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PHASE II ENVIRONMENTAL SITE ASSESSMENT
EPA COOPERATIVE AGREEMENT NUMBERS:
BF-98763701-0, BF-98763801-0

COUNCIL BLUFFS BROWNFIELDS ASSESSMENT
SITE CLUSTER #4
900, 925, and 1025 SOUTH 7th STREET
645 and 721 9th AVENUE
SOUTH 7TH STREET BETWEEN 10TH AND 11TH AVENUES

COUNCIL BLUFFS, IOWA

SEPTEMBER 2007

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1.0 EXECUTIVE SUMMARY

The City of Council Bluffs (City) is currently participating in the U.S. Environmental Protection Agency (EPA) Brownfields Assessment program. The goal of this economic development initiative is to facilitate community revitalization and promote sustainable economic conditions by addressing any real or perceived environmental conditions associated with abandoned or underutilized properties within the Council Bluffs South Main Brownfields Project Area.

During the month of December 2006, Howard R. Green Company was retained by the City to conduct a Phase I Environmental Site Assessment (ESA) on the subject properties located at 925 South 7th Street, 645 9th Avenue, 900 South 7th Street, 1025 South 7th Street, 721 9th Avenue, and Lots 13, 14, 15, and 16 in Block 11 of the Riddle Tract, collectively referred to as Cluster #4. The Phase I assessment process revealed the presence of recognized environmental conditions (RECs)[1] in connection with the subject properties.

A Site Addendum for Phase II assessment activities was prepared and submitted to the EPA Project Officer. The EPA approved the Site Addendum on February 1, 2007. A copy of the Site Addendum is provided in Appendix A.

Phase II investigation activities were conducted on the property July 16 through July 22, 2007. The assessment was conducted using funding from the City's EPA Brownfields Assessment Grant. The intent of the assessment was to determine any environmental impairment to the property and its affect on redevelopment planning.

The results of the Phase II investigation are provided in this document. The findings and conclusions are summarized as follows:

- VOCs, SVOCs/PNAs, TEHs, Pesticides, Cyanide, and RCRA Metals were detected in Range 1 soils. Arsenic, benzo (a) anthracene, benzo (b) fluoranthene, benzo (a) pyrene, dibenzo (a,h) anthracene, and indeno (1,2,3-cd) pyrene exceeded their respective Statewide Standards. The concentrations of the remaining detected constituents were below their respective Statewide Standards. The cumulative cancer risk for a site resident was above regulatory limits. However, noncancer health risk for a site resident was below regulatory limits. According to the evaluation criteria, further evaluation or remedy of impairment is recommended due to the elevated concentrations of these constituents and the associated cancer risk.

- VOCs, PNAs, TEHs, and RCRA Metals were detected in Range 2 soils. Benzo (a) anthracene, benzo (b) fluoranthene, benzo (a) pyrene, and dibenzo (a,h) anthracene were detected above their respective Statewide Standards. The concentrations of the remaining detected constituents were below their respective Statewide

[1] *Recognized environmental conditions,* as used by ASTM Standard E 1527-05 is defined as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water on the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Standards. The cumulative cancer risk for a site resident was above regulatory limits. However, noncancer health risk for a site resident was below regulatory limits. Additionally, coal tar was encountered between 25' below ground surface (bgs) and 27' bgs in soil boring CL#4-SB-8. According to the evaluation criteria, further evaluation or remedy of impairment is recommended due to the elevated concentrations of these constituents and the associated cancer risk.

- VOCs, PNAs, TEHs, and RCRA Metals were detected in groundwater beneath the property. Benzene, ethylbenzene, methylene chloride, naphthalene, fluorene, 2-methylnaphthalene, and arsenic were detected above their respective Statewide Standard. The concentrations of the remaining constituents were below the Statewide Standards. Due to the presence of a city-wide ordinance that prohibits the use of groundwater for private wells, no further action is recommended for the constituents detected in groundwater on the property. However, due to the benzene concentration exceeding the Iowa Tier 1 Look-up Table standard for Groundwater to Plastic Water Line and Groundwater Vapor to Enclosed Space, additional recommendations are made for public utilities and site workers in Section 8.0.

Based on the results of data collected during the Phase II Assessment, it is the opinion of Howard R. Green Company that further investigation or remedial actions are recommended. This is due to, but not limited to, the presence of coal tar, unacceptable cancer and noncancer health risks, high arsenic, Cyanide, and polyaromatic hydrocarbons (PAHs) levels in the Range 1 soils, Range 2 soils, and groundwater samples. Further investigation is needed to better delineate the extent of the contamination, and associated health risks, on and near Cluster #4 properties.

IDNR concurrence with this conclusion is recommended and should be pursued by submitting a copy of this document to the IDNR Contaminated Sites Section and requesting a response letter.

2.0 INTRODUCTION

The City of Council Bluffs received a U.S. EPA Brownfields Assessment Grant to conduct environmental assessments on properties located within the Council Bluffs South Main Brownfields Project Area. The goal of the City's Brownfields Assessment program is to facilitate community revitalization and promote sustainable economic conditions by addressing any real or perceived environmental conditions associated with abandoned or underutilized properties within the Council Bluffs South Main Brownfields Project Area. Funding to accomplish this goal is provided by two EPA Brownfields Cooperative Agreements.

2.1 Purpose

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 Underground Storage Tanks (USTs).*

Should the City consider acquisition of the property, this assessment will allow them to satisfy the all appropriate inquiry requirements to obtain protection from potential liability under CERCLA[1] as an innocent landowner, a contiguous property owner, or a bona fide prospective purchaser.

2.2 Problem Statement

The City of Council Bluffs is evaluating abandoned and underutilized properties with the intent of encouraging redevelopment. Evaluation of these properties is conducted through the collection and analysis of environmental data.

The EPA Brownfields Cooperative Agreement requires that the environmental data collected are of the appropriate type, quantity, and quality to support project decisions. Project data quality objectives (DQOs) were identified in the Generic Quality Assurance Project Plan (QAPP) for the Superfund Integrated Site Assessment and Targeted Brownfields Assessment Programs, November 1998 (Updated July 2005). Project specific DQOs were identified and documented in the "Site Addendum for the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Programs."

Evaluation of environmental impairment is conducted using the regulatory programs outlined in the 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*

[1] Comprehensive Environmental Response Compensation and Liability Act

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 Background

The Site Addendum specifies the sampling requirements intended to address potentially impacted portions of a property. The project decision regarding feasibility for redevelopment is a preliminary screening process and does not require a final or complete IAC 135 or IAC 137 demonstration of compliance. This is generally consistent with the IDNR's own approach of using the IAC 137 Statewide Standards as a screening process for unregulated releases.

Howard R. Green Company conducted a Brownfields Phase I ESA on the property during December 2006. The Cluster #4 properties are located in the general industrial (I-2) and commercial (C2) area of the City of Council Bluffs. The South Expressway (County Highway F92) is located to the east. Various industrial and commercial buildings are adjacent to the properties, located west of S. 7th and 8th Street and south of 11th Street. Various commercial and residential development are adjacent to the properties, located north of 9th Avenue. Recognized environmental conditions (RECs) were identified in connection with the subject properties. Historical operations on the subject properties involved the storage and use of hazardous substances and petroleum products.

Based on the data gathered during the Phase I ESA process, Howard R. Green Company recommended the City conduct a Phase II ESA to determine any actual impairment to the property. Howard R. Green Company considered the results of Phase I ESA to develop a hybrid Phase II investigation approach that would produce data of sufficient quantity and quality for project decisions, while staying within funding constraints of the Brownfields Assessment project.

Howard R. Green Company considered the use of a number of alternative sampling and assessment approaches used on other projects, including mobile field laboratories and direct-push technology. However, in view of probable end use under IAC 137, fixed laboratory analyses and groundwater monitoring wells were required.

2.4 Principal User

The principle end user of Project information will be the City of Council Bluffs. Further reliance by others will be beyond the scope of the EPA Brownfields Assessment Cooperative Agreement.

The City will make primary use of the data to aid in decision-making relative to considering properties for redevelopment. The data will not be the sole nor final determinant in the positive or negative determination of feasibility for redevelopment. It is anticipated that a Phase II ESA evaluation done for preliminary assessment and feasibility for a property will be used as the basis for potential secondary phases of investigation and subsequent remedial actions. Funding for subsequent investigation and remediation by the City or other entities could be external to federal programs.

3.0 SITE CHARACTERISTICS

The Cluster #4 properties are located within the NE ¼ of the SW ¼ of Section 36 Township 75 North, Range 44 West in Pottawattamie County, Iowa, and is further located by the latitude and longitude at 41° 15' 10.8" North and 95° 51' 17.3" West (see Figure 1, Appendix B).

The Pottawattamie County Assessor's Office provided the following information:

Address	Owner	Parcel ID	Legal Description
645 9th Avenue	Habitat for Humanity	035 696 022052	Riddles Subdivision Lots 15 and 16 and parts of Lots 14 and 17 block 6 and vacated alley
721 9th Avenue	Frank and Susan Grund	035 696 022049	Riddles Subdivisions north 59' of Lot 8 except the east 10' and the vacated alley adjacent on the west Lot 9 and North 23.5' of Lot 10 Block 5
900 South 7th Street	Midwest Sporting Goods Inc	035 696 022041	Riddles Subdivision Lots 1 and 2 and east 10' of Lot 8 of block 5 and vacated alley
925 South 7th Street	MSGA Enterprises Inc	035 696 022054	Riddles Subdivision Lots 11, 12, 13 and part of Lots 10, 14 and 17 of Block 6 and the vacated alleys
1025 South 7th Street	Linda Whisler	035 696 022123	Riddles Subdivision South Lot 10 & 12, all of Lot 11, and adjacent vacated alley
South 7th Street between 10th and 11th Avenues	Aquila	035 696 022128, 035 696 022127, 035 696 022125, 035 696 022124	Riddles Subdivision Lot 12, Lots 13-17 Block 11

3.1 Phase I Environmental Site Assessment

Howard R. Green Company performed a Phase I Environmental Site Assessment on the property during December 2006. The assessment revealed evidence of five (5) RECs in connection with the subject properties and/or the adjacent properties. The RECs are summarized below and illustrated in Figure 2.

