

15 January 2014



Mr. Joe Bahde
AMEC Environment & Infrastructure-Irvine
121 Innovation Drive, Suite 200
Irvine, CA 92617

H&P Project: AEE111513-11 Rev
Client Project: NB1016075P / Palomar Street

Dear Mr. Joe Bahde:

Enclosed is the analytical report for the above referenced project. The data herein applies to samples as received by H&P Mobile Geochemistry, Inc. on 15-Nov-13 which were analyzed in accordance with the attached Chain of Custody record(s).

The results for all sample analyses and required QA/QC analyses are presented in the following sections and summarized in the documents:

- Sample Summary
- Case Narrative (if applicable)
- Sample Results
- Quality Control Summary
- Notes and Definitions / Appendix
- Chain of Custody

Unless otherwise noted, all analyses were performed and reviewed in compliance with our Quality Systems Manual and Standard Operating Procedures. This report shall not be reproduced, except in full, without the written approval of H&P Mobile Geochemistry, Inc.

We at H&P Mobile Geochemistry, Inc. sincerely appreciate the opportunity to provide analytical services to you on this project. If you have any questions or concerns regarding this analytical report, please contact me at your convenience at 760-804-9678.

Sincerely,



Janis Villarreal
Laboratory Director

H&P Mobile Geochemistry, Inc. operates under CA Environmental Lab Accreditation Program Numbers 2579, 2740, 2741, 2742, 2743, 2745 and 2754. National Environmental Laboratory Accreditation Conference (NELAC) Standards Lab #11845

AMEC Environment & Infrastructure-Irvine
121 Innovation Drive, Suite 200
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Project: AEE111513-11 Rev
Project Number: NB1016075P / Palomar Street
Project Manager: Mr. Joe Bahde

Reported:
15-Jan-14 14:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
14G-SV	E311062-01	Vapor	14-Nov-13	15-Nov-13
14B-SV	E311062-02	Vapor	14-Nov-13	15-Nov-13
3B-SV	E311062-03	Vapor	14-Nov-13	15-Nov-13
3G-SV	E311062-04	Vapor	14-Nov-13	15-Nov-13
10L-SV	E311062-05	Vapor	14-Nov-13	15-Nov-13
10B-SV	E311062-06	Vapor	14-Nov-13	15-Nov-13
10B-SV REP	E311062-07	Vapor	14-Nov-13	15-Nov-13

A one point calibration was used for Methanol. A low level standard containing 27 ug/m3 of Methanol was analyzed to determine the reporting limit.

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DETECTIONS SUMMARY

Sample ID: **14G-SV**

Laboratory ID: **E311062-01**

Analyte	Result	Reporting		Units	Method	Notes
		Limit				
Methanol	100	27		ug/m3	EPA TO-15	
1,1-Difluoroethane (LCC)	20	5.5		ug/m3	EPA TO-15	
Benzene	26	3.2		ug/m3	EPA TO-15	
Toluene	59	3.8		ug/m3	EPA TO-15	
Ethylbenzene	11	4.4		ug/m3	EPA TO-15	
m,p-Xylene	30	8.8		ug/m3	EPA TO-15	
o-Xylene	12	4.4		ug/m3	EPA TO-15	
1,2,4-Trimethylbenzene	17	5.0		ug/m3	EPA TO-15	

Sample ID: **14B-SV**

Laboratory ID: **E311062-02**

Analyte	Result	Reporting		Units	Method	Notes
		Limit				
Methanol	41	27		ug/m3	EPA TO-15	
1,1-Difluoroethane (LCC)	12	5.5		ug/m3	EPA TO-15	
Methyl tertiary-butyl ether (MTBE)	8.7	3.6		ug/m3	EPA TO-15	
Benzene	110	3.2		ug/m3	EPA TO-15	
Toluene	160	3.8		ug/m3	EPA TO-15	
Tetrachloroethene	12	6.9		ug/m3	EPA TO-15	
Ethylbenzene	35	4.4		ug/m3	EPA TO-15	
m,p-Xylene	79	8.8		ug/m3	EPA TO-15	
o-Xylene	29	4.4		ug/m3	EPA TO-15	
1,2,4-Trimethylbenzene	15	5.0		ug/m3	EPA TO-15	

Sample ID: **3B-SV**

Laboratory ID: **E311062-03**

Analyte	Result	Reporting		Units	Method	Notes
		Limit				
Methanol	540	27		ug/m3	EPA TO-15	
1,1-Difluoroethane (LCC)	7.5	5.5		ug/m3	EPA TO-15	
Benzene	24	3.2		ug/m3	EPA TO-15	
Toluene	60	3.8		ug/m3	EPA TO-15	
Ethylbenzene	19	4.4		ug/m3	EPA TO-15	
m,p-Xylene	48	8.8		ug/m3	EPA TO-15	
o-Xylene	20	4.4		ug/m3	EPA TO-15	
1,2,4-Trimethylbenzene	15	5.0		ug/m3	EPA TO-15	

