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RECEIVED

By Alameda County Environmental Health 2:53 pm, Jul 26, 2016

May 12, 2016

Ms. Dilan Roe
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502

**Re: Sub-Slab Soil Gas Investigation Report for Park Avenue Cleaners at 7100-7120 Dublin Boulevard, Dublin, Alameda County, California
ACEH Case No. RO3113**

Dear Ms. Roe:

I declare under penalty of perjury that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Sincerely,

JLL Retail
as authorized agent for Ready Family Partnership, L.P.

A handwritten signature in blue ink that reads "Sharlene A. Hassler".

Sharlene A. Hassler FMA, RPA
Senior Property Manager

SUB-SLAB SOIL GAS INVESTIGATION REPORT

**Former Park Avenue Cleaners at Dublin Crossroads Shopping Center
7100-7120 Dublin Boulevard
Dublin, California**

July 25, 2016

Prepared for:

Ready Family Partnership

Prepared by:

**RPS IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612**

Project No. 13-945E

EXECUTIVE SUMMARY

This report presents the results of RPS Iris Environmental's sub-slab soil gas investigation conducted on April 15, 2016 at the former Park Avenue Cleaners facility in Dublin, California (the Site).

Three existing sub-slab soil gas probes were sampled from within the 7102 and 7104 units on April 15, 2016.

Favorable results indicate relatively low concentrations of tetrachloroethene (PCE) that are below established commercial use Environmental Screening Level (ESL) promulgated by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) (Cal/EPA 2016).

The analytical results indicate reduction in the concentrations of PCE following the interim remedial action in 2013 as documented in *Interim Removal Action Report* (RPS Iris Environmental 2014). PCE concentrations appear to have attenuated since the November 18, 2013 monitoring event and the removal of source PCE soils during the interim remedial actions. Natural attenuation of PCE in the sub-slab will likely further reduce the PCE concentrations within the sub-slab. The analytical data indicate that vapor intrusion of PCE and other volatile organic compounds (VOCs) is likely not occurring into the overlying structures.

No other analyzed VOCs were present at concentrations above established commercial use ESLs in the three analyzed samples.

PROFESSIONAL CERTIFICATION AND LIMITATIONS

This *Sub-Slab Soil Gas Investigation Report* dated July 25, 2016 for the Former Park Avenue Cleaners facility at Dublin Crossroads Shopping Center at 7100-7120 Dublin Boulevard, Dublin, California, has been prepared under the oversight of a California Professional Geologist. This document is based on information available to RPS Iris Environmental and current laws, policies, and regulations as of the date of this document. The information and opinions expressed in this document are based upon the information available to RPS Iris Environmental and are given in response to a limited assignment and should be considered and implemented only in light of that assignment. The services provided by RPS Iris Environmental in completing this project were consistent with normal standards of the profession. No other warranty, expressed or implied, is made.

Sincerely,

RPS IRIS ENVIRONMENTAL



Craig Pelletier, PG
Principal

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1.0 INTRODUCTION

On behalf of the Ready Family Partnership (the Client), RPS Iris Environmental has prepared this *Sub-Slab Soil Gas Monitoring Report* (Report) for the former Park Avenue Cleaners facility located at 7104 Dublin Boulevard in Dublin, California and adjacent commercial units (the Site, Figure 1). The Site has been enrolled in a voluntary cleanup program since June 2013 under Alameda County Environmental (ACEH) oversight.

Investigations conducted at the Site in 2012 and 2013 document the presence of tetrachloroethylene (PCE) in the subsurface, primarily in soil, groundwater, and soil gas in the vicinity of the former dry cleaning machines within the 7102 and 7104 units (Basics Environmental 2012; RPS Iris Environmental 2013). Interim remedial actions conducted in October and November of 2013 involved excavation of source vadose zone soils, installation of a sub-slab passive vapor extraction system (which has not been in operation), installation of sub-slab probes, and soil gas probes at an approximate depth of five feet below the ground surface (bgs). Following completion of interim remedial actions, elevated concentrations of PCE were observed in the sub-slab soil gas; however, these results were not considered representative of equilibrium conditions beneath the existing slab. Results of the interim remedial action are presented in *Interim Removal Action Report* (RPS Iris Environmental 2014). No further remedial actions were conducted following the interim remedial actions.

RPS Iris Environmental was retained by the Client to conduct sub-slab soil gas sampling to assess current conditions beneath the slab at the Site. We understand the 7104 unit is undergoing renovation.

2.0 SUB-SLAB SOIL GAS SAMPLING

On April 15, 2016 three sub-slab soil gas samples were collected from the three existing sub-slab probes (SS-01, SS-03, and SS-05).¹ Samples were collected in general accordance with the *Advisory - Active Soil Gas Investigations* prepared by California Environmental Protection Agency (Cal/EPA 2015).

The sub-slab soil vapor samples collected using 1.4-liter batch-certified SUMMA canisters provided by the Curtis & Tompkins of Berkeley, California. Each soil vapor sample was collected using a helium shroud system, in a similar manner as was done in previous sampling events for this Site. The helium shroud system was used to monitor for the intrusion of ambient air into samples through leaks in either the sample train or the annular space sealing the probe within the slab.

Upon collection, the sub-slab soil vapor samples were recorded on a chain-of-custody document that accompanied the samples from the point of collection to the analytical laboratory. The collected samples were analyzed for volatile organic compounds (VOCs) by EPA Method TO-15 on an expedited turn-around time.

¹ We understand that sub-slab probe SS-04 formerly within Unit 7106 was destroyed during renovation activities within that unit based on information provided to RPS Iris Environmental.

3.0 RESULTS

A tabular summary of the analytical data is provided in Table 1. The sub-slab soil gas data were compared to the following screening levels, where applicable:

- San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) commercial use Environmental Screening Levels (ESLs) (Cal/EPA 2016) which are protective of direct exposures under a commercial or industrial land use scenario, leaching to groundwater where groundwater is a potential drinking water resource, gross contamination levels, and commercial or industrial land use shallow soil odor nuisance levels.

Sample locations are indicated on Figure 2. The certified laboratory analytical report and chain-of-custody information are included in Appendix A and the soil gas sampling logs are included in Appendix B.

3.1 Sub-Slab Soil Gas Data

The following is a summary of the analyte concentrations detected in the sub-slab soil gas samples. Sub-slab soil gas data are presented in Table 1, which includes data from previous sub-slab soil gas sampling events. Analyzed VOCs were not detected above established commercial use ESLs.

Helium was also analyzed for the purpose of detecting leakage of indoor air into the sub-slab soil gas sample during sampling. Helium was not detected in the three analyzed sub-slab soil gas samples, with a reporting limit of < 0.18 percent my mole (%). This is below the leakage tolerance of 5 % indicated in the *Advisory - Active Soil Gas Investigations* (Cal/EPA 2015).

3.2 Quality Assurance and Quality Control

No obvious signs of vapor leakage were observed during the sub-slab sampling activities. Helium (the leak check compound) was not detected during purging at concentrations above DTSC's leakage threshold recommendation of 5% indicating that significant leaks did not occur during collection of the samples.

The analytical laboratory data was reviewed by RPS Iris Environmental to establish its validity and to ensure the laboratory data was complete and accurate. RPS Iris Environmental verified that holding times for each analytical method were achieved and that the laboratory achieved the specific data quality objectives for each selected analytical method. A review of the data validation process indicates that the laboratories completed QA/QC activities required for the samples such as blanks, lab control samples, matrix spikes, and duplicates. The QA/QC parameters for the samples were within acceptable limits.

4.0 DISCUSSION

Favorable results indicate relatively low concentrations of tetrachloroethene (PCE) that are below established commercial use Environmental Screening Level (ESL) promulgated by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) (Cal/EPA 2016).

The analytical results indicate reduction in the concentrations of PCE following the interim remedial action in 2013 as documented in *Interim Removal Action Report* (RPS Iris Environmental 2014). PCE concentrations appear to have attenuated since the November 18, 2013 monitoring event and the removal of source PCE soils during the interim remedial actions. Natural attenuation of PCE in the sub-slab will likely further reduce the PCE concentrations within the sub-slab. The analytical data indicate that vapor intrusion of PCE and other volatile organic compounds (VOCs) is likely not occurring into the overlying structures.

No other analyzed VOCs were present at concentrations above established commercial use ESLs in the three analyzed samples.

5.0 RECOMMENDATIONS

Based on the analytical data from the recent and previous monitoring events, RPS Iris Environmental recommends the following:

- Continue operation of the heating, ventilation and air conditioning (HVAC) system to mitigate potential vapor intrusion issues.
- Conduct an additional round of sub-slab soil gas sampling in approximately six months in accordance with the *Vapor Intrusion Mitigation Advisory* (Cal/EPA 2011) to account for seasonal variability.
- Forward a copy of this Report to ACEH.

If additional sub-slab soil gas sampling data are favorable, then RPS Iris Environmental recommends requesting case closure in the voluntary cleanup program from ACEH.

6.0 REFERENCES

Basics Environmental. 2012. *Limited Phase II Environmental Site Sampling Report, 7100-7120 Dublin Boulevard, Dublin, California*. November 9.

California Environmental Protection Agency (Cal/EPA). 2011. *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance)*. Final. Department of Toxic Substances Control (DTSC). October.

Cal/EPA. 2015. *Advisory – Active Soil Gas Investigations*. Department of Toxic Substances Control, Los Angeles Regional Water Quality Control Board, San Francisco Bay Regional Water Quality Control Board. July.

Cal/EPA. 2016. *Environmental Screening Levels*. Excel spreadsheet file “ESL Workbook_ESLs_Interim Final_22Feb16_Rev2-final”. San Francisco Bay Regional Water Quality Control Board. February 22.

RPS Iris Environmental. 2013. *Subsurface Investigation Report, Former Park Avenue Cleaners at 7100-7120 Dublin Boulevard, Dublin, Alameda County, California*. ACEH Case No. RO3113. September 6.