1. The former Farm Service Company at 1020 South 8th Street was identified as an underground storage tank (UST) and leaking underground storage tank (LUST) site. The property is currently owned by the City of Council Bluffs, and is located approximately 50 feet southwest of the subject property. The Iowa Department of Natural Resources (IDNR) classified the site as No Action Required on February 5, 2001. Free product is currently being removed from one monitoring well at the site on a monthly basis.

2. The former Citizens Gas and Electric Company Manufactured Gas Plant

(currently Aquila), located at 11th Avenue and 7th Street, is currently enrolled in Iowa's Land Recycling Program. The facility is located adjacent to the subject properties. Additionally, historical information identified the existence of several gasometers (natural or town-gas holders). Two such gasometers were historically located on the subject property. One 500,000 cubic feet (cu ft) gasometer was historically located at the current location of the nearby overhead highway. Soil and groundwater contamination has been identified on the former gas plant property and surrounding properties. The amount and extent of this contamination is unknown. A limited Phase II ESA of several properties in the area was completed by Theile Geotech, Inc. The sampling results indicated off-site impact to groundwater and soil by contaminants often associated with manufactured gas plants.

3. The subject properties at 645 9th Avenue, 721 9th Avenue and 900 South 7th Street were identified as a railroad on historic Sanborn maps and city directories.

4. The subject property at 925 South 7th Street identified as a former coal yard and railroad on historic Sanborn maps.

5. The subject property at 1025 South 7th Street was identified as part of the former Citizens Gas and Electric Company and showed buried oil tanks on the property according to historic Sanborn maps.

4.0 ON-SITE DEVIATIONS FROM PLAN

Several site-specific conditions warranted immediate deviations from the Site Addendum and Quality Assurance Project Plan (QAPP). The overall purpose of each deviation was to avoid unmarked obstacles, complete the assessment in a timely manner, and ensure field activities produced adequate data to properly characterize site conditions. Three major on-site deviations are listed and discussed below:

1. Relocated CL#4-SB-8/CL#4-MW-4D from predetermined sample locations to avoid unmarked obstacles and to ensure the health and safety of on-site workers.
2. Soil samples from CL#4-SB-1 through CL#4-SB-3 and CL#4-SB-7 through CL#4-SB-8 were collected using a track mounted push probe with a five-foot hollow steel cylinder and acetate liner, which allowed efficient access to soil boring locations and saved time and resources.
3. Groundwater samples were collected using a low-flow purging and sampling technique to aid well stabilization.

One sample/monitoring well location was relocated to avoid unmarked subsurface obstacles (railroad signal lines) and for the health and safety of on-site workers due to the lack of clearance between the building located at 1025 South Street and the railroad tracks. The following boring was offset more than four feet to accommodate for the above mentioned reasons:

- CL#4-SB-8/CL#4-MW-4D (offset 60 feet south)

A track mounted push probe was utilized to collect continuous soil samples from monitoring well CL#4-SB-8 due to the difficulty encountered while using a hollow stem auger (HAS) drill rig to complete monitoring well CL#2-MW-2D. The fine sandy subsurface materials encountered at depth were causing problems with heaving and the need to use a greater volume of drilling fluids (150 gallons) to complete the continuous sampling. The track mounted push probe greatly reduced the use of drilling fluids during the installation of monitoring well CL#4-MW-4D (25 gallons) and was also used to collect the samples from CL#4-SB-1 through CL#4-SB-3 and CL#4-SB-7.

Groundwater samples were collected from monitoring wells CL#4-MW-1 through CL#4-MW-4D using a low-flow purging and sampling technique. This was done to minimize the presence of suspended solids and allow for the collection of unfiltered groundwater samples to be analyzed for total RCRA Metals as required by the EPA representative.

5.0 MANAGEMENT OF WASTES GENERATED DURING SAMPLING

All waste streams generated during sampling (e.g., decontamination/rinse water, disposable gloves, contaminated soil not returned to ground at the point from which it was excavated, etc.) are subject to the determination requirements at Title 40 Code of Federal Regulations (CFR) § 262.11. Waste determined to be hazardous are subject to the applicable regulations. In particular, 40 CFR § 262.34 allows generators to accumulate hazardous waste in tanks or containers for up to 90 days, or otherwise specified for small quantity or conditionally exempt generators.

The waste generated during the assessment activities completed July 16 to July 22, 2007 was containerized on-site and will be properly disposed of off-site pending analytical results.

6.0 PHASE II ENVIRONMENTAL SITE ASSESSMENT

Phase II field investigation activities were conducted July 16 through July 22, 2007. Eight soil borings were advanced using either a truck mounted drill rig with 4.25-inch hollow-stem augers or track mounted push probe. Soil samples were collected using a split spoon sampling device or hollow steel cylinder with an acetate liner and field screened for the presence of organic vapors using a photo-ionization detector. Upon the completion of soil sampling activities, four of the borings were converted to monitoring wells to evaluate groundwater conditions on the property. Sample locations are depicted on Figure 2 in Appendix B. Laboratory analytical reports are provided in Appendix C.

6.1 Soil Assessment

Soil boring CL#4-SB-1 was advanced on the west side of the building at 721 9th Avenue to evaluate any impacts from former railroad activities as identified on historic Sanborn maps and city directories.

Soil boring CL#4-SB-2 was advanced on the east side of the building at 900 South 7th Street to evaluate any impacts from former railroad activities as identified on historic Sanborn maps and city directories.

Soil boring CL#4-SB-3 was advanced on the east side of the building at 645 9th Avenue to evaluate any impacts from former railroad activities as identified on historic Sanborn maps and city directories.

Soil boring CL#4-SB-4 was advanced in the middle of the parking lot on the north side of the building located at 925 South 7th Street to evaluate any potential impacts from the former manufactured gas plant (FMGP) located adjacent and south of the site as well as to determine any impact from the historical activities at the site. Even though the FMGP is located to the south of the site, in the direction of the inferred groundwater flow, there is the possibility that potential dense non-aqueous phase liquid (DNAPL) contamination can follow a seam or low area in a confining layer and travel in a different direction than that of the groundwater.

Soil boring CL#4-SB-5 was advanced on the south side of the building located at 925 South 7th Street to evaluate any potential impacts from the former manufactured gas

plant (FMGP) located adjacent and south of the site as well as to determine any impact from the historical use as coal storage yard.

Soil boring CL#4-SB-6 was advanced on the west side of the Aquila property located at South 7th Street between 10th and 11th Avenues to evaluate any potential impacts from the former manufactured gas plant (FMGP) located at the site.

Soil boring CL#4-SB-7 was advanced on the southeast corner of the Aquila property located at South 7th Street between 10th and 11th Avenues to evaluate any potential impacts from the former manufactured gas plant (FMGP) located at the site.

Soil boring CL#4-SB-8 was advanced on the south side of the railroad tracks adjacent to property located at 1025 South 7th Street to evaluate any potential impacts from the former manufactured gas plant (FMGP) and underground storage tanks (UST) located at the site.

The soil samples were submitted to the laboratory for analysis including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), Resource Conservation and Recovery Act (RCRA) metals, polycyclic aromatic hydrocarbons (PAHs), pesticides, total extractable hydrocarbons (TEH), and Cyanide.

Range 1 Soil (0-2')

Surficial soil samples from all eight borings (CL#4-SB-1 through CL#4-SB-8) were submitted to the laboratory for analysis of VOCs and the eight RCRA Metals. Soil samples from CL#4-SB-1, CL#4-SB-2, CL#4-SB-3, and CL#4-SB-8 were submitted for analysis of SVOCs, TEH, and Pesticides. Soil samples from CL#4-SB-4, CL#4-SB-5, CL#4-SB-6, and CL#4-SB-8 were submitted to the laboratory for analysis of PAHs (PNAs). In addition, the soil samples from CL#4-SB-6, CL#4-SB-7, and CL#4-SB-8 were also submitted for analysis of TEH and Cyanide.

Analytical results of the detected constituents are provided in the following tables. All soil results are reported in milligrams of contaminant per kilogram of soil (mg/kg). Laboratory reports are provided in Appendix C.

Arsenic was detected above its respective Statewide Standard of 19 mg/kg (including the background contribution). None of the remaining detected constituents were above their respective Statewide Standard. Please see Figure 5a for the associated Arsenic Concentrations Contour Map, which depicts the detected concentrations of arsenic within the Range 1 soils.

Table 1 – Range 1 Soil
RCRA Metals (mg/kg)

Sample Depth	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	Statewide Standard
Constituent	**CL#4-SB-1**	**CL#4-SB-2**	**CL#4-SB-3**	**CL#4-SB-4**	**CL#4-SB-5**	**CL#4-SB-6**	**CL#4-SB-7**	**CL#4-SB-8**	
Arsenic	7.30	7.71	5.33	10.5	**22.4**	7.63	5.86	18.9	1.9 (19 w/background)
Barium	202	256	180	188	189	294	220	222	15000
Cadmium	ND	ND	ND	ND	ND	ND	ND	1.37	70
Chromium	13.5	15.9	13.2	15.7	9.82	15.8	17.6	14.7	210
Lead	55.1	30.1	70.5	209	279	9.46	13.3	131	400
Mercury	0.0731	0.0672	0.0599	0.105	0.108	ND	0.0596	0.246	23

Notes:
ND = Non-Detect, Constituent was below the laboratory's MDL
No Data = No Statewide Standard was available.

Cyanide detected in the Range 1 soil sample from soil boring CL#4-SB-8. The detected concentration of 1.14 mg/kg was below the Statewide Standard of 1500 mg/kg. No Cyanide was detected in the soil samples from CL#4-SB-6 or CL#4-SB-7.

None of the VOC constituents detected in the Range 1 soils were above their respective Statewide Standard.

