US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

HRGreen

MEMO

To: Noel Anderson and Chris Western, City of Waterloo

From: Robin Husman, HR Green, Inc.

Subject: January 2013 Tank and Pit Sampling

Date: 2/4/13

HR Green collected samples from the interior sand fill of the northwestern tank and from western exterior of the southwestern tank. A soil sample was also collected from a new pit found on 1/17/13, Pit 4. The locations of the additional pit (Pit 4) and tanks are shown on the attached site map. This memo summarizes the data gathered. Observations were

Soil Sample Results - (mg/kg)

Parameter	Statewide Standards	Pit 4	Tank Pit	Tank Sand
Total Extractable Hydrocarbons (TEHs)	**Tier 1 LUST**			
Diesel	3,800	<11.7	**250**	<7.84
Waste Oil	NA	**17.6**	**1330**	**30.0**
Volatile Organic Compounds (VOCs)	**LRP Standards**			
Tetrachloroethene	5.7	**0.196**	**0.0678**	**0.053**
Trichloroethene	7.7	<0.0145	**0.0197**	<0.0128

The soil samples were delivered to TestAmerica, Inc. laboratory in Cedar Falls. Waste oil and tetrachloroethene were found in the tank pit, tank sand, and in the Pit 4 sample. In addition to waste oil and tetrachloroethene, diesel and trichloroethene were also found in the tank pit sample. All detected compounds were found below the respective statewide standard. A copy of the lab report is attached.

View looking north across our tank cars found in pit.

View of the tank pit where the soil sample was collected.

Looking into southern end of Southeast tank from the main central opening. Sand backfill is limited.

Interior of Southwest tank, approximately ¼ filled with sand with ice on top.

View of Pit 4, concrete pit with sand backfill and water

Sewer line between west and east tanks, not stains on the outside of the tanks at fill ports

During this visit, HR Green observed that the tanks cars in the south end of the pit were not filled with sand, this is shown in the images above.

Copies of this information should be provided to the EPA and IDNR for guidance.

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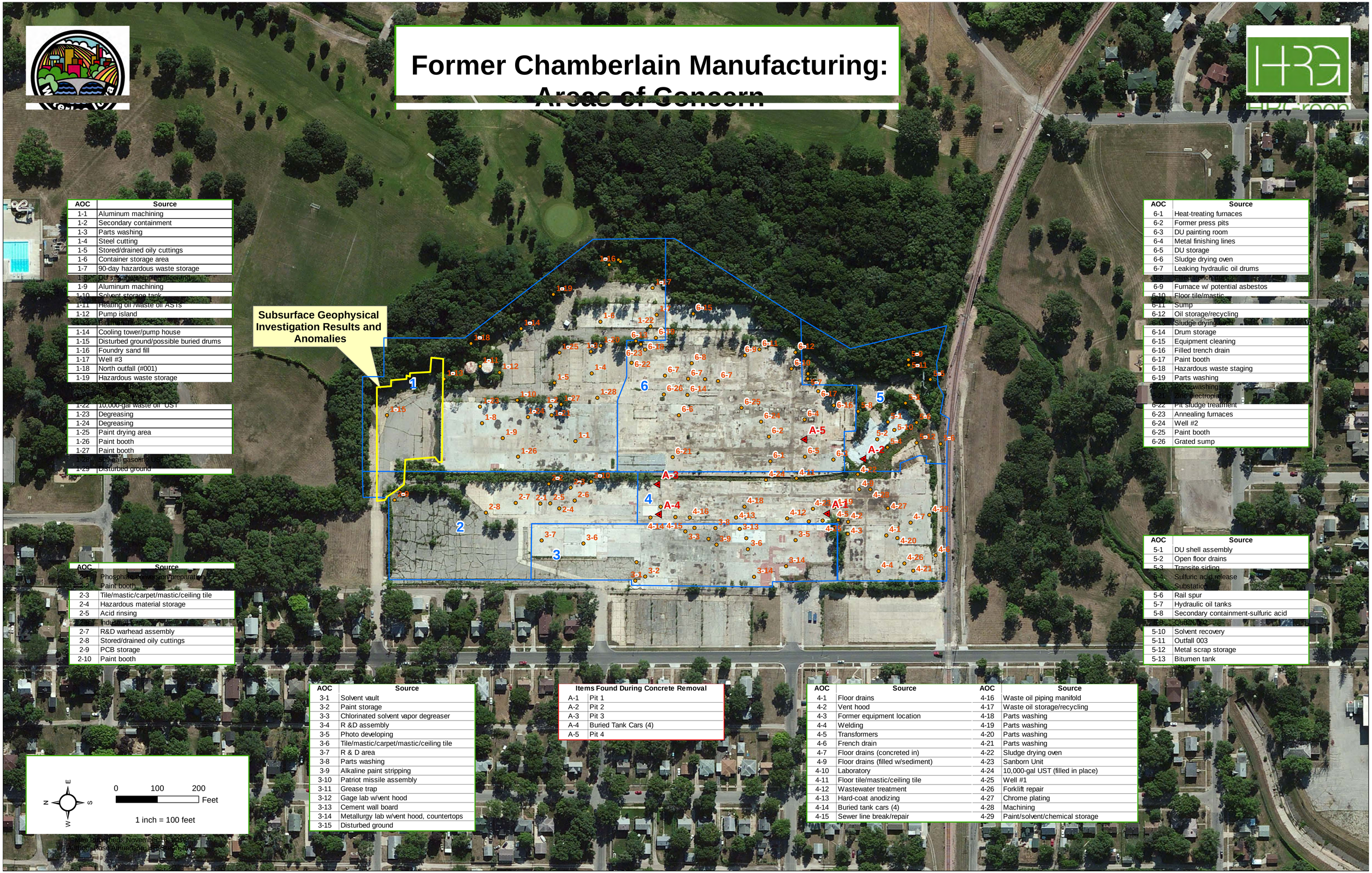
Former Chamberlain Manufacturing: Areas of Concern



AOC	Source
1-1	Aluminum machining
1-2	Secondary containment
1-3	Parts washing
1-4	Steel cutting
1-5	Stored/drained oily cuttings
1-6	Container storage area
1-7	90-day hazardous waste storage
1-8	DU storage/shipping/receiving
1-9	Aluminum machining
1-10	Solvent storage tank
1-11	Heating oil /waste oil ASTs
1-12	Pump island
1-13	Bitumen tank
1-14	Cooling tower/pump house
1-15	Disturbed ground/possible buried drums
1-16	Foundry sand fill
1-17	Well #3
1-18	North outfall (#001)
1-19	Hazardous waste storage
1-20	Parts washing
1-21	Parts washing
1-22	10,000-gal waste oil UST
1-23	Degreasing
1-24	Degreasing
1-25	Paint drying area
1-26	Paint booth
1-27	Paint booth
1-28	500-gal gasoline UST
1-29	Disturbed ground

AOC	Source
2-1	Phosphate conversion/preparation
2-2	Paint booth
2-3	Tile/mastic/carpet/mastic/ceiling tile
2-4	Hazardous material storage
2-5	Acid rinsing
2-6	Industrial spray
2-7	R&D warhead assembly
2-8	Stored/drained oily cuttings
2-9	PCB storage
2-10	Paint booth