RPS Iris Environmental. 2014. *Interim Removal Action Report for Park Avenue Cleaners at 7100-7120, Dublin Boulevard, Dublin, Alameda County, California, ACEH Case No. RO3113*. January 9, 2014.

Figures

Table

Attachment A

Certified Analytical Report

Appendix B

Soil Gas Sampling Logs

Table

Table 1. Summary of Sub-slab Soil Gas Analytical Results

Parameter	Commercial ESLs	Sub-Slab Soil Gas Sampling Results												
		SS-01	SS-01	SS-01	SS-01	SS-02	SS-03	SS-03	SS-03	SS-03	SS-04	SS-04	SS-04	SS-04
Sample Location ID	–	SS-01	SS-01	SS-01	SS-01	SS-02	SS-03	SS-03	SS-03	SS-03	SS-04	SS-04	SS-04	SS-04
Boring ID	–	IE-08	IE-08	IE-08	IE-08	IE-29	IE-11	IE-11	IE-11	IE-11	–	–	–	–
Sample Type	–	–	–	–	–	–	–	–	–	–	Primary	Duplicate	–	–
Sample Date	–	8/2/2013	11/18/2013	4/8/2014	4/15/2016	8/2/2013	8/2/2013	11/18/2013	4/8/2014	4/15/2016	10/8/2013	10/8/2013	10/21/2013	11/18/2013
Occurrence Within Excavation Timeline	–	Pre	Post	Post	Post	Pre	Pre	Post	Post	Post	Pre	Pre	During	Post
Acetone	140,000,000	27	<110	<100	<8.6	<350	21	12 b	9.6	<8.3	17	11	<18	20 b
Acrolein	None	<8.2	<110	<98	<8.3	<330	<8.5	<8.4	<7.5	<8.0	<7.8	<7.9	<17	<8.1 b
Benzene	420	6.5	<37	<34	<2.9	340	5.3	<2.9	<2.6	<2.8	<2.7	<2.7	<5.9	<2.8 b
Benzyl chloride (alpha chlorotoluene)	None	<4.6	<59	<55	<4.7	<190	<4.8	<4.7	<4.2	<4.5	<4.4	<4.5	<9.6	<4.6 b
Bromodichloromethane	330	<6.0	<77	<72	<6.0	<240	<6.2	<6.1	<5.5	<5.9	16	16	22	<5.9 b
Bromoform	11,000	<9.2	<120	<370	<9.3	<380	<9.6	<9.5	<28	<9.0	<8.8	<8.9	<19	<9.1 b
Bromomethane (methyl bromide)	22,000	<3.5	<44	<41	<3.5	<140	<3.6	<3.6	<3.2	<3.4	<3.3	<3.3	<7.2	<3.4 b
1,3-Butadiene	None	<2.0	<25	<24	<2.0	260	<2.1	<2.0	<1.8	<1.9	<1.9	<1.9	<4.1	<2.0 b
2-Butanone (methyl ethyl ketone)	22,000,000	3.9	<34	<31	<2.7	<110	<2.7	<2.7	<2.4	<2.6	<2.5	<2.5	<5.5	5.2 b
Carbon disulfide	None	<2.8	<36	<33	<2.8	<110	<2.9	<17	<2.5	<2.7	<2.7	<2.7	<5.8	<17 b
Carbon tetrachloride	290	<5.6	<72	<67	<5.7	<230	<5.9	<5.8	<5.1	<5.5	<5.4	<5.4	<12	<5.6 b
Chlorobenzene	220,000	<4.1	<53	<49	<4.1	<170	<4.3	<4.2	<3.8	<4.0	<3.9	<4.0	<8.5	<4.1 b
Chlorodibromomethane (dibromochloromethane)	None	<7.6	<98	<91	<7.7	<310	<7.9	<7.8	<6.9	<7.5	20	20	16	<7.5 b
Chloroethane (ethyl chloride)	44,000,000	<2.3	<30	<28	<2.4	<96	<2.5	<2.4	<2.2	<2.3	<2.3	<2.3	<4.9	<2.3 b
Chloroform	530	<4.3	<56	<52	<4.4	<180	<4.5	<4.5	<4.0	<4.3	67	69	15	24 b
Chloromethane (methyl chloride)	390,000	<1.8	<24	<22	<1.9	<75	<1.9	<1.9	<1.7	<1.8	<1.8	<1.8	<3.8	<1.8 b
Cyclohexane	None	<3.1	<39	<37	<3.1	<130	<3.2	<3.1	<2.8	<3.0	<2.9	<3.0	<6.4	<3.0 b
1,2-Dibromoethane (ethylene dibromide)	20	<6.8	<88	<82	<6.9	<280	<7.1	<7.0	<6.3	<6.7	<6.6	<6.6	<14	<6.8 b
1,2-Dichlorobenzene	880,000	<5.4	<69	<64	<5.4	<220	<5.6	<5.5	<4.9	<5.3	<5.1	<5.2	<11	<5.3 b
1,3-Dichlorobenzene	None	<5.4	<69	<64	<5.4	<220	<5.6	<5.5	<4.9	<5.3	<5.1	<5.2	<11	<5.3 b
1,4-Dichlorobenzene	1,100	<5.4	<69	<64	<5.4	<220	<5.6	<5.5	<4.9	<5.3	<5.1	<5.2	<11	<5.3 b
Dichlorodifluoromethane (Freon 12)	None	<4.4	<57	<53	<4.5	<180	<4.6	<4.5	<4.0	<4.3	<4.2	<4.3	<9.1	<4.4 b
1,1-Dichloroethane (1,1-DCA)	7,700	<3.6	<46	<43	<3.6	<150	<3.8	<3.7	<3.3	<3.5	<3.5	<3.5	<7.5	<3.6 b
1,2-Dichloroethane (1,2-DCA)	470	<3.6	<46	<43	<3.6	<150	<3.8	<3.7	<3.3	<3.5	<3.5	<3.5	<7.5	<3.6 b
1,1-Dichloroethene (1,1-DCE)	310,000	<3.5	<45	<42	<3.6	<140	<3.7	<3.6	<3.2	<3.5	<3.4	<3.4	<7.3	<3.5 b
cis-1,2-Dichloroethene (cis-1,2-DCE)	35,000	<3.5	<45	430	3.8	<140	<3.7	<3.6	<3.2	<3.5	<3.4	<3.4	<7.3	<3.5 b
trans-1,2-Dichloroethene (trans-1,2-DCE)	350,000	<3.5	<45	<42	<3.6	<140	<3.7	<3.6	<3.2	<3.5	<3.4	<3.4	<7.3	<3.5 b
1,2-Dichloropropane	1,200	<4.1	<53	<49	<4.2	<170	<4.3	<4.2	<3.8	<4.0	<4.0	<4.0	<8.5	<4.1 b