Table 2 – Range 1 Soil
VOCs (mg/kg)

Sample Depth	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	Statewide Standard
Constituent	**CL#4-SB-1**	**CL#4-SB-2**	**CL#4-SB-3**	**CL#4-SB-4**	**CL#4-SB-5**	**CL#4-SB-6**	**CL#4-SB-7**	**CL#4-SB-8**	
Acetone	0.105	0.0706	0.0580	0.147	ND	ND	0.0598	0.114	68000
Benzene	ND	ND	ND	ND	ND	ND	0.0490	ND	88
Ethylbenzene	ND	ND	ND	ND	ND	ND	0.0431	ND	7600
Hexane	ND	ND	ND	ND	ND	ND	0.0396	ND	4600
Naphthalene	ND	ND	ND	ND	ND	ND	0.0387	ND	1100
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	ND	0.0339	ND	3800
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	ND	0.0140	ND	3800
Xylenes, total	ND	ND	ND	ND	ND	ND	0.0964	ND	15000

Notes:
ND = Non-Detect, Constituent was below the laboratory's MDL
No Data = No Statewide Standard was available

Benzo (a) anthracene, benzo (b) fluoranthene, benzo (a) pyrene, dibenzo (a,h) anthracene, and indeno (1,2,3-cd) pyrene were detected in the Range 1 soil samples at concentrations above their respective Statewide Standard. None of the remaining detected constituents were above their respective Statewide Standard. Please see Figure 5b for the associated Benzopyrene Concentrations Contour Map, which depicts the detected concentrations of benzo (a) pyrene within the Range 1 soils.

Table 3 – Range 1 Soil
SVOCs/PNAs (mg/kg)

Sample Depth	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	Statewide Standard
Constituent	**CL#4-SB-1**	**CL#4-SB-2**	**CL#4-SB-3**	**CL#4-SB-4**	**CL#4-SB-5**	**CL#4-SB-6**	**CL#4-SB-7**	**CL#4-SB-8**	
Acenaphthene	ND	ND	0.639[1]	ND	ND	ND	ND	ND	3400
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	No Data
Anthracene	ND	ND	1.94	0.0384[2]	0.211[2]	0.0350[2]	2.05[2]	ND	17000
Benzo (a) anthracene	0.220[1]	ND	**3.29**	0.155[2]	0.681[2]	0.939[2]	**3.68[2]**	0.285	3.1

Benzo (b) fluoranthene	0.178[1]	ND	2.36	0.330[2]	0.809[2]	0.824[2]	**8.62[2]**	0.456	3.1
Benzo (k) fluoranthene	0.172[1]	ND	2.12	0.0811[2]	0.385[2]	0.534[2]	3.32[2]	0.235	31
Benzo (a) pyrene	0.198[1]	ND	**2.56**	0.291[2]	**1.12[2]**	**1.40[2]**	**6.92[2]**	**0.484**	0.31
Benzo (g,h,i) perylene	0.133[1]	ND	1.50[1]	0.170[2]	0.432[2]	0.607[2]	5.82[2]	0.322	No Data
Carbazole	ND	ND	0.877[1]	ND	ND	ND	ND	ND	120
Chrysene	0.262[1]	ND	3.36	0.259[2]	1.05[2]	1.01[2]	4.55[2]	0.412	310
Dibenzo (a,h) anthracene	ND	ND	ND	0.0364[2]	0.145[2]	0.134[2]	**1.49[2]**	ND	0.31
Dibenzofuran	ND	ND	0.729[1]	ND	ND	ND	ND	ND	No Data
Fluoranthene	0.612	0.144[1]	8.78	0.512[2]	1.63[2]	0.751[2]	2.14[2]	2.43	2300
Fluorene	ND	ND	1.16[1]	0.0763[2]	0.182[2]	ND	1.83[2]	ND	2300
Indeno (1,2,3-cd) pyrene	0.147[1]	ND	1.63[1]	0.235[2]	0.537[2]	0.772[2]	**3.64[2]**	0.341	3.1
1-Methylnaphthalene	ND	ND	ND	0.164[2]	0.628[2]	0.0685[2]	ND	ND	No Data
2-Methylnaphthalene	ND	ND	ND	0.192[2]	0.888[2]	ND	ND	ND	240
Napthalene	ND	ND	0.456[1]	0.0714[2]	0.398[2]	ND	ND	ND	1100
Phenanthrene	0.382[1]	ND	8.52	0.401[2]	1.79[2]	0.0371[2]	0.772[2]	0.317	No Data
Pyrene	0.456	0.119[1]	6.59	1.62[2]	6.10[2]	2.11[2]	ND	1.49	1700

Notes:
1. Constituent detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). Concentrations within this range are estimated.
2. Constituent identified by PNA method 8310.
ND = Non-Detect, Constituent was below the laboratory's MDL
No Data = No Statewide Standard was available

None of the TEH constituents detected in the Range 1 soil samples were above their respective standards.

Table 4 – Range 1 Soil
TEH (mg/kg)

Sample Depth	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	**Iowa Tier 1 Look-up Table**
Constituent	**CL#4-SB-1**	**CL#4-SB-2**	**CL#4-SB-3**	**CL#4-SB-6**	**CL#4-SB-7**	**CL#4-SB-8**	
TEH-Diesel	12.9	ND	10.3	ND	869	44.7	3800
TEH-Gasoline	ND	ND	ND	ND	134	11.9	No Data
TEH-Motor Oil	47.7	34.0	87.9	43.5	1680	195	No Data

Notes:
ND = Non-Detect, Constituent was below the laboratory's MDL
No Data = No Statewide Standard was available

None of the Pesticides were detected in the Range 1 soils above their respective Statewide Standards.

Table 5 – Range 1 Soil
Pesticides (mg/kg)

Sample Depth	0-2'	0-2'	0-2'	**Statewide Standards**
Constituent	**CL#4-SB-1**	**CL#4-SB-2**	**CL#4-SB-3**	
Beta-BHC	ND	ND	0.0228	No Data
Gamma-BHC (Lindane) [2C]	ND	ND	0.00933	2.2
Alpha-Chlordane	ND	ND	0.00869	8.1
Gamma-Chlordane	ND	ND	0.00804	8.1
4,4'-DDE	0.427	ND	0.00225	7.1
4,4'-DDT	0.118	ND	0.00322	8.6

Notes:
ND = Non-Detect, Constituent was below the laboratory's MDL
No Data = No Statewide Standard was available

Range 2 Soil (>2')

Range 2 soil samples from soil borings CL#4-SB-6, CL#4-SB-7, and CL#4-SB-8 were submitted to the laboratory for analysis of VOCs, PAHs (PNAs), TEH, Cyanide, and RCRA Metals.

Coal tar was encountered between 25' below ground surface (bgs) and 27' bgs in soil boring CL#4-SB-8.

Analytical results of the detected constituents are provided in the following tables. All soil results are reported in milligrams of contaminant per kilogram of soil (mg/kg). Laboratory reports are provided in Appendix C.

None of the RCRA Metals were detected in the Range 2 soils above their respective Statewide Standards.

Table 6 – Range 2 Soils
RCRA Metals (mg/kg)

Sample Depth	2-3'	10-12'	72-74'	Statewide Standard
Constituent	**CL#4-SB-6**	**CL#4-SB-7**	**CL#4-SB-8**	
Arsenic	6.80	6.63	2.39	1.9 (19 with background)
Barium	236	255	80.3	15000
Chromium	18.8	26.3	6.79	210
Lead	22.2	15.2	ND	400
Mercury	0.121	0.0765	ND	23

Notes:
ND = Non-Detect, Constituent was below the laboratory's MDL

Cyanide was not detected in the Range 2 soil samples.

None of the VOC constituents detected in the Range 2 soils were above their respective Statewide Standard. However, the benzene and ethylbenzene concentrations detected in CL#4-SB-7 exceed the Iowa Tier 1 Look-up Table standards for Soil Leaching to Groundwater and Soil to Plastic Water Line. Additionally, the benzene concentration exceeds the Iowa Tier 1 Look-up Table standard for Soil Vapor to Enclosed Space.

Table 7 – Range 2 Soil
VOCs (mg/kg)

Sample Depth	2-3'	10-12'	72-74'	Statewide Standard
Constituent	**CL#4-SB-6**	**CL#4-SB-7**	**CL#4-SB-8**	
Benzene	ND	4.56	ND	88
n-Butlybenzene	ND	0.152	0.101	23000
Ethylbenzene	ND	49.9	ND	7600
Hexane	ND	0.0601	ND	4600
Isopropylbenzene	ND	5.33	0.0284	No Data
p-Isopropyltoluene	ND	0.147	0.00573	No Data
Naphthalene	ND	243	ND	1100
n-Propylbenzene	ND	0.244	0.0106	No Data
Toluene	ND	2.95	0.00526	6100
1,2,4-Trimethylbenzene	ND	20.7	0.0891	3800
1,3,5-Trimethylbenzene	ND	0.380	0.0967	3800
Xylenes, total	ND	69.6	0.410	15000

Notes:
ND = Non-Detect, Constituent was below the laboratory's MDL
No Data = No Statewide Standard was available

Benzo (a) anthracene, benzo (b) fluoranthene, benzo (a) pyrene, and dibenzo (a,h) anthracene were detected above their respective Statewide Standard. None of the remaining detected constituents were above their respective Statewide Standard.

