

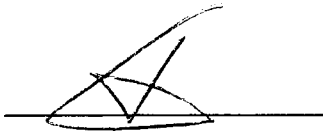
**RECEIVED**

By Alameda County Environmental Health 11:35 am, Dec 15, 2014

**PERJURY STATEMENT**

Subject: Fuel Lake Case No. Ro0002981 and Geotracker Global ID T1000000416, Red Hanger Cleaners,  
6335-6339 College Ave., Oakland, CA 94618

“ 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.”

A handwritten signature in black ink, appearing to be 'Ron Elvidge', written over a horizontal line.

Ron Elvidge  
College/Claremont Venture, LLC



December 12, 2016

Keith Nowell  
Alameda County Health Services Agency (County)  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**Re: Interim Remedial Action Progress Report**  
Former Red Hanger Kleaners, 6239 College Ave., Oakland, CA  
RO00002981

Dear Mr. Nowell:

This letter report serves as an *Interim Remedial Action (IRA) Progress Report* (IRA Progress Report), building on the *Soil Vapor Extraction Remediation Progress Report* prepared by P&D Environmental, Inc. (P&D), dated September 30, 2016 (P&D, 2016). Both reports provide updates on the status of soil vapor extraction (SVE) operations initiated as an interim remedial measure at 6239 College Ave., Oakland, CA.

By way of background, P&D designed, installed, and initiated SVE operations in June 2016, extending through September 30<sup>th</sup>, 2016 as covered by the P&D progress report referenced above. Beginning in mid-October 2016, LRM Consulting, Inc., (LRM) was retained to take over SVE operations, resulting in implementation of various actions to assess the feasibility and effectiveness of the SVE system as originally designed and operated to remediate the site in an effective and timely manner. This IRA Progress Report outlines LRM's findings relative to the SVE system operations, and sets forth recommendations relative to changes to the SVE system design, set up, and operation to enhance mass removal from the subsurface. This progress report further identifies the need for supplemental remedial investigation (RI) activities deemed necessary to aid in a proper design of the IRA activities, and to help complete site characterization and remedial action plans.

## **SVE Operations**

Details of the SVE system as designed and implemented by P&D have been outlined in P&D (2016). To summarize, the SVE system at the site consists of a positive displacement blower with a variable frequency drive (VFD), a moisture separator knockout tank, and two 2,000-pound vessels containing granular activated carbon (GAC). System operations began on June 10, 2016, commencing with extraction from eight soil vapor extraction wells (SVE1 through SVE8), and a ninth sub-slab extraction well (SSE5) located inside the existing onsite building (see Figure 1)

### Operation & Maintenance [O&M] Activities- June through September 2016

As summarized by P&D (2016), the SVE system operated continuously throughout this period, with minor shutdowns reported for soil gas sample collection. The system was reportedly operating at 56 Hz, with all nine extraction wells connected. Moreover, the system was reported as

operating with a total flow system of approximately 450 cfm, with wellhead vacuums ranging on the order of 15 to 25 inches of water column.

Importantly, O&M activities performed by P&D throughout the period of SVE operations between June through September 2016 consistently yielded non-detect levels (below 1 parts per million [ppm]) of volatile organic compounds (VOC) in the vapor stream removed by individual vapor extraction wells and the SVE system influent, reflected by photoionization detector (PID) readings of zero ppm throughout the referenced operational period. The lack of measurable mass removal raises significant concerns over the inability of the SVE system to achieve the intended mass removal, including the inability to remediate subsurface soil gas conditions such that tetrachloroethene (PCE) concentrations in shallow (7 feet below ground surface [bgs]) and deep (17 feet bgs) soil gas monitoring wells consistently present at elevated levels across the site would be effectively reduced, and done so within a reasonable time frame. This was corroborated by the results of soil vapor sampling performed by P&D in August 2016 (more than two months after startup of the SVE system), indicating that 10 of 17 monitoring wells across the site continue to report PCE levels above applicable vapor screening levels (see P&D, 2016). This inability to remediate shallow soil vapor poses additional concerns over the potential impacts to indoor air within the current onsite building. As such, the absence of demonstrated mass removal combined with continued presence of PCE at elevated levels in soil gas beneath the site trigger the need for enhancement of the IRA activities at the site.

#### Operation & Maintenance [O&M] Activities- October through December 8, 2016

Beginning in mid-October, LRM took over the SVE system, with the initial step of completing the necessary paperwork to transfer the system permit from EFI over to LRM. Upon access of the system by LRM, the system was non-operational; however, due to lack of system run-time data provided by P&D, it was not possible to determine how long the system was off. LRM's inspection also determined that the system had not been maintained, including oil and greased per the manufacturer's recommended schedule; this work was performed by LRM to ensure the integrity and longevity of the SVE system.

To evaluate the afore-mentioned concerns over the lack of demonstrated mass removal by the SVE system, LRM performed system startup and conducted additional system readings using a PID, but extended this effort to include collection of system influent, effluent, and well-specific vapor stream samples for laboratory analysis to evaluate whether any mass was in fact being removed by the system at detection limits lower than 1 ppm inherent to the PID. The laboratory analytical report from this sampling (included as Appendix 1) confirmed that all wells yielded non-detect levels of VOCs, with one minor exception where low levels of PCE (580 ug/m<sup>3</sup>) were detected in the vapor stream at SVE1. However, even hypothetically assuming that the entire system influent (which was in fact below the laboratory detection limit) would be characterized by this PCE concentration, the mass removal rate of the entire system would remain well below 1 lb/day, which is considered insignificant and incapable of reducing the soil gas impacts across the site to acceptable levels within a reasonable time frame.

As part of the system restart and O&M activities, LRM performed further diagnostic check of the system. Specifically, upon restart, it was evident that system blower had been programmed to only reach 20 Hz upon restart, rather than the greater than 50 Hz values reported previously. It is assumed that the blower speed may have been manually increased to higher levels during operations by P&D.

This notwithstanding, the blower speed was reprogrammed to operate at 56 Hz to help maximize vacuum achieved, while still maintaining limited operational noise. Unfortunately, with the system designed and connected as operated by P&D, the system vacuum was observed once again as averaging on the order of 20 inches of water column; this value is considered well below levels (i.e., 50 to 100 inches of water column) needed for efficient mass removal, and exemplified by the absence of measurable mass removed by the system.

Accordingly, LRM performed individual well-tests, seeking to increase the vacuum in each well and observed PID readings. In short, when vacuum was increased in wells SVE1 through SVE8 to levels approaching 50 to 100 inches of water column, PID readings rose to as high as 25 ppm (with highest readings reported for SVE1 and SVE4), confirming the vacuum used previously was insufficient to generate any tangible mass removal and that the system, if optimized, may remove PCE from the subsurface. Similar testing at sub-slab well SSE5 inside the building yielded PID readings on the order of 7 ppm at vacuum levels between 50 to 100 inches of water column. However, operation of the system at these desired vacuums consistently resulted in system shutdown due to water being pulled into deep extraction wells (screened down to and below the high water table mark given two feet of water currently present in select vapor extraction wells) and into the system knockout, rendering the system as shutdown.

## **Conclusions and Recommendations**

Based on LRM's observations, it is clear that the SVE system and associated extraction wells as currently designed will not yield the much-needed vapor mass removal from the vadose zone beneath the site. Vapor extraction wells are screened too deep to be able to sustain vacuums necessary to pull vapors into the SVE system without simultaneously drawing water in and shutting the SVE system down. Current well design would require the ability of the system to accommodate both water and vapor pulled from the subsurface. Moreover, the SVE system ran on too many wells, resulting in excessively low vacuum levels (15 to 25 inches of water column); far below levels needed to result in impacted vapors being removed by the system. As demonstrated by LRM's testing, desired vacuum levels using existing wells are achievable, but may only be implemented if the system is able to accommodate water uptake.

Corresponding to the above-referenced conclusions, LRM has set forth the following recommendations:

- 1) The existing SVE system should be transferred into a dual-phase extraction unit, allowing for the unit to accommodate water generated as a result of achieving the higher vacuum levels shown necessary to result in measurable vapor-phase mass removal. This transition also allows use of existing deep vapor extraction wells, which would otherwise be rendered useless and replaced by new shallower-screened wells to which higher vacuum may be applied without the increased threat of water being pulled into the system. Transition to a dual-phase extraction unit will require expansion of the system permit to include water treatment and discharge to the sewer.
- 2) A video survey of the sanitary sewer lateral running immediately adjacent and parallel to vapor extraction wells SVE1, SVE4, and SVE5 indicates that the clay pipe is high damaged.


Such piping can serve to short-circuit vapor extraction operations from adjacent wells, not to mention serve as a potential conduct for migration of vapors; hence, it is recommended that this sewer lateral be repaired as part of IRA activities.

- 3) A comprehensive storm and sanitary sewer line survey should be performed across and adjacent to the site in order to develop an understanding of all potential impacted sewer lines and their potential for serving as sources of subsurface impacts, and potential impacts on dual-phase extraction operations.
- 4) A supplemental RI should be performed to characterize the occurrence and flow of groundwater beneath the site, including water level fluctuations, together with delineation of groundwater quality over time. The supplemental RI should further include additional soil gas investigation along potential leaking sewer line connections (see item 3 above), and at upgradient locations where independent offsite sources may be contributing PCE in soil gas to locations under the site.
- 5) It is possible that additional extraction wells, likely screened within the shallower parts of the vadose zone, may be required to supplement existing extraction wells under operation via a dual-phase extraction system. The need for such additional wells will be determined once the above-listed recommendations are implemented.

### **Closing**

LRM appreciates the County's timely review of the document, and for its oversight and support of this project. If you have any questions, please contact Mehrdad Javaherian at 415-706-8935 or at [mehrdad@lrm-consulting.com](mailto:mehrdad@lrm-consulting.com).