Table 1. Summary of Sub-slab Soil Gas Analytical Results

Parameter	Commercial ESLs	Sub-Slab Soil Gas Sampling Results												
		SS-01	SS-01	SS-01	SS-01	SS-02	SS-03	SS-03	SS-03	SS-03	SS-04	SS-04	SS-04	SS-04
Sample Location ID	–	SS-01	SS-01	SS-01	SS-01	SS-02	SS-03	SS-03	SS-03	SS-03	SS-04	SS-04	SS-04	SS-04
Boring ID	–	IE-08	IE-08	IE-08	IE-08	IE-29	IE-11	IE-11	IE-11	IE-11	–	–	–	–
Sample Type	–	–	–	–	–	–	–	–	–	–	Primary	Duplicate	–	–
Sample Date	–	8/2/2013	11/18/2013	4/8/2014	4/15/2016	8/2/2013	8/2/2013	11/18/2013	4/8/2014	4/15/2016	10/8/2013	10/8/2013	10/21/2013	11/18/2013
Occurrence Within Excavation Timeline	–	Pre	Post	Post	Post	Pre	Pre	Post	Post	Post	Pre	Pre	During	Post
cis-1,3-Dichloropropene	None	<4.0	<52	<48	<4.1	<170	<4.2	<4.2	<3.7	<4.0	<3.9	<3.9	<8.4	<4.0 b
trans-1,3-Dichloropropene	None	<4.0	<52	<48	<4.1	<170	<4.2	<4.2	<3.7	<4.0	<3.9	<3.9	<8.4	<4.0 b
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	None	<6.2	<80	<75	<6.3	<250	<6.5	<6.4	<5.7	<6.1	<6.0	<6.0	<13	<6.2 b
Ethyl acetate	None	<3.2	<41	<38	<3.2	<130	<3.4	<3.3	17	<3.2	<3.1	<3.1	<6.7	<3.2 b
Ethylbenzene	4,900	<3.9	<50	<46	<3.9	<160	<4.0	<4.0	<3.5	<3.8	<3.7	<3.7	<8.0	<3.8 b
4-Ethyltoluene	None	<4.4	<56	<53	<4.4	<180	<4.6	<4.5	<4.0	<4.3	<4.2	<4.2	<9.1	<4.4 b
Heptane	None	<3.6	<47	<44	<3.7	<150	<3.8	<3.7	<3.3	<3.6	<3.5	<3.5	<7.6	<3.6 b
Hexachlorobutadiene	560	<9.5	<120	<110	<9.6	<390	<9.9	<9.8	<8.7	<9.3	<9.1	<9.2	<20	<9.4 b
Hexane	None	<3.1	<40	<38	<3.2	<130	<3.3	<3.2	<2.9	<3.1	<3.0	<3.0	<6.5	<3.1 b
2-Hexanone (methyl butyl ketone)	None	<3.6	<47	<44	<3.7	<150	<3.8	<3.7	<3.3	<3.6	<3.5	<3.5	<7.6	<3.6 b
Methyl tert-butyl ether (MTBE)	47,000	<3.2	<41	<39	<3.2	<130	<3.4	<3.3	<2.9	<3.2	<3.1	<3.1	<6.7	<3.2 b
Methylene chloride	12,000	<3.1	<40	<37	<3.1	<130	<3.2	<3.2	<2.8	<3.0	10	10	<6.4	<3.1 b
4-Methyl-2-pentanone (methyl isobutyl ketone)	13,000,000	<3.6	<47	<44	<3.7	<150	<3.8	<3.7	<3.3	<3.6	<3.5	<3.5	<7.6	<3.6 b
Naphthalene	360	<19	<240	<220	<19	<760	<20	<19	<17	<18	<18	<18	<39	<19 b
Styrene	3,900,000	<3.8	<49	<45	<3.8	<160	<4.0	<3.9	<3.5	<3.7	<3.6	<3.7	<7.9	<3.8 b
1,1,2,2-Tetrachloroethane	210	<6.1	<79	<73	<6.2	<250	<6.4	<6.3	<5.6	<6.0	<5.9	<5.9	<13	<6.1 b
Tetrachloroethene (PCE)	2,100	8.6	10,000	12,000	460	24,000	17	420	220	14	140	140	1,400	490 b
Tetrahydrofuran	None	<2.6	<34	32	<2.7	<110	<2.7	<2.7	3.4	<2.6	<2.5	<2.5	<5.5	<2.6 b
Toluene	1,300,000	4.6	<43	<40	<3.4	<140	<3.5	<3.4	4.7	<3.3	<3.2	<3.2	<7.0	<3.3 b
1,2,4-Trichlorobenzene	8,800	<6.6	<85	<260	<6.7	<270	<6.9	<6.8	<20	<6.5	<6.3	<6.4	<14	<6.6 b
1,1,1-Trichloroethane (1,1,1-TCA)	4,400,000	<4.9	<63	<58	<4.9	<200	<5.1	<5.0	<4.4	<4.8	<4.7	<4.7	<10	<4.8 b
1,1,2-Trichloroethane (1,1,2-TCA)	770	<4.9	<63	<58	<4.9	<200	<5.1	<5.0	<4.4	<4.8	<4.7	<4.7	<10	<4.8 b
Trichloroethene (TCE)	3,000	<4.8	<62	94	<4.8	<200	<5.0	<4.9	<4.4	<4.7	8.7	13	33	<4.8 b
Trichlorofluoromethane (Freon 11)	None	<5.0	<64	<60	<5.1	<200	<5.2	<5.1	<4.6	<4.9	<4.8	<4.8	<10	<5.0 b
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	None	<6.8	<88	<82	<6.9	<280	<7.1	<7.0	<6.2	<6.7	<6.6	<6.6	<14	<6.8 b
1,2,4-Trimethylbenzene	None	<4.4	<56	<53	<4.4	<180	<4.6	<4.5	<4.0	<4.3	<4.2	<4.2	<9.1	<4.4 b
1,3,5-Trimethylbenzene	None	<4.4	<56	<53	<4.4	<180	<4.6	<4.5	<4.0	<4.3	<4.2	<4.2	<9.1	<4.4 b
Vinyl acetate	None	<3.1	<40	<38	<3.2	<130	<3.3	<3.2	<2.9	<3.1	<3.0	<3.0	<6.5	<3.1 b

Table 1. Summary of Sub-slab Soil Gas Analytical Results

Parameter	Commercial ESLs	Sub-Slab Soil Gas Sampling Results												
		SS-01	SS-01	SS-01	SS-01	SS-02	SS-03	SS-03	SS-03	SS-03	SS-04	SS-04	SS-04	SS-04
Sample Location ID	–	SS-01	SS-01	SS-01	SS-01	SS-02	SS-03	SS-03	SS-03	SS-03	SS-04	SS-04	SS-04	SS-04
Boring ID	–	IE-08	IE-08	IE-08	IE-08	IE-29	IE-11	IE-11	IE-11	IE-11	–	–	–	–
Sample Type	–	–	–	–	–	–	–	–	–	–	Primary	Duplicate	–	–
Sample Date	–	8/2/2013	11/18/2013	4/8/2014	4/15/2016	8/2/2013	8/2/2013	11/18/2013	4/8/2014	4/15/2016	10/8/2013	10/8/2013	10/21/2013	11/18/2013
Occurrence Within Excavation Timeline	–	Pre	Post	Post	Post	Pre	Pre	Post	Post	Post	Pre	Pre	During	Post
Vinyl chloride	160	<2.3	<29	98	<2.3	<93	<2.4	<2.3	<2.1	<2.2	<2.2	<2.2	<4.7	<2.3 b
o-Xylene	440,000	<3.9	<50	<46	<3.9	<160	<4.0	<4.0	<3.5	<3.8	<3.7	<3.7	<8.0	<3.8 b
m-,p-Xylene	440,000	<3.9	<50	<46	<3.9	<160	<4.0	<4.0	<3.5	<3.8	<3.7	<3.7	<8.0	<3.8 b

Table 1. Summary of Sub-slab Soil Gas Analytical Results

Parameter	Commercial ESLs		Soil Gas Sampling Results				
Sample Location ID	–	SS-04	SS-05	SS-05	SS-05	SS-05	SS-05
Boring ID	–	–	–	–	–	–	–
Sample Type	–	–	–	–	–	–	–
Sample Date	–	4/8/2014	10/8/2013	10/21/2013	11/18/2013	4/8/2014	4/15/2016
Occurrence Within Excavation Timeline	–	Post	Pre	During	Post	Post	Post
Acetone	140,000,000	9.5	<96	<420	18 b	<16	<8.5
Acrolein	None	<7.7	<92	<410	<7.9	<16	<8.2
Benzene	420	<2.7	<32	<140	<2.8	<5.5	<2.8
Benzyl chloride (alpha chlorotoluene)	None	<4.3	<52	<230	<4.5	<8.9	<4.6
Bromodichloromethane	330	<5.6	<68	<300	<5.8	<12	<6.0
Bromoform	11,000	<29	<100	<460	<8.9	<59	<9.2
Bromomethane (methyl bromide)	22,000	<3.2	<39	<170	<3.4	<6.7	<3.5
1,3-Butadiene	None	<1.8	<22	<98	<1.9	<3.8	<2.0
2-Butanone (methyl ethyl ketone)	22,000,000	<2.5	<30	<130	<2.6	<5.1	<2.6
Carbon disulfide	None	<2.6	<31	<140	<16	<5.4	<2.8
Carbon tetrachloride	290	<5.3	<63	<280	<5.4	<11	<5.6
Chlorobenzene	220,000	<3.8	<46	<200	<4.0	<7.9	<4.1
Chlorodibromomethane (dibromochloromethane)	None	<7.1	<86	<380	<7.4	<15	<7.6
Chloroethane (ethyl chloride)	44,000,000	<2.2	<27	<120	<2.3	<4.5	<2.3
Chloroform	530	<4.1	<49	<220	<4.2	<8.4	<4.3
Chloromethane (methyl chloride)	390,000	<1.7	<21	<91	<1.8	<3.6	<1.8
Cyclohexane	None	<2.9	<35	<150	<3.0	<5.9	<3.1
1,2-Dibromoethane (ethylene dibromide)	20	<6.4	<77	<340	<6.6	<13	<6.8
1,2-Dichlorobenzene	880,000	<5.0	<61	<270	<5.2	<10	<5.4
1,3-Dichlorobenzene	None	<5.0	<61	<270	<5.2	<10	<5.4
1,4-Dichlorobenzene	1,100	<5.0	<61	<270	<5.2	<10	<5.4
Dichlorodifluoromethane (Freon 12)	None	<4.1	<50	<220	<4.3	<8.5	<4.4
1,1-Dichloroethane (1,1-DCA)	7,700	<3.4	<41	<180	<3.5	<7.0	<3.6
1,2-Dichloroethane (1,2-DCA)	470	<3.4	<41	<180	<3.5	<7.0	<3.6
1,1-Dichloroethene (1,1-DCE)	310,000	<3.3	<40	<180	<3.4	<6.8	<3.5
cis-1,2-Dichloroethene (cis-1,2-DCE)	35,000	10	<40	<180	<3.4	<6.8	<3.5
trans-1,2-Dichloroethene (trans-1,2-DCE)	350,000	<3.3	<40	<180	<3.4	<6.8	<3.5
1,2-Dichloropropane	1,200	<3.9	<47	<200	<4.0	<7.9	<4.1