Table 8 – Range 2 Soil
PNAs (mg/kg)

Sample Depth	2-3'	10-12'	72-74'	Statewide Standard
Constituent	**CL#4-SB-6**	**CL#4-SB-7**	**CL#4-SB-8**	
Acenaphthene	ND	32.3	0.268	3400
Acenaphthylene	0.130	4.00	ND	No Data
Anthracene	0.560	16.2	ND	17000
Benzo (a) anthracene	**3.07**	**5.72**	ND	3.1
Benzo (b) fluoranthene	**3.60**	**3.31**	ND	3.1
Benzo (k) fluoranthene	2.17	1.53	ND	31
Benzo (a) pyrene	**5.93**	**4.78**	ND	0.31
Benzo (g,h,i) perylene	2.46	1.45	ND	No Data
Chrysene	3.40	7.00	ND	310
Dibenzo (a,h) anthracene	**0.573**	**0.315**	ND	0.31
Fluoranthene	2.62	18.3	ND	2300
Fluorene	0.192	31.9	ND	2300
Indeno (1,2,3-cd) pyrene	2.85	1.75	ND	3.1
1-Methylnaphthalene	0.193	63.7	0.387	No Data
2-Methylnaphthalene	ND	88.2	0.625	240
Napthalene	0.0465	117	4.39	1100
Phenanthrene	0.730	46.1	ND	No Data
Pyrene	7.19	94.8	ND	1700

Notes:
ND = Non-Detect, Constituent was below the laboratory's MDL
No Data = No Statewide Standard was available

None of the TEH constituents detected in the Range 2 soil samples were above their respective standard.

Table 9 – Range 2 Soil
TEH (mg/kg)

Sample Depth	2-3'	10-12'	72-74'	Iowa Tier 1 Look-up Table
Constituent	**CL#4-SB-6**	**CL#4-SB-7**	**CL#4-SB-8**	
TEH-Diesel	56.9	1050	ND	3800
TEH-Gasoline	10.8	2810	26.6	No Data
TEH-Motor Oil	181	750	16.3	No Data

Notes:
ND = Non-Detect, Constituent was below the laboratory's MDL
No Data = No Statewide Standard was available

6.2 Groundwater Assessment

Four of the eight soil borings (CL#4-SB-4, CL#4-SB-5, CL#4-SB-6, and CL#4-SB-8) were completed as groundwater monitoring wells (CL#4-MW-1 through CL#4-MW-4D) to evaluate any impact to groundwater beneath the properties. The wells were constructed of 2" outside diameter PVC casing with 0.010" slotted screen. Groundwater was encountered at depths ranging from 7.54 feet below top of casing (btoc) in CL#4-MW-1 to 12.97 feet btoc in CL#4-MW-4D. Well construction details are provided in Appendix D.

Following completion of the monitoring wells, the wells were developed by surging and removing approximately 10 well volumes of water with a submersible pump to produce water that is visually free of suspended sediments. An additional volume of water was removed from monitoring well CL#4-MW-4D to account for the amount of drilling fluids used during completion of the soil borings. Typically, three times the volume of drilling fluids used were removed during development to ensure a representative sample from the unconfined aquifer.

On July 20 and July 21, 2007, the wells were sampled using a low-flow purging and sampling technique to maintain minimal drawdown and disturbance of the underlying aquifer. A purging rate of less than 5 liters per minute (L/min) was used and purging was continued until the well was stabilized as indicated by three consecutive measurements of the field water quality criteria listed below. With the exception of monitoring well CL#4-MW-3, where three consecutive readings of turbidity (NTU) were not within +/- 10% (the last reading was below 10), all four wells were stabilized.

- PH +/- 0.1 units
- Temperature +/- 0.1 degrees Celsius
- Specific Conductivity (temperature corrected) +/- 3%
- Turbidity (NTU) +/- 10%

Following stabilization, samples were collected and submitted to the laboratory for analysis including VOCs, SVOCs, PAHs, total and dissolved RCRA Metals, and total dissolved solids (TDS). In addition, samples were collected and submitted for analysis of TEH and Cyanide from monitoring wells CL#4-MW-3 and CL#4-MW-4D. The samples submitted for metals analysis were both filtered and unfiltered.

Aquifer tests were performed on wells CL#4-MW-1, CL#4-MW-2, and CL#4-MW-4D on July 20 and July 21, 2007. The tests were conducted by removing a volume of water with a disposable bailer, then monitoring the recovery with a Hermit Data Logger and pressure transducer. The computer model AQTESOLV© was used to calculate the hydraulic conductivities of the wells from the data collected. Hydraulic conductivities ranged from 0.1093 meters/day in monitoring well CL#4-MW-2 to meters/day in monitoring well CL#4-MW-4D 9.188. Hydraulic conductivity results are in Appendix E.

Total dissolved solids (TDS) analysis was conducted on groundwater samples from all four wells. The TDS ranged from 580 mg/l in monitoring well CL#4-MW-2 to 1,260 mg/l in monitoring well CL#4-MW-3.

The IDNR considers groundwater sources protected if the hydraulic conductivity is at least 0.44 m/day and the total dissolved solids is less than 2,500 mg/l. Based on the results of hydraulic conductivity testing from all three wells, and the TDS analysis, the groundwater beneath the site is considered protected. This is based on monitoring wells CL#4-MW-1 and CL#4-MW-4D having hydraulic conductivities greater than 0.44 m/day and the TDS for each of these wells being less than 2,500 mg/L.

Groundwater flows generally to the southwest as illustrated in Figures 4a and 4b in Appendix B. Figure 4a depicts the measured groundwater elevations from the shallow (water table) monitoring wells from Clusters #2 and #4 and Figure 4b depicts the

presumed groundwater flow direction as measured in the deep monitoring wells installed on Clusters #2 and #4.

Analytical results of the detected constituents are provided in the following tables. All groundwater results are reported in milligrams of contaminant per liter of groundwater (mg/L). Laboratory reports are provided in Appendix C.

VOCs were detected in the groundwater samples from all of the monitoring wells (CL#4-MW-1, CL#4-MW-2, CL#4-MW-3, and CL#4-MW-4D). The groundwater from the CL#4-MW-2 monitoring well had an elevated concentration of benzene, ethylbenzene, methylene chloride, and naphthalene. The groundwater from the CL#4-MW-4D monitoring well had an elevated concentration of benzene, ethylbenzene, and naphthalene. Furthermore, benzene and naphthalene from CL#4-MW-4D exceeded their respective Statewide Standards for a Non-Protected Groundwater Source. In addition, the benzene concentration exceeded the Iowa Tier 1 Look-up Table standards for Groundwater Vapor to Enclosed Space and Groundwater to Plastic Water Line. The remaining detected VOC constituents in the groundwater samples were below their respective Statewide Standard for a Protected Groundwater Source.

Table 10 – Groundwater VOCs (mg/L)

Constituent	CL#4-MW-1	CL#4-MW-2	CL#4-MW-3	CL#4-MW-4D	Statewide Standard	
					Protected	Non-Protected
Acetone	ND	0.00588[1]	0.00690[1]	ND	6.3	32
Benzene	ND	0.000420[1]	ND	**8.51[2,3]**	0.005	0.10
Bromodichloromethane	ND	ND	ND	0.00340[1]	0.08	0.4
2-Butanone (MEK)	0.000910[1]	0.00117[1]	ND	ND	4	21
n-Butylbenzene	ND	0.0335	ND	0.112	2.1	10
tert-Butylbenzene	ND	0.000720[1]	ND	0.00540[1]	No Data	No Data
Chloroform	ND	ND	ND	0.0169	0.08	0.57
Chloromethane	ND	ND	ND	0.00490[1]	0.03	0.27
Ethylbenzene	ND	0.00155	ND	**0.620**	0.7	3.5
Hexane	ND	ND	ND	0.00440[1]	0.42	2.1
Isopropylbenzene (Cumene)	ND	0.00487	ND	0.0158	0.7	3.5
Methylene Chloride	0.000590[1]	0.000540[1]	ND	**0.00520[1]**	0.005	0.47
Naphthalene	ND	**0.285**	ND	**1.88**	0.1	0.7
n-Propylbenzene	ND	0.000400[1]	ND	0.0114	No Data	No Data
Toluene	ND	0.000160[1]	0.000130[1]	0.0337	1	5
1,2,4-Trimethylbenzene	0.000510[1]	0.00705	ND	0.0682	0.35	1.8
1,3,5-Trimethylbenzene	0.000170[1]	0.00229	ND	0.0239	0.35	1.8
Xylenes (total)	0.00115[1]	0.0339	ND	0.438	10	50

Notes:
1. Constituent detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). Concentrations within this range are estimated.
3. Detected level exceeds the Iowa Tier 1 Look-up Table standard for Groundwater to Plastic Water Line
4. Detected level exceeds the Iowa Tier 1 Look-up Table standard for Groundwater Vapor to Enclosed Space
ND = Non-Detect, Constituent was below the laboratory's MDL; No Data = No Statewide Standard was available

Fluorene, 2-methylnaphthalene, and naphthalene, in groundwater samples from CL#4-MW-2 and CL#4-MW-4D, exceeded the Statewide Standard for a Protected Groundwater Source. Furthermore, naphthalene from CL#4-MW-4D exceeded the respective Statewide Standard for a Non-Protected Groundwater Source. None of the

remaining constituents were detected in concentrations exceeding their respective Statewide Standard for a Protected Groundwater Source.

Table 11 – Groundwater PNAs (mg/L)

Constituent	CL#4-MW-1	CL#4-MW-2	CL#4-MW-3	CL#4-MW-4D	Statewide Standard	
					Protected	Non-Protected
Acenaphthene	ND	0.00300	ND	0.0308	0.42	2.1
Anthracene	ND	0.0000116[1]	0.0000959[1]	0.00526	2.1	10
Benzo (a) anthracene	ND	ND	0.0000999[1]	0.000104	0.00024	0.0048
Benzo (b) fluoranthene	ND	ND	0.000127	ND	0.00024	0.0048
Benzo (k) fluoranthene	ND	ND	0.0000561[1]	ND	0.0024	0.048
Benzo (a) pyrene	ND	ND	0.000173	ND	0.0002	0.001
Benzo (g,h,i) perylene	ND	ND	0.000113[1]	ND	No Data	No Data
Chrysene	ND	ND	0.000124	0.0000966[1]	0.024	0.48
Fluoranthene	ND	ND	0.000206	0.00397	0.28	1.4
Fluorene	0.0000329[1]	ND	0.000155	**0.0288**	0.28	1.4
Indeno (1,2,3-cd) pyrene	ND	ND	0.000166	ND	0.00024	0.0048
1-Methylnaphthalene	0.0000887[1]	0.0546	0.000134[1]	0.158	No Data	No Data
2-Methylnaphthalene	ND	0.00106	ND	**0.0895**	0.028	0.14
Naphthalene	ND	**0.169**	0.000112[1]	**1.80**	0.1	0.7
Phenanthrene	ND	0.000169	0.000271	0.0231	No Data	No Data
Pyrene	ND	0.000162	0.000579	0.0103	0.21	1

Notes:
1. Constituent detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). Concentrations within this range are estimated.
ND = Non-Detect, Constituent was below the laboratory's MDL
No Data = No Statewide Standard was available

The groundwater samples submitted for RCRA Metals analysis were both filtered and unfiltered. The groundwater samples were collected with a field turbidity value of less than 10 NTUs.