AOC	Source
3-1	Solvent vault
3-2	Paint storage
3-3	Chlorinated solvent vapor degreaser
3-4	R &D assembly
3-5	Photo developing
3-6	Tile/mastic/carpet/mastic/ceiling tile
3-7	R & D area
3-8	Parts washing
3-9	Alkaline paint stripping
3-10	Patriot missile assembly
3-11	Grease trap
3-12	Gage lab w/vent hood
3-13	Cement wall board
3-14	Metallurgy lab w/vent hood, countertops
3-15	Disturbed ground

Items Found During Concrete Removal	
A-1	Pit 1
A-2	Pit 2
A-3	Pit 3
A-4	Buried Tank Cars (4)
A-5	Pit 4

AOC	Source	AOC	Source
4-1	Floor drains	4-16	Waste oil piping manifold
4-2	Vent hood	4-17	Waste oil storage/recycling
4-3	Former equipment location	4-18	Parts washing
4-4	Welding	4-19	Parts washing
4-5	Transformers	4-20	Parts washing
4-6	French drain	4-21	Parts washing
4-7	Floor drains (concreted in)	4-22	Sludge drying oven
4-9	Floor drains (filled w/sediment)	4-23	Sanborn Unit
4-10	Laboratory	4-24	10,000-gal UST (filled in place)
4-11	Floor tile/mastic/ceiling tile	4-25	Well #1
4-12	Wastewater treatment	4-26	Forklift repair
4-13	Hard-coat anodizing	4-27	Chrome plating
4-14	Buried tank cars (4)	4-28	Machining
4-15	Sewer line break/repair	4-29	Paint/solvent/chemical storage

AOC	Source
6-1	Heat-treating furnaces
6-2	Former press pits
6-3	DU painting room
6-4	Metal finishing lines
6-5	DU storage
6-6	Sludge drying oven
6-7	Leaking hydraulic oil drums
6-8	Former chemical storage
6-9	Furnace w/ potential asbestos
6-10	Floor tile/mastic
6-11	Sump
6-12	Oil storage/recycling
6-13	Sludge drying oven
6-14	Drum storage
6-15	Equipment cleaning
6-16	Filled trench drain
6-17	Paint booth
6-18	Hazardous waste staging
6-19	Parts washing
6-20	Parts washing
6-21	Zinc electroplating
6-22	Pit sludge treatment
6-23	Annealing furnaces
6-24	Well #2
6-25	Paint booth
6-26	Grated sump

AOC	Source
5-1	DU shell assembly
5-2	Open floor drains
5-3	Transite siding
5-4	Sulfuric acid release
5-5	Substation
5-6	Rail spur
5-7	Hydraulic oil tanks
5-8	Secondary containment-sulfuric acid
5-9	Outfall 002
5-10	Solvent recovery
5-11	Outfall 003
5-12	Metal scrap storage
5-13	Bitumen tank

Map Published: November 15, 2012
Author: Rose Turnundson, HRGreen, Inc.

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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: 310-1153-1
TestAmerica Sample Delivery Group: 1011021
Client Project/Site: Chamberlain - Waterloo, IA
Revision: 2

For:
HR Green, Inc
PO BOX 9009
Cedar Rapids, Iowa 52409

Attn: Robin Husman

Authorized for release by:
2/4/2013 3:14:38 PM

Shawn Hayes
Project Manager I
shawn.hayes@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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LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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Job ID: 310-1153-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-1153-1

Comments
No additional comments.

Receipt
The samples were received on 1/18/2013 10:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

GC/MS VOA
No analytical or quality issues were noted.

GC Semi VOA
No analytical or quality issues were noted.

General Chemistry
No analytical or quality issues were noted.

Organic Prep
No analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

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Sample Summary

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-1153-1	Pit 4	Soil	01/18/13 09:40	01/18/13 10:10
310-1153-3	Tank Pit	Soil	01/18/13 09:15	01/18/13 10:10
310-1153-4	Tank Sand	Soil	01/18/13 08:50	01/18/13 10:10

US EPA ARCHIVE DOCUMENT

Detection Summary

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

Client Sample ID: Pit 4 — Lab Sample ID: 310-1153-1

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Total Extractable Hydrocarbons	17.6		11.7		mg/Kg	1		OA-2	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	196		14.5		ug/Kg	1	☼	8260C	Total/NA
Waste Oil	17.6		11.7		mg/Kg	1		OA-2	Total/NA

Client Sample ID: Tank Pit — Lab Sample ID: 310-1153-3

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Total Extractable Hydrocarbons	1580		25.7		mg/Kg	1		OA-2	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	67.8		11.4		ug/Kg	1	☼	8260C	Total/NA
Trichloroethene	19.7		11.4		ug/Kg	1	☼	8260C	Total/NA
Diesel	250	Z	25.7		mg/Kg	1		OA-2	Total/NA
Waste Oil	1330		25.7		mg/Kg	1		OA-2	Total/NA

Client Sample ID: Tank Sand — Lab Sample ID: 310-1153-4

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Total Extractable Hydrocarbons	30.0		7.84		mg/Kg	1		OA-2	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	53.0		12.8		ug/Kg	1	☼	8260C	Total/NA
Waste Oil	30.0		7.84		mg/Kg	1		OA-2	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

Client Sample ID: Pit 4

Date Collected: 01/18/13 09:40
Date Received: 01/18/13 10:10

Lab Sample ID: 310-1153-1

Matrix: Soil
Percent Solids: 82.1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<145		145		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Benzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Bromobenzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Bromochloromethane	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Bromodichloromethane	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Bromoform	<29.1		29.1		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Bromomethane	<58.2		58.2		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
2-Butanone (MEK)	<145		145		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
n-Butylbenzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
sec-Butylbenzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
tert-Butylbenzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Carbon disulfide	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Carbon tetrachloride	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Chlorobenzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Chlorodibromomethane	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Chloroethane	<58.2		58.2		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Chloroform	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Chloromethane	<58.2		58.2		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
2-Chlorotoluene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
4-Chlorotoluene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,2-Dibromo-3-Chloropropane	<145		145		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,2-Dibromoethane (EDB)	<145		145		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Dibromomethane	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,2-Dichlorobenzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,3-Dichlorobenzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,4-Dichlorobenzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Dichlorodifluoromethane	<43.6		43.6		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,1-Dichloroethane	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,2-Dichloroethane	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,1-Dichloroethene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
cis-1,2-Dichloroethene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
trans-1,2-Dichloroethene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,2-Dichloropropane	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,3-Dichloropropane	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
2,2-Dichloropropane	<58.2		58.2		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,1-Dichloropropene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
cis-1,3-Dichloropropene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
trans-1,3-Dichloropropene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Ethylbenzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Hexachlorobutadiene	<72.7		72.7		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Hexane	<72.7		72.7		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Isopropylbenzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
p-Isopropyltoluene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Methylene Chloride	<145		145		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Methyl tert-butyl ether	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Naphthalene	<72.7		72.7		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
N-Propylbenzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Styrene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,1,1,2-Tetrachloroethane	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1