Table 1. Summary of Sub-slab Soil Gas Analytical Results

Parameter	Commercial ESLs		Soil Gas Sampling Results				
Sample Location ID	–	SS-04	SS-05	SS-05	SS-05	SS-05	SS-05
Boring ID	–	–	–	–	–	–	–
Sample Type	–	–	–	–	–	–	–
Sample Date	–	4/8/2014	10/8/2013	10/21/2013	11/18/2013	4/8/2014	4/15/2016
Occurrence Within Excavation Timeline	–	Post	Pre	During	Post	Post	Post
cis-1,3-Dichloropropene	None	<3.8	<46	<200	<3.9	<7.8	<4.0
trans-1,3-Dichloropropene	None	<3.8	<46	<200	<3.9	<7.8	<4.0
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	None	<5.8	<70	<310	<6.0	<12	<6.2
Ethyl acetate	None	9.9	<36	<160	<3.1	27	<3.2
Ethylbenzene	4,900	<3.6	<44	<190	<3.8	<7.5	<3.9
4-Ethyltoluene	None	<4.1	<50	<220	<4.3	<8.5	<4.4
Heptane	None	<3.4	<41	<180	<3.5	<7.0	<3.6
Hexachlorobutadiene	560	<8.9	<110	<470	<9.2	<18	<9.5
Hexane	None	<2.9	<36	<160	<3.0	<6.1	<3.1
2-Hexanone (methyl butyl ketone)	None	<3.4	<41	<180	<3.5	<7.0	<3.6
Methyl tert-butyl ether (MTBE)	47,000	<3.0	<36	<160	<3.1	<6.2	<3.2
Methylene chloride	12,000	<2.9	<35	<150	<3.0	<6.0	<3.1
4-Methyl-2-pentanone (methyl isobutyl ketone)	13,000,000	<3.4	<41	<180	<3.5	<7.0	<3.6
Naphthalene	360	<18	<210	<930	<18	<36	<19
Styrene	3,900,000	<3.6	<43	<190	<3.7	<7.3	<3.8
1,1,2,2-Tetrachloroethane	210	<5.7	<69	<300	<5.9	<12	<6.1
Tetrachloroethene (PCE)	2,100	250	8,200	39,000	790	1,700	65
Tetrahydrofuran	None	<2.5	<30	<130	16	<5.1	<2.6
Toluene	1,300,000	<3.1	<38	<170	<3.3	8.6	<3.4
1,2,4-Trichlorobenzene	8,800	<21	<75	<330	<6.4	<43	<6.6
1,1,1-Trichloroethane (1,1,1-TCA)	4,400,000	<4.6	<55	<240	<4.7	<9.4	<4.9
1,1,2-Trichloroethane (1,1,2-TCA)	770	<4.6	<55	<240	<4.7	<9.4	<4.9
Trichloroethene (TCE)	3,000	<4.5	<54	<240	<4.6	<9.2	<4.8
Trichlorofluoromethane (Freon 11)	None	<4.7	<57	<250	<4.9	<9.7	<5.0
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	None	<6.4	<77	<340	<6.6	<13	<6.8
1,2,4-Trimethylbenzene	None	<4.1	<50	<220	<4.3	<8.5	<4.4
1,3,5-Trimethylbenzene	None	<4.1	<50	<220	<4.3	<8.5	<4.4
Vinyl acetate	None	<2.9	<35	<160	<3.0	<6.1	<3.1

Table 1. Summary of Sub-slab Soil Gas Analytical Results

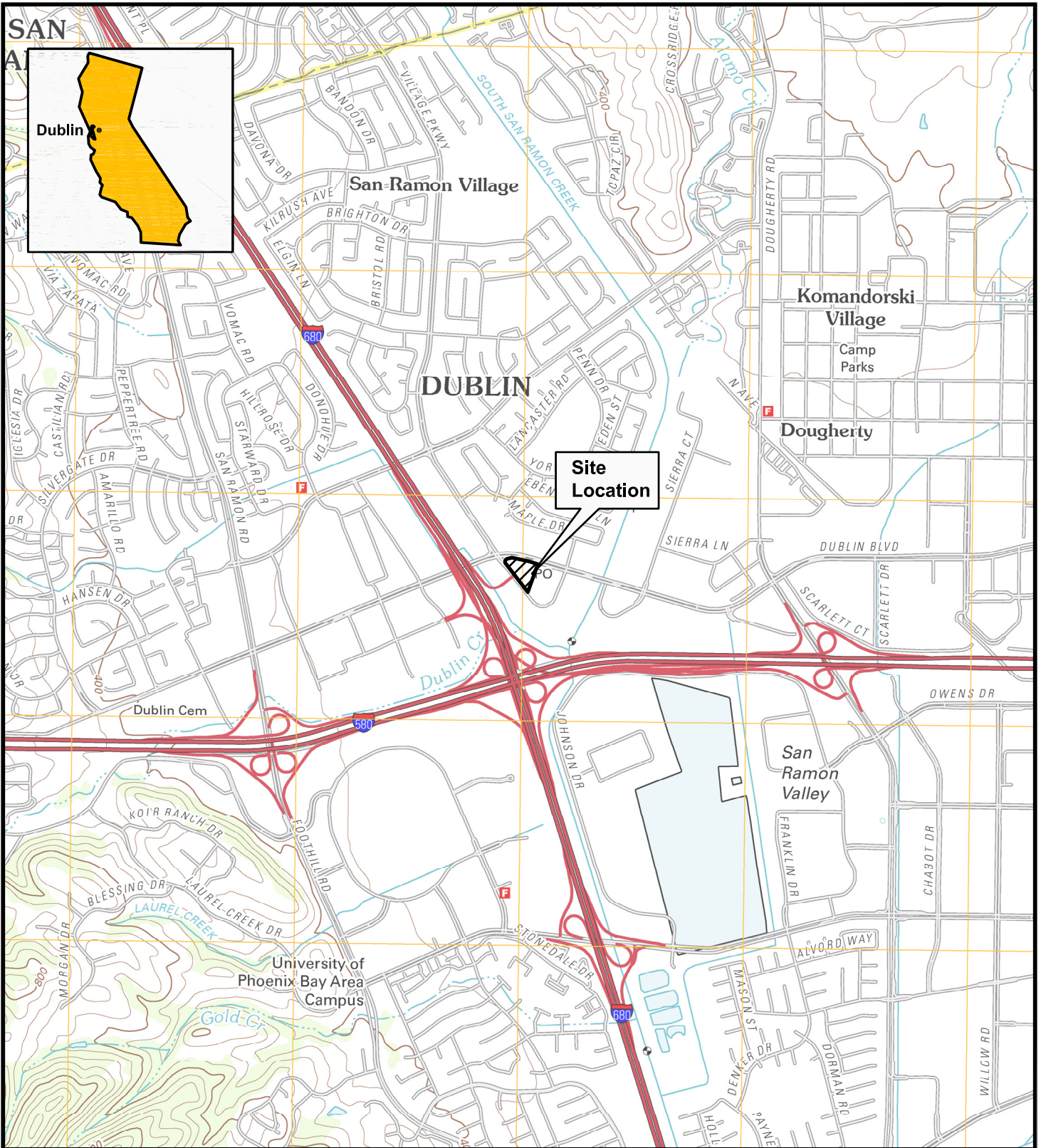
Parameter	Commercial ESLs		Soil Gas Sampling Results				
		SS-04	SS-05	SS-05	SS-05	SS-05	SS-05
Sample Location ID	-	SS-04	SS-05	SS-05	SS-05	SS-05	SS-05
Boring ID	-	-	-	-	-	-	-
Sample Type	-	-	-	-	-	-	-
Sample Date	-	4/8/2014	10/8/2013	10/21/2013	11/18/2013	4/8/2014	4/15/2016
Occurrence Within Excavation Timeline	-	Post	Pre	During	Post	Post	Post
Vinyl chloride	160	<2.1	<26	<110	<2.2	<4.4	<2.3
o-Xylene	440,000	<3.6	<44	<190	<3.8	<7.5	<3.9
m-,p-Xylene	440,000	<3.6	<44	<190	<3.8	<7.5	<3.9

Table 1. Summary of Sub-slab Soil Gas Analytical Results

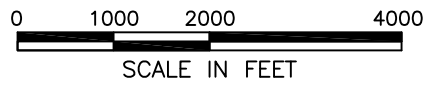
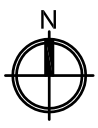
Notes:

- (1) Sub-slab soil gas sampling results are compared to San Francisco Bay Regional Water Quality Control Board (SFRWQCB) Tier 1 and Commercial Environmental Screening Levels (ESLs) for sub-slab soil gas (Cal/EPA 2016). Tier 1 ESLs are conservative values protective of both human health risks and odor nuisance concerns from vapor intrusion under residential land use scenarios. Commercial ESLs are conservative values protective of both human health risks and odor nuisance concerns from vapor intrusion under commercial/industrial land use scenarios.
- (2) Concentrations reported in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).
- (3) SS-02 was destroyed during soil excavation and removal in 2013. Results are presented in *Gray Font*.
- (4) SS-04 was destroyed in April 2016 during renovation of unit 7106. Soils remain in place.
- (5) Results that are reported as non-detect by the lab are presented with a less than sign (" $<$ ") followed by the laboratory reporting limit.
- (6) **Bold** font indicates a detection above the Tier 1 ESL.
- (7) ***Bold Italic*** font indicates a detection above the Commercial ESL.
- (8) Elevated reporting limits were observed above the ESL in some samples due to significant concentrations of PCE in the analyzed sample; these samples required dilution to evaluate the concentration of PCE, which resulted in subsequent elevated reporting limits for other analyzed compounds.

Figures



Source: USGS 7.5' Quadrangle, Dublin, California, 2012



SCALE IN FEET

RPS Iris Environmental
 1438 Webster Street, Suite 302, Oakland, California 94612
 T +1 510 834-4747 F +1 510 834-4199 W www.rpsgroup.com | www.irisenv.com

Site Location Map
 7100 - 7120 Dublin Boulevard
 Dublin, California

Figure
1

Drafter: EC

Date: 04/22/16

Contract Number: 13-945E

I:\CAD\13113-945-E\Site Location.dwg



EXPLANATION:

--- Approximate Site boundary

▲ Subslab soil gas probe

△ Former soil gas probe

Former Dry Cleaning Machines

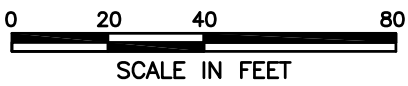
□ Approximate location of former PCE dry cleaning machine based on Appendix E of the Phase I report (Basics Environmental, 2012)

▨ Approximate location of former petroleum-based dry cleaning machine

□ Approximate location of former PCE-based dry cleaning machine

■ Approximate excavation limits

Notes: Sub-slab soil gas sampling probe at SS-02 destroyed during excavation in 2013. Sub-slab soil gas sampling probe SS-04 destroyed during renovation in 2016.