Arsenic was detected in the groundwater samples collected from CL#4-MW-2 above the Statewide Standard for a Protected Groundwater Source.

Table 12 - Groundwater RCRA Metals (mg/L)

Constituent	CL#4-MW-1		CL#4-MW-2		CL#4-MW-3		CL#4-MW-4D		Statewide Standard	
	Total	Diss	Total	Diss	Total	Diss	Total	Diss	Protected	Non-Protected
Arsenic	ND	ND	**0.0130**	**0.0165**	ND	ND	0.00112	0.00113	0.01	0.05
Barium	0.196	0.197	0.278	0.320	0.136	0.126	1.05	1.34	2	10
Selenium	ND	0.00528	ND	ND	ND	ND	ND	ND	0.05	0.25

Notes:
ND = Non-Detect, Constituent was below the laboratory's MDL

TEH constituents were detected in the groundwater sample collected from CL#4-MW-4D. The concentrations of these constituents were above the Iowa Tier 1 Actual Groundwater Ingestion standards. However, due to a city ordinance initiated by the City of Council Bluffs, the use of groundwater for private wells or ingestion is prohibited. Therefore, the analytical results can be compared to the Iowa Tier 1 Potential

Groundwater Vapor to Enclosed Space and Groundwater to Plastic Water Line standards.

Table 13 – Groundwater TEH (mg/L)

Constituent	CL#4-MW-3	CL#4-MW-4D	Iowa Tier 1 Look-up Table	
			Groundwater Vapor to Enclosed Space	Groundwater to Plastic Water Line
TEH-Diesel	ND	1.58	2200	75
TEH-Gasoline	ND	16.5	No Data	No Data

Notes:
ND = Non-Detect, Constituent was below the laboratory's MDL
No Data = No Iowa Tier 1 Look-up Table standard was available

6.3 Risk Evaluations

Subrule 567 IAC 137.10(7) specifies cumulative risk criteria that must be complied with to acquire a no further action certificate under the Iowa Land Recycling Program (LRP). Cumulative risk is the summation of cancer and noncancer 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 on the IDNR Contaminated Sites Section website. The cumulative risk calculator assesses risk to potentially exposed parties, based on three standard exposure scenarios, from multiple contaminants and multiple media (i.e., groundwater, soil, and air).

To evaluate compliance with the acceptable risk criteria, the cumulative concentrations of contaminants must meet standards limiting increased cancer and noncancer health risk. The cumulative risk criteria are as follows:

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

Determination of exposure point concentrations for the risk calculation can be accomplished using one of the following methods.

- The maximum value for each contaminant in each medium from multiple samples of each medium of concern.
- The 95% Upper Confidence Limit (95% UCL) of the mean contaminant concentration in each medium.

For the purposes of this evaluation, the maximum contaminant concentration in each medium (soil and groundwater) was used to evaluate risk associated with the potential exposure pathways. This evaluation was conducted using the site resident (residential) and site worker exposure scenario. The site resident scenario is typically used when compliance with background or Statewide Standards is sought with no associated land use restrictions.

Range 1 Soil
The cumulative cancer risk for residential exposure to the constituents detected in Range 1 soils is 1.72. A cumulative cancer risk of ≤ 1 represents an acceptable risk. Therefore, the cancer risk for residential exposure in Range 1 soils is unacceptable.

However, the hazard quotients for each target organ for the constituents detected in Range 1 soils are acceptable. A sum value for each target organ must be ≤ 1 to be considered acceptable for noncancer health risk to a site resident. The maximum sum value was 0.96 for the heart.

Further action is recommended for the constituents detected in remaining Range 1 soil borings on the property. Cumulative Risk Calculator results are summarized in Appendix F.

Range 2 Soil
The cumulative cancer risk for residential exposure to the constituents detected in Range 2 soils is 1.25. A cumulative cancer risk of ≤ 1 represents an acceptable risk. Therefore, the cancer risk for residential exposure in Range 2 soils is unacceptable.

However, the hazard quotients for each target organ for the constituents detected in Range 2 soils are acceptable. A sum value for each target organ must be ≤ 1 to be considered acceptable for noncancer health risk to a site resident. The maximum sum value was 0.56 for the heart.

Further action is recommended for the constituents detected in Range 2 soils on the property. Cumulative Risk Calculator results are summarized in Appendix F.

Groundwater
Hazardous contaminants in groundwater were not evaluated for increased health risks. According to the following Cumulative Risk Calculator guidance:

- Groundwater exposure should be included for a site resident or site worker only if their drinking water is obtained from, or may be obtained from, an on-site well.
- In situations where on-site use of impacted groundwater is precluded, groundwater should not be included in cumulative risk calculations.
- The construction worker scenario does not include exposure to groundwater.

Due to a City of Council Bluffs ordinance that prohibits the use of groundwater for private wells, there is no reasonable exposure pathway that may pose a risk to human health. However, the detected concentration of benzene exceeded the Iowa Tier 1 Look-up Table standards for Groundwater Vapor to Enclosed Space and Groundwater to Plastic Water Line. Therefore, utility lines buried in this area should be impervious to petroleum contamination. In addition, on-site monitoring for VOC's should be conducted anytime utility workers dig in this area. Should on-site activities uncover contamination, the on-site monitoring program could detect the VOCs giving supervisors the opportunity to decide the appropriate recourse (disposal, worker safety, etc).

7.0 FINDINGS AND CONCLUSIONS

VOCs, SVOCs/PNAs, TEHs, Pesticides, Cyanide, and RCRA Metals were detected in Range 1 soils. Arsenic, benzo (a) anthracene, benzo (b) fluoranthene, benzo (a) pyrene, dibenzo (a,h) anthracene, and indeno (1,2,3-cd) pyrene exceeded their respective Statewide Standards. These constituents are commonly found near FMGPs. According to research conducted by the United States Geological Survey (USGS), the high concentration of Arsenic detected at CL#4-SB-5 may be attributed to the storage of coal. "The USGS maintains an extensive database of over 7,000 analyses of U.S. coals. Data from this compilation indicate that the average arsenic concentration for U.S. coal is about 24 parts per million (ppm)."[4] Please see a copy of this fact sheet in Appendix I for additional information. The RECs identified at 925 South 7th Street were formerly used as an FMGP and a coal storage yard. The detected concentration of Arsenic in CL#4-SB-5 was 22.4 ppm. Therefore, it is reasonable to conclude the high concentration of Arsenic is associated with the property's historical use as a coal storage facility. Based on the historical uses of the Cluster #4 properties, identified in the previous Phase I ESA completed by Howard R. Green Company, soil boring CL#4-SB-7 is located on the site of the former manufactured gas plant (FMGP). Additionally, based on historical Sanborn map information, it is believed that CL#4-SB-7 was completed near or on the location of a former gasometer. The analytical results identified constituents commonly found near FMGP. Furthermore, the analytical results of soil samples from CL#4-SB-7 identified a potential trend consistent with the property's historical use as an FMGP and gasometer site. The concentrations of the remaining detected constituents were below their respective Statewide Standards. The cumulative cancer risk for a site resident was above regulatory limits. However, noncancer health risk for a site resident was below regulatory limits. According to the evaluation criteria further evaluation or remedy of impairment would be necessary due to the elevated concentrations of these constituents and the associated cancer risk.

VOCs, PNAs, TEHs, and RCRA Metals were detected in Range 2 soils. Benzo (a) anthracene, benzo (b) fluoranthene, benzo (a) pyrene, and dibenzo (a,h) anthracene were detected above their respective Statewide Standards. Based on the historical uses of the Cluster #4 properties, identified in the previous Phase I ESA completed by Howard R. Green Company, soil borings CL#4-SB-6 and CL#4-SB-7 are situated on the location of the former manufactured gas plant (FMGP). High concentrations of PNAs detected in soil samples from CL#4-SB-6 and CL#4-SB-7 may be attributed to the historical use of the property as a FMGP. Additionally, based on historical Sanborn map information, it is believed that CL#4-SB-7 was completed near or on the actual location of a former gasometer. In conjunction with the Range 1 soils analytical results, Range 2 soil samples from CL#4-SB-7 identified a potential trend consistent with the property's historical use as an FMGP and gasometer site. The concentrations of the remaining detected constituents were below their respective Statewide Standards. The cumulative cancer risk for a site resident was above regulatory limits. However, noncancer health risk for a site resident was below regulatory limits. Additionally, coal tar was encountered between 25' below ground surface (bgs) and 27' bgs in soil boring CL#4-SB-8. According to the evaluation criteria further evaluation or remedy of impairment would be necessary due to the elevated concentrations of these constituents and the associated cancer risk.

VOCs, PNAs, TEHs, and RCRA Metals were detected in groundwater beneath the property. Benzene, ethylbenzene, methylene chloride, naphthalene, fluorene, 2-methylnaphthalene, and arsenic were detected above their respective Statewide Standard. As stated previously, coal tar was identified in CL#4-SB-8. Therefore, the high concentrations of detected constituents identified in groundwater samples from CL#4-MW-4D may be attributed to coal tar contamination, which is often associated with former manufactured gas plants. The concentrations of the remaining constituents were below the Statewide Standards. Due to the presence of a city-wide ordinance that prohibits the use of groundwater for private wells, no further action is recommended for the constituents detected in groundwater on the property. However, due to the benzene concentration exceeding the Iowa Tier 1 Look-up Table standard for Groundwater to Plastic Water Line and Groundwater Vapor to Enclosed Space, additional recommendations are made for public utilities and site workers in Section 8.0.

