-18	AIR	2/14/2013	17:02	109303
SG-20	AIR	2/14/2013	15:21	109304
SG-21	AIR	2/14/2013	15:05	109305

The above listed sample group was received on 2/15/2013 and tested as requested on the chain of custody document.

Please call me if you have any questions or need further information.
Thank you for this opportunity to be of service.

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9115
CLIENT PROJECT: A70016.01

METHOD: METHANE
REFERENCE: EPA METHOD 18

SAMPLE TYPE: AIR
UNITS: PPMV

SAMPLE ID	LAB NO.	DATE SAMPLED	TIME SAMPLED	BATCH ID	DATE ANALYZED	MRL	SAMPLE CONC
SG-17	109302	02/14/2013	16:35	021913A1	02/19/2013	20.0	ND
SG-18	109303	02/14/2013	17:02	021913A1	02/19/2013	20.0	ND
SG-20	109304	02/14/2013	15:21	021913A1	02/19/2013	20.0	ND
SG-21	109305	02/14/2013	15:05	021913A1	02/19/2013	20.0	1570

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT

NA - NOT APPLICABLE OR AVAILABLE

MRL - METHOD REPORTING LIMIT

APPROVED BY: AMK
DATE: 2/20/13

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9115
CLIENT PROJECT: A70016.01

METHOD: 1,1,1,2-TETRAFLUOROETHANE
REFERENCE: EPA TO 3

UNITS: PPMV

SAMPLE ID	LAB NO.	SAMPLE TYPE	DATE SAMPLED	BATCH ID	DATE ANALYZED	MRL	SAMPLE CONC
SG-17	109302	AIR	02/14/2013	021413A2	02/14/2013	10.0	10.9
SG-18	109303	AIR	02/14/2013	021413A2	02/14/2013	10.0	1800
SG-20	109304	AIR	02/14/2013	021413A2	02/14/2013	10.0	55.4
SG-21	109305	AIR	02/14/2013	021413A2	02/14/2013	10.0	ND

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
MRL - METHOD REPORTING LIMIT

APPROVED BY: AKK
DATE: 2/20/13

K PRIME, INC.
LABORATORY QC REPORT

METHOD BLANK ID: B021913A1
LAB CONTROL SAMPLE ID: L021913A1
LAB CONTROL DUPLICATE ID: D021913A1
BATCH ID: 021913A1

METHOD: C1-C3 HYDROCARBONS
REFERENCE: EPA METHOD 18

SAMPLE TYPE: AIR
UNITS: PPM -V/V

METHOD BLANK

COMPOUND NAME	REPORTING LIMIT	SAMPLE CONC
METHANE	10.0	ND
ETHANE	1.00	ND
PROPANE	1.00	ND

ACCURACY (LAB CONTROL SAMPLE)

COMPOUND NAME	EXPECTED CONC	MEASURED CONC	PERCENT RECOVERY	LIMITS (PERCENT)
METHANE	1000	1130	113	60-140
ETHANE	1000	1140	114	60-140
PROPANE	1000	1190	119	60-140

PRECISION (LAB CONTROL DUPLICATE)

COMPOUND NAME	SAMPLE RESULT	DUPLICATE RESULT	RPD (PERCENT)	LIMITS (PERCENT)
METHANE	1130	1080	4.5	±30
ETHANE	1140	1100	3.6	±30
PROPANE	1190	1150	3.4	±30

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE

K PRIME, INC.
LABORATORY QC REPORT

METHOD BLANK ID: B021413A2
LAB CONTROL SAMPLE ID: L021413A2
LAB CONTROL DUPLICATE ID: D021413A2
BATCH ID: 021413A2

METHOD: 1,1,1,2-TETRAFLUOROETHANE
REFERENCE: EPA TO 3

SAMPLE TYPE: AIR
UNITS: PPM -V/V

METHOD BLANK

COMPOUND NAME	REPORTING LIMIT	SAMPLE CONC
1,1,1,2-TETRAFLUOROETHANE	10.0	ND

ACCURACY (LAB CONTROL SAMPLE)

COMPOUND NAME	EXPECTED CONC	MEASURED CONC	PERCENT RECOVERY	LIMITS (PERCENT)
1,1,1,2-TETRAFLUOROETHANE	10000	10000	100	60-140

PRECISION (LAB CONTROL DUPLICATE)

COMPOUND NAME	SAMPLE RESULT	DUPLICATE RESULT	RPD (PERCENT)	LIMITS (PERCENT)
1,1,1,2-TETRAFLUOROETHANE	10000	11900	17.4	±30