**LRM Consulting, Inc.**



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Mehrdad Javaherian, Ph.D., MPH, PE, LEED®GA

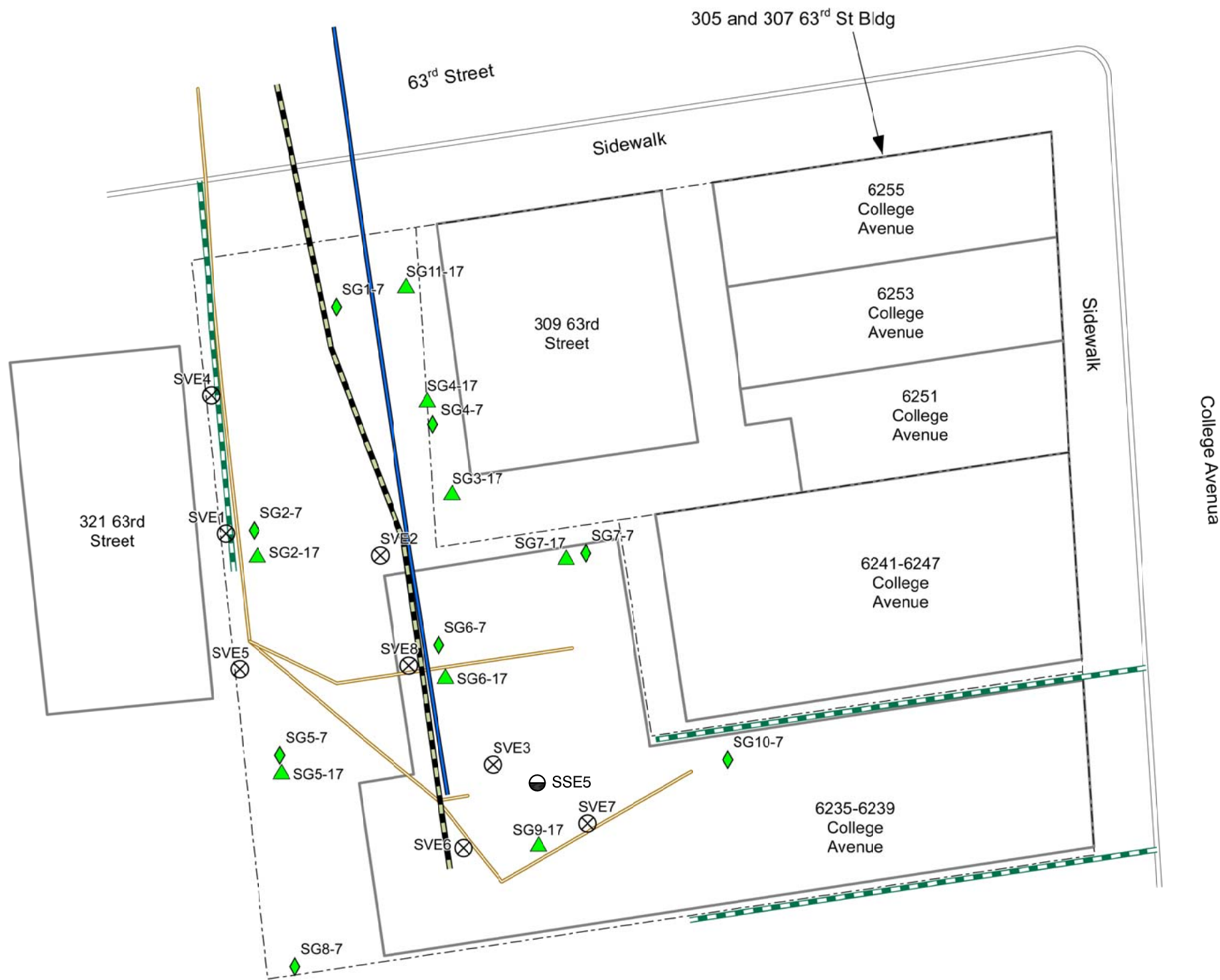
Enclosure



FIGURE

**Legend**

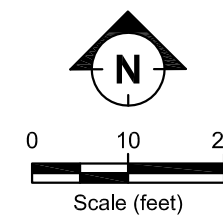
-  Soil gas well, 7 ft
-  Soil gas well, 17 ft
-  Soil vapor extraction well
-  Water line
-  Sanitary sewer line
-  Sanitary sewer line (older)
-  Storm drain
-  Property line
-  Building footprint
-  Sub-slab extraction well



Source: Furgo, 2016

**SITE LAYOUT**

Former Red Hanger Kleaners  
6239 College Ave., Oakland, CA



Date:  
12/12/2016

Figure:  
**1**

## APPENDIX 1





# McC Campbell Analytical, Inc.

"When Quality Counts"

## Analytical Report

**WorkOrder:** 1610435

**Report Created for:** LRM Consulting, Inc.

1534 Plaza Lane, #145  
Burlingame, CA 94010

**Project Contact:** Mehrdad Javaherian

**Project P.O.:**

**Project Name:** TM Ellwood; Red Hanger

**Project Received:** 10/11/2016

Analytical Report reviewed & approved for release on 10/17/2016 by:

Angela Rydelius,  
Laboratory Manager

*The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.*





## Glossary of Terms & Qualifier Definitions

**Client:** LRM Consulting, Inc.  
**Project:** TM Ellwood; Red Hanger  
**WorkOrder:** 1610435

### Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

### Analytical Qualifiers

H samples were analyzed out of holding time



## Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L

### Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-5	1610435-001A	Air	10/10/2016 13:54	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	0.25	1	10/12/2016 11:14
Bromochloromethane	ND	H	0.25	1	10/12/2016 11:14
Bromodichloromethane	ND	H	0.25	1	10/12/2016 11:14
Bromoform	ND	H	0.25	1	10/12/2016 11:14
Bromomethane	ND	H	0.25	1	10/12/2016 11:14
Carbon Tetrachloride	ND	H	0.25	1	10/12/2016 11:14
Chlorobenzene	ND	H	0.25	1	10/12/2016 11:14
Chloroethane	ND	H	0.25	1	10/12/2016 11:14
Chloroform	ND	H	0.25	1	10/12/2016 11:14
Chloromethane	ND	H	0.25	1	10/12/2016 11:14
2-Chlorotoluene	ND	H	0.25	1	10/12/2016 11:14
4-Chlorotoluene	ND	H	0.25	1	10/12/2016 11:14
Dibromochloromethane	ND	H	0.25	1	10/12/2016 11:14
1,2-Dibromo-3-chloropropane	ND	H	0.25	1	10/12/2016 11:14
1,2-Dibromoethane (EDB)	ND	H	0.25	1	10/12/2016 11:14
Dibromomethane	ND	H	0.25	1	10/12/2016 11:14
1,2-Dichlorobenzene	ND	H	0.25	1	10/12/2016 11:14
1,3-Dichlorobenzene	ND	H	0.25	1	10/12/2016 11:14
1,4-Dichlorobenzene	ND	H	0.25	1	10/12/2016 11:14
Dichlorodifluoromethane	ND	H	0.25	1	10/12/2016 11:14
1,1-Dichloroethane	ND	H	0.25	1	10/12/2016 11:14
1,2-Dichloroethane (1,2-DCA)	ND	H	0.25	1	10/12/2016 11:14
1,1-Dichloroethene	ND	H	0.25	1	10/12/2016 11:14
cis-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 11:14
trans-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 11:14
1,2-Dichloropropane	ND	H	0.25	1	10/12/2016 11:14
1,3-Dichloropropane	ND	H	0.25	1	10/12/2016 11:14
2,2-Dichloropropane	ND	H	0.25	1	10/12/2016 11:14
1,1-Dichloropropene	ND	H	0.25	1	10/12/2016 11:14
cis-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 11:14
trans-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 11:14
Freon 113	ND	H	5.0	1	10/12/2016 11:14
Hexachlorobutadiene	ND	H	0.25	1	10/12/2016 11:14
Hexachloroethane	ND	H	0.25	1	10/12/2016 11:14
Methylene chloride	ND	H	0.25	1	10/12/2016 11:14
1,1,1,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 11:14
1,1,2,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 11:14

(Cont.)



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### Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-5	1610435-001A	Air	10/10/2016 13:54	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	0.25	1	10/12/2016 11:14
1,2,3-Trichlorobenzene	ND	H	0.25	1	10/12/2016 11:14
1,2,4-Trichlorobenzene	ND	H	0.25	1	10/12/2016 11:14
1,1,1-Trichloroethane	ND	H	0.25	1	10/12/2016 11:14
1,1,2-Trichloroethane	ND	H	0.25	1	10/12/2016 11:14
Trichloroethene	ND	H	0.25	1	10/12/2016 11:14
Trichlorofluoromethane	ND	H	0.25	1	10/12/2016 11:14
1,2,3-Trichloropropane	ND	H	0.25	1	10/12/2016 11:14
Vinyl Chloride	ND	H	0.25	1	10/12/2016 11:14

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	102	H	70-130	10/12/2016 11:14
Toluene-d8	102	H	70-130	10/12/2016 11:14
4-BFB	94	H	70-130	10/12/2016 11:14

**Analyst(s):** KF



## Analytical Report

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**Unit:** µg/L

### Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-1	1610435-002A	Air	10/10/2016 13:58	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	0.25	1	10/12/2016 11:53
Bromochloromethane	ND	H	0.25	1	10/12/2016 11:53
Bromodichloromethane	ND	H	0.25	1	10/12/2016 11:53
Bromoform	ND	H	0.25	1	10/12/2016 11:53
Bromomethane	ND	H	0.25	1	10/12/2016 11:53
Carbon Tetrachloride	ND	H	0.25	1	10/12/2016 11:53
Chlorobenzene	ND	H	0.25	1	10/12/2016 11:53
Chloroethane	ND	H	0.25	1	10/12/2016 11:53
Chloroform	ND	H	0.25	1	10/12/2016 11:53
Chloromethane	ND	H	0.25	1	10/12/2016 11:53
2-Chlorotoluene	ND	H	0.25	1	10/12/2016 11:53
4-Chlorotoluene	ND	H	0.25	1	10/12/2016 11:53
Dibromochloromethane	ND	H	0.25	1	10/12/2016 11:53
1,2-Dibromo-3-chloropropane	ND	H	0.25	1	10/12/2016 11:53
1,2-Dibromoethane (EDB)	ND	H	0.25	1	10/12/2016 11:53
Dibromomethane	ND	H	0.25	1	10/12/2016 11:53
1,2-Dichlorobenzene	ND	H	0.25	1	10/12/2016 11:53
1,3-Dichlorobenzene	ND	H	0.25	1	10/12/2016 11:53
1,4-Dichlorobenzene	ND	H	0.25	1	10/12/2016 11:53
Dichlorodifluoromethane	ND	H	0.25	1	10/12/2016 11:53
1,1-Dichloroethane	ND	H	0.25	1	10/12/2016 11:53
1,2-Dichloroethane (1,2-DCA)	ND	H	0.25	1	10/12/2016 11:53
1,1-Dichloroethene	ND	H	0.25	1	10/12/2016 11:53
cis-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 11:53
trans-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 11:53
1,2-Dichloropropane	ND	H	0.25	1	10/12/2016 11:53
1,3-Dichloropropane	ND	H	0.25	1	10/12/2016 11:53
2,2-Dichloropropane	ND	H	0.25	1	10/12/2016 11:53
1,1-Dichloropropene	ND	H	0.25	1	10/12/2016 11:53
cis-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 11:53
trans-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 11:53
Freon 113	ND	H	5.0	1	10/12/2016 11:53
Hexachlorobutadiene	ND	H	0.25	1	10/12/2016 11:53
Hexachloroethane	ND	H	0.25	1	10/12/2016 11:53
Methylene chloride	ND	H	0.25	1	10/12/2016 11:53
1,1,1,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 11:53
1,1,2,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 11:53

(Cont.)