8.0 RECOMMENDATIONS

Range 1 Soils (0-2 Feet)
Based on the results of data collected during the Phase II Assessment, the Range 1 soils in the immediate area of CL#4-SB-3, CL#4-SB-5, CL#4-SB-6, CL#4-SB-7, CL#4-SB-8 are considered to be environmentally impaired. This is due to the concentration of benzo (a) anthracene and benzo (a) pyrene at CL#4-SB-3; arsenic and benzo (a) pyrene at CL#4-SB-5; benzo (a) pyrene at CL#4-SB-6; benzo (a) anthracene, benzo (b) fluoranthene, benzo (a) pyrene, dibenzo (a,h) anthracene, and indeno (1,2,3-cd) pyrene at CL#4-SB-7; and benzo (a) pyrene at CL#4-SB-8 in excess of their respective Statewide Standard; and calculated excess cancer risk.

Therefore, Howard R. Green Company recommends further investigation to delineate the extent of the contamination and develop potential remediation strategies. Possible remediation technologies may include, but are not limited to the installation of an engineered barrier (e.g. asphalt or concrete pavement) and the disposal of undisturbed soil, within two feet of the surface, as hazardous waste and replaced with clean fill.

Range 2 Soils (≥ 2 Feet)
Based on the results of data collected during the Phase II Assessment, the Range 2 soils in the immediate area of CL#4-SB-6 and CL#4-SB-7 are considered to be environmentally impaired. This impairment may be attributed to the historical use of the property as a FMGP and location of an associated gasometer. Contaminants benzo (a) anthracene, benzo (b) fluoranthene, benzo (a) pyrene, and dibenzo (a,h) anthracene were detected in soil samples collected at CL#4-SB-6 and CL#4-SB-7 in excess of their respective Statewide Standard; and calculated excess cancer risk.

Therefore, Howard R. Green Company recommends further investigation to delineate the extent of the contamination and develop potential remediation strategies. Possible remediation technologies may include, but are not limited to the installation of an engineered barrier (e.g. asphalt or concrete pavement) and the disposal of undisturbed soil, within two feet of the surface, as hazardous waste and replaced with clean fill.

Groundwater
The City of Council Bluffs has issued a city ordinance that prohibits the use of groundwater for private wells. Therefore, there are no reasonable exposure pathways that pose a human health risk to residents.

However, the detected concentration of benzene exceeded the Iowa Tier 1 Look-up Table standards for Groundwater Vapor to Enclosed Space and Groundwater to Plastic Water Line. Therefore, utility lines buried in this area should be impervious to petroleum contamination. In addition, on-site monitoring for VOC's should be conducted anytime utility workers dig in this area. Should on-site activities uncover contamination, the on-site monitoring program could detect the VOCs giving supervisors the opportunity to decide the appropriate recourse (disposal, worker safety, etc).

Indoor Air Quality
Based on the high concentrations of some volatile constituents detected on-site, vapor intrusion into existing structures located within or near high concentrations of volatile

constituents like benzene and naphthalene may be possible. Howard R. Green Company, therefore, recommends the completion of building specific vapor intrusion assessments to detect volatile constituents within the structures' indoor air and assess associated human health risks. Additional assessment would likely include indoor air sampling in conjunction with sub-slab soil gas sampling to measure the vapor concentrations directly below the building and identify vapor sources.

The risk of vapor intrusion as an exposure pathway at contaminated sites has become an emerging concern across the nation, but need not be a barrier to redevelopment of Brownfields sites. In most cases, the potential risks can be controlled through ventilation improvements to buildings, indoor air filtration processes, foundation coatings, and land use controls.

IDNR concurrence with this conclusion is recommended and should be pursued by submitting a copy of this document to the IDNR Contaminated Sites Section and requesting a response letter.

9.0 DATA VALIDATION AND USABILITY

Validation of the data collected during Phase II assessment of the Cluster #4 properties is included below.

9.1 Representativeness

All samples were collected in such a manner and at locations specified in the Site Addendum to accurately reflect the constituent concentrations in the media from which they were taken at the time of sampling. Sample locations were biased to focus efforts on areas of the property with the greatest potential to be impacted by on-site and off-site activities.

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.

Chloroform, hexachlorobutadiene, and methylene chloride were detected in small concentrations in the trip blank that accompanied the groundwater samples. Laboratories utilize these constituents in their extraction methods while analyzing submitted samples. Therefore, it is likely the detected constituents are a result of laboratory contamination and not qualified.

Field duplicates were collected and evaluated to assure samples were representative of the sampling point. Field duplicate analysis is included in Section 9.5 (Precision).

9.2 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.

9.3 Completeness

In order for a set of data to be utilized 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 have been impacted by on-site and off-site activities. One hundred percent of the samples specified in the approved Site Addendum were collected.

9.4 Sensitivity

Detection and quantification limits for sample data must be below the Statewide Standard action concentrations specified in IAC 137. The laboratory MDLs for many of the polynuclear aromatic hydrocarbons were above the Statewide Standards. The IDNR recognizes that the Statewide Standard limits for these constituents can not be achieved by routine commercial laboratory analysis and chooses to use the laboratory reporting limit for the action limit for project decisions. Method specific laboratory MDLs were identified in Attachment 2.4 of the Site Addendum.

9.5 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 relative percent difference (RPD) between the primary and corresponding duplicate sample will be calculated using the below formula.

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

where: RPD = Relative percent difference
C_1 = Larger of the two observed measurement values
C_2 = Smaller of the two observed measurement values

A groundwater duplicate sample was taken at CL#4-MW-4D. The RPD between the original groundwater sample and duplicate sample are identified in the following table.

Table 14: Relative Percent Difference – Groundwater (mg/L)

Location	Contaminant	Sample Concentration	Duplicate Concentration	RPD
CL#4-MW-4D	Acenaphthene	0.0308	0.0417	30.07
	Anthracene	0.00526	0.00486	7.91
	Benzo (a) anthracene	0.000104	0.0000939[1]	10.20
	Chrysene	0.0000966[1]	0.0000969[1]	0.31
	Fluoranthene	0.00397	0.00342	14.89
	Fluorene	0.0288	0.0269	6.82
	1-Methylnaphthalene	0.158	0.148	6.54
	2-Methylnaphthalene	0.0895	0.0875	2.26
	Naphthalene	1.80	1.74	3.39
	Phenanthrene	0.0231	0.0214	7.64
	Pyrene	0.0103	0.00954	7.66

A soil duplicate sample was taken at CL#4-SB-1 and CL#4-SB-8. The RPD between the original soil sample and duplicate sample are identified in the following table.

Table 15: Relative Percent Difference – Soil (mg/kg)

Location	Contaminant	Sample Concentration	Duplicate Concentration	RPD
CL#4-SB-1 0-2'	Arsenic	7.30	6.22	15.98
	Barium	202	194	4.04
	Chromium	13.5	13.3	1.49
	Lead	55.1	1720	**187.60**
	Mercury	0.0731	0.0853	15.40
	Acenaphthylene	ND	0.138[1]	**200.00**
	Anthracene	ND	0.262[1]	**200.00**
	Benzo (a) anthracene	0.220[1]	0.740	**108.30**
	Benzo (b) fluoranthene	0.178[1]	0.603	**108.80**
	Benzo (k) fluoranthene	0.172[1]	0.564	**106.50**
	Benzo (a) pyrene	0.198[1]	0.628	**104.10**
	Benzo (g,h,i) perylene	0.133[1]	0.394	**99.00**
	Carbazole	ND	0.144[1]	**200.00**
	Chrysene	0.262[1]	0.807	**101.90**
	Dibenzo (a,h) anthracene	ND	0.0871[1]	**200.00**
	Fluoranthene	0.612	1.87	**101.40**
	Fluorene	ND	0.106[1]	**200.00**
	Indeno (1,2,3-cd) pyrene	0.147[1]	0.426	**97.33**
	Phenanthrene	0.382[1]	1.29	**108.60**
	Pyrene	0.456	1.44	**103.80**
	TEH-Diesel	12.9	11.4	12.35
	TEH-Motor Oil	47.7	42.6	11.30
	4,4'-DDE	0.427	0.604	34.34
	4,4'-DDT	0.118	0.212	**56.97**
CL#4-SB-8 0-2'	Cyanide	1.14	ND	**200.00**
	Benzo (a) anthracene	0.285	0.847	**99.29**
	Benzo (b) fluoranthene	0.456	1.72	**116.20**
	Benzo (k) fluoranthene	0.235	0.927	**119.10**
	Benzo (a) pyrene	0.484	1.43	**98.85**
	Benzo (g,h,i) perylene	0.322	2.27	**150.31**
	Chrysene	0.412	1.57	**116.90**
	Dibenzo (a,h) anthracene	ND	0.235	**200.00**
	Fluoranthene	2.43	3.20	27.36

Location	Contaminant	Sample Concentration	Duplicate Concentration	RPD
	Indeno (1,2,3-cd) pyrene	0.341	1.64	**131.20**
	Phenanthrene	0.317	0.631	**66.25**
	Pyrene	1.49	2.76	**59.77**

With respect to the RPD values being outside the respective goals for soils and groundwater, samples are obtained as a 'grab,' rather than a 'composite' sample. Therefore, grab samples are more heterogeneous (i.e. more variable) when compared to the homogenous composite sample. Best efforts are made to minimize the heterogeneous nature of soil samples while in the field; however, these samples are still significantly heterogeneous. Groundwater samples are obtained using a disposable bailer or through low-flow pumps, and are directly sampled, rather than being mixed prior to sampling. Therefore, different concentrations of detected constituents may enter the groundwater between bails or over a period of time while utilizing a pump.

Additionally, many of the constituents were detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). Concentrations within this range are estimated. Therefore, these RPDs reflect estimates of error and may not be representative.

Methods utilized in order to increase the ability to meet the goals with respect to the RPD in soil samples will be to:

- 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.