R:\CAD\1313-945E\Site plan.dwg

Attachment A

Certified Analytical Report



Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878





Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

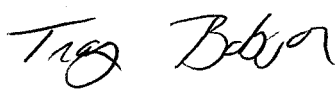
Laboratory Job Number 276074
ANALYTICAL REPORT

Iris Environmental
1438 Webster Street
Oakland, CA 94612

Project : 13-945E
Location : Park Ave. Cleaners
Level : II

<u>Sample ID</u>	<u>Lab ID</u>
SS-01_041516	276074-001
SS-03_041516	276074-002
SS-05_041516	276074-003

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: 
Tracy Babjar
Project Manager
tracy.babjar@ctberk.com
(510) 204-2226

Date: 04/18/2016

CASE NARRATIVE

Laboratory number: 276074
Client: Iris Environmental
Project: 13-945E
Location: Park Ave. Cleaners
Request Date: 04/15/16
Samples Received: 04/15/16

This data package contains sample and QC results for three air samples, requested for the above referenced project on 04/15/16. The samples were received intact.

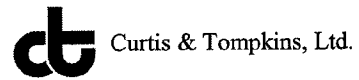
Volatile Organics in Air by MS (EPA TO-15):

High responses were observed for carbon tetrachloride and hexachlorobutadiene in the CCV analyzed 04/16/16 15:29; affected data was qualified with "b". High recoveries were observed for many analytes in the BS/BSD for batch 234160; the associated RPDs were within limits, and these analytes were not detected at or above the RL in the associated samples. No other analytical problems were encountered.

Volatile Organics in Air GC (ASTM D1946):

No analytical problems were encountered.

COOLER RECEIPT CHECKLIST



Login # 276074 Date Received 4/15/16 Number of coolers 0
Client FRS Project Park Ave Cleaners
Date Opened 4/15/16 By (print) AA1 (sign) [Signature]
Date Logged in [Signature] By (print) [Signature] (sign) [Signature]

- 1. Did cooler come with a shipping slip (airbill, etc) YES NO
Shipping info
2A. Were custody seals present? ... YES (circle) on cooler on samples NO
How many Name Date
2B. Were custody seals intact upon arrival? YES NO N/A
3. Were custody papers dry and intact when received? YES NO
4. Were custody papers filled out properly (ink, signed, etc)? YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO
6. Indicate the packing in cooler: (if other, describe)
Bubble Wrap Foam blocks Bags None
Cloth material Cardboard Styrofoam Paper towels
7. Temperature documentation: * Notify PM if temperature exceeds 6°C
Type of ice used: Wet Blue/Gel None Temp(°C)
Samples Received on ice & cold without a temperature blank
Samples received on ice directly from the field. Cooling process had begun
8. Were Method 5035 sampling containers present? YES NO
If YES, what time were they transferred to freezer?
9. Did all bottles arrive unbroken/unopened? YES NO
10. Are there any missing / extra samples? YES NO
11. Are samples in the appropriate containers for indicated tests? YES NO
12. Are sample labels present, in good condition and complete? YES NO
13. Do the sample labels agree with custody papers? YES NO
14. Was sufficient amount of sample sent for tests requested? YES NO
15. Are the samples appropriately preserved? YES NO N/A
16. Did you check preservatives for all bottles for each sample? YES NO N/A
17. Did you document your preservative check? YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A
19. Did you change the hold time in LIMS for preserved terracores? YES NO N/A
20. Are bubbles > 6mm absent in VOA samples? YES NO N/A
21. Was the client contacted concerning this sample delivery? YES NO
If YES, Who was called? By Date:

COMMENTS

[Blank lines for comments]

Detections Summary for 276074

Results for any subcontracted analyses are not included in this summary.

Client : Iris Environmental
 Project : 13-945E
 Location : Park Ave. Cleaners

Client Sample ID : SS-01_041516 Laboratory Sample ID : 276074-001

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
cis-1,2-Dichloroethene	0.96		0.90	ppbv	As Recd	1.800	EPA TO-15	METHOD
Tetrachloroethene	68		0.90	ppbv	As Recd	1.800	EPA TO-15	METHOD
Oxygen	180,000		1,800	ppmv	As Recd	1.800	ASTM D1946	METHOD

Client Sample ID : SS-03_041516 Laboratory Sample ID : 276074-002

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Tetrachloroethene	2.1		0.88	ppbv	As Recd	1.750	EPA TO-15	METHOD
Carbon Dioxide	13,000		1,800	ppmv	As Recd	1.750	ASTM D1946	METHOD
Oxygen	170,000		1,800	ppmv	As Recd	1.750	ASTM D1946	METHOD

Client Sample ID : SS-05_041516 Laboratory Sample ID : 276074-003

Analyte	Result	Flags	RL	Units	Basis	IDF	Method	Prep Method
Tetrachloroethene	9.5		0.89	ppbv	As Recd	1.780	EPA TO-15	METHOD
Oxygen	180,000		1,800	ppmv	As Recd	1.780	ASTM D1946	METHOD

Volatile Organics in Air

Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	EPA TO-15
Field ID:	SS-01_041516	Diln Fac:	1.800
Lab ID:	276074-001	Batch#:	234160
Matrix:	Air	Sampled:	04/15/16
Units (V):	ppbv	Received:	04/15/16
Units (M):	ug/m3	Analyzed:	04/16/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.90	ND	4.5
Freon 114	ND	0.90	ND	6.3
Chloromethane	ND	0.90	ND	1.9
Vinyl Chloride	ND	0.90	ND	2.3
1,3-Butadiene	ND	0.90	ND	2.0
Bromomethane	ND	0.90	ND	3.5
Chloroethane	ND	0.90	ND	2.4
Trichlorofluoromethane	ND	0.90	ND	5.1
Acrolein	ND	3.6	ND	8.3
1,1-Dichloroethene	ND	0.90	ND	3.6
Freon 113	ND	0.90	ND	6.9
Acetone	ND	3.6	ND	8.6
Carbon Disulfide	ND	0.90	ND	2.8
Methylene Chloride	ND	0.90	ND	3.1
trans-1,2-Dichloroethene	ND	0.90	ND	3.6
MTBE	ND	0.90	ND	3.2
n-Hexane	ND	0.90	ND	3.2
1,1-Dichloroethane	ND	0.90	ND	3.6
Vinyl Acetate	ND	0.90	ND	3.2
cis-1,2-Dichloroethene	0.96	0.90	3.8	3.6
2-Butanone	ND	0.90	ND	2.7
Ethyl Acetate	ND	0.90	ND	3.2
Tetrahydrofuran	ND	0.90	ND	2.7
Chloroform	ND	0.90	ND	4.4
1,1,1-Trichloroethane	ND	0.90	ND	4.9
Cyclohexane	ND	0.90	ND	3.1
Carbon Tetrachloride	ND	0.90	ND	5.7
Benzene	ND	0.90	ND	2.9
1,2-Dichloroethane	ND	0.90	ND	3.6
n-Heptane	ND	0.90	ND	3.7
Trichloroethene	ND	0.90	ND	4.8
1,2-Dichloropropane	ND	0.90	ND	4.2
Bromodichloromethane	ND	0.90	ND	6.0
cis-1,3-Dichloropropene	ND	0.90	ND	4.1
4-Methyl-2-Pentanone	ND	0.90	ND	3.7

ND= Not Detected

RL= Reporting Limit

Result M= Result in mass units

Result V= Result in volume units

Volatile Organics in Air

Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	EPA TO-15
Field ID:	SS-01_041516	Diln Fac:	1.800
Lab ID:	276074-001	Batch#:	234160
Matrix:	Air	Sampled:	04/15/16
Units (V):	ppbv	Received:	04/15/16
Units (M):	ug/m3	Analyzed:	04/16/16

Analyte	Result (V)	RL	Result (M)	RL
Toluene	ND	0.90	ND	3.4
trans-1,3-Dichloropropene	ND	0.90	ND	4.1
1,1,2-Trichloroethane	ND	0.90	ND	4.9
Tetrachloroethene	68	0.90	460	6.1
2-Hexanone	ND	0.90	ND	3.7
Dibromochloromethane	ND	0.90	ND	7.7
1,2-Dibromoethane	ND	0.90	ND	6.9
Chlorobenzene	ND	0.90	ND	4.1
Ethylbenzene	ND	0.90	ND	3.9
m,p-Xylenes	ND	0.90	ND	3.9
o-Xylene	ND	0.90	ND	3.9
Styrene	ND	0.90	ND	3.8
Bromoform	ND	0.90	ND	9.3
1,1,2,2-Tetrachloroethane	ND	0.90	ND	6.2
4-Ethyltoluene	ND	0.90	ND	4.4
1,3,5-Trimethylbenzene	ND	0.90	ND	4.4
1,2,4-Trimethylbenzene	ND	0.90	ND	4.4
1,3-Dichlorobenzene	ND	0.90	ND	5.4
1,4-Dichlorobenzene	ND	0.90	ND	5.4
Benzyl chloride	ND	0.90	ND	4.7
1,2-Dichlorobenzene	ND	0.90	ND	5.4
1,2,4-Trichlorobenzene	ND	0.90	ND	6.7
Hexachlorobutadiene	ND	0.90	ND	9.6
Naphthalene	ND	3.6	ND	19