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE

CHAIN OF CUSTODY RECORD

Project Name McKinley Village		Project No. EKI A70016.01		ANALYSES REQUESTED				COC No.					
Project Location Sacramento, CA		Laboratory K-prime, Inc. Santa Rosa, CA		TO-15 for VOCs		ASTM D-1946 for Methane		TO-3 for 1,1,1,2-TeFA		EXPECTED TURNAROUND		Remarks	
Report Results to: NO EDF mkking@ekiconsult.com, rdilon@ekiconsult.com, bcastle@ekiconsult.com		Sampled By: Roger Lion		Time		Type of Sample		No. of Containers / Preservative					
Field Sample Identification	Lab Sample No.	Date	Time	Type of Sample	No. of Containers / Preservative	TO-15 for VOCs	ASTM D-1946 for Methane	TO-3 for 1,1,1,2-TeFA	EXPECTED TURNAROUND	Remarks			
SC-17	109302	2/14/13	16:35	air	1-ea 1-L. Summa(TM) canister	X	X	X	48 HR 5-day	SUMMA # S-295			
SC-18	109303	2/14/13	17:02	air	1-ea 1-L. Summa(TM) canister	X	X	X	48 HR 5-day	SUMMA # S-103			
SC-16	109304	2/14/13	16:52	air	1-ea 1-L. Summa(TM) canister	X	X	X	48 HR 5-day	SUMMA # S-601 ENC			
SC-20	109304	2/14/13	15:21	air	1-ea 1-L. Summa(TM) canister	X	X	X	48 HR 5-day	SUMMA # S-650			
SC-21	109305	2/14/13	15:05	"	"	X	X	X	48 HR	S-355			
Special Instructions:													
Relinquished by: (Signature)		Date		Date		Time		Received by: (Signature)		Time			
<i>[Signature]</i>		2/14/13		2/14/13		2:02		EKI Sample Storage		Time			
Relinquished by: (Signature)		Date		Date		Time		Received by: (Signature)		Time			
<i>[Signature]</i>		2/15/13		2/15/13		11:00		<i>[Signature]</i>		Time			
Relinquished by: (Signature)		Date		Date		Time		Received by: (Signature)		Time			
<i>[Signature]</i>		2/15/13		2/15/13		12:31		RW - Cook		KPI			

K PRIME, Inc.

CONSULTING ANALYTICAL CHEMISTS

3621 Westwind Blvd.
Santa Rosa CA 95403
Phone: 707 527 7574
FAX: 707 527 7879

TRANSMITTAL

DATE: 2/20/2013

TO: MS. MICHELLE KING
MR. ROGER LION
MR. BRUCE CASTLE
ERLER & KALINOWSKI, INC.
1870 OGDEN DRIVE
BURLINGAME, CA 94010

ACCT: 9115
PROJ: A70016.01

Phone: 650-292-9100
Fax: 650-552-9012
Email: mkking@ekiconsult.com
rdlion@ekiconsult.com
bcastle@ekiconsult.com

FROM: Richard A. Kage1, Ph.D. *RAK 2/20/2013*
Laboratory Director

SUBJECT: LABORATORY RESULTS FOR YOUR PROJECT A70016.01

Enclosed please find K Prime's laboratory reports for the following samples:

SAMPLE ID	TYPE	DATE	TIME	KPI LAB #
SHROUD SG-21	AIR	2/14/2013	15:05	109301

The above listed sample group was received on 2/15/2013 and tested as requested on the chain of custody document.

Please call me if you have any questions or need further information.
Thank you for this opportunity to be of service.

K PRIME, INC.
LABORATORY REPORT

K PRIME PROJECT: 9115
CLIENT PROJECT: A70016.01

METHOD: 1,1,1,2-TETRAFLUOROETHANE
REFERENCE: EPA TO 3

UNITS: PPMV

SAMPLE ID	LAB NO.	SAMPLE TYPE	DATE SAMPLED	BATCH ID	DATE ANALYZED	MRL	SAMPLE CONC
SHROUD SG-21	109301	AIR	02/14/2013	021413A2	02/14/2013	10.0	2490

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE
MRL - METHOD REPORTING LIMIT

APPROVED BY: *PMC*
DATE: *2/20/13*

K PRIME, INC.
LABORATORY QC REPORT

METHOD BLANK ID: B021413A2
LAB CONTROL SAMPLE ID: L021413A2
LAB CONTROL DUPLICATE ID: D021413A2
BATCH ID: 021413A2

METHOD: 1,1,1,2-TETRAFLUOROETHANE
REFERENCE: EPA TO 3

SAMPLE TYPE: AIR
UNITS: PPM -V/V

METHOD BLANK

COMPOUND NAME	REPORTING LIMIT	SAMPLE CONC
1,1,1,2-TETRAFLUOROETHANE	10.0	ND

ACCURACY (LAB CONTROL SAMPLE)