Methods utilized in order to increase the ability to meet the goals with respect to the RPD in groundwater samples collected will be to:

- Collect the duplicate sample for a specific analysis or suite of analyses at the same time the original sample is collected,
- utilize low flow sampling to minimize the amount of sediment in the samples, and
- exercise care in filling pre-treated vials with hydrochloric acid (HCl) preservative so as to not allow for contaminants to volatilize or for the preservative to be lost.

9.6 Accuracy

Trip blanks were used to evaluate the purity of sample containers, chemical preservatives, and sampling equipment.

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

APPENDIX A

Site Addendum

Region 7 Brownfields Program
Site Addendum
for the Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Programs November 1998 (Updated July 2005)
Site Specific Addendum for South Main Brownfields Area, Council Bluffs Iowa

Project Information:

Site Name: City of Council Bluffs South Main Brownfields Area – multiple clusters of properties #4		**City:** Council Bluffs	**State:** Iowa
EPA Project Manager: Mr. Brad Vann		**Contractor Project Manager:** Cynthia Quast, P.E.	
Approved By:		**Prepared For:** EPA Region 7 Brownfields Division	
Title: Cynthia Quast, P.E. HRG Project Manager	**Date:**		
Approved By:			
Title: Ms. Tina Hochwender City of Council Bluffs Project Coordinator	**Date:**	**Prepared By:** Cynthia Quast, P.E. **Date:** February 1, 2007	
Approved By:			
Title: Ronn Beebe HRG QA/QC Reviewer	**Date:**		
Approved By:			
Title: Brad Vann EPA Region 7 Project Manager	**Date:**	**Contractor:** Howard R. Green Company **Project Number:** 728500J	
Approved By:			
Title: Diane Harris EPA Region 7 QA Coordinator	**Date:**		

1.0 Project Management:

1.1 Distribution List

EPA--Region 7: _____
Brad Vann / EPA Project Manager

_____
Diane Harris / EPA Region 7 QA Coordinator

Howard R. Green:_____
Cynthia Quast, P.E./ Project Manager

1.2 Project/Task Organization

Project personnel and affiliations are provided below. Specific Responsibilities are as assigned in the **Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Programs November 1998 (Updated July 2005).**

EPA Region 7
Mr. Brad Vann – Project Manager, EPA Region 7

Contractor / Brownfields Assessment Program
Ms. Cynthia Quast, P.E.- Project Manager, Howard R. Green Company
Ms. Cynthia Quast, P.E.- Contract Administrator, Howard R. Green Company
Mr. Todd Knause - Quality Assurance Manager, Howard R. Green Company
Ms. Julie Oriano - Technical Staff, Howard R. Green Company

Team Subcontractors / Brownfields Assessment Program
Drilling Subcontractor to be determined at a later date.
Ms. Shawn Hayes – Project Manager, Analytical Testing Laboratory Subcontractor, TestAmerica Inc.

1.3 Problem Definition/Background:

Description: This Quality Assurance Project Plan form is prepared as an addendum to the **Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Programs November 1998 (Updated July 2005),** and as a Site Specific Addendum for the South Main Brownfields area, Council Bluffs Iowa

☒ Description attached (Attachment 1.3)
☐ Description in referenced report: _____ _____
Title **Date**

1.4 Project/Task Description:

☐ CERCLA PA ☐ CERCLA SI ☒ Brownfields Assessment
☐ Other (description attached): ☐ Pre-CERCLIS Site Screening ☐ Removal Assessment

Schedule: Field work is scheduled for February/March 2007 (Attachment 1.4)
☐ Description in referenced report: _____ _____
Title **Date**

1.5 Quality Objectives and Criteria for Measurement Data (QAPP Section 2.5):

a. Accuracy: ☒ Identified in attached table (Attachment 1.5 , Table 1)
b. Precision: ☒ Identified in attached table (Attachment 1.5 , Table 1)
c. Representativeness: ☒ Identified in attached table (Attachment 1.5 , Table 1)
d. Completeness*: ☒ Identified in attached table (Attachment 1.5 , Table 1)
e. Comparability: ☒ Identified in attached table (Attachment 1.5 , Table 1)

Other Description:

*A completeness goal of 100 percent has been established for this project. However, if the completeness goal is not met, EPA may still be able to make site decisions based on any or all of the remaining validated data.

1.6 Special Training/Certification Requirements (QAPP Section 2.7):

☒ OSHA 1910
☐ Special Equipment/Instrument Operator (describe below):
☐ Other (describe below):

1.7 Documentation and Records (QAPP Section 2.8):

☒ Field Sheets ☐ Site Log ☐ Trip Report ☒ Site Maps ☐ Video
☒ Chain of Custody ☒ Health and Safety Plan ☐ Letter Report ☒ Photos

☒ Sample documentation will follow EPA Region 7 SOP 2420.5D.
☐ Other: Analytical information will be handled according to procedures identified in Table 2.

2.0 Measurement and Data Acquisition:

2.1 Sampling Process Design (QAPP Section 3.1):

☐ Random Sampling ☐ Transect Sampling ☒ Biased/Judgmental Sampling ☐ Stratified Random Sampling
☐ Search Sampling ☐ Systematic Grid ☐ Systematic Random Sampling ☐ Definitive Sampling
☐ Screening w/o Definitive Confirmation ☐ Screening w/ Definitive Confirmation
☒ **Soil Sampling Map (Attachment 2.1 – Figure 1)**
☒ **Groundwater Sampling Map (Attachment 2.1 – Figure 2)**

The proposed scheme for soil and groundwater sampling will be biased/judgmental with fixed laboratory analysis. The investigation will involve soil and groundwater sampling at the property boundaries to determine impact from off-site recognized environmental conditions and on the property to determine impact from any on-site activities. Seven monitoring wells will be installed on the subject property. See Figures 1 and 2 in Attachment 2.1 for additional information and sample locations. The proposed number of samples is a balance between cost and coverage and represents a reasonable attempt to meet the investigation objectives while staying within the budget constraints of a Brownfields Assessment project (see Tables 1 & 2 in Attachment 2.1).

Sample Summary Location	Matrix	# of Samples*	Analysis
West side of building (721 9th Avenue)	Soil	1 soil	VOCs, SVOCs, RCRA metals, Pesticides, TEH**
East side of building (900 South 7th Street)	Soil	1 soil	VOCs, SVOCs, RCRA metals, Pesticides, TEH**
East side of building (645 9th Avenue)	Soil	1 soil	VOCs, SVOCs, RCRA metals, Pesticides, TEH**
Middle of parking lot, north of building (925 South 7th Street)	Soil Groundwater	1 soil 1 groundwater	VOCs, PAHs, RCRA metals, VOCs, PAHs, RCRA metals, TDS
South side of building (925 South 7th Street)	Soil Groundwater	1 soil 1 groundwater	VOCs, PAHs, RCRA metals, VOCs, PAHs, RCRA metals, TDS
South side of building (1025 South 7th Street)	Soil Groundwater	2 soil 1 groundwater	VOCs, PAHs, RCRA metals, cyanide, TEH** VOCs, PAHs, RCRA metals, cyanide TEH**, TDS
West side of property (Aquila Property)	Soil Groundwater	2 soil 1 groundwater	VOCs, PAHs, RCRA metals, cyanide, TEH** VOCs, PAHs, RCRA metals, cyanide, TEH**, TDS
Southeast corner of property (Aquila Property)	Soil	2 soil	VOCs, PAHs, RCRA metals, cyanide, TEH**

NOTE: Background/QC samples are not included in these totals. See Attachment 2.1 – Tables 1 & 2 for a complete samples summary.
**TEH = Total Extractable Hydrocarbons by Iowa Method OA-2.

2.2 Sample Methods Requirements (QAPP Section 3.2):

Matrix	Sampling Method	EPA SOP(s)/Methods
Soil	Continuous sampling utilizing 2.0-inch by 24-inch long split spoon sampler	**EPA SOP 4231.2012 / EPA 5035**
Groundwater	Disposable bailer.	**EPA SOP 4230.15A**

2.3 Sample Handling and Custody Requirements (QAPP Section 3.3):

☒ Samples will be packaged and preserved in accordance with procedures defined in Region 7 EPA SOP 2420.6D.
☒ COC will be maintained as directed by Region 7 EPA SOP 2420.4B.
☒ Samples will be accepted according to Region 7 EPA SOP 2420.1C.
☐ Other (Describe):

2.4 Analytical Methods Requirements (QAPP Section 3.4):

☒ Identified in attached table (Attachment 2.4 – Table 1).
☐ Identified in attached Analytical Services Request (ASR) Form
☐ Other (Describe):

2.5 Quality Control Requirements (QAPP Section 3.5):

☐ Not Applicable
☐ Identified in attached table.
☒ In accordance with the **Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Programs**, November 1998 (Updated July 2005).
Describe Field QC Samples to be collected: (see Attachment 2.1 – Table 2: Field Quality Control Sample Summary)
☐ Other (Describe):

2.6. Instrument/Equipment Testing, Inspection, and Maintenance Requirements (QAPP Section 3.6):

☐ Not Applicable
☒ In accordance with the ***Generic Quality Assurance Project Plan for Superfund Integrated Site Assessments***, November 1998 (Updated July 2005).
☐ Other (Describe):

2.7 Instrument Calibration and Frequency (QAPP Section 3.7):

☐ Not Applicable
☒ Inspection/acceptance requirements are in accordance with the ***Generic*** **Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Programs**, November 1998 (Updated July 2005).
☒ Calibration of laboratory equipment will be performed as described in the previously referenced SOPs and/or manufacturers' recommendations.
☐ Other (Describe):

2.8 Inspection/Acceptance Requirements for Supplies and Consumables (QAPP Section 3.8):

☐ Not Applicable
☒ In accordance with the **Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Programs**, November 1998 (Updated July 2005).
☐ All sample containers will meet EPA criteria for cleaning procedures for low-level chemical analysis. Sample containers will have Level II certifications provided by the manufacturer in accordance with pre-cleaning criteria established by EPA in *Specifications and Guidelines for Obtaining Contaminant-Free Containers.*
☐ Other (Describe):

2.9 Data Acquisition Requirements (QAPP Section 3.9):

☐ Not Applicable
☒ In accordance with the **Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Programs**, November 1998 (Updated July 2005).
☐ Previous data/information pertaining to the site (including other analytical data, reports, photos, maps, etc., which are referenced in this QAPP) have been compiled by EPA and/or its contractor(s) from other sources. Some of that data has not been verified by EPA and/or its contractor(s); however, the information will not be used for decision-making purposes by EPA without verification by an independent professional qualified to verify such data/information.
☐ Other (Describe):

2.10 Data Management (QAPP Section 3.10):

☒ All laboratory data acquired will be managed in accordance with Region 7 EPA SOP 2410.1C.
☐ Other (Describe):

3.0 Assessment and Oversight:

3.1 Assessment and Response Actions (QAPP Section 4.1):

☒ Peer Review ☒ Management Review ☒ Field Audit ☐ Lab Audit

☐ Assessment and response actions pertaining to analytical phases of the project are addressed in Region 7 EPA SOPs 2430.5A and 2430.12D.