Surrogate	%REC	Limits
Bromofluorobenzene	99	80-121

ND= Not Detected

RL= Reporting Limit

Result M= Result in mass units

Result V= Result in volume units

Volatile Organics in Air

Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	EPA TO-15
Field ID:	SS-03_041516	Diln Fac:	1.750
Lab ID:	276074-002	Batch#:	234160
Matrix:	Air	Sampled:	04/15/16
Units (V):	ppbv	Received:	04/15/16
Units (M):	ug/m3	Analyzed:	04/16/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.88	ND	4.3
Freon 114	ND	0.88	ND	6.1
Chloromethane	ND	0.88	ND	1.8
Vinyl Chloride	ND	0.88	ND	2.2
1,3-Butadiene	ND	0.88	ND	1.9
Bromomethane	ND	0.88	ND	3.4
Chloroethane	ND	0.88	ND	2.3
Trichlorofluoromethane	ND	0.88	ND	4.9
Acrolein	ND	3.5	ND	8.0
1,1-Dichloroethene	ND	0.88	ND	3.5
Freon 113	ND	0.88	ND	6.7
Acetone	ND	3.5	ND	8.3
Carbon Disulfide	ND	0.88	ND	2.7
Methylene Chloride	ND	0.88	ND	3.0
trans-1,2-Dichloroethene	ND	0.88	ND	3.5
MTBE	ND	0.88	ND	3.2
n-Hexane	ND	0.88	ND	3.1
1,1-Dichloroethane	ND	0.88	ND	3.5
Vinyl Acetate	ND	0.88	ND	3.1
cis-1,2-Dichloroethene	ND	0.88	ND	3.5
2-Butanone	ND	0.88	ND	2.6
Ethyl Acetate	ND	0.88	ND	3.2
Tetrahydrofuran	ND	0.88	ND	2.6
Chloroform	ND	0.88	ND	4.3
1,1,1-Trichloroethane	ND	0.88	ND	4.8
Cyclohexane	ND	0.88	ND	3.0
Carbon Tetrachloride	ND	0.88	ND	5.5
Benzene	ND	0.88	ND	2.8
1,2-Dichloroethane	ND	0.88	ND	3.5
n-Heptane	ND	0.88	ND	3.6
Trichloroethene	ND	0.88	ND	4.7
1,2-Dichloropropane	ND	0.88	ND	4.0
Bromodichloromethane	ND	0.88	ND	5.9
cis-1,3-Dichloropropene	ND	0.88	ND	4.0
4-Methyl-2-Pentanone	ND	0.88	ND	3.6

ND= Not Detected

RL= Reporting Limit

Result M= Result in mass units

Result V= Result in volume units

Volatile Organics in Air

Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	EPA TO-15
Field ID:	SS-03_041516	Diln Fac:	1.750
Lab ID:	276074-002	Batch#:	234160
Matrix:	Air	Sampled:	04/15/16
Units (V):	ppbv	Received:	04/15/16
Units (M):	ug/m3	Analyzed:	04/16/16

Analyte	Result (V)	RL	Result (M)	RL
Toluene	ND	0.88	ND	3.3
trans-1,3-Dichloropropene	ND	0.88	ND	4.0
1,1,2-Trichloroethane	ND	0.88	ND	4.8
Tetrachloroethene	2.1	0.88	14	5.9
2-Hexanone	ND	0.88	ND	3.6
Dibromochloromethane	ND	0.88	ND	7.5
1,2-Dibromoethane	ND	0.88	ND	6.7
Chlorobenzene	ND	0.88	ND	4.0
Ethylbenzene	ND	0.88	ND	3.8
m,p-Xylenes	ND	0.88	ND	3.8
o-Xylene	ND	0.88	ND	3.8
Styrene	ND	0.88	ND	3.7
Bromoform	ND	0.88	ND	9.0
1,1,2,2-Tetrachloroethane	ND	0.88	ND	6.0
4-Ethyltoluene	ND	0.88	ND	4.3
1,3,5-Trimethylbenzene	ND	0.88	ND	4.3
1,2,4-Trimethylbenzene	ND	0.88	ND	4.3
1,3-Dichlorobenzene	ND	0.88	ND	5.3
1,4-Dichlorobenzene	ND	0.88	ND	5.3
Benzyl chloride	ND	0.88	ND	4.5
1,2-Dichlorobenzene	ND	0.88	ND	5.3
1,2,4-Trichlorobenzene	ND	0.88	ND	6.5
Hexachlorobutadiene	ND	0.88	ND	9.3
Naphthalene	ND	3.5	ND	18

Surrogate	%REC	Limits
Bromofluorobenzene	97	80-121

ND= Not Detected

RL= Reporting Limit

Result M= Result in mass units

Result V= Result in volume units

Volatile Organics in Air

Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	EPA TO-15
Field ID:	SS-05_041516	Diln Fac:	1.780
Lab ID:	276074-003	Batch#:	234160
Matrix:	Air	Sampled:	04/15/16
Units (V):	ppbv	Received:	04/15/16
Units (M):	ug/m3	Analyzed:	04/16/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.89	ND	4.4
Freon 114	ND	0.89	ND	6.2
Chloromethane	ND	0.89	ND	1.8
Vinyl Chloride	ND	0.89	ND	2.3
1,3-Butadiene	ND	0.89	ND	2.0
Bromomethane	ND	0.89	ND	3.5
Chloroethane	ND	0.89	ND	2.3
Trichlorofluoromethane	ND	0.89	ND	5.0
Acrolein	ND	3.6	ND	8.2
1,1-Dichloroethene	ND	0.89	ND	3.5
Freon 113	ND	0.89	ND	6.8
Acetone	ND	3.6	ND	8.5
Carbon Disulfide	ND	0.89	ND	2.8
Methylene Chloride	ND	0.89	ND	3.1
trans-1,2-Dichloroethene	ND	0.89	ND	3.5
MTBE	ND	0.89	ND	3.2
n-Hexane	ND	0.89	ND	3.1
1,1-Dichloroethane	ND	0.89	ND	3.6
Vinyl Acetate	ND	0.89	ND	3.1
cis-1,2-Dichloroethene	ND	0.89	ND	3.5
2-Butanone	ND	0.89	ND	2.6
Ethyl Acetate	ND	0.89	ND	3.2
Tetrahydrofuran	ND	0.89	ND	2.6
Chloroform	ND	0.89	ND	4.3
1,1,1-Trichloroethane	ND	0.89	ND	4.9
Cyclohexane	ND	0.89	ND	3.1
Carbon Tetrachloride	ND	0.89	ND	5.6
Benzene	ND	0.89	ND	2.8
1,2-Dichloroethane	ND	0.89	ND	3.6
n-Heptane	ND	0.89	ND	3.6
Trichloroethene	ND	0.89	ND	4.8
1,2-Dichloropropane	ND	0.89	ND	4.1
Bromodichloromethane	ND	0.89	ND	6.0
cis-1,3-Dichloropropene	ND	0.89	ND	4.0
4-Methyl-2-Pentanone	ND	0.89	ND	3.6

ND= Not Detected

RL= Reporting Limit

Result M= Result in mass units

Result V= Result in volume units

Volatile Organics in Air

Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	EPA TO-15
Field ID:	SS-05_041516	Diln Fac:	1.780
Lab ID:	276074-003	Batch#:	234160
Matrix:	Air	Sampled:	04/15/16
Units (V):	ppbv	Received:	04/15/16
Units (M):	ug/m3	Analyzed:	04/16/16

Analyte	Result (V)	RL	Result (M)	RL
Toluene	ND	0.89	ND	3.4
trans-1,3-Dichloropropene	ND	0.89	ND	4.0
1,1,2-Trichloroethane	ND	0.89	ND	4.9
Tetrachloroethene	9.5	0.89	65	6.0
2-Hexanone	ND	0.89	ND	3.6
Dibromochloromethane	ND	0.89	ND	7.6
1,2-Dibromoethane	ND	0.89	ND	6.8
Chlorobenzene	ND	0.89	ND	4.1
Ethylbenzene	ND	0.89	ND	3.9
m,p-Xylenes	ND	0.89	ND	3.9
o-Xylene	ND	0.89	ND	3.9
Styrene	ND	0.89	ND	3.8
Bromoform	ND	0.89	ND	9.2
1,1,2,2-Tetrachloroethane	ND	0.89	ND	6.1
4-Ethyltoluene	ND	0.89	ND	4.4
1,3,5-Trimethylbenzene	ND	0.89	ND	4.4
1,2,4-Trimethylbenzene	ND	0.89	ND	4.4
1,3-Dichlorobenzene	ND	0.89	ND	5.4
1,4-Dichlorobenzene	ND	0.89	ND	5.4
Benzyl chloride	ND	0.89	ND	4.6
1,2-Dichlorobenzene	ND	0.89	ND	5.4
1,2,4-Trichlorobenzene	ND	0.89	ND	6.6
Hexachlorobutadiene	ND	0.89	ND	9.5
Naphthalene	ND	3.6	ND	19

Surrogate	%REC	Limits
Bromofluorobenzene	97	80-121

ND= Not Detected

RL= Reporting Limit

Result M= Result in mass units

Result V= Result in volume units

Batch QC Report

Volatile Organics in Air			
Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	234160
Units (V):	ppbv	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits
Bromodichloromethane	5.000	5.286	106	70-130
cis-1,3-Dichloropropene	5.000	5.568	111	70-130
4-Methyl-2-Pentanone	5.000	5.793	116	70-130
Toluene	5.000	5.357	107	70-130
trans-1,3-Dichloropropene	5.000	5.939	119	70-130
1,1,2-Trichloroethane	5.000	5.873	117	70-130
Tetrachloroethene	5.000	5.690	114	70-130
2-Hexanone	5.000	5.505	110	70-130
Dibromochloromethane	5.000	5.595	112	70-130
1,2-Dibromoethane	5.000	5.510	110	70-130
Chlorobenzene	5.000	5.370	107	70-130
Ethylbenzene	5.000	5.434	109	70-130
m,p-Xylenes	10.000	11.60	116	70-130
o-Xylene	5.000	5.834	117	70-130
Styrene	5.000	5.844	117	70-130
Bromoform	5.000	6.260	125	70-130
1,1,2,2-Tetrachloroethane	5.000	5.595	112	70-130
4-Ethyltoluene	5.000	6.115	122	70-130
1,3,5-Trimethylbenzene	5.000	5.927	119	70-130
1,2,4-Trimethylbenzene	5.000	5.986	120	70-130
1,3-Dichlorobenzene	5.000	6.090	122	70-130
1,4-Dichlorobenzene	5.000	6.313	126	70-130
Benzyl chloride	5.000	5.697	114	70-130
1,2-Dichlorobenzene	5.000	5.990	120	70-130
1,2,4-Trichlorobenzene	5.000	6.362	127	70-130
Hexachlorobutadiene	5.000	8.385 b	168 *	70-130
Naphthalene	5.000	6.309	126	70-130