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Sample ID: **3G-SV**

Laboratory ID: **E311062-04**

Analyte	Result	Reporting		Units	Method	Notes
		Limit				
Methanol	95	27		ug/m3	EPA TO-15	
1,1-Difluoroethane (LCC)	8.2	5.5		ug/m3	EPA TO-15	
Methylene chloride (Dichloromethane)	6.2	3.5		ug/m3	EPA TO-15	
Chloroform	11	4.9		ug/m3	EPA TO-15	
Benzene	55	3.2		ug/m3	EPA TO-15	
Toluene	140	3.8		ug/m3	EPA TO-15	
Tetrachloroethene	15	6.9		ug/m3	EPA TO-15	
Ethylbenzene	26	4.4		ug/m3	EPA TO-15	
m,p-Xylene	66	8.8		ug/m3	EPA TO-15	
o-Xylene	22	4.4		ug/m3	EPA TO-15	
1,2,4-Trimethylbenzene	14	5.0		ug/m3	EPA TO-15	

Sample ID: **10L-SV**

Laboratory ID: **E311062-05**

Analyte	Result	Reporting		Units	Method	Notes
		Limit				
1,1-Difluoroethane (LCC)	19	5.5		ug/m3	EPA TO-15	
Benzene	23	3.2		ug/m3	EPA TO-15	
Toluene	76	3.8		ug/m3	EPA TO-15	
Tetrachloroethene	16	6.9		ug/m3	EPA TO-15	
Ethylbenzene	21	4.4		ug/m3	EPA TO-15	
m,p-Xylene	34	8.8		ug/m3	EPA TO-15	
o-Xylene	10	4.4		ug/m3	EPA TO-15	
1,2,4-Trimethylbenzene	12	5.0		ug/m3	EPA TO-15	

Sample ID: **10B-SV**

Laboratory ID: **E311062-06**

Analyte	Result	Reporting		Units	Method	Notes
		Limit				
Methanol	230	27		ug/m3	EPA TO-15	
1,1-Difluoroethane (LCC)	1000	5.5		ug/m3	EPA TO-15	
Methylene chloride (Dichloromethane)	3.7	3.5		ug/m3	EPA TO-15	
Benzene	7.6	3.2		ug/m3	EPA TO-15	
Toluene	16	3.8		ug/m3	EPA TO-15	
m,p-Xylene	16	8.8		ug/m3	EPA TO-15	
o-Xylene	5.2	4.4		ug/m3	EPA TO-15	
1,2,4-Trimethylbenzene	14	5.0		ug/m3	EPA TO-15	

Sample ID: **10B-SV REP**

Laboratory ID: **E311062-07**

Analyte	Result	Reporting		Units	Method	Notes
		Limit				

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Sample ID: **10B-SV REP**

Laboratory ID: **E311062-07**

Analyte	Result	Reporting		Units	Method	Notes
		Limit				
Methanol	190	27		ug/m3	EPA TO-15	
1,1-Difluoroethane (LCC)	120	5.5		ug/m3	EPA TO-15	
Benzene	5.8	3.2		ug/m3	EPA TO-15	
Toluene	11	3.8		ug/m3	EPA TO-15	
m,p-Xylene	12	8.8		ug/m3	EPA TO-15	
o-Xylene	5.4	4.4		ug/m3	EPA TO-15	
1,2,4-Trimethylbenzene	13	5.0		ug/m3	EPA TO-15	

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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
14G-SV (E311062-01) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13									
1,1-Difluoroethane (LCC)	20	5.5	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
Methanol	100	27	"	"	"	"	"	"	
Dichlorodifluoromethane (F12)	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	2.6	"	"	"	"	"	"	
Bromomethane	ND	16	"	"	"	"	"	"	
Chloroethane	ND	8.0	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	5.6	"	"	"	"	"	"	
1,1-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	6.1	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	ND	7.7	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	3.5	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	8.0	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	3.6	"	"	"	"	"	"	
1,1-Dichloroethane	ND	4.1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	4.2	"	"	"	"	"	"	
Chloroform	ND	4.9	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	4.2	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.5	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	4.1	"	"	"	"	"	"	
Benzene	26	3.2	"	"	"	"	"	"	
Carbon tetrachloride	ND	6.4	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	4.2	"	"	"	"	"	"	
Trichloroethene	ND	5.5	"	"	"	"	"	"	
Bromodichloromethane	ND	6.8	"	"	"	"	"	"	
Toluene	59	3.8	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.5	"	"	"	"	"	"	
Tetrachloroethene	ND	6.9	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	7.8	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Ethylbenzene	11	4.4	"	"	"	"	"	"	
m,p-Xylene	30	8.8	"	"	"	"	"	"	
o-Xylene	12	4.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	5.0	"	"	"	"	"	"	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.6	"	"	"	"	"	"	