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**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L

### Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-1	1610435-002A	Air	10/10/2016 13:58	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	0.58	H	0.25	1	10/12/2016 11:53
1,2,3-Trichlorobenzene	ND	H	0.25	1	10/12/2016 11:53
1,2,4-Trichlorobenzene	ND	H	0.25	1	10/12/2016 11:53
1,1,1-Trichloroethane	ND	H	0.25	1	10/12/2016 11:53
1,1,2-Trichloroethane	ND	H	0.25	1	10/12/2016 11:53
Trichloroethene	ND	H	0.25	1	10/12/2016 11:53
Trichlorofluoromethane	ND	H	0.25	1	10/12/2016 11:53
1,2,3-Trichloropropane	ND	H	0.25	1	10/12/2016 11:53
Vinyl Chloride	ND	H	0.25	1	10/12/2016 11:53

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	102	H	70-130	10/12/2016 11:53
Toluene-d8	102	H	70-130	10/12/2016 11:53
4-BFB	90	H	70-130	10/12/2016 11:53

Analyst(s): KF



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**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L

## Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-4	1610435-003A	Air	10/10/2016 14:03	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	0.25	1	10/12/2016 12:33
Bromochloromethane	ND	H	0.25	1	10/12/2016 12:33
Bromodichloromethane	ND	H	0.25	1	10/12/2016 12:33
Bromoform	ND	H	0.25	1	10/12/2016 12:33
Bromomethane	ND	H	0.25	1	10/12/2016 12:33
Carbon Tetrachloride	ND	H	0.25	1	10/12/2016 12:33
Chlorobenzene	ND	H	0.25	1	10/12/2016 12:33
Chloroethane	ND	H	0.25	1	10/12/2016 12:33
Chloroform	ND	H	0.25	1	10/12/2016 12:33
Chloromethane	ND	H	0.25	1	10/12/2016 12:33
2-Chlorotoluene	ND	H	0.25	1	10/12/2016 12:33
4-Chlorotoluene	ND	H	0.25	1	10/12/2016 12:33
Dibromochloromethane	ND	H	0.25	1	10/12/2016 12:33
1,2-Dibromo-3-chloropropane	ND	H	0.25	1	10/12/2016 12:33
1,2-Dibromoethane (EDB)	ND	H	0.25	1	10/12/2016 12:33
Dibromomethane	ND	H	0.25	1	10/12/2016 12:33
1,2-Dichlorobenzene	ND	H	0.25	1	10/12/2016 12:33
1,3-Dichlorobenzene	ND	H	0.25	1	10/12/2016 12:33
1,4-Dichlorobenzene	ND	H	0.25	1	10/12/2016 12:33
Dichlorodifluoromethane	ND	H	0.25	1	10/12/2016 12:33
1,1-Dichloroethane	ND	H	0.25	1	10/12/2016 12:33
1,2-Dichloroethane (1,2-DCA)	ND	H	0.25	1	10/12/2016 12:33
1,1-Dichloroethene	ND	H	0.25	1	10/12/2016 12:33
cis-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 12:33
trans-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 12:33
1,2-Dichloropropane	ND	H	0.25	1	10/12/2016 12:33
1,3-Dichloropropane	ND	H	0.25	1	10/12/2016 12:33
2,2-Dichloropropane	ND	H	0.25	1	10/12/2016 12:33
1,1-Dichloropropene	ND	H	0.25	1	10/12/2016 12:33
cis-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 12:33
trans-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 12:33
Freon 113	ND	H	5.0	1	10/12/2016 12:33
Hexachlorobutadiene	ND	H	0.25	1	10/12/2016 12:33
Hexachloroethane	ND	H	0.25	1	10/12/2016 12:33
Methylene chloride	ND	H	0.25	1	10/12/2016 12:33
1,1,1,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 12:33
1,1,2,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 12:33

(Cont.)



## Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L

### Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-4	1610435-003A	Air	10/10/2016 14:03	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	0.37	H	0.25	1	10/12/2016 12:33
1,2,3-Trichlorobenzene	ND	H	0.25	1	10/12/2016 12:33
1,2,4-Trichlorobenzene	ND	H	0.25	1	10/12/2016 12:33
1,1,1-Trichloroethane	ND	H	0.25	1	10/12/2016 12:33
1,1,2-Trichloroethane	ND	H	0.25	1	10/12/2016 12:33
Trichloroethene	ND	H	0.25	1	10/12/2016 12:33
Trichlorofluoromethane	ND	H	0.25	1	10/12/2016 12:33
1,2,3-Trichloropropane	ND	H	0.25	1	10/12/2016 12:33
Vinyl Chloride	ND	H	0.25	1	10/12/2016 12:33

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	104	H	70-130	10/12/2016 12:33
Toluene-d8	99	H	70-130	10/12/2016 12:33
4-BFB	90	H	70-130	10/12/2016 12:33

Analyst(s): KF





# Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L

## Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-2	1610435-004A	Air	10/10/2016 14:10	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	0.25	1	10/12/2016 13:13
Bromochloromethane	ND	H	0.25	1	10/12/2016 13:13
Bromodichloromethane	ND	H	0.25	1	10/12/2016 13:13
Bromoform	ND	H	0.25	1	10/12/2016 13:13
Bromomethane	ND	H	0.25	1	10/12/2016 13:13
Carbon Tetrachloride	ND	H	0.25	1	10/12/2016 13:13
Chlorobenzene	ND	H	0.25	1	10/12/2016 13:13
Chloroethane	ND	H	0.25	1	10/12/2016 13:13
Chloroform	ND	H	0.25	1	10/12/2016 13:13
Chloromethane	ND	H	0.25	1	10/12/2016 13:13
2-Chlorotoluene	ND	H	0.25	1	10/12/2016 13:13
4-Chlorotoluene	ND	H	0.25	1	10/12/2016 13:13
Dibromochloromethane	ND	H	0.25	1	10/12/2016 13:13
1,2-Dibromo-3-chloropropane	ND	H	0.25	1	10/12/2016 13:13
1,2-Dibromoethane (EDB)	ND	H	0.25	1	10/12/2016 13:13
Dibromomethane	ND	H	0.25	1	10/12/2016 13:13
1,2-Dichlorobenzene	ND	H	0.25	1	10/12/2016 13:13
1,3-Dichlorobenzene	ND	H	0.25	1	10/12/2016 13:13
1,4-Dichlorobenzene	ND	H	0.25	1	10/12/2016 13:13
Dichlorodifluoromethane	ND	H	0.25	1	10/12/2016 13:13
1,1-Dichloroethane	ND	H	0.25	1	10/12/2016 13:13
1,2-Dichloroethane (1,2-DCA)	ND	H	0.25	1	10/12/2016 13:13
1,1-Dichloroethene	ND	H	0.25	1	10/12/2016 13:13
cis-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 13:13
trans-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 13:13
1,2-Dichloropropane	ND	H	0.25	1	10/12/2016 13:13
1,3-Dichloropropane	ND	H	0.25	1	10/12/2016 13:13
2,2-Dichloropropane	ND	H	0.25	1	10/12/2016 13:13
1,1-Dichloropropene	ND	H	0.25	1	10/12/2016 13:13
cis-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 13:13
trans-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 13:13
Freon 113	ND	H	5.0	1	10/12/2016 13:13
Hexachlorobutadiene	ND	H	0.25	1	10/12/2016 13:13
Hexachloroethane	ND	H	0.25	1	10/12/2016 13:13
Methylene chloride	ND	H	0.25	1	10/12/2016 13:13
1,1,1,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 13:13
1,1,2,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 13:13

(Cont.)



## Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L

### Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-2	1610435-004A	Air	10/10/2016 14:10	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	<b>0.68</b>	H	0.25	1	10/12/2016 13:13
1,2,3-Trichlorobenzene	ND	H	0.25	1	10/12/2016 13:13
1,2,4-Trichlorobenzene	ND	H	0.25	1	10/12/2016 13:13
1,1,1-Trichloroethane	ND	H	0.25	1	10/12/2016 13:13
1,1,2-Trichloroethane	ND	H	0.25	1	10/12/2016 13:13
Trichloroethene	ND	H	0.25	1	10/12/2016 13:13
Trichlorofluoromethane	ND	H	0.25	1	10/12/2016 13:13
1,2,3-Trichloropropane	ND	H	0.25	1	10/12/2016 13:13
Vinyl Chloride	ND	H	0.25	1	10/12/2016 13:13

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	104	H	70-130	10/12/2016 13:13
Toluene-d8	99	H	70-130	10/12/2016 13:13
4-BFB	89	H	70-130	10/12/2016 13:13

**Analyst(s):** KF



# Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L

## Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-8	1610435-005A	Air	10/10/2016 14:13	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	0.25	1	10/12/2016 13:54
Bromochloromethane	ND	H	0.25	1	10/12/2016 13:54
Bromodichloromethane	ND	H	0.25	1	10/12/2016 13:54
Bromoform	ND	H	0.25	1	10/12/2016 13:54
Bromomethane	ND	H	0.25	1	10/12/2016 13:54
Carbon Tetrachloride	ND	H	0.25	1	10/12/2016 13:54
Chlorobenzene	ND	H	0.25	1	10/12/2016 13:54
Chloroethane	ND	H	0.25	1	10/12/2016 13:54
Chloroform	ND	H	0.25	1	10/12/2016 13:54
Chloromethane	ND	H	0.25	1	10/12/2016 13:54
2-Chlorotoluene	ND	H	0.25	1	10/12/2016 13:54
4-Chlorotoluene	ND	H	0.25	1	10/12/2016 13:54
Dibromochloromethane	ND	H	0.25	1	10/12/2016 13:54
1,2-Dibromo-3-chloropropane	ND	H	0.25	1	10/12/2016 13:54
1,2-Dibromoethane (EDB)	ND	H	0.25	1	10/12/2016 13:54
Dibromomethane	ND	H	0.25	1	10/12/2016 13:54
1,2-Dichlorobenzene	ND	H	0.25	1	10/12/2016 13:54
1,3-Dichlorobenzene	ND	H	0.25	1	10/12/2016 13:54
1,4-Dichlorobenzene	ND	H	0.25	1	10/12/2016 13:54
Dichlorodifluoromethane	ND	H	0.25	1	10/12/2016 13:54
1,1-Dichloroethane	ND	H	0.25	1	10/12/2016 13:54
1,2-Dichloroethane (1,2-DCA)	ND	H	0.25	1	10/12/2016 13:54
1,1-Dichloroethene	ND	H	0.25	1	10/12/2016 13:54
cis-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 13:54
trans-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 13:54
1,2-Dichloropropane	ND	H	0.25	1	10/12/2016 13:54
1,3-Dichloropropane	ND	H	0.25	1	10/12/2016 13:54
2,2-Dichloropropane	ND	H	0.25	1	10/12/2016 13:54
1,1-Dichloropropene	ND	H	0.25	1	10/12/2016 13:54
cis-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 13:54
trans-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 13:54
Freon 113	ND	H	5.0	1	10/12/2016 13:54
Hexachlorobutadiene	ND	H	0.25	1	10/12/2016 13:54
Hexachloroethane	ND	H	0.25	1	10/12/2016 13:54
Methylene chloride	ND	H	0.25	1	10/12/2016 13:54
1,1,1,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 13:54
1,1,2,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 13:54

(Cont.)



## Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L

### Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-8	1610435-005A	Air	10/10/2016 14:13	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	0.25	1	10/12/2016 13:54
1,2,3-Trichlorobenzene	ND	H	0.25	1	10/12/2016 13:54
1,2,4-Trichlorobenzene	ND	H	0.25	1	10/12/2016 13:54
1,1,1-Trichloroethane	ND	H	0.25	1	10/12/2016 13:54
1,1,2-Trichloroethane	ND	H	0.25	1	10/12/2016 13:54
Trichloroethene	ND	H	0.25	1	10/12/2016 13:54
Trichlorofluoromethane	ND	H	0.25	1	10/12/2016 13:54
1,2,3-Trichloropropane	ND	H	0.25	1	10/12/2016 13:54
Vinyl Chloride	ND	H	0.25	1	10/12/2016 13:54

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	101	H	70-130	10/12/2016 13:54
Toluene-d8	102	H	70-130	10/12/2016 13:54
4-BFB	89	H	70-130	10/12/2016 13:54

**Analyst(s):** KF



## Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L

### Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SSE-5	1610435-007A	Air	10/10/2016 14:24	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	0.25	1	10/12/2016 17:45
Bromochloromethane	ND	H	0.25	1	10/12/2016 17:45
Bromodichloromethane	ND	H	0.25	1	10/12/2016 17:45
Bromoform	ND	H	0.25	1	10/12/2016 17:45
Bromomethane	ND	H	0.25	1	10/12/2016 17:45
Carbon Tetrachloride	ND	H	0.25	1	10/12/2016 17:45
Chlorobenzene	ND	H	0.25	1	10/12/2016 17:45
Chloroethane	ND	H	0.25	1	10/12/2016 17:45
Chloroform	ND	H	0.25	1	10/12/2016 17:45
Chloromethane	ND	H	0.25	1	10/12/2016 17:45
2-Chlorotoluene	ND	H	0.25	1	10/12/2016 17:45
4-Chlorotoluene	ND	H	0.25	1	10/12/2016 17:45
Dibromochloromethane	ND	H	0.25	1	10/12/2016 17:45
1,2-Dibromo-3-chloropropane	ND	H	0.25	1	10/12/2016 17:45
1,2-Dibromoethane (EDB)	ND	H	0.25	1	10/12/2016 17:45
Dibromomethane	ND	H	0.25	1	10/12/2016 17:45
1,2-Dichlorobenzene	ND	H	0.25	1	10/12/2016 17:45
1,3-Dichlorobenzene	ND	H	0.25	1	10/12/2016 17:45
1,4-Dichlorobenzene	ND	H	0.25	1	10/12/2016 17:45
Dichlorodifluoromethane	ND	H	0.25	1	10/12/2016 17:45
1,1-Dichloroethane	ND	H	0.25	1	10/12/2016 17:45
1,2-Dichloroethane (1,2-DCA)	ND	H	0.25	1	10/12/2016 17:45
1,1-Dichloroethene	ND	H	0.25	1	10/12/2016 17:45
cis-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 17:45
trans-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 17:45
1,2-Dichloropropane	ND	H	0.25	1	10/12/2016 17:45
1,3-Dichloropropane	ND	H	0.25	1	10/12/2016 17:45
2,2-Dichloropropane	ND	H	0.25	1	10/12/2016 17:45
1,1-Dichloropropene	ND	H	0.25	1	10/12/2016 17:45
cis-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 17:45
trans-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 17:45
Freon 113	ND	H	5.0	1	10/12/2016 17:45
Hexachlorobutadiene	ND	H	0.25	1	10/12/2016 17:45
Hexachloroethane	ND	H	0.25	1	10/12/2016 17:45
Methylene chloride	ND	H	0.25	1	10/12/2016 17:45
1,1,1,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 17:45
1,1,2,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 17:45

(Cont.)



## Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L

### Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SSE-5	1610435-007A	Air	10/10/2016 14:24	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	0.25	1	10/12/2016 17:45
1,2,3-Trichlorobenzene	ND	H	0.25	1	10/12/2016 17:45
1,2,4-Trichlorobenzene	ND	H	0.25	1	10/12/2016 17:45
1,1,1-Trichloroethane	ND	H	0.25	1	10/12/2016 17:45
1,1,2-Trichloroethane	ND	H	0.25	1	10/12/2016 17:45
Trichloroethene	ND	H	0.25	1	10/12/2016 17:45
Trichlorofluoromethane	ND	H	0.25	1	10/12/2016 17:45
1,2,3-Trichloropropane	ND	H	0.25	1	10/12/2016 17:45
Vinyl Chloride	ND	H	0.25	1	10/12/2016 17:45

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	105	H	70-130	10/12/2016 17:45
Toluene-d8	98	H	70-130	10/12/2016 17:45
4-BFB	86	H	70-130	10/12/2016 17:45

**Analyst(s):** KF



# Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L

## Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-7	1610435-008A	Air	10/10/2016 14:32	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	0.25	1	10/12/2016 15:32
Bromochloromethane	ND	H	0.25	1	10/12/2016 15:32
Bromodichloromethane	ND	H	0.25	1	10/12/2016 15:32
Bromoform	ND	H	0.25	1	10/12/2016 15:32
Bromomethane	ND	H	0.25	1	10/12/2016 15:32
Carbon Tetrachloride	ND	H	0.25	1	10/12/2016 15:32
Chlorobenzene	ND	H	0.25	1	10/12/2016 15:32
Chloroethane	ND	H	0.25	1	10/12/2016 15:32
Chloroform	ND	H	0.25	1	10/12/2016 15:32
Chloromethane	ND	H	0.25	1	10/12/2016 15:32
2-Chlorotoluene	ND	H	0.25	1	10/12/2016 15:32
4-Chlorotoluene	ND	H	0.25	1	10/12/2016 15:32
Dibromochloromethane	ND	H	0.25	1	10/12/2016 15:32
1,2-Dibromo-3-chloropropane	ND	H	0.25	1	10/12/2016 15:32
1,2-Dibromoethane (EDB)	ND	H	0.25	1	10/12/2016 15:32
Dibromomethane	ND	H	0.25	1	10/12/2016 15:32
1,2-Dichlorobenzene	ND	H	0.25	1	10/12/2016 15:32
1,3-Dichlorobenzene	ND	H	0.25	1	10/12/2016 15:32
1,4-Dichlorobenzene	ND	H	0.25	1	10/12/2016 15:32
Dichlorodifluoromethane	ND	H	0.25	1	10/12/2016 15:32
1,1-Dichloroethane	ND	H	0.25	1	10/12/2016 15:32
1,2-Dichloroethane (1,2-DCA)	ND	H	0.25	1	10/12/2016 15:32
1,1-Dichloroethene	ND	H	0.25	1	10/12/2016 15:32
cis-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 15:32
trans-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 15:32
1,2-Dichloropropane	ND	H	0.25	1	10/12/2016 15:32
1,3-Dichloropropane	ND	H	0.25	1	10/12/2016 15:32
2,2-Dichloropropane	ND	H	0.25	1	10/12/2016 15:32
1,1-Dichloropropene	ND	H	0.25	1	10/12/2016 15:32
cis-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 15:32
trans-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 15:32
Freon 113	ND	H	5.0	1	10/12/2016 15:32
Hexachlorobutadiene	ND	H	0.25	1	10/12/2016 15:32
Hexachloroethane	ND	H	0.25	1	10/12/2016 15:32
Methylene chloride	ND	H	0.25	1	10/12/2016 15:32
1,1,1,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 15:32
1,1,2,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 15:32

(Cont.)



## Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L

### Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-7	1610435-008A	Air	10/10/2016 14:32	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	0.25	1	10/12/2016 15:32
1,2,3-Trichlorobenzene	ND	H	0.25	1	10/12/2016 15:32
1,2,4-Trichlorobenzene	ND	H	0.25	1	10/12/2016 15:32
1,1,1-Trichloroethane	ND	H	0.25	1	10/12/2016 15:32
1,1,2-Trichloroethane	ND	H	0.25	1	10/12/2016 15:32
Trichloroethene	ND	H	0.25	1	10/12/2016 15:32
Trichlorofluoromethane	ND	H	0.25	1	10/12/2016 15:32
1,2,3-Trichloropropane	ND	H	0.25	1	10/12/2016 15:32
Vinyl Chloride	ND	H	0.25	1	10/12/2016 15:32

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	104	H	70-130	10/12/2016 15:32
Toluene-d8	98	H	70-130	10/12/2016 15:32
4-BFB	88	H	70-130	10/12/2016 15:32

**Analyst(s):** KF





# Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L

## Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
INF	1610435-010A	Air	10/10/2016 14:50	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	0.25	1	10/12/2016 16:13
Bromochloromethane	ND	H	0.25	1	10/12/2016 16:13
Bromodichloromethane	ND	H	0.25	1	10/12/2016 16:13
Bromoform	ND	H	0.25	1	10/12/2016 16:13
Bromomethane	ND	H	0.25	1	10/12/2016 16:13
Carbon Tetrachloride	ND	H	0.25	1	10/12/2016 16:13
Chlorobenzene	ND	H	0.25	1	10/12/2016 16:13
Chloroethane	ND	H	0.25	1	10/12/2016 16:13
Chloroform	ND	H	0.25	1	10/12/2016 16:13
Chloromethane	ND	H	0.25	1	10/12/2016 16:13
2-Chlorotoluene	ND	H	0.25	1	10/12/2016 16:13
4-Chlorotoluene	ND	H	0.25	1	10/12/2016 16:13
Dibromochloromethane	ND	H	0.25	1	10/12/2016 16:13
1,2-Dibromo-3-chloropropane	ND	H	0.25	1	10/12/2016 16:13
1,2-Dibromoethane (EDB)	ND	H	0.25	1	10/12/2016 16:13
Dibromomethane	ND	H	0.25	1	10/12/2016 16:13
1,2-Dichlorobenzene	ND	H	0.25	1	10/12/2016 16:13
1,3-Dichlorobenzene	ND	H	0.25	1	10/12/2016 16:13
1,4-Dichlorobenzene	ND	H	0.25	1	10/12/2016 16:13
Dichlorodifluoromethane	ND	H	0.25	1	10/12/2016 16:13
1,1-Dichloroethane	ND	H	0.25	1	10/12/2016 16:13
1,2-Dichloroethane (1,2-DCA)	ND	H	0.25	1	10/12/2016 16:13
1,1-Dichloroethene	ND	H	0.25	1	10/12/2016 16:13
cis-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 16:13
trans-1,2-Dichloroethene	ND	H	0.25	1	10/12/2016 16:13
1,2-Dichloropropane	ND	H	0.25	1	10/12/2016 16:13
1,3-Dichloropropane	ND	H	0.25	1	10/12/2016 16:13
2,2-Dichloropropane	ND	H	0.25	1	10/12/2016 16:13
1,1-Dichloropropene	ND	H	0.25	1	10/12/2016 16:13
cis-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 16:13
trans-1,3-Dichloropropene	ND	H	0.25	1	10/12/2016 16:13
Freon 113	ND	H	5.0	1	10/12/2016 16:13
Hexachlorobutadiene	ND	H	0.25	1	10/12/2016 16:13
Hexachloroethane	ND	H	0.25	1	10/12/2016 16:13
Methylene chloride	ND	H	0.25	1	10/12/2016 16:13
1,1,1,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 16:13
1,1,2,2-Tetrachloroethane	ND	H	0.25	1	10/12/2016 16:13

(Cont.)



