

**PHASE II ENVIRONMENTAL SITE ASSESSMENT
U.S. EPA BROWNFIELDS
PETROLEUM SUBSTANCES ASSESSMENT GRANT**

**411 EAST 15TH STREET
DUBUQUE COUNTY
DUBUQUE, IOWA**



HR GREEN, INC. PROJECT NO. 10140076

OCTOBER 4, 2016

**PREPARED FOR:
CITY OF DUBUQUE**

PREPARED BY:



**PHASE II ENVIRONMENTAL SITE ASSESSMENT
US EPA BROWNFIELDS PETROLEUM
ASSESSMENT GRANT:
EPA COOPERATIVE AGREEMENT NO. 97741401**

**411 East 15th Street
Dubuque County
Dubuque, Iowa**

October 4, 2016

HR GREEN, INC. PROJECT NO. 10140076

Prepared for:

**CITY OF DUBUQUE
50 W. 13TH STREET
DUBUQUE, IA 52001**



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GLOSSARY OF TERMS

BGS - Below Ground Surface

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

Calculator – IDNR Cumulative Risk Calculator

EPA – Environmental Protection Agency

ESA – Environmental Site Assessment

HR Green – HR Green, Inc.

IAC - Iowa Administrative Code

IDNR - Iowa Department of Natural Resources

QA/QC – Quality Assurance / Quality Control

LCS – Laboratory Control Sample

LCSD - LCS Duplicate

LRP - Land Recycling Program

LUST – Leaking Underground Storage Tank

MDL – Method Detection Limit

NFA – No Further Action

PAH – Polycyclic Aromatic Hydrocarbon

PCB – Polychlorinated Biphenyl

PID – Photoionization Detector

Range 1 – 0-2' bgs – shallow soils

Range 2 – >2' bgs – deep soils

RCRA Metals – Resource Conservation and Recovery Act metals

REC(s) – Recognized Environmental Condition(s) as used by ASTM Standard E 1527-13 is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions.

ROW – Public right-of-way

RPD - Relative Percent Difference

SWS(s) – Statewide Standard(s)

SVOC – Semi-Volatile Aromatic Hydrocarbons

TEH – Total Extractable Hydrocarbon

Tier 1 – Values from the Iowa Tier 1 Level Look-Up Table are provided for applicable compounds

UST - Underground Storage Tank

VOC - Volatile Organic Compound

1.0 EXECUTIVE SUMMARY

The City of Dubuque has retained HR Green to conduct a Phase II ESA on a property owned by Blum Properties Inc. generally located at 411 East 15th Street encompassing 1.30 acres of land in Dubuque, Dubuque County, Iowa (Figure 1, Appendix B). This report hereinafter refers to the property as the “subject property.”

A Phase II Sampling Plan for Phase II ESA activities was prepared and submitted to the EPA Project Manager for approval. The findings and conclusions of this Phase II ESA are summarized as follows:

- **Range 1 Soil:** A total of one (1) PCB, one (1) TEH, seventeen (17) PAHs, nineteen (19) VOCs, and seven (7) RCRA metals were detected in Range 1 soil and seven (7) PCBs and one (1) VOC reported as non-detect concentrations above applicable SWSSs. Results for total PCBs, waste oil, benzo(a)pyrene, 1,2,3-trichloropropane, arsenic, and lead are reported at concentrations or non-detect concentrations *above* SWSSs at multiple sample locations.
- **Range 2 Soil:** No samples were collected from Range 2 soil as part of this assessment due to field observations per the Phase II Sampling Plan.
- **Groundwater:** One (1) TEH, two (2) PAHs, thirteen (13) VOCs, and three (3) RCRA metals were detected above laboratory reporting limits or were reported at non-detect values that exceed applicable SWSSs. All concentrations of reported PAHs and RCRA metals were *below* applicable SWSSs. Waste oil, benzene, and tetrachloroethene were detected at concentrations above applicable SWSSs and 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, 1,1,2,2-tetrachloroethane, and 1,2,3-trichloropropane were reported as non-detect values *above* applicable SWSSs.
- **Vapor Intrusion:** Fourteen (14) compounds detected in groundwater including two (2) PAHs and twelve (12) VOCs are sufficiently volatile and sufficiently toxic to present a vapor intrusion risk. Thirteen (13) of these compounds were evaluated using the Johnson & Ettinger Vapor Intrusion Model for Forward Calculation of Indoor Air Concentration with one (1) compound that was not available to model in this program. The vapor intrusion risk is included in the Cumulative Risk Evaluation findings. The calculated results for this media indicate that vapor intrusion alone does not pose a risk on this site. Cumulative risk is discussed below.
- **Cumulative Risk Evaluation:** Cumulative cancer risk for a site resident and a site worker and non-cancer risk for a site resident, site worker, and construction worker are *unacceptable*. Cumulative cancer risk for a construction worker is *acceptable*. These risk assessment results consider redevelopment on the subject property for a **slab-on-grade** building; risk assessment calculations for a basement structure can be found in Section 4.3 of this report and does not change the cumulative risk evaluation findings from a slab-on-grade building.

The *unacceptable* cancer and non-cancer determinations for site resident, site worker, and construction worker are driven by Range 1 contaminant concentrations. PCBs, benzo(a)pyrene, waste oil, arsenic, lead, and VOC concentrations are the primary contaminants driving the *unacceptable* cancer risk. PCBs, waste oil, RCRA metals, PAHs, and VOC concentrations are responsible for the *unacceptable* cancer risk determination.

The City of Dubuque has an ordinance (Section No. 16-11-20) that prevents the installation of private wells unless public water is not available. This requires permit approval by the County's Health Department. Further, no wells may be installed within 500 feet of a LUST site. HR Green recommends that the findings of this report be provided to the City of Dubuque's Water Department for their records. HR Green recommends notifying the County's Health Department of the groundwater results contained in this Phase II ESA, to prevent the installation of new wells on the subject property or on adjacent properties. This action will sever the groundwater ingestion pathway for the subject property.

The results of this study indicate that shallow soil impact across the subject property presents an *unacceptable* risk to site occupants and construction personnel without remediation of shallow soil. Additional investigation to delineate the identified contamination should be completed to identify the extent of soil impacts. Remediation of shallow soil or implementation of engineering or institutional controls (environmental covenant, engineered clean soil barrier with geo-membrane vapor barrier, etc.) on the subject property is needed to sever this exposure pathway. The material which has accumulated on the basement floor of the main office building (BC as shown on Figure 2) and the underlying concrete (including building footers) should be removed, characterized, and disposed of according to local state and federal regulations.

A site specific health and safety plan addressing OSHA compliance for construction workers should be in place before any redevelopment activities involving earthwork or building demolition occur on the subject property due to the Calculator determination of unacceptable non-cancer risk for construction workers. The results of this study indicate that vapor intrusion does not present a risk to construction workers or to future users of the subject property.

While sample collection was completed according to the EPA-approved Phase II Sampling Plan, samples were not collected from Range 2 soil. This is the result of elevated PID readings being observed at higher concentrations in Range 1 soil than Range 2 soil resulting in a Range 1 soil sample collection to analyze for the highest concentration. Vertical delineation should be addressed during additional investigations accordingly. Additional samples were collected outside of the scope of the Phase II Sampling Plan when observations and professional judgement warranted; this is discussed further in Section 4.0 of this report and includes the addition of a sample from around the base of the crusher on the subject property where significant staining and product were observed during sampling activities.

This report should be provided to the IDNR for guidance on what actions will be required as a result of the observed contamination in order for the subject property to be redeveloped.

2.0 INTRODUCTION

The City is currently participating in the U.S. EPA Brownfields Assessment Grant program. The goal of this economic redevelopment initiative is to facilitate community revitalization and promote sustainable economic conditions by addressing real or perceived contamination concerns associated with abandoned and underused properties in Dubuque's targeted brownfields areas.

2.1 Purpose

The major objective of the Brownfields Program is to eliminate concerns regarding perceived or actual contamination on properties so redevelopment can occur. The objective of this assessment was to evaluate any environmental impairment to the property resulting from the RECs identified during the Phase I ESA process. The data gathered during this assessment will assist the City in evaluating the feasibility of redevelopment by comparing constituent concentrations on the property to the risk-based standards outlined in Iowa Administrative Code (IAC) 567 *Chapter 137: Iowa Land Recycling Program and Response Action Standards* or the Tier 1 Levels in IAC *Chapter 135: Technical Standards and Corrective Action Requirements for Owners and Operators of USTs*.

2.2 Problem Statement

The City of Dubuque is evaluating abandoned, idle, and underused properties with the intent of encouraging redevelopment. The goal of this economic redevelopment initiative is to facilitate community revitalization and promote sustainable economic conditions by addressing real or perceived contamination concerns associated with abandoned and underused properties in Dubuque's targeted brownfields areas.

The EPA Brownfields Cooperative Agreement requires environmental data collected are of the appropriate type, quantity, and quality to support project decisions. Project data quality objectives (DQOs) were identified in the *Phase II ESA Data Quality Objectives and Generic Quality Assurance Project Plan, November 2014*. Project specific DQOs were identified and documented in the Phase II Sampling Plan.

Evaluation of environmental impairment is conducted using the regulatory programs outlined in Iowa Administrative Code (IAC). Evaluation of environmental impairment not associated with USTs involves risk-based evaluation and response action through the voluntary Land Recycling Program (LRP) as set forth in IAC 567-137(457B) *Chapter 137: Iowa Land Recycling Program and Statewide Response Action Standards* (IAC 137). In the event that contamination is associated with USTs, IAC 137 defers to the evaluation criteria outlined in IAC 567-135(455B) *Chapter 135: Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks* (IAC 135). For this Project, soil and groundwater evaluations for public risk were conducted according to IAC 135 and IAC 137, depending on the source of contamination.

2.3 Limitations and Exceptions of Assessments

This report has been prepared in accordance with generally accepted environmental methodologies referred to in ASTM 1903-11, and contains all the limitations inherent in these methodologies. No other warranties, expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report.

2.4 Limiting Conditions and Methodologies Used

No ESA can eliminate all uncertainty. Furthermore, any sample, either surface or subsurface, taken for chemical analysis may or may not be representative of a larger population. Professional judgment and interpretation are inherent in the process and uncertainty is inevitable. Additional assessment may be able to reduce the uncertainty.

Even when Phase II ESA work is executed with an appropriate site-specific standard of care, certain conditions present especially difficult detection problems. Such conditions may include, but are not limited to, complex geological settings, the fate and transport characteristics of certain hazardous substances and petroleum products, the distribution of existing contamination, physical limitations imposed by the location of utilities and other man-made objects, and the limitations of assessment technologies.

Phase II ESAs do not generally require an exhaustive assessment of environmental conditions on a property. There is a point at which the cost of information obtained and the time required to obtain it outweigh the usefulness of the information and, in fact, may be a material detriment to the orderly completion of transactions. If hazardous substance or petroleum releases are confirmed on a parcel of property, the extent of further assessment is related to the degree of uncertainty that is acceptable to the user with respect to the real estate transaction.

Measurements and sampling data only represent the site conditions at the time of data collection. Therefore, the usability of data collected as part of this Phase II ESA may have a finite lifetime depending on the application and use being made of the data. An environmental professional should evaluate whether the generated data are appropriate for any subsequent use beyond the original purpose for which it was collected.

3.0 BACKGROUND

3.1 Site Characteristics

The subject property is owned by Blum Properties Inc. and is generally located at 411 East 15th Street in Dubuque, Dubuque County, Iowa (Figure 1, Appendix B).

3.2 Phase I Environmental Site Assessment

HR Green completed the Phase I ESA of the subject property on June 13, 2016. The Phase I assessment revealed the presence of fourteen (14) recognized environmental conditions (RECs) in connection with the subject property. The following summarizes the RECs:

On-Site RECs:

1. The subject property historically contained a coffin company from approximately 1884 until 1909. Historical Sanborn maps depict coal storage, a dry kiln, varnishing, and painting.
2. The subject property has operated as a scrap yard and recycling facility since the early 1950s. A Groundwater Hazard Statement associated with the subject property identified tetrachloroethene in groundwater and arsenic and lead present in shallow soils. Additionally, an interview with the City of Dubuque Fire Department identified several accounts of illegal burning activities on the property.

3. HR Green observed several 76-pound steel flask shipping containers of liquid mercury in the first-floor office space of the main building. The containers were heavily corroded. Mr. Blum reported that they are secured with a “finger-tight” seal (similar conditions were observed during the Hazardous Materials Inventory; see Appendix G for further details).
4. HR Green observed many apparent chemical spills throughout the subject property. It is not known if the hydraulic fluids used by various equipment (i.e. crusher, baler, etc.) contain hazardous components such as PCBs (similar conditions were observed during the Hazardous Materials Inventory; see Appendix G for further details).
5. HR Green observed a large number of apparent empty chemical drums throughout the subject property. It is not known if residual chemicals remain in these drums or if any of the drums leaked.
6. HR Green was informed by Mr. Blum of an approximate 500-1,000 gallon diesel fuel UST in the central portion of the subject property. HR Green was unable to locate the UST due a large amount of solid waste in the area of the tank.
7. HR Green observed batteries, transformers, motors, and other automobile parts stored in multiple locations on the subject property with associated staining on the ground.
8. HR Green observed hydraulic machinery that may contain PCBs (no “PCB-Free” labels were visible) with associated staining on the subject property.
9. HR Green observed stained pavement throughout the subject property associated with past and present scrap material storage.

Off-Site RECs:

10. The historical use of the adjacent property to the east of the subject property as railroad tracks from prior to 1884 until present.
11. The historical and current use of the adjacent property to the east of the subject property as a scrap yard and recycling facility since 1963.
12. The historical use of the adjacent property to the east, across the railroad tracks, as an automotive repair shop from 2004-2013.
13. The historical and current use of the adjacent properties to the south of the subject property as a coal yard, garage, and automotive repair operation. Sanborn maps dated 1950 and 1970 depicted a filing station on the coal yard with an associated gasoline UST on the former document. A truck repair shop is currently located on one of the properties.
14. The historical use of the adjacent property to the north as a casket hardware manufacturer in 1909 and a sash and door manufacturer from approximately 1909 until 1970.

4.0 PHASE II ACTIVITIES

A Phase II Sampling Plan was completed to evaluate potential impact to the subject property from RECs identified in the Phase I ESA. The sampling plan included collection

of soil and groundwater samples for the following analytes: TEHs, VOCs, PAHs, PCBs, and RCRA metals. VOC and TEH samples were not collected from Range 2 soil at SB1 or any soil interval at SB2 due to field observations per the Phase II Sampling Plan.

Phase II field investigation activities were conducted in accordance with the Phase II Sampling Plan (PIISP) with the following exceptions:

- Additional sample location CC, collected as a composite sample from stained Range 1 soil located around the crusher on the subject property. Upon arriving on the subject property, HR Green observed a puddle under the crusher that appeared to contain oil product and there was significant staining observed around the crusher. This sample was analyzed for TEHs, PAHs, PCBs, and RCRA metals.
- One PAH sample was collected from Range 1 soil at sample locations SB1 and SB2.
- One PCB sample was collected from the composite sample OC.

4.1 Soil Assessment

Three (3) composite surface soil/media samples were collected (Outdoor Composite - OC, Crusher Composite - CC, and Basement Composite - BC) and three (3) soil borings were advanced using a direct-push Geoprobe on the subject property on August 30, 2016. For the purposes of this study BC was treated as a Range 1 sample since this area is accessible to all current users of the site. This sample generally consists of up to 6" of basement overburden material overlying the concrete floor of the basement in this building. Soils encountered were generally sand and fill, including slag material, overlying clay and sand. Coal was observed at composite sample location OC3. A petroleum odor, staining, and free product were observed on the ground surface around the crusher on the subject property in the area where composite sample CC was collected. A petroleum odor was observed throughout much of the depth of soil boring SB1 and cinders in addition to a sheen were observed at 5 to 8 ft. bgs at this sample location. Soil sample locations are depicted on Figure 2 in Appendix B. Soil boring logs are provided in Appendix D.

The soil samples were field screened for the presence of organic vapors using a PID. The core was then logged for geologic materials. Samples for PCB, TEH, PAH, VOC, and RCRA metal analysis were collected from Range 1 as specified in Table 1 below. The detected analytical results for Range 1 soil are summarized in Table 2 below.

Table 1
Phase II ESA Range 1 Soil Analytical Summary

Parameter	SB1	SB2	SB3	OC	BC	CC
PCBs	X			X	X	X
TEHs	X				X	X
PAHs	X	X	X	X	X	X
VOCs	X				X	
RCRA Metals	X	X	X	X	X	X

Table 2
Phase II ESA Range 1 Soil Analytical Results –
PCBs, TEHs, PAHs, VOCs, and RCRA Metals (mg/kg)

Parameter	SWS / Tier 1	SB1 @ 0-2	SB2 @ 0-2	SB3 @ 0-2	OC	BC	CC	Duplicate
PCBs								(CC)
PCB-1016	1.1*	<2.90	NS	NS	<0.0560	<0.0573	<0.0592	<0.0566
PCB-1221		<2.90	NS	NS	<0.0560	<0.0573	<0.0592	<0.0566
PCB-1232		<2.90	NS	NS	<0.0560	<0.0573	<0.0592	<0.0566
PCB-1242		16.3	NS	NS	40.2	1.93	7.53	5.35
PCB-1248		<2.90	NS	NS	<0.0560	<0.0573	<0.0592	<0.0566
PCB-1254		<2.90	NS	NS	<0.0560	<0.0573	<0.0592	<1.13
PCB-1260		<2.90	NS	NS	<0.0560	<0.0573	<0.0592	<0.0566
PCB-1268		<2.90	NS	NS	<0.0560	<0.0573	<0.0592	<0.0566
Total PCB**		36.6	NS	NS	40.2	1.93	7.53	6.49
TEHs								SB1
Waste Oil	9400	58500	NS	NS	NS	103000	93800	50700
PAHs								(CC)
Acenaphthene	3400	0.403 J	<0.371	<0.0346	<0.350	<1.73	<0.181	<0.179
Acenaphthylene	1700	<0.233	0.274 J	0.126	<0.220	<1.09	0.206 J	0.144 J
Anthracene	17000	0.603 J	<0.357	0.0686 J	<0.337	<1.67	<0.174	<0.172
Benzo[a]anthracene	3.1	0.952 J	0.853 J	0.171	0.338 J	<1.19	0.437 J	0.271 J
Benzo[a]pyrene	0.31	0.965 J	0.963 J	0.311	0.573 J	<0.727	0.649	0.435 J
Benzo[b]fluoranthene	3.1	1.32	1.60	0.510	1.02 J	0.908 J	1.41	1.03
Benzo[g,h,i]perylene	170	0.592 J	0.837 J	0.337	0.623 J	<0.803	0.825	0.674
Benzo[k]fluoranthene	31	0.613 J	0.584 J	0.219	0.250 J	<0.688	0.562 J	0.408 J
Chrysene	310	1.23	1.07 J	0.239	0.478 J	<0.732	0.800	0.473 J
Dibenz(a,h)anthracene	0.31	<0.161	0.206 J	0.0877 J	<0.152	<0.754	0.170 J	0.154 J
Fluoranthene	2300	2.73	2.11	0.259	0.660 J	<1.61	1.49	0.855
Fluorene	2300	0.515 J	<0.443	<0.0413	<0.419	<2.07	<0.216	<0.214
Indeno[1,2,3-cd]pyrene	3.1	0.480 J	0.676 J	0.279	0.499 J	<0.787	0.694	0.556 J
2-Methylnaphthalene	230	1.01 J	<0.405	0.0379 J	<0.382	<1.89	0.423 J	0.363 J
Phenanthrene	1700	2.21	1.56	0.121	0.413 J	<1.43	0.869	0.480 J
Pyrene	1700	2.99	1.85	0.267	0.675 J	1.61 J	1.47	0.836
Naphthalene	1100	0.642 J	<0.508	0.0492 J	<0.479	<2.37	<0.248	<0.245
VOCs								(SB1)
Acetone	68000	0.117	NS	NS	NS	<0.575	NS	<0.532
Benzene	56 / 3800	0.0277	NS	NS	NS	<0.115	NS	1.23
n-Butylbenzene	3800	0.0093	NS	NS	NS	<0.115	NS	0.332
Chlorobenzene	1500	<0.00688	NS	NS	NS	<0.115	NS	0.433
1,2-Dichlorobenzene	5500	0.0158	NS	NS	NS	<0.115	NS	2.63
1,4-Dichlorobenzene	760	<0.00688	NS	NS	NS	<0.115	NS	0.111
Ethylbenzene	7600 / 15	0.0144	NS	NS	NS	<0.115	NS	0.908
Hexane	4600	<0.0344	NS	NS	NS	<0.115	NS	0.409
Isopropylbenzene	7600	<0.00688	NS	NS	NS	<0.115	NS	0.158
p-Isopropyltoluene	NA	<0.00688	NS	NS	NS	<0.115	NS	0.157
Naphthalene	1100	<0.0344	NS	NS	NS	<0.287	NS	0.893
N-Propylbenzene	7600	0.00759	NS	NS	NS	<0.115	NS	0.413
Tetrachloroethene	1500	<0.00688	NS	NS	NS	<0.115	NS	0.24
Toluene	6100 / 3.2	0.0447	NS	NS	NS	<0.115	NS	1.7
Trichloroethene	67	<0.00688	NS	NS	NS	<0.115	NS	1.29
1,2,3-Trichloropropane	0.1	<0.00688	NS	NS	NS	<0.115	NS	<0.106
1,2,4-Trimethylbenzene	3800	0.0548	NS	NS	NS	<0.115	NS	2.17
1,3,5-Trimethylbenzene	760	0.0197	NS	NS	NS	<0.115	NS	0.618
Xylenes, Total	15000 / 52	0.0699	NS	NS	NS	<0.172	NS	3.09
RCRA Metals								(SB1)
Arsenic	17	102	<24.8	13.8	<15.0	37.2	33.1 J	42.5
Barium	15000	401	575	118	183	111	962	822
Cadmium	NA	13.4	23.5	4.57	10.7	14.3	53.6	39.0
Chromium	190	35.8	112	20.3	51.3	109	247	109
Lead	400	896	1700	246	737	29500	2720	3350
Silver	370	<2.88	<3.35	<2.03	<3.74	23.7	<3.87	<8.79
Mercury	23	1.59	4.65	0.298	2.42	2.56	7.95	4.48

Bold indicates concentration reported above laboratory reporting limits. **Shaded** indicates concentration above SWS. NS: Not sampled. NA: Not calculated. J indicates the result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value. *Italics* indicate a non-detect concentration above an applicable SWS. *SWS is 1.1 mg/kg for Total PCBs. **Non-detect values in excess of 1.1 mg/kg are included in the total PCB summation.

A total of one (1) PCB, one (1) TEH, seventeen (17) PAHs, nineteen (19) VOCs, and seven (7) RCRA metals were detected in Range 1 soil and seven (7) PCBs and one (1) VOC reported as non-detect concentrations above applicable SWSs. Results for total PCBs, waste oil, benzo(a)pyrene, 1,2,3-trichloropropane, arsenic, and lead are reported at concentrations or non-detect concentrations *above* SWSs at multiple sample locations. The laboratory analytical reports can be found in Appendix C.

4.2 Groundwater Assessment

Upon the completion of soil sampling activities, groundwater samples were collected from each boring using a screen point sampler and a peristaltic pump with dedicated tubing to evaluate groundwater conditions on the subject property. An impacted perched water table was encountered at 5 feet bgs at sample location SB1. Observations at sample locations SB2 and SB3 identified the water table at 12 and 14 feet bgs, respectively. Due to the impact observed at SB1, groundwater was collected from the perched groundwater at this sample location. Groundwater samples were collected for VOC, TEH, and RCRA metals analysis from all sample locations. A groundwater sample for PAH analysis was collected from SB3.

Table 3
Phase II ESA Groundwater Analytical Results –
TEHs, PAHs, VOCs, and RCRA metals (mg/L)

Parameter	PGW SWS / Tier 1	NPGW SWS	SB1	SB2	SB3	Duplicate (SB3)
TEHs						
Waste Oil	0.73 / 0.4	15	31.3	<0.278	<0.278	<0.313
PAHs						
2-Methylnaphthalene	0.028	0.14	NS	NS	<0.0000343	0.0000705 J
Naphthalene	0.1	0.7	NS	NS	<0.0000352	0.0000926 J
VOCs						
Benzene	0.005 / 0.005	0.064	0.00996	<0.0005	<0.0005	<0.0005
Chlorobenzene	0.1	0.7	0.00177	<0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane	0.0002	0.0029	<0.005	<0.005	<0.005	<0.005
1,2-Dibromoethane (EDB)	0.00005	0.0018	<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene	0.6	3.2	0.00287	<0.001	<0.001	<0.001
Hexachlorobutadiene	0.001	0.045	<0.005	<0.005	<0.005	<0.005
N-Propylbenzene	3.4	17	0.0015	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	0.0003	0.018	<0.001	<0.001	<0.001	<0.001
Tetrachloroethene	0.005	1.7	<0.001	<0.001	0.00686	0.00687
Toluene	1 / 1	5	0.00129	<0.001	<0.001	<0.001
1,2,3-Trichloropropane	0.0000058	0.00012	<0.001	<0.001	<0.001	<0.001
1,2,4-Trimethylbenzene	0.35	1.8	0.00921	<0.001	<0.001	<0.001
Xylenes, Total	10 / 10	50	0.00397	<0.003	<0.003	<0.003
RCRA Metals						
Arsenic	0.01	0.05	0.00629	<0.00200	<0.00200	<0.00200
Barium	2	10	0.295	0.0720	0.0455	0.0442
Selenium	0.05	0.25	<0.00500	0.0218	<0.00500	<0.00500

NS = Not Sampled. PGW = Protected groundwater. NPGW = Non-protected groundwater. **Bold** indicates concentration above laboratory reporting limits. **Shaded** indicates concentration above SWS or Tier 1. J indicates the result is less than the reporting limit but greater than or equal to the minimum detection limit and the concentration is an approximate value. *Italics* indicates a non-detect concentration above an applicable SWS.

One (1) TEH, two (2) PAHs, thirteen (13) VOCs, and three (3) RCRA metals were detected above laboratory reporting limits or method detection limit or were reported at non-detect values that exceed applicable SWSs in the collected groundwater samples. All concentrations of reported PAHs and RCRA metals were *below* applicable SWSs. Waste oil, benzene, and tetrachloroethene were detected at concentrations above applicable SWSs and 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, 1,1,2,2-tetrachloroethane, and 1,2,3-trichloropropane were reported as non-detect values *above* applicable SWSs.

4.3 Risk Evaluations

Iowa Administrative Code 137.10(7), Sub rule 567 specifies cumulative risk criteria that must be complied with in order to acquire a no further action certificate (NFA) under the Iowa Land Recycling Program (LRP). Cumulative risk is the summation of cancer and non-cancer risks, determined separately, based on exposure to multiple contaminants from the same medium and exposure of the same individual to contaminants in multiple media. Evaluation of cumulative risk is conducted using the Cumulative Risk Calculator (Calculator) on the IDNR Contaminated Sites Section website.

This Calculator assesses risk to potentially exposed parties, based on three standard exposure scenarios: site resident, site worker, and construction worker. The potential pathways for exposure under each of these scenarios are groundwater, soil, and air.

To evaluate compliance with the cumulative risk criteria, the results from the Calculator must not show increased cancer and non-cancer health risks. The cumulative risk criteria are as follows:

- Cumulative cancer risk summation of multiple media shall not exceed 1 in 10,000.
- Non-cancer health risk summation of multiple media to the same target organ shall not exceed a cumulative Hazard Quotient of 1.

The values for input into the Calculator are chosen using one of the following representations of the dataset:

- The maximum value for each contaminant in each medium from multiple samples of each medium of concern; or,
- The 95% Upper Confidence Limit (95% UCL) of the mean contaminant concentration in each medium. This method requires a minimum of six samples.

Trace detections may be reported when a reporting limit's non-detect value exceeds the associated SWS or when reporting limits are elevated. Trace detections are reported down to the method detection limit, making them an estimated value. Occasionally, even the method detection limit is in exceedance of the SWS. For the purposes of risk calculations the highest detection, trace detection, or non-detect value (if in exceedance of SWS) for each media is entered into the risk calculator. Tables 4 and 5 summarize the cancer and non-cancer risk calculations. The straight sum for each media and exposure scenario (site resident, site worker, construction worker) is calculated.

The City of Dubuque has an ordinance (Ordinance No. 2890-2000) that prevents the installation of private wells unless approved by the City's Health Department. Final risk calculation findings are determined after removal of values which are not considered to be complete exposure pathways. The Final Sum row of Tables 4 and 5 represents the actual applicable risk assessment results.

Range 1 Soil

Several PCBs, TEHs, PAHs, VOCs, and RCRA metals were detected at a concentration above laboratory reporting limits in Range 1 soil. Total PCBs, waste oil, benzo(a)pyrene, arsenic, and lead were detected above SWSs or as non-detect values above applicable SWSs. One (1) VOC was reported as a non-detect value that exceeded the applicable SWS. The maximum detected values for compounds with reported concentrations or the non-detect concentration that was above the applicable SWS were put into the Calculator.

Range 2 Soil

No samples were collected from Range 2 soil as part of this assessment due to field observations per the Phase II Sampling Plan.

Groundwater

Several TEHs, PAHs, VOCs, and RCRA metals were detected at concentrations in groundwater above laboratory reporting limits or method detection limits. Waste oil, benzene, and tetrachloroethene were detected at concentrations above their applicable SWS. Five (5) VOCs were reported as non-detect values that exceeded applicable SWSs. The maximum detected values for compounds with reported concentrations or the non-detect concentration that was above the applicable SWS were evaluated using the Calculator.

Vapor Intrusion

Fourteen (14) compounds detected in groundwater including two (2) PAHs and twelve (12) VOCs are sufficiently volatile and sufficiently toxic to present a vapor intrusion risk. Groundwater results for thirteen (13) of these compounds were evaluated using the Johnson and Ettinger Vapor Intrusion Model for Forward Calculation of Indoor Air Concentration and the IDNR Cumulative Risk Calculator. 1,2-Dibromo-3-chloropropane is not available in the Johnson & Ettinger Vapor Model and as such it was not included in this calculation.

The maximum detected values for the thirteen (13) compounds were put into the vapor intrusion model for a **slab-on-grade building** and a **basement building**. The highest indoor air concentration predicted by the model was then put into the Calculator for each building type. Plans for the subject property may include a slab-on-grade building but no basement is planned at this time. As such, the slab-on-grade vapor intrusion value is used to determine cumulative risk in this report. Risk calculations are summarized in Tables 4 and 5 below.

Table 4
Phase II ESA IDNR Risk Calculator Cancer Summations

Media	Site Resident	Site Worker	Construction Worker
Range 1 Soil	4.87	1.18	0.01
Range 2 Soil	0	0	0
Groundwater	7.85	1.77	0
Vapor Intrusion - SG (Slab-on-grade/ Basement)	0.03 / 0.05	0 / 0	0 / 0
*Sum	12.75	2.95	0.01
**Final Sum	4.9	1.18	0.01

Bold indicates the value used for sum and final sum number based on anticipated redevelopment.

*Sum equals total calculated risk BEFORE excluding "severed" exposure pathways. Severed exposure pathways are greyed out.

**Final Sum represents the actual applicable risk assessment results of all remaining human health risk exposure pathways.

A Final Sum of <1 represents acceptable cancer risk A Final Sum of >1 represents unacceptable cancer risk

Table 5
Phase II ESA IDNR Risk Calculator Non-Cancer Summations

Site Resident														
Media	Heart	Liver	Blood	Kidney	Skin	Endoc	Eye	Immu	Nerve	GenUr	Respi	Other	Devel	Gastro
Range 1 Soil	77.75	0.03	1.17	74.89	39.76	0	0	35.8	35.77	36.53	0	1.93	73.76	5.1
Range 2 Soil	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Groundwater	1.02	0.12	0.19	1.25	0.92	0.01	0	0.17	0.08	1.68	0	0.32	0.08	0.64
Vapor Intrusion - SG	0 / 0	0 / 0	0 / 0.02	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0.02	0.02 / 0.02	0 / 0	0.02 / 0.02	0.01 / 0.01	0 / 0	0 / 0
*Sum	78.77	0.15	1.36	76.14	40.68	0.01	0	35.97	35.87	38.21	0.02	2.26	73.84	5.74
**Final Sum	77.75	0.03	1.17	74.89	39.76	0	0	35.8	35.79	36.53	0.02	1.94	73.76	5.1
Site Worker														
Media	Heart	Liver	Blood	Kidney	Skin	Endoc	Eye	Immu	Nerve	GenUr	Respi	Other	Devel	Gastro
Range 1 Soil	27.584	0.01	0.23	27.014	7.44	0	0	6.66	6.65	6.8	0	0.38	26.794	1.01
Range 2 Soil	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Groundwater	0.23	0.01	0.02	0.16	0.22	0	0	0.02	0.01	0.22	0	0.04	0.01	0.18
Vapor Intrusion - SG	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
*Sum	27.814	0.02	0.25	27.174	7.66	0	0	6.68	6.66	7.02	0	0.42	26.804	1.19
**Final Sum	27.584	0.01	0.23	27.014	7.44	0	0	6.66	6.65	6.8	0	0.38	26.794	1.01
Construction Worker														
Media	Heart	Liver	Blood	Kidney	Skin	Endoc	Eye	Immu	Nerve	GenUr	Respi	Other	Devel	Gastro
Range 1 Soil	15.72	0.01	0.24	15.14	8.18	0	0	7.38	7.37	7.53	0	0.4	14.91	1.04
Range 2 Soil	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Groundwater	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vapor Intrusion - SG	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0.4	0 / 0	0 / 0	0 / 0
*Sum	15.72	0.01	0.24	15.14	8.18	0	0	7.38	7.37	7.53	0	0.4	14.91	1.04
**Final Sum	15.72	0.01	0.24	15.14	8.18	0	0	7.38	7.37	7.53	0	0.4	14.91	1.04

Endoc–endocrine system, Immu–immune system, GenUr–genitourinary system, Respi–respiratory system, Devel–developmental, SG–slab on grade

Vapor Intrusion – SG findings are reported as slab-on-grade / basement building.