US EPA ARCHIVE DOCUMENT

Client Sample Results

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

Client Sample ID: Pit 4

Date Collected: 01/18/13 09:40
Date Received: 01/18/13 10:10

Lab Sample ID: 310-1153-1

Matrix: Soil
Percent Solids: 82.1

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	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Tetrachloroethene	**196**		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Toluene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,2,3-Trichlorobenzene	<72.7		72.7		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,2,4-Trichlorobenzene	<72.7		72.7		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,1,1-Trichloroethane	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,1,2-Trichloroethane	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Trichloroethene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Trichlorofluoromethane	<58.2		58.2		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,2,3-Trichloropropane	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,2,4-Trimethylbenzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
1,3,5-Trimethylbenzene	<14.5		14.5		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Vinyl chloride	<43.6		43.6		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1
Xylenes, Total	<43.6		43.6		ug/Kg	☼	01/18/13 14:44	01/18/13 21:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*	*01/18/13 14:44*	*01/18/13 21:08*	*1*
Dibromofluoromethane (Surr)	*81*		*75 - 125*	*01/18/13 14:44*	*01/18/13 21:08*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*	*01/18/13 14:44*	*01/18/13 21:08*	*1*

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

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Total Extractable Hydrocarbons	**17.6**		11.7		mg/Kg			01/21/13 09:23	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	<11.7		11.7		mg/Kg		01/21/13 16:16	01/23/13 01:15	1
Gasoline	<11.7		11.7		mg/Kg		01/21/13 16:16	01/23/13 01:15	1
Waste Oil	**17.6**		11.7		mg/Kg		01/21/13 16:16	01/23/13 01:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*86*		*60 - 150*	*01/21/13 16:16*	*01/23/13 01:15*	*1*

US EPA ARCHIVE DOCUMENT

Client Sample Results

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

Client Sample ID: Tank Pit

Date Collected: 01/18/13 09:15
Date Received: 01/18/13 10:10

Lab Sample ID: 310-1153-3

Matrix: Soil
Percent Solids: 87.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<114		114		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Benzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Bromobenzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Bromochloromethane	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Bromodichloromethane	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Bromoform	<22.8		22.8		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Bromomethane	<45.6		45.6		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
2-Butanone (MEK)	<114		114		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
n-Butylbenzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
sec-Butylbenzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
tert-Butylbenzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Carbon disulfide	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Carbon tetrachloride	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Chlorobenzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Chlorodibromomethane	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Chloroethane	<45.6		45.6		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Chloroform	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Chloromethane	<45.6		45.6		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
2-Chlorotoluene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
4-Chlorotoluene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,2-Dibromo-3-Chloropropane	<114		114		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,2-Dibromoethane (EDB)	<114		114		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Dibromomethane	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,2-Dichlorobenzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,3-Dichlorobenzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,4-Dichlorobenzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Dichlorodifluoromethane	<34.2		34.2		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,1-Dichloroethane	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,2-Dichloroethane	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,1-Dichloroethene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
cis-1,2-Dichloroethene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
trans-1,2-Dichloroethene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,2-Dichloropropane	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,3-Dichloropropane	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
2,2-Dichloropropane	<45.6		45.6		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,1-Dichloropropene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
cis-1,3-Dichloropropene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
trans-1,3-Dichloropropene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Ethylbenzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Hexachlorobutadiene	<57.0		57.0		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Hexane	<57.0		57.0		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Isopropylbenzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
p-Isopropyltoluene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Methylene Chloride	<114		114		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Methyl tert-butyl ether	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Naphthalene	<57.0		57.0		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
N-Propylbenzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Styrene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,1,1,2-Tetrachloroethane	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1

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Client Sample Results

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

Client Sample ID: Tank Pit

Date Collected: 01/18/13 09:15
Date Received: 01/18/13 10:10

Lab Sample ID: 310-1153-3

Matrix: Soil
Percent Solids: 87.5

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	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Tetrachloroethene	**67.8**		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Toluene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,2,3-Trichlorobenzene	<57.0		57.0		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,2,4-Trichlorobenzene	<57.0		57.0		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,1,1-Trichloroethane	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,1,2-Trichloroethane	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Trichloroethene	**19.7**		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Trichlorofluoromethane	<45.6		45.6		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,2,3-Trichloropropane	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,2,4-Trimethylbenzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
1,3,5-Trimethylbenzene	<11.4		11.4		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Vinyl chloride	<34.2		34.2		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1
Xylenes, Total	<34.2		34.2		ug/Kg	☼	01/18/13 14:44	01/18/13 21:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*	*01/18/13 14:44*	*01/18/13 21:53*	*1*
Dibromofluoromethane (Surr)	*81*		*75 - 125*	*01/18/13 14:44*	*01/18/13 21:53*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*	*01/18/13 14:44*	*01/18/13 21:53*	*1*

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

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Total Extractable Hydrocarbons	**1580**		25.7		mg/Kg			01/21/13 09:23	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	**250**	**Z**	25.7		mg/Kg		01/21/13 16:16	01/23/13 02:38	1
Gasoline	<25.7		25.7		mg/Kg		01/21/13 16:16	01/23/13 02:38	1
Waste Oil	**1330**		25.7		mg/Kg		01/21/13 16:16	01/23/13 02:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*102*		*60 - 150*	*01/21/13 16:16*	*01/23/13 02:38*	*1*

US EPA ARCHIVE DOCUMENT

Client Sample Results

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

Client Sample ID: Tank Sand

Date Collected: 01/18/13 08:50
Date Received: 01/18/13 10:10

Lab Sample ID: 310-1153-4

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	<128		128		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Benzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Bromobenzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Bromochloromethane	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Bromodichloromethane	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Bromoform	<25.6		25.6		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Bromomethane	<51.2		51.2		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
2-Butanone (MEK)	<128		128		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
n-Butylbenzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
sec-Butylbenzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
tert-Butylbenzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Carbon disulfide	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Carbon tetrachloride	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Chlorobenzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Chlorodibromomethane	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Chloroethane	<51.2		51.2		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Chloroform	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Chloromethane	<51.2		51.2		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
2-Chlorotoluene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
4-Chlorotoluene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,2-Dibromo-3-Chloropropane	<128		128		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,2-Dibromoethane (EDB)	<128		128		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Dibromomethane	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,2-Dichlorobenzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,3-Dichlorobenzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,4-Dichlorobenzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Dichlorodifluoromethane	<38.4		38.4		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,1-Dichloroethane	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,2-Dichloroethane	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,1-Dichloroethene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
cis-1,2-Dichloroethene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
trans-1,2-Dichloroethene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,2-Dichloropropane	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,3-Dichloropropane	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
2,2-Dichloropropane	<51.2		51.2		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,1-Dichloropropene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
cis-1,3-Dichloropropene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
trans-1,3-Dichloropropene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Ethylbenzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Hexachlorobutadiene	<64.0		64.0		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Hexane	<64.0		64.0		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Isopropylbenzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
p-Isopropyltoluene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Methylene Chloride	<128		128		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Methyl tert-butyl ether	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Naphthalene	<64.0		64.0		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
N-Propylbenzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Styrene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,1,1,2-Tetrachloroethane	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1