☐ Other (Describe):

3.1A Corrective Action (QAPP Section 4.1.2):

☒ Corrective actions will be taken at the discretion of the EPA project manager or Contractor QA Manager, whenever there appear to be problems that could adversely affect data quality and/or resulting decisions affecting future response actions pertaining to the site.

☐ Other (Describe):

3.2 Reports to Management (QAPP Section 4.2):

☐ Audit Report ☐ Data Validation Report ☐ Project Status Report ☐ None required

☐ A letter report describing the sampling techniques, locations, problems encountered (with resolutions to those problems), and interpretation of analytical results will be prepared by Brownfields Contractor and submitted to the EPA.

☒ Reports will be prepared in accordance with the **Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Programs,** November 1998 (Updated July 2005).

☐ Other (Describe):

4.0 Data Validation and Usability:

4.1 Data Review, Validation, and Verification Requirements (QAPP Section 5.1):

☐ Identified in attached table.
☒ Data review and verification will be performed in accordance with the **Generic Quality Assurance Project Plan for Superfund Integrated Assessment and Targeted Brownfields Assessment Programs,** November 1998 (Updated July 2005).
☐ Data review and verification will be performed by a qualified analyst and the laboratory's section manager as described in Region 7 EPA SOPs 2430.5A and 2430.12D.

☐ Other (Describe):

4.2 Validation and Verification Methods (QAPP Section 5.2):

☐ Identified in attached table.
☐ The data will be validated in accordance with Region 7 EPA SOPs 2430.5A and 2430.12D.
☒ The EPA site manager will inspect the data to provide a final review. The EPA site manager will review the data, if applicable, for laboratory spikes and duplicates, laboratory blanks, and the field blank to ensure that they are acceptable. The EPA site manager will also compare the sample descriptions with the field sheets for consistency and will ensure that any anomalies in the data are appropriately documented.
☐ Other (Describe):

4.3 Reconciliation with User Requirements (QAPP Section 5.3):

☐ Identified in attached table
☒ If data quality indicators do not meet the project's requirements as outlined in this QAPP, the data may be discarded and re-sampling or re-analysis of the subject samples may be required by the EPA site manager.

☐ Other (Describe):

Attachment 1.3

Problem Definition/Background

Attachment 1.3

Problem Definition / Background

The problem is to determine whether recognized environmental conditions (RECs) identified on the subject property or surrounding properties have caused environmental impairment that could impact redevelopment planning. This determination is made by comparing site constituent concentrations to the applicable action levels set forth in Iowa Administrative Code (IAC), Chapter 137: Iowa Land Recycling Program and Response Action Standards or 567 IAC 135: Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks. Site concentrations in excess of these standards do not necessarily suggest the property can not be restored and redeveloped.

During December 2006, a Phase I Environmental Site Assessment (ESA) was conducted on the properties located at 645 9th Avenue, 721 9th Avenue, 900 South 7th Street, 925 South 7th Street, and the property along South 7th Street between 10th and 11th Avenues, (South Main Brownfields Area - Cluster #4) in the City of Council Bluffs, Iowa (*subject property)*. The assessment revealed six RECs in connection with the property.

The subject property was identified as a former railroad, a former coal yard, and part of a former manufactured gas plant on historic Sanborn maps and city directories. Recognized environmental conditions on adjacent properties include a former manufactured gas plant (FMGP). The site is currently made up of seven (7) different properties each with individual owners. The former Citizens Gas and Electric Company Manufactured Gas Plant, located at 11th Avenue and 7th Street is currently enrolled in Iowa's Land Recycling Program. The facility is located approximately 50 feet south and west of the subject property. Soil and groundwater contamination has been identified on the former gas plant property and surrounding properties. The amount and extent of the contamination is unknown. A limited Phase II ESA of several properties in the area was completed by Theile Geotech, Inc. The sampling results indicated off-site impact to groundwater and soil by contaminants often associated with manufactured gas plants.

The Phase II investigation will include advancing seven soil borings on the subject property. One boring will be advanced on the west side of the building found at 721 9th Avenue. One boring will be advanced on the east side of the building found at 900 South 7th Street. One boring will be advanced on the east side of the building found at 645 9th Avenue. One boring will be advanced on the east side of the building found at 900 South 7th Street. One boring will be advanced in the middle of the parking lot, north of the building found at 925 South 7th Street. One boring will be advanced on the south side of the building found at 925 South 7th Street. One boring will be advanced on the south side of the building found at 1025 South 7th Street. One boring will be advanced on the west side of the property known as the Aquila Property, and one boring will be advanced on the southeast corner of the property known as the Aquila Property. (see Attachment 2.1 – Figures 1 & 2). The borings will be advanced using a truck mounted hollow-stem auger drilling machine. Soil samples will be continuously collected using a split spoon sampling device and field screened with a photo-ionization detector (PID). For Range 1 soil samples, a composite will be collected within the top two feet of the soil column. For Range 2 soil samples, a grab sample will be collected at the interval indicating the highest PID reading. If PID readings provide no indication of organic vapors or there are no obvious visual indicators of contamination, the soil sample from immediately above groundwater will be submitted for laboratory analysis. For both soil ranges, if no organic vapors are detected greater than 10 ppm, no soil sample will be submitted for VOC analysis.

Upon the completion of soil sampling activities, the borings will be completed as groundwater monitoring wells. The wells will be constructed using 2.0 inch outside diameter (O.D.) Schedule 40 PVC slotted screen and 2.0 inch O.D. Schedule 40 PVC riser. The wells will be developed by surging and then bailing in an attempt to produce water that is visually free of suspended sediments. The wells will be allowed to recharge and samples will be collected and submitted for laboratory analysis.

Upon the completion of sampling activities, slug testing will be conducted to evaluate hydraulic conductivity to determine if the groundwater is considered a "protected groundwater source".

Attachment 1.4

Schedule of Activities

Attachment 1.4

Schedule of Activities

Assessment and Evaluation on this property is consistent with the Site Specific Addendum to the Generic QAPP and services of contract for this EPA Brownfields Assessment Grant. Factors of weather, response times by regulatory agencies, utility locators, property owners, and subcontractors, and other logistical influences external to Howard R. Green Company control will extend the project milestones by equivalent days of delay beyond dates estimated. Howard R. Green Company anticipates an expedited review and approval of this Site Specific Addendum to the Generic QAPP by the EPA.

WEEK NUMBER 1:	Submission of Site Specific Addendum to EPA Brownfields Project Manager for review & approval
WEEK NUMBER 5:	EPA approval of Site Specific Addendum and initiation of mobilization
WEEK NUMBER 6:	Notification of EPA Brownfields Project Manager on final field schedules
WEEK NUMBER 7:	Completion of utility clearances
WEEK NUMBER 8:	Commencement of on-site field activities
WEEK NUMBER 9:	Completion of on-site field activities
WEEK NUMBER 10:	Receipt of written laboratory reports
WEEK NUMBER 11:	Final Phase II Report to City and EPA 7

Attachment 1.5

Quality Objectives and Criteria for Measurement Data

Attachment 1.5 – Table 1

Quality Objectives and Criteria for Measurement Data

Table 1: Quality Objectives and Criteria for Measurement Data								
Site Name: Council Bluffs South Main Brownfields Redevelopment Cluster #4					**City: Council Bluffs**			
Project Manager: Cynthia Quast					**Activity #: 728500J-0003**		**Date: February 2007**	
Analysis	**Analytical Method**	**Data Quality Measurements**					**Sample Handling Procedures**	**Data Management Procedures**
		Accuracy*	**Precision**	**Representativeness**	**Completeness**	**Comparability**		
Groundwater								
VOCs, SVOCs, PAHs RCRA Metals, Pesticides, TEH, cyanide TDS	See Attachment 2.1 Table 1	Per analytical method	Per analytical method	Biased/judgmental sampling based on professional judgment of the sampling team	100%; samples from monitoring wells are considered critical samples	Standardized procedures for sample collection and analysis will be used	See Section 2.3 of QAPP form	See Section 2.10 of QAPP form
Soil								
VOCs, SVOCs, PAHs RCRA Metals, Pesticides, TEH, cyanide	See Attachment 2.1 Table 1	Per analytical method	Per analytical method	Biased/judgmental sampling based on professional judgment of the sampling team	100%; samples from soil boring are considered critical samples	Standardized procedures for sample collection and analysis will be used	See Section 2.3 of QAPP form	See Section 2.10 of QAPP form

* Refer to Test America Quality Assurance Manual

Attachment 2.1

Figure 1 – Soil Sample Location Map
Figure 2—Groundwater Sample Location Map

Table 1 – Field Sample Summary
Table 2 – Field Quality Control Sample Summary
Table 3 – Sample Preservation, Methods, Containers, Volumes, and Holding Times

Cluster #4 Sites

Soil Boring

Potential REC Locations

FIGURE 1
SOIL SAMPLE LOCATION MAP