Bold indicates the value used for the sum and final sum number based on anticipated redevelopment.

*Sum equals total calculated risk BEFORE excluding “severed” exposure pathways. Severed exposure pathways are greyed out.

**Final Sum represents the actual applicable risk assessment results of all remaining human health risk exposure pathways.

A Final Sum of <1 represents acceptable non-cancer risk. A Final Sum of >1 represents unacceptable non-cancer risk

5.0 FINDINGS

The findings and conclusions are summarized as follows:

- **Range 1 Soil:** A total of one (1) PCB, one (1) TEH, seventeen (17) PAHs, nineteen (19) VOCs, and seven (7) RCRA metals were detected in Range 1 soil and seven (7) PCBs and one (1) VOC reported as non-detect concentrations above applicable SWSSs. Results for total PCBs, waste oil, benzo(a)pyrene, 1,2,3-trichloropropane, arsenic, and lead are reported at concentrations or non-detect concentrations *above* SWSSs at multiple sample locations.
- **Range 2 Soil:** No samples were collected from Range 2 soil as part of this assessment due to field observations per the Phase II Sampling Plan.
- **Groundwater:** One (1) TEH, two (2) PAHs, thirteen (13) VOCs, and three (3) RCRA metals were detected above laboratory reporting limits or were reported at non-detect values that exceed applicable SWSSs. All concentrations of reported PAHs and RCRA metals were *below* applicable SWSSs. Waste oil, benzene, and tetrachloroethene were detected at concentrations above applicable SWSSs and 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, 1,1,2,2-tetrachloroethane, and 1,2,3-trichloropropane were reported as non-detect values *above* applicable SWSSs.
- **Vapor Intrusion:** Fourteen (14) compounds detected in groundwater including two (2) PAHs and twelve (12) VOCs are sufficiently volatile and sufficiently toxic to present a vapor intrusion risk. Thirteen (13) of these compounds were evaluated using the Johnson & Ettinger Vapor Intrusion Model for Forward Calculation of Indoor Air Concentration with one (1) compound that was not available to model in this program. The vapor intrusion risk is included in the Cumulative Risk Evaluation findings. The calculated results for this media indicate that vapor intrusion alone does not pose a risk on this site. Cumulative risk is discussed below.
- **Cumulative Risk Evaluation:** Cumulative cancer risk for a site resident and a site worker and non-cancer risk for a site resident, site worker, and construction worker are *unacceptable*. Cumulative cancer risk for a construction worker is *acceptable*. These risk assessment results consider redevelopment on the subject property for a **slab-on-grade** building; risk assessment calculations for a basement structure can be found in Section 4.3 of this report and does not change the cumulative risk evaluation findings from a slab-on-grade building.

The *unacceptable* cancer and non-cancer determinations for site resident, site worker, and construction worker are driven by Range 1 contaminant concentrations. PCBs, benzo(a)pyrene, waste oil, arsenic, lead, and VOC concentrations are the primary contaminants driving the *unacceptable* cancer risk. PCBs, waste oil, RCRA metals, PAHs, and VOC concentrations are responsible for the *unacceptable* cancer risk determination.

6.0 DISCUSSION AND RECOMMENDATIONS

The City of Dubuque has an ordinance (Section No. 16-11-20) that prevents the installation of private wells unless public water is not available. This requires permit

approval by the County's Health Department. Further, no wells may be installed within 500 feet of a LUST site. HR Green recommends that the findings of this report be provided to the City of Dubuque's Water Department for their records. HR Green recommends notifying the County's Health Department of the groundwater results contained in this Phase II ESA, to prevent the installation of new wells on the subject property or on adjacent properties. This action will sever the groundwater ingestion pathway for the subject property.

The results of this study indicate that shallow soil impact across the subject property presents an *unacceptable* risk to site occupants and construction personnel without remediation of shallow soil. Additional investigation to delineate the identified contamination should be completed to identify the extent of soil impacts. Remediation of shallow soil or implementation of engineering or institutional controls (environmental covenant, engineered clean soil barrier with geo-membrane vapor barrier, etc.) on the subject property is needed to sever this exposure pathway. The material which has accumulated on the basement floor of the main office building (BC as shown on Figure 2) and the underlying concrete (including building footers) should be removed, characterized, and disposed of according to local state and federal regulations.

A site specific health and safety plan addressing OSHA compliance for construction workers should be in place before any redevelopment activities involving earthwork or building demolition occur on the subject property due to the Calculator determination of unacceptable non-cancer risk for construction workers. The results of this study indicate that vapor intrusion does not present a risk to construction workers or to future users of the subject property.

While sample collection was completed according to the EPA-approved Phase II Sampling Plan, samples were not collected from Range 2 soil. This is the result of elevated PID readings being observed at higher concentrations in Range 1 soil than Range 2 soil resulting in a Range 1 soil sample collection to analyze for the highest concentration. Vertical delineation should be addressed during additional investigations accordingly. Additional samples were collected outside of the scope of the Phase II Sampling Plan when observations and professional judgement warranted; this is discussed further in Section 4.0 of this report and includes the addition of a sample from around the base of the crusher on the subject property where significant staining and product were observed during sampling activities.

This report should be provided to the IDNR for guidance on what actions will be required as a result of the observed contamination in order for the subject property to be redeveloped.

7.0 DATA VALIDATION AND USABILITY

Validation of the data collected during Phase II ESA of the subject property is included below.

7.1 Representativeness

All samples were collected in the manner and at locations specified in the Phase II Sampling Plan to accurately reflect the constituent concentrations in the media from

which they were taken at the time of sampling, except where noted in Section 4.0. Sample locations were biased to focus efforts on areas of the property with the greatest potential to impact adjacent properties.

Representativeness of the data was partially ensured by avoiding cross-contamination, adhering to standard sample handling and analytical procedures, and use of proper chain-of-custody documentation procedures.

7.2 Comparability

In order that one set of data may be compared with another, all analyses were performed by accepted EPA or state methods, and all analytical results were reported in similar concentration units and format.

7.3 Completeness

In order for a set of data to be used with confidence to make a decision, the data must be complete. The sampling design included the collection of samples from the area of the property most likely to impact adjacent properties. The samples recommended in the approved Phase II Sampling Plan were collected where possible and the data set is complete.

7.4 Sensitivity

Detection and quantification limits for sample data must be below the SWS action levels specified in IAC 137. The laboratory RLs for all PCBs, arsenic at SB2 @ 0-2', and 1,2,3-trichloropropane in soil and 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, hexachlorobutadiene, 1,1,2,2-tetrachloroethane, and 1,2,3-trichloropropane in groundwater were above SWSs.

7.5 Precision

Precision is a measure of the variability of a measurement system. Precision was assessed through the collection and evaluation of field quality control samples. Precision is typically an estimate by means of duplicate measurements and is expressed in terms of relative percent difference (RPD). The goal for precision of field duplicate results is ± 50 percent RPD for soil samples and ± 35 percent RPD for water samples.

The RPD between the primary and corresponding duplicate sample will be calculated using the below formula.

$$RPD = \left[\frac{2 \times (C_1 - C_2)}{(C_1 + C_2)} \right] \times 100$$

where: *RPD* = Relative percent difference

*C*₁ = Larger of the two observed measurement values

*C*₂ = Smaller of the two observed measurement values

Three soil and four groundwater duplicate sample was collected for each parameter from the subject property. No RPDs were calculated for TEH groundwater samples. RPD for soil and groundwater calculations are shown in Tables 5 and 6, respectively.

Table 6
Relative Percent Difference – Soil (mg/kg)

Location	Parameter	Sample Concentration	Duplicate Concentration	RPD
CC	PCBs			
	PCB-1242	7.53	5.35	33.85
	PAHs			
	Acenaphthylene	0.206	0.144	35.43
	Benzo(a)anthracene	0.437	0.271	46.89
	Benzo(a)pyrene	0.649	0.435	39.48
	Benzo[b]fluoranthene	1.41	1.03	31.15
	Benzo[g,h,i]perylene	0.825	0.674	20.15
	Benzo[k]fluoranthene	0.562	0.408	31.75
	Chrysene	0.800	0.473	51.37
	Dibenz(a,h)anthracene	0.170	0.154	9.88
	Fluoranthene	1.49	0.855	54.16
	Indeno[1,2,3-cd]pyrene	0.694	0.556	22.08
	2-Methylnaphthalene	0.423	0.363	15.27
	Phenanthrene	0.869	0.480	57.27
	Pyrene	1.47	0.836	54.99
SB1 @ 0-2'	TEHs			
	Waste Oil	58500	50700	14.29
	VOCs			
	Acetone	0.117	<0.532	NC
	Benzene	0.0277	1.23	191.19
	n-Butylbenzene	0.0093	0.332	189.10
	Chlorobenzene	<0.00688	0.433	NC
	1,2-Dichlorobenzene	0.0158	2.63	197.61
	1,4-Dichlorobenzene	<0.00688	0.111	NC
	Ethylbenzene	0.0144	0.908	193.76
	Hexane	<0.0344	0.409	NC
	Isopropylbenzene	<0.00688	0.158	NC
	p-Isopropyltoluene	<0.00688	0.157	NC
	Naphthalene	<0.0344	0.893	NC
	N-Propylbenzene	0.00759	0.413	192.75
	Tetrachloroethene	<0.00688	0.24	NC
	Toluene	0.0447	1.7	189.75
	Trichloroethene	<0.00688	1.29	NC
	1,2,4-Trimethylbenzene	0.0548	2.17	190.15
	1,3,5-Trimethylbenzene	0.0197	0.618	187.64
	Xylenes, Total	0.0699	3.09	191.15
	RCRA Metals			
	Arsenic	102	42.5	82.35
	Barium	401	822	68.85
	Cadmium	13.4	39.0	97.71
	Chromium	35.8	109	101.10
	Lead	896	3350	115.59
	Mercury	1.59	4.48	95.22

NC: Not calculated

The RPD values for several PAHs, VOCs, and RCRA metals were outside of the precision goal for this project. The identified variability in soil sample and corresponding duplicate is believed to be a result of the discrete nature of soil contamination. The difference observed in these concentrations does not change the findings as both the sample and duplicate sample were both either above or both below the applicable SWS.

Table 7
Relative Percent Difference – Groundwater (mg/L)

Location	Parameter	Sample Concentration	Duplicate Concentration	RPD
SB3	PAHs			
	2-Methylnaphthalene	<0.0000343	0.0000705 J	NC
	Naphthalene	<0.0000352	0.0000926 J	NC
	VOCs			
	Tetrachloroethene	0.00686	0.00687	0.14
	RCRA Metals			
	Barium, dissolved	0.0455	0.0442	2.90

The RPD values for all detected groundwater compound are within the precision goal for this project.

The following methods were implemented in Phase II ESA with the goal of minimizing the RPDs.

- Take the duplicate in the immediate area of the original sample,
- collect the duplicate sample at the same time as the original sample, and
- avoid taking samples from areas of sand seams or other non-homogenous soils, whenever possible based on recovery.

Based on the laboratory report methylene chloride, was noted as having LCS or LCSD outside of acceptance limits. This was noted using an asterisk (*) in the laboratory report. Several PAHs had MS and/or MSD recovery outside of the acceptance limits and/or MS/MSD RPDs exceeding control limits, noted with a F1 or F2, respectively, in the laboratory reporting limit. RCRA metal results contained samples with a laboratory duplicate RPD reported in excess of the control limit in the laboratory report, noted with a F3.

7.6 Accuracy

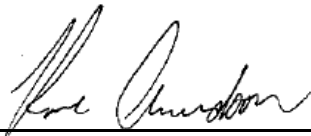
Trip blanks were used to evaluate the purity of sample containers, chemical preservatives, and sampling equipment. No compounds were detected above laboratory reporting limits in the trip blank. Dissolved barium was detected below the laboratory reporting limit in the field blank associated with the subject property. This finding does not impact the findings in this report.

All sampling and analytical activities were conducted in accordance with EPA approved methods or industry standard practices.

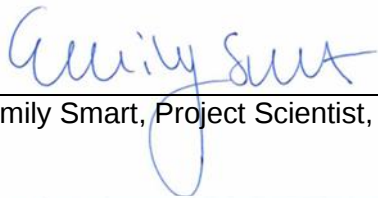
8.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

We declare, to the best of our professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR 312 and we have the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the *subject site*. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Signatures of the environmental professionals responsible for this report:



Rose Amundson, Project Scientist, Report Preparer



Emily Smart, Project Scientist, Quality Control and Assurance



Scott Mattes, Project Director, Technical Review

APPENDIX A
QUALIFICATIONS



HR GREEN COMPANY PROFILE

HR Green, Inc. is a professional engineering and technical consulting firm serving clients in the public and private sectors. We are a privately held, employee-owned company, and fully committed to the success of our clients and the well-being of our nearly 400 employees.

HR Green builds **business accountability into every task we perform for our clients.** This means we partner with our clients to create viable facilities and healthy enterprises that are truly sustainable **for the client.**

We have been in business without interruption since 1913. We carefully target our technical services to address the most timely needs of society, and thus to succeed as sustainable businesses.

QUALIFICATIONS OF INDIVIDUALS PREPARING THIS REPORT

Ms. Rose Amundson is a Staff Scientist II with six years of experience working in the environmental field. Rose has completed work on Federal and State regulatory compliance reporting, Phase I and Phase II Environmental Site Assessments, site remediation planning and implementation, geographic information systems (GIS) projects, and surface water and groundwater modeling. Rose holds a Master's Degree in Hydrology from the University of Arizona and is 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) certified. Rose is also an Iowa Certified Groundwater Professional (#2103).

Ms. Emily Smart is a Project Scientist I with eight years of experience working as an environmental consultant. Emily's experience includes oversight on large scale remedial sites, management and execution of Phase I and Phase II Environmental Site Assessments, and Remedial Investigations, and State compliance reporting. Emily is a licensed professional geologist in the States of Washington (#2896) and Illinois (#196.001397) and holds a Master's Degree in Geoscience from the University of Iowa. Emily is also a certified groundwater professional (#2125) in the State of Iowa. Emily is 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) certified.

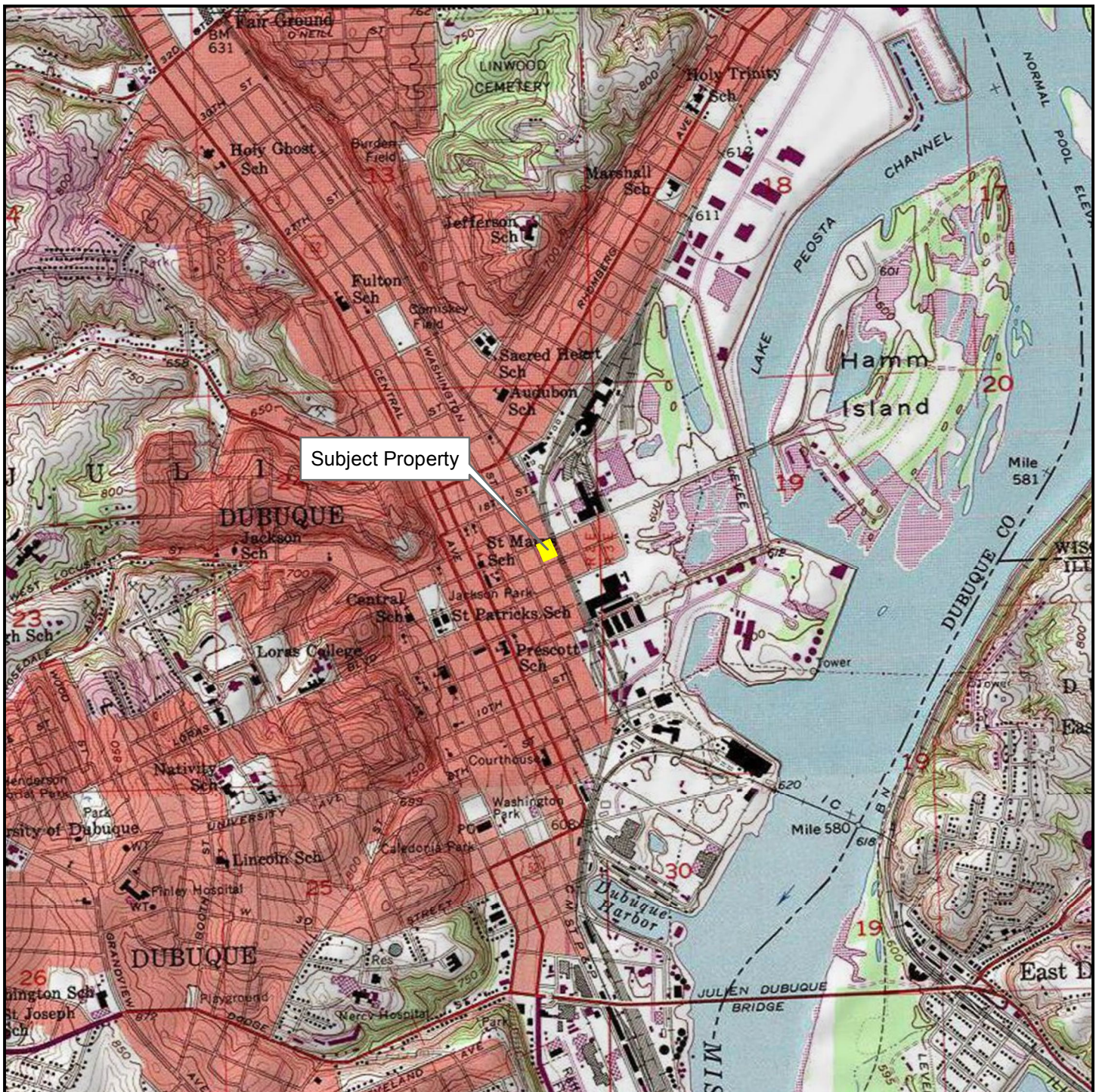
Mr. Scott Mattes is an Environmental Program Director with over 19 years of experience in the environmental engineering industry. Scott has extensive experience managing a range of environmental projects from RCRA Enforcement Actions, hazardous site demolitions, lead and asbestos management, construction permitting for airborne emission sources, environmental impact studies, Brownfield site clean-up and redevelopment, and State and Federal environmental compliance reporting. He also has widespread experience implementing geographic information systems (GIS) for numerous communities to assist with redevelopment planning, public involvement, and community-based asset management systems. Scott is a licensed Professional Environmental Engineer in Iowa (#18035) and Nebraska (#E-10197) and nationally recognized Certified Industrial Hygienist (#8408CP).

APPENDIX B

FIGURES

Figure 1 – Site Vicinity Map

Figure 2 – Sample Location Map



Legend

Subject Property

THE CITY OF
DUBUQUE
Masterpiece on the Mississippi

Figure 1

Site Vicinity Map

411 East 15th Street

City of Dubuque
Dubuque County, Iowa



0 1,000 2,000
Feet

1 inch = 2,000 feet

HRG
HRGreen



Legend

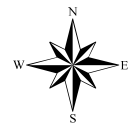
- Composite Sample
- Sample Location
- Subject Property

THE CITY OF
DUBUQUE
Masterpiece on the Mississippi

Figure 2 Sample Location Map

411 East 15th Street

City of Dubuque
Dubuque County, Iowa



0 25 50 Feet
1 inch = 50 feet

HRG
HRGreen

APPENDIX C

LABORATORY REPORTS/CHAIN OF CUSTODY DOCUMENTATION

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Cedar Falls

704 Enterprise Drive

Cedar Falls, IA 50613

Tel: (319)277-2401

TestAmerica Job ID: 310-88292-1

TestAmerica Sample Delivery Group: 10140076

Client Project/Site: Blum-West - Dubuque, IA

For:

HR Green, Inc

PO BOX 9009

Cedar Rapids, Iowa 52409

Attn: Rose Amundson



Authorized for release by:

9/14/2016 3:35:15 PM

Shawn Hayes, Project Manager II

(319)277-2401

shawn.hayes@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Job ID: 310-88292-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative 310-88292-1

Comments

No additional comments.

Receipt

The samples were received on 8/31/2016 4:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 7.5° C.

Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria: SB1 @ 0-2 (310-88292-1), SB1 (310-88292-2), SB2 @ 0-2 (310-88292-3), SB2 (310-88292-4), SB3 @ 0-2 (310-88292-5), SB3 (310-88292-6), OC (310-88292-7), BC (310-88292-8), CC (310-88292-9), DUP1 (310-88292-10), DUP2 (310-88292-11), DUP3 (310-88292-12), DUP5 (310-88292-13), DUP6 (310-88292-14), DUP7 (310-88292-15), DUP8 (310-88292-16), Trip Blank (310-88292-17) and Field Blank (310-88292-18). The client was contacted regarding this issue, and the laboratory was instructed to proceed with analysis.

GC/MS VOA

Method(s) 8260C: The laboratory control sample (LCS) analytical batch 310-140383 recovered outside control limits for the following analyte: Methylene Chloride. This analyte was biased high in the LCS and not detected in the associated samples; therefore, the data have been reported.

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 310-140850 recovered above the upper control limit for Carbon disulfide(21.3%D) and Bromoform(22.5%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: (CCV 310-140850/3).

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 310-140850 recovered above the upper control limit for Vinyl chloride(24.9%D). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: (CCV 310-140850/4).

Method(s) 8260C: The initial calibration verification (ICV) result for batch 310-140850 was above the upper control limit for Bromoform(35.5%). Sample results were non-detects, and have been reported as qualified data.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method(s) 8270D SIM: The following samples were diluted due to the nature of the sample matrix: SB1 @ 0-2 (310-88292-1), SB2 @ 0-2 (310-88292-3), SB3 @ 0-2 (310-88292-5), OC (310-88292-7), BC (310-88292-8), CC (310-88292-9) and DUP2 (310-88292-11). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method(s) 8082A: The following samples appears to contain polychlorinated biphenyls (PCBs); however, due to weathering or other environmental processes, the PCBs in the sample do not closely match any of the laboratory's Aroclor standards used for instrument calibration: SB1 @ 0-2 (310-88292-1), BC (310-88292-8), CC (310-88292-9) and DUP2 (310-88292-11). The samples have been reported as Aroclor PCB-1242. Due to the poor match with the Aroclor standard, there is increased qualitative and quantitative uncertainty associated with this result.

Method(s) OA-2: Surrogate recovery for the following samples were outside of acceptance limits: SB2 (310-88292-4) and (MB 310-139959/1-A). There was insufficient sample to perform a re-extraction; therefore, the data have been reported.

Method(s) OA-2: Surrogate recovery for the following sample was outside control limits: SB1 (310-88292-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Case Narrative

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Job ID: 310-88292-1 (Continued)

Laboratory: TestAmerica Cedar Falls (Continued)

Method(s) OA-2: The surrogate recovery for the method blank associated with preparation batch 310-139945 was outside the upper control limits. Samples were within control limits or have been properly qualified.

Method(s) OA-2: The following samples were diluted due to the nature of the sample matrix: SB1 @ 0-2 (310-88292-1), BC (310-88292-8), CC (310-88292-9), DUP1 (310-88292-10). Elevated reporting limits (RLs) are provided.

Method(s) OA-2: Surrogate recovery for the following samples were outside control limits: CC (310-88292-9) and DUP1 (310-88292-10). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method(s) 6010C: The following samples was diluted due to the presence of an interferent: SB1 @ 0-2 (310-88292-1), SB2 @ 0-2 (310-88292-3), SB3 @ 0-2 (310-88292-5), OC (310-88292-7), BC (310-88292-8), CC (310-88292-9) and DUP1 (310-88292-10). Elevated reporting limits (RLs) are provided.

Method(s) 6020 and 7470A: The reference method requires samples to be preserved to a pH of <2. The following sample was received with insufficient preservation at a pH of >2: Field Blank (310-88292-18). The sample was preserved to the appropriate pH in the laboratory.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-88292-1	SB1 @ 0-2	Soil	08/30/16 13:49	08/31/16 16:15
310-88292-2	SB1	Ground Water	08/30/16 13:40	08/31/16 16:15
310-88292-3	SB2 @ 0-2	Soil	08/30/16 14:22	08/31/16 16:15
310-88292-4	SB2	Ground Water	08/30/16 14:34	08/31/16 16:15
310-88292-5	SB3 @ 0-2	Soil	08/30/16 10:53	08/31/16 16:15
310-88292-6	SB3	Ground Water	08/30/16 11:28	08/31/16 16:15
310-88292-7	OC	Soil	08/30/16 10:52	08/31/16 16:15
310-88292-8	BC	Soil	08/30/16 11:41	08/31/16 16:15
310-88292-9	CC	Soil	08/30/16 11:55	08/31/16 16:15
310-88292-10	DUP 1	Soil	08/30/16 00:00	08/31/16 16:15
310-88292-11	DUP 2	Soil	08/30/16 00:00	08/31/16 16:15
310-88292-12	DUP 3	Soil	08/30/16 00:00	08/31/16 16:15
310-88292-13	DUP 5	Ground Water	08/30/16 00:00	08/31/16 16:15
310-88292-14	DUP 6	Ground Water	08/30/16 00:00	08/31/16 16:15
310-88292-15	DUP 7	Ground Water	08/30/16 00:00	08/31/16 16:15
310-88292-16	DUP 8	Ground Water	08/30/16 00:00	08/31/16 16:15
310-88292-17	Trip Blank	Water	08/30/16 00:00	08/31/16 16:15
310-88292-18	Field Blank	Water	08/30/16 00:00	08/31/16 16:15

Detection Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB1 @ 0-2

Lab Sample ID: 310-88292-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Acetone	117		68.8		ug/Kg	1		✖	8260C	Total/NA
Benzene	27.7		6.88		ug/Kg	1		✖	8260C	Total/NA
n-Butylbenzene	9.30		6.88		ug/Kg	1		✖	8260C	Total/NA
1,2-Dichlorobenzene	15.8		6.88		ug/Kg	1		✖	8260C	Total/NA
Ethylbenzene	14.4		6.88		ug/Kg	1		✖	8260C	Total/NA
N-Propylbenzene	7.59		6.88		ug/Kg	1		✖	8260C	Total/NA
Toluene	44.7		6.88		ug/Kg	1		✖	8260C	Total/NA
1,2,4-Trimethylbenzene	54.8		6.88		ug/Kg	1		✖	8260C	Total/NA
1,3,5-Trimethylbenzene	19.7		6.88		ug/Kg	1		✖	8260C	Total/NA
Xylenes, Total	69.9		20.6		ug/Kg	1		✖	8260C	Total/NA
Acenaphthene	0.403	J F1	1.17	0.371	mg/Kg	100		✖	8270D SIM	Total/NA
Anthracene	0.603	J	1.17	0.357	mg/Kg	100		✖	8270D SIM	Total/NA
Benzo[a]anthracene	0.952	J F2	1.17	0.255	mg/Kg	100		✖	8270D SIM	Total/NA
Benzo[a]pyrene	0.965	J F2	1.17	0.156	mg/Kg	100		✖	8270D SIM	Total/NA
Benzo[b]fluoranthene	1.32	F2	1.17	0.170	mg/Kg	100		✖	8270D SIM	Total/NA
Benzo[g,h,i]perylene	0.592	J F2	1.17	0.172	mg/Kg	100		✖	8270D SIM	Total/NA
Benzo[k]fluoranthene	0.613	J F1 F2	1.17	0.147	mg/Kg	100		✖	8270D SIM	Total/NA
Chrysene	1.23	F2	1.17	0.157	mg/Kg	100		✖	8270D SIM	Total/NA
Fluoranthene	2.73	F2	1.17	0.344	mg/Kg	100		✖	8270D SIM	Total/NA
Fluorene	0.515	J	1.17	0.443	mg/Kg	100		✖	8270D SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.480	J F2	1.17	0.168	mg/Kg	100		✖	8270D SIM	Total/NA
2-Methylnaphthalene	1.01	J	1.17	0.405	mg/Kg	100		✖	8270D SIM	Total/NA
Naphthalene	0.642	J	1.17	0.508	mg/Kg	100		✖	8270D SIM	Total/NA
Phenanthrene	2.21	F2	1.17	0.306	mg/Kg	100		✖	8270D SIM	Total/NA
Pyrene	2.99	F2	1.17	0.310	mg/Kg	100		✖	8270D SIM	Total/NA
PCB-1242	16.3		2.90		mg/Kg	50		✖	8082A	Total/NA
Waste Oil	58500		318		mg/Kg	10			OA-2	Total/NA
Arsenic	102		11.5		mg/Kg	3		✖	6010C	Total/NA
Barium	401		1.44		mg/Kg	3		✖	6010C	Total/NA
Cadmium	13.4		2.88		mg/Kg	3		✖	6010C	Total/NA
Chromium	35.8		2.88		mg/Kg	3		✖	6010C	Total/NA
Lead	896		14.4		mg/Kg	3		✖	6010C	Total/NA
Mercury	1.59		0.102		mg/Kg	5		✖	7471B	Total/NA

Client Sample ID: SB1

Lab Sample ID: 310-88292-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Benzene	9.96		0.500		ug/L	1			8260C	Total/NA
Chlorobenzene	1.77		1.00		ug/L	1			8260C	Total/NA
1,2-Dichlorobenzene	2.87		1.00		ug/L	1			8260C	Total/NA
N-Propylbenzene	1.50		1.00		ug/L	1			8260C	Total/NA
Toluene	1.29		1.00		ug/L	1			8260C	Total/NA
1,2,4-Trimethylbenzene	9.21		1.00		ug/L	1			8260C	Total/NA
Xylenes, Total	3.97		3.00		ug/L	1			8260C	Total/NA
Waste Oil	31300		278		ug/L	1			OA-2	Total/NA
Arsenic	0.00629		0.00200		mg/L	1			6020A	Total/NA
Barium	0.295		0.00200		mg/L	1			6020A	Total/NA

Client Sample ID: SB2 @ 0-2

Lab Sample ID: 310-88292-3

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls

Detection Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB2 @ 0-2 (Continued)

Lab Sample ID: 310-88292-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Acenaphthylene	0.274	J	1.17	0.233	mg/Kg	100		✱	8270D SIM	Total/NA
Benzo[a]anthracene	0.853	J	1.17	0.255	mg/Kg	100		✱	8270D SIM	Total/NA
Benzo[a]pyrene	0.963	J	1.17	0.156	mg/Kg	100		✱	8270D SIM	Total/NA
Benzo[b]fluoranthene	1.60		1.17	0.170	mg/Kg	100		✱	8270D SIM	Total/NA
Benzo[g,h,i]perylene	0.837	J	1.17	0.172	mg/Kg	100		✱	8270D SIM	Total/NA
Benzo[k]fluoranthene	0.584	J	1.17	0.147	mg/Kg	100		✱	8270D SIM	Total/NA
Chrysene	1.07	J	1.17	0.157	mg/Kg	100		✱	8270D SIM	Total/NA
Dibenz(a,h)anthracene	0.206	J	1.17	0.161	mg/Kg	100		✱	8270D SIM	Total/NA
Fluoranthene	2.11		1.17	0.344	mg/Kg	100		✱	8270D SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.676	J	1.17	0.168	mg/Kg	100		✱	8270D SIM	Total/NA
Phenanthrene	1.56		1.17	0.306	mg/Kg	100		✱	8270D SIM	Total/NA
Pyrene	1.85		1.17	0.310	mg/Kg	100		✱	8270D SIM	Total/NA
Barium	575		5.39	3.18	mg/Kg	10		✱	6010C	Total/NA
Cadmium	23.5		10.8	2.68	mg/Kg	10		✱	6010C	Total/NA
Chromium	112		10.8	3.02	mg/Kg	10		✱	6010C	Total/NA
Lead	1700		53.9	10.7	mg/Kg	10		✱	6010C	Total/NA
Mercury	4.65		0.452		mg/Kg	20		✱	7471B	Total/NA

Client Sample ID: SB2

Lab Sample ID: 310-88292-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Barium	0.0720		0.00200		mg/L	1			6020A	Total/NA
Selenium	0.0218		0.00500		mg/L	1			6020A	Total/NA

Client Sample ID: SB3 @ 0-2

Lab Sample ID: 310-88292-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Acenaphthylene	0.126		0.109	0.0217	mg/Kg	10		✱	8270D SIM	Total/NA
Anthracene	0.0686	J	0.109	0.0332	mg/Kg	10		✱	8270D SIM	Total/NA
Benzo[a]anthracene	0.171		0.109	0.0238	mg/Kg	10		✱	8270D SIM	Total/NA
Benzo[a]pyrene	0.311		0.109	0.0145	mg/Kg	10		✱	8270D SIM	Total/NA
Benzo[b]fluoranthene	0.510		0.109	0.0158	mg/Kg	10		✱	8270D SIM	Total/NA
Benzo[g,h,i]perylene	0.337		0.109	0.0160	mg/Kg	10		✱	8270D SIM	Total/NA
Benzo[k]fluoranthene	0.219		0.109	0.0137	mg/Kg	10		✱	8270D SIM	Total/NA
Chrysene	0.239		0.109	0.0146	mg/Kg	10		✱	8270D SIM	Total/NA
Dibenz(a,h)anthracene	0.0877	J	0.109	0.0150	mg/Kg	10		✱	8270D SIM	Total/NA
Fluoranthene	0.259		0.109	0.0321	mg/Kg	10		✱	8270D SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.279		0.109	0.0157	mg/Kg	10		✱	8270D SIM	Total/NA
2-Methylnaphthalene	0.0379	J	0.109	0.0377	mg/Kg	10		✱	8270D SIM	Total/NA
Naphthalene	0.0492	J	0.109	0.0473	mg/Kg	10		✱	8270D SIM	Total/NA
Phenanthrene	0.121		0.109	0.0286	mg/Kg	10		✱	8270D SIM	Total/NA
Pyrene	0.267		0.109	0.0289	mg/Kg	10		✱	8270D SIM	Total/NA
Arsenic	13.8		8.11		mg/Kg	2		✱	6010C	Total/NA
Barium	118		1.01		mg/Kg	2		✱	6010C	Total/NA
Cadmium	4.57		2.03		mg/Kg	2		✱	6010C	Total/NA
Chromium	20.3		2.03		mg/Kg	2		✱	6010C	Total/NA
Lead	246		10.1		mg/Kg	2		✱	6010C	Total/NA
Mercury	0.298		0.0191		mg/Kg	1		✱	7471B	Total/NA