Surrogate	%REC	Limits
Bromofluorobenzene	101	70-130

*= Value outside of QC limits; see narrative

b= See narrative

RPD= Relative Percent Difference

Result V= Result in volume units

Batch QC Report

Volatile Organics in Air			
Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	234160
Units (V):	ppbv	Analyzed:	04/16/16
Diln Fac:	1.000		

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
Bromodichloromethane	5.000	5.477	110	70-130	4	25
cis-1,3-Dichloropropene	5.000	5.594	112	70-130	0	25
4-Methyl-2-Pentanone	5.000	5.653	113	70-130	2	25
Toluene	5.000	5.562	111	70-130	4	25
trans-1,3-Dichloropropene	5.000	6.074	121	70-130	2	25
1,1,2-Trichloroethane	5.000	6.192	124	70-130	5	25
Tetrachloroethene	5.000	5.913	118	70-130	4	25
2-Hexanone	5.000	5.801	116	70-130	5	25
Dibromochloromethane	5.000	6.001	120	70-130	7	25
1,2-Dibromoethane	5.000	5.705	114	70-130	3	25
Chlorobenzene	5.000	5.363	107	70-130	0	25
Ethylbenzene	5.000	5.542	111	70-130	2	25
m,p-Xylenes	10.000	12.20	122	70-130	5	25
o-Xylene	5.000	6.234	125	70-130	7	25
Styrene	5.000	6.376	128	70-130	9	25
Bromoform	5.000	6.446	129	70-130	3	25
1,1,2,2-Tetrachloroethane	5.000	5.693	114	70-130	2	25
4-Ethyltoluene	5.000	7.268	145 *	70-130	17	25
1,3,5-Trimethylbenzene	5.000	6.832	137 *	70-130	14	25
1,2,4-Trimethylbenzene	5.000	6.941	139 *	70-130	15	25
1,3-Dichlorobenzene	5.000	6.762	135 *	70-130	10	25
1,4-Dichlorobenzene	5.000	7.139	143 *	70-130	12	25
Benzyl chloride	5.000	5.946	119	70-130	4	25
1,2-Dichlorobenzene	5.000	6.856	137 *	70-130	13	25
1,2,4-Trichlorobenzene	5.000	7.184	144 *	70-130	12	25
Hexachlorobutadiene	5.000	9.753 b	195 *	70-130	15	25
Naphthalene	5.000	7.177	144 *	70-130	13	25

Surrogate	%REC	Limits
Bromofluorobenzene	97	70-130

*= Value outside of QC limits; see narrative

b= See narrative

RPD= Relative Percent Difference

Result V= Result in volume units

Batch QC Report

Volatile Organics in Air			
Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC831825	Diln Fac:	1.000
Matrix:	Air	Batch#:	234160
Units (V):	ppbv	Analyzed:	04/16/16

Analyte	Result (V)	RL	Result (M)	RL
Freon 12	ND	0.50	ND	2.5
Freon 114	ND	0.50	ND	3.5
Chloromethane	ND	0.50	ND	1.0
Vinyl Chloride	ND	0.50	ND	1.3
1,3-Butadiene	ND	0.50	ND	1.1
Bromomethane	ND	0.50	ND	1.9
Chloroethane	ND	0.50	ND	1.3
Trichlorofluoromethane	ND	0.50	ND	2.8
Acrolein	ND	2.0	ND	4.6
1,1-Dichloroethene	ND	0.50	ND	2.0
Freon 113	ND	0.50	ND	3.8
Acetone	ND	2.0	ND	4.8
Carbon Disulfide	ND	0.50	ND	1.6
Methylene Chloride	ND	0.50	ND	1.7
trans-1,2-Dichloroethene	ND	0.50	ND	2.0
MTBE	ND	0.50	ND	1.8
n-Hexane	ND	0.50	ND	1.8
1,1-Dichloroethane	ND	0.50	ND	2.0
Vinyl Acetate	ND	0.50	ND	1.8
cis-1,2-Dichloroethene	ND	0.50	ND	2.0
2-Butanone	ND	0.50	ND	1.5
Ethyl Acetate	ND	0.50	ND	1.8
Tetrahydrofuran	ND	0.50	ND	1.5
Chloroform	ND	0.50	ND	2.4
1,1,1-Trichloroethane	ND	0.50	ND	2.7
Cyclohexane	ND	0.50	ND	1.7
Carbon Tetrachloride	ND	0.50	ND	3.1
Benzene	ND	0.50	ND	1.6
1,2-Dichloroethane	ND	0.50	ND	2.0
n-Heptane	ND	0.50	ND	2.0
Trichloroethene	ND	0.50	ND	2.7
1,2-Dichloropropane	ND	0.50	ND	2.3
Bromodichloromethane	ND	0.50	ND	3.4
cis-1,3-Dichloropropene	ND	0.50	ND	2.3
4-Methyl-2-Pentanone	ND	0.50	ND	2.0

ND= Not Detected

RL= Reporting Limit

Result M= Result in mass units

Result V= Result in volume units

Batch QC Report

Volatile Organics in Air			
Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC831825	Diln Fac:	1.000
Matrix:	Air	Batch#:	234160
Units (V):	ppbv	Analyzed:	04/16/16

Analyte	Result (V)	RL	Result (M)	RL
Toluene	ND	0.50	ND	1.9
trans-1,3-Dichloropropene	ND	0.50	ND	2.3
1,1,2-Trichloroethane	ND	0.50	ND	2.7
Tetrachloroethene	ND	0.50	ND	3.4
2-Hexanone	ND	0.50	ND	2.0
Dibromochloromethane	ND	0.50	ND	4.3
1,2-Dibromoethane	ND	0.50	ND	3.8
Chlorobenzene	ND	0.50	ND	2.3
Ethylbenzene	ND	0.50	ND	2.2
m,p-Xylenes	ND	0.50	ND	2.2
o-Xylene	ND	0.50	ND	2.2
Styrene	ND	0.50	ND	2.1
Bromoform	ND	0.50	ND	5.2
1,1,2,2-Tetrachloroethane	ND	0.50	ND	3.4
4-Ethyltoluene	ND	0.50	ND	2.5
1,3,5-Trimethylbenzene	ND	0.50	ND	2.5
1,2,4-Trimethylbenzene	ND	0.50	ND	2.5
1,3-Dichlorobenzene	ND	0.50	ND	3.0
1,4-Dichlorobenzene	ND	0.50	ND	3.0
Benzyl chloride	ND	0.50	ND	2.6
1,2-Dichlorobenzene	ND	0.50	ND	3.0
1,2,4-Trichlorobenzene	ND	0.50	ND	3.7
Hexachlorobutadiene	ND	0.50	ND	5.3
Naphthalene	ND	2.0	ND	10

Surrogate	%REC	Limits
Bromofluorobenzene	90	70-130

ND= Not Detected

RL= Reporting Limit

Result M= Result in mass units

Result V= Result in volume units

Fixed Gas Analysis			
Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	ASTM D1946
Matrix:	Air	Sampled:	04/15/16
Units:	ppmv	Received:	04/15/16
Units (Mol %):	MOL %	Analyzed:	04/15/16
Batch#:	234147		

Field ID: SS-01_041516
Type: SAMPLE

Lab ID: 276074-001
Diln Fac: 1.800

Analyte	Result	RL	Result (Mol %)	RL
Helium	ND	1,800	ND	0.18
Carbon Monoxide	ND	1,800	ND	0.18
Carbon Dioxide	ND	1,800	ND	0.18
Oxygen	180,000	1,800	18	0.18

Field ID: SS-03_041516
Type: SAMPLE

Lab ID: 276074-002
Diln Fac: 1.750

Analyte	Result	RL	Result (Mol %)	RL
Helium	ND	1,800	ND	0.18
Carbon Monoxide	ND	1,800	ND	0.18
Carbon Dioxide	13,000	1,800	1.3	0.18
Oxygen	170,000	1,800	17	0.18

Field ID: SS-05_041516
Type: SAMPLE

Lab ID: 276074-003
Diln Fac: 1.780

Analyte	Result	RL	Result (Mol %)	RL
Helium	ND	1,800	ND	0.18
Carbon Monoxide	ND	1,800	ND	0.18
Carbon Dioxide	ND	1,800	ND	0.18
Oxygen	180,000	1,800	18	0.18

Type: BLANK
Lab ID: QC831780

Diln Fac: 1.000

Analyte	Result	RL	Result (Mol %)	RL
Helium	ND	1,000	ND	0.10
Carbon Monoxide	ND	1,000	ND	0.10
Carbon Dioxide	ND	1,000	ND	0.10
Oxygen	ND	1,000	ND	0.10

ND= Not Detected
RL= Reporting Limit

Result Mol %= Result in Mole Percent

Batch QC Report

Fixed Gas Analysis			
Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	ASTM D1946
Matrix:	Air	Batch#:	234147
Units:	ppmv	Analyzed:	04/15/16
Diln Fac:	1.000		

Type: BS Lab ID: QC831777

Analyte	Spiked	Result	%REC	Limits
Helium	100,000	95,580	96	70-130
Carbon Monoxide		NA		
Carbon Dioxide		NA		
Oxygen		NA		

Type: BSD Lab ID: QC831778

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Helium	100,000	95,550	96	70-130	0	20
Carbon Monoxide		NA				
Carbon Dioxide		NA				
Oxygen		NA				

NA= Not Analyzed

RPD= Relative Percent Difference

Batch QC Report

Fixed Gas Analysis			
Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	ASTM D1946
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC831779	Batch#:	234147
Matrix:	Air	Analyzed:	04/15/16
Units:	ppmv		

Analyte	Spiked	Result	%REC	Limits
Helium		NA		
Carbon Monoxide	2,000	2,004	100	70-130
Carbon Dioxide	2,000	2,039	102	70-130
Oxygen	2,000	1,812	91	70-130