COMPOUND NAME	EXPECTED CONC	MEASURED CONC	PERCENT RECOVERY	LIMITS (PERCENT)
1,1,1,2-TETRAFLUOROETHANE	10000	10000	100	60-140

PRECISION (LAB CONTROL DUPLICATE)

COMPOUND NAME	SAMPLE RESULT	DUPLICATE RESULT	RPD (PERCENT)	LIMITS (PERCENT)
1,1,1,2-TETRAFLUOROETHANE	10000	11900	17.4	±30

NOTES:

ND - NOT DETECTED AT OR ABOVE THE STATED METHOD REPORTING LIMIT
NA - NOT APPLICABLE OR AVAILABLE



APPENDIX B

Discussion of Leak Check Protocols and Results

APPENDIX B

DISCUSSION OF LEAK CHECK COMPOUND PROTOCOL AND RESULTS

In accordance with the procedures described in the joint California EPA Department of Toxic Substances Control (“DTSC”) and Regional Water Quality Control Board, Los Angeles Region and San Francisco Bay Region (“RWQCB”) guidance, entitled *Advisory—Active Soil Gas Investigations*, dated April 2012, an organic leak check compound was sprayed into the plastic shroud that enclosed the aboveground sample tubing and sample canister just prior to sampling. The leak check compound used during the February 2013 McKinley Village soil gas survey was 1,1,1,2-tetrafluoroethane (“TFA”). As shown in Table B-1, TFA was detected at low concentrations in approximately half of the soil gas sample analyses. The DTSC-RWQCB soil gas sampling advisory indicates that corrective action should be taken if leaks are detected at levels greater than 5%.

The general occurrence of leak check compound at low concentrations in the soil gas samples in this sampling program (Table 1) is believed to be the result of two factors: (1) possible permeation of the compound through the implant tubing (a phenomenon noted by Air Toxics¹) and (2) possible permeation of the TFA vapors into the subsurface through plant root channels, insect and small animal burrows, and small vertical fissures within the dry, clayey soil. Based on the experience during the 2007 soil gas survey at the Subject Property, in which nearly all samples contained reportable concentrations of leak check compound, EKI concludes that migration of leak check compound to the sample canisters was caused by fundamental material properties (possibly both soil and tubing).

The amount of ambient air dilution represented by the TFA detections can be calculated assuming that the TFA measured in the shroud sample was also present beneath the sampling shroud during routine sample collection. These calculations show that the amount of sample dilution by ambient air in most samples ranged from 0.04% to 3%. By contrast, the calculated sample dilution for samples SG-11 and SG-18 was 100% and 73%, respectively. As a result, the methane results for these two samples must be considered unreliable and are rejected. The remaining sample data are considered of sufficient quality to support project decision making as discussed in the text of this report.

¹ Benton, D.J., and Shafer, N.S., 2005: *Evaluating Leaks in a Soil Gas Sample Train*, Air Toxics, Ltd. Paper #45

TABLE B-1
SUMMARY OF SOIL GAS LEAK CHECK RESULTS
MCKINLEY VILLAGE, SACRAMENTO, CA

Sample Location	Sample Date	Analytical Results ^(a) (PPMV)
		TFA
SG-1	2/14/2013	<10
SG-3	2/14/2013	<10
SG-4	2/14/2013	<10
SG-7	2/14/2013	<10
SG-8	2/14/2013	18.2
SG-11	2/14/2013	19,700
SG-13	2/14/2013	<10
SG-16	2/14/2013	74.3
SG-17	2/14/2013	10.9
SG-18	2/14/2013	1,800
SG-20	2/14/2013	55.4
SG-21	2/14/2013	<10
Shroud	2/14/2013	2,490

Abbreviations:

<10 - Compound not detected at or above indicated laboratory reporting limit.

DTSC - Department of Toxic Substances Control

PPMV - Parts Per Million by Volume

TFA - 1,1,1,2-Tetrafluoroethane

Notes:

(a) Analyses performed by K Prime, Inc. at their Santa Rosa, California, laboratory using EPA Method TO-3.