Client Sample ID: SB3

Lab Sample ID: 310-88292-6

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls

Detection Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB3 (Continued)

Lab Sample ID: 310-88292-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	6.86		1.00		ug/L	1		8260C	Total/NA
Barium	0.0455		0.00200		mg/L	1		6020A	Total/NA

Client Sample ID: OC

Lab Sample ID: 310-88292-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.338	J	1.10	0.241	mg/Kg	100	☼	8270D SIM	Total/NA
Benzo[a]pyrene	0.573	J	1.10	0.147	mg/Kg	100	☼	8270D SIM	Total/NA
Benzo[b]fluoranthene	1.02	J	1.10	0.160	mg/Kg	100	☼	8270D SIM	Total/NA
Benzo[g,h,i]perylene	0.623	J	1.10	0.162	mg/Kg	100	☼	8270D SIM	Total/NA
Benzo[k]fluoranthene	0.250	J	1.10	0.139	mg/Kg	100	☼	8270D SIM	Total/NA
Chrysene	0.478	J	1.10	0.148	mg/Kg	100	☼	8270D SIM	Total/NA
Fluoranthene	0.660	J	1.10	0.325	mg/Kg	100	☼	8270D SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.499	J	1.10	0.159	mg/Kg	100	☼	8270D SIM	Total/NA
Phenanthrene	0.413	J	1.10	0.289	mg/Kg	100	☼	8270D SIM	Total/NA
Pyrene	0.675	J	1.10	0.293	mg/Kg	100	☼	8270D SIM	Total/NA
PCB-1242	40.2		11.2		mg/Kg	200	☼	8082A	Total/NA
Barium	183		1.87		mg/Kg	4	☼	6010C	Total/NA
Cadmium	10.7		3.74		mg/Kg	4	☼	6010C	Total/NA
Chromium	51.3		3.74		mg/Kg	4	☼	6010C	Total/NA
Lead	737		18.7		mg/Kg	4	☼	6010C	Total/NA
Mercury	2.42		0.226		mg/Kg	10	☼	7471B	Total/NA

Client Sample ID: BC

Lab Sample ID: 310-88292-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[b]fluoranthene	0.908	J	5.46	0.792	mg/Kg	100	☼	8270D SIM	Total/NA
Pyrene	1.61	J	5.46	1.45	mg/Kg	100	☼	8270D SIM	Total/NA
PCB-1242	1.93		0.573		mg/Kg	10	☼	8082A	Total/NA
Waste Oil	103000		645		mg/Kg	10		OA-2	Total/NA
Arsenic	37.2		28.4		mg/Kg	8	☼	6010C	Total/NA
Barium	111		3.55		mg/Kg	8	☼	6010C	Total/NA
Cadmium	14.3		7.09		mg/Kg	8	☼	6010C	Total/NA
Chromium	109		7.09		mg/Kg	8	☼	6010C	Total/NA
Lead	29500		35.5		mg/Kg	8	☼	6010C	Total/NA
Silver	23.7		7.09		mg/Kg	8	☼	6010C	Total/NA
Mercury	2.56		0.218		mg/Kg	10	☼	7471B	Total/NA

Client Sample ID: CC

Lab Sample ID: 310-88292-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthylene	0.206	J	0.571	0.114	mg/Kg	10	☼	8270D SIM	Total/NA
Benzo[a]anthracene	0.437	J	0.571	0.124	mg/Kg	10	☼	8270D SIM	Total/NA
Benzo[a]pyrene	0.649		0.571	0.0759	mg/Kg	10	☼	8270D SIM	Total/NA
Benzo[b]fluoranthene	1.41		0.571	0.0828	mg/Kg	10	☼	8270D SIM	Total/NA
Benzo[g,h,i]perylene	0.825		0.571	0.0839	mg/Kg	10	☼	8270D SIM	Total/NA
Benzo[k]fluoranthene	0.562	J	0.571	0.0719	mg/Kg	10	☼	8270D SIM	Total/NA
Chrysene	0.800		0.571	0.0765	mg/Kg	10	☼	8270D SIM	Total/NA
Dibenz(a,h)anthracene	0.170	J	0.571	0.0788	mg/Kg	10	☼	8270D SIM	Total/NA
Fluoranthene	1.49		0.571	0.168	mg/Kg	10	☼	8270D SIM	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls

Detection Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: CC (Continued)

Lab Sample ID: 310-88292-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Indeno[1,2,3-cd]pyrene	0.694		0.571	0.0822	mg/Kg	10		✱	8270D SIM	Total/NA
2-Methylnaphthalene	0.423	J	0.571	0.197	mg/Kg	10		✱	8270D SIM	Total/NA
Phenanthrene	0.869		0.571	0.150	mg/Kg	10		✱	8270D SIM	Total/NA
Pyrene	1.47		0.571	0.151	mg/Kg	10		✱	8270D SIM	Total/NA
PCB-1242	7.53		2.96		mg/Kg	50		✱	8082A	Total/NA
Waste Oil	93800		653		mg/Kg	20			OA-2	Total/NA
Arsenic	33.1	J	49.8	28.6	mg/Kg	12		✱	6010C	Total/NA
Barium	962		6.22	3.67	mg/Kg	12		✱	6010C	Total/NA
Cadmium	53.6		12.4	3.10	mg/Kg	12		✱	6010C	Total/NA
Chromium	247		12.4	3.48	mg/Kg	12		✱	6010C	Total/NA
Lead	2720		62.2	12.3	mg/Kg	12		✱	6010C	Total/NA
Mercury	7.95		1.05		mg/Kg	50		✱	7471B	Total/NA

Client Sample ID: DUP 1

Lab Sample ID: 310-88292-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Waste Oil	50700		328		mg/Kg	10			OA-2	Total/NA
Arsenic	42.5		35.2		mg/Kg	10		✱	6010C	Total/NA
Barium	822		4.40		mg/Kg	10		✱	6010C	Total/NA
Cadmium	39.0		8.79		mg/Kg	10		✱	6010C	Total/NA
Chromium	109		8.79		mg/Kg	10		✱	6010C	Total/NA
Lead	3350		44.0		mg/Kg	10		✱	6010C	Total/NA
Mercury	4.48		0.391		mg/Kg	20		✱	7471B	Total/NA

Client Sample ID: DUP 2

Lab Sample ID: 310-88292-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Acenaphthylene	0.144	J	0.565	0.112	mg/Kg	10		✱	8270D SIM	Total/NA
Benzo[a]anthracene	0.271	J	0.565	0.123	mg/Kg	10		✱	8270D SIM	Total/NA
Benzo[a]pyrene	0.435	J	0.565	0.0751	mg/Kg	10		✱	8270D SIM	Total/NA
Benzo[b]fluoranthene	1.03		0.565	0.0819	mg/Kg	10		✱	8270D SIM	Total/NA
Benzo[g,h,i]perylene	0.674		0.565	0.0830	mg/Kg	10		✱	8270D SIM	Total/NA
Benzo[k]fluoranthene	0.408	J	0.565	0.0712	mg/Kg	10		✱	8270D SIM	Total/NA
Chrysene	0.473	J	0.565	0.0757	mg/Kg	10		✱	8270D SIM	Total/NA
Dibenz(a,h)anthracene	0.154	J	0.565	0.0779	mg/Kg	10		✱	8270D SIM	Total/NA
Fluoranthene	0.855		0.565	0.166	mg/Kg	10		✱	8270D SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.556	J	0.565	0.0813	mg/Kg	10		✱	8270D SIM	Total/NA
2-Methylnaphthalene	0.363	J	0.565	0.195	mg/Kg	10		✱	8270D SIM	Total/NA
Phenanthrene	0.480	J	0.565	0.148	mg/Kg	10		✱	8270D SIM	Total/NA
Pyrene	0.836		0.565	0.150	mg/Kg	10		✱	8270D SIM	Total/NA
PCB-1242	5.35		1.13		mg/Kg	20		✱	8082A	Total/NA

Client Sample ID: DUP 3

Lab Sample ID: 310-88292-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Benzene	1230		106		ug/Kg	1		✱	8260C	Total/NA
n-Butylbenzene	332		106		ug/Kg	1		✱	8260C	Total/NA
Chlorobenzene	433		106		ug/Kg	1		✱	8260C	Total/NA
1,2-Dichlorobenzene	2630		106		ug/Kg	1		✱	8260C	Total/NA
1,4-Dichlorobenzene	111		106		ug/Kg	1		✱	8260C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls

Detection Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: DUP 3 (Continued)

Lab Sample ID: 310-88292-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	908		106		ug/Kg	1	✱	8260C	Total/NA
Hexane	409		106		ug/Kg	1	✱	8260C	Total/NA
Isopropylbenzene	158		106		ug/Kg	1	✱	8260C	Total/NA
p-Isopropyltoluene	157		106		ug/Kg	1	✱	8260C	Total/NA
Naphthalene	893		266		ug/Kg	1	✱	8260C	Total/NA
N-Propylbenzene	413		106		ug/Kg	1	✱	8260C	Total/NA
Tetrachloroethene	240		106		ug/Kg	1	✱	8260C	Total/NA
Toluene	1700		106		ug/Kg	1	✱	8260C	Total/NA
Trichloroethene	1290		106		ug/Kg	1	✱	8260C	Total/NA
1,2,4-Trimethylbenzene	2170		106		ug/Kg	1	✱	8260C	Total/NA
1,3,5-Trimethylbenzene	618		106		ug/Kg	1	✱	8260C	Total/NA
Xylenes, Total	3090		159		ug/Kg	1	✱	8260C	Total/NA

Client Sample ID: DUP 5

Lab Sample ID: 310-88292-13

No Detections.

Client Sample ID: DUP 6

Lab Sample ID: 310-88292-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0442		0.00200		mg/L	1		6020A	Total/NA

Client Sample ID: DUP 7

Lab Sample ID: 310-88292-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
2-Methylnaphthalene	0.0705	J	0.500	0.0370	ug/L	1		8270D SIM	Total/NA
Naphthalene	0.0926	J	0.500	0.0380	ug/L	1		8270D SIM	Total/NA

Client Sample ID: DUP 8

Lab Sample ID: 310-88292-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	6.87		1.00		ug/L	1		8260C	Total/NA

Client Sample ID: Trip Blank

Lab Sample ID: 310-88292-17

No Detections.

Client Sample ID: Field Blank

Lab Sample ID: 310-88292-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0256		0.00200		mg/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB1 @ 0-2

Date Collected: 08/30/16 13:49

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-1

Matrix: Soil

Percent Solids: 85.5

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	117		68.8		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Benzene	27.7		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Bromobenzene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Bromochloromethane	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Bromodichloromethane	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Bromoform	<13.8		13.8		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Bromomethane	<27.5		27.5		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
2-Butanone (MEK)	<68.8		68.8		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
n-Butylbenzene	9.30		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
sec-Butylbenzene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
tert-Butylbenzene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Carbon disulfide	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Carbon tetrachloride	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Chlorobenzene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Chlorodibromomethane	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Chloroethane	<27.5		27.5		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Chloroform	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Chloromethane	<27.5		27.5		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
2-Chlorotoluene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
4-Chlorotoluene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,2-Dibromo-3-Chloropropane	<68.8		68.8		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,2-Dibromoethane (EDB)	<68.8		68.8		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Dibromomethane	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,2-Dichlorobenzene	15.8		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,3-Dichlorobenzene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,4-Dichlorobenzene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Dichlorodifluoromethane	<20.6		20.6		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,1-Dichloroethane	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,2-Dichloroethane	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,1-Dichloroethene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
cis-1,2-Dichloroethene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
trans-1,2-Dichloroethene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,2-Dichloropropane	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,3-Dichloropropane	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
2,2-Dichloropropane	<27.5		27.5		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,1-Dichloropropene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
cis-1,3-Dichloropropene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
trans-1,3-Dichloropropene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Ethylbenzene	14.4		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Hexachlorobutadiene	<34.4		34.4		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Hexane	<34.4		34.4		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Isopropylbenzene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
p-Isopropyltoluene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Methylene Chloride	<68.8 *		68.8		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Methyl tert-butyl ether	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Naphthalene	<34.4		34.4		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
N-Propylbenzene	7.59		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Styrene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,1,1,2-Tetrachloroethane	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB1 @ 0-2

Date Collected: 08/30/16 13:49

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-1

Matrix: Soil

Percent Solids: 85.5

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Tetrachloroethene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Toluene	44.7		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,2,3-Trichlorobenzene	<34.4		34.4		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,2,4-Trichlorobenzene	<34.4		34.4		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,1,1-Trichloroethane	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,1,2-Trichloroethane	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Trichloroethene	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Trichlorofluoromethane	<27.5		27.5		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,2,3-Trichloropropane	<6.88		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,2,4-Trimethylbenzene	54.8		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
1,3,5-Trimethylbenzene	19.7		6.88		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Vinyl chloride	<20.6		20.6		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1
Xylenes, Total	69.9		20.6		ug/Kg	☼	09/07/16 08:39	09/07/16 18:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		80 - 120	09/07/16 08:39	09/07/16 18:03	1
Dibromofluoromethane (Surr)	96		80 - 120	09/07/16 08:39	09/07/16 18:03	1
Toluene-d8 (Surr)	103		80 - 120	09/07/16 08:39	09/07/16 18:03	1

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.403	J F1	1.17	0.371	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Acenaphthylene	<0.233	F1	1.17	0.233	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Anthracene	0.603	J	1.17	0.357	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Benzo[a]anthracene	0.952	J F2	1.17	0.255	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Benzo[a]pyrene	0.965	J F2	1.17	0.156	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Benzo[b]fluoranthene	1.32	F2	1.17	0.170	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Benzo[g,h,i]perylene	0.592	J F2	1.17	0.172	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Benzo[k]fluoranthene	0.613	J F1 F2	1.17	0.147	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Chrysene	1.23	F2	1.17	0.157	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Dibenz(a,h)anthracene	<0.161	F1	1.17	0.161	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Fluoranthene	2.73	F2	1.17	0.344	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Fluorene	0.515	J	1.17	0.443	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Indeno[1,2,3-cd]pyrene	0.480	J F2	1.17	0.168	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
2-Methylnaphthalene	1.01	J	1.17	0.405	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Naphthalene	0.642	J	1.17	0.508	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Phenanthrene	2.21	F2	1.17	0.306	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100
Pyrene	2.99	F2	1.17	0.310	mg/Kg	☼	09/01/16 12:23	09/02/16 14:58	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	43		10 - 110	09/01/16 12:23	09/02/16 14:58	100
Nitrobenzene-d5 (Surr)	43		10 - 110	09/01/16 12:23	09/02/16 14:58	100
Terphenyl-d14 (Surr)	48		20 - 110	09/01/16 12:23	09/02/16 14:58	100

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<2.90		2.90		mg/Kg	☼	09/01/16 12:32	09/13/16 13:43	50
PCB-1221	<2.90		2.90		mg/Kg	☼	09/01/16 12:32	09/13/16 13:43	50
PCB-1232	<2.90		2.90		mg/Kg	☼	09/01/16 12:32	09/13/16 13:43	50

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB1 @ 0-2

Date Collected: 08/30/16 13:49

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-1

Matrix: Soil

Percent Solids: 85.5

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1242	16.3		2.90		mg/Kg	☼	09/01/16 12:32	09/13/16 13:43	50
PCB-1248	<2.90		2.90		mg/Kg	☼	09/01/16 12:32	09/13/16 13:43	50
PCB-1254	<2.90		2.90		mg/Kg	☼	09/01/16 12:32	09/13/16 13:43	50
PCB-1260	<2.90		2.90		mg/Kg	☼	09/01/16 12:32	09/13/16 13:43	50
PCB-1268	<2.90		2.90		mg/Kg	☼	09/01/16 12:32	09/13/16 13:43	50
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	63		10 - 110				09/01/16 12:32	09/13/16 13:43	50
Tetrachloro-m-xylene	52		10 - 110				09/01/16 12:32	09/13/16 13:43	50

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<318		318		mg/Kg		09/01/16 12:24	09/06/16 14:17	10
Diesel	<318	F1	318		mg/Kg		09/01/16 12:24	09/06/16 14:17	10
Waste Oil	58500		318		mg/Kg		09/01/16 12:24	09/06/16 14:17	10
Total Extractable Hydrocarbons	<477		477		mg/Kg		09/01/16 12:24	09/06/16 14:17	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane	73		40 - 135				09/01/16 12:24	09/06/16 14:17	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	102		11.5		mg/Kg	☼	09/02/16 08:18	09/06/16 11:48	3
Barium	401		1.44		mg/Kg	☼	09/02/16 08:18	09/06/16 11:48	3
Cadmium	13.4		2.88		mg/Kg	☼	09/02/16 08:18	09/06/16 11:48	3
Chromium	35.8		2.88		mg/Kg	☼	09/02/16 08:18	09/06/16 11:48	3
Lead	896		14.4		mg/Kg	☼	09/02/16 08:18	09/06/16 11:48	3
Selenium	<21.6		21.6		mg/Kg	☼	09/02/16 08:18	09/06/16 11:48	3
Silver	<2.88		2.88		mg/Kg	☼	09/02/16 08:18	09/06/16 11:48	3

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.59		0.102		mg/Kg	☼	09/01/16 10:25	09/02/16 11:14	5

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB1
Date Collected: 08/30/16 13:40
Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-2
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<10.0		10.0		ug/L			09/02/16 23:35	1
Benzene	9.96		0.500		ug/L			09/02/16 23:35	1
Bromobenzene	<1.00		1.00		ug/L			09/02/16 23:35	1
Bromochloromethane	<5.00		5.00		ug/L			09/02/16 23:35	1
Bromodichloromethane	<1.00		1.00		ug/L			09/02/16 23:35	1
Bromoform	<5.00		5.00		ug/L			09/02/16 23:35	1
Bromomethane	<4.00		4.00		ug/L			09/02/16 23:35	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/02/16 23:35	1
n-Butylbenzene	<1.00		1.00		ug/L			09/02/16 23:35	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/02/16 23:35	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/02/16 23:35	1
Carbon disulfide	<1.00		1.00		ug/L			09/02/16 23:35	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/02/16 23:35	1
Chlorobenzene	1.77		1.00		ug/L			09/02/16 23:35	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/02/16 23:35	1
Chloroethane	<4.00		4.00		ug/L			09/02/16 23:35	1
Chloroform	<1.00		1.00		ug/L			09/02/16 23:35	1
Chloromethane	<3.00		3.00		ug/L			09/02/16 23:35	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/02/16 23:35	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/02/16 23:35	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/02/16 23:35	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/02/16 23:35	1
Dibromomethane	<1.00		1.00		ug/L			09/02/16 23:35	1
1,2-Dichlorobenzene	2.87		1.00		ug/L			09/02/16 23:35	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/02/16 23:35	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/02/16 23:35	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/02/16 23:35	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/02/16 23:35	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/02/16 23:35	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/02/16 23:35	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/02/16 23:35	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/02/16 23:35	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/02/16 23:35	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/02/16 23:35	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/02/16 23:35	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/02/16 23:35	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/02/16 23:35	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/02/16 23:35	1
Ethylbenzene	<1.00		1.00		ug/L			09/02/16 23:35	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/02/16 23:35	1
Hexane	<1.00		1.00		ug/L			09/02/16 23:35	1
Isopropylbenzene	<1.00		1.00		ug/L			09/02/16 23:35	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/02/16 23:35	1
Methylene Chloride	<5.00		5.00		ug/L			09/02/16 23:35	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/02/16 23:35	1
Naphthalene	<5.00		5.00		ug/L			09/02/16 23:35	1
N-Propylbenzene	1.50		1.00		ug/L			09/02/16 23:35	1
Styrene	<1.00		1.00		ug/L			09/02/16 23:35	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/02/16 23:35	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB1

Date Collected: 08/30/16 13:40

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-2

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/02/16 23:35	1
Tetrachloroethene	<1.00		1.00		ug/L			09/02/16 23:35	1
Toluene	1.29		1.00		ug/L			09/02/16 23:35	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/02/16 23:35	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/02/16 23:35	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/02/16 23:35	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/02/16 23:35	1
Trichloroethene	<1.00		1.00		ug/L			09/02/16 23:35	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/02/16 23:35	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/02/16 23:35	1
1,2,4-Trimethylbenzene	9.21		1.00		ug/L			09/02/16 23:35	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/02/16 23:35	1
Vinyl chloride	<1.00		1.00		ug/L			09/02/16 23:35	1
Xylenes, Total	3.97		3.00		ug/L			09/02/16 23:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120		09/02/16 23:35	1
Dibromofluoromethane (Surr)	109		80 - 120		09/02/16 23:35	1
Toluene-d8 (Surr)	94		80 - 120		09/02/16 23:35	1

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<278		278		ug/L		09/01/16 13:33	09/02/16 16:32	1
Diesel	<278		278		ug/L		09/01/16 13:33	09/02/16 16:32	1
Waste Oil	31300		278		ug/L		09/01/16 13:33	09/02/16 16:32	1
Total Extractable Hydrocarbons	<463		463		ug/L		09/01/16 13:33	09/02/16 16:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	2	X	45 - 140	09/01/16 13:33	09/02/16 16:32	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00629		0.00200		mg/L		09/02/16 07:42	09/02/16 17:21	1
Barium	0.295		0.00200		mg/L		09/02/16 07:42	09/02/16 17:21	1
Cadmium	<0.000500		0.000500		mg/L		09/02/16 07:42	09/02/16 17:21	1
Chromium	<0.00500		0.00500		mg/L		09/02/16 07:42	09/02/16 17:21	1
Lead	<0.000500		0.000500		mg/L		09/02/16 07:42	09/02/16 17:21	1
Selenium	<0.00500		0.00500		mg/L		09/02/16 07:42	09/02/16 17:21	1
Silver	<0.00100		0.00100		mg/L		09/02/16 07:42	09/02/16 17:21	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/06/16 09:56	09/07/16 11:18	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB2 @ 0-2

Date Collected: 08/30/16 14:22

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-3

Matrix: Soil

Percent Solids: 82.0

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.371		1.17	0.371	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Acenaphthylene	0.274	J	1.17	0.233	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Anthracene	<0.357		1.17	0.357	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Benzo[a]anthracene	0.853	J	1.17	0.255	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Benzo[a]pyrene	0.963	J	1.17	0.156	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Benzo[b]fluoranthene	1.60		1.17	0.170	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Benzo[g,h,i]perylene	0.837	J	1.17	0.172	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Benzo[k]fluoranthene	0.584	J	1.17	0.147	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Chrysene	1.07	J	1.17	0.157	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Dibenz(a,h)anthracene	0.206	J	1.17	0.161	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Fluoranthene	2.11		1.17	0.344	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Fluorene	<0.443		1.17	0.443	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Indeno[1,2,3-cd]pyrene	0.676	J	1.17	0.168	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
2-Methylnaphthalene	<0.405		1.17	0.405	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Naphthalene	<0.508		1.17	0.508	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Phenanthrene	1.56		1.17	0.306	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100
Pyrene	1.85		1.17	0.310	mg/Kg	☼	09/01/16 12:23	09/02/16 15:20	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	46		10 - 110	09/01/16 12:23	09/02/16 15:20	100
Nitrobenzene-d5 (Surr)	53		10 - 110	09/01/16 12:23	09/02/16 15:20	100
Terphenyl-d14 (Surr)	48		20 - 110	09/01/16 12:23	09/02/16 15:20	100

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<24.8		43.1	24.8	mg/Kg	☼	09/02/16 08:18	09/06/16 11:52	10
Barium	575		5.39	3.18	mg/Kg	☼	09/02/16 08:18	09/06/16 11:52	10
Cadmium	23.5		10.8	2.68	mg/Kg	☼	09/02/16 08:18	09/06/16 11:52	10
Chromium	112		10.8	3.02	mg/Kg	☼	09/02/16 08:18	09/06/16 11:52	10
Lead	1700		53.9	10.7	mg/Kg	☼	09/02/16 08:18	09/06/16 11:52	10
Selenium	<32.3		80.8	32.3	mg/Kg	☼	09/02/16 08:18	09/06/16 11:52	10
Silver	<3.35		10.8	3.35	mg/Kg	☼	09/02/16 08:18	09/06/16 11:52	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	4.65		0.452		mg/Kg	☼	09/01/16 10:25	09/02/16 11:16	20

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB2

Date Collected: 08/30/16 14:34

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-4

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<10.0		10.0		ug/L			09/02/16 23:58	1
Benzene	<0.500		0.500		ug/L			09/02/16 23:58	1
Bromobenzene	<1.00		1.00		ug/L			09/02/16 23:58	1
Bromochloromethane	<5.00		5.00		ug/L			09/02/16 23:58	1
Bromodichloromethane	<1.00		1.00		ug/L			09/02/16 23:58	1
Bromoform	<5.00		5.00		ug/L			09/02/16 23:58	1
Bromomethane	<4.00		4.00		ug/L			09/02/16 23:58	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/02/16 23:58	1
n-Butylbenzene	<1.00		1.00		ug/L			09/02/16 23:58	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/02/16 23:58	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/02/16 23:58	1
Carbon disulfide	<1.00		1.00		ug/L			09/02/16 23:58	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/02/16 23:58	1
Chlorobenzene	<1.00		1.00		ug/L			09/02/16 23:58	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/02/16 23:58	1
Chloroethane	<4.00		4.00		ug/L			09/02/16 23:58	1
Chloroform	<1.00		1.00		ug/L			09/02/16 23:58	1
Chloromethane	<3.00		3.00		ug/L			09/02/16 23:58	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/02/16 23:58	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/02/16 23:58	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/02/16 23:58	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/02/16 23:58	1
Dibromomethane	<1.00		1.00		ug/L			09/02/16 23:58	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/02/16 23:58	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/02/16 23:58	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/02/16 23:58	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/02/16 23:58	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/02/16 23:58	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/02/16 23:58	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/02/16 23:58	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/02/16 23:58	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/02/16 23:58	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/02/16 23:58	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/02/16 23:58	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/02/16 23:58	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/02/16 23:58	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/02/16 23:58	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/02/16 23:58	1
Ethylbenzene	<1.00		1.00		ug/L			09/02/16 23:58	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/02/16 23:58	1
Hexane	<1.00		1.00		ug/L			09/02/16 23:58	1
Isopropylbenzene	<1.00		1.00		ug/L			09/02/16 23:58	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/02/16 23:58	1
Methylene Chloride	<5.00		5.00		ug/L			09/02/16 23:58	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/02/16 23:58	1
Naphthalene	<5.00		5.00		ug/L			09/02/16 23:58	1
N-Propylbenzene	<1.00		1.00		ug/L			09/02/16 23:58	1
Styrene	<1.00		1.00		ug/L			09/02/16 23:58	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/02/16 23:58	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB2

Date Collected: 08/30/16 14:34

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-4

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/02/16 23:58	1
Tetrachloroethene	<1.00		1.00		ug/L			09/02/16 23:58	1
Toluene	<1.00		1.00		ug/L			09/02/16 23:58	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/02/16 23:58	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/02/16 23:58	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/02/16 23:58	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/02/16 23:58	1
Trichloroethene	<1.00		1.00		ug/L			09/02/16 23:58	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/02/16 23:58	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/02/16 23:58	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/02/16 23:58	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/02/16 23:58	1
Vinyl chloride	<1.00		1.00		ug/L			09/02/16 23:58	1
Xylenes, Total	<3.00		3.00		ug/L			09/02/16 23:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120		09/02/16 23:58	1
Dibromofluoromethane (Surr)	110		80 - 120		09/02/16 23:58	1
Toluene-d8 (Surr)	97		80 - 120		09/02/16 23:58	1

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<278		278		ug/L		09/01/16 13:33	09/02/16 16:47	1
Diesel	<278		278		ug/L		09/01/16 13:33	09/02/16 16:47	1
Waste Oil	<278		278		ug/L		09/01/16 13:33	09/02/16 16:47	1
Total Extractable Hydrocarbons	<463		463		ug/L		09/01/16 13:33	09/02/16 16:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	141	X	45 - 140	09/01/16 13:33	09/02/16 16:47	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/02/16 07:42	09/02/16 17:40	1
Barium	0.0720		0.00200		mg/L		09/02/16 07:42	09/02/16 17:40	1
Cadmium	<0.000500		0.000500		mg/L		09/02/16 07:42	09/02/16 17:40	1
Chromium	<0.00500		0.00500		mg/L		09/02/16 07:42	09/02/16 17:40	1
Lead	<0.000500		0.000500		mg/L		09/02/16 07:42	09/02/16 17:40	1
Selenium	0.0218		0.00500		mg/L		09/02/16 07:42	09/02/16 17:40	1
Silver	<0.00100		0.00100		mg/L		09/02/16 07:42	09/02/16 17:40	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/06/16 09:56	09/07/16 11:20	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB3 @ 0-2

Date Collected: 08/30/16 10:53

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-5

Matrix: Soil

Percent Solids: 88.1

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.0346		0.109	0.0346	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Acenaphthylene	0.126		0.109	0.0217	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Anthracene	0.0686	J	0.109	0.0332	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Benzo[a]anthracene	0.171		0.109	0.0238	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Benzo[a]pyrene	0.311		0.109	0.0145	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Benzo[b]fluoranthene	0.510		0.109	0.0158	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Benzo[g,h,i]perylene	0.337		0.109	0.0160	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Benzo[k]fluoranthene	0.219		0.109	0.0137	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Chrysene	0.239		0.109	0.0146	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Dibenz(a,h)anthracene	0.0877	J	0.109	0.0150	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Fluoranthene	0.259		0.109	0.0321	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Fluorene	<0.0413		0.109	0.0413	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Indeno[1,2,3-cd]pyrene	0.279		0.109	0.0157	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
2-Methylnaphthalene	0.0379	J	0.109	0.0377	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Naphthalene	0.0492	J	0.109	0.0473	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Phenanthrene	0.121		0.109	0.0286	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10
Pyrene	0.267		0.109	0.0289	mg/Kg	☼	09/01/16 12:23	09/02/16 15:42	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	59		10 - 110	09/01/16 12:23	09/02/16 15:42	10
Nitrobenzene-d5 (Surr)	59		10 - 110	09/01/16 12:23	09/02/16 15:42	10
Terphenyl-d14 (Surr)	58		20 - 110	09/01/16 12:23	09/02/16 15:42	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	13.8		8.11		mg/Kg	☼	09/02/16 08:18	09/06/16 11:44	2
Barium	118		1.01		mg/Kg	☼	09/02/16 08:18	09/06/16 11:44	2
Cadmium	4.57		2.03		mg/Kg	☼	09/02/16 08:18	09/06/16 11:44	2
Chromium	20.3		2.03		mg/Kg	☼	09/02/16 08:18	09/06/16 11:44	2
Lead	246		10.1		mg/Kg	☼	09/02/16 08:18	09/06/16 11:44	2
Selenium	<15.2		15.2		mg/Kg	☼	09/02/16 08:18	09/06/16 11:44	2
Silver	<2.03		2.03		mg/Kg	☼	09/02/16 08:18	09/06/16 11:44	2

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.298		0.0191		mg/Kg	☼	09/01/16 10:25	09/02/16 10:49	1

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB3

Date Collected: 08/30/16 11:28

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-6

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<10.0		10.0		ug/L			09/03/16 00:21	1
Benzene	<0.500		0.500		ug/L			09/03/16 00:21	1
Bromobenzene	<1.00		1.00		ug/L			09/03/16 00:21	1
Bromochloromethane	<5.00		5.00		ug/L			09/03/16 00:21	1
Bromodichloromethane	<1.00		1.00		ug/L			09/03/16 00:21	1
Bromoform	<5.00		5.00		ug/L			09/03/16 00:21	1
Bromomethane	<4.00		4.00		ug/L			09/03/16 00:21	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/03/16 00:21	1
n-Butylbenzene	<1.00		1.00		ug/L			09/03/16 00:21	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/03/16 00:21	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/03/16 00:21	1
Carbon disulfide	<1.00		1.00		ug/L			09/03/16 00:21	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/03/16 00:21	1
Chlorobenzene	<1.00		1.00		ug/L			09/03/16 00:21	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/03/16 00:21	1
Chloroethane	<4.00		4.00		ug/L			09/03/16 00:21	1
Chloroform	<1.00		1.00		ug/L			09/03/16 00:21	1
Chloromethane	<3.00		3.00		ug/L			09/03/16 00:21	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/03/16 00:21	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/03/16 00:21	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/03/16 00:21	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/03/16 00:21	1
Dibromomethane	<1.00		1.00		ug/L			09/03/16 00:21	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/03/16 00:21	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/03/16 00:21	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/03/16 00:21	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/03/16 00:21	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/03/16 00:21	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/03/16 00:21	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/03/16 00:21	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/03/16 00:21	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/03/16 00:21	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/03/16 00:21	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/03/16 00:21	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/03/16 00:21	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/03/16 00:21	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/03/16 00:21	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/03/16 00:21	1
Ethylbenzene	<1.00		1.00		ug/L			09/03/16 00:21	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/03/16 00:21	1
Hexane	<1.00		1.00		ug/L			09/03/16 00:21	1
Isopropylbenzene	<1.00		1.00		ug/L			09/03/16 00:21	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/03/16 00:21	1
Methylene Chloride	<5.00		5.00		ug/L			09/03/16 00:21	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/03/16 00:21	1
Naphthalene	<5.00		5.00		ug/L			09/03/16 00:21	1
N-Propylbenzene	<1.00		1.00		ug/L			09/03/16 00:21	1
Styrene	<1.00		1.00		ug/L			09/03/16 00:21	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/03/16 00:21	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB3