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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
14G-SV (E311062-01) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13									
1,2,4-Trimethylbenzene	17	5.0	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
1,4-Dichlorobenzene	ND	12	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.6	"	"	"	"	"	"	
p-Isopropyltoluene	ND	5.6	"	"	"	"	"	"	
n-Butylbenzene	ND	5.6	"	"	"	"	"	"	
Naphthalene	ND	5.3	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	38	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>									
		108 %	76-134		"	"	"	"	
<i>Surrogate: Toluene-d8</i>									
		105 %	78-125		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>									
		98.3 %	77-127		"	"	"	"	
14B-SV (E311062-02) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13									
1,1-Difluoroethane (LCC)	12	5.5	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
Methanol	41	27	"	"	"	"	"	"	
Dichlorodifluoromethane (F12)	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	2.6	"	"	"	"	"	"	
Bromomethane	ND	16	"	"	"	"	"	"	
Chloroethane	ND	8.0	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	5.6	"	"	"	"	"	"	
1,1-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	6.1	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	ND	7.7	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	3.5	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	8.0	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	8.7	3.6	"	"	"	"	"	"	
1,1-Dichloroethane	ND	4.1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	4.2	"	"	"	"	"	"	
Chloroform	ND	4.9	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	4.2	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.5	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	4.1	"	"	"	"	"	"	
Benzene	110	3.2	"	"	"	"	"	"	
Carbon tetrachloride	ND	6.4	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	4.2	"	"	"	"	"	"	
Trichloroethene	ND	5.5	"	"	"	"	"	"	
Bromodichloromethane	ND	6.8	"	"	"	"	"	"	

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Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
14B-SV (E311062-02) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13									
Toluene	160	3.8	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
1,1,2-Trichloroethane	ND	5.5	"	"	"	"	"	"	
Tetrachloroethene	12	6.9	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	7.8	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Ethylbenzene	35	4.4	"	"	"	"	"	"	
m,p-Xylene	79	8.8	"	"	"	"	"	"	
o-Xylene	29	4.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	5.0	"	"	"	"	"	"	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.6	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	15	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	12	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.6	"	"	"	"	"	"	
p-Isopropyltoluene	ND	5.6	"	"	"	"	"	"	
n-Butylbenzene	ND	5.6	"	"	"	"	"	"	
Naphthalene	ND	5.3	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	38	"	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	107 %	76-134	"	"	"	"	"
Surrogate: Toluene-d8	106 %	78-125	"	"	"	"	"
Surrogate: 4-Bromofluorobenzene	96.0 %	77-127	"	"	"	"	"

3B-SV (E311062-03) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13

1,1-Difluoroethane (LCC)	7.5	5.5	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
Methanol	540	27	"	"	"	"	"	"	
Dichlorodifluoromethane (F12)	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	2.6	"	"	"	"	"	"	
Bromomethane	ND	16	"	"	"	"	"	"	
Chloroethane	ND	8.0	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	5.6	"	"	"	"	"	"	
1,1-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	6.1	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	ND	7.7	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	3.5	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	8.0	"	"	"	"	"	"	

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Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
3B-SV (E311062-03) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13									
Methyl tertiary-butyl ether (MTBE)	ND	3.6	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
1,1-Dichloroethane	ND	4.1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	4.2	"	"	"	"	"	"	
Chloroform	ND	4.9	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	4.2	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.5	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	4.1	"	"	"	"	"	"	
Benzene	24	3.2	"	"	"	"	"	"	
Carbon tetrachloride	ND	6.4	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	4.2	"	"	"	"	"	"	
Trichloroethene	ND	5.5	"	"	"	"	"	"	
Bromodichloromethane	ND	6.8	"	"	"	"	"	"	
Toluene	60	3.8	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.5	"	"	"	"	"	"	
Tetrachloroethene	ND	6.9	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	7.8	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Ethylbenzene	19	4.4	"	"	"	"	"	"	
m,p-Xylene	48	8.8	"	"	"	"	"	"	
o-Xylene	20	4.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	5.0	"	"	"	"	"	"	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.6	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	15	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	12	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.6	"	"	"	"	"	"	
p-Isopropyltoluene	ND	5.6	"	"	"	"	"	"	
n-Butylbenzene	ND	5.6	"	"	"	"	"	"	
Naphthalene	ND	5.3	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	38	"	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4
Surrogate: Toluene-d8
Surrogate: 4-Bromofluorobenzene

106 % 76-134 " " " "
105 % 78-125 " " " "
98.6 % 77-127 " " " "