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### Halogenated Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
INF	1610435-010A	Air	10/10/2016 14:50	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	0.25	1	10/12/2016 16:13
1,2,3-Trichlorobenzene	ND	H	0.25	1	10/12/2016 16:13
1,2,4-Trichlorobenzene	ND	H	0.25	1	10/12/2016 16:13
1,1,1-Trichloroethane	ND	H	0.25	1	10/12/2016 16:13
1,1,2-Trichloroethane	ND	H	0.25	1	10/12/2016 16:13
Trichloroethene	ND	H	0.25	1	10/12/2016 16:13
Trichlorofluoromethane	ND	H	0.25	1	10/12/2016 16:13
1,2,3-Trichloropropane	ND	H	0.25	1	10/12/2016 16:13
Vinyl Chloride	ND	H	0.25	1	10/12/2016 16:13

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	104	H	70-130	10/12/2016 16:13
Toluene-d8	98	H	70-130	10/12/2016 16:13
4-BFB	90	H	70-130	10/12/2016 16:13

**Analyst(s):** KF



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**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/m<sup>3</sup>

## Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-5	1610435-001A	Air	10/10/2016 13:54	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	10/12/2016 11:14
Bromochloromethane	ND	H	250	1	10/12/2016 11:14
Bromodichloromethane	ND	H	250	1	10/12/2016 11:14
Bromoform	ND	H	250	1	10/12/2016 11:14
Bromomethane	ND	H	250	1	10/12/2016 11:14
Carbon Tetrachloride	ND	H	250	1	10/12/2016 11:14
Chlorobenzene	ND	H	250	1	10/12/2016 11:14
Chloroethane	ND	H	250	1	10/12/2016 11:14
Chloroform	ND	H	250	1	10/12/2016 11:14
Chloromethane	ND	H	250	1	10/12/2016 11:14
2-Chlorotoluene	ND	H	250	1	10/12/2016 11:14
4-Chlorotoluene	ND	H	250	1	10/12/2016 11:14
Dibromochloromethane	ND	H	250	1	10/12/2016 11:14
1,2-Dibromo-3-chloropropane	ND	H	250	1	10/12/2016 11:14
1,2-Dibromoethane (EDB)	ND	H	250	1	10/12/2016 11:14
Dibromomethane	ND	H	250	1	10/12/2016 11:14
1,2-Dichlorobenzene	ND	H	250	1	10/12/2016 11:14
1,3-Dichlorobenzene	ND	H	250	1	10/12/2016 11:14
1,4-Dichlorobenzene	ND	H	250	1	10/12/2016 11:14
Dichlorodifluoromethane	ND	H	250	1	10/12/2016 11:14
1,1-Dichloroethane	ND	H	250	1	10/12/2016 11:14
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	10/12/2016 11:14
1,1-Dichloroethene	ND	H	250	1	10/12/2016 11:14
cis-1,2-Dichloroethene	ND	H	250	1	10/12/2016 11:14
trans-1,2-Dichloroethene	ND	H	250	1	10/12/2016 11:14
1,2-Dichloropropane	ND	H	250	1	10/12/2016 11:14
1,3-Dichloropropane	ND	H	250	1	10/12/2016 11:14
2,2-Dichloropropane	ND	H	250	1	10/12/2016 11:14
1,1-Dichloropropene	ND	H	250	1	10/12/2016 11:14
cis-1,3-Dichloropropene	ND	H	250	1	10/12/2016 11:14
trans-1,3-Dichloropropene	ND	H	250	1	10/12/2016 11:14
Freon 113	ND	H	5000	1	10/12/2016 11:14
Hexachlorobutadiene	ND	H	250	1	10/12/2016 11:14
Hexachloroethane	ND	H	250	1	10/12/2016 11:14
Methylene chloride	ND	H	250	1	10/12/2016 11:14
1,1,1,2-Tetrachloroethane	ND	H	250	1	10/12/2016 11:14
1,1,2,2-Tetrachloroethane	ND	H	250	1	10/12/2016 11:14

(Cont.)



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**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/m<sup>3</sup>

### Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-5	1610435-001A	Air	10/10/2016 13:54	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	250	1	10/12/2016 11:14
1,2,3-Trichlorobenzene	ND	H	250	1	10/12/2016 11:14
1,2,4-Trichlorobenzene	ND	H	250	1	10/12/2016 11:14
1,1,1-Trichloroethane	ND	H	250	1	10/12/2016 11:14
1,1,2-Trichloroethane	ND	H	250	1	10/12/2016 11:14
Trichloroethene	ND	H	250	1	10/12/2016 11:14
Trichlorofluoromethane	ND	H	250	1	10/12/2016 11:14
1,2,3-Trichloropropane	ND	H	250	1	10/12/2016 11:14
Vinyl Chloride	ND	H	250	1	10/12/2016 11:14

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	102	H	70-130	10/12/2016 11:14
Toluene-d8	102	H	70-130	10/12/2016 11:14
4-BFB	94	H	70-130	10/12/2016 11:14

Analyst(s): KF



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**Unit:** µg/m<sup>3</sup>

## Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-1	1610435-002A	Air	10/10/2016 13:58	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	10/12/2016 11:53
Bromochloromethane	ND	H	250	1	10/12/2016 11:53
Bromodichloromethane	ND	H	250	1	10/12/2016 11:53
Bromoform	ND	H	250	1	10/12/2016 11:53
Bromomethane	ND	H	250	1	10/12/2016 11:53
Carbon Tetrachloride	ND	H	250	1	10/12/2016 11:53
Chlorobenzene	ND	H	250	1	10/12/2016 11:53
Chloroethane	ND	H	250	1	10/12/2016 11:53
Chloroform	ND	H	250	1	10/12/2016 11:53
Chloromethane	ND	H	250	1	10/12/2016 11:53
2-Chlorotoluene	ND	H	250	1	10/12/2016 11:53
4-Chlorotoluene	ND	H	250	1	10/12/2016 11:53
Dibromochloromethane	ND	H	250	1	10/12/2016 11:53
1,2-Dibromo-3-chloropropane	ND	H	250	1	10/12/2016 11:53
1,2-Dibromoethane (EDB)	ND	H	250	1	10/12/2016 11:53
Dibromomethane	ND	H	250	1	10/12/2016 11:53
1,2-Dichlorobenzene	ND	H	250	1	10/12/2016 11:53
1,3-Dichlorobenzene	ND	H	250	1	10/12/2016 11:53
1,4-Dichlorobenzene	ND	H	250	1	10/12/2016 11:53
Dichlorodifluoromethane	ND	H	250	1	10/12/2016 11:53
1,1-Dichloroethane	ND	H	250	1	10/12/2016 11:53
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	10/12/2016 11:53
1,1-Dichloroethene	ND	H	250	1	10/12/2016 11:53
cis-1,2-Dichloroethene	ND	H	250	1	10/12/2016 11:53
trans-1,2-Dichloroethene	ND	H	250	1	10/12/2016 11:53
1,2-Dichloropropane	ND	H	250	1	10/12/2016 11:53
1,3-Dichloropropane	ND	H	250	1	10/12/2016 11:53
2,2-Dichloropropane	ND	H	250	1	10/12/2016 11:53
1,1-Dichloropropene	ND	H	250	1	10/12/2016 11:53
cis-1,3-Dichloropropene	ND	H	250	1	10/12/2016 11:53
trans-1,3-Dichloropropene	ND	H	250	1	10/12/2016 11:53
Freon 113	ND	H	5000	1	10/12/2016 11:53
Hexachlorobutadiene	ND	H	250	1	10/12/2016 11:53
Hexachloroethane	ND	H	250	1	10/12/2016 11:53
Methylene chloride	ND	H	250	1	10/12/2016 11:53
1,1,1,2-Tetrachloroethane	ND	H	250	1	10/12/2016 11:53
1,1,2,2-Tetrachloroethane	ND	H	250	1	10/12/2016 11:53

(Cont.)



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**Unit:** µg/m<sup>3</sup>

### Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-1	1610435-002A	Air	10/10/2016 13:58	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	580	H	250	1	10/12/2016 11:53
1,2,3-Trichlorobenzene	ND	H	250	1	10/12/2016 11:53
1,2,4-Trichlorobenzene	ND	H	250	1	10/12/2016 11:53
1,1,1-Trichloroethane	ND	H	250	1	10/12/2016 11:53
1,1,2-Trichloroethane	ND	H	250	1	10/12/2016 11:53
Trichloroethene	ND	H	250	1	10/12/2016 11:53
Trichlorofluoromethane	ND	H	250	1	10/12/2016 11:53
1,2,3-Trichloropropane	ND	H	250	1	10/12/2016 11:53
Vinyl Chloride	ND	H	250	1	10/12/2016 11:53

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	102	H	70-130	10/12/2016 11:53
Toluene-d8	102	H	70-130	10/12/2016 11:53
4-BFB	90	H	70-130	10/12/2016 11:53

Analyst(s): KF



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**Unit:** µg/m<sup>3</sup>

## Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-4	1610435-003A	Air	10/10/2016 14:03	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	10/12/2016 12:33
Bromochloromethane	ND	H	250	1	10/12/2016 12:33
Bromodichloromethane	ND	H	250	1	10/12/2016 12:33
Bromoform	ND	H	250	1	10/12/2016 12:33
Bromomethane	ND	H	250	1	10/12/2016 12:33
Carbon Tetrachloride	ND	H	250	1	10/12/2016 12:33
Chlorobenzene	ND	H	250	1	10/12/2016 12:33
Chloroethane	ND	H	250	1	10/12/2016 12:33
Chloroform	ND	H	250	1	10/12/2016 12:33
Chloromethane	ND	H	250	1	10/12/2016 12:33
2-Chlorotoluene	ND	H	250	1	10/12/2016 12:33
4-Chlorotoluene	ND	H	250	1	10/12/2016 12:33
Dibromochloromethane	ND	H	250	1	10/12/2016 12:33
1,2-Dibromo-3-chloropropane	ND	H	250	1	10/12/2016 12:33
1,2-Dibromoethane (EDB)	ND	H	250	1	10/12/2016 12:33
Dibromomethane	ND	H	250	1	10/12/2016 12:33
1,2-Dichlorobenzene	ND	H	250	1	10/12/2016 12:33
1,3-Dichlorobenzene	ND	H	250	1	10/12/2016 12:33
1,4-Dichlorobenzene	ND	H	250	1	10/12/2016 12:33
Dichlorodifluoromethane	ND	H	250	1	10/12/2016 12:33
1,1-Dichloroethane	ND	H	250	1	10/12/2016 12:33
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	10/12/2016 12:33
1,1-Dichloroethene	ND	H	250	1	10/12/2016 12:33
cis-1,2-Dichloroethene	ND	H	250	1	10/12/2016 12:33
trans-1,2-Dichloroethene	ND	H	250	1	10/12/2016 12:33
1,2-Dichloropropane	ND	H	250	1	10/12/2016 12:33
1,3-Dichloropropane	ND	H	250	1	10/12/2016 12:33
2,2-Dichloropropane	ND	H	250	1	10/12/2016 12:33
1,1-Dichloropropene	ND	H	250	1	10/12/2016 12:33
cis-1,3-Dichloropropene	ND	H	250	1	10/12/2016 12:33
trans-1,3-Dichloropropene	ND	H	250	1	10/12/2016 12:33
Freon 113	ND	H	5000	1	10/12/2016 12:33
Hexachlorobutadiene	ND	H	250	1	10/12/2016 12:33
Hexachloroethane	ND	H	250	1	10/12/2016 12:33
Methylene chloride	ND	H	250	1	10/12/2016 12:33
1,1,1,2-Tetrachloroethane	ND	H	250	1	10/12/2016 12:33
1,1,2,2-Tetrachloroethane	ND	H	250	1	10/12/2016 12:33

(Cont.)