Date Collected: 08/30/16 11:28

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-6

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/03/16 00:21	1
Tetrachloroethene	6.86		1.00		ug/L			09/03/16 00:21	1
Toluene	<1.00		1.00		ug/L			09/03/16 00:21	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/03/16 00:21	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/03/16 00:21	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/03/16 00:21	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/03/16 00:21	1
Trichloroethene	<1.00		1.00		ug/L			09/03/16 00:21	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/03/16 00:21	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/03/16 00:21	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/03/16 00:21	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/03/16 00:21	1
Vinyl chloride	<1.00		1.00		ug/L			09/03/16 00:21	1
Xylenes, Total	<3.00		3.00		ug/L			09/03/16 00:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		80 - 120		09/03/16 00:21	1
Dibromofluoromethane (Surr)	108		80 - 120		09/03/16 00:21	1
Toluene-d8 (Surr)	93		80 - 120		09/03/16 00:21	1

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.0324		0.0926	0.0324	ug/L		09/06/16 10:17	09/07/16 15:26	1
Acenaphthylene	<0.0333		0.0926	0.0333	ug/L		09/06/16 10:17	09/07/16 15:26	1
Anthracene	<0.0185		0.0926	0.0185	ug/L		09/06/16 10:17	09/07/16 15:26	1
Benzo[a]anthracene	<0.0176		0.0926	0.0176	ug/L		09/06/16 10:17	09/07/16 15:26	1
Benzo[a]pyrene	<0.0176		0.0926	0.0176	ug/L		09/06/16 10:17	09/07/16 15:26	1
Benzo[b]fluoranthene	<0.0185		0.0926	0.0185	ug/L		09/06/16 10:17	09/07/16 15:26	1
Benzo[g,h,i]perylene	<0.0120		0.0926	0.0120	ug/L		09/06/16 10:17	09/07/16 15:26	1
Benzo[k]fluoranthene	<0.0139		0.0926	0.0139	ug/L		09/06/16 10:17	09/07/16 15:26	1
Chrysene	<0.0148		0.0926	0.0148	ug/L		09/06/16 10:17	09/07/16 15:26	1
Dibenz(a,h)anthracene	<0.0120		0.0926	0.0120	ug/L		09/06/16 10:17	09/07/16 15:26	1
Fluoranthene	<0.0148		0.0926	0.0148	ug/L		09/06/16 10:17	09/07/16 15:26	1
Fluorene	<0.0213		0.0926	0.0213	ug/L		09/06/16 10:17	09/07/16 15:26	1
Indeno[1,2,3-cd]pyrene	<0.0157		0.0926	0.0157	ug/L		09/06/16 10:17	09/07/16 15:26	1
2-Methylnaphthalene	<0.0343		0.463	0.0343	ug/L		09/06/16 10:17	09/07/16 15:26	1
Naphthalene	<0.0352		0.463	0.0352	ug/L		09/06/16 10:17	09/07/16 15:26	1
Phenanthrene	<0.0241		0.0926	0.0241	ug/L		09/06/16 10:17	09/07/16 15:26	1
Pyrene	<0.0130		0.0926	0.0130	ug/L		09/06/16 10:17	09/07/16 15:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	49		10 - 110	09/06/16 10:17	09/07/16 15:26	1
Nitrobenzene-d5 (Surr)	53		10 - 110	09/06/16 10:17	09/07/16 15:26	1
Terphenyl-d14 (Surr)	57		20 - 110	09/06/16 10:17	09/07/16 15:26	1

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<278		278		ug/L		09/01/16 13:33	09/02/16 17:02	1
Diesel	<278		278		ug/L		09/01/16 13:33	09/02/16 17:02	1
Waste Oil	<278		278		ug/L		09/01/16 13:33	09/02/16 17:02	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB3

Date Collected: 08/30/16 11:28

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-6

Matrix: Ground Water

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Extractable Hydrocarbons	<463		463		ug/L		09/01/16 13:33	09/02/16 17:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane	140		45 - 140				09/01/16 13:33	09/02/16 17:02	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/02/16 07:42	09/02/16 17:43	1
Barium	0.0455		0.00200		mg/L		09/02/16 07:42	09/02/16 17:43	1
Cadmium	<0.000500		0.000500		mg/L		09/02/16 07:42	09/02/16 17:43	1
Chromium	<0.00500		0.00500		mg/L		09/02/16 07:42	09/02/16 17:43	1
Lead	<0.000500		0.000500		mg/L		09/02/16 07:42	09/02/16 17:43	1
Selenium	<0.00500		0.00500		mg/L		09/02/16 07:42	09/02/16 17:43	1
Silver	<0.00100		0.00100		mg/L		09/02/16 07:42	09/02/16 17:43	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/06/16 09:56	09/07/16 11:21	1

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: OC

Date Collected: 08/30/16 10:52

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-7

Matrix: Soil

Percent Solids: 87.8

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.350		1.10	0.350	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Acenaphthylene	<0.220		1.10	0.220	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Anthracene	<0.337		1.10	0.337	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Benzo[a]anthracene	0.338	J	1.10	0.241	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Benzo[a]pyrene	0.573	J	1.10	0.147	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Benzo[b]fluoranthene	1.02	J	1.10	0.160	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Benzo[g,h,i]perylene	0.623	J	1.10	0.162	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Benzo[k]fluoranthene	0.250	J	1.10	0.139	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Chrysene	0.478	J	1.10	0.148	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Dibenz(a,h)anthracene	<0.152		1.10	0.152	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Fluoranthene	0.660	J	1.10	0.325	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Fluorene	<0.419		1.10	0.419	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Indeno[1,2,3-cd]pyrene	0.499	J	1.10	0.159	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
2-Methylnaphthalene	<0.382		1.10	0.382	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Naphthalene	<0.479		1.10	0.479	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Phenanthrene	0.413	J	1.10	0.289	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100
Pyrene	0.675	J	1.10	0.293	mg/Kg	☼	09/01/16 12:23	09/02/16 16:04	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	57		10 - 110	09/01/16 12:23	09/02/16 16:04	100
Nitrobenzene-d5 (Surr)	57		10 - 110	09/01/16 12:23	09/02/16 16:04	100
Terphenyl-d14 (Surr)	59		20 - 110	09/01/16 12:23	09/02/16 16:04	100

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.0560		0.0560		mg/Kg	☼	09/01/16 12:32	09/09/16 10:54	1
PCB-1221	<0.0560		0.0560		mg/Kg	☼	09/01/16 12:32	09/09/16 10:54	1
PCB-1232	<0.0560		0.0560		mg/Kg	☼	09/01/16 12:32	09/09/16 10:54	1
PCB-1242	40.2		11.2		mg/Kg	☼	09/01/16 12:32	09/13/16 19:09	200
PCB-1248	<0.0560		0.0560		mg/Kg	☼	09/01/16 12:32	09/09/16 10:54	1
PCB-1254	<0.0560		0.0560		mg/Kg	☼	09/01/16 12:32	09/09/16 10:54	1
PCB-1260	<0.0560		0.0560		mg/Kg	☼	09/01/16 12:32	09/09/16 10:54	1
PCB-1268	<0.0560		0.0560		mg/Kg	☼	09/01/16 12:32	09/09/16 10:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	55		10 - 110	09/01/16 12:32	09/09/16 10:54	1
Tetrachloro-m-xylene	63		10 - 110	09/01/16 12:32	09/09/16 10:54	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<15.0		15.0		mg/Kg	☼	09/02/16 08:18	09/06/16 12:59	4
Barium	183		1.87		mg/Kg	☼	09/02/16 08:18	09/06/16 12:59	4
Cadmium	10.7		3.74		mg/Kg	☼	09/02/16 08:18	09/06/16 12:59	4
Chromium	51.3		3.74		mg/Kg	☼	09/02/16 08:18	09/06/16 12:59	4
Lead	737		18.7		mg/Kg	☼	09/02/16 08:18	09/06/16 12:59	4
Selenium	<28.0		28.0		mg/Kg	☼	09/02/16 08:18	09/06/16 12:59	4
Silver	<3.74		3.74		mg/Kg	☼	09/02/16 08:18	09/06/16 12:59	4

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: OC

Date Collected: 08/30/16 10:52

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-7

Matrix: Soil

Percent Solids: 87.8

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	2.42		0.226		mg/Kg	☼	09/01/16 10:25	09/02/16 11:18	10

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: BC

Date Collected: 08/30/16 11:41

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-8

Matrix: Soil

Percent Solids: 85.4

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<575		575		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Benzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Bromobenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Bromochloromethane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Bromodichloromethane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Bromoform	<115	^	115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Bromomethane	<575		575		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
2-Butanone (MEK)	<287		287		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
n-Butylbenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
sec-Butylbenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
tert-Butylbenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Carbon disulfide	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Carbon tetrachloride	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Chlorobenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Chlorodibromomethane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Chloroethane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Chloroform	<172		172		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Chloromethane	<287		287		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
2-Chlorotoluene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
4-Chlorotoluene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,2-Dibromo-3-Chloropropane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,2-Dibromoethane (EDB)	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Dibromomethane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,2-Dichlorobenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,3-Dichlorobenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,4-Dichlorobenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Dichlorodifluoromethane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,1-Dichloroethane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,2-Dichloroethane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,1-Dichloroethene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
cis-1,2-Dichloroethene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
trans-1,2-Dichloroethene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,2-Dichloropropane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,3-Dichloropropane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
2,2-Dichloropropane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,1-Dichloropropene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
cis-1,3-Dichloropropene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
trans-1,3-Dichloropropene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Ethylbenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Hexachlorobutadiene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Hexane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Isopropylbenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
p-Isopropyltoluene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Methylene Chloride	<287		287		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Methyl tert-butyl ether	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Naphthalene	<287		287		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
N-Propylbenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Styrene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,1,1,2-Tetrachloroethane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: BC

Date Collected: 08/30/16 11:41

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-8

Matrix: Soil

Percent Solids: 85.4

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Tetrachloroethene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Toluene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,2,3-Trichlorobenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,2,4-Trichlorobenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,1,1-Trichloroethane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,1,2-Trichloroethane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Trichloroethene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Trichlorofluoromethane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,2,3-Trichloropropane	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,2,4-Trimethylbenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
1,3,5-Trimethylbenzene	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Vinyl chloride	<115		115		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1
Xylenes, Total	<172		172		ug/Kg	☼	09/12/16 07:35	09/12/16 11:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 135	09/12/16 07:35	09/12/16 11:53	1
Dibromofluoromethane (Surr)	99		80 - 120	09/12/16 07:35	09/12/16 11:53	1
Toluene-d8 (Surr)	95		80 - 120	09/12/16 07:35	09/12/16 11:53	1

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<1.73		5.46	1.73	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Acenaphthylene	<1.09		5.46	1.09	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Anthracene	<1.67		5.46	1.67	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Benzo[a]anthracene	<1.19		5.46	1.19	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Benzo[a]pyrene	<0.727		5.46	0.727	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Benzo[b]fluoranthene	0.908 J		5.46	0.792	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Benzo[g,h,i]perylene	<0.803		5.46	0.803	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Benzo[k]fluoranthene	<0.688		5.46	0.688	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Chrysene	<0.732		5.46	0.732	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Dibenz(a,h)anthracene	<0.754		5.46	0.754	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Fluoranthene	<1.61		5.46	1.61	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Fluorene	<2.07		5.46	2.07	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Indeno[1,2,3-cd]pyrene	<0.787		5.46	0.787	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
2-Methylnaphthalene	<1.89		5.46	1.89	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Naphthalene	<2.37		5.46	2.37	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Phenanthrene	<1.43		5.46	1.43	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100
Pyrene	1.61 J		5.46	1.45	mg/Kg	☼	09/01/16 12:23	09/02/16 16:25	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	58		10 - 110	09/01/16 12:23	09/02/16 16:25	100
Nitrobenzene-d5 (Surr)	53		10 - 110	09/01/16 12:23	09/02/16 16:25	100
Terphenyl-d14 (Surr)	76		20 - 110	09/01/16 12:23	09/02/16 16:25	100

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.0573		0.0573		mg/Kg	☼	09/01/16 12:32	09/09/16 11:05	1
PCB-1221	<0.0573		0.0573		mg/Kg	☼	09/01/16 12:32	09/09/16 11:05	1
PCB-1232	<0.0573		0.0573		mg/Kg	☼	09/01/16 12:32	09/09/16 11:05	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: BC

Date Collected: 08/30/16 11:41

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-8

Matrix: Soil

Percent Solids: 85.4

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1242	1.93		0.573		mg/Kg	☼	09/01/16 12:32	09/13/16 13:21	10
PCB-1248	<0.0573		0.0573		mg/Kg	☼	09/01/16 12:32	09/09/16 11:05	1
PCB-1254	<0.0573		0.0573		mg/Kg	☼	09/01/16 12:32	09/09/16 11:05	1
PCB-1260	<0.0573		0.0573		mg/Kg	☼	09/01/16 12:32	09/09/16 11:05	1
PCB-1268	<0.0573		0.0573		mg/Kg	☼	09/01/16 12:32	09/09/16 11:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	27		10 - 110				09/01/16 12:32	09/09/16 11:05	1
Tetrachloro-m-xylene	30		10 - 110				09/01/16 12:32	09/09/16 11:05	1

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<645		645		mg/Kg		09/01/16 12:24	09/06/16 14:33	10
Diesel	<645		645		mg/Kg		09/01/16 12:24	09/06/16 14:33	10
Waste Oil	103000		645		mg/Kg		09/01/16 12:24	09/06/16 14:33	10
Total Extractable Hydrocarbons	<967		967		mg/Kg		09/01/16 12:24	09/06/16 14:33	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane	62		40 - 135				09/01/16 12:24	09/06/16 14:33	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	37.2		28.4		mg/Kg	☼	09/02/16 08:18	09/06/16 13:06	8
Barium	111		3.55		mg/Kg	☼	09/02/16 08:18	09/06/16 13:06	8
Cadmium	14.3		7.09		mg/Kg	☼	09/02/16 08:18	09/06/16 13:06	8
Chromium	109		7.09		mg/Kg	☼	09/02/16 08:18	09/06/16 13:06	8
Lead	29500		35.5		mg/Kg	☼	09/02/16 08:18	09/06/16 13:06	8
Selenium	<53.2		53.2		mg/Kg	☼	09/02/16 08:18	09/06/16 13:06	8
Silver	23.7		7.09		mg/Kg	☼	09/02/16 08:18	09/06/16 13:06	8

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	2.56		0.218		mg/Kg	☼	09/01/16 10:25	09/02/16 11:19	10

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: CC

Date Collected: 08/30/16 11:55

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-9

Matrix: Soil

Percent Solids: 84.3

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.181		0.571	0.181	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Acenaphthylene	0.206	J	0.571	0.114	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Anthracene	<0.174		0.571	0.174	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Benzo[a]anthracene	0.437	J	0.571	0.124	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Benzo[a]pyrene	0.649		0.571	0.0759	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Benzo[b]fluoranthene	1.41		0.571	0.0828	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Benzo[g,h,i]perylene	0.825		0.571	0.0839	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Benzo[k]fluoranthene	0.562	J	0.571	0.0719	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Chrysene	0.800		0.571	0.0765	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Dibenz(a,h)anthracene	0.170	J	0.571	0.0788	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Fluoranthene	1.49		0.571	0.168	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Fluorene	<0.216		0.571	0.216	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Indeno[1,2,3-cd]pyrene	0.694		0.571	0.0822	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
2-Methylnaphthalene	0.423	J	0.571	0.197	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Naphthalene	<0.248		0.571	0.248	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Phenanthrene	0.869		0.571	0.150	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10
Pyrene	1.47		0.571	0.151	mg/Kg	☼	09/01/16 12:23	09/02/16 16:47	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	60		10 - 110	09/01/16 12:23	09/02/16 16:47	10
Nitrobenzene-d5 (Surr)	107		10 - 110	09/01/16 12:23	09/02/16 16:47	10
Terphenyl-d14 (Surr)	75		20 - 110	09/01/16 12:23	09/02/16 16:47	10

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.0592		0.0592		mg/Kg	☼	09/01/16 12:32	09/09/16 11:15	1
PCB-1221	<0.0592		0.0592		mg/Kg	☼	09/01/16 12:32	09/09/16 11:15	1
PCB-1232	<0.0592		0.0592		mg/Kg	☼	09/01/16 12:32	09/09/16 11:15	1
PCB-1242	7.53		2.96		mg/Kg	☼	09/01/16 12:32	09/13/16 13:53	50
PCB-1248	<0.0592		0.0592		mg/Kg	☼	09/01/16 12:32	09/09/16 11:15	1
PCB-1254	<0.0592		0.0592		mg/Kg	☼	09/01/16 12:32	09/09/16 11:15	1
PCB-1260	<0.0592		0.0592		mg/Kg	☼	09/01/16 12:32	09/09/16 11:15	1
PCB-1268	<0.0592		0.0592		mg/Kg	☼	09/01/16 12:32	09/09/16 11:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	98		10 - 110	09/01/16 12:32	09/09/16 11:15	1
Tetrachloro-m-xylene	52		10 - 110	09/01/16 12:32	09/09/16 11:15	1

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<327		327		mg/Kg		09/01/16 12:24	09/06/16 14:49	10
Diesel	<327		327		mg/Kg		09/01/16 12:24	09/06/16 14:49	10
Waste Oil	93800		653		mg/Kg		09/01/16 12:24	09/07/16 23:55	20
Total Extractable Hydrocarbons	<490		490		mg/Kg		09/01/16 12:24	09/06/16 14:49	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	25	X	40 - 135	09/01/16 12:24	09/06/16 14:49	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	33.1	J	49.8	28.6	mg/Kg	☼	09/02/16 08:18	09/06/16 13:30	12

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: CC

Date Collected: 08/30/16 11:55

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-9

Matrix: Soil

Percent Solids: 84.3

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	962		6.22	3.67	mg/Kg	☼	09/02/16 08:18	09/06/16 13:30	12
Cadmium	53.6		12.4	3.10	mg/Kg	☼	09/02/16 08:18	09/06/16 13:30	12
Chromium	247		12.4	3.48	mg/Kg	☼	09/02/16 08:18	09/06/16 13:30	12
Lead	2720		62.2	12.3	mg/Kg	☼	09/02/16 08:18	09/06/16 13:30	12
Selenium	<37.3		93.3	37.3	mg/Kg	☼	09/02/16 08:18	09/06/16 13:30	12
Silver	<3.87		12.4	3.87	mg/Kg	☼	09/02/16 08:18	09/06/16 13:30	12

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	7.95		1.05		mg/Kg	☼	09/01/16 10:25	09/02/16 11:21	50

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: DUP 1

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-10

Matrix: Soil

Percent Solids: 89.3

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<328		328		mg/Kg		09/01/16 12:24	09/06/16 15:04	10
Diesel	<328		328		mg/Kg		09/01/16 12:24	09/06/16 15:04	10
Waste Oil	50700		328		mg/Kg		09/01/16 12:24	09/06/16 15:04	10
Total Extractable Hydrocarbons	<493		493		mg/Kg		09/01/16 12:24	09/06/16 15:04	10
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane	31	X	40 - 135				09/01/16 12:24	09/06/16 15:04	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	42.5		35.2		mg/Kg	⚠	09/02/16 08:18	09/06/16 13:33	10
Barium	822		4.40		mg/Kg	⚠	09/02/16 08:18	09/06/16 13:33	10
Cadmium	39.0		8.79		mg/Kg	⚠	09/02/16 08:18	09/06/16 13:33	10
Chromium	109		8.79		mg/Kg	⚠	09/02/16 08:18	09/06/16 13:33	10
Lead	3350		44.0		mg/Kg	⚠	09/02/16 08:18	09/06/16 13:33	10
Selenium	<66.0		66.0		mg/Kg	⚠	09/02/16 08:18	09/06/16 13:33	10
Silver	<8.79		8.79		mg/Kg	⚠	09/02/16 08:18	09/06/16 13:33	10

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	4.48		0.391		mg/Kg	⚠	09/01/16 10:25	09/02/16 11:22	20

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: DUP 2
Date Collected: 08/30/16 00:00
Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-11
Matrix: Soil
Percent Solids: 87.3

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.179		0.565	0.179	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Acenaphthylene	0.144	J	0.565	0.112	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Anthracene	<0.172		0.565	0.172	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Benzo[a]anthracene	0.271	J	0.565	0.123	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Benzo[a]pyrene	0.435	J	0.565	0.0751	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Benzo[b]fluoranthene	1.03		0.565	0.0819	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Benzo[g,h,i]perylene	0.674		0.565	0.0830	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Benzo[k]fluoranthene	0.408	J	0.565	0.0712	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Chrysene	0.473	J	0.565	0.0757	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Dibenz(a,h)anthracene	0.154	J	0.565	0.0779	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Fluoranthene	0.855		0.565	0.166	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Fluorene	<0.214		0.565	0.214	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Indeno[1,2,3-cd]pyrene	0.556	J	0.565	0.0813	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
2-Methylnaphthalene	0.363	J	0.565	0.195	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Naphthalene	<0.245		0.565	0.245	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Phenanthrene	0.480	J	0.565	0.148	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10
Pyrene	0.836		0.565	0.150	mg/Kg	☼	09/01/16 12:23	09/02/16 17:09	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	62		10 - 110	09/01/16 12:23	09/02/16 17:09	10
Nitrobenzene-d5 (Surr)	93		10 - 110	09/01/16 12:23	09/02/16 17:09	10
Terphenyl-d14 (Surr)	75		20 - 110	09/01/16 12:23	09/02/16 17:09	10

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.0566		0.0566		mg/Kg	☼	09/01/16 12:32	09/09/16 11:26	1
PCB-1221	<0.0566		0.0566		mg/Kg	☼	09/01/16 12:32	09/09/16 11:26	1
PCB-1232	<0.0566		0.0566		mg/Kg	☼	09/01/16 12:32	09/09/16 11:26	1
PCB-1242	5.35		1.13		mg/Kg	☼	09/01/16 12:32	09/13/16 13:32	20
PCB-1248	<0.0566		0.0566		mg/Kg	☼	09/01/16 12:32	09/09/16 11:26	1
PCB-1254	<1.13		1.13		mg/Kg	☼	09/01/16 12:32	09/13/16 13:32	20
PCB-1260	<0.0566		0.0566		mg/Kg	☼	09/01/16 12:32	09/09/16 11:26	1
PCB-1268	<0.0566		0.0566		mg/Kg	☼	09/01/16 12:32	09/09/16 11:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	38		10 - 110	09/01/16 12:32	09/09/16 11:26	1
Tetrachloro-m-xylene	45		10 - 110	09/01/16 12:32	09/09/16 11:26	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: DUP 3

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-12

Matrix: Soil

Percent Solids: 85.6

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<532		532		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Benzene	1230		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Bromobenzene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Bromochloromethane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Bromodichloromethane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Bromoform	<106	^	106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Bromomethane	<532		532		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
2-Butanone (MEK)	<266		266		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
n-Butylbenzene	332		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
sec-Butylbenzene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
tert-Butylbenzene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Carbon disulfide	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Carbon tetrachloride	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Chlorobenzene	433		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Chlorodibromomethane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Chloroethane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Chloroform	<159		159		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Chloromethane	<266		266		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
2-Chlorotoluene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
4-Chlorotoluene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,2-Dibromo-3-Chloropropane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,2-Dibromoethane (EDB)	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Dibromomethane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,2-Dichlorobenzene	2630		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,3-Dichlorobenzene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,4-Dichlorobenzene	111		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Dichlorodifluoromethane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,1-Dichloroethane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,2-Dichloroethane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,1-Dichloroethene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
cis-1,2-Dichloroethene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
trans-1,2-Dichloroethene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,2-Dichloropropane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,3-Dichloropropane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
2,2-Dichloropropane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,1-Dichloropropene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
cis-1,3-Dichloropropene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
trans-1,3-Dichloropropene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Ethylbenzene	908		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Hexachlorobutadiene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Hexane	409		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Isopropylbenzene	158		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
p-Isopropyltoluene	157		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Methylene Chloride	<266		266		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Methyl tert-butyl ether	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Naphthalene	893		266		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
N-Propylbenzene	413		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Styrene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,1,1,2-Tetrachloroethane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: DUP 3

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-12

Matrix: Soil

Percent Solids: 85.6

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Tetrachloroethene	240		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Toluene	1700		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,2,3-Trichlorobenzene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,2,4-Trichlorobenzene	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,1,1-Trichloroethane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,1,2-Trichloroethane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Trichloroethene	1290		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Trichlorofluoromethane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,2,3-Trichloropropane	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,2,4-Trimethylbenzene	2170		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
1,3,5-Trimethylbenzene	618		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Vinyl chloride	<106		106		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1
Xylenes, Total	3090		159		ug/Kg	☼	09/12/16 07:35	09/12/16 12:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 135	09/12/16 07:35	09/12/16 12:17	1
Dibromofluoromethane (Surr)	99		80 - 120	09/12/16 07:35	09/12/16 12:17	1
Toluene-d8 (Surr)	94		80 - 120	09/12/16 07:35	09/12/16 12:17	1

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: DUP 5

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-13

Matrix: Ground Water

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<313		313		ug/L		09/01/16 13:38	09/02/16 17:27	1
Diesel	<313		313		ug/L		09/01/16 13:38	09/02/16 17:27	1
Waste Oil	<313		313		ug/L		09/01/16 13:38	09/02/16 17:27	1
Total Extractable Hydrocarbons	<521		521		ug/L		09/01/16 13:38	09/02/16 17:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	126		45 - 140	09/01/16 13:38	09/02/16 17:27	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: DUP 6

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-14

Matrix: Ground Water

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/02/16 07:42	09/02/16 17:46	1
Barium	0.0442		0.00200		mg/L		09/02/16 07:42	09/02/16 17:46	1
Cadmium	<0.000500		0.000500		mg/L		09/02/16 07:42	09/02/16 17:46	1
Chromium	<0.00500		0.00500		mg/L		09/02/16 07:42	09/02/16 17:46	1
Lead	<0.000500		0.000500		mg/L		09/02/16 07:42	09/02/16 17:46	1
Selenium	<0.00500		0.00500		mg/L		09/02/16 07:42	09/02/16 17:46	1
Silver	<0.00100		0.00100		mg/L		09/02/16 07:42	09/02/16 17:46	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/06/16 09:56	09/07/16 11:23	1

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: DUP 7

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-15

Matrix: Ground Water

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.0350		0.100	0.0350	ug/L		09/06/16 10:17	09/07/16 15:48	1
Acenaphthylene	<0.0360		0.100	0.0360	ug/L		09/06/16 10:17	09/07/16 15:48	1
Anthracene	<0.0200		0.100	0.0200	ug/L		09/06/16 10:17	09/07/16 15:48	1
Benzo[a]anthracene	<0.0190		0.100	0.0190	ug/L		09/06/16 10:17	09/07/16 15:48	1
Benzo[a]pyrene	<0.0190		0.100	0.0190	ug/L		09/06/16 10:17	09/07/16 15:48	1
Benzo[b]fluoranthene	<0.0200		0.100	0.0200	ug/L		09/06/16 10:17	09/07/16 15:48	1
Benzo[g,h,i]perylene	<0.0130		0.100	0.0130	ug/L		09/06/16 10:17	09/07/16 15:48	1
Benzo[k]fluoranthene	<0.0150		0.100	0.0150	ug/L		09/06/16 10:17	09/07/16 15:48	1
Chrysene	<0.0160		0.100	0.0160	ug/L		09/06/16 10:17	09/07/16 15:48	1
Dibenz(a,h)anthracene	<0.0130		0.100	0.0130	ug/L		09/06/16 10:17	09/07/16 15:48	1
Fluoranthene	<0.0160		0.100	0.0160	ug/L		09/06/16 10:17	09/07/16 15:48	1
Fluorene	<0.0230		0.100	0.0230	ug/L		09/06/16 10:17	09/07/16 15:48	1
Indeno[1,2,3-cd]pyrene	<0.0170		0.100	0.0170	ug/L		09/06/16 10:17	09/07/16 15:48	1
2-Methylnaphthalene	0.0705	J	0.500	0.0370	ug/L		09/06/16 10:17	09/07/16 15:48	1
Naphthalene	0.0926	J	0.500	0.0380	ug/L		09/06/16 10:17	09/07/16 15:48	1
Phenanthrene	<0.0260		0.100	0.0260	ug/L		09/06/16 10:17	09/07/16 15:48	1
Pyrene	<0.0140		0.100	0.0140	ug/L		09/06/16 10:17	09/07/16 15:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	53		10 - 110	09/06/16 10:17	09/07/16 15:48	1
Nitrobenzene-d5 (Surr)	57		10 - 110	09/06/16 10:17	09/07/16 15:48	1
Terphenyl-d14 (Surr)	57		20 - 110	09/06/16 10:17	09/07/16 15:48	1

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: DUP 8
Date Collected: 08/30/16 00:00
Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-16
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<10.0		10.0		ug/L			09/03/16 00:45	1
Benzene	<0.500		0.500		ug/L			09/03/16 00:45	1
Bromobenzene	<1.00		1.00		ug/L			09/03/16 00:45	1
Bromochloromethane	<5.00		5.00		ug/L			09/03/16 00:45	1
Bromodichloromethane	<1.00		1.00		ug/L			09/03/16 00:45	1
Bromoform	<5.00		5.00		ug/L			09/03/16 00:45	1
Bromomethane	<4.00		4.00		ug/L			09/03/16 00:45	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/03/16 00:45	1
n-Butylbenzene	<1.00		1.00		ug/L			09/03/16 00:45	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/03/16 00:45	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/03/16 00:45	1
Carbon disulfide	<1.00		1.00		ug/L			09/03/16 00:45	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/03/16 00:45	1
Chlorobenzene	<1.00		1.00		ug/L			09/03/16 00:45	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/03/16 00:45	1
Chloroethane	<4.00		4.00		ug/L			09/03/16 00:45	1
Chloroform	<1.00		1.00		ug/L			09/03/16 00:45	1
Chloromethane	<3.00		3.00		ug/L			09/03/16 00:45	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/03/16 00:45	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/03/16 00:45	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/03/16 00:45	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/03/16 00:45	1
Dibromomethane	<1.00		1.00		ug/L			09/03/16 00:45	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/03/16 00:45	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/03/16 00:45	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/03/16 00:45	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/03/16 00:45	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/03/16 00:45	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/03/16 00:45	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/03/16 00:45	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/03/16 00:45	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/03/16 00:45	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/03/16 00:45	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/03/16 00:45	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/03/16 00:45	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/03/16 00:45	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/03/16 00:45	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/03/16 00:45	1
Ethylbenzene	<1.00		1.00		ug/L			09/03/16 00:45	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/03/16 00:45	1
Hexane	<1.00		1.00		ug/L			09/03/16 00:45	1
Isopropylbenzene	<1.00		1.00		ug/L			09/03/16 00:45	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/03/16 00:45	1
Methylene Chloride	<5.00		5.00		ug/L			09/03/16 00:45	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/03/16 00:45	1
Naphthalene	<5.00		5.00		ug/L			09/03/16 00:45	1
N-Propylbenzene	<1.00		1.00		ug/L			09/03/16 00:45	1
Styrene	<1.00		1.00		ug/L			09/03/16 00:45	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/03/16 00:45	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: DUP 8

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-16

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/03/16 00:45	1
Tetrachloroethene	6.87		1.00		ug/L			09/03/16 00:45	1
Toluene	<1.00		1.00		ug/L			09/03/16 00:45	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/03/16 00:45	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/03/16 00:45	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/03/16 00:45	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/03/16 00:45	1
Trichloroethene	<1.00		1.00		ug/L			09/03/16 00:45	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/03/16 00:45	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/03/16 00:45	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/03/16 00:45	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/03/16 00:45	1
Vinyl chloride	<1.00		1.00		ug/L			09/03/16 00:45	1
Xylenes, Total	<3.00		3.00		ug/L			09/03/16 00:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		80 - 120					09/03/16 00:45	1
Dibromofluoromethane (Surr)	108		80 - 120					09/03/16 00:45	1
Toluene-d8 (Surr)	95		80 - 120					09/03/16 00:45	1

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: Trip Blank

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-17

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<10.0		10.0		ug/L			09/03/16 01:08	1
Benzene	<0.500		0.500		ug/L			09/03/16 01:08	1
Bromobenzene	<1.00		1.00		ug/L			09/03/16 01:08	1
Bromochloromethane	<5.00		5.00		ug/L			09/03/16 01:08	1
Bromodichloromethane	<1.00		1.00		ug/L			09/03/16 01:08	1
Bromoform	<5.00		5.00		ug/L			09/03/16 01:08	1
Bromomethane	<4.00		4.00		ug/L			09/03/16 01:08	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/03/16 01:08	1
n-Butylbenzene	<1.00		1.00		ug/L			09/03/16 01:08	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/03/16 01:08	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/03/16 01:08	1
Carbon disulfide	<1.00		1.00		ug/L			09/03/16 01:08	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/03/16 01:08	1
Chlorobenzene	<1.00		1.00		ug/L			09/03/16 01:08	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/03/16 01:08	1
Chloroethane	<4.00		4.00		ug/L			09/03/16 01:08	1
Chloroform	<1.00		1.00		ug/L			09/03/16 01:08	1
Chloromethane	<3.00		3.00		ug/L			09/03/16 01:08	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/03/16 01:08	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/03/16 01:08	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/03/16 01:08	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/03/16 01:08	1
Dibromomethane	<1.00		1.00		ug/L			09/03/16 01:08	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/03/16 01:08	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/03/16 01:08	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/03/16 01:08	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/03/16 01:08	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/03/16 01:08	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/03/16 01:08	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/03/16 01:08	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/03/16 01:08	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/03/16 01:08	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/03/16 01:08	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/03/16 01:08	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/03/16 01:08	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/03/16 01:08	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/03/16 01:08	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/03/16 01:08	1
Ethylbenzene	<1.00		1.00		ug/L			09/03/16 01:08	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/03/16 01:08	1
Hexane	<1.00		1.00		ug/L			09/03/16 01:08	1
Isopropylbenzene	<1.00		1.00		ug/L			09/03/16 01:08	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/03/16 01:08	1
Methylene Chloride	<5.00		5.00		ug/L			09/03/16 01:08	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/03/16 01:08	1
Naphthalene	<5.00		5.00		ug/L			09/03/16 01:08	1
N-Propylbenzene	<1.00		1.00		ug/L			09/03/16 01:08	1
Styrene	<1.00		1.00		ug/L			09/03/16 01:08	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/03/16 01:08	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: Trip Blank