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H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
3G-SV (E311062-04) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13									
1,1-Difluoroethane (LCC)	8.2	5.5	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
Methanol	95	27	"	"	"	"	"	"	
Dichlorodifluoromethane (F12)	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	2.6	"	"	"	"	"	"	
Bromomethane	ND	16	"	"	"	"	"	"	
Chloroethane	ND	8.0	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	5.6	"	"	"	"	"	"	
1,1-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	6.1	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	ND	7.7	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	6.2	3.5	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	8.0	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	3.6	"	"	"	"	"	"	
1,1-Dichloroethane	ND	4.1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	4.2	"	"	"	"	"	"	
Chloroform	11	4.9	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	4.2	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.5	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	4.1	"	"	"	"	"	"	
Benzene	55	3.2	"	"	"	"	"	"	
Carbon tetrachloride	ND	6.4	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	4.2	"	"	"	"	"	"	
Trichloroethene	ND	5.5	"	"	"	"	"	"	
Bromodichloromethane	ND	6.8	"	"	"	"	"	"	
Toluene	140	3.8	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.5	"	"	"	"	"	"	
Tetrachloroethene	15	6.9	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	7.8	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Ethylbenzene	26	4.4	"	"	"	"	"	"	
m,p-Xylene	66	8.8	"	"	"	"	"	"	
o-Xylene	22	4.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	5.0	"	"	"	"	"	"	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.6	"	"	"	"	"	"	

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Project: AEE111513-11 Rev
Project Number: NB1016075P / Palomar Street
Project Manager: Mr. Joe Bahde

Reported:
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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
3G-SV (E311062-04) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13									
1,2,4-Trimethylbenzene	14	5.0	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
1,4-Dichlorobenzene	ND	12	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.6	"	"	"	"	"	"	
p-Isopropyltoluene	ND	5.6	"	"	"	"	"	"	
n-Butylbenzene	ND	5.6	"	"	"	"	"	"	
Naphthalene	ND	5.3	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	38	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>104 %</i>	<i>76-134</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>		<i>105 %</i>	<i>78-125</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>97.9 %</i>	<i>77-127</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
10L-SV (E311062-05) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13									
1,1-Difluoroethane (LCC)	19	5.5	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
Methanol	ND	27	"	"	"	"	"	"	
Dichlorodifluoromethane (F12)	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	2.6	"	"	"	"	"	"	
Bromomethane	ND	16	"	"	"	"	"	"	
Chloroethane	ND	8.0	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	5.6	"	"	"	"	"	"	
1,1-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	6.1	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	ND	7.7	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	3.5	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	8.0	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	3.6	"	"	"	"	"	"	
1,1-Dichloroethane	ND	4.1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	4.2	"	"	"	"	"	"	
Chloroform	ND	4.9	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	4.2	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.5	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	4.1	"	"	"	"	"	"	
Benzene	23	3.2	"	"	"	"	"	"	
Carbon tetrachloride	ND	6.4	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	4.2	"	"	"	"	"	"	
Trichloroethene	ND	5.5	"	"	"	"	"	"	
Bromodichloromethane	ND	6.8	"	"	"	"	"	"	

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Reported:
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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
10L-SV (E311062-05) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13									
Toluene	76	3.8	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
1,1,2-Trichloroethane	ND	5.5	"	"	"	"	"	"	
Tetrachloroethene	16	6.9	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	7.8	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Ethylbenzene	21	4.4	"	"	"	"	"	"	
m,p-Xylene	34	8.8	"	"	"	"	"	"	
o-Xylene	10	4.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	5.0	"	"	"	"	"	"	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.6	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	12	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	12	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.6	"	"	"	"	"	"	
p-Isopropyltoluene	ND	5.6	"	"	"	"	"	"	
n-Butylbenzene	ND	5.6	"	"	"	"	"	"	
Naphthalene	ND	5.3	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	38	"	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 105 % 76-134 " " " "

Surrogate: Toluene-d8 97.4 % 78-125 " " " "

Surrogate: 4-Bromofluorobenzene 86.9 % 77-127 " " " "

10B-SV (E311062-06) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13

1,1-Difluoroethane (LCC)	1000	5.5	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
Methanol	230	27	"	"	"	"	"	"	
Dichlorodifluoromethane (F12)	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	2.6	"	"	"	"	"	"	
Bromomethane	ND	16	"	"	"	"	"	"	
Chloroethane	ND	8.0	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	5.6	"	"	"	"	"	"	
1,1-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	6.1	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	ND	7.7	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	3.7	3.5	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	8.0	"	"	"	"	"	"	

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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
10B-SV (E311062-06) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13									
Methyl tertiary-butyl ether (MTBE)	ND	3.6	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
1,1-Dichloroethane	ND	4.1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	4.2	"	"	"	"	"	"	
Chloroform	ND	4.9	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	4.2	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.5	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	4.1	"	"	"	"	"	"	
Benzene	7.6	3.2	"	"	"	"	"	"	
Carbon tetrachloride	ND	6.4	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	4.2	"	"	"	"	"	"	
Trichloroethene	ND	5.5	"	"	"	"	"	"	
Bromodichloromethane	ND	6.8	"	"	"	"	"	"	
Toluene	16	3.8	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.5	"	"	"	"	"	"	
Tetrachloroethene	ND	6.9	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	7.8	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Ethylbenzene	ND	4.4	"	"	"	"	"	"	
m,p-Xylene	16	8.8	"	"	"	"	"	"	
o-Xylene	5.2	4.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	5.0	"	"	"	"	"	"	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.6	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	14	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	12	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.6	"	"	"	"	"	"	
p-Isopropyltoluene	ND	5.6	"	"	"	"	"	"	
n-Butylbenzene	ND	5.6	"	"	"	"	"	"	
Naphthalene	ND	5.3	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	38	"	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4
Surrogate: Toluene-d8
Surrogate: 4-Bromofluorobenzene