US EPA ARCHIVE DOCUMENT

Client Sample Results

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

Client Sample ID: Tank Sand

Date Collected: 01/18/13 08:50
Date Received: 01/18/13 10:10

Lab Sample ID: 310-1153-4

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	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Tetrachloroethene	**53.0**		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Toluene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,2,3-Trichlorobenzene	<64.0		64.0		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,2,4-Trichlorobenzene	<64.0		64.0		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,1,1-Trichloroethane	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,1,2-Trichloroethane	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Trichloroethene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Trichlorofluoromethane	<51.2		51.2		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,2,3-Trichloropropane	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,2,4-Trimethylbenzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
1,3,5-Trimethylbenzene	<12.8		12.8		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Vinyl chloride	<38.4		38.4		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1
Xylenes, Total	<38.4		38.4		ug/Kg	☼	01/18/13 14:44	01/18/13 22:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*	*01/18/13 14:44*	*01/18/13 22:17*	*1*
Dibromofluoromethane (Surr)	*82*		*75 - 125*	*01/18/13 14:44*	*01/18/13 22:17*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*	*01/18/13 14:44*	*01/18/13 22:17*	*1*

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

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Total Extractable Hydrocarbons	**30.0**		7.84		mg/Kg			01/21/13 09:23	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	<7.84		7.84		mg/Kg		01/21/13 16:16	01/23/13 03:19	1
Gasoline	<7.84		7.84		mg/Kg		01/21/13 16:16	01/23/13 03:19	1
Waste Oil	**30.0**		7.84		mg/Kg		01/21/13 16:16	01/23/13 03:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*95*		*60 - 150*	*01/21/13 16:16*	*01/23/13 03:19*	*1*

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Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
Z	The chromatographic response does not resemble a typical fuel pattern.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
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)

US EPA ARCHIVE DOCUMENT

Surrogate Summary

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

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

Matrix: Soil **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(80-120)	(75-125)	(80-120)
310-1153-1	Pit 4	100	81	100
310-1153-3	Tank Pit	99	81	99
310-1153-4	Tank Sand	101	82	101

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**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(80-120)	(75-125)	(80-120)
310-1009-A-5-C MS	Matrix Spike	101	82	100
310-1009-A-5-D MSD	Matrix Spike Duplicate	102	81	100
LCS 310-2648/2-A	Lab Control Sample	102	82	99
MB 310-2648/1-A	Method Blank	100	80	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

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

Matrix: Soil **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		OTC
Lab Sample ID	Client Sample ID	(60-150)
310-1153-1	Pit 4	86
310-1153-3	Tank Pit	102
310-1153-4	Tank Sand	95

Surrogate Legend

OTC = n-Octacosane

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

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		OTC
Lab Sample ID	Client Sample ID	(60-150)
310-1118-A-1-D MS	Matrix Spike	95
310-1118-A-1-E MSD	Matrix Spike Duplicate	80
LCS 310-2793/2-A	Lab Control Sample	113
MB 310-2793/1-A	Method Blank	101

Surrogate Legend

OTC = n-Octacosane

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

Lab Sample ID: MB 310-2648/1-A
Matrix: Solid
Analysis Batch: 2649

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2648

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<100		100		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Benzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Bromobenzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Bromochloromethane	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Bromodichloromethane	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Bromoform	<20.0		20.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Bromomethane	<40.0		40.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
2-Butanone (MEK)	<100		100		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
n-Butylbenzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
sec-Butylbenzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
tert-Butylbenzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Carbon disulfide	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Carbon tetrachloride	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Chlorobenzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Chlorodibromomethane	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Chloroethane	<40.0		40.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Chloroform	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Chloromethane	<40.0		40.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
2-Chlorotoluene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
4-Chlorotoluene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,2-Dibromo-3-Chloropropane	<100		100		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,2-Dibromoethane (EDB)	<100		100		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Dibromomethane	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,2-Dichlorobenzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,3-Dichlorobenzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,4-Dichlorobenzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Dichlorodifluoromethane	<30.0		30.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,1-Dichloroethane	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,2-Dichloroethane	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,1-Dichloroethene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
cis-1,2-Dichloroethene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
trans-1,2-Dichloroethene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,2-Dichloropropane	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,3-Dichloropropane	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
2,2-Dichloropropane	<40.0		40.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,1-Dichloropropene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
cis-1,3-Dichloropropene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
trans-1,3-Dichloropropene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Ethylbenzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Hexachlorobutadiene	<50.0		50.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Hexane	<50.0		50.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Isopropylbenzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
p-Isopropyltoluene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Methylene Chloride	<100		100		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Methyl tert-butyl ether	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Naphthalene	<50.0		50.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
N-Propylbenzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Styrene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1

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

Lab Sample ID: MB 310-2648/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 2649 — **Prep Batch: 2648**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,1,2,2-Tetrachloroethane	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Tetrachloroethene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Toluene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,2,3-Trichlorobenzene	<50.0		50.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,2,4-Trichlorobenzene	<50.0		50.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,1,1-Trichloroethane	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,1,2-Trichloroethane	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Trichloroethene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Trichlorofluoromethane	<40.0		40.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,2,3-Trichloropropane	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,2,4-Trimethylbenzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
1,3,5-Trimethylbenzene	<10.0		10.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Vinyl chloride	<30.0		30.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1
Xylenes, Total	<30.0		30.0		ug/Kg		01/18/13 14:44	01/18/13 17:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*	*01/18/13 14:44*	*01/18/13 17:40*	*1*
Dibromofluoromethane (Surr)	*80*		*75 - 125*	*01/18/13 14:44*	*01/18/13 17:40*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*	*01/18/13 14:44*	*01/18/13 17:40*	*1*

Lab Sample ID: LCS 310-2648/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 2649 — **Prep Batch: 2648**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	33.6	<83.5		ug/Kg		129	65 - 150
Benzene	33.4	26.41		ug/Kg		79	55 - 135
Bromobenzene	33.4	30.21		ug/Kg		90	65 - 125
Bromochloromethane	33.4	27.43		ug/Kg		82	65 - 130
Bromodichloromethane	33.4	30.32		ug/Kg		91	65 - 130
Bromoform	33.4	28.95		ug/Kg		87	50 - 135
Bromomethane	33.4	<33.4		ug/Kg		69	45 - 135
2-Butanone (MEK)	33.6	<83.5		ug/Kg		128	50 - 145
n-Butylbenzene	33.4	28.60		ug/Kg		86	55 - 130
sec-Butylbenzene	33.4	30.45		ug/Kg		91	60 - 125
tert-Butylbenzene	33.4	30.32		ug/Kg		91	55 - 125
Carbon disulfide	33.4	23.73		ug/Kg		71	40 - 135
Carbon tetrachloride	33.4	25.40		ug/Kg		76	55 - 130
Chlorobenzene	33.4	30.36		ug/Kg		91	60 - 120
Chlorodibromomethane	33.4	30.63		ug/Kg		92	55 - 130
Chloroethane	33.4	<33.4		ug/Kg		73	50 - 145
Chloroform	33.4	25.74		ug/Kg		77	65 - 130
Chloromethane	33.4	<33.4		ug/Kg		66	40 - 135
2-Chlorotoluene	33.4	29.64		ug/Kg		89	60 - 125
4-Chlorotoluene	33.4	29.59		ug/Kg		89	60 - 125
1,2-Dibromo-3-Chloropropane	33.4	<83.5		ug/Kg		87	50 - 140
1,2-Dibromoethane (EDB)	33.4	<83.5		ug/Kg		94	55 - 140