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### Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-4	1610435-003A	Air	10/10/2016 14:03	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	370	H	250	1	10/12/2016 12:33
1,2,3-Trichlorobenzene	ND	H	250	1	10/12/2016 12:33
1,2,4-Trichlorobenzene	ND	H	250	1	10/12/2016 12:33
1,1,1-Trichloroethane	ND	H	250	1	10/12/2016 12:33
1,1,2-Trichloroethane	ND	H	250	1	10/12/2016 12:33
Trichloroethene	ND	H	250	1	10/12/2016 12:33
Trichlorofluoromethane	ND	H	250	1	10/12/2016 12:33
1,2,3-Trichloropropane	ND	H	250	1	10/12/2016 12:33
Vinyl Chloride	ND	H	250	1	10/12/2016 12:33

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	104	H	70-130	10/12/2016 12:33
Toluene-d8	99	H	70-130	10/12/2016 12:33
4-BFB	90	H	70-130	10/12/2016 12:33

Analyst(s): KF





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**Unit:** µg/m<sup>3</sup>

### Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-2	1610435-004A	Air	10/10/2016 14:10	GC18	128055
Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	10/12/2016 13:13
Bromochloromethane	ND	H	250	1	10/12/2016 13:13
Bromodichloromethane	ND	H	250	1	10/12/2016 13:13
Bromoform	ND	H	250	1	10/12/2016 13:13
Bromomethane	ND	H	250	1	10/12/2016 13:13
Carbon Tetrachloride	ND	H	250	1	10/12/2016 13:13
Chlorobenzene	ND	H	250	1	10/12/2016 13:13
Chloroethane	ND	H	250	1	10/12/2016 13:13
Chloroform	ND	H	250	1	10/12/2016 13:13
Chloromethane	ND	H	250	1	10/12/2016 13:13
2-Chlorotoluene	ND	H	250	1	10/12/2016 13:13
4-Chlorotoluene	ND	H	250	1	10/12/2016 13:13
Dibromochloromethane	ND	H	250	1	10/12/2016 13:13
1,2-Dibromo-3-chloropropane	ND	H	250	1	10/12/2016 13:13
1,2-Dibromoethane (EDB)	ND	H	250	1	10/12/2016 13:13
Dibromomethane	ND	H	250	1	10/12/2016 13:13
1,2-Dichlorobenzene	ND	H	250	1	10/12/2016 13:13
1,3-Dichlorobenzene	ND	H	250	1	10/12/2016 13:13
1,4-Dichlorobenzene	ND	H	250	1	10/12/2016 13:13
Dichlorodifluoromethane	ND	H	250	1	10/12/2016 13:13
1,1-Dichloroethane	ND	H	250	1	10/12/2016 13:13
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	10/12/2016 13:13
1,1-Dichloroethene	ND	H	250	1	10/12/2016 13:13
cis-1,2-Dichloroethene	ND	H	250	1	10/12/2016 13:13
trans-1,2-Dichloroethene	ND	H	250	1	10/12/2016 13:13
1,2-Dichloropropane	ND	H	250	1	10/12/2016 13:13
1,3-Dichloropropane	ND	H	250	1	10/12/2016 13:13
2,2-Dichloropropane	ND	H	250	1	10/12/2016 13:13
1,1-Dichloropropene	ND	H	250	1	10/12/2016 13:13
cis-1,3-Dichloropropene	ND	H	250	1	10/12/2016 13:13
trans-1,3-Dichloropropene	ND	H	250	1	10/12/2016 13:13
Freon 113	ND	H	5000	1	10/12/2016 13:13
Hexachlorobutadiene	ND	H	250	1	10/12/2016 13:13
Hexachloroethane	ND	H	250	1	10/12/2016 13:13
Methylene chloride	ND	H	250	1	10/12/2016 13:13
1,1,1,2-Tetrachloroethane	ND	H	250	1	10/12/2016 13:13
1,1,2,2-Tetrachloroethane	ND	H	250	1	10/12/2016 13:13

(Cont.)



## Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/m<sup>3</sup>

### Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-2	1610435-004A	Air	10/10/2016 14:10	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	680	H	250	1	10/12/2016 13:13
1,2,3-Trichlorobenzene	ND	H	250	1	10/12/2016 13:13
1,2,4-Trichlorobenzene	ND	H	250	1	10/12/2016 13:13
1,1,1-Trichloroethane	ND	H	250	1	10/12/2016 13:13
1,1,2-Trichloroethane	ND	H	250	1	10/12/2016 13:13
Trichloroethene	ND	H	250	1	10/12/2016 13:13
Trichlorofluoromethane	ND	H	250	1	10/12/2016 13:13
1,2,3-Trichloropropane	ND	H	250	1	10/12/2016 13:13
Vinyl Chloride	ND	H	250	1	10/12/2016 13:13

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	104	H	70-130	10/12/2016 13:13
Toluene-d8	99	H	70-130	10/12/2016 13:13
4-BFB	89	H	70-130	10/12/2016 13:13

Analyst(s): KF



# Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/m<sup>3</sup>

## Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-8	1610435-005A	Air	10/10/2016 14:13	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	10/12/2016 13:54
Bromochloromethane	ND	H	250	1	10/12/2016 13:54
Bromodichloromethane	ND	H	250	1	10/12/2016 13:54
Bromoform	ND	H	250	1	10/12/2016 13:54
Bromomethane	ND	H	250	1	10/12/2016 13:54
Carbon Tetrachloride	ND	H	250	1	10/12/2016 13:54
Chlorobenzene	ND	H	250	1	10/12/2016 13:54
Chloroethane	ND	H	250	1	10/12/2016 13:54
Chloroform	ND	H	250	1	10/12/2016 13:54
Chloromethane	ND	H	250	1	10/12/2016 13:54
2-Chlorotoluene	ND	H	250	1	10/12/2016 13:54
4-Chlorotoluene	ND	H	250	1	10/12/2016 13:54
Dibromochloromethane	ND	H	250	1	10/12/2016 13:54
1,2-Dibromo-3-chloropropane	ND	H	250	1	10/12/2016 13:54
1,2-Dibromoethane (EDB)	ND	H	250	1	10/12/2016 13:54
Dibromomethane	ND	H	250	1	10/12/2016 13:54
1,2-Dichlorobenzene	ND	H	250	1	10/12/2016 13:54
1,3-Dichlorobenzene	ND	H	250	1	10/12/2016 13:54
1,4-Dichlorobenzene	ND	H	250	1	10/12/2016 13:54
Dichlorodifluoromethane	ND	H	250	1	10/12/2016 13:54
1,1-Dichloroethane	ND	H	250	1	10/12/2016 13:54
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	10/12/2016 13:54
1,1-Dichloroethene	ND	H	250	1	10/12/2016 13:54
cis-1,2-Dichloroethene	ND	H	250	1	10/12/2016 13:54
trans-1,2-Dichloroethene	ND	H	250	1	10/12/2016 13:54
1,2-Dichloropropane	ND	H	250	1	10/12/2016 13:54
1,3-Dichloropropane	ND	H	250	1	10/12/2016 13:54
2,2-Dichloropropane	ND	H	250	1	10/12/2016 13:54
1,1-Dichloropropene	ND	H	250	1	10/12/2016 13:54
cis-1,3-Dichloropropene	ND	H	250	1	10/12/2016 13:54
trans-1,3-Dichloropropene	ND	H	250	1	10/12/2016 13:54
Freon 113	ND	H	5000	1	10/12/2016 13:54
Hexachlorobutadiene	ND	H	250	1	10/12/2016 13:54
Hexachloroethane	ND	H	250	1	10/12/2016 13:54
Methylene chloride	ND	H	250	1	10/12/2016 13:54
1,1,1,2-Tetrachloroethane	ND	H	250	1	10/12/2016 13:54
1,1,2,2-Tetrachloroethane	ND	H	250	1	10/12/2016 13:54

(Cont.)



## Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/m<sup>3</sup>

### Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-8	1610435-005A	Air	10/10/2016 14:13	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	250	1	10/12/2016 13:54
1,2,3-Trichlorobenzene	ND	H	250	1	10/12/2016 13:54
1,2,4-Trichlorobenzene	ND	H	250	1	10/12/2016 13:54
1,1,1-Trichloroethane	ND	H	250	1	10/12/2016 13:54
1,1,2-Trichloroethane	ND	H	250	1	10/12/2016 13:54
Trichloroethene	ND	H	250	1	10/12/2016 13:54
Trichlorofluoromethane	ND	H	250	1	10/12/2016 13:54
1,2,3-Trichloropropane	ND	H	250	1	10/12/2016 13:54
Vinyl Chloride	ND	H	250	1	10/12/2016 13:54

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	101	H	70-130	10/12/2016 13:54
Toluene-d8	102	H	70-130	10/12/2016 13:54
4-BFB	89	H	70-130	10/12/2016 13:54

**Analyst(s):** KF



# Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/m<sup>3</sup>

## Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SSE-5	1610435-007A	Air	10/10/2016 14:24	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	10/12/2016 17:45
Bromochloromethane	ND	H	250	1	10/12/2016 17:45
Bromodichloromethane	ND	H	250	1	10/12/2016 17:45
Bromoform	ND	H	250	1	10/12/2016 17:45
Bromomethane	ND	H	250	1	10/12/2016 17:45
Carbon Tetrachloride	ND	H	250	1	10/12/2016 17:45
Chlorobenzene	ND	H	250	1	10/12/2016 17:45
Chloroethane	ND	H	250	1	10/12/2016 17:45
Chloroform	ND	H	250	1	10/12/2016 17:45
Chloromethane	ND	H	250	1	10/12/2016 17:45
2-Chlorotoluene	ND	H	250	1	10/12/2016 17:45
4-Chlorotoluene	ND	H	250	1	10/12/2016 17:45
Dibromochloromethane	ND	H	250	1	10/12/2016 17:45
1,2-Dibromo-3-chloropropane	ND	H	250	1	10/12/2016 17:45
1,2-Dibromoethane (EDB)	ND	H	250	1	10/12/2016 17:45
Dibromomethane	ND	H	250	1	10/12/2016 17:45
1,2-Dichlorobenzene	ND	H	250	1	10/12/2016 17:45
1,3-Dichlorobenzene	ND	H	250	1	10/12/2016 17:45
1,4-Dichlorobenzene	ND	H	250	1	10/12/2016 17:45
Dichlorodifluoromethane	ND	H	250	1	10/12/2016 17:45
1,1-Dichloroethane	ND	H	250	1	10/12/2016 17:45
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	10/12/2016 17:45
1,1-Dichloroethene	ND	H	250	1	10/12/2016 17:45
cis-1,2-Dichloroethene	ND	H	250	1	10/12/2016 17:45
trans-1,2-Dichloroethene	ND	H	250	1	10/12/2016 17:45
1,2-Dichloropropane	ND	H	250	1	10/12/2016 17:45
1,3-Dichloropropane	ND	H	250	1	10/12/2016 17:45
2,2-Dichloropropane	ND	H	250	1	10/12/2016 17:45
1,1-Dichloropropene	ND	H	250	1	10/12/2016 17:45
cis-1,3-Dichloropropene	ND	H	250	1	10/12/2016 17:45
trans-1,3-Dichloropropene	ND	H	250	1	10/12/2016 17:45
Freon 113	ND	H	5000	1	10/12/2016 17:45
Hexachlorobutadiene	ND	H	250	1	10/12/2016 17:45
Hexachloroethane	ND	H	250	1	10/12/2016 17:45
Methylene chloride	ND	H	250	1	10/12/2016 17:45
1,1,1,2-Tetrachloroethane	ND	H	250	1	10/12/2016 17:45
1,1,2,2-Tetrachloroethane	ND	H	250	1	10/12/2016 17:45

(Cont.)



## Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/m<sup>3</sup>

### Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SSE-5	1610435-007A	Air	10/10/2016 14:24	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	250	1	10/12/2016 17:45
1,2,3-Trichlorobenzene	ND	H	250	1	10/12/2016 17:45
1,2,4-Trichlorobenzene	ND	H	250	1	10/12/2016 17:45
1,1,1-Trichloroethane	ND	H	250	1	10/12/2016 17:45
1,1,2-Trichloroethane	ND	H	250	1	10/12/2016 17:45
Trichloroethene	ND	H	250	1	10/12/2016 17:45
Trichlorofluoromethane	ND	H	250	1	10/12/2016 17:45
1,2,3-Trichloropropane	ND	H	250	1	10/12/2016 17:45
Vinyl Chloride	ND	H	250	1	10/12/2016 17:45

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	105	H	70-130	10/12/2016 17:45
Toluene-d8	98	H	70-130	10/12/2016 17:45
4-BFB	86	H	70-130	10/12/2016 17:45

**Analyst(s):** KF



# Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/m<sup>3</sup>

## Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-7	1610435-008A	Air	10/10/2016 14:32	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	10/12/2016 15:32
Bromochloromethane	ND	H	250	1	10/12/2016 15:32
Bromodichloromethane	ND	H	250	1	10/12/2016 15:32
Bromoform	ND	H	250	1	10/12/2016 15:32
Bromomethane	ND	H	250	1	10/12/2016 15:32
Carbon Tetrachloride	ND	H	250	1	10/12/2016 15:32
Chlorobenzene	ND	H	250	1	10/12/2016 15:32
Chloroethane	ND	H	250	1	10/12/2016 15:32
Chloroform	ND	H	250	1	10/12/2016 15:32
Chloromethane	ND	H	250	1	10/12/2016 15:32
2-Chlorotoluene	ND	H	250	1	10/12/2016 15:32
4-Chlorotoluene	ND	H	250	1	10/12/2016 15:32
Dibromochloromethane	ND	H	250	1	10/12/2016 15:32
1,2-Dibromo-3-chloropropane	ND	H	250	1	10/12/2016 15:32
1,2-Dibromoethane (EDB)	ND	H	250	1	10/12/2016 15:32
Dibromomethane	ND	H	250	1	10/12/2016 15:32
1,2-Dichlorobenzene	ND	H	250	1	10/12/2016 15:32
1,3-Dichlorobenzene	ND	H	250	1	10/12/2016 15:32
1,4-Dichlorobenzene	ND	H	250	1	10/12/2016 15:32
Dichlorodifluoromethane	ND	H	250	1	10/12/2016 15:32
1,1-Dichloroethane	ND	H	250	1	10/12/2016 15:32
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	10/12/2016 15:32
1,1-Dichloroethene	ND	H	250	1	10/12/2016 15:32
cis-1,2-Dichloroethene	ND	H	250	1	10/12/2016 15:32
trans-1,2-Dichloroethene	ND	H	250	1	10/12/2016 15:32
1,2-Dichloropropane	ND	H	250	1	10/12/2016 15:32
1,3-Dichloropropane	ND	H	250	1	10/12/2016 15:32
2,2-Dichloropropane	ND	H	250	1	10/12/2016 15:32
1,1-Dichloropropene	ND	H	250	1	10/12/2016 15:32
cis-1,3-Dichloropropene	ND	H	250	1	10/12/2016 15:32
trans-1,3-Dichloropropene	ND	H	250	1	10/12/2016 15:32
Freon 113	ND	H	5000	1	10/12/2016 15:32
Hexachlorobutadiene	ND	H	250	1	10/12/2016 15:32
Hexachloroethane	ND	H	250	1	10/12/2016 15:32
Methylene chloride	ND	H	250	1	10/12/2016 15:32
1,1,1,2-Tetrachloroethane	ND	H	250	1	10/12/2016 15:32
1,1,2,2-Tetrachloroethane	ND	H	250	1	10/12/2016 15:32

(Cont.)



# Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/m³

## Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SVE-7	1610435-008A	Air	10/10/2016 14:32	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	250	1	10/12/2016 15:32
1,2,3-Trichlorobenzene	ND	H	250	1	10/12/2016 15:32
1,2,4-Trichlorobenzene	ND	H	250	1	10/12/2016 15:32
1,1,1-Trichloroethane	ND	H	250	1	10/12/2016 15:32
1,1,2-Trichloroethane	ND	H	250	1	10/12/2016 15:32
Trichloroethene	ND	H	250	1	10/12/2016 15:32
Trichlorofluoromethane	ND	H	250	1	10/12/2016 15:32
1,2,3-Trichloropropane	ND	H	250	1	10/12/2016 15:32
Vinyl Chloride	ND	H	250	1	10/12/2016 15:32

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	104	H	70-130	10/12/2016 15:32
Toluene-d8	98	H	70-130	10/12/2016 15:32
4-BFB	88	H	70-130	10/12/2016 15:32

Analyst(s): KF





## Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/m<sup>3</sup>

### Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
INF	1610435-010A	Air	10/10/2016 14:50	GC18	128055
Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Bromobenzene	ND	H	250	1	10/12/2016 16:13
Bromochloromethane	ND	H	250	1	10/12/2016 16:13
Bromodichloromethane	ND	H	250	1	10/12/2016 16:13
Bromoform	ND	H	250	1	10/12/2016 16:13
Bromomethane	ND	H	250	1	10/12/2016 16:13
Carbon Tetrachloride	ND	H	250	1	10/12/2016 16:13
Chlorobenzene	ND	H	250	1	10/12/2016 16:13
Chloroethane	ND	H	250	1	10/12/2016 16:13
Chloroform	ND	H	250	1	10/12/2016 16:13
Chloromethane	ND	H	250	1	10/12/2016 16:13
2-Chlorotoluene	ND	H	250	1	10/12/2016 16:13
4-Chlorotoluene	ND	H	250	1	10/12/2016 16:13
Dibromochloromethane	ND	H	250	1	10/12/2016 16:13
1,2-Dibromo-3-chloropropane	ND	H	250	1	10/12/2016 16:13
1,2-Dibromoethane (EDB)	ND	H	250	1	10/12/2016 16:13
Dibromomethane	ND	H	250	1	10/12/2016 16:13
1,2-Dichlorobenzene	ND	H	250	1	10/12/2016 16:13
1,3-Dichlorobenzene	ND	H	250	1	10/12/2016 16:13
1,4-Dichlorobenzene	ND	H	250	1	10/12/2016 16:13
Dichlorodifluoromethane	ND	H	250	1	10/12/2016 16:13
1,1-Dichloroethane	ND	H	250	1	10/12/2016 16:13
1,2-Dichloroethane (1,2-DCA)	ND	H	250	1	10/12/2016 16:13
1,1-Dichloroethene	ND	H	250	1	10/12/2016 16:13
cis-1,2-Dichloroethene	ND	H	250	1	10/12/2016 16:13
trans-1,2-Dichloroethene	ND	H	250	1	10/12/2016 16:13
1,2-Dichloropropane	ND	H	250	1	10/12/2016 16:13
1,3-Dichloropropane	ND	H	250	1	10/12/2016 16:13
2,2-Dichloropropane	ND	H	250	1	10/12/2016 16:13
1,1-Dichloropropene	ND	H	250	1	10/12/2016 16:13
cis-1,3-Dichloropropene	ND	H	250	1	10/12/2016 16:13
trans-1,3-Dichloropropene	ND	H	250	1	10/12/2016 16:13
Freon 113	ND	H	5000	1	10/12/2016 16:13
Hexachlorobutadiene	ND	H	250	1	10/12/2016 16:13
Hexachloroethane	ND	H	250	1	10/12/2016 16:13
Methylene chloride	ND	H	250	1	10/12/2016 16:13
1,1,1,2-Tetrachloroethane	ND	H	250	1	10/12/2016 16:13
1,1,2,2-Tetrachloroethane	ND	H	250	1	10/12/2016 16:13

(Cont.)



## Analytical Report

**Client:** LRM Consulting, Inc.  
**Date Received:** 10/11/16 16:40  
**Date Prepared:** 10/12/16  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/m<sup>3</sup>

### Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
INF	1610435-010A	Air	10/10/2016 14:50	GC18	128055

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Tetrachloroethene	ND	H	250	1	10/12/2016 16:13
1,2,3-Trichlorobenzene	ND	H	250	1	10/12/2016 16:13
1,2,4-Trichlorobenzene	ND	H	250	1	10/12/2016 16:13
1,1,1-Trichloroethane	ND	H	250	1	10/12/2016 16:13
1,1,2-Trichloroethane	ND	H	250	1	10/12/2016 16:13
Trichloroethene	ND	H	250	1	10/12/2016 16:13
Trichlorofluoromethane	ND	H	250	1	10/12/2016 16:13
1,2,3-Trichloropropane	ND	H	250	1	10/12/2016 16:13
Vinyl Chloride	ND	H	250	1	10/12/2016 16:13

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Dibromofluoromethane	104	H	70-130	10/12/2016 16:13
Toluene-d8	98	H	70-130	10/12/2016 16:13
4-BFB	90	H	70-130	10/12/2016 16:13

**Analyst(s):** KF



## Quality Control Report

**Client:** LRM Consulting, Inc.  
**Date Prepared:** 10/12/16  
**Date Analyzed:** 10/12/16  
**Instrument:** GC18  
**Matrix:** Air  
**Project:** TM Ellwood; Red Hanger


**WorkOrder:** 1610435  
**BatchID:** 128055  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L  
**Sample ID:** MB/LCS/LCSD-128055

### QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Bromobenzene	ND	0.25	-	-	-
Bromochloromethane	ND	0.25	-	-	-
Bromodichloromethane	ND	0.25	-	-	-
Bromoform	ND	0.25	-	-	-
Bromomethane	ND	0.25	-	-	-
Carbon Tetrachloride	ND	0.25	-	-	-
Chlorobenzene	ND	0.25	-	-	-
Chloroethane	ND	0.25	-	-	-
Chloroform	ND	0.25	-	-	-
Chloromethane	ND	0.25	-	-	-
2-Chlorotoluene	ND	0.25	-	-	-
4-Chlorotoluene	ND	0.25	-	-	-
Dibromochloromethane	ND	0.25	-	-	-
1,2-Dibromo-3-chloropropane	ND	0.25	-	-	-
1,2-Dibromoethane (EDB)	ND	0.25	-	-	-
Dibromomethane	ND	0.25	-	-	-
1,2-Dichlorobenzene	ND	0.25	-	-	-
1,3-Dichlorobenzene	ND	0.25	-	-	-
1,4-Dichlorobenzene	ND	0.25	-	-	-
Dichlorodifluoromethane	ND	0.25	-	-	-
1,1-Dichloroethane	ND	0.25	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	0.25	-	-	-
1,1-Dichloroethene	ND	0.25	-	-	-
cis-1,2-Dichloroethene	ND	0.25	-	-	-
trans-1,2-Dichloroethene	ND	0.25	-	-	-
1,2-Dichloropropane	ND	0.25	-	-	-
1,3-Dichloropropane	ND	0.25	-	-	-
2,2-Dichloropropane	ND	0.25	-	-	-
1,1-Dichloropropene	ND	0.25	-	-	-
cis-1,3-Dichloropropene	ND	0.25	-	-	-
trans-1,3-Dichloropropene	ND	0.25	-	-	-
Freon 113	ND	5.0	-	-	-
Hexachlorobutadiene	ND	0.25	-	-	-
Hexachloroethane	ND	0.25	-	-	-
Methylene chloride	ND	0.25	-	-	-
1,1,1,2-Tetrachloroethane	ND	0.25	-	-	-
1,1,2,2-Tetrachloroethane	ND	0.25	-	-	-
Tetrachloroethene	ND	0.25	-	-	-
1,2,3-Trichlorobenzene	ND	0.25	-	-	-

(Cont.)