118 % 76-134 " " " "
104 % 78-125 " " " "
98.1 % 77-127 " " " "

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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
10B-SV REP (E311062-07) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13									
1,1-Difluoroethane (LCC)	120	5.5	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
Methanol	190	27	"	"	"	"	"	"	
Dichlorodifluoromethane (F12)	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	2.6	"	"	"	"	"	"	
Bromomethane	ND	16	"	"	"	"	"	"	
Chloroethane	ND	8.0	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	5.6	"	"	"	"	"	"	
1,1-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Tertiary-butyl alcohol (TBA)	ND	6.1	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	ND	7.7	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	3.5	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	8.0	"	"	"	"	"	"	
Methyl tertiary-butyl ether (MTBE)	ND	3.6	"	"	"	"	"	"	
1,1-Dichloroethane	ND	4.1	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	4.0	"	"	"	"	"	"	
Diisopropyl ether (DIPE)	ND	4.2	"	"	"	"	"	"	
Chloroform	ND	4.9	"	"	"	"	"	"	
Ethyl tert-butyl ether (ETBE)	ND	4.2	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.5	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	4.1	"	"	"	"	"	"	
Benzene	5.8	3.2	"	"	"	"	"	"	
Carbon tetrachloride	ND	6.4	"	"	"	"	"	"	
Tertiary-amyl methyl ether (TAME)	ND	4.2	"	"	"	"	"	"	
Trichloroethene	ND	5.5	"	"	"	"	"	"	
Bromodichloromethane	ND	6.8	"	"	"	"	"	"	
Toluene	11	3.8	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.5	"	"	"	"	"	"	
Tetrachloroethene	ND	6.9	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	7.8	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Ethylbenzene	ND	4.4	"	"	"	"	"	"	
m,p-Xylene	12	8.8	"	"	"	"	"	"	
o-Xylene	5.4	4.4	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	7.0	"	"	"	"	"	"	
Isopropylbenzene (Cumene)	ND	5.0	"	"	"	"	"	"	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.6	"	"	"	"	"	"	

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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
10B-SV REP (E311062-07) Vapor Sampled: 14-Nov-13 Received: 15-Nov-13									
1,2,4-Trimethylbenzene	13	5.0	ug/m3	1	EK31912	19-Nov-13	20-Nov-13	EPA TO-15	
1,4-Dichlorobenzene	ND	12	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.6	"	"	"	"	"	"	
p-Isopropyltoluene	ND	5.6	"	"	"	"	"	"	
n-Butylbenzene	ND	5.6	"	"	"	"	"	"	
Naphthalene	ND	5.3	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	38	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>105 %</i>		<i>76-134</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>
<i>Surrogate: Toluene-d8</i>		<i>106 %</i>		<i>78-125</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>97.8 %</i>		<i>77-127</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>

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Volatile Organic Compounds by EPA TO-15 - Quality Control
H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EK31912 - TO-15

Prepared & Analyzed: 19-Nov-13

Blank (EK31912-BLK1)

Methanol	ND	27	ug/m3							
1,1-Difluoroethane (LCC)	ND	5.5	"							
Dichlorodifluoromethane (F12)	ND	5.0	"							
Vinyl chloride	ND	2.6	"							
Bromomethane	ND	16	"							
Chloroethane	ND	8.0	"							
Trichlorofluoromethane (F11)	ND	5.6	"							
1,1-Dichloroethene	ND	4.0	"							
Tertiary-butyl alcohol (TBA)	ND	6.1	"							
1,1,2-Trichlorotrifluoroethane (F113)	ND	7.7	"							
Methylene chloride (Dichloromethane)	ND	3.5	"							
trans-1,2-Dichloroethene	ND	8.0	"							
Methyl tertiary-butyl ether (MTBE)	ND	3.6	"							
1,1-Dichloroethane	ND	4.1	"							
cis-1,2-Dichloroethene	ND	4.0	"							
Diisopropyl ether (DIPE)	ND	4.2	"							
Chloroform	ND	4.9	"							
Ethyl tert-butyl ether (ETBE)	ND	4.2	"							
1,1,1-Trichloroethane	ND	5.5	"							
1,2-Dichloroethane (EDC)	ND	4.1	"							
Benzene	ND	3.2	"							
Carbon tetrachloride	ND	6.4	"							
Tertiary-amyl methyl ether (TAME)	ND	4.2	"							
Trichloroethene	ND	5.5	"							
Bromodichloromethane	ND	6.8	"							
Toluene	ND	3.8	"							
1,1,2-Trichloroethane	ND	5.5	"							
Tetrachloroethene	ND	6.9	"							
1,2-Dibromoethane (EDB)	ND	7.8	"							
1,1,1,2-Tetrachloroethane	ND	7.0	"							
Ethylbenzene	ND	4.4	"							
m,p-Xylene	ND	8.8	"							
o-Xylene	ND	4.4	"							
1,1,2,2-Tetrachloroethane	ND	7.0	"							