US EPA ARCHIVE DOCUMENT

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

Lab Sample ID: LCS 310-2648/2-A
Matrix: Solid
Analysis Batch: 2649

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 2648

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dibromomethane	33.4	30.71		ug/Kg		92	65 - 135
1,2-Dichlorobenzene	33.4	29.77		ug/Kg		89	65 - 120
1,3-Dichlorobenzene	33.4	28.74		ug/Kg		86	60 - 125
1,4-Dichlorobenzene	33.4	29.06		ug/Kg		87	60 - 125
Dichlorodifluoromethane	33.4	<25.1		ug/Kg		49	40 - 135
1,1-Dichloroethane	33.4	25.20		ug/Kg		75	55 - 135
1,2-Dichloroethane	33.4	30.86		ug/Kg		92	60 - 140
1,1-Dichloroethene	33.4	22.29		ug/Kg		67	50 - 145
cis-1,2-Dichloroethene	33.4	26.84		ug/Kg		80	60 - 135
trans-1,2-Dichloroethene	33.4	25.09		ug/Kg		75	55 - 135
1,2-Dichloropropane	33.4	28.93		ug/Kg		87	55 - 130
1,3-Dichloropropane	33.4	32.08		ug/Kg		96	55 - 140
2,2-Dichloropropane	33.4	<33.4		ug/Kg		75	40 - 135
1,1-Dichloropropene	33.4	28.08		ug/Kg		84	55 - 130
cis-1,3-Dichloropropene	33.4	32.13		ug/Kg		96	50 - 115
trans-1,3-Dichloropropene	33.4	28.77		ug/Kg		86	55 - 130
Ethylbenzene	33.4	29.75		ug/Kg		89	60 - 125
Hexachlorobutadiene	33.4	<41.8		ug/Kg		85	40 - 135
Hexane	33.4	<41.8		ug/Kg		71	45 - 140
Isopropylbenzene	33.4	30.94		ug/Kg		93	60 - 125
p-Isopropyltoluene	33.4	29.32		ug/Kg		88	60 - 120
Methylene Chloride	33.4	<83.5		ug/Kg		85	55 - 145
Methyl tert-butyl ether	33.4	27.31		ug/Kg		82	55 - 130
Naphthalene	33.4	<41.8		ug/Kg		80	50 - 130
N-Propylbenzene	33.4	30.22		ug/Kg		90	50 - 125
Styrene	33.4	31.03		ug/Kg		93	60 - 125
1,1,1,2-Tetrachloroethane	33.4	30.16		ug/Kg		90	65 - 125
1,1,2,2-Tetrachloroethane	33.4	30.82		ug/Kg		92	60 - 125
Tetrachloroethene	33.4	28.87		ug/Kg		86	55 - 125
Toluene	33.4	30.25		ug/Kg		91	60 - 130
1,2,3-Trichlorobenzene	33.4	<41.8		ug/Kg		91	50 - 130
1,2,4-Trichlorobenzene	33.4	<41.8		ug/Kg		87	45 - 135
1,1,1-Trichloroethane	33.4	25.19		ug/Kg		75	60 - 125
1,1,2-Trichloroethane	33.4	31.32		ug/Kg		94	55 - 135
Trichloroethene	33.4	28.86		ug/Kg		86	60 - 130
Trichlorofluoromethane	33.4	<33.4		ug/Kg		74	50 - 145
1,2,3-Trichloropropane	33.4	31.69		ug/Kg		95	50 - 145
1,2,4-Trimethylbenzene	33.4	27.20		ug/Kg		81	55 - 125
1,3,5-Trimethylbenzene	33.4	28.88		ug/Kg		86	50 - 130
Vinyl chloride	33.4	<25.1		ug/Kg		66	45 - 140
Xylenes, Total	100	89.01		ug/Kg		89	50 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*82*		*75 - 125*
Toluene-d8 (Surr)	*99*		*80 - 120*

US EPA ARCHIVE DOCUMENT

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

Lab Sample ID: 310-1009-A-5-C MS
Matrix: Solid
Analysis Batch: 2649

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 2648

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	<137		57.8	<144		ug/Kg	☼	100	55 - 150
Benzene	<13.7		57.6	34.49		ug/Kg	☼	60	40 - 135
Bromobenzene	<13.7		57.6	28.52		ug/Kg	☼	50	30 - 125
Bromochloromethane	<13.7		57.6	36.36		ug/Kg	☼	63	55 - 130
Bromodichloromethane	<13.7		57.6	38.14		ug/Kg	☼	66	50 - 130
Bromoform	<27.4		57.6	31.57		ug/Kg	☼	54	35 - 135
Bromomethane	<54.8		57.6	<57.6		ug/Kg	☼	60	40 - 135
2-Butanone (MEK)	<137		57.8	<144		ug/Kg	☼	70	40 - 145
n-Butylbenzene	<13.7		57.6	20.60		ug/Kg	☼	36	20 - 130
sec-Butylbenzene	<13.7		57.6	24.55		ug/Kg	☼	43	25 - 125
tert-Butylbenzene	<13.7		57.6	27.55		ug/Kg	☼	48	25 - 125
Carbon disulfide	<13.7		57.6	26.60		ug/Kg	☼	43	35 - 135
Carbon tetrachloride	<13.7		57.6	31.80		ug/Kg	☼	55	45 - 130
Chlorobenzene	<13.7		57.6	31.08		ug/Kg	☼	54	35 - 120
Chlorodibromomethane	<13.7		57.6	36.82		ug/Kg	☼	64	45 - 130
Chloroethane	<54.8		57.6	<57.6		ug/Kg	☼	61	45 - 145
Chloroform	<13.7		57.6	35.82		ug/Kg	☼	62	55 - 130
Chloromethane	<54.8		57.6	<57.6		ug/Kg	☼	63	40 - 135
2-Chlorotoluene	<13.7		57.6	27.99		ug/Kg	☼	49	25 - 125
4-Chlorotoluene	<13.7		57.6	25.90		ug/Kg	☼	45	25 - 125
1,2-Dibromo-3-Chloropropane	<137		57.6	<144		ug/Kg	☼	52	35 - 140
1,2-Dibromoethane (EDB)	<137		57.6	<144		ug/Kg	☼	65	45 - 140
Dibromomethane	<13.7		57.6	38.66		ug/Kg	☼	67	50 - 135
1,2-Dichlorobenzene	<13.7		57.6	25.45		ug/Kg	☼	44	25 - 120
1,3-Dichlorobenzene	<13.7		57.6	24.22		ug/Kg	☼	42	25 - 125
1,4-Dichlorobenzene	<13.7		57.6	23.80		ug/Kg	☼	41	20 - 125
Dichlorodifluoromethane	<41.1		57.6	<43.2		ug/Kg	☼	43	35 - 135
1,1-Dichloroethane	<13.7		57.6	35.35		ug/Kg	☼	61	50 - 135
1,2-Dichloroethane	<13.7		57.6	42.14		ug/Kg	☼	73	50 - 140
1,1-Dichloroethene	<13.7		57.6	29.50		ug/Kg	☼	51	45 - 145
cis-1,2-Dichloroethene	<13.7		57.6	33.51		ug/Kg	☼	58	50 - 135
trans-1,2-Dichloroethene	<13.7		57.6	28.99		ug/Kg	☼	50	45 - 135
1,2-Dichloropropane	<13.7		57.6	37.87		ug/Kg	☼	66	50 - 130
1,3-Dichloropropane	<13.7		57.6	39.74		ug/Kg	☼	69	45 - 140
2,2-Dichloropropane	<54.8		57.6	<57.6		ug/Kg	☼	62	40 - 135
1,1-Dichloropropene	<13.7		57.6	31.25		ug/Kg	☼	54	40 - 130
cis-1,3-Dichloropropene	<13.7		57.6	36.90		ug/Kg	☼	64	35 - 115
trans-1,3-Dichloropropene	<13.7		57.6	32.40		ug/Kg	☼	56	35 - 130
Ethylbenzene	<13.7		57.6	30.45		ug/Kg	☼	53	30 - 125
Hexachlorobutadiene	<68.6		57.6	<72.0		ug/Kg	☼	27	10 - 135
Hexane	<68.6		57.6	<72.0		ug/Kg	☼	36	20 - 140
Isopropylbenzene	<13.7		57.6	29.48		ug/Kg	☼	51	25 - 125
p-Isopropyltoluene	<13.7		57.6	23.71		ug/Kg	☼	41	20 - 120
Methylene Chloride	<137		57.6	<144		ug/Kg	☼	55	35 - 145
Methyl tert-butyl ether	<13.7		57.6	44.29		ug/Kg	☼	77	55 - 130
Naphthalene	<68.6		57.6	<72.0		ug/Kg	☼	31	15 - 130
N-Propylbenzene	<13.7		57.6	26.56		ug/Kg	☼	45	20 - 125
Styrene	<13.7		57.6	30.63		ug/Kg	☼	51	20 - 125