Lab Sample ID: 310-88292-17

Date Collected: 08/30/16 00:00

Matrix: Water

Date Received: 08/31/16 16:15

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/03/16 01:08	1
Tetrachloroethene	<1.00		1.00		ug/L			09/03/16 01:08	1
Toluene	<1.00		1.00		ug/L			09/03/16 01:08	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/03/16 01:08	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/03/16 01:08	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/03/16 01:08	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/03/16 01:08	1
Trichloroethene	<1.00		1.00		ug/L			09/03/16 01:08	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/03/16 01:08	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/03/16 01:08	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/03/16 01:08	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/03/16 01:08	1
Vinyl chloride	<1.00		1.00		ug/L			09/03/16 01:08	1
Xylenes, Total	<3.00		3.00		ug/L			09/03/16 01:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120					09/03/16 01:08	1
Dibromofluoromethane (Surr)	112		80 - 120					09/03/16 01:08	1
Toluene-d8 (Surr)	94		80 - 120					09/03/16 01:08	1

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: Field Blank

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-18

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<10.0		10.0		ug/L			09/03/16 01:32	1
Benzene	<0.500		0.500		ug/L			09/03/16 01:32	1
Bromobenzene	<1.00		1.00		ug/L			09/03/16 01:32	1
Bromochloromethane	<5.00		5.00		ug/L			09/03/16 01:32	1
Bromodichloromethane	<1.00		1.00		ug/L			09/03/16 01:32	1
Bromoform	<5.00		5.00		ug/L			09/03/16 01:32	1
Bromomethane	<4.00		4.00		ug/L			09/03/16 01:32	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/03/16 01:32	1
n-Butylbenzene	<1.00		1.00		ug/L			09/03/16 01:32	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/03/16 01:32	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/03/16 01:32	1
Carbon disulfide	<1.00		1.00		ug/L			09/03/16 01:32	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/03/16 01:32	1
Chlorobenzene	<1.00		1.00		ug/L			09/03/16 01:32	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/03/16 01:32	1
Chloroethane	<4.00		4.00		ug/L			09/03/16 01:32	1
Chloroform	<1.00		1.00		ug/L			09/03/16 01:32	1
Chloromethane	<3.00		3.00		ug/L			09/03/16 01:32	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/03/16 01:32	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/03/16 01:32	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/03/16 01:32	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/03/16 01:32	1
Dibromomethane	<1.00		1.00		ug/L			09/03/16 01:32	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/03/16 01:32	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/03/16 01:32	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/03/16 01:32	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/03/16 01:32	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/03/16 01:32	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/03/16 01:32	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/03/16 01:32	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/03/16 01:32	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/03/16 01:32	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/03/16 01:32	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/03/16 01:32	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/03/16 01:32	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/03/16 01:32	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/03/16 01:32	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/03/16 01:32	1
Ethylbenzene	<1.00		1.00		ug/L			09/03/16 01:32	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/03/16 01:32	1
Hexane	<1.00		1.00		ug/L			09/03/16 01:32	1
Isopropylbenzene	<1.00		1.00		ug/L			09/03/16 01:32	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/03/16 01:32	1
Methylene Chloride	<5.00		5.00		ug/L			09/03/16 01:32	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/03/16 01:32	1
Naphthalene	<5.00		5.00		ug/L			09/03/16 01:32	1
N-Propylbenzene	<1.00		1.00		ug/L			09/03/16 01:32	1
Styrene	<1.00		1.00		ug/L			09/03/16 01:32	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/03/16 01:32	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: Field Blank

Lab Sample ID: 310-88292-18

Date Collected: 08/30/16 00:00

Matrix: Water

Date Received: 08/31/16 16:15

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/03/16 01:32	1
Tetrachloroethene	<1.00		1.00		ug/L			09/03/16 01:32	1
Toluene	<1.00		1.00		ug/L			09/03/16 01:32	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/03/16 01:32	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/03/16 01:32	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/03/16 01:32	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/03/16 01:32	1
Trichloroethene	<1.00		1.00		ug/L			09/03/16 01:32	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/03/16 01:32	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/03/16 01:32	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/03/16 01:32	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/03/16 01:32	1
Vinyl chloride	<1.00		1.00		ug/L			09/03/16 01:32	1
Xylenes, Total	<3.00		3.00		ug/L			09/03/16 01:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		80 - 120		09/03/16 01:32	1
Dibromofluoromethane (Surr)	110		80 - 120		09/03/16 01:32	1
Toluene-d8 (Surr)	94		80 - 120		09/03/16 01:32	1

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.0365		0.104	0.0365	ug/L		09/06/16 10:17	09/07/16 16:53	1
Acenaphthylene	<0.0375		0.104	0.0375	ug/L		09/06/16 10:17	09/07/16 16:53	1
Anthracene	<0.0208		0.104	0.0208	ug/L		09/06/16 10:17	09/07/16 16:53	1
Benzo[a]anthracene	<0.0198		0.104	0.0198	ug/L		09/06/16 10:17	09/07/16 16:53	1
Benzo[a]pyrene	<0.0198		0.104	0.0198	ug/L		09/06/16 10:17	09/07/16 16:53	1
Benzo[b]fluoranthene	<0.0208		0.104	0.0208	ug/L		09/06/16 10:17	09/07/16 16:53	1
Benzo[g,h,i]perylene	<0.0135		0.104	0.0135	ug/L		09/06/16 10:17	09/07/16 16:53	1
Benzo[k]fluoranthene	<0.0156		0.104	0.0156	ug/L		09/06/16 10:17	09/07/16 16:53	1
Chrysene	<0.0167		0.104	0.0167	ug/L		09/06/16 10:17	09/07/16 16:53	1
Dibenz(a,h)anthracene	<0.0135		0.104	0.0135	ug/L		09/06/16 10:17	09/07/16 16:53	1
Fluoranthene	<0.0167		0.104	0.0167	ug/L		09/06/16 10:17	09/07/16 16:53	1
Fluorene	<0.0240		0.104	0.0240	ug/L		09/06/16 10:17	09/07/16 16:53	1
Indeno[1,2,3-cd]pyrene	<0.0177		0.104	0.0177	ug/L		09/06/16 10:17	09/07/16 16:53	1
2-Methylnaphthalene	<0.0385		0.521	0.0385	ug/L		09/06/16 10:17	09/07/16 16:53	1
Naphthalene	<0.0396		0.521	0.0396	ug/L		09/06/16 10:17	09/07/16 16:53	1
Phenanthrene	<0.0271		0.104	0.0271	ug/L		09/06/16 10:17	09/07/16 16:53	1
Pyrene	<0.0146		0.104	0.0146	ug/L		09/06/16 10:17	09/07/16 16:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	43		10 - 110	09/06/16 10:17	09/07/16 16:53	1
Nitrobenzene-d5 (Surr)	46		10 - 110	09/06/16 10:17	09/07/16 16:53	1
Terphenyl-d14 (Surr)	47		20 - 110	09/06/16 10:17	09/07/16 16:53	1

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<313		313		ug/L		09/01/16 13:38	09/02/16 17:42	1
Diesel	<313		313		ug/L		09/01/16 13:38	09/02/16 17:42	1
Waste Oil	<313		313		ug/L		09/01/16 13:38	09/02/16 17:42	1

TestAmerica Cedar Falls

Client Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: Field Blank

Lab Sample ID: 310-88292-18

Date Collected: 08/30/16 00:00

Matrix: Water

Date Received: 08/31/16 16:15

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Extractable Hydrocarbons	<521		521		ug/L		09/01/16 13:38	09/02/16 17:42	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane	137		45 - 140				09/01/16 13:38	09/02/16 17:42	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/02/16 07:42	09/02/16 17:49	1
Barium	0.0256		0.00200		mg/L		09/02/16 07:42	09/02/16 17:49	1
Cadmium	<0.000500		0.000500		mg/L		09/02/16 07:42	09/02/16 17:49	1
Chromium	<0.00500		0.00500		mg/L		09/02/16 07:42	09/02/16 17:49	1
Lead	<0.000500		0.000500		mg/L		09/02/16 07:42	09/02/16 17:49	1
Selenium	<0.00500		0.00500		mg/L		09/02/16 07:42	09/02/16 17:49	1
Silver	<0.00100		0.00100		mg/L		09/02/16 07:42	09/02/16 17:49	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/06/16 09:56	09/07/16 11:25	1

Definitions/Glossary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F3	Duplicate RPD exceeds the control limit

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Ground Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BFB (80-120)	DBFM (80-120)	TOL (80-120)
310-88292-2	SB1	104	109	94
310-88292-4	SB2	104	110	97
310-88292-6	SB3	103	108	93
310-88292-16	DUP 8	105	108	95

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Soil

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BFB (80-120)	DBFM (80-120)	TOL (80-120)
310-88292-1	SB1 @ 0-2	96	96	103

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Soil

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BFB (70-135)	DBFM (80-120)	TOL (80-120)
310-88292-8	BC	99	99	95
310-88292-12	DUP 3	99	99	94

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BFB (80-120)	DBFM (80-120)	TOL (80-120)
LCS 310-140379/2-A	Lab Control Sample	99	101	98
MB 310-140379/1-A	Method Blank	97	96	100

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

TestAmerica Cedar Falls

Surrogate Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-135)	DBFM (80-120)	TOL (80-120)
LCS 310-140849/2-A	Lab Control Sample	102	100	93
MB 310-140849/1-A	Method Blank	101	100	90

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (80-120)	DBFM (80-120)	TOL (80-120)
310-88292-17	Trip Blank	104	112	94
310-88292-18	Field Blank	105	110	94
LCS 310-140015/5	Lab Control Sample	96	110	96
LCS 310-140015/6	Lab Control Sample	101	111	95
MB 310-140015/7	Method Blank	101	108	95

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Matrix: Ground Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	FBP (10-110)	NBZ (10-110)	TPH (20-110)
310-88292-6	SB3	49	53	57
310-88292-15	DUP 7	53	57	57

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)

NBZ = Nitrobenzene-d5 (Surr)

TPH = Terphenyl-d14 (Surr)

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Matrix: Soil

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	FBP (10-110)	NBZ (10-110)	TPH (20-110)
310-88292-1	SB1 @ 0-2	43	43	48
310-88292-1 MS	SB1 @ 0-2	58	70	68
310-88292-1 MSD	SB1 @ 0-2	61	83	77
310-88292-3	SB2 @ 0-2	46	53	48
310-88292-5	SB3 @ 0-2	59	59	58

TestAmerica Cedar Falls

Surrogate Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL) (Continued)

Matrix: Soil

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		FBP (10-110)	NBZ (10-110)	TPH (20-110)
310-88292-7	OC	57	57	59
310-88292-8	BC	58	53	76
310-88292-9	CC	60	107	75
310-88292-11	DUP 2	62	93	75

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)

NBZ = Nitrobenzene-d5 (Surr)

TPH = Terphenyl-d14 (Surr)

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		FBP (10-110)	NBZ (10-110)	TPH (20-110)
LCS 310-139942/2-A	Lab Control Sample	51	51	57
MB 310-139942/1-A	Method Blank	51	51	57

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)

NBZ = Nitrobenzene-d5 (Surr)

TPH = Terphenyl-d14 (Surr)

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		FBP (10-110)	NBZ (10-110)	TPH (20-110)
310-88292-18	Field Blank	43	46	47
LCS 310-140255/2-A	Lab Control Sample	37	41	48
LCSD 310-140255/3-A	Lab Control Sample Dup	39	45	49
MB 310-140255/1-A	Method Blank	36	39	44

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)

NBZ = Nitrobenzene-d5 (Surr)

TPH = Terphenyl-d14 (Surr)

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Soil

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCB1 (10-110)	TCX1 (10-110)
310-88292-1	SB1 @ 0-2	63	52
310-88292-7	OC	55	63
310-88292-8	BC	27	30
310-88292-9	CC	98	52

TestAmerica Cedar Falls

Surrogate Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Matrix: Soil

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCB1 (10-110)	TCX1 (10-110)
310-88292-11	DUP 2	38	45

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCB1 (10-110)	TCX1 (10-110)
LCS 310-139953/2-A	Lab Control Sample	75	68
MB 310-139953/1-A	Method Blank	90	82

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Matrix: Ground Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTC (45-140)
310-88292-2	SB1	2 X
310-88292-4	SB2	141 X
310-88292-6	SB3	140
310-88292-13	DUP 5	126

Surrogate Legend

OTC = n-Octacosane

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Matrix: Soil

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTC (40-135)
310-88292-1	SB1 @ 0-2	73
310-88292-1 MS	SB1 @ 0-2	46
310-88292-1 MSD	SB1 @ 0-2	43
310-88292-8	BC	62
310-88292-9	CC	25 X
310-88292-10	DUP 1	31 X

Surrogate Legend

OTC = n-Octacosane

TestAmerica Cedar Falls

Surrogate Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTC (40-135)
LCS 310-139945/2-A	Lab Control Sample	43
MB 310-139945/1-A	Method Blank	36 X

Surrogate Legend

OTC = n-Octacosane

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTC (45-140)
310-88292-18	Field Blank	137
LCS 310-139959/2-A	Lab Control Sample	132
LCS 310-139960/2-A	Lab Control Sample	102
LCSD 310-139959/3-A	Lab Control Sample Dup	117
MB 310-139959/1-A	Method Blank	142 X
MB 310-139960/1-A	Method Blank	139

Surrogate Legend

OTC = n-Octacosane

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 310-140015/7

Matrix: Water

Analysis Batch: 140015

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<10.0		10.0		ug/L			09/02/16 19:16	1
Benzene	<0.500		0.500		ug/L			09/02/16 19:16	1
Bromobenzene	<1.00		1.00		ug/L			09/02/16 19:16	1
Bromochloromethane	<5.00		5.00		ug/L			09/02/16 19:16	1
Bromodichloromethane	<1.00		1.00		ug/L			09/02/16 19:16	1
Bromoform	<5.00		5.00		ug/L			09/02/16 19:16	1
Bromomethane	<4.00		4.00		ug/L			09/02/16 19:16	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/02/16 19:16	1
n-Butylbenzene	<1.00		1.00		ug/L			09/02/16 19:16	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/02/16 19:16	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/02/16 19:16	1
Carbon disulfide	<1.00		1.00		ug/L			09/02/16 19:16	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/02/16 19:16	1
Chlorobenzene	<1.00		1.00		ug/L			09/02/16 19:16	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/02/16 19:16	1
Chloroethane	<4.00		4.00		ug/L			09/02/16 19:16	1
Chloroform	<1.00		1.00		ug/L			09/02/16 19:16	1
Chloromethane	<3.00		3.00		ug/L			09/02/16 19:16	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/02/16 19:16	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/02/16 19:16	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/02/16 19:16	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/02/16 19:16	1
Dibromomethane	<1.00		1.00		ug/L			09/02/16 19:16	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/02/16 19:16	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/02/16 19:16	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/02/16 19:16	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/02/16 19:16	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/02/16 19:16	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/02/16 19:16	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/02/16 19:16	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/02/16 19:16	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/02/16 19:16	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/02/16 19:16	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/02/16 19:16	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/02/16 19:16	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/02/16 19:16	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/02/16 19:16	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/02/16 19:16	1
Ethylbenzene	<1.00		1.00		ug/L			09/02/16 19:16	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/02/16 19:16	1
Hexane	<1.00		1.00		ug/L			09/02/16 19:16	1
Isopropylbenzene	<1.00		1.00		ug/L			09/02/16 19:16	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/02/16 19:16	1
Methylene Chloride	<5.00		5.00		ug/L			09/02/16 19:16	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/02/16 19:16	1
Naphthalene	<5.00		5.00		ug/L			09/02/16 19:16	1
N-Propylbenzene	<1.00		1.00		ug/L			09/02/16 19:16	1
Styrene	<1.00		1.00		ug/L			09/02/16 19:16	1

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 310-140015/7

Matrix: Water

Analysis Batch: 140015

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/02/16 19:16	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/02/16 19:16	1
Tetrachloroethene	<1.00		1.00		ug/L			09/02/16 19:16	1
Toluene	<1.00		1.00		ug/L			09/02/16 19:16	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/02/16 19:16	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/02/16 19:16	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/02/16 19:16	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/02/16 19:16	1
Trichloroethene	<1.00		1.00		ug/L			09/02/16 19:16	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/02/16 19:16	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/02/16 19:16	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/02/16 19:16	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/02/16 19:16	1
Vinyl chloride	<1.00		1.00		ug/L			09/02/16 19:16	1
Xylenes, Total	<3.00		3.00		ug/L			09/02/16 19:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120		09/02/16 19:16	1
Dibromofluoromethane (Surr)	108		80 - 120		09/02/16 19:16	1
Toluene-d8 (Surr)	95		80 - 120		09/02/16 19:16	1

Lab Sample ID: LCS 310-140015/5

Matrix: Water

Analysis Batch: 140015

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	40.0	34.28		ug/L		86	55 - 150
Benzene	20.0	19.43		ug/L		97	70 - 125
Bromobenzene	20.0	20.18		ug/L		101	70 - 120
Bromochloromethane	20.0	23.39		ug/L		117	65 - 145
Bromodichloromethane	20.0	19.20		ug/L		96	65 - 125
Bromoform	20.0	17.33		ug/L		87	45 - 120
2-Butanone (MEK)	40.0	32.96		ug/L		82	60 - 135
n-Butylbenzene	20.0	15.79		ug/L		79	60 - 135
sec-Butylbenzene	20.0	16.88		ug/L		84	70 - 125
tert-Butylbenzene	20.0	16.90		ug/L		85	70 - 125
Carbon disulfide	20.0	18.53		ug/L		93	65 - 135
Carbon tetrachloride	20.0	19.08		ug/L		95	60 - 135
Chlorobenzene	20.0	19.70		ug/L		98	70 - 125
Chlorodibromomethane	20.0	19.10		ug/L		96	65 - 125
Chloroform	20.0	20.11		ug/L		101	70 - 130
2-Chlorotoluene	20.0	17.33		ug/L		87	70 - 120
4-Chlorotoluene	20.0	17.10		ug/L		85	70 - 120
1,2-Dibromo-3-Chloropropane	20.0	17.13		ug/L		86	40 - 135
1,2-Dibromoethane (EDB)	20.0	20.83		ug/L		104	75 - 125
Dibromomethane	20.0	21.88		ug/L		109	75 - 130
1,2-Dichlorobenzene	20.0	19.23		ug/L		96	70 - 120
1,3-Dichlorobenzene	20.0	19.20		ug/L		96	70 - 125

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-140015/5

Matrix: Water

Analysis Batch: 140015

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dichlorobenzene	20.0	19.98		ug/L		100	70 - 125
1,1-Dichloroethane	20.0	19.82		ug/L		99	70 - 130
1,2-Dichloroethane	20.0	21.61		ug/L		108	70 - 130
1,1-Dichloroethene	20.0	20.31		ug/L		102	65 - 140
cis-1,2-Dichloroethene	20.0	19.37		ug/L		97	70 - 130
trans-1,2-Dichloroethene	20.0	19.84		ug/L		99	65 - 135
1,2-Dichloropropane	20.0	19.26		ug/L		96	70 - 125
1,3-Dichloropropane	20.0	18.94		ug/L		95	75 - 125
2,2-Dichloropropane	20.0	19.37		ug/L		97	55 - 140
1,1-Dichloropropene	20.0	17.40		ug/L		87	70 - 130
cis-1,3-Dichloropropene	20.0	18.12		ug/L		91	60 - 130
trans-1,3-Dichloropropene	20.0	17.79		ug/L		89	65 - 120
Ethylbenzene	20.0	17.77		ug/L		89	70 - 125
Hexachlorobutadiene	20.0	18.11		ug/L		91	60 - 125
Hexane	20.0	15.78		ug/L		79	55 - 145
Isopropylbenzene	20.0	17.60		ug/L		88	75 - 125
p-Isopropyltoluene	20.0	16.64		ug/L		83	70 - 125
Methylene Chloride	20.0	19.91		ug/L		100	50 - 140
Methyl tert-butyl ether	20.0	18.97		ug/L		95	70 - 125
Naphthalene	20.0	13.86		ug/L		69	45 - 130
N-Propylbenzene	20.0	17.36		ug/L		87	75 - 125
Styrene	20.0	18.03		ug/L		90	70 - 120
1,1,1,2-Tetrachloroethane	20.0	20.04		ug/L		100	70 - 120
1,1,2,2-Tetrachloroethane	20.0	18.99		ug/L		95	65 - 125
Tetrachloroethene	20.0	21.70		ug/L		109	55 - 150
Toluene	20.0	19.43		ug/L		97	75 - 125
1,2,3-Trichlorobenzene	20.0	15.18		ug/L		76	60 - 125
1,2,4-Trichlorobenzene	20.0	16.65		ug/L		83	60 - 125
1,1,1-Trichloroethane	20.0	21.16		ug/L		106	70 - 130
1,1,2-Trichloroethane	20.0	20.21		ug/L		101	70 - 130
Trichloroethene	20.0	20.64		ug/L		103	70 - 130
1,2,3-Trichloropropane	20.0	19.40		ug/L		97	65 - 130
1,2,4-Trimethylbenzene	20.0	17.04		ug/L		85	70 - 125
1,3,5-Trimethylbenzene	20.0	18.02		ug/L		90	75 - 125
Xylenes, Total	40.0	35.53		ug/L		89	75 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	110		80 - 120
Toluene-d8 (Surr)	96		80 - 120

Lab Sample ID: LCS 310-140015/6

Matrix: Water

Analysis Batch: 140015

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromomethane	20.0	12.80		ug/L		64	35 - 130
Chloroethane	20.0	20.35		ug/L		102	55 - 140

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-140015/6

Matrix: Water

Analysis Batch: 140015

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloromethane	20.0	19.07		ug/L		95	40 - 135
Dichlorodifluoromethane	20.0	20.22		ug/L		101	35 - 130
Trichlorofluoromethane	20.0	22.26		ug/L		111	50 - 145
Vinyl chloride	20.0	17.85		ug/L		89	50 - 145

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	111		80 - 120
Toluene-d8 (Surr)	95		80 - 120

Lab Sample ID: MB 310-140379/1-A

Matrix: Solid

Analysis Batch: 140383

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 140379

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<109		109		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Benzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Bromobenzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Bromochloromethane	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Bromodichloromethane	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Bromoform	<21.8		21.8		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Bromomethane	<43.7		43.7		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
2-Butanone (MEK)	<109		109		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
n-Butylbenzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
sec-Butylbenzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
tert-Butylbenzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Carbon disulfide	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Carbon tetrachloride	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Chlorobenzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Chlorodibromomethane	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Chloroethane	<43.7		43.7		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Chloroform	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Chloromethane	<43.7		43.7		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
2-Chlorotoluene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
4-Chlorotoluene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,2-Dibromo-3-Chloropropane	<109		109		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,2-Dibromoethane (EDB)	<109		109		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Dibromomethane	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,2-Dichlorobenzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,3-Dichlorobenzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,4-Dichlorobenzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Dichlorodifluoromethane	<32.8		32.8		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,1-Dichloroethane	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,2-Dichloroethane	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,1-Dichloroethene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
cis-1,2-Dichloroethene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
trans-1,2-Dichloroethene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,2-Dichloropropane	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 310-140379/1-A

Matrix: Solid

Analysis Batch: 140383

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 140379

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropane	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
2,2-Dichloropropane	<43.7		43.7		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,1-Dichloropropene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
cis-1,3-Dichloropropene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
trans-1,3-Dichloropropene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Ethylbenzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Hexachlorobutadiene	<54.6		54.6		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Hexane	<54.6		54.6		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Isopropylbenzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
p-Isopropyltoluene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Methylene Chloride	<109		109		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Methyl tert-butyl ether	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Naphthalene	<54.6		54.6		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
N-Propylbenzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Styrene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,1,1,2-Tetrachloroethane	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,1,2,2-Tetrachloroethane	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Tetrachloroethene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Toluene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,2,3-Trichlorobenzene	<54.6		54.6		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,2,4-Trichlorobenzene	<54.6		54.6		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,1,1-Trichloroethane	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,1,2-Trichloroethane	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Trichloroethene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Trichlorofluoromethane	<43.7		43.7		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,2,3-Trichloropropane	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,2,4-Trimethylbenzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
1,3,5-Trimethylbenzene	<10.9		10.9		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Vinyl chloride	<32.8		32.8		ug/Kg		09/07/16 08:39	09/07/16 11:02	1
Xylenes, Total	<32.8		32.8		ug/Kg		09/07/16 08:39	09/07/16 11:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		80 - 120	09/07/16 08:39	09/07/16 11:02	1
Dibromofluoromethane (Surr)	96		80 - 120	09/07/16 08:39	09/07/16 11:02	1
Toluene-d8 (Surr)	100		80 - 120	09/07/16 08:39	09/07/16 11:02	1

Lab Sample ID: LCS 310-140379/2-A

Matrix: Solid

Analysis Batch: 140383

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 140379

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	89.8	84.56	J	ug/Kg		94	65 - 150
Benzene	44.9	40.38		ug/Kg		90	60 - 140
Bromobenzene	44.9	41.16		ug/Kg		92	55 - 135
Bromochloromethane	44.9	40.43		ug/Kg		90	60 - 145
Bromodichloromethane	44.9	40.12		ug/Kg		89	60 - 135
Bromoform	44.9	38.34		ug/Kg		85	55 - 135
2-Butanone (MEK)	89.8	84.02	J	ug/Kg		94	55 - 150

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-140379/2-A

Matrix: Solid

Analysis Batch: 140383

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 140379

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
n-Butylbenzene	44.9	38.00		ug/Kg		85	40 - 135
sec-Butylbenzene	44.9	39.95		ug/Kg		89	50 - 135
tert-Butylbenzene	44.9	41.39		ug/Kg		92	50 - 135
Carbon disulfide	44.9	41.27		ug/Kg		92	50 - 145
Carbon tetrachloride	44.9	41.50		ug/Kg		92	55 - 145
Chlorobenzene	44.9	39.99		ug/Kg		89	55 - 135
Chlorodibromomethane	44.9	40.70		ug/Kg		91	60 - 135
Chloroform	44.9	41.80		ug/Kg		93	60 - 140
2-Chlorotoluene	44.9	39.98		ug/Kg		89	55 - 135
4-Chlorotoluene	44.9	38.28		ug/Kg		85	45 - 135
1,2-Dibromo-3-Chloropropane	44.9	45.60	J	ug/Kg		102	50 - 140
1,2-Dibromoethane (EDB)	44.9	40.42	J	ug/Kg		90	60 - 140
Dibromomethane	44.9	39.87		ug/Kg		89	60 - 140
1,2-Dichlorobenzene	44.9	41.04		ug/Kg		91	50 - 135
1,3-Dichlorobenzene	44.9	40.58		ug/Kg		90	45 - 135
1,4-Dichlorobenzene	44.9	40.40		ug/Kg		90	45 - 135
1,1-Dichloroethane	44.9	40.77		ug/Kg		91	60 - 145
1,2-Dichloroethane	44.9	40.24		ug/Kg		90	60 - 145
1,1-Dichloroethene	44.9	42.48		ug/Kg		95	55 - 150
cis-1,2-Dichloroethene	44.9	40.22		ug/Kg		90	60 - 140
trans-1,2-Dichloroethene	44.9	39.67		ug/Kg		88	55 - 145
1,2-Dichloropropane	44.9	40.03		ug/Kg		89	60 - 140
1,3-Dichloropropane	44.9	40.24		ug/Kg		90	60 - 140
2,2-Dichloropropane	44.9	40.67	J	ug/Kg		91	60 - 140
1,1-Dichloropropene	44.9	40.74		ug/Kg		91	60 - 140
cis-1,3-Dichloropropene	44.9	39.83		ug/Kg		89	60 - 140
trans-1,3-Dichloropropene	44.9	40.23		ug/Kg		90	55 - 135
Ethylbenzene	44.9	39.09		ug/Kg		87	55 - 135
Hexachlorobutadiene	44.9	36.43	J	ug/Kg		81	40 - 130
Hexane	44.9	51.03	J	ug/Kg		114	40 - 135
Isopropylbenzene	44.9	39.41		ug/Kg		88	55 - 135
p-Isopropyltoluene	44.9	39.89		ug/Kg		89	45 - 135
Methylene Chloride	44.9	139.2	*	ug/Kg		310	80 - 150
Methyl tert-butyl ether	44.9	38.79		ug/Kg		86	60 - 145
Naphthalene	44.9	41.22	J	ug/Kg		92	50 - 140
N-Propylbenzene	44.9	39.53		ug/Kg		88	50 - 135
Styrene	44.9	39.73		ug/Kg		88	55 - 135
1,1,1,2-Tetrachloroethane	44.9	41.02		ug/Kg		91	60 - 135
1,1,2,2-Tetrachloroethane	44.9	43.73		ug/Kg		97	55 - 140
Tetrachloroethene	44.9	39.16		ug/Kg		87	50 - 145
Toluene	44.9	38.14		ug/Kg		85	60 - 135
1,2,3-Trichlorobenzene	44.9	39.21	J	ug/Kg		87	40 - 135
1,2,4-Trichlorobenzene	44.9	38.81	J	ug/Kg		86	35 - 130
1,1,1-Trichloroethane	44.9	41.30		ug/Kg		92	60 - 145
1,1,2-Trichloroethane	44.9	41.78		ug/Kg		93	60 - 140
Trichloroethene	44.9	40.68		ug/Kg		91	60 - 140
1,2,3-Trichloropropane	44.9	42.76		ug/Kg		95	60 - 140
1,2,4-Trimethylbenzene	44.9	39.74		ug/Kg		88	45 - 140

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-140379/2-A

Matrix: Solid

Analysis Batch: 140383

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 140379

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trimethylbenzene	44.9	39.76		ug/Kg		89	50 - 135
Xylenes, Total	89.8	77.93		ug/Kg		87	55 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		80 - 120
Dibromofluoromethane (Surr)	101		80 - 120
Toluene-d8 (Surr)	98		80 - 120

Lab Sample ID: MB 310-140849/1-A

Matrix: Solid

Analysis Batch: 140850

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 140849

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<495		495		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Benzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Bromobenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Bromochloromethane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Bromodichloromethane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Bromoform	<99.1	^	99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Bromomethane	<495		495		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
2-Butanone (MEK)	<248		248		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
n-Butylbenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
sec-Butylbenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
tert-Butylbenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Carbon disulfide	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Carbon tetrachloride	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Chlorobenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Chlorodibromomethane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Chloroethane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Chloroform	<149		149		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Chloromethane	<248		248		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
2-Chlorotoluene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
4-Chlorotoluene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,2-Dibromo-3-Chloropropane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,2-Dibromoethane (EDB)	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Dibromomethane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,2-Dichlorobenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,3-Dichlorobenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,4-Dichlorobenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Dichlorodifluoromethane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,1-Dichloroethane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,2-Dichloroethane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,1-Dichloroethene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
cis-1,2-Dichloroethene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
trans-1,2-Dichloroethene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,2-Dichloropropane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,3-Dichloropropane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
2,2-Dichloropropane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 310-140849/1-A

Matrix: Solid

Analysis Batch: 140850

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 140849

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloropropene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
cis-1,3-Dichloropropene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
trans-1,3-Dichloropropene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Ethylbenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Hexachlorobutadiene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Hexane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Isopropylbenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
p-Isopropyltoluene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Methylene Chloride	<248		248		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Methyl tert-butyl ether	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Naphthalene	<248		248		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
N-Propylbenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Styrene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,1,1,2-Tetrachloroethane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,1,2,2-Tetrachloroethane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Tetrachloroethene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Toluene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,2,3-Trichlorobenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,2,4-Trichlorobenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,1,1-Trichloroethane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,1,2-Trichloroethane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Trichloroethene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Trichlorofluoromethane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,2,3-Trichloropropane	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,2,4-Trimethylbenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
1,3,5-Trimethylbenzene	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Vinyl chloride	<99.1		99.1		ug/Kg		09/12/16 07:35	09/12/16 11:04	1
Xylenes, Total	<149		149		ug/Kg		09/12/16 07:35	09/12/16 11:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 135	09/12/16 07:35	09/12/16 11:04	1
Dibromofluoromethane (Surr)	100		80 - 120	09/12/16 07:35	09/12/16 11:04	1
Toluene-d8 (Surr)	90		80 - 120	09/12/16 07:35	09/12/16 11:04	1

Lab Sample ID: LCS 310-140849/2-A

Matrix: Solid

Analysis Batch: 140850

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 140849

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Acetone	1960	2049		ug/Kg		104	70 - 150
Benzene	982	1037		ug/Kg		106	65 - 145
Bromobenzene	982	942.7		ug/Kg		96	65 - 135
Bromochloromethane	982	1045		ug/Kg		106	65 - 150
Bromodichloromethane	982	1038		ug/Kg		106	55 - 150
Bromoform	982	997.6	^	ug/Kg		102	55 - 135
2-Butanone (MEK)	1960	1876		ug/Kg		95	55 - 150
n-Butylbenzene	982	923.1		ug/Kg		94	65 - 135
sec-Butylbenzene	982	952.5		ug/Kg		97	65 - 130