APPENDIX C

Field Notes

Soil Vapor Probe Sample Collection Log

Project Location: McKinley Village

Date: 02/14/13

Samples Collected By: Roger Luo

EKI Project Number: A70016.01 Task _____

Item	Units	Field Data and Notes			
Sampling Probe Installation					
Total Depth	feet	5.0	5.0	5.0	5.0
Screen / Sand interval	feet	4.0-5.0	4.0-5.0	4.0-5.0	4.0-5.0
Time Installed	hh:mm	10:51	11:01	11:18	10:38
Time Removed / Grouted	hh:mm				
Sampling Location					
Port Vacuum (-) or Pressure (+)	in-WC		0.00	0.00	0.00
volume Purged	cm3	120	120	120	120
Vacuum Response	fast/slow		FAST	FAST	FAST
Pre-sampling leak check OK?	yes/no				
Sample Collection					
Sample ID	-	SG-1	SG-3	SG-4	SG-7
Leak check gas used (Yes / No)	-	YES	YES	YES	YES
Sample Start Time	hh:mm	14:32	14:02	13:42	14:46
Sample End Time	hh:mm	14:40	14:10	13:50	14:54
Initial canister vacuum (using gauge on canister)	in-Hg	30	30	30	27
Final canister vacuum (using gauge on canister)	in-Hg	5	6	6	2
Canister volume	liters	1	1	1	1
Canister ID	-	S-515	S-310	S-357	S-255
Shroud Sample Collection					
Sample ID	-				
Initial canister vacuum (using gauge on canister)	in-Hg				
Final canister vacuum (using gauge on canister)	in-Hg				
Canister volume	liters				
Canister ID	-			S-357	
Field Data After Sample Collection					
Methane on CGM	ppmv or % LEL	100 ppm	200 ppm	140 ppm	220 ppm
Oxygen (O2) on CGM	% Vol.	19.5	19.2	19.6	19.7
Notes		@ 12:12	@ 12:07	@ 12:00	@ 12:25

Soil Vapor Probe Sample Collection Log

Project Location: McKinleyVillage

Date: 02/14/13

Samples Collected By: Roger Lion

EKI Project Number: A70016.01 Task _____

Item	Units	Field Data and Notes			
Sampling Probe Installation					
Total Depth	feet	5.0			
Screen / Sand interval	feet	4.0 - 5.0			
Time Installed	hh:mm	14:05			
Time Removed / Grouted	hh:mm				
Sampling Location					
Port Vacuum (-) or Pressure (+)	in-WC				
volume Purged	cm3				
Vacuum Response	fast/slow				
Pre-sampling leak check OK?	yes/no				
Sample Collection					
Sample ID	-	SG-2			
Leak check gas used (Yes / No)	-				
Sample Start Time	hh:mm	17:18			
Sample End Time	hh:mm	17:25			
Initial canister vacuum (using gauge on canister)	in-Hg	29			
Final canister vacuum (using gauge on canister)	in-Hg	3			
Canister volume	liters	1			
Canister ID	-	S-231			
Shroud Sample Collection					
Sample ID	-				
Initial canister vacuum (using gauge on canister)	in-Hg				
Final canister vacuum (using gauge on canister)	in-Hg				
Canister volume	liters				
Canister ID	-				
Field Data After Sample Collection					
Methane on CGM	ppmv or % LEL	240.			
Oxygen (O2) on CGM	% Vol.	20.3			
Notes					
@ 17:16					

Soil Vapor Probe Sample Collection Log

Project Location: McKinley Village

Date: 02/14/13

Samples Collected By: Rover Lee

EKI Project Number: A70016.01 Task _____

Item	Units	Field Data and Notes			
Sampling Probe Installation					
Total Depth	feet <i>bag</i>	<i>6.0 ft bag</i>	<i>6 ft bag</i>	<i>5.0</i>	<i>4.5</i>
Screen / Sand interval	feet <i>bag</i>	<i>5.0 to 6.0 ft bag</i>	<i>4.5 - 6.0</i>	<i>4.0 - 5.0</i>	<i>3.5 - 4.5</i>
Time Installed	hh:mm	<i>09:02</i>	<i>09:20</i>	<i>09:35</i>	<i>09:51</i>
Time Removed / Grouted	hh:mm		<i>16:29</i>		<i>15:48</i>
Sampling Location					
Port Vacuum (-) or Pressure (+)	in-WC		<i>0.00</i>		
volume Purged	cm3		<i>120</i>		
Vacuum Response	fast/slow	<i>ZERO</i>	<i>VERY SLOW</i>		<i>MODERATE</i>
Pre-sampling leak check OK?	yes/no				
Sample Collection					
Sample ID	-	<i>SG-10</i>	<i>SG-11</i>	<i>SG-12</i>	<i>SG-13</i>
Leak check gas used (Yes / No)	-		<i>YES</i>		
Sample Start Time	hh:mm		<i>16:20</i>		<i>15:42</i>
Sample End Time	hh:mm		<i>16:29</i>		<i>15:48</i>
Initial canister vacuum (using gauge on canister)	in-Hg		<i>30</i>		<i>29</i>
Final canister vacuum (using gauge on canister)	in-Hg		<i>4</i>		<i>4</i>
Canister volume	liters		<i>1</i>		<i>1</i>
Canister ID	-		<i>S-233</i>		<i>S-311</i>
Shroud Sample Collection					
Sample ID	-				
Initial canister vacuum (using gauge on canister)	in-Hg				
Final canister vacuum (using gauge on canister)	in-Hg				
Canister volume	liters				
Canister ID	-				
Field Data After Sample Collection					
Methane on CGM	ppmv or % LEL		<i>180 ppm</i>		<i>1.60 ppm @ 1020</i>
Oxygen (O2) on CGM	% Vol.				<i>19.7%</i>
Notes					
<i>@</i>					