NELAP 4033ORELAP

 QA/QC Officer



## Quality Control Report

**Client:** LRM Consulting, Inc.  
**Date Prepared:** 10/12/16  
**Date Analyzed:** 10/12/16  
**Instrument:** GC18  
**Matrix:** Air  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**BatchID:** 128055  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L  
**Sample ID:** MB/LCS/LCSD-128055

### QC Summary Report for SW8260B

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
1,2,4-Trichlorobenzene	ND	0.25	-	-	-
1,1,1-Trichloroethane	ND	0.25	-	-	-
1,1,2-Trichloroethane	ND	0.25	-	-	-
Trichloroethene	ND	0.25	-	-	-
Trichlorofluoromethane	ND	0.25	-	-	-
1,2,3-Trichloropropane	ND	0.25	-	-	-
Vinyl Chloride	ND	0.25	-	-	-
<b>Surrogate Recovery</b>					
Dibromofluoromethane	12.6		12.5	100	70-130
Toluene-d8	12.7		12.5	101	70-130
4-BFB	1.21		1.25	97	70-130



## Quality Control Report

**Client:** LRM Consulting, Inc.  
**Date Prepared:** 10/12/16  
**Date Analyzed:** 10/12/16  
**Instrument:** GC18  
**Matrix:** Air  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**BatchID:** 128055  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L  
**Sample ID:** MB/LCS/LCSD-128055

### QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Bromobenzene	4.56	4.36	5	91	87	60-140	4.42	30
Bromochloromethane	4.96	4.81	5	99	96	60-140	3.08	30
Bromodichloromethane	4.80	4.65	5	96	93	60-140	3.31	30
Bromoform	3.74	3.61	5	75	72	60-140	3.55	30
Bromomethane	4.63	4.78	5	93	95	60-140	3.05	30
Carbon Tetrachloride	4.55	4.50	5	91	90	60-140	0.978	30
Chlorobenzene	4.55	4.50	5	91	90	60-140	1.11	30
Chloroethane	3.54	3.57	5	71	71	60-140	0	30
Chloroform	4.39	4.34	5	88	87	60-140	1.16	30
Chloromethane	3.81	3.54	5	76	71	60-140	7.27	30
2-Chlorotoluene	4.47	4.35	5	89	87	60-140	2.75	30
4-Chlorotoluene	4.32	4.19	5	86	84	60-140	3.06	30
Dibromochloromethane	4.70	4.58	5	94	92	60-140	2.59	30
1,2-Dibromo-3-chloropropane	1.35	1.29	2	68	64	60-140	4.85	30
1,2-Dibromoethane (EDB)	4.59	4.48	5	92	90	60-140	2.50	30
Dibromomethane	4.55	4.38	5	91	88	60-140	3.61	30
1,2-Dichlorobenzene	4.23	4.15	5	85	83	60-140	2.05	30
1,3-Dichlorobenzene	4.27	4.20	5	85	84	60-140	1.71	30
1,4-Dichlorobenzene	4.17	4.08	5	83	82	60-140	2.16	30
Dichlorodifluoromethane	3.48	3.38	5	70	68	60-140	3.18	30
1,1-Dichloroethane	4.51	4.47	5	90	89	60-140	0.811	30
1,2-Dichloroethane (1,2-DCA)	4.54	4.43	5	91	89	60-140	2.38	30
1,1-Dichloroethene	4.54	4.45	5	91	89	60-140	2.10	30
cis-1,2-Dichloroethene	4.54	4.50	5	91	90	60-140	0.979	30
trans-1,2-Dichloroethene	4.80	4.80	5	96	96	60-140	0	30
1,2-Dichloropropane	4.74	4.66	5	95	93	60-140	1.66	30
1,3-Dichloropropane	4.64	4.65	5	93	93	60-140	0	30
2,2-Dichloropropane	4.84	4.83	5	97	97	60-140	0	30
1,1-Dichloropropene	4.75	4.72	5	95	94	60-140	0.708	30
cis-1,3-Dichloropropene	4.32	4.36	5	86	87	60-140	0.927	30
trans-1,3-Dichloropropene	4.76	4.73	5	95	95	60-140	0	30
Freon 113	ND	ND	5	91	91	60-140	0	30
Hexachlorobutadiene	3.70	3.55	5	74	71	60-140	4.11	30
Hexachloroethane	2.10	2.04	5	42	41	60-140	2.95	30
Methylene chloride	4.16	4.05	5	83	81	60-140	2.54	30
1,1,1,2-Tetrachloroethane	4.71	4.65	5	94	93	60-140	1.35	30
1,1,1,2,2-Tetrachloroethane	4.47	4.34	5	89	87	60-140	2.95	30
Tetrachloroethene	4.73	4.80	5	95	96	60-140	1.60	30
1,2,3-Trichlorobenzene	3.10	2.72	5	62	54	60-140	13.1	30

(Cont.)

NELAP 4033ORELAP

QA/QC Officer



## Quality Control Report

**Client:** LRM Consulting, Inc.  
**Date Prepared:** 10/12/16  
**Date Analyzed:** 10/12/16  
**Instrument:** GC18  
**Matrix:** Air  
**Project:** TM Ellwood; Red Hanger

**WorkOrder:** 1610435  
**BatchID:** 128055  
**Extraction Method:** SW5030B  
**Analytical Method:** SW8260B  
**Unit:** µg/L  
**Sample ID:** MB/LCS/LCSD-128055

### QC Summary Report for SW8260B

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene	3.52	3.36	5	70	67	60-140	4.63	30
1,1,1-Trichloroethane	4.66	4.60	5	93	92	60-140	1.22	30
1,1,2-Trichloroethane	4.61	4.62	5	92	92	60-140	0	30
Trichloroethene	5.02	4.96	5	100	99	60-140	1.31	30
Trichlorofluoromethane	3.88	3.80	5	78	76	60-140	2.08	30
1,2,3-Trichloropropane	4.10	3.95	5	82	79	60-140	3.71	30
Vinyl Chloride	3.61	3.58	5	72	72	60-140	0	30
<b>Surrogate Recovery</b>								
Dibromofluoromethane	12.8	12.8	12.5	103	102	70-130	0.366	30
Toluene-d8	12.7	13.0	12.5	101	104	70-130	2.86	30
4-BFB	1.28	1.24	1.25	102	100	70-130	2.85	30



1534 Willow Pass Rd  
Pittsburg, CA 94565-1701  
(925) 252-9262

# CHAIN-OF-CUSTODY RECORD

WorkOrder: 1610435

ClientCode: LRMC

WaterTrax   
  WriteOn   
  EDF   
  Excel   
  EQUS   
  Email   
  HardCopy   
  ThirdParty   
  J-flag

**Report to:**

Mehrdad Javaherian  
LRM Consulting, Inc.  
1534 Plaza Lane, #145  
Burlingame, CA 94010  
(415) 706-8935    FAX:

Email: mehrdad@lrm-consulting.com  
cc/3rd Party:  
PO:  
ProjectNo: TM Ellwood; Red Hanger

**Bill to:**

Accounts Payable  
LRM Consulting, Inc.  
1534 Plaza Lane, #145  
Burlingame, CA 94010

**Requested TAT: 5 days;**

**Date Received: 10/11/2016**

**Date Logged: 10/11/2016**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1610435-001	SVE-5	Air	10/10/2016 13:54	<input type="checkbox"/>	A	A											
1610435-002	SVE-1	Air	10/10/2016 13:58	<input type="checkbox"/>	A	A											
1610435-003	SVE-4	Air	10/10/2016 14:03	<input type="checkbox"/>	A	A											
1610435-004	SVE-2	Air	10/10/2016 14:10	<input type="checkbox"/>	A	A											
1610435-005	SVE-8	Air	10/10/2016 14:13	<input type="checkbox"/>	A	A											
1610435-007	SSE-5	Air	10/10/2016 14:24	<input type="checkbox"/>	A	A											
1610435-008	SVE-7	Air	10/10/2016 14:32	<input type="checkbox"/>	A	A											
1610435-010	INF	Air	10/10/2016 14:50	<input type="checkbox"/>	A	A											

**Test Legend:**

1	8010_A	2	8010_A(UG/M3)	3		4	
5		6		7		8	
9		10		11		12	

**Prepared by: Briana Cutino**

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 007A, 008A, 010A contain testgroup 8010BMS\_A.

**Comments:**

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).  
Hazardous samples will be returned to client or disposed of at client expense.



### WORK ORDER SUMMARY

**Client Name:** LRM CONSULTING, INC.  
**Client Contact:** Mehrdad Javaherian  
**Contact's Email:** mehrdad@lrm-consulting.com

**Project:** TM Ellwood; Red Hanger

**Work Order:** 1610435  
**QC Level:** LEVEL 2  
**Date Logged:** 10/11/2016

**Comments:**

WaterTrax     WriteOn     EDF     Excel     Fax     Email     HardCopy     ThirdParty     J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1610435-001A	SVE-5	Air	HVOCs by GCMS	1	Tedlar	<input type="checkbox"/>	10/10/2016 13:54	5 days		<input type="checkbox"/>	
1610435-002A	SVE-1	Air	HVOCs by GCMS	1	Tedlar	<input type="checkbox"/>	10/10/2016 13:58	5 days		<input type="checkbox"/>	
1610435-003A	SVE-4	Air	HVOCs by GCMS	1	Tedlar	<input type="checkbox"/>	10/10/2016 14:03	5 days		<input type="checkbox"/>	
1610435-004A	SVE-2	Air	HVOCs by GCMS	1	Tedlar	<input type="checkbox"/>	10/10/2016 14:10	5 days		<input type="checkbox"/>	
1610435-005A	SVE-8	Air	HVOCs by GCMS	1	Tedlar	<input type="checkbox"/>	10/10/2016 14:13	5 days		<input type="checkbox"/>	
1610435-006A	SVE-3	Air		1	Tedlar	<input type="checkbox"/>	10/10/2016 14:18			<input checked="" type="checkbox"/>	
1610435-007A	SSE-5	Air	HVOCs by GCMS	1	Tedlar	<input type="checkbox"/>	10/10/2016 14:24	5 days		<input type="checkbox"/>	
1610435-008A	SVE-7	Air	HVOCs by GCMS	1	Tedlar	<input type="checkbox"/>	10/10/2016 14:32	5 days		<input type="checkbox"/>	
1610435-009A	SVE-6	Air		1	Tedlar	<input type="checkbox"/>	10/10/2016 14:35			<input checked="" type="checkbox"/>	
1610435-010A	INF	Air	HVOCs by GCMS	1	Tedlar	<input type="checkbox"/>	10/10/2016 14:50	5 days		<input type="checkbox"/>	

**NOTES:** - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.







### Sample Receipt Checklist

Client Name: **LRM Consulting, Inc.**  
 Project Name: **TM Ellwood; Red Hanger**  
 WorkOrder No: **1610435** Matrix: Air  
 Carrier: Bernie Cummins (MAI Courier)

Date and Time Received: **10/11/2016 16:40**  
 Date Logged: **10/11/2016**  
 Received by: **Briana Cutino**  
 Logged by: **Briana Cutino**

#### Chain of Custody (COC) Information

Chain of custody present? Yes  No   
 Chain of custody signed when relinquished and received? Yes  No   
 Chain of custody agrees with sample labels? Yes  No   
 Sample IDs noted by Client on COC? Yes  No   
 Date and Time of collection noted by Client on COC? Yes  No   
 Sampler's name noted on COC? Yes  No

#### Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes  No  NA   
 Shipping container/cooler in good condition? Yes  No   
 Samples in proper containers/bottles? Yes  No   
 Sample containers intact? Yes  No   
 Sufficient sample volume for indicated test? Yes  No

#### Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes  No   
 Sample/Temp Blank temperature Temp: NA   
 Water - VOA vials have zero headspace / no bubbles? Yes  No  NA   
 Sample labels checked for correct preservation? Yes  No   
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes  No  NA   
 Samples Received on Ice? Yes  No

#### UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes  No  NA   
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes  No  NA

Comments: Method SW8260B (HVOCs List) was received passed its 0.25-day holding time.