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-140849/2-A

Matrix: Solid

Analysis Batch: 140850

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 140849

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
tert-Butylbenzene	982	946.5		ug/Kg		96	65 - 135
Carbon disulfide	982	1020		ug/Kg		104	50 - 145
Carbon tetrachloride	982	1019		ug/Kg		104	60 - 145
Chlorobenzene	982	963.2		ug/Kg		98	70 - 135
Chlorodibromomethane	982	947.5		ug/Kg		96	55 - 135
Chloroform	982	1099		ug/Kg		112	65 - 145
2-Chlorotoluene	982	945.2		ug/Kg		96	70 - 130
4-Chlorotoluene	982	938.8		ug/Kg		96	70 - 130
1,2-Dibromo-3-Chloropropane	982	930.0		ug/Kg		95	45 - 140
1,2-Dibromoethane (EDB)	982	941.6		ug/Kg		96	65 - 140
Dibromomethane	982	1014		ug/Kg		103	65 - 150
1,2-Dichlorobenzene	982	905.7		ug/Kg		92	65 - 135
1,3-Dichlorobenzene	982	921.6		ug/Kg		94	65 - 135
1,4-Dichlorobenzene	982	925.5		ug/Kg		94	65 - 135
1,1-Dichloroethane	982	1032		ug/Kg		105	65 - 150
1,2-Dichloroethane	982	1013		ug/Kg		103	60 - 150
1,1-Dichloroethene	982	1013		ug/Kg		103	65 - 145
cis-1,2-Dichloroethene	982	1040		ug/Kg		106	65 - 145
trans-1,2-Dichloroethene	982	1022		ug/Kg		104	65 - 145
1,2-Dichloropropane	982	1009		ug/Kg		103	65 - 150
1,3-Dichloropropane	982	946.6		ug/Kg		96	65 - 140
2,2-Dichloropropane	982	1114		ug/Kg		113	65 - 150
1,1-Dichloropropene	982	1002		ug/Kg		102	70 - 140
cis-1,3-Dichloropropene	982	960.8		ug/Kg		98	65 - 140
trans-1,3-Dichloropropene	982	971.0		ug/Kg		99	65 - 140
Ethylbenzene	982	987.7		ug/Kg		101	70 - 135
Hexachlorobutadiene	982	937.0		ug/Kg		95	50 - 145
Hexane	982	1094		ug/Kg		111	50 - 145
Isopropylbenzene	982	994.7		ug/Kg		101	70 - 135
p-Isopropyltoluene	982	932.6		ug/Kg		95	65 - 135
Methylene Chloride	982	1050		ug/Kg		107	55 - 150
Methyl tert-butyl ether	982	984.6		ug/Kg		100	65 - 150
Naphthalene	982	897.2		ug/Kg		91	50 - 145
N-Propylbenzene	982	993.7		ug/Kg		101	70 - 135
Styrene	982	991.4		ug/Kg		101	70 - 135
1,1,1,2-Tetrachloroethane	982	969.0		ug/Kg		99	65 - 130
1,1,2,2-Tetrachloroethane	982	929.9		ug/Kg		95	60 - 140
Tetrachloroethene	982	972.6		ug/Kg		99	65 - 140
Toluene	982	960.5		ug/Kg		98	70 - 135
1,2,3-Trichlorobenzene	982	902.9		ug/Kg		92	55 - 140
1,2,4-Trichlorobenzene	982	947.9		ug/Kg		96	50 - 140
1,1,1-Trichloroethane	982	1017		ug/Kg		104	65 - 145
1,1,2-Trichloroethane	982	967.7		ug/Kg		99	65 - 140
Trichloroethene	982	1011		ug/Kg		103	65 - 145
1,2,3-Trichloropropane	982	906.1		ug/Kg		92	60 - 140
1,2,4-Trimethylbenzene	982	950.0		ug/Kg		97	65 - 130
1,3,5-Trimethylbenzene	982	958.9		ug/Kg		98	70 - 130
Xylenes, Total	1960	1956		ug/Kg		100	70 - 135

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 310-140849/2-A
Matrix: Solid
Analysis Batch: 140850

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 140849

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 135
Dibromofluoromethane (Surr)	100		80 - 120
Toluene-d8 (Surr)	93		80 - 120

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Lab Sample ID: MB 310-139942/1-A
Matrix: Solid
Analysis Batch: 140049

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 139942

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.00314		0.00990	0.00314	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Acenaphthylene	<0.00197		0.00990	0.00197	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Anthracene	<0.00302		0.00990	0.00302	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Benzo[a]anthracene	<0.00216		0.00990	0.00216	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Benzo[a]pyrene	<0.00132		0.00990	0.00132	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Benzo[b]fluoranthene	<0.00144		0.00990	0.00144	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Benzo[g,h,i]perylene	<0.00146		0.00990	0.00146	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Benzo[k]fluoranthene	<0.00125		0.00990	0.00125	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Chrysene	<0.00133		0.00990	0.00133	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Dibenz(a,h)anthracene	<0.00137		0.00990	0.00137	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Fluoranthene	<0.00291		0.00990	0.00291	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Fluorene	<0.00375		0.00990	0.00375	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Indeno[1,2,3-cd]pyrene	<0.00143		0.00990	0.00143	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
2-Methylnaphthalene	<0.00343		0.00990	0.00343	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Naphthalene	<0.00430		0.00990	0.00430	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Phenanthrene	<0.00259		0.00990	0.00259	mg/Kg		09/01/16 12:23	09/02/16 13:31	1
Pyrene	<0.00262		0.00990	0.00262	mg/Kg		09/01/16 12:23	09/02/16 13:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	51		10 - 110	09/01/16 12:23	09/02/16 13:31	1
Nitrobenzene-d5 (Surr)	51		10 - 110	09/01/16 12:23	09/02/16 13:31	1
Terphenyl-d14 (Surr)	57		20 - 110	09/01/16 12:23	09/02/16 13:31	1

Lab Sample ID: LCS 310-139942/2-A
Matrix: Solid
Analysis Batch: 140049

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 139942

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	0.187	0.08006		mg/Kg		43	20 - 110
Acenaphthylene	0.187	0.08621		mg/Kg		46	20 - 110
Anthracene	0.187	0.09464		mg/Kg		51	30 - 110
Benzo[a]anthracene	0.187	0.09840		mg/Kg		53	50 - 110
Benzo[a]pyrene	0.187	0.09546		mg/Kg		51	45 - 110
Benzo[b]fluoranthene	0.187	0.1022		mg/Kg		55	40 - 110
Benzo[g,h,i]perylene	0.187	0.05401		mg/Kg		29	20 - 110
Benzo[k]fluoranthene	0.187	0.08359		mg/Kg		45	45 - 110

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL) (Continued)

Lab Sample ID: LCS 310-139942/2-A

Matrix: Solid

Analysis Batch: 140049

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 139942

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chrysene	0.187	0.08466		mg/Kg		45	45 - 110
Dibenz(a,h)anthracene	0.187	0.02977		mg/Kg		16	10 - 110
Fluoranthene	0.187	0.09568		mg/Kg		51	40 - 110
Fluorene	0.187	0.08520		mg/Kg		45	25 - 110
Indeno[1,2,3-cd]pyrene	0.187	0.08058		mg/Kg		43	40 - 110
2-Methylnaphthalene	0.187	0.08129		mg/Kg		43	15 - 110
Naphthalene	0.187	0.08101		mg/Kg		43	15 - 110
Phenanthrene	0.187	0.08805		mg/Kg		47	25 - 110
Pyrene	0.187	0.09400		mg/Kg		50	40 - 110

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	51		10 - 110
Nitrobenzene-d5 (Surr)	51		10 - 110
Terphenyl-d14 (Surr)	57		20 - 110

Lab Sample ID: 310-88292-1 MS

Matrix: Soil

Analysis Batch: 140049

Client Sample ID: SB1 @ 0-2

Prep Type: Total/NA

Prep Batch: 139942

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	0.403	J F1	0.223	0.4082	J F1	mg/Kg	✱	2	20 - 110
Acenaphthylene	<0.233	F1	0.223	0.2693	J F1	mg/Kg	✱	120	20 - 110
Anthracene	0.603	J	0.223	0.7220	J	mg/Kg	✱	53	30 - 110
Benzo[a]anthracene	0.952	J F2	0.223	1.112	J 4	mg/Kg	✱	72	35 - 115
Benzo[a]pyrene	0.965	J F2	0.223	1.080	J 4	mg/Kg	✱	52	30 - 110
Benzo[b]fluoranthene	1.32	F2	0.223	1.430	4	mg/Kg	✱	50	35 - 110
Benzo[g,h,i]perylene	0.592	J F2	0.223	0.6674	J	mg/Kg	✱	34	15 - 110
Benzo[k]fluoranthene	0.613	J F1 F2	0.223	0.7946	J	mg/Kg	✱	81	35 - 110
Chrysene	1.23	F2	0.223	1.343	4	mg/Kg	✱	52	35 - 110
Dibenz(a,h)anthracene	<0.161	F1	0.223	<0.154	F1	mg/Kg	✱	0	10 - 110
Fluoranthene	2.73	F2	0.223	2.912	4	mg/Kg	✱	81	25 - 115
Fluorene	0.515	J	0.223	0.6542	J	mg/Kg	✱	62	25 - 110
Indeno[1,2,3-cd]pyrene	0.480	J F2	0.223	0.5839	J	mg/Kg	✱	47	30 - 110
2-Methylnaphthalene	1.01	J	0.223	1.135	4	mg/Kg	✱	56	15 - 110
Naphthalene	0.642	J	0.223	0.8669	J	mg/Kg	✱	101	15 - 110
Phenanthrene	2.21	F2	0.223	2.553	4	mg/Kg	✱	153	25 - 110
Pyrene	2.99	F2	0.223	3.223	4	mg/Kg	✱	102	25 - 115

Surrogate	MS %Recovery	MS Qualifier	Limits
2-Fluorobiphenyl (Surr)	58		10 - 110
Nitrobenzene-d5 (Surr)	70		10 - 110
Terphenyl-d14 (Surr)	68		20 - 110

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL) (Continued)

Lab Sample ID: 310-88292-1 MSD

Matrix: Soil

Analysis Batch: 140049

Client Sample ID: SB1 @ 0-2

Prep Type: Total/NA

Prep Batch: 139942

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Acenaphthene	0.403	J F1	0.234	<1.85		mg/Kg	✱	NC	20 - 110	NC	40
Acenaphthylene	<0.233	F1	0.234	<1.16		mg/Kg	✱	NC	20 - 110	NC	40
Anthracene	0.603	J	0.234	<1.78		mg/Kg	✱	NC	30 - 110	NC	40
Benzo[a]anthracene	0.952	J F2	0.234	1.908	J F2	mg/Kg	✱	NC	35 - 115	53	40
Benzo[a]pyrene	0.965	J F2	0.234	2.120	J 4 F2	mg/Kg	✱	494	30 - 110	65	40
Benzo[b]fluoranthene	1.32	F2	0.234	3.137	J 4 F2	mg/Kg	✱	779	35 - 110	75	40
Benzo[g,h,i]perylene	0.592	J F2	0.234	1.404	J F2	mg/Kg	✱	NC	15 - 110	71	40
Benzo[k]fluoranthene	0.613	J F1 F2	0.234	1.462	J F1 F2	mg/Kg	✱	363	35 - 110	59	40
Chrysene	1.23	F2	0.234	2.466	J 4 F2	mg/Kg	✱	531	35 - 110	59	40
Dibenz(a,h)anthracene	<0.161	F1	0.234	<0.806		mg/Kg	✱	NC	10 - 110	NC	40
Fluoranthene	2.73	F2	0.234	5.640	J 4 F2	mg/Kg	✱	1244	25 - 115	64	40
Fluorene	0.515	J	0.234	<2.21		mg/Kg	✱	NC	25 - 110	NC	40
Indeno[1,2,3-cd]pyrene	0.480	J F2	0.234	1.138	J F2	mg/Kg	✱	NC	30 - 110	64	40
2-Methylnaphthalene	1.01	J	0.234	<2.02		mg/Kg	✱	NC	15 - 110	NC	40
Naphthalene	0.642	J	0.234	<2.54		mg/Kg	✱	NC	15 - 110	NC	40
Phenanthrene	2.21	F2	0.234	4.506	J 4 F2	mg/Kg	✱	982	25 - 110	55	40
Pyrene	2.99	F2	0.234	6.236	4 F2	mg/Kg	✱	1388	25 - 115	64	40

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	61		10 - 110
Nitrobenzene-d5 (Surr)	83		10 - 110
Terphenyl-d14 (Surr)	77		20 - 110

Lab Sample ID: MB 310-140255/1-A

Matrix: Water

Analysis Batch: 140373

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 140255

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.0350		0.100	0.0350	ug/L		09/06/16 10:17	09/07/16 15:02	1
Acenaphthylene	<0.0360		0.100	0.0360	ug/L		09/06/16 10:17	09/07/16 15:02	1
Anthracene	<0.0200		0.100	0.0200	ug/L		09/06/16 10:17	09/07/16 15:02	1
Benzo[a]anthracene	<0.0190		0.100	0.0190	ug/L		09/06/16 10:17	09/07/16 15:02	1
Benzo[a]pyrene	<0.0190		0.100	0.0190	ug/L		09/06/16 10:17	09/07/16 15:02	1
Benzo[b]fluoranthene	<0.0200		0.100	0.0200	ug/L		09/06/16 10:17	09/07/16 15:02	1
Benzo[g,h,i]perylene	<0.0130		0.100	0.0130	ug/L		09/06/16 10:17	09/07/16 15:02	1
Benzo[k]fluoranthene	<0.0150		0.100	0.0150	ug/L		09/06/16 10:17	09/07/16 15:02	1
Chrysene	<0.0160		0.100	0.0160	ug/L		09/06/16 10:17	09/07/16 15:02	1
Dibenz(a,h)anthracene	<0.0130		0.100	0.0130	ug/L		09/06/16 10:17	09/07/16 15:02	1
Fluoranthene	<0.0160		0.100	0.0160	ug/L		09/06/16 10:17	09/07/16 15:02	1
Fluorene	<0.0230		0.100	0.0230	ug/L		09/06/16 10:17	09/07/16 15:02	1
Indeno[1,2,3-cd]pyrene	<0.0170		0.100	0.0170	ug/L		09/06/16 10:17	09/07/16 15:02	1
2-Methylnaphthalene	<0.0370		0.500	0.0370	ug/L		09/06/16 10:17	09/07/16 15:02	1
Naphthalene	<0.0380		0.500	0.0380	ug/L		09/06/16 10:17	09/07/16 15:02	1
Phenanthrene	<0.0260		0.100	0.0260	ug/L		09/06/16 10:17	09/07/16 15:02	1
Pyrene	<0.0140		0.100	0.0140	ug/L		09/06/16 10:17	09/07/16 15:02	1

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL) (Continued)

Lab Sample ID: MB 310-140255/1-A
Matrix: Water
Analysis Batch: 140373

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 140255

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	36		10 - 110	09/06/16 10:17	09/07/16 15:02	1
Nitrobenzene-d5 (Surr)	39		10 - 110	09/06/16 10:17	09/07/16 15:02	1
Terphenyl-d14 (Surr)	44		20 - 110	09/06/16 10:17	09/07/16 15:02	1

Lab Sample ID: LCS 310-140255/2-A
Matrix: Water
Analysis Batch: 140373

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 140255

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Acenaphthene	2.00	0.7724		ug/L		39	20 - 110
Acenaphthylene	2.00	0.8243		ug/L		41	15 - 110
Anthracene	2.00	0.9168		ug/L		46	15 - 110
Benzo[a]anthracene	2.00	1.150		ug/L		57	25 - 115
Benzo[a]pyrene	2.00	1.148		ug/L		57	25 - 110
Benzo[b]fluoranthene	2.00	1.160		ug/L		58	25 - 110
Benzo[g,h,i]perylene	2.00	0.6346		ug/L		32	10 - 110
Benzo[k]fluoranthene	2.00	1.126		ug/L		56	25 - 110
Chrysene	2.00	1.022		ug/L		51	25 - 110
Dibenz(a,h)anthracene	2.00	0.3463		ug/L		17	10 - 110
Fluoranthene	2.00	0.9578		ug/L		48	20 - 115
Fluorene	2.00	0.7954		ug/L		40	20 - 110
Indeno[1,2,3-cd]pyrene	2.00	0.9590		ug/L		48	20 - 110
2-Methylnaphthalene	2.00	0.7407		ug/L		37	15 - 110
Naphthalene	2.00	0.7680		ug/L		38	10 - 110
Phenanthrene	2.00	0.8505		ug/L		43	15 - 110
Pyrene	2.00	0.9453		ug/L		47	20 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	37		10 - 110
Nitrobenzene-d5 (Surr)	41		10 - 110
Terphenyl-d14 (Surr)	48		20 - 110

Lab Sample ID: LCSD 310-140255/3-A
Matrix: Water
Analysis Batch: 140373

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 140255

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Acenaphthene	2.00	0.6936		ug/L		35	20 - 110	11	35
Acenaphthylene	2.00	0.7416		ug/L		37	15 - 110	11	35
Anthracene	2.00	0.8325		ug/L		42	15 - 110	10	35
Benzo[a]anthracene	2.00	0.9241		ug/L		46	25 - 115	22	35
Benzo[a]pyrene	2.00	0.9312		ug/L		47	25 - 110	21	35
Benzo[b]fluoranthene	2.00	0.9115		ug/L		46	25 - 110	24	35
Benzo[g,h,i]perylene	2.00	0.5161		ug/L		26	10 - 110	21	35
Benzo[k]fluoranthene	2.00	0.9479		ug/L		47	25 - 110	17	35
Chrysene	2.00	0.8435		ug/L		42	25 - 110	19	35
Dibenz(a,h)anthracene	2.00	0.2860		ug/L		14	10 - 110	19	35
Fluoranthene	2.00	0.8723		ug/L		44	20 - 115	9	35

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL) (Continued)

Lab Sample ID: LCSD 310-140255/3-A

Matrix: Water

Analysis Batch: 140373

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 140255

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluorene	2.00	0.7485		ug/L		37	20 - 110	6	35
Indeno[1,2,3-cd]pyrene	2.00	0.7729		ug/L		39	20 - 110	21	35
2-Methylnaphthalene	2.00	0.6686		ug/L		33	15 - 110	10	35
Naphthalene	2.00	0.6886		ug/L		34	10 - 110	11	35
Phenanthrene	2.00	0.7810		ug/L		39	15 - 110	9	35
Pyrene	2.00	0.8499		ug/L		42	20 - 115	11	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	39		10 - 110
Nitrobenzene-d5 (Surr)	45		10 - 110
Terphenyl-d14 (Surr)	49		20 - 110

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 310-139953/1-A

Matrix: Solid

Analysis Batch: 140755

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 139953

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.0498		0.0498		mg/Kg		09/01/16 12:32	09/09/16 10:00	1
PCB-1221	<0.0498		0.0498		mg/Kg		09/01/16 12:32	09/09/16 10:00	1
PCB-1232	<0.0498		0.0498		mg/Kg		09/01/16 12:32	09/09/16 10:00	1
PCB-1242	<0.0498		0.0498		mg/Kg		09/01/16 12:32	09/09/16 10:00	1
PCB-1248	<0.0498		0.0498		mg/Kg		09/01/16 12:32	09/09/16 10:00	1
PCB-1254	<0.0498		0.0498		mg/Kg		09/01/16 12:32	09/09/16 10:00	1
PCB-1260	<0.0498		0.0498		mg/Kg		09/01/16 12:32	09/09/16 10:00	1
PCB-1268	<0.0498		0.0498		mg/Kg		09/01/16 12:32	09/09/16 10:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	90		10 - 110	09/01/16 12:32	09/09/16 10:00	1
Tetrachloro-m-xylene	82		10 - 110	09/01/16 12:32	09/09/16 10:00	1

Lab Sample ID: LCS 310-139953/2-A

Matrix: Solid

Analysis Batch: 140755

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 139953

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	0.197	0.1592		mg/Kg		81	35 - 110
PCB-1260	0.197	0.1400		mg/Kg		71	35 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl (Surr)	75		10 - 110
Tetrachloro-m-xylene	68		10 - 110

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 310-139945/1-A

Matrix: Solid

Analysis Batch: 140073

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 139945

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<9.47		9.47		mg/Kg		09/01/16 12:24	09/02/16 12:06	1
Diesel	<9.47		9.47		mg/Kg		09/01/16 12:24	09/02/16 12:06	1
Waste Oil	<9.47		9.47		mg/Kg		09/01/16 12:24	09/02/16 12:06	1
Total Extractable Hydrocarbons	<14.2		14.2		mg/Kg		09/01/16 12:24	09/02/16 12:06	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	36	X	40 - 135	09/01/16 12:24	09/02/16 12:06	1

Lab Sample ID: LCS 310-139945/2-A

Matrix: Solid

Analysis Batch: 140073

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 139945

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Diesel	128	72.95		mg/Kg		57	30 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
n-Octacosane	43		40 - 135

Lab Sample ID: 310-88292-1 MS

Matrix: Soil

Analysis Batch: 140229

Client Sample ID: SB1 @ 0-2

Prep Type: Total/NA

Prep Batch: 139945

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Diesel	<318	F1	131	37220	F1	mg/Kg		28378	30 - 150

Surrogate	MS %Recovery	MS Qualifier	Limits
n-Octacosane	46		40 - 135

Lab Sample ID: 310-88292-1 MSD

Matrix: Soil

Analysis Batch: 140229

Client Sample ID: SB1 @ 0-2

Prep Type: Total/NA

Prep Batch: 139945

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Diesel	<318	F1	130	44190	F1	mg/Kg		33935	30 - 150	17	40

Surrogate	MSD %Recovery	MSD Qualifier	Limits
n-Octacosane	43		40 - 135

Lab Sample ID: MB 310-139959/1-A

Matrix: Water

Analysis Batch: 140072

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 139959

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300		ug/L		09/01/16 13:33	09/02/16 15:30	1
Diesel	<300		300		ug/L		09/01/16 13:33	09/02/16 15:30	1
Waste Oil	<300		300		ug/L		09/01/16 13:33	09/02/16 15:30	1
Total Extractable Hydrocarbons	<500		500		ug/L		09/01/16 13:33	09/02/16 15:30	1

TestAmerica Cedar Falls

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TestAmerica Job ID: 310-88292-1
SDG: 10140076

Lab Sample ID: LCS 310-139959/2-A
Matrix: Water
Analysis Batch: 140072

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 139959

Lab Sample ID: LCSD 310-139959/3-A
Matrix: Water
Analysis Batch: 140072

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 139959

Lab Sample ID: MB 310-139960/1-A
Matrix: Water
Analysis Batch: 140073

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 139960

Lab Sample ID: LCS 310-139960/2-A
Matrix: Water
Analysis Batch: 140073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 139960

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-139873/1-A
Matrix: Solid
Analysis Batch: 140361

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 139873

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<2.20		3.82	2.20	mg/Kg		09/02/16 08:18	09/06/16 11:02	1
Barium	<0.282		0.478	0.282	mg/Kg		09/02/16 08:18	09/06/16 11:02	1
Cadmium	<0.238		0.955	0.238	mg/Kg		09/02/16 08:18	09/06/16 11:02	1
Chromium	<0.267		0.955	0.267	mg/Kg		09/02/16 08:18	09/06/16 11:02	1
Lead	<0.946		4.78	0.946	mg/Kg		09/02/16 08:18	09/06/16 11:02	1
Selenium	<2.87		7.16	2.87	mg/Kg		09/02/16 08:18	09/06/16 11:02	1
Silver	<0.297		0.955	0.297	mg/Kg		09/02/16 08:18	09/06/16 11:02	1

Lab Sample ID: LCS 310-139873/2-A
Matrix: Solid
Analysis Batch: 140361

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 139873

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	199	203.2		mg/Kg		102	80 - 120
Barium	99.4	97.28		mg/Kg		98	80 - 120
Cadmium	99.4	98.38		mg/Kg		99	80 - 120
Chromium	99.4	94.03		mg/Kg		95	80 - 120
Lead	199	203.0		mg/Kg		102	80 - 120
Selenium	398	393.8		mg/Kg		99	80 - 120
Silver	99.4	100.4		mg/Kg		101	80 - 120

Lab Sample ID: 310-88292-9 DU
Matrix: Soil
Analysis Batch: 140361

Client Sample ID: CC
Prep Type: Total/NA
Prep Batch: 139873

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	33.1	J	96.42	F3	mg/Kg	⊛	98	20
Barium	962		891.8		mg/Kg	⊛	8	20
Cadmium	53.6		33.82	F3	mg/Kg	⊛	45	20
Chromium	247		270.1		mg/Kg	⊛	9	20
Lead	2720		5430	F3	mg/Kg	⊛	66	20
Selenium	<37.3		<34.7		mg/Kg	⊛	NC	20
Silver	<3.87		18.16		mg/Kg	⊛	NC	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-140034/1-A
Matrix: Water
Analysis Batch: 140177

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 140034

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/02/16 07:42	09/02/16 17:15	1
Barium	<0.00200		0.00200		mg/L		09/02/16 07:42	09/02/16 17:15	1
Cadmium	<0.000500		0.000500		mg/L		09/02/16 07:42	09/02/16 17:15	1
Chromium	<0.00500		0.00500		mg/L		09/02/16 07:42	09/02/16 17:15	1
Lead	<0.000500		0.000500		mg/L		09/02/16 07:42	09/02/16 17:15	1
Selenium	<0.00500		0.00500		mg/L		09/02/16 07:42	09/02/16 17:15	1
Silver	<0.00100		0.00100		mg/L		09/02/16 07:42	09/02/16 17:15	1

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 310-140034/2-A
Matrix: Water
Analysis Batch: 140177

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 140034

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.0400	0.04153		mg/L		104	80 - 120
Barium	0.0400	0.04131		mg/L		103	80 - 120
Cadmium	0.0200	0.02083		mg/L		104	80 - 120
Chromium	0.0400	0.04177		mg/L		104	80 - 120
Lead	0.0200	0.02022		mg/L		101	80 - 120
Selenium	0.0400	0.03887		mg/L		97	80 - 120
Silver	0.0200	0.02002		mg/L		100	80 - 120

Lab Sample ID: 310-88292-2 MS
Matrix: Ground Water
Analysis Batch: 140177

Client Sample ID: SB1
Prep Type: Total/NA
Prep Batch: 140034

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.00629		0.0400	0.04917		mg/L		107	75 - 125
Barium	0.295		0.0400	0.3341	4	mg/L		99	75 - 125
Cadmium	<0.000500		0.0200	0.01946		mg/L		97	75 - 125
Chromium	<0.00500		0.0400	0.04073		mg/L		99	75 - 125
Lead	<0.000500		0.0200	0.01944		mg/L		96	75 - 125
Selenium	<0.00500		0.0400	0.03796		mg/L		95	75 - 125
Silver	<0.00100		0.0200	0.01938		mg/L		97	75 - 125

Lab Sample ID: 310-88292-2 MSD
Matrix: Ground Water
Analysis Batch: 140177

Client Sample ID: SB1
Prep Type: Total/NA
Prep Batch: 140034

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	0.00629		0.0400	0.05015		mg/L		110	75 - 125	2	20
Barium	0.295		0.0400	0.3410	4	mg/L		116	75 - 125	2	20
Cadmium	<0.000500		0.0200	0.01966		mg/L		98	75 - 125	1	20
Chromium	<0.00500		0.0400	0.04384		mg/L		107	75 - 125	7	20
Lead	<0.000500		0.0200	0.01955		mg/L		97	75 - 125	1	20
Selenium	<0.00500		0.0400	0.03801		mg/L		95	75 - 125	0	20
Silver	<0.00100		0.0200	0.01983		mg/L		99	75 - 125	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-140240/1-A
Matrix: Water
Analysis Batch: 140479

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 140240

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/06/16 09:56	09/07/16 11:02	1

Lab Sample ID: LCS 310-140240/2-A
Matrix: Water
Analysis Batch: 140479

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 140240

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00167	0.001350		mg/L		81	80 - 120

TestAmerica Cedar Falls

QC Sample Results

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 310-139910/1-A
Matrix: Solid
Analysis Batch: 140104

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 139910

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0198		0.0198		mg/Kg		09/01/16 10:25	09/02/16 10:30	1

Lab Sample ID: LCS 310-139910/2-A
Matrix: Solid
Analysis Batch: 140104

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 139910

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.161	0.1756		mg/Kg		109	80 - 120

QC Association Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

GC/MS VOA

Analysis Batch: 140015

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-2	SB1	Total/NA	Ground Water	8260C	
310-88292-4	SB2	Total/NA	Ground Water	8260C	
310-88292-6	SB3	Total/NA	Ground Water	8260C	
310-88292-16	DUP 8	Total/NA	Ground Water	8260C	
310-88292-17	Trip Blank	Total/NA	Water	8260C	
310-88292-18	Field Blank	Total/NA	Water	8260C	
MB 310-140015/7	Method Blank	Total/NA	Water	8260C	
LCS 310-140015/5	Lab Control Sample	Total/NA	Water	8260C	
LCS 310-140015/6	Lab Control Sample	Total/NA	Water	8260C	

Prep Batch: 140379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-1	SB1 @ 0-2	Total/NA	Soil	5035	140381
MB 310-140379/1-A	Method Blank	Total/NA	Solid	5035	
LCS 310-140379/2-A	Lab Control Sample	Total/NA	Solid	5035	

Pre Prep Batch: 140381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-1	SB1 @ 0-2	Total/NA	Soil	Frozen Preserve	

Analysis Batch: 140383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-1	SB1 @ 0-2	Total/NA	Soil	8260C	140379
MB 310-140379/1-A	Method Blank	Total/NA	Solid	8260C	140379
LCS 310-140379/2-A	Lab Control Sample	Total/NA	Solid	8260C	140379

Prep Batch: 140849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-8	BC	Total/NA	Soil	5035	
310-88292-12	DUP 3	Total/NA	Soil	5035	
MB 310-140849/1-A	Method Blank	Total/NA	Solid	5035	
LCS 310-140849/2-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 140850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-8	BC	Total/NA	Soil	8260C	140849
310-88292-12	DUP 3	Total/NA	Soil	8260C	140849
MB 310-140849/1-A	Method Blank	Total/NA	Solid	8260C	140849
LCS 310-140849/2-A	Lab Control Sample	Total/NA	Solid	8260C	140849

GC/MS Semi VOA

Prep Batch: 139942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-1	SB1 @ 0-2	Total/NA	Soil	3546	
310-88292-3	SB2 @ 0-2	Total/NA	Soil	3546	
310-88292-5	SB3 @ 0-2	Total/NA	Soil	3546	
310-88292-7	OC	Total/NA	Soil	3546	
310-88292-8	BC	Total/NA	Soil	3546	
310-88292-9	CC	Total/NA	Soil	3546	

TestAmerica Cedar Falls

QC Association Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

GC/MS Semi VOA (Continued)

Prep Batch: 139942 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-11	DUP 2	Total/NA	Soil	3546	
MB 310-139942/1-A	Method Blank	Total/NA	Solid	3546	
LCS 310-139942/2-A	Lab Control Sample	Total/NA	Solid	3546	
310-88292-1 MS	SB1 @ 0-2	Total/NA	Soil	3546	
310-88292-1 MSD	SB1 @ 0-2	Total/NA	Soil	3546	

Analysis Batch: 140049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-1	SB1 @ 0-2	Total/NA	Soil	8270D SIM	139942
310-88292-3	SB2 @ 0-2	Total/NA	Soil	8270D SIM	139942
310-88292-5	SB3 @ 0-2	Total/NA	Soil	8270D SIM	139942
310-88292-7	OC	Total/NA	Soil	8270D SIM	139942
310-88292-8	BC	Total/NA	Soil	8270D SIM	139942
310-88292-9	CC	Total/NA	Soil	8270D SIM	139942
310-88292-11	DUP 2	Total/NA	Soil	8270D SIM	139942
MB 310-139942/1-A	Method Blank	Total/NA	Solid	8270D SIM	139942
LCS 310-139942/2-A	Lab Control Sample	Total/NA	Solid	8270D SIM	139942
310-88292-1 MS	SB1 @ 0-2	Total/NA	Soil	8270D SIM	139942
310-88292-1 MSD	SB1 @ 0-2	Total/NA	Soil	8270D SIM	139942

Prep Batch: 140255

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-6	SB3	Total/NA	Ground Water	3510C	
310-88292-15	DUP 7	Total/NA	Ground Water	3510C	
310-88292-18	Field Blank	Total/NA	Water	3510C	
MB 310-140255/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-140255/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-140255/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 140373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-6	SB3	Total/NA	Ground Water	8270D SIM	140255
310-88292-15	DUP 7	Total/NA	Ground Water	8270D SIM	140255
310-88292-18	Field Blank	Total/NA	Water	8270D SIM	140255
MB 310-140255/1-A	Method Blank	Total/NA	Water	8270D SIM	140255
LCS 310-140255/2-A	Lab Control Sample	Total/NA	Water	8270D SIM	140255
LCSD 310-140255/3-A	Lab Control Sample Dup	Total/NA	Water	8270D SIM	140255

GC Semi VOA

Prep Batch: 139945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-1	SB1 @ 0-2	Total/NA	Soil	3546	
310-88292-8	BC	Total/NA	Soil	3546	
310-88292-9	CC	Total/NA	Soil	3546	
310-88292-10	DUP 1	Total/NA	Soil	3546	
MB 310-139945/1-A	Method Blank	Total/NA	Solid	3546	
LCS 310-139945/2-A	Lab Control Sample	Total/NA	Solid	3546	
310-88292-1 MS	SB1 @ 0-2	Total/NA	Soil	3546	
310-88292-1 MSD	SB1 @ 0-2	Total/NA	Soil	3546	

TestAmerica Cedar Falls

QC Association Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

GC Semi VOA (Continued)

Prep Batch: 139953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-1	SB1 @ 0-2	Total/NA	Soil	3546	
310-88292-7	OC	Total/NA	Soil	3546	
310-88292-8	BC	Total/NA	Soil	3546	
310-88292-9	CC	Total/NA	Soil	3546	
310-88292-11	DUP 2	Total/NA	Soil	3546	
MB 310-139953/1-A	Method Blank	Total/NA	Solid	3546	
LCS 310-139953/2-A	Lab Control Sample	Total/NA	Solid	3546	

Prep Batch: 139959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-2	SB1	Total/NA	Ground Water	3510C	
310-88292-4	SB2	Total/NA	Ground Water	3510C	
310-88292-6	SB3	Total/NA	Ground Water	3510C	
MB 310-139959/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-139959/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-139959/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Prep Batch: 139960

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-13	DUP 5	Total/NA	Ground Water	3510C	
310-88292-18	Field Blank	Total/NA	Water	3510C	
MB 310-139960/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-139960/2-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 140072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-2	SB1	Total/NA	Ground Water	OA-2	139959
310-88292-4	SB2	Total/NA	Ground Water	OA-2	139959
310-88292-6	SB3	Total/NA	Ground Water	OA-2	139959
MB 310-139959/1-A	Method Blank	Total/NA	Water	OA-2	139959
LCS 310-139959/2-A	Lab Control Sample	Total/NA	Water	OA-2	139959
LCSD 310-139959/3-A	Lab Control Sample Dup	Total/NA	Water	OA-2	139959