US EPA ARCHIVE DOCUMENT

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

Lab Sample ID: 310-1009-A-5-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 2649 — **Prep Batch: 2648**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	<13.7		57.6	35.64		ug/Kg	☼	62	45 - 120
1,1,2,2-Tetrachloroethane	<13.7		57.6	29.58		ug/Kg	☼	51	40 - 125
Tetrachloroethene	<13.7		57.6	30.39		ug/Kg	☼	52	30 - 125
Toluene	<13.7		57.6	34.93		ug/Kg	☼	61	35 - 130
1,2,3-Trichlorobenzene	<68.6		57.6	<72.0		ug/Kg	☼	32	10 - 130
1,2,4-Trichlorobenzene	<68.6		57.6	<72.0		ug/Kg	☼	30	15 - 135
1,1,1-Trichloroethane	<13.7		57.6	33.80		ug/Kg	☼	59	45 - 125
1,1,2-Trichloroethane	<13.7		57.6	40.83		ug/Kg	☼	71	45 - 135
Trichloroethene	<13.7		57.6	38.80		ug/Kg	☼	67	40 - 130
Trichlorofluoromethane	<54.8		57.6	<57.6		ug/Kg	☼	61	45 - 145
1,2,3-Trichloropropane	<13.7		57.6	37.91		ug/Kg	☼	66	50 - 145
1,2,4-Trimethylbenzene	<13.7		57.6	25.17		ug/Kg	☼	44	20 - 125
1,3,5-Trimethylbenzene	<13.7		57.6	26.60		ug/Kg	☼	45	20 - 130
Vinyl chloride	<41.1		57.6	<43.2		ug/Kg	☼	54	40 - 140
Xylenes, Total	<41.1		173	90.75		ug/Kg	☼	53	30 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*82*		*75 - 125*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: 310-1009-A-5-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 2649 — **Prep Batch: 2648**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	<137		57.2	<142		ug/Kg	☼	88	55 - 150	14	40
Benzene	<13.7		56.9	38.04		ug/Kg	☼	67	40 - 135	10	40
Bromobenzene	<13.7		56.9	32.48		ug/Kg	☼	57	30 - 125	13	40
Bromochloromethane	<13.7		56.9	40.36		ug/Kg	☼	71	55 - 130	10	35
Bromodichloromethane	<13.7		56.9	43.77		ug/Kg	☼	77	50 - 130	14	35
Bromoform	<27.4		56.9	37.20		ug/Kg	☼	64	35 - 135	16	40
Bromomethane	<54.8		56.9	<56.9		ug/Kg	☼	64	40 - 135	6	35
2-Butanone (MEK)	<137		57.2	<142		ug/Kg	☼	72	40 - 145	3	40
n-Butylbenzene	<13.7		56.9	20.55		ug/Kg	☼	36	20 - 130	0	40
sec-Butylbenzene	<13.7		56.9	24.82		ug/Kg	☼	44	25 - 125	1	40
tert-Butylbenzene	<13.7		56.9	28.02		ug/Kg	☼	49	25 - 125	2	40
Carbon disulfide	<13.7		56.9	29.82		ug/Kg	☼	49	35 - 135	11	40
Carbon tetrachloride	<13.7		56.9	34.98		ug/Kg	☼	61	45 - 130	10	35
Chlorobenzene	<13.7		56.9	35.47		ug/Kg	☼	62	35 - 120	13	35
Chlorodibromomethane	<13.7		56.9	41.33		ug/Kg	☼	73	45 - 130	12	40
Chloroethane	<54.8		56.9	<56.9		ug/Kg	☼	73	45 - 145	18	35
Chloroform	<13.7		56.9	39.68		ug/Kg	☼	70	55 - 130	10	35
Chloromethane	<54.8		56.9	<56.9		ug/Kg	☼	67	40 - 135	6	40
2-Chlorotoluene	<13.7		56.9	30.59		ug/Kg	☼	54	25 - 125	9	40
4-Chlorotoluene	<13.7		56.9	28.70		ug/Kg	☼	50	25 - 125	10	40
1,2-Dibromo-3-Chloropropane	<137		56.9	<142		ug/Kg	☼	60	35 - 140	14	40
1,2-Dibromoethane (EDB)	<137		56.9	<142		ug/Kg	☼	73	45 - 140	12	35