NA= Not Analyzed

Batch QC Report

Fixed Gas Analysis			
Lab #:	276074	Location:	Park Ave. Cleaners
Client:	Iris Environmental	Prep:	METHOD
Project#:	13-945E	Analysis:	ASTM D1946
Field ID:	SS-01_041516	Units (Mol %):	MOL %
Type:	SDUP	Diln Fac:	1.800
MSS Lab ID:	276074-001	Batch#:	234147
Lab ID:	QC831795	Sampled:	04/15/16
Matrix:	Air	Received:	04/15/16
Units:	ppmv	Analyzed:	04/15/16

Analyte	MSS Result	Result	RL	Result (Mol %)	RL	RPD	Lim
Helium	<1,800	ND	1,800	ND	0.1800	NC	30
Carbon Monoxide	<1,800	ND	1,800	ND	0.1800	NC	30
Carbon Dioxide	<1,800	ND	1,800	ND	0.1800	NC	30
Oxygen	181,100	180,900	1,800	18.09	0.1800	0	30

NC= Not Calculated

ND= Not Detected

RL= Reporting Limit

RPD= Relative Percent Difference

Result Mol %= Result in Mole Percent

Appendix B

Soil Gas Sampling Logs

SOIL GAS SAMPLING LOG

GENERAL			
SITE NAME/ADDRESS <i>Park Avenue Cleaners</i>	SAMPLING DATE <i>4/15/16</i>	FIELD CONDITIONS	
PROJECT NO. <i>13-945E</i>		NO RAINFALL LAST 5 DAYS <input checked="" type="checkbox"/> T <input checked="" type="checkbox"/> F	
BORING ID <i>SS-01</i>		NO STANDING WATER <input checked="" type="checkbox"/> <input type="checkbox"/>	
NOTES <i>open trenching in slab ~ 8ft south of probe</i>		NO WEATHER FRONT <input checked="" type="checkbox"/> <input type="checkbox"/>	
LOGGED BY <i>BC/LH</i>		NEARBY BORINGS GROUTED <input checked="" type="checkbox"/> <input type="checkbox"/>	
WELL EQUILIBRATED <input checked="" type="checkbox"/> <input type="checkbox"/>			
PROBE CONSTRUCTION			
INLET DEPTH (ft bgs) <i>6-9 inches</i>	DATE & TIME COMPLETED <i>2014</i>	ONE PURGE VOLUME (ml) <i>19.5</i>	
NOTES			
SHUT-IN TEST			
START TIME <i>09:51</i> <i>09:32</i>	END TIME <i>10:40</i> <i>09:51</i>	START P (-in Hg) <i>-29 -28</i>	END P (-in Hg) <i>-28</i>
NOTES <i>Failed test - re-tightened shroud. Pass!</i>			
LEAK DETECTION METHOD			
<input checked="" type="checkbox"/> HELIUM SHROUD <input type="checkbox"/> 1,1-DIFLUOROETHANE (DFA) <input type="checkbox"/> ISOPROPYL ALCOHOL (IPA)			
PURGING			
<input type="checkbox"/> PURGE CANISTER	PURGE FLOW (ml/min)	PURGE He RANGE (%)	SHROUD He RANGE (%)
<input checked="" type="checkbox"/> 60-ml SYRINGE	<i>~180</i>	<i>0.3-0.3</i>	<i>20.0-20.0</i>
START TIME <i>1103</i>	END TIME <i>1104</i>	VAC. P (-in H2O) <i>no gauge</i>	TOT. VOL. (ml) <i>60</i>
NOTES <i>0.3% background He</i>			
SAMPLE COLLECTION			
START TIME <i>1105</i>	END TIME <i>11:23</i>	SAMPLE ID <i>SS-01-041516</i>	
START P (-in Hg) <i>-30</i>	END P (-in Hg) <i>-3</i>	CANISTER VOL (liters) <i>1.4</i>	
VAC. P RANGE (-in H2O) <i>No gauge</i>	SHROUD He RANGE (%) <i>15 to 20</i>	CANISTER/TRAIN SERIAL NO. <i>00394 / 21⁶⁰12</i>	
NOTES <i>good</i>			

SOIL GAS SAMPLING LOG

GENERAL			
SITE NAME/ADDRESS <i>Park Ave Cleaners</i>	SAMPLING DATE <i>9/15/16</i>	FIELD CONDITIONS	
PROJECT NO. <i>13-945E</i>		NO RAINFALL LAST 5 DAYS <input checked="" type="checkbox"/> T <input type="checkbox"/> F	
BORING ID <i>SS-03</i>		NO STANDING WATER <input checked="" type="checkbox"/> <input type="checkbox"/>	
NOTES		NO WEATHER FRONT <input checked="" type="checkbox"/> <input type="checkbox"/>	
LOGGED BY <i>BC/LH</i>		NEARBY BORINGS GROUTED <input checked="" type="checkbox"/> <input type="checkbox"/>	
		WELL EQUILIBRATED <input checked="" type="checkbox"/> <input type="checkbox"/>	
PROBE CONSTRUCTION			
INLET DEPTH (ft bgs) <i>6 to 9"</i>	DATE & TIME COMPLETED <i>2014</i>	ONE PURGE VOLUME (ml) <i>19.5</i>	
NOTES			
SHUT-IN TEST			
START TIME <i>1037</i>	END TIME <i>1150</i>	START P (-in Hg) <i>26</i>	END P (-in Hg) <i>26</i>
NOTES <i>Pass</i>			
LEAK DETECTION METHOD			
<input checked="" type="checkbox"/> HELIUM SHROUD <input type="checkbox"/> 1,1-DIFLUOROETHANE (DFA) <input type="checkbox"/> ISOPROPYL ALCOHOL (IPA)			
PURGING			
<input type="checkbox"/> PURGE CANISTER <input checked="" type="checkbox"/> 60-ml SYRINGE	PURGE FLOW (ml/min) <i>180</i>	PURGE He RANGE (%) <i>00.2 to 00.2</i>	SHROUD He RANGE (%) <i>15 to 20</i>
START TIME <i>1156</i>	END TIME <i>1156</i>	VAC. P (-in H2O) <i>no gauge</i>	TOT. VOL. (ml) <i>60</i>
NOTES <i>1. include background: 00.2</i>			
SAMPLE COLLECTION			
START TIME <i>1156</i>	END TIME <i>1212</i>	SAMPLE ID <i>SS-03_041516</i>	
START P (-in Hg) <i>30</i>	END P (-in Hg) <i>2.5</i>	CANISTER VOL (liters) <i>1.4 L</i>	
VAC. P RANGE (-in H2O) <i>no gauge</i>	SHROUD He RANGE (%) <i>14.0 - 27.5</i>	CANISTER/TRAIN SERIAL NO. <i>00131 / 17</i>	
NOTES <i>good.</i>			

SOIL GAS SAMPLING LOG

GENERAL			
SITE NAME/ADDRESS <i>Park Ave Cleaners</i>	SAMPLING DATE <i>4/15/16</i>	FIELD CONDITIONS T F	
PROJECT NO. <i>13-945E</i>	BORING ID <i>SS-05</i>	NO RAINFALL LAST 5 DAYS <input checked="" type="checkbox"/> <input type="checkbox"/>	
NOTES <i>open trenching in slab on 15ft south of probe</i>	LOGGED BY <i>LH/BC</i>	NO STANDING WATER <input checked="" type="checkbox"/> <input type="checkbox"/>	
		NO WEATHER FRONT <input checked="" type="checkbox"/> <input type="checkbox"/>	
		NEARBY BORINGS GROUTED <input checked="" type="checkbox"/> <input type="checkbox"/>	
		WELL EQUILIBRATED <input checked="" type="checkbox"/> <input type="checkbox"/>	
PROBE CONSTRUCTION			
INLET DEPTH (ft bgs) <i>3' to 6"</i>	DATE & TIME COMPLETED <i>2014</i>	ONE PURGE VOLUME (ml) <i>19.5</i>	
NOTES			
SHUT-IN TEST			
START TIME <i>10:27</i>	END TIME <i>13:05</i>	START P (-in Hg) <i>-28.5</i>	END P (-in Hg) <i>27</i>
NOTES <i>First shut-in test failed, used a different shroud</i> <i>leakage = 0.009 leakage < 0.04 ^{Hy}/min tolerance. pass.</i>			
LEAK DETECTION METHOD			
<input checked="" type="checkbox"/> HELIUM SHROUD <input type="checkbox"/> 1,1-DIFLUOROETHANE (DFA) <input type="checkbox"/> ISOPROPYL ALCOHOL (IPA)			
PURGING			
<input type="checkbox"/> PURGE CANISTER <input checked="" type="checkbox"/> 60-ml SYRINGE	PURGE FLOW (ml/min) <i>180</i>	PURGE He RANGE (%) <i>21.3% to 23.1%</i>	SHROUD He RANGE (%) <i>0.0 to 0.1%</i>
START TIME <i>1314</i>	END TIME <i>1314</i>	VAC. P (-in H2O) <i>no gauge</i>	TOT. VOL. (ml) <i>60</i>
NOTES <i>Leakage is $\frac{0.1\%}{2.2\%} = 4.5\% < 5\%$ tolerance. pass.</i>			
SAMPLE COLLECTION			
START TIME <i>1318</i>	END TIME <i>1332</i>	SAMPLE ID <i>SS-05-04/15/16</i>	
START P (-in Hg) <i>-30</i>	END P (-in Hg) <i>1 Hg</i>	CANISTER VOL (liters) <i>1.4</i>	
VAC. P RANGE (-in H2O) <i>no gauge</i>	SHROUD He RANGE (%) <i>21.3% to 15.3%</i>	CANISTER/TRAIN SERIAL NO. <i>00281 / 1</i>	
NOTES <i>pass</i>			