Analysis Batch: 140073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-13	DUP 5	Total/NA	Ground Water	OA-2	139960
310-88292-18	Field Blank	Total/NA	Water	OA-2	139960
MB 310-139945/1-A	Method Blank	Total/NA	Solid	OA-2	139945
MB 310-139960/1-A	Method Blank	Total/NA	Water	OA-2	139960
LCS 310-139945/2-A	Lab Control Sample	Total/NA	Solid	OA-2	139945
LCS 310-139960/2-A	Lab Control Sample	Total/NA	Water	OA-2	139960

Analysis Batch: 140229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-1	SB1 @ 0-2	Total/NA	Soil	OA-2	139945
310-88292-8	BC	Total/NA	Soil	OA-2	139945
310-88292-9	CC	Total/NA	Soil	OA-2	139945
310-88292-10	DUP 1	Total/NA	Soil	OA-2	139945
310-88292-1 MS	SB1 @ 0-2	Total/NA	Soil	OA-2	139945
310-88292-1 MSD	SB1 @ 0-2	Total/NA	Soil	OA-2	139945

TestAmerica Cedar Falls

QC Association Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

GC Semi VOA (Continued)

Analysis Batch: 140506

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-9	CC	Total/NA	Soil	OA-2	139945

Analysis Batch: 140755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-7	OC	Total/NA	Soil	8082A	139953
310-88292-8	BC	Total/NA	Soil	8082A	139953
310-88292-9	CC	Total/NA	Soil	8082A	139953
310-88292-11	DUP 2	Total/NA	Soil	8082A	139953
MB 310-139953/1-A	Method Blank	Total/NA	Solid	8082A	139953
LCS 310-139953/2-A	Lab Control Sample	Total/NA	Solid	8082A	139953

Analysis Batch: 141045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-1	SB1 @ 0-2	Total/NA	Soil	8082A	139953
310-88292-8	BC	Total/NA	Soil	8082A	139953
310-88292-9	CC	Total/NA	Soil	8082A	139953
310-88292-11	DUP 2	Total/NA	Soil	8082A	139953

Analysis Batch: 141155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-7	OC	Total/NA	Soil	8082A	139953

Metals

Prep Batch: 139873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-1	SB1 @ 0-2	Total/NA	Soil	3050B	
310-88292-3	SB2 @ 0-2	Total/NA	Soil	3050B	
310-88292-5	SB3 @ 0-2	Total/NA	Soil	3050B	
310-88292-7	OC	Total/NA	Soil	3050B	
310-88292-8	BC	Total/NA	Soil	3050B	
310-88292-9	CC	Total/NA	Soil	3050B	
310-88292-10	DUP 1	Total/NA	Soil	3050B	
MB 310-139873/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 310-139873/2-A	Lab Control Sample	Total/NA	Solid	3050B	
310-88292-9 DU	CC	Total/NA	Soil	3050B	

Prep Batch: 139910

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-1	SB1 @ 0-2	Total/NA	Soil	7471B	
310-88292-3	SB2 @ 0-2	Total/NA	Soil	7471B	
310-88292-5	SB3 @ 0-2	Total/NA	Soil	7471B	
310-88292-7	OC	Total/NA	Soil	7471B	
310-88292-8	BC	Total/NA	Soil	7471B	
310-88292-9	CC	Total/NA	Soil	7471B	
310-88292-10	DUP 1	Total/NA	Soil	7471B	
MB 310-139910/1-A	Method Blank	Total/NA	Solid	7471B	
LCS 310-139910/2-A	Lab Control Sample	Total/NA	Solid	7471B	

TestAmerica Cedar Falls

QC Association Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Metals (Continued)

Prep Batch: 140034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-2	SB1	Total/NA	Ground Water	3010A	
310-88292-4	SB2	Total/NA	Ground Water	3010A	
310-88292-6	SB3	Total/NA	Ground Water	3010A	
310-88292-14	DUP 6	Total/NA	Ground Water	3010A	
310-88292-18	Field Blank	Total/NA	Water	3010A	
MB 310-140034/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-140034/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-88292-2 MS	SB1	Total/NA	Ground Water	3010A	
310-88292-2 MSD	SB1	Total/NA	Ground Water	3010A	

Analysis Batch: 140104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-1	SB1 @ 0-2	Total/NA	Soil	7471B	139910
310-88292-3	SB2 @ 0-2	Total/NA	Soil	7471B	139910
310-88292-5	SB3 @ 0-2	Total/NA	Soil	7471B	139910
310-88292-7	OC	Total/NA	Soil	7471B	139910
310-88292-8	BC	Total/NA	Soil	7471B	139910
310-88292-9	CC	Total/NA	Soil	7471B	139910
310-88292-10	DUP 1	Total/NA	Soil	7471B	139910
MB 310-139910/1-A	Method Blank	Total/NA	Solid	7471B	139910
LCS 310-139910/2-A	Lab Control Sample	Total/NA	Solid	7471B	139910

Analysis Batch: 140177

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-2	SB1	Total/NA	Ground Water	6020A	140034
310-88292-4	SB2	Total/NA	Ground Water	6020A	140034
310-88292-6	SB3	Total/NA	Ground Water	6020A	140034
310-88292-14	DUP 6	Total/NA	Ground Water	6020A	140034
310-88292-18	Field Blank	Total/NA	Water	6020A	140034
MB 310-140034/1-A	Method Blank	Total/NA	Water	6020A	140034
LCS 310-140034/2-A	Lab Control Sample	Total/NA	Water	6020A	140034
310-88292-2 MS	SB1	Total/NA	Ground Water	6020A	140034
310-88292-2 MSD	SB1	Total/NA	Ground Water	6020A	140034

Prep Batch: 140240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-2	SB1	Total/NA	Ground Water	7470A	
310-88292-4	SB2	Total/NA	Ground Water	7470A	
310-88292-6	SB3	Total/NA	Ground Water	7470A	
310-88292-14	DUP 6	Total/NA	Ground Water	7470A	
310-88292-18	Field Blank	Total/NA	Water	7470A	
MB 310-140240/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-140240/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 140361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-1	SB1 @ 0-2	Total/NA	Soil	6010C	139873
310-88292-3	SB2 @ 0-2	Total/NA	Soil	6010C	139873
310-88292-5	SB3 @ 0-2	Total/NA	Soil	6010C	139873
310-88292-7	OC	Total/NA	Soil	6010C	139873
310-88292-8	BC	Total/NA	Soil	6010C	139873

TestAmerica Cedar Falls

QC Association Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Metals (Continued)

Analysis Batch: 140361 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-9	CC	Total/NA	Soil	6010C	139873
310-88292-10	DUP 1	Total/NA	Soil	6010C	139873
MB 310-139873/1-A	Method Blank	Total/NA	Solid	6010C	139873
LCS 310-139873/2-A	Lab Control Sample	Total/NA	Solid	6010C	139873
310-88292-9 DU	CC	Total/NA	Soil	6010C	139873

Analysis Batch: 140479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-88292-2	SB1	Total/NA	Ground Water	7470A	140240
310-88292-4	SB2	Total/NA	Ground Water	7470A	140240
310-88292-6	SB3	Total/NA	Ground Water	7470A	140240
310-88292-14	DUP 6	Total/NA	Ground Water	7470A	140240
310-88292-18	Field Blank	Total/NA	Water	7470A	140240
MB 310-140240/1-A	Method Blank	Total/NA	Water	7470A	140240
LCS 310-140240/2-A	Lab Control Sample	Total/NA	Water	7470A	140240

Lab Chronicle

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB1 @ 0-2

Date Collected: 08/30/16 13:49

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-1

Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			139945	09/01/16 12:24	DEM2	TAL CF
Total/NA	Analysis	OA-2		10	140229	09/06/16 14:17	LLS	TAL CF

Client Sample ID: SB1 @ 0-2

Date Collected: 08/30/16 13:49

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-1

Matrix: Soil

Percent Solids: 85.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Pre Prep	Frozen Preserve			140381	08/31/16 16:19	TCH	TAL CF
Total/NA	Prep	5035			140379	09/07/16 08:39	TCH	TAL CF
Total/NA	Analysis	8260C		1	140383	09/07/16 18:03	TCH	TAL CF
Total/NA	Prep	3546			139942	09/01/16 12:23	DEM2	TAL CF
Total/NA	Analysis	8270D SIM		100	140049	09/02/16 14:58	DMD	TAL CF
Total/NA	Prep	3546			139953	09/01/16 12:32	DEM2	TAL CF
Total/NA	Analysis	8082A		50	141045	09/13/16 13:43	BKT	TAL CF
Total/NA	Prep	3050B			139873	09/02/16 08:18	JNR	TAL CF
Total/NA	Analysis	6010C		3	140361	09/06/16 11:48	OAD	TAL CF
Total/NA	Prep	7471B			139910	09/01/16 10:25	SAD	TAL CF
Total/NA	Analysis	7471B		5	140104	09/02/16 11:14	SAD	TAL CF

Client Sample ID: SB1

Date Collected: 08/30/16 13:40

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	140015	09/02/16 23:35	SJN	TAL CF
Total/NA	Prep	3510C			139959	09/01/16 13:33	DLK	TAL CF
Total/NA	Analysis	OA-2		1	140072	09/02/16 16:32	LLS	TAL CF
Total/NA	Prep	3010A			140034	09/02/16 07:42	JNR	TAL CF
Total/NA	Analysis	6020A		1	140177	09/02/16 17:21	OAD	TAL CF
Total/NA	Prep	7470A			140240	09/06/16 09:56	SAD	TAL CF
Total/NA	Analysis	7470A		1	140479	09/07/16 11:18	SAD	TAL CF

Client Sample ID: SB2 @ 0-2

Date Collected: 08/30/16 14:22

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-3

Matrix: Soil

Percent Solids: 82.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			139942	09/01/16 12:23	DEM2	TAL CF
Total/NA	Analysis	8270D SIM		100	140049	09/02/16 15:20	DMD	TAL CF
Total/NA	Prep	3050B			139873	09/02/16 08:18	JNR	TAL CF
Total/NA	Analysis	6010C		10	140361	09/06/16 11:52	OAD	TAL CF
Total/NA	Prep	7471B			139910	09/01/16 10:25	SAD	TAL CF

TestAmerica Cedar Falls

Lab Chronicle

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: SB2 @ 0-2

Date Collected: 08/30/16 14:22

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-3

Matrix: Soil

Percent Solids: 82.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7471B		20	140104	09/02/16 11:16	SAD	TAL CF

Client Sample ID: SB2

Date Collected: 08/30/16 14:34

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	140015	09/02/16 23:58	SJN	TAL CF
Total/NA	Prep	3510C			139959	09/01/16 13:33	DLK	TAL CF
Total/NA	Analysis	OA-2		1	140072	09/02/16 16:47	LLS	TAL CF
Total/NA	Prep	3010A			140034	09/02/16 07:42	JNR	TAL CF
Total/NA	Analysis	6020A		1	140177	09/02/16 17:40	OAD	TAL CF
Total/NA	Prep	7470A			140240	09/06/16 09:56	SAD	TAL CF
Total/NA	Analysis	7470A		1	140479	09/07/16 11:20	SAD	TAL CF

Client Sample ID: SB3 @ 0-2

Date Collected: 08/30/16 10:53

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-5

Matrix: Soil

Percent Solids: 88.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			139942	09/01/16 12:23	DEM2	TAL CF
Total/NA	Analysis	8270D SIM		10	140049	09/02/16 15:42	DMD	TAL CF
Total/NA	Prep	3050B			139873	09/02/16 08:18	JNR	TAL CF
Total/NA	Analysis	6010C		2	140361	09/06/16 11:44	OAD	TAL CF
Total/NA	Prep	7471B			139910	09/01/16 10:25	SAD	TAL CF
Total/NA	Analysis	7471B		1	140104	09/02/16 10:49	SAD	TAL CF

Client Sample ID: SB3

Date Collected: 08/30/16 11:28

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	140015	09/03/16 00:21	SJN	TAL CF
Total/NA	Prep	3510C			140255	09/06/16 10:17	DLK	TAL CF
Total/NA	Analysis	8270D SIM		1	140373	09/07/16 15:26	DMD	TAL CF
Total/NA	Prep	3510C			139959	09/01/16 13:33	DLK	TAL CF
Total/NA	Analysis	OA-2		1	140072	09/02/16 17:02	LLS	TAL CF
Total/NA	Prep	3010A			140034	09/02/16 07:42	JNR	TAL CF
Total/NA	Analysis	6020A		1	140177	09/02/16 17:43	OAD	TAL CF
Total/NA	Prep	7470A			140240	09/06/16 09:56	SAD	TAL CF
Total/NA	Analysis	7470A		1	140479	09/07/16 11:21	SAD	TAL CF

TestAmerica Cedar Falls

Lab Chronicle

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: OC

Date Collected: 08/30/16 10:52

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-7

Matrix: Soil

Percent Solids: 87.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			139942	09/01/16 12:23	DEM2	TAL CF
Total/NA	Analysis	8270D SIM		100	140049	09/02/16 16:04	DMD	TAL CF
Total/NA	Prep	3546			139953	09/01/16 12:32	DEM2	TAL CF
Total/NA	Analysis	8082A		1	140755	09/09/16 10:54	BKT	TAL CF
Total/NA	Prep	3546			139953	09/01/16 12:32	DEM2	TAL CF
Total/NA	Analysis	8082A		200	141155	09/13/16 19:09	BKT	TAL CF
Total/NA	Prep	3050B			139873	09/02/16 08:18	JNR	TAL CF
Total/NA	Analysis	6010C		4	140361	09/06/16 12:59	OAD	TAL CF
Total/NA	Prep	7471B			139910	09/01/16 10:25	SAD	TAL CF
Total/NA	Analysis	7471B		10	140104	09/02/16 11:18	SAD	TAL CF

Client Sample ID: BC

Date Collected: 08/30/16 11:41

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-8

Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			139945	09/01/16 12:24	DEM2	TAL CF
Total/NA	Analysis	OA-2		10	140229	09/06/16 14:33	LLS	TAL CF

Client Sample ID: BC

Date Collected: 08/30/16 11:41

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-8

Matrix: Soil

Percent Solids: 85.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			140849	09/12/16 07:35	TCH	TAL CF
Total/NA	Analysis	8260C		1	140850	09/12/16 11:53	TCH	TAL CF
Total/NA	Prep	3546			139942	09/01/16 12:23	DEM2	TAL CF
Total/NA	Analysis	8270D SIM		100	140049	09/02/16 16:25	DMD	TAL CF
Total/NA	Prep	3546			139953	09/01/16 12:32	DEM2	TAL CF
Total/NA	Analysis	8082A		1	140755	09/09/16 11:05	BKT	TAL CF
Total/NA	Prep	3546			139953	09/01/16 12:32	DEM2	TAL CF
Total/NA	Analysis	8082A		10	141045	09/13/16 13:21	BKT	TAL CF
Total/NA	Prep	3050B			139873	09/02/16 08:18	JNR	TAL CF
Total/NA	Analysis	6010C		8	140361	09/06/16 13:06	OAD	TAL CF
Total/NA	Prep	7471B			139910	09/01/16 10:25	SAD	TAL CF
Total/NA	Analysis	7471B		10	140104	09/02/16 11:19	SAD	TAL CF

Client Sample ID: CC

Date Collected: 08/30/16 11:55

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-9

Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			139945	09/01/16 12:24	DEM2	TAL CF

TestAmerica Cedar Falls

Lab Chronicle

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: CC

Date Collected: 08/30/16 11:55

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-9

Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	OA-2		10	140229	09/06/16 14:49	LLS	TAL CF
Total/NA	Prep	3546			139945	09/01/16 12:24	DEM2	TAL CF
Total/NA	Analysis	OA-2		20	140506	09/07/16 23:55	LLS	TAL CF

Client Sample ID: CC

Date Collected: 08/30/16 11:55

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-9

Matrix: Soil

Percent Solids: 84.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			139942	09/01/16 12:23	DEM2	TAL CF
Total/NA	Analysis	8270D SIM		10	140049	09/02/16 16:47	DMD	TAL CF
Total/NA	Prep	3546			139953	09/01/16 12:32	DEM2	TAL CF
Total/NA	Analysis	8082A		1	140755	09/09/16 11:15	BKT	TAL CF
Total/NA	Prep	3546			139953	09/01/16 12:32	DEM2	TAL CF
Total/NA	Analysis	8082A		50	141045	09/13/16 13:53	BKT	TAL CF
Total/NA	Prep	3050B			139873	09/02/16 08:18	JNR	TAL CF
Total/NA	Analysis	6010C		12	140361	09/06/16 13:30	OAD	TAL CF
Total/NA	Prep	7471B			139910	09/01/16 10:25	SAD	TAL CF
Total/NA	Analysis	7471B		50	140104	09/02/16 11:21	SAD	TAL CF

Client Sample ID: DUP 1

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-10

Matrix: Soil

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			139945	09/01/16 12:24	DEM2	TAL CF
Total/NA	Analysis	OA-2		10	140229	09/06/16 15:04	LLS	TAL CF

Client Sample ID: DUP 1

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-10

Matrix: Soil

Percent Solids: 89.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			139873	09/02/16 08:18	JNR	TAL CF
Total/NA	Analysis	6010C		10	140361	09/06/16 13:33	OAD	TAL CF
Total/NA	Prep	7471B			139910	09/01/16 10:25	SAD	TAL CF
Total/NA	Analysis	7471B		20	140104	09/02/16 11:22	SAD	TAL CF

TestAmerica Cedar Falls

Lab Chronicle

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: DUP 2

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-11

Matrix: Soil

Percent Solids: 87.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			139942	09/01/16 12:23	DEM2	TAL CF
Total/NA	Analysis	8270D SIM		10	140049	09/02/16 17:09	DMD	TAL CF
Total/NA	Prep	3546			139953	09/01/16 12:32	DEM2	TAL CF
Total/NA	Analysis	8082A		1	140755	09/09/16 11:26	BKT	TAL CF
Total/NA	Prep	3546			139953	09/01/16 12:32	DEM2	TAL CF
Total/NA	Analysis	8082A		20	141045	09/13/16 13:32	BKT	TAL CF

Client Sample ID: DUP 3

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-12

Matrix: Soil

Percent Solids: 85.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			140849	09/12/16 07:35	TCH	TAL CF
Total/NA	Analysis	8260C		1	140850	09/12/16 12:17	TCH	TAL CF

Client Sample ID: DUP 5

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-13

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			139960	09/01/16 13:38	DLK	TAL CF
Total/NA	Analysis	OA-2		1	140073	09/02/16 17:27	LLS	TAL CF

Client Sample ID: DUP 6

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-14

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			140034	09/02/16 07:42	JNR	TAL CF
Total/NA	Analysis	6020A		1	140177	09/02/16 17:46	OAD	TAL CF
Total/NA	Prep	7470A			140240	09/06/16 09:56	SAD	TAL CF
Total/NA	Analysis	7470A		1	140479	09/07/16 11:23	SAD	TAL CF

Client Sample ID: DUP 7

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-15

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			140255	09/06/16 10:17	DLK	TAL CF
Total/NA	Analysis	8270D SIM		1	140373	09/07/16 15:48	DMD	TAL CF

TestAmerica Cedar Falls

Lab Chronicle

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Client Sample ID: DUP 8

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-16

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	140015	09/03/16 00:45	SJN	TAL CF

Client Sample ID: Trip Blank

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-17

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	140015	09/03/16 01:08	SJN	TAL CF

Client Sample ID: Field Blank

Date Collected: 08/30/16 00:00

Date Received: 08/31/16 16:15

Lab Sample ID: 310-88292-18

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	140015	09/03/16 01:32	SJN	TAL CF
Total/NA	Prep	3510C			140255	09/06/16 10:17	DLK	TAL CF
Total/NA	Analysis	8270D SIM		1	140373	09/07/16 16:53	DMD	TAL CF
Total/NA	Prep	3510C			139960	09/01/16 13:38	DLK	TAL CF
Total/NA	Analysis	OA-2		1	140073	09/02/16 17:42	LLS	TAL CF
Total/NA	Prep	3010A			140034	09/02/16 07:42	JNR	TAL CF
Total/NA	Analysis	6020A		1	140177	09/02/16 17:49	OAD	TAL CF
Total/NA	Prep	7470A			140240	09/06/16 09:56	SAD	TAL CF
Total/NA	Analysis	7470A		1	140479	09/07/16 11:25	SAD	TAL CF

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

Certification Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Laboratory: TestAmerica Cedar Falls

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA-LAP, LLC	IHLAP		101044	11-01-16
Georgia	State Program	4	N/A	09-29-16
Illinois	NELAP	5	200024	11-29-16
Iowa	State Program	7	007	12-01-17
Kansas	NELAP	7	E-10341	01-31-17
Minnesota	NELAP	5	019-999-319	12-31-16
Minnesota (Petrofund)	State Program	1	3349	08-22-16 *
North Dakota	State Program	8	R-186	09-29-16
Oregon	NELAP	10	IA100001	09-29-16

* Certification renewal pending - certification considered valid.

TestAmerica Cedar Falls

Method Summary

Client: HR Green, Inc
Project/Site: Blum-West - Dubuque, IA

TestAmerica Job ID: 310-88292-1
SDG: 10140076

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL CF
8270D SIM	Semivolatile Organic Compound (GC/MS SIM LL)	SW846	TAL CF
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL CF
OA-2	Iowa - Extractable Petroleum Hydrocarbons (GC)	Iowa DNR	TAL CF
6010C	Metals (ICP)	SW846	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF
7471B	Mercury (CVAA)	SW846	TAL CF

Protocol References:

Iowa DNR = Iowa Department of Natural Resources

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401



Cooler/Sample Receipt and Temperature Log Form

Client Information	
Client: <u>HR Green</u>	
City/State:	Project:
Receipt Information	
Date/Time Received: <u>8-31-16 1615</u>	Received By: <u>VP</u>
Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☒ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other: _____	
Condition of Cooler/Containers	
Sample(s) received in Cooler?	☒ Yes ☐ No If yes: Cooler ID: <u>T-8</u>
Multiple Coolers?	☐ Yes ☒ No If yes: Cooler # _____ of _____
Cooler Custody Seals Present?	☐ Yes ☒ No If yes: Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☒ No If yes: Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☒ Yes ☐ No If yes: Which VOA samples are in cooler? ↓
Temperature Record	
Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: _____ ☐ NONE	
Temperature Blank?	☒ Yes ☐ No ID & Bottle Type: <u>all bottles</u>
NOTE: If yes, use temp blank for measurement. If no, specify sample ID(s) and bottle type used to take measurement.	
Thermometer ID: <u>6</u>	Correction Factor (°C): <u>-0.1</u>
Uncorrected Temp (°C): <u>7.6</u>	Corrected Temp (°C): <u>7.5</u>
Exceptions Noted	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No a) If yes: Is there evidence that the chilling process began? ☐ Yes ☐ No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
Additional Comments	

Client Name:

Address:

City/State/Zip Code:

Project Manager:

Email Address:

Telephone Number:

Sampler Name: (Print Name)

Sampler Signature:

Client #:

Address:

City/State/Zip Code:

Project Manager:

Email Address:

Telephone Number:

Sampler Name: (Print Name)

Sampler Signature:

Project Name: Blum-West

Project #: 1040076

Site/Location ID: Blum-West

Report To: Rose

Invoice To: Rose

Quote #: PO#:

TAT/Standard
Rush (surcharges may apply)

Date Needed: 9/14

Fax Results: ☒ (N) ☐ (Y)

Email Results: ☒ (N) ☐ (Y)

SAMPLE ID

SB1 @ 0-2

SB1

SB2 @ 0-2

SB2

SB3 @ 0-2

SB3

OC

BC

CC

Dup 1

Special Instructions:

TAT/Standard Rush (surcharges may apply)		Date Needed: 9/14		Fax Results: (Y) (N)		Email Results: (Y) (N)		SAMPLE ID		SB1@0-2		SB1		SB2@0-2		SB2		SB3@0-2		SB3		OC		BC		CC		D-1					
Date Sampled		Time Sampled		G = Grab, C = Composite		Field Filtered		Matrix		HNO3		HCl		NaOH		H2SO4		Methanol		Other (Specify)		201+1SDBH		VOC		TEH		RCRA		PAH		PCB	
8/30		1349		G				S		1		3						1		1		201+1SDBH		X		X		X		X		X	
8/30		1340		G				GW		1		3										201+1SDBH		X		X		X		X		X	
1422		1422		G				S		1		3										201+1SDBH		X		X		X		X		X	
1434		1434		G				G		1		3										201+1SDBH		X		X		X		X		X	
1053		1053		G				S		1		3										201+1SDBH		X		X		X		X		X	
1128		1128		G				GW		1		3										201+1SDBH		X		X		X		X		X	
1052		1052		G				S		1		3										201+1SDBH		X		X		X		X		X	
1141		1141		G				S		1		3										201+1SDBH		X		X		X		X		X	
1155		1155		G				S		1		3										201+1SDBH		X		X		X		X		X	

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring

Client Name:

HR Green

Address:

Client #:

City/State/Zip Code:

1

Project Manager:

Site/Location ID: Burn-West State:

Email Address:

Report To: Rose

Telephone Number:

Fax:

Sampler Name: (Print Name)

Rose Amundson

Sampler Signature:

Quote #: PO#:

TAT Standard		Date Needed:		Date Sampled	Time Sampled	Matrix	Preservation & # of Containers							Analyze For:					REMARKS
Rush (surcharges may apply)							HNO ₃	HCl	NaOH	H ₂ SO ₄	Methanol	Other (Specify)	VOC	FEH	RCRA	PAT	PCB		
Dup 2		9/14		9/30	G	SL - Sludge GW - Groundwater WW - Wastewater S - Soil/Solid DW - Drinking Water Other: Specify, Other						1	2DI+1SOB						
Dup 3												1							
Dup 5												1							
Dup 6												1							
Dup 7												1							
Dup 8												1							
Trip Blank												2							
Field Blank												2							

QC Deliverables
None
Level 2
(Batch QC)
Level 3
Level 4
Other: _____

LABORATORY COMMENTS:

Special Instructions:

Relinquished By: *[Signature]* Date: 8/31/95 Time: 935 Received By: *[Signature]* Date: 8/31/96 Time: 1615

Relinquished By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____

Relinquished By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u> <u>pH</u>	<u>Preservative</u> <u>Added (mls)</u>	<u>Lot #</u>
SB1	310-88292-B-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
SB2	310-88292-B-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
SB3	310-88292-C-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
DUP6	310-88292-A-14	Plastic 250ml - with Nitric Acid	<2	_____	_____
Field Blank	310-88292-B-18	Plastic 250ml - with Nitric Acid	>2	1 ml	_____

HNO3
LOT #
1280305

Login Sample Receipt Checklist

Client: HR Green, Inc

Job Number: 310-88292-1

SDG Number: 10140076

Login Number: 88292

List Number: 1

Creator: Tuladhar, Sushil X

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	Cooler temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX D

BORING LOGS

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: OC1		Facility:		Facility Street Address: 411 E 15th Street			
Boring Depth (ft) X Diameter (in): 2 X 3				Drilling Method: Geoprobe			
Well contractor Name: Below Ground Surface, Inc.				Logged By: Rose Amundson			
Registration Number:							
Ground Surface Elevation (ASL):				Top of Casing Elevation (ASL): NA			
Date: 8/30/2016 Date: 8/30/2016				UST Number: NA		LUST Number: NA	
Start Time: 953 End Time: 955							
Depth (feet)	Well Construction Details	Recovery (feet)	Sample No.	Type	PID/FID Reading	USCS Class.	Soil Classification
0		2/2	0-2	X	0		0-1' Brown sandy SILT, gravel present
1							1-2' Black/brown SAND and fill (plastic, glass, fill), and
2							white powder
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
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27							
28							
29							
30							

* SS (Split Spoon) HSA (Hollow Stem Auger) MC (Macrocore) X- Soil sample taken for analysis	
Observations	Date:
Water Levels (ASL)	Level:
Static Water Level v	Time:

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: OC3		Facility:		Facility Street Address: 411 E 15th Street			
Boring Depth (ft) X Diameter (in): 2 X 3				Drilling Method: Geoprobe			
Well contractor Name: Below Ground Surface, Inc.				Logged By: Rose Amundson			
Registration Number:							
Ground Surface Elevation (ASL):				Top of Casing Elevation (ASL): NA			
Date: 8/30/2016 Date: 8/30/2016				UST Number: NA		LUST Number: NA	
Start Time: 1022 End Time: 1028							
Depth (feet)	Well Construction Details	Recovery (feet)	Sample No.	Type	PID/FID Reading	USCS Class.	Soil Classification
0		2/2	0-2	X	0		0-0.5' Black SAND and gravel, fill and coal present
1							0.5-1.5' Tan SAND and gravel
2							1.5-2' Black slag and gravel
3							
4							
5							
6							
7							
8							
9							
10							
11							
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29							
30							

* SS (Split Spoon) HSA (Hollow Stem Auger) MC (Macrocore) X- Soil sample taken for analysis							
Observations	Date:						
Water Levels (ASL)	Level:						
Static Water Level v	Time:						

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: OC4		Facility:		Facility Street Address: 411 E 15th Street			
Boring Depth (ft) X Diameter (in): 2 X 3				Drilling Method: Geoprobe			
Well contractor Name: Below Ground Surface, Inc. Registration Number:				Logged By: Rose Amundson			
Ground Surface Elevation (ASL):				Top of Casing Elevation (ASL): NA			
Date: 8/30/2016 Date: 8/30/2016 Start Time: 1012 End Time: 1017				UST Number: NA		LUST Number: NA	
Depth (feet)	Well Construction Details	Recovery (feet)	Sample No.	Type	PID/FID Reading	USCS Class.	Soil Classification
0		2/2	0-2	X	0		0-1' Brown SILT, sand and, gravel, fill and slag present
1							1-2' Medium brown fine sandy SILT
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
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23							
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25							
26							
27							
28							
29							
30							
* SS (Split Spoon) HSA (Hollow Stem Auger) MC (Macrocore) X- Soil sample taken for analysis							
Observations	Date:						
Water Levels (ASL)	Level:						
Static Water Level v	Time:						

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: SB1		Facility:		Facility Street Address: 411 E 15th Street				
Boring Depth (ft) X Diameter (in): 15 X 3				Drilling Method: Geoprobe				
Well contractor Name: Below Ground Surface, Inc.				Logged By: Rose Amundson				
Registration Number:								
Ground Surface Elevation (ASL):				Top of Casing Elevation (ASL): NA				
Date: 8/30/2016 Date: 8/30/2016				UST Number: NA		LUST Number: NA		
Start Time: 1306 End Time: 1405								
Depth (feet)	Well Construction Details	Recovery (feet)	Sample No.	Type	PID/FID Reading	USCS Class.	Soil Classification	
0							0-3' Black sandy SILT, sulfur and petro odor, slag, glass, and fill present, moist	
1								
2		2.5/5	0-2'	X	38.6			
3						22.3		3-5' Black SAND and CLAY, cinders present, moist
4								
5						-		5-8' Black SAND and cinders, odor, sheen present, wet (appears to be product)
6								
7		5/5				12.0		
8								8'10' Black silty CLAY, cinders @ 9.5-10'
9						35.1		
10								10-15' Black and tan SAND, odor present, wet
11								
12		2.5/5						
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
* SS (Split Spoon) HSA (Hollow Stem Auger) MC (Macrocore) X- Soil sample taken for analysis								
Observations	Date:	8/30/2016						
Water Levels (bgs)	Level:	5' (perched)						
Static Water Level v	Time:							

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: SB2		Facility:		Facility Street Address: 411 E 15th Street			
Boring Depth (ft) X Diameter (in): 15 X 3				Drilling Method: Geoprobe			
Well contractor Name: Below Ground Surface, Inc.				Logged By: Rose Amundson			
Registration Number:							
Ground Surface Elevation (ASL):				Top of Casing Elevation (ASL): NA			
Date: 8/30/2016		Date: 8/30/2016		UST Number: NA		LUST Number: NA	
Start Time: 1404		End Time: 1440					
Depth (feet)	Well Construction Details	Recovery (feet)	Sample No.	Type	PID/FID Reading	USCS Class.	Soil Classification
0			0-2	X	0.5		0-2' Black SAND and slag
1							
2		4.5/5			0.0		2-3' Tan fine to medium grain SAND
3							3-4' Medium brown sandy CLAY, red brick @ 4'
4							4-5' Brown sandy CLAY and fill (glass)
5						0.1	5-5.5' Brown silty SAND
6							5.5-9' Brown CLAY, damp
7		4/5			0.0		
8							
9					0.0		9-10' Red/brown sandy CLAY, moist
10							10-15' Red/tan medium to coarse SAND, changing to tan
11					0.0		with with depth, moist increasing moisture to wet @ 12'
12		2.5/5					
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
* SS (Split Spoon) HSA (Hollow Stem Auger) MC (Macrocore) X- Soil sample taken for analysis							
Observations	Date:	8/30/2016					
Water Levels (bgs)	Level:	12.00					
Static Water Level v	Time:						

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM									
Boring/Well Number: SB3/OC2			Facility:			Facility Street Address: 411 E 15th Street			
Boring Depth (ft) X Diameter (in): 20 X 3						Drilling Method: Geoprobe			
Well contractor Name: Below Ground Surface, Inc.						Logged By: Rose Amundson			
Registration Number:									
Ground Surface Elevation (ASL):					Top of Casing Elevation (ASL): NA				
Date: 8/30/2016 Date: 8/30/2016					UST Number: NA			LUST Number: NA	
Start Time: 1048 End Time: 1140									
Depth (feet)	Well Construction Details		Recovery (feet)	Sample No.	Type	PID/FID Reading	USCS Class.	Soil Classification	
0			3.5/5	0-2	X	0.0		0-1' Dark brown SILT and gravel, asphalt present, moist	
1								1-2' Tan medium grain SAND, 1" of black slag @ 2'	
2								2-3' Tan silty fine grain SAND	
3								3-4' Medium brown silty CLAY	
4								4-8' Tan medium grain SAND, dark tan @ 4', moist	
5								5-10' Black SILT with sand, wet	
6									
7								2.5/5	
8									
9									
10									
11									
12								2.5/5	
13									
14									
15									
16									
17								2.5/5	
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
* SS (Split Spoon) HSA (Hollow Stem Auger) MC (Macrocore) X- Soil sample taken for analysis									
Observations	Date:	8/30/2016							
Water Level (bgs)	Level:	14'							
Static Water Level v	Time:								