US EPA ARCHIVE DOCUMENT

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

Lab Sample ID: 310-1009-A-5-D MSD
Matrix: Solid
Analysis Batch: 2649

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 2648

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dibromomethane	<13.7		56.9	44.97		ug/Kg	☼	79	50 - 135	15	35
1,2-Dichlorobenzene	<13.7		56.9	27.44		ug/Kg	☼	48	25 - 120	8	40
1,3-Dichlorobenzene	<13.7		56.9	25.86		ug/Kg	☼	45	25 - 125	7	40
1,4-Dichlorobenzene	<13.7		56.9	25.34		ug/Kg	☼	45	20 - 125	6	40
Dichlorodifluoromethane	<41.1		56.9	<42.7		ug/Kg	☼	48	35 - 135	10	35
1,1-Dichloroethane	<13.7		56.9	39.76		ug/Kg	☼	70	50 - 135	12	35
1,2-Dichloroethane	<13.7		56.9	47.88		ug/Kg	☼	84	50 - 140	13	40
1,1-Dichloroethene	<13.7		56.9	32.90		ug/Kg	☼	58	45 - 145	11	35
cis-1,2-Dichloroethene	<13.7		56.9	38.65		ug/Kg	☼	68	50 - 135	14	35
trans-1,2-Dichloroethene	<13.7		56.9	33.58		ug/Kg	☼	59	45 - 135	15	40
1,2-Dichloropropane	<13.7		56.9	43.27		ug/Kg	☼	76	50 - 130	13	35
1,3-Dichloropropane	<13.7		56.9	45.84		ug/Kg	☼	81	45 - 140	14	40
2,2-Dichloropropane	<54.8		56.9	<56.9		ug/Kg	☼	66	40 - 135	6	35
1,1-Dichloropropene	<13.7		56.9	35.94		ug/Kg	☼	63	40 - 130	14	35
cis-1,3-Dichloropropene	<13.7		56.9	42.90		ug/Kg	☼	75	35 - 115	15	40
trans-1,3-Dichloropropene	<13.7		56.9	36.57		ug/Kg	☼	64	35 - 130	12	40
Ethylbenzene	<13.7		56.9	34.26		ug/Kg	☼	60	30 - 125	12	40
Hexachlorobutadiene	<68.6		56.9	<71.2		ug/Kg	☼	25	10 - 135	9	40
Hexane	<68.6		56.9	<71.2		ug/Kg	☼	37	20 - 140	2	40
Isopropylbenzene	<13.7		56.9	32.06		ug/Kg	☼	56	25 - 125	8	40
p-Isopropyltoluene	<13.7		56.9	23.85		ug/Kg	☼	42	20 - 120	1	40
Methylene Chloride	<137		56.9	<142		ug/Kg	☼	55	35 - 145	0	35
Methyl tert-butyl ether	<13.7		56.9	46.42		ug/Kg	☼	82	55 - 130	5	40
Naphthalene	<68.6		56.9	<71.2		ug/Kg	☼	32	15 - 130	1	40
N-Propylbenzene	<13.7		56.9	28.66		ug/Kg	☼	50	20 - 125	8	40
Styrene	<13.7		56.9	35.13		ug/Kg	☼	60	20 - 125	14	40
1,1,1,2-Tetrachloroethane	<13.7		56.9	40.58		ug/Kg	☼	71	45 - 120	13	35
1,1,2,2-Tetrachloroethane	<13.7		56.9	28.46		ug/Kg	☼	50	40 - 125	4	40
Tetrachloroethene	<13.7		56.9	33.79		ug/Kg	☼	58	30 - 125	11	40
Toluene	<13.7		56.9	40.31		ug/Kg	☼	71	35 - 130	14	40
1,2,3-Trichlorobenzene	<68.6		56.9	<71.2		ug/Kg	☼	31	10 - 130	5	40
1,2,4-Trichlorobenzene	<68.6		56.9	<71.2		ug/Kg	☼	30	15 - 135	1	40
1,1,1-Trichloroethane	<13.7		56.9	36.42		ug/Kg	☼	64	45 - 125	7	35
1,1,2-Trichloroethane	<13.7		56.9	46.12		ug/Kg	☼	81	45 - 135	12	40
Trichloroethene	<13.7		56.9	47.48		ug/Kg	☼	83	40 - 130	20	35
Trichlorofluoromethane	<54.8		56.9	<56.9		ug/Kg	☼	67	45 - 145	9	35
1,2,3-Trichloropropane	<13.7		56.9	43.99		ug/Kg	☼	77	50 - 145	15	40
1,2,4-Trimethylbenzene	<13.7		56.9	26.77		ug/Kg	☼	47	20 - 125	6	40
1,3,5-Trimethylbenzene	<13.7		56.9	28.24		ug/Kg	☼	49	20 - 130	6	35
Vinyl chloride	<41.1		56.9	<42.7		ug/Kg	☼	60	40 - 140	10	40
Xylenes, Total	<41.1		171	101.4		ug/Kg	☼	59	30 - 130	11	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*81*		*75 - 125*
Toluene-d8 (Surr)	*100*		*80 - 120*

US EPA ARCHIVE DOCUMENT

QC Sample Results

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

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

Lab Sample ID: MB 310-2793/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 2873 — **Prep Batch: 2793**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel	<8.00		8.00		mg/Kg		01/21/13 16:16	01/22/13 21:08	1
Gasoline	<8.00		8.00		mg/Kg		01/21/13 16:16	01/22/13 21:08	1
Waste Oil	<8.00		8.00		mg/Kg		01/21/13 16:16	01/22/13 21:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*101*		*60 - 150*	*01/21/13 16:16*	*01/22/13 21:08*	*1*

Lab Sample ID: LCS 310-2793/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 2873 — **Prep Batch: 2793**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Waste Oil	133	98.83		mg/Kg		74	40 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane	*113*		*60 - 150*

Lab Sample ID: 310-1118-A-1-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 2873 — **Prep Batch: 2793**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Waste Oil	<7.88		131	83.36		mg/Kg		60	30 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane	*95*		*60 - 150*

Lab Sample ID: 310-1118-A-1-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 2873 — **Prep Batch: 2793**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Waste Oil	<7.88		130	81.16		mg/Kg		59	30 - 125	3	40

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane	*80*		*60 - 150*

US EPA ARCHIVE DOCUMENT

QC Association Summary

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

GC/MS VOA

Prep Batch: 2648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-1009-A-5-C MS	Matrix Spike	Total/NA	Solid	5030B	
310-1009-A-5-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5030B	
310-1153-1	Pit 4	Total/NA	Soil	5030B	
310-1153-3	Tank Pit	Total/NA	Soil	5030B	
310-1153-4	Tank Sand	Total/NA	Soil	5030B	
LCS 310-2648/2-A	Lab Control Sample	Total/NA	Solid	5030B	
MB 310-2648/1-A	Method Blank	Total/NA	Solid	5030B	

Analysis Batch: 2649

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-1009-A-5-C MS	Matrix Spike	Total/NA	Solid	8260C	2648
310-1009-A-5-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8260C	2648
310-1153-1	Pit 4	Total/NA	Soil	8260C	2648
310-1153-3	Tank Pit	Total/NA	Soil	8260C	2648
310-1153-4	Tank Sand	Total/NA	Soil	8260C	2648
LCS 310-2648/2-A	Lab Control Sample	Total/NA	Solid	8260C	2648
MB 310-2648/1-A	Method Blank	Total/NA	Solid	8260C	2648

GC Semi VOA

Analysis Batch: 2736

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-1153-1	Pit 4	Total/NA	Soil	OA-2	
310-1153-3	Tank Pit	Total/NA	Soil	OA-2	
310-1153-4	Tank Sand	Total/NA	Soil	OA-2	

Prep Batch: 2793

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-1118-A-1-D MS	Matrix Spike	Total/NA	Solid	3546	
310-1118-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	3546	
310-1153-1	Pit 4	Total/NA	Soil	3546	
310-1153-3	Tank Pit	Total/NA	Soil	3546	
310-1153-4	Tank Sand	Total/NA	Soil	3546	
LCS 310-2793/2-A	Lab Control Sample	Total/NA	Solid	3546	
MB 310-2793/1-A	Method Blank	Total/NA	Solid	3546	