Soil Vapor Probe Sample Collection Log

Project Location: McKinley Village

Date: 02/14/13

Samples Collected By: Roger Lion

EKI Project Number: A70016.01 Task _____

Item	Units	Field Data and Notes			
Sampling Probe Installation					
Total Depth	feet	4.5	5.0	5	4.5
Screen / Sand interval	feet	3.5 - 4.5	4.0 - 5.0	4.0 - 5.0	3.5 - 4.5
Time Installed	hh:mm	10:06	11:38	12:00	12:50
Time Removed / Grouted	hh:mm				
Sampling Location					
Port Vacuum (-) or Pressure (+)	in-WC		0.000		
volume Purged	cm ³		120		
Vacuum Response	fast/slow		FAST		
Pre-sampling leak check OK?	yes/no				
Sample Collection					
Sample ID	-	SG-10A	SG-21	SG-20	SG-16
Leak check gas used (Yes / No)	-		YES		
Sample Start Time	hh:mm		15:05	15:21	16:52
Sample End Time	hh:mm		15:14	15:29	16:59
Initial canister vacuum (using gauge on canister)	in-Hg		30	29	30
Final canister vacuum (using gauge on canister)	in-Hg		3	2	6
Canister volume	liters		1	1	1
Canister ID	-	S 65	S-355	S-650	S-601
Shroud Sample Collection					
Sample ID	-		SHROUD ^{SG} 21		
Initial canister vacuum (using gauge on canister)	in-Hg		30		
Final canister vacuum (using gauge on canister)	in-Hg		5		
Canister volume	liters		1		
Canister ID	-		S-101		
Field Data After Sample Collection					
Methane on CGM	ppmv or % LEL		2,700 ppm	760 ppm	200 ppm
Oxygen (O2) on CGM	% Vol.		20.2	20.9	20.9
Notes			@ 12:32	@ 12:35	

Soil Vapor Probe Sample Collection Log

Project Location: McKinley Village

Date: 2/14/13

Samples Collected By: Roger Lion

EKI Project Number: A70016.01 Task _____

Item	Units	Field Data and Notes			
Sampling Probe Installation					
Total Depth	feet	3.0-4.5 4.5		4.5	5.0
Screen / Sand interval	feet	3.5-4.5 3.5-4.5	3.5-4.5	3.5-4.5	4.0-5.0
Time Installed	hh:mm	13:03	13:15	13:28	13:46
Time Removed / Grouted	hh:mm			16:05	
Sampling Location					
Port Vacuum (-) or Pressure (+)	in-WC				
volume Purged	cm3				
Vacuum Response	fast/slow				
Pre-sampling leak check OK?	yes/no				
Sample Collection					
Sample ID	-	SG-17	SG-18	SG-14	SG-8
Leak check gas used (Yes / No)	-				
Sample Start Time	hh:mm	16:35	17:02	15:54	17:36
Sample End Time	hh:mm	16:41	17:10	16:04	17:46
Initial canister vacuum (using gauge on canister)	in-Hg	30	27	24	33
Final canister vacuum (using gauge on canister)	in-Hg	0	0	0	0
Canister volume	liters	1	1	1	1
Canister ID	-	S-295	S-103	S-292	S-230
Shroud Sample Collection					
Sample ID	-				
Initial canister vacuum (using gauge on canister)	in-Hg				
Final canister vacuum (using gauge on canister)	in-Hg				
Canister volume	liters				
Canister ID	-				
Field Data After Sample Collection					
Methane on CGM	ppmv or % LEL	200	20 ppm	120 ppm	680
Oxygen (O2) on CGM	% Vol.	21.2	20.6	19.2	21.4
Notes		@16:26	@16:02	@15:45	@17:29