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Volatile Organic Compounds by EPA TO-15 - Quality Control
H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EK31912 - TO-15

Blank (EK31912-BLK1)

Prepared & Analyzed: 19-Nov-13

Isopropylbenzene (Cumene)	ND	5.0	ug/m3							
n-Propylbenzene	ND	5.0	"							
1,3,5-Trimethylbenzene	ND	5.0	"							
tert-Butylbenzene	ND	5.6	"							
1,2,4-Trimethylbenzene	ND	5.0	"							
1,4-Dichlorobenzene	ND	12	"							
sec-Butylbenzene	ND	5.6	"							
p-Isopropyltoluene	ND	5.6	"							
n-Butylbenzene	ND	5.6	"							
Naphthalene	ND	5.3	"							
1,2,4-Trichlorobenzene	ND	38	"							

<i>Surrogate: 1,2-Dichloroethane-d4</i>	240		"	214		112	76-134			
<i>Surrogate: Toluene-d8</i>	206		"	207		99.7	78-125			
<i>Surrogate: 4-Bromofluorobenzene</i>	385		"	364		106	77-127			

LCS (EK31912-BS1)

Prepared & Analyzed: 19-Nov-13

Dichlorodifluoromethane (F12)	58	5.0	ug/m3	50.4		116	70-130			
Vinyl chloride	21	2.6	"	26.0		80.4	70-130			
Chloroethane	24	8.0	"	26.8		90.7	70-130			
Trichlorofluoromethane (F11)	56	5.6	"	56.6		98.9	70-130			
1,1-Dichloroethene	34	4.0	"	40.4		85.1	70-130			
1,1,2-Trichlorotrifluoroethane (F113)	68	7.7	"	77.6		87.4	70-130			
Methylene chloride (Dichloromethane)	34	3.5	"	35.4		96.1	70-130			
trans-1,2-Dichloroethene	34	8.0	"	40.4		84.0	70-130			
1,1-Dichloroethane	36	4.1	"	41.2		88.4	70-130			
cis-1,2-Dichloroethene	32	4.0	"	40.0		80.5	70-130			
Chloroform	49	4.9	"	49.6		99.2	70-130			
1,1,1-Trichloroethane	55	5.5	"	55.6		99.8	70-130			
1,2-Dichloroethane (EDC)	41	4.1	"	41.2		98.7	70-130			
Benzene	29	3.2	"	32.4		91.0	70-130			
Carbon tetrachloride	66	6.4	"	64.0		104	70-130			
Trichloroethene	46	5.5	"	54.8		84.8	70-130			
Toluene	30	3.8	"	38.4		78.0	70-130			

AMEC Environment & Infrastructure-Irvine
121 Innovation Drive, Suite 200
Irvine, CA 92617

Project: AEE111513-11 Rev
Project Number: NB1016075P / Palomar Street
Project Manager: Mr. Joe Bahde

Reported:
15-Jan-14 14:32

Volatile Organic Compounds by EPA TO-15 - Quality Control
H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EK31912 - TO-15

LCS (EK31912-BS1)

Prepared & Analyzed: 19-Nov-13

1,1,2-Trichloroethane	45	5.5	ug/m3	55.6		80.1	70-130			
Tetrachloroethene	50	6.9	"	69.2		72.5	70-130			
1,1,1,2-Tetrachloroethane	55	7.0	"	70.0		79.2	70-130			
Ethylbenzene	36	4.4	"	44.2		82.5	70-130			
m,p-Xylene	77	8.8	"	88.4		87.4	70-130			
o-Xylene	38	4.4	"	44.2		86.7	70-130			
1,1,2,2-Tetrachloroethane	55	7.0	"	70.0		77.9	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	254		"	214		118	76-134			
<i>Surrogate: Toluene-d8</i>	210		"	207		102	78-125			
<i>Surrogate: 4-Bromofluorobenzene</i>	393		"	364		108	77-127			

AMEC Environment & Infrastructure-Irvine
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Reported:
15-Jan-14 14:32

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

Appendix

H&P Mobile Geochemistry, Inc. is approved as an Environmental Testing Laboratory (Certification # L11-175) in accordance with the DoD-ELAP program. H&P is approved by the State of Arizona under Certification Numbers AZM758 and AZ0779. H&P is approved as an Environmental Laboratory in conformance with the Environmental Laboratory Accreditation Program (CA) for the category of Volatile and Semi-Volatile Organic Chemistry of Hazardous Waste for the following methods:

Certificate# 2741, 2743, 2579, 2754 & 2740 approved for EPA 8260 and LUFT GC/MS
Certificate# 2742, 2745, & 2741 approved for LUFT
Certificate# 2745 & 2742 approved for EPA 418.1

H&P Mobile Geochemistry, Inc. is approved as an Environmental Laboratory in conformance with the National Environmental Accreditation Conference Standards for the category Environmental Analysis Air and Emissions for the following analytes and methods:

Hexachlorobutadiene by EPA TO-15 & TO-14A
1,2,4-Trichlorobenzene by EPA TO-15 & TO-14A
1,2-Dichlorobenzene by EPA TO-15 & TO-14A
Dichlorotetrafluoroethane by EPA TO-14A
1,4-Dichlorobenzene by EPA TO-15 & TO-14A
Benzene by EPA TO-15 & TO-14A
Chlorobenzene by EPA TO-15 & TO-14A
Ethyl benzene by EPA TO-15 & TO-14A
Styrene by EPA TO-15 & TO-14A
Toluene by EPA TO-15 & TO-14A
Total Xylenes by EPA TO-15
1,1,1-Trichloroethane by EPA TO-15 & TO-14A
1,1,2,2-Tetrachloroethane by EPA TO-15 & TO-14A
1,1,2-Trichloroethane by EPA TO-15 & TO-14A
1,1-Dichloroethane by EPA TO-15 & TO-14A
1,1-Dichloroethene by EPA TO-15 & TO-14A
1,2-Dichloroethane by EPA TO-15 & TO-14A
1,2-Dichloropropane by EPA TO-15 & TO-14A
Benzyl Chloride by EPA TO-15 & TO-14A
Bromoform by EPA TO-15
Bromomethane by EPA TO-15 & TO-14A
Carbon tetrachloride by EPA TO-15 & TO-14A
Chloroethane by EPA TO-15 & TO-14A
Chloroform by EPA TO-15 & TO-14A
Chloromethane by EPA TO-15 & TO-14A
cis-1,2-Dichloroethene by EPA TO-15 & TO-14A
cis-1,3-Dichloropropene by EPA TO-15 & TO-14A
Methylene chloride by EPA TO -15 & TO-14A
Tetrachloroethane by EPA TO-15 & TO-14A
trans-1,2-Dichloroethene by EPA TO-15
trans-1,3-Dichloropropene by EPA TO-15 & TO-14A
Trichloroethene by EPA TO-15 & TO-14A
Vinyl chloride by EPA TO -15
2-Butanone by EPA TO-15
4-Methyl-2-Pentanone by EPA TO-15
Hexane by EPA TO-15
Methyl tert-butyl ether by EPA TO-15
Vinyl acetate by EPA TO-15
1,3-Dichlorobenzene by EPA TO-15 & TO-14A
Trichlorofluoromethane by EPA TO-14A
Naphthalene by H&P SOP TO-15/GC-MS
1,2-Dibromoethane (EDB) by EPA TO-15 & TO-14A
1,2-Dibromo-3-chloropropane by EPA TO-15
1,3-Butadiene by EPA TO-15
1,1,2-Trichlorotrifluoroethane by EPA TO-14A
Carbon disulfide by EPA TO-15
1,4-Dioxane by EPA TO-15

This certification applies to samples analyzed in summa canisters.