Analysis Batch: 2873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-1118-A-1-D MS	Matrix Spike	Total/NA	Solid	OA-2	2793
310-1118-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	OA-2	2793
310-1153-1	Pit 4	Total/NA	Soil	OA-2	2793
310-1153-3	Tank Pit	Total/NA	Soil	OA-2	2793
310-1153-4	Tank Sand	Total/NA	Soil	OA-2	2793
LCS 310-2793/2-A	Lab Control Sample	Total/NA	Solid	OA-2	2793
MB 310-2793/1-A	Method Blank	Total/NA	Solid	OA-2	2793

US EPA ARCHIVE DOCUMENT

Lab Chronicle

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

Client Sample ID: Pit 4

Lab Sample ID: 310-1153-1
Date Collected: 01/18/13 09:40
Matrix: Soil
Date Received: 01/18/13 10:10
Percent Solids: 82.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			2648	01/18/13 14:44	CH	TAL CF
Total/NA	Analysis	8260C		1	2649	01/18/13 21:08	CH	TAL CF
Total/NA	Analysis	OA-2		1	2736	01/21/13 09:23	EE	TAL CF
Total/NA	Prep	3546			2793	01/21/13 16:16	ES	TAL CF
Total/NA	Analysis	OA-2		1	2873	01/23/13 01:15	BT	TAL CF

Client Sample ID: Tank Pit

Lab Sample ID: 310-1153-3
Date Collected: 01/18/13 09:15
Matrix: Soil
Date Received: 01/18/13 10:10
Percent Solids: 87.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			2648	01/18/13 14:44	CH	TAL CF
Total/NA	Analysis	8260C		1	2649	01/18/13 21:53	CH	TAL CF
Total/NA	Analysis	OA-2		1	2736	01/21/13 09:23	EE	TAL CF
Total/NA	Prep	3546			2793	01/21/13 16:16	ES	TAL CF
Total/NA	Analysis	OA-2		1	2873	01/23/13 02:38	BT	TAL CF

Client Sample ID: Tank Sand

Lab Sample ID: 310-1153-4
Date Collected: 01/18/13 08:50
Matrix: Soil
Date Received: 01/18/13 10:10
Percent Solids: 85.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			2648	01/18/13 14:44	CH	TAL CF
Total/NA	Analysis	8260C		1	2649	01/18/13 22:17	CH	TAL CF
Total/NA	Analysis	OA-2		1	2736	01/21/13 09:23	EE	TAL CF
Total/NA	Prep	3546			2793	01/21/13 16:16	ES	TAL CF
Total/NA	Analysis	OA-2		1	2873	01/23/13 03:19	BT	TAL CF

Laboratory References:

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

US EPA ARCHIVE DOCUMENT

Certification Summary

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

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	IHLAP		101044	11-01-14
Illinois	NELAP	5	200024	11-29-13
Iowa	State Program	7	7	12-01-13
Kansas	NELAP	7	E-10341	01-31-14
Minnesota	NELAP	5	019-999-319	12-31-13
North Dakota	State Program	8	R-186	09-29-13
Oregon	NELAP	10	IA100001	09-29-13
Wisconsin	State Program	5	999917270	08-31-13

US EPA ARCHIVE DOCUMENT

Method Summary

Client: HR Green, Inc
Project/Site: Chamberlain - Waterloo, IA

TestAmerica Job ID: 310-1153-1
SDG: 1011021

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL CF
OA-2	Iowa - Extractable Petroleum Hydrocarbons (GC)	Iowa DNR	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

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TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
704 Enterprise Drive • Cedar Falls, IA 50613
Tel 319-277-2401 • Fax 319-277-2425

TestAmerica Sample Receipt and Cedar Falls Facility

310-1153 Chain of Custody

Client: HR Green Project: Chamberlain

City: Waterloo State: IA

Date: 1/18/13 Receiver's Initials: TA Time (Delivered): 10:10

Temperature Record:

Cooler ID# (If Applicable) _____

Uncorrected Temp: _____ °C

Corrected Temp: _____ °C

Thermometer:

- [ ] IR - 111531565 "D"
- [ ] IR - 111531506 "E"
- [ ] IR - 61854108 "Front"
- [ ] 101681126

Courier:

- [ ] UPS
- [ ] FedEx
- [ ] FedEx Ground
- [ ] US Postal Service
- [ ] Spee-Dee
- [ ] TA Courier
- [ ] TA Field Services
- [x] Client
- [ ] Other: _____

- [ ] Temperature blank
- [ ] Temperature out of compliance

Coolant Record:

- [ ] Received on ice
  - [ ] Wet ice
  - [ ] Blue ice
  - [ ] Dry ice
  - [ ] Other: _____
- [x] NONE

Exceptions Noted:

- [ ] Sample(s) not received in cooler
- [ ] Sample(s) received same day of sampling
  - [ ] Evidence of chilling process
- [ ] No temp blank. Inside temp of cooler taken
- [x] Temperature not taken: _____
- [ ] Non-Conformance Report Started

Custody Seals:

Cooler Custody Seals Present? [ ] Yes [x] No

Cooler Custody Seals Intact? [ ] Yes [ ] No [x] N/A

Sample Custody Seals Present? [ ] Yes [x] No

Sample Custody Seals Intact? [ ] Yes [ ] No [x] N/A

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613

Phone 319-277-2401 or 800-750-2401
Fax 319-277-2425

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

Client Name: HR Green
Client #: _____
Address: 8710 Earhart Lane SW
City/State/Zip Code: Cedar Rapids, IA 52404
Project Manager: Robin Husman
Email Address: rhusman@hrgreen.com & ramundson@hrgreen.com
Telephone Number: 319/443-4000
Fax: _____
Sampler Name: (Print Name) R Husman, R Amundson
Sampler Signature: R Husman

Project Name: Chamberlain
Project #: 1011021
Site/Location ID: Waterloo
State: IA
Report To: R Husman, R Amundson
Invoice To: Robin Husman
Quote #: _____
PO#: _____

TAT
___ Standard
___ Rush (surcharges may apply)
Date Needed: _____
Fax Results: Y N
Email Results: Y N

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

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix (SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify, Other)	HNO3	HCl	NaOH	H2SO4	Methanol	None	Other (Specify)	VOCs	TEH/DRO									REMARKS
Pit 4	1/18/13	9:40	G	N	S						X		✓	✓									
~~R Concrete~~	~~1/18/13~~	~~9:30~~	~~G~~	~~N~~	~~S~~						~~X~~		~~✓~~	~~✓~~									Remove
Tank Pit	1/18/13	9:15	G	N	S						X		✓	✓									
~~Sam~~ Tank Sand	1/18/13	8:50	G	N	S						X		✓	✓									

Special Instructions: No tax / City Project

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
R Husman	1/18/13	1005	Travis A Beck	1/18/13	10:16
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

LABORATORY COMMENTS:

TAL-0033 (0708)

Page 1 of 1

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2/4/2013

Login Sample Receipt Checklist

Client: HR Green, Inc

Job Number: 310-1153-1
SDG Number: 1011021

Login Number: 1153
List Number: 1
Creator: Wilson, Cheryl

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= 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.	N/A	Samples received same day as sampling
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
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.	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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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