APPENDIX E

CUMULATIVE RISK CALCULATIONS



CUMULATIVE RISK CALCULATOR

[Calculator](#)
[Statewide Standards](#)
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Cumulative Risk Results

For: Rose Amundson
Range 1 Soil

Date: 9/20/2016

Chemical	CASRN	¹ Exposure Point Concentration for Soil(mg/kg) ²	² Site-Specific Background Soil Level* (mg/kg) ²
Polychlorinated Biphenyls (PCBs)	001336-36-3	40.2	
TEH Waste Oil	8002-05-9	103000	
Acenaphthene	000083-32-9	0.403	
Acenaphthylene	208-96-8	0.274	
Anthracene	000120-12-7	0.603	
Benzo[a]anthracene	000056-55-3	0.952	
Benzo[a]pyrene	000050-32-8	0.965	
Benzo[b]fluoranthene	000205-99-2	1.6	
Benzo[g,h,i]perylene	191-24-2	0.837	
Benzo[k]fluoranthene	000207-08-9	0.613	
Chrysene	000218-01-9	1.21	
Dibenz[a,h]anthracene	000053-70-3	0.206	
Fluoranthene	000206-44-0	2.73	
Fluorene	000086-73-7	0.515	
Indeno[1,2,3-cd]pyrene	000193-39-5	0.694	
Methylnaphthalene, 2	000091-57-6	1.01	
Phenanthrene	000085-01-8	2.21	
Pyrene	000129-00-0	2.99	
Naphthalene	000091-20-3	0.893	
Acetone	000067-64-1	0.117	
Benzene	000071-43-2	1.23	
Butylbenzene, n-	000104-51-8	0.332	
Chlorobenzene	000108-90-7	0.433	
Dichlorobenzene, 1,2-	000095-50-1	2.63	
Dichlorobenzene, 1,4-	000106-46-7	0.111	
Ethylbenzene	000100-41-4	0.908	
Hexane, N-	000110-54-3	0.409	
Cumene (Isopropylbenzene)	000098-82-8	0.158	
Propylbenzene, N-	000103-65-1	0.413	
Tetrachloroethylene	000127-18-4	0.24	
Toluene	000108-88-3	1.7	
Trichloroethylene	000079-01-6	1.29	
Trichloropropane, 1,2,3-	000096-18-4	0.115	
Trimethylbenzene, 1,2,4-	000095-63-6	2.17	
Trimethylbenzene, 1,3,5-	000108-67-8	0.618	

Xylene, Mixture	001330-20-7	3.09
Arsenic, Inorganic	007440-38-2	102
Barium	007440-39-3	962
Cadmium (soil)	007440-43-9	53.6
Chromium VI (soil)	018540-29-9	247
Lead and Compounds	007439-92-1	29500
Silver	007440-22-4	23.7
Mercury	007439-97-6	7.95

Cancer Risk Output

Chemical Name	CASRN	Resident Soil	Site Worker Soil
Polychlorinated Biphenyls (PCBs)	001336-36-3	1.82	0.49
TEH Waste Oil	8002-05-9	0.55	0.14
Benzo[a]anthracene	000056-55-3	0.02	0
Benzo[a]pyrene	000050-32-8	0.16	0.04
Benzo[b]fluoranthene	000205-99-2	0.03	0.01
Benzo[k]fluoranthene	000207-08-9	0	0
Chrysene	000218-01-9	0	0
Dibenz[a,h]anthracene	000053-70-3	0.03	0.01
Indeno[1,2,3-cd]pyrene	000193-39-5	0.01	0
Naphthalene	000091-20-3	NQ	NQ
Benzene	000071-43-2	0	0
Dichlorobenzene, 1,4-	000106-46-7	0	0
Tetrachloroethylene	000127-18-4	0	0
Trichloroethylene	000079-01-6	0	0
Trichloropropane, 1,2,3-	000096-18-4	0.06	0.01
Arsenic, Inorganic	007440-38-2	2.19	0.48
Lead and Compounds	007439-92-1	NQ	NQ
TOTALS:		4.87	1.18

Cumulative Cancer Risk Site Resident: 4.87 (All cancer risk values are x 10⁻⁴)

Cumulative Cancer Risk Site Worker: 1.18

Site Resident-Non Cancer Risk Output by target organ

Chemical Name	CASRN	Media	Heart	Liver	Blood	Kidney	Skin	Endoc	Eye	Immu	Nerve	GenUr	Respi	Other	Devel	Gastro
Polychlorinated Biphenyls (PCBs)	001336-36-3	Soil					35.77			35.77	35.77	35.77				
TEH Waste Oil	8002-05-9	Soil														
Acenaphthene	000083-32-9	Soil		0												
Acenaphthylene	208-96-8	Soil				0										
Anthracene	000120-12-7	Soil		0												
Benzo[a]anthracene	000056-55-3	Soil														
Benzo[a]pyrene	000050-	Soil														

<https://www.biorxiv.org/content/10.1101/2019.05.21.259111v1>

[illegible]

		Soil		6.65	6.65	6.65	6.65
TEH Waste Oil	8002-05-9						
		Soil					
Acenaphthene	000083-32-9						
		Soil	0				
Acenaphthylene	208-96-8						
		Soil		0			
Anthracene	000120-12-7						
		Soil	0				0
Benzo[a]anthracene	000056-55-3						
		Soil					
Benzo[a]pyrene	000050-32-8						
		Soil					
Benzo[b]fluoranthene	000205-99-2						
		Soil					
Benzo[g,h,i]perylene	191-24-2						
		Soil		0			
Benzo[k]fluoranthene	000207-08-9						
		Soil					
Chrysene	000218-01-9						
		Soil					
Dibenz[a,h]anthracene	000053-70-3						
		Soil					
Fluoranthene	000206-44-0						
		Soil	0	0	0		
Fluorene	000086-73-7						
		Soil	0	0			
Indeno[1,2,3-cd]pyrene	000193-39-5						
		Soil					
Methylnaphthalene, 2	000091-57-6						
		Soil					0
Phenanthrene	000085-01-8						
		Soil		0			
Pyrene	000129-00-0						
		Soil		0			
Naphthalene	000091-20-3						
		Soil				0	0
Acetone	000067-64-1						
		Soil	0	0	0		
Benzene	000071-						

<https://www.biorxiv.org/content/10.1101/2019.05.21.259111v1>

9/20/2016

DNR Risk Calculator																
Lead and Compounds	007439-92-1	Soil			0.23									0.23		0.23
	Silver	007440-22-4	Soil	26.784			26.784								26.784	
Mercury	007439-97-6	Soil									0.01					
			Soil								0.07					
Sum:			27.584	0.01	0.23	27.014	7.44	0	0	6.66	6.65	6.8	0	0.38	26.794	1.01

[Interpretation of Results Summary?](#)
 Values associated with "Cumulative Cancer Risk" and non-cancer "Sum" that are less than or equal to 1.00 are within acceptable cumulative risk levels.
 NQ means not quantifiable due to lack of a cancer slope factor.



CUMULATIVE RISK CALCULATOR

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[Statewide Standards](#)
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Cumulative Risk Results

For: Rose Amundson
Range 1 Soil

Date: 9/20/2016

Chemical	CASRN	² Exposure Point Concentration for Soil(mg/kg) ²	² Site-Specific Background Soil Level* (mg/kg) ²
Polychlorinated Biphenyls (PCBs)	001336-36-3	40.2	
TEH Waste Oil	8002-05-9	103000	
Acenaphthene	000083-32-9	0.403	
Acenaphthylene	208-96-8	0.274	
Anthracene	000120-12-7	0.603	
Benzo[a]anthracene	000056-55-3	0.952	
Benzo[a]pyrene	000050-32-8	0.965	
Benzo[b]fluoranthene	000205-99-2	1.6	
Benzo[g,h,i]perylene	191-24-2	0.837	
Benzo[k]fluoranthene	000207-08-9	0.613	
Chrysene	000218-01-9	1.21	
Dibenz[a,h]anthracene	000053-70-3	0.206	
Fluoranthene	000206-44-0	2.73	
Fluorene	000086-73-7	0.515	
Indeno[1,2,3-cd]pyrene	000193-39-5	0.694	
Methylnaphthalene, 2	000091-57-6	1.01	
Phenanthrene	000085-01-8	2.21	
Pyrene	000129-00-0	2.99	
Naphthalene	000091-20-3	0.893	
Acetone	000067-64-1	0.117	
Benzene	000071-43-2	1.23	
Butylbenzene, n-	000104-51-8	0.332	
Chlorobenzene	000108-90-7	0.433	
Dichlorobenzene, 1,2-	000095-50-1	2.63	
Dichlorobenzene, 1,4-	000106-46-7	0.111	
Ethylbenzene	000100-41-4	0.908	
Hexane, N-	000110-54-3	0.409	
Cumene (Isopropylbenzene)	000098-82-8	0.158	
Propylbenzene, N-	000103-65-1	0.413	
Tetrachloroethylene	000127-18-4	0.24	
Toluene	000108-88-3	1.7	
Trichloroethylene	000079-01-6	1.29	
Trichloropropane, 1,2,3-	000096-18-4	0.115	
Trimethylbenzene, 1,2,4-	000095-63-6	2.17	
Trimethylbenzene, 1,3,5-	000108-67-8	0.618	

Xylene, Mixture	001330-20-7	3.09
Arsenic, Inorganic	007440-38-2	102
Barium	007440-39-3	962
Cadmium (soil)	007440-43-9	53.6
Chromium VI (soil)	018540-29-9	247
Lead and Compounds	007439-92-1	29500
Silver	007440-22-4	23.7
Mercury	007439-97-6	7.95

Cancer Risk Output

Chemical Name	CASRN	Construction Worker Soil
Polychlorinated Biphenyls (PCBs)	001336-36-3	0.04
TEH Waste Oil	8002-05-9	0.01
Benzo[a]anthracene	000056-55-3	0
Benzo[a]pyrene	000050-32-8	0
Benzo[b]fluoranthene	000205-99-2	0
Benzo[k]fluoranthene	000207-08-9	0
Chrysene	000218-01-9	0
Dibenz[a,h]anthracene	000053-70-3	0
Indeno[1,2,3-cd]pyrene	000193-39-5	0
Naphthalene	000091-20-3	NQ
Benzene	000071-43-2	0
Dichlorobenzene, 1,4-	000106-46-7	0
Tetrachloroethylene	000127-18-4	0
Trichloroethylene	000079-01-6	0
Trichloropropane, 1,2,3-	000096-18-4	0
Arsenic, Inorganic	007440-38-2	0.05
Lead and Compounds	007439-92-1	NQ
TOTALS:		0.1
Cummulative Cancer Risk Construction Worker: 0.1 (All cancer risk values are x 10⁻⁴)		

Construction Worker-Non Cancer Risk Output by target organ

Chemical Name	CASRN	Media	Heart	Liver	Blood	Kidney	Skin	Endoc	Eye	Immu	Nerve	GenUr	Respi	Other	Devel	Gastro
Polychlorinated Biphenyls (PCBs)	001336-36-3	Soil					7.37			7.37	7.37	7.37				
TEH Waste Oil	8002-05-9	Soil														
Acenaphthene	000083-32-9	Soil		0												
Acenaphthylene	208-96-8	Soil				0										
Anthracene	000120-12-7	Soil														
Benzo[a]anthracene	000056-	Soil		0										0		

<http://www.cba.gov.au/codes.asp?file=cba/code/pages/ColexData.asp>.

		Soil	0	0	0			0											
Ethylbenzene	000100-41-4																		
		Soil	0		0														
Hexane, N-	000110-54-3																		
		Soil						0	0										
Cumene (Isopropylbenzene)	000098-82-8																		
		Soil			0														
Propylbenzene, N-	000103-65-1																		
		Soil						0											
Tetrachloroethylene	000127-18-4																		
		Soil	0					0									0		
Toluene	000108-88-3																		
		Soil	0		0			0											
Trichloroethylene	000079-01-6																		
		Soil	0.01	0.01				0.01									0.01		
Trichloropropane, 1,2,3-	000096-18-4																		
		Soil	0	0	0												0		
Trimethylbenzene, 1,2,4-	000095-63-6																		
		Soil															0		
Trimethylbenzene, 1,3,5-	000108-67-8																		
		Soil															0		
Xylene, Mixture	001330-20-7																		
		Soil						0									0		
Arsenic, Inorganic	007440-38-2																		
		Soil	0.8			0.8												0.8	
Barium	007440-39-3																		
		Soil	0.01		0.01														
Cadmium (soil)	007440-43-9																		
		Soil			0.16			0.16									0.16		
Chromium VI (soil)	018540-29-9																		
		Soil		0.24													0.24		0.24
Lead and Compounds	007439-92-1																		
		Soil	14.9		14.9												14.9		
Silver	007440-22-4																		
		Soil			0.01														
Mercury	007439-97-6																		
		Soil			0.07														
Sum:			15.72	0.01	0.24	15.14	8.18	0	0	7.38	7.37	7.53	0	0.4	14.91	1.04			

Interpretation of Results Summary²

5Map://www.epa.gov/epaospp/riskcalc/calc/calc.cfm

Values associated with "Cumulative Cancer Risk" and non-cancer "Sum" that are less than or equal to 1.00 are within acceptable cumulative risk levels.
NQ means not quantifiable due to lack of a cancer slope factor.

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Cumulative Risk Results

For: Rose Amundson
GW

Date: 9/20/2016

Chemical	CASRN	¹ Exposure Point Concentration for Groundwater(mg/l) ²	² Site-Specific Background Groundwater Level* (mg/l) ²
TEH Waste Oil	8002-05-9	31.3	
Methylnaphthalene, 2	000091-57-6	0.0000705	
Naphthalene	000091-20-3	0.0000926	
Benzene	000071-43-2	0.00996	
Chlorobenzene	000108-90-7	0.00177	
Dibromo-3-chloropropane, 1,2- (DBCP)	000096-12-8	0.005	
Dibromoethane, 1,2-	000106-93-4	0.001	
Dichlorobenzene, 1,2-	000095-50-1	0.00287	
Hexachlorobutadiene	000087-68-3	0.005	
Propylbenzene, N-	000103-65-1	0.0015	
Tetrachloroethane, 1,1,2,2-	000079-34-5	0.001	
Tetrachloroethylene	000127-18-4	0.00678	
Toluene	000108-88-3	0.00129	
Trichloropropane, 1,2,3-	000096-18-4	0.001	
Xylene, Mixture	001330-20-7	0.00397	
Arsenic, Inorganic	007440-38-2	0.00629	
Barium	007440-39-3	0.295	
Selenium	007782-49-2	0.0218	
Trimethylbenzene, 1,2,4-	000095-63-6	0.00921	

Cancer Risk Output

Chemical Name	CASRN	Resident Groundwater	Site Worker Groundwater
TEH Waste Oil	8002-05-9	1.16	0.24
Naphthalene	000091-20-3	NQ	NQ
Benzene	000071-43-2	0.08	0.02
Dibromo-3-chloropropane, 1,2- (DBCP)	000096-12-8	0.93	0.19
Dibromoethane, 1,2-	000106-93-4	0.31	0.06
Hexachlorobutadiene	000087-68-3	0.06	0.01
Tetrachloroethane, 1,1,2,2-	000079-34-5	0.03	0.01
Tetrachloroethylene	000127-18-4	0	0
Trichloropropane, 1,2,3-	000096-18-4	4.65	0.94
Arsenic, Inorganic	007440-38-2	0.63	0.3
TOTALS:		7.85	1.77

Cumulative Cancer Risk Site Resident: 7.85 (All cancer risk values are x 10⁻⁴)
Cumulative Cancer Risk Site Worker: 1.77

Site Resident-Non Cancer Risk Output by target organ

[http://www.iowa.gov/dnr/riskcalc/casrn/CasRNCalculator.aspx](#)

Chemical Name	CASRN	Media	Heart	Liver	Blood	Kidney	Skin	Endoc	Eye	Immu	Nerve	GenUr	Respi	Other	Devel	Gastro
TEH Waste Oil	8002-05-9	Groundwater														
Methylnaphthalene, 2	000091-57-6	Groundwater											0			
Naphthalene	000091-20-3	Groundwater									0			0		
Benzene	000071-43-2	Groundwater									0.17					
Chlorobenzene	000108-90-7	Groundwater			0.17					0.17						
Dibromo-3-chloropropane, 1,2- (DBCP)	000096-12-8	Groundwater		0.01		0.01										
Dibromoethane, 1,2-	000106-93-4	Groundwater										1.67				
Dichlorobenzene, 1,2-	000095-50-1	Groundwater		0.01		0.01		0.01				0.01				0.01
Hexachlorobutadiene	000087-68-3	Groundwater	0	0		0										
Propylbenzene, N-	000103-65-1	Groundwater				1.11										
Tetrachloroethane, 1,1,2,2-	000079-34-5	Groundwater									0					
Tetrachloroethylene	000127-18-4	Groundwater		0.08							0.08				0.08	
Toluene	000108-88-3	Groundwater														
Trichloropropane, 1,2,3-	000096-18-4	Groundwater		0		0				0						
Xylene, Mixture	001330-20-7	Groundwater		0.02	0.02	0.02								0.02		
Arsenic, Inorganic	007440-38-2	Groundwater									0			0		
Barium	007440-39-3	Groundwater	0.63				0.63									0.63
Selenium	007782-49-2	Groundwater	0.1			0.1										
Trimethylbenzene, 1,2,4-	000095-63-6	Groundwater	0.29				0.29								0.29	
		Groundwater													0.01	
Sum:			1.02	0.12	0.19	1.25	0.92	0.01	0	0.17	0.08	1.68	0	0.32	0.08	0.64

Site Worker-Non Cancer Risk Output by target organ

Chemical Name	CASRN	Media	Heart	Liver	Blood	Kidney	Skin	Endoc	Eye	Immu	Nerve	GenUr	Respi	Other	Devel	Gastro
TEH Waste Oil	8002-05-9	Groundwater														
Methylnaphthalene, 2	000091-57-6	Groundwater											0			
Naphthalene	000091-20-3	Groundwater									0			0		
Benzene	000071-43-2	Groundwater			0.02					0.02						
Chlorobenzene	000108-90-7	Groundwater		0		0										
Dibromo-3-chloropropane, 1,2- (DBCP)	000096-12-8	Groundwater										0.22				
Dibromoethane, 1,2-	000106-93-4	Groundwater		0		0		0				0				0
Dichlorobenzene, 1,2-	000095-50-1	Groundwater	0	0		0										
Hexachlorobutadiene	000087-68-3	Groundwater				0.15										
Propylbenzene, N-	000103-65-1	Groundwater									0					
Tetrachloroethane, 1,1,2,2-	000079-34-5	Groundwater		0												
Tetrachloroethylene	000127-18-4	Groundwater		0.01						0.01					0.01	
Toluene	000108-88-3	Groundwater		0		0					0					
Trichloropropane, 1,2,3-	000096-18-4	Groundwater		0	0	0								0		
Xylene, Mixture	001330-20-7	Groundwater									0			0		
Arsenic, Inorganic	007440-38-2	Groundwater	0.18				0.18									0.18
Barium	007440-39-3	Groundwater	0.01			0.01										
Selenium	007782-49-2	Groundwater	0.04				0.04								0.04	
Trimethylbenzene, 1,2,4-	000095-63-6	Groundwater														

Groundwater														0
Sum:	0.23	0.01	0.02	0.16	0.22	0	0	0.02	0.01	0.22	0	0.04	0.01	0.18

Interpretation of Results Summary²

Values associated with "Cumulative Cancer Risk" and non-cancer "Sum" that are less than or equal to 1.00 are within acceptable cumulative risk levels. NQ means not quantifiable due to lack of a cancer slope factor.



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Cumulative Risk Results

For: Rose Amundson
GW

Date: 9/20/2016

Chemical	CASRN	¹ Exposure Point Concentration for Groundwater (mg/l) ²	² Site-Specific Background Groundwater Level* (mg/l) ²
TEH Waste Oil	8002-05-9	31.3	
Methylnaphthalene, 2	000091-57-6	0.0000705	
Naphthalene	000091-20-3	0.0000926	
Benzene	000071-43-2	0.00996	
Chlorobenzene	000108-90-7	0.00177	
Dibromo-3-chloropropane, 1,2- (DBCP)	000096-12-8	0.005	
Dibromoethane, 1,2-	000106-93-4	0.001	
Dichlorobenzene, 1,2-	000095-50-1	0.00287	
Hexachlorobutadiene	000087-68-3	0.005	
Propylbenzene, N-	000103-65-1	0.0015	
Tetrachloroethane, 1,1,2,2-	000079-34-5	0.001	
Tetrachloroethylene	000127-18-4	0.00687	
Toluene	000108-88-3	0.00129	
Trichloropropane, 1,2,3-	000096-18-4	0.001	
Xylene, Mixture	001330-20-7	0.00397	
Arsenic, Inorganic	007440-38-2	0.00629	
Barium	007440-39-3	0.295	
Selenium	007782-49-2	0.0218	
Trimethylbenzene, 1,2,4-	000095-63-6	0.00921	

Cancer Risk Output

Chemical Name	CASRN
TEH Waste Oil	8002-05-9
Naphthalene	000091-20-3
Benzene	000071-43-2
Dibromo-3-chloropropane, 1,2- (DBCP)	000096-12-8
Dibromoethane, 1,2-	000106-93-4
Hexachlorobutadiene	000087-68-3
Tetrachloroethane, 1,1,2,2-	000079-34-5
Tetrachloroethylene	000127-18-4
Trichloropropane, 1,2,3-	000096-18-4
Arsenic, Inorganic	007440-38-2

TOTALS:

Cummulative Cancer Risk Construction Worker: 0 (All cancer risk values are x 10⁻⁴)

Construction Worker-Non Cancer Risk Output by target organ

Chemical Name	CASRN	Media	Heart	Liver	Blood	Kidney	Skin	Endoc	Eye	Immu	Nerve	GenUr	Respi	Other	Devel	Gastro
TEH Waste Oil	8002-05-9															
Methylnaphthalene, 2	000091-57-6															
Naphthalene	000091-20-3															
Benzene	000071-43-2															
Chlorobenzene	000108-90-7															
Dibromo-3-chloropropane, 1,2- (DBCP)	000096-12-8															
Dibromoethane, 1,2-	000106-93-4															
Dichlorobenzene, 1,2-	000095-50-1															
Hexachlorobutadiene	000087-68-3															
Propylbenzene, N-	000103-65-1															
Tetrachloroethane, 1,1,2,2-	000079-34-5															
Tetrachloroethylene	000127-18-4															
Toluene	000108-88-3															
Trichloropropane, 1,2,3-	000096-18-4															
Xylene, Mixture	001330-20-7															
Arsenic, Inorganic	007440-38-2															
Barium	007440-39-3															
Selenium	007782-49-2															
Trimethylbenzene, 1,2,4-	000095-63-6															
Sum:		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Interpretation of Results Summary²

Values associated with "Cumulative Cancer Risk" and non-cancer "Sum" that are less than or equal to 1.00 are within acceptable cumulative risk levels.
 NQ means not quantifiable due to lack of a cancer slope factor.



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Cumulative Risk Results

For: Rose Amundson
Vapor

Date: 9/23/2016

Chemical	CASRN	¹ Exposure Point Concentration for Air (mg/m ³) ²	² Site-Specific Background Air Level* (mg/m ³) ²
Methylnaphthalene, 2	000091-57-6	0.0000001914	
Naphthalene	000091-20-3	0.0000003087	
Benzene	000071-43-2	.00005786	
Chlorobenzene	000108-90-7	0.00005192	
Dibromoethane, 1,2-	000106-93-4	0.000004925	
Dichlorobenzene, 1,2-	000095-50-1	0.00003833	
Hexachlorobutadiene	000087-68-3	0.0001875	
Propylbenzene, N-	000103-65-1	0.00008774	
Tetrachloroethane, 1,1,2,2-	000079-34-5	0.000004337	
Tetrachloroethylene	000127-18-4	0.0008272	
Toluene	000108-88-3	0.00008018	
Trichloropropane, 1,2,3-	000096-18-4	0.000004665	
Trimethylbenzene, 1,2,4-	000095-63-6	0.000314	

Cancer Risk Output

Chemical Name	CASRN	Resident Air	Site Worker Air
Naphthalene	000091-20-3	NQ	NQ
Benzene	000071-43-2	0	0
Dibromoethane, 1,2-	000106-93-4	0.01	0
Hexachlorobutadiene	000087-68-3	0.02	0
Tetrachloroethane, 1,1,2,2-	000079-34-5	0	0
Tetrachloroethylene	000127-18-4	0	0
Trichloropropane, 1,2,3-	000096-18-4	NQ	NQ
TOTALS:		0.03	0

Cumulative Cancer Risk Site Resident: 0.03 (All cancer risk values are x 10⁻⁴)
Cumulative Cancer Risk Site Worker: 0

Site Resident-Non Cancer Risk Output by target organ

Chemical Name	CASRN	Media	Heart	Liver	Blood	Kidney	Skin	Endoc	Eye	Immu	Nerve	GenUr	Respi	Other	Devel	Gastro
Methylnaphthalene, 2	000091-57-6	Air														
Naphthalene	000091-20-3	Air														

0

Benzene	000071-43-2	Air	0	0														
Chlorobenzene	000108-90-7	Air	0	0														
Dibromoethane, 1,2-	000106-93-4	Air									0	0						
Dichlorobenzene, 1,2-	000095-50-1	Air														0		
Hexachlorobutadiene	000087-68-3	Air																
Propylbenzene, N-	000103-65-1	Air								0								
Tetrachloroethane, 1,1,2,2-	000079-34-5	Air														0		
Tetrachloroethylene	000127-18-4	Air								0.02								
Toluene	000108-88-3	Air								0								
Trichloropropane, 1,2,3-	000096-18-4	Air											0.02					
Trimethylbenzene, 1,2,4-	000095-63-6	Air														0.01		
Sum:			0	0	0	0	0	0	0	0	0.02	0	0.02	0.01	0	0		

Site Worker-Non Cancer Risk Output by target organ

Chemical Name	CASRN	Media	Heart	Liver	Blood	Kidney	Skin	Endoc	Eye	Immu	Nerve	GenUr	Respi	Other	Devel	Gastro
Methylnaphthalene, 2	000091-57-6	Air														
Naphthalene	000091-20-3	Air												0		
Benzene	000071-43-2	Air			0					0						
Chlorobenzene	000108-90-7	Air		0		0										
Dibromoethane, 1,2-	000106-93-4	Air										0	0			
Dichlorobenzene, 1,2-	000095-50-1	Air													0	
Hexachlorobutadiene	000087-															

Interpretation of Results Summary²
Values associated with "Cumulative Cancer Risk" and non-cancer "Sum" that are less than or equal to 1.00 are within acceptable cumulative risk levels. NQ means not quantifiable due to lack of a cancer slope factor.

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Cumulative Risk Results

For: Rose Amundson
Vapor

Date: 9/23/2016

Chemical	CASRN	¹ Exposure Point Concentration for Air (mg/m ³) ²	² Site-Specific Background Air Level* (mg/m ³) ²
Methylnaphthalene, 2	000091-57-6	0.0000001914	
Naphthalene	000091-20-3	0.0000003087	
Benzene	000071-43-2	0.0005786	
Chlorobenzene	000108-90-7	0.00005192	
Dibromoethane, 1,2-	000106-93-4	0.000004925	
Dichlorobenzene, 1,2-	000095-50-1	0.00003833	
Hexachlorobutadiene	000087-68-3	0.0001875	
Propylbenzene, N-	000103-65-1	0.00008774	
Tetrachloroethane, 1,1,2,2-	000079-34-5	0.000004337	
Tetrachloroethylene	000127-18-4	0.0008272	
Toluene	000108-88-3	0.00008018	
Trichloropropane, 1,2,3-	000096-18-4	0.000004665	
Trimethylbenzene, 1,2,4-	000095-63-6	0.000314	

Cancer Risk Output

Chemical Name	CASRN	Construction Worker Air
Naphthalene	000091-20-3	NQ
Benzene	000071-43-2	0
Dibromoethane, 1,2-	000106-93-4	0
Hexachlorobutadiene	000087-68-3	0
Tetrachloroethane, 1,1,2,2-	000079-34-5	0
Tetrachloroethylene	000127-18-4	0
Trichloropropane, 1,2,3-	000096-18-4	NQ
TOTALS:		0

Cummulative Cancer Risk Construction Worker: 0 (All cancer risk values are x 10⁻⁴)

Construction Worker-Non Cancer Risk Output by target organ

Chemical Name	CASRN	Media	Heart	Liver	Blood	Kidney	Skin	Endoc	Eye	Immu	Nerve	GenUr	Respi	Other	Devel	Gastro
Methylnaphthalene, 2	000091-57-6															
		Air														
Naphthalene	000091-															

Interpretation of Results Summary²
Values associated with "Cumulative Cancer Risk" and non-cancer "Sum" that are less than or equal to 1.00 are within acceptable cumulative risk levels. NQ means not quantifiable due to lack of a cancer slope factor.



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Cumulative Risk Results

For: Rose Amundson
Vapor-Basement

Date: 9/23/2016

Chemical	CASRN	¹ Exposure Point Concentration for Air (mg/m ³) ²	² Site-Specific Background Air Level* (mg/m ³) ²
Methylnaphthalene, 2	000091-57-6	0.0000002018	
Naphthalene	000091-20-3	0.0000003258	
Benzene	000071-43-2	0.0006113	
Chlorobenzene	000108-90-7	0.00005529	
Dibromoethane, 1,2-	000106-93-4	0.000005286	
Dichlorobenzene, 1,2-	000095-50-1	0.0000407	
Hexachlorobutadiene	000087-68-3	0.0002026	
Propylbenzene, N-	000103-65-1	0.0000946	
Tetrachloroethane, 1,1,2,2-	000079-34-5	0.000004437	
Tetrachloroethylene	000127-18-4	0.0008911	
Toluene	000108-88-3	0.00008482	
Trichloropropane, 1,2,3-	000096-18-4	0.000004794	
Trimethylbenzene, 1,2,4-	000095-63-6	0.0003378	

Cancer Risk Output

Chemical Name	CASRN	Resident Air	Site Worker Air
Naphthalene	000091-20-3	NQ	NQ
Benzene	000071-43-2	0.02	0
Dibromoethane, 1,2-	000106-93-4	0.01	0
Hexachlorobutadiene	000087-68-3	0.02	0
Tetrachloroethane, 1,1,2,2-	000079-34-5	0	0
Tetrachloroethylene	000127-18-4	0	0
Trichloropropane, 1,2,3-	000096-18-4	NQ	NQ
TOTALS:		0.05	0

Cumulative Cancer Risk Site Resident: 0.05 (All cancer risk values are x 10⁻⁴)
Cumulative Cancer Risk Site Worker: 0

Site Resident-Non Cancer Risk Output by target organ

Chemical Name	CASRN	Media	Heart	Liver	Blood	Kidney	Skin	Endoc	Eye	Immu	Nerve	GenUr	Respi	Other	Devel	Gastro
Methylnaphthalene, 2	000091-57-6	Air														
Naphthalene	000091-20-3	Air														

0

[illegible]

Interpretation of Results Summary²
Values associated with "Cumulative Cancer Risk" and non-cancer "Sum" that are less than or equal to 1.00 are within acceptable cumulative risk levels. NQ means not quantifiable due to lack of a cancer slope factor.

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Cumulative Risk Results

For: Rose Amundson
Vapor-Basement

Date: 9/23/2016

Chemical	CASRN	¹ Exposure Point Concentration for Air (mg/m ³) ²	² Site-Specific Background Air Level* (mg/m ³) ²
Methylnaphthalene, 2	000091-57-6	0.0000002018	
Naphthalene	000091-20-3	0.0000003258	
Benzene	000071-43-2	0.0006113	
Chlorobenzene	000108-90-7	0.00005529	
Dibromoethane, 1,2-	000106-93-4	0.000005286	
Dichlorobenzene, 1,2-	000095-50-1	0.0000407	
Hexachlorobutadiene	000087-68-3	0.0002026	
Propylbenzene, N-	000103-65-1	0.0000946	
Tetrachloroethane, 1,1,2,2-	000079-34-5	0.000004437	
Tetrachloroethylene	000127-18-4	0.0008911	
Toluene	000108-88-3	0.00008482	
Trichloropropane, 1,2,3-	000096-18-4	0.000004794	
Trimethylbenzene, 1,2,4-	000095-63-6	0.0003378	

Cancer Risk Output

Chemical Name	CASRN	Construction Worker Air
Naphthalene	000091-20-3	NQ
Benzene	000071-43-2	0
Dibromoethane, 1,2-	000106-93-4	0
Hexachlorobutadiene	000087-68-3	0
Tetrachloroethane, 1,1,2,2-	000079-34-5	0
Tetrachloroethylene	000127-18-4	0
Trichloropropane, 1,2,3-	000096-18-4	NQ
TOTALS:		0

Cummulative Cancer Risk Construction Worker: 0 (All cancer risk values are x 10⁻⁴)

Construction Worker-Non Cancer Risk Output by target organ

Chemical Name	CASRN	Media	Heart	Liver	Blood	Kidney	Skin	Endoc	Eye	Immu	Nerve	GenUr	Respi	Other	Devel	Gastro
Methylnaphthalene, 2	000091-57-6	Air														
Naphthalene	000091-															

Interpretation of Results Summary²
Values associated with "Cumulative Cancer Risk" and non-cancer "Sum" that are less than or equal to 1.00 are within acceptable cumulative risk levels. NQ means not quantifiable due to lack of a cancer slope factor.