EPA Method TO-15
Soil Vapor VOC List per DTSC

Compound - Halogenated 2012 ASGI	CAS #	400mL RL Vapor ($\mu\text{g}/\text{m}^3$)	400mL RL Vapor (ppbv)
Dichlorodifluoromethane (F12)	75-71-8	5.0	1.0
Vinyl chloride	75-01-4	2.6	1.0
Bromomethane	74-83-9	15.8	4.0
Chloroethane	75-00-3	8.0	3.0
Trichlorofluoromethane (F11)	75-69-4	5.6	1.0
1,1-Dichloroethene	75-35-4	4.0	1.0
Methylene chloride (Dichloromethane)	75-09-2	3.5	1.0
1,1,2-Trichlorotrifluoroethane (F113)	76-13-1	7.7	1.0
trans-1,2-Dichloroethene	156-60-5	8.0	2.0
1,1-Dichloroethane	75-34-3	4.1	1.0
cis-1,2-Dichloroethene	156-59-2	4.0	1.0
Chloroform	67-66-3	4.9	1.0
1,2-Dichloroethane (EDC)	107-06-2	4.1	1.0
1,1,1-Trichloroethane	71-55-6	5.5	1.0
Carbon tetrachloride	56-23-5	6.4	1.0
Bromodichloromethane	75-27-4	6.8	1.0
Trichloroethene	79-01-6	5.5	1.0
1,1,2-Trichloroethane	79-00-5	5.5	1.0
Tetrachloroethene	127-18-4	6.9	1.0
1,1,1,2-Tetrachloroethane	630-20-6	7.0	1.0
1,1,2,2-Tetrachloroethane	79-34-5	7.0	1.0
Bromochloromethane - not available			
Compound - Aromatics 2012 ASGI	CAS #	Vapor ($\mu\text{g}/\text{m}^3$)	Vapor (ppbv)
Benzene	71-43-2	3.2	1.0
Toluene	108-88-3	3.8	1.0
Ethylbenzene	100-41-4	4.4	1.0
m,p-Xylene	179601-23-1	8.8	2.0
o-Xylene	95-47-6	4.4	1.0
Isopropylbenzene (Cumene)	98-82-8	5.0	1.0
n-Propylbenzene	103-65-1	5.0	1.0
1,3,5-Trimethylbenzene	108-67-8	5.0	1.0
1,2,4-Trimethylbenzene	95-63-6	5.0	1.0
tert-Butylbenzene	98-06-6	5.6	1.0
1,4-Dichlorobenzene	106-46-7	12.2	2.0
sec-Butylbenzene	135-98-8	5.6	1.0
p-Isopropyltoluene	99-87-6	5.6	1.0
n-Butylbenzene	104-51-8	5.6	1.0
1,2,4-Trichlorobenzene	120-82-1	7.5	1.0
Naphthalene	91-20-3	5.3	1
Oxygenates 2012 ASGI			
Tertiary-butyl alcohol (TBA)	75-65-0	6.1	2.0
Methyl tertiary-butyl ether (MTBE)	1634-04-4	3.7	1.0
Diisopropyl ether (DIPE)	108-20-3	4.2	1.0
Ethyl tertiary-butyl ether (ETBE)	637-92-3	4.2	1.0
Tertiary-amyl methyl ether (TAME)	994-05-8	4.2	1.0
Leak Check Compound			
1,1-Difluoroethane (LCC)	75-37-6	5.4	2.0

Summa Canister Soil Vapor Sampling



H&P Project #: AE 111313-TECH/SBI
 Site Address: Palomar St Wildomar, CA
 Consultant: AMEC
 Field Rep(s): Vinnie Robino
 H&P Rep(s): C. Smith, T. Taylor, D. DO

Date: 11/14/13 Office Use Only:
 Arrival Time: 0700 Reviewed: DB
 Departure Time: 1745 Scanned: _____
 Overtime: _____
 Approved By: _____ Page 1 of 1

Point ID	Summa Info						Probe Specs							Collection Information				Field Notes	
	Can #	Kit ID #	Start Time	Initial (" Hg)	End / Sample Time	End (" Hg) *	Probe Depth (ft)	Tube Length (ft)	Tube Dia (in.)	Sand Dia (in.)	Sand Ht (in.)	Dry Bent. Dia (in.)	Dry Bent. Ht (in.)	Purge Vol (mL)	Shut-in Test ✓=Pass	Flow Rate (mL/min)	Probe Vac ("Hg)		
1	14G-SV	268	185	1125	-27	1127	-3	8"	2	1/8	1	3	1	1	71	✓	7200	0	*
2	14B-SV	030	014	1136	-27	1139	-3	6"	2	1/8	1	3	1	1	71	✓	7200	0	
3	3B-SV	460	174	1350	-28	1357	-3	8"	2	1/8	1	3	1	1	71	✓	7200	1	
4	3G-SV	021	169	1408	-26	1410	-3	8"	2	1/8	1	3	1	1	71	✓	7200	0	
5	10L-SV	244	193	1513	-28	1518	-3	6"	2	1/8	1	3	1	1	71	✓	7200	0	
6	10B-SV	066	164	1528	-27	1530	-3	9"	2	1/8	1	3	1	1	71	✓	7200	0	
7	10B-SUREP	272	164	1531	-28	1534	-3	9"	2	1/8	1	3	1	1	471	✓	7200	0	
8																			
9																			
10																			
11																			
12																			

Purge Volume Calculation	
PVT Probe ID, if applicable:	
Tubing:	Length: <u>2</u> Diameter: <u>1/8</u> 1 Volume: <u>2</u>
Sand Pack (if included in purge volume calculation):	Height: <u>3</u> Diameter: <u>1</u> 1 Volume: <u>15</u>
Dry Bentonite (if included in purge volume calculation):	Height: <u>1</u> Diameter: <u>1</u> 1 Volume: <u>6</u>
PVT Increments:	<u>1</u> PV = <u>24</u> <u>3</u> PV = <u>71</u> <u>10</u> PV = <u>238</u>
PV Amount Selected:	<u>3</u> PV = <u>71</u> Selected by: <u>AMEC</u>

Leak Check Information
Leak Check Compound & Procedure: <u>1:1 DFA</u>
Other Notes: <u>* shutting Summa valve w/ -3" Hg per Theo (DISE)</u> <u>AMEC Summa sampling 10B+10L on their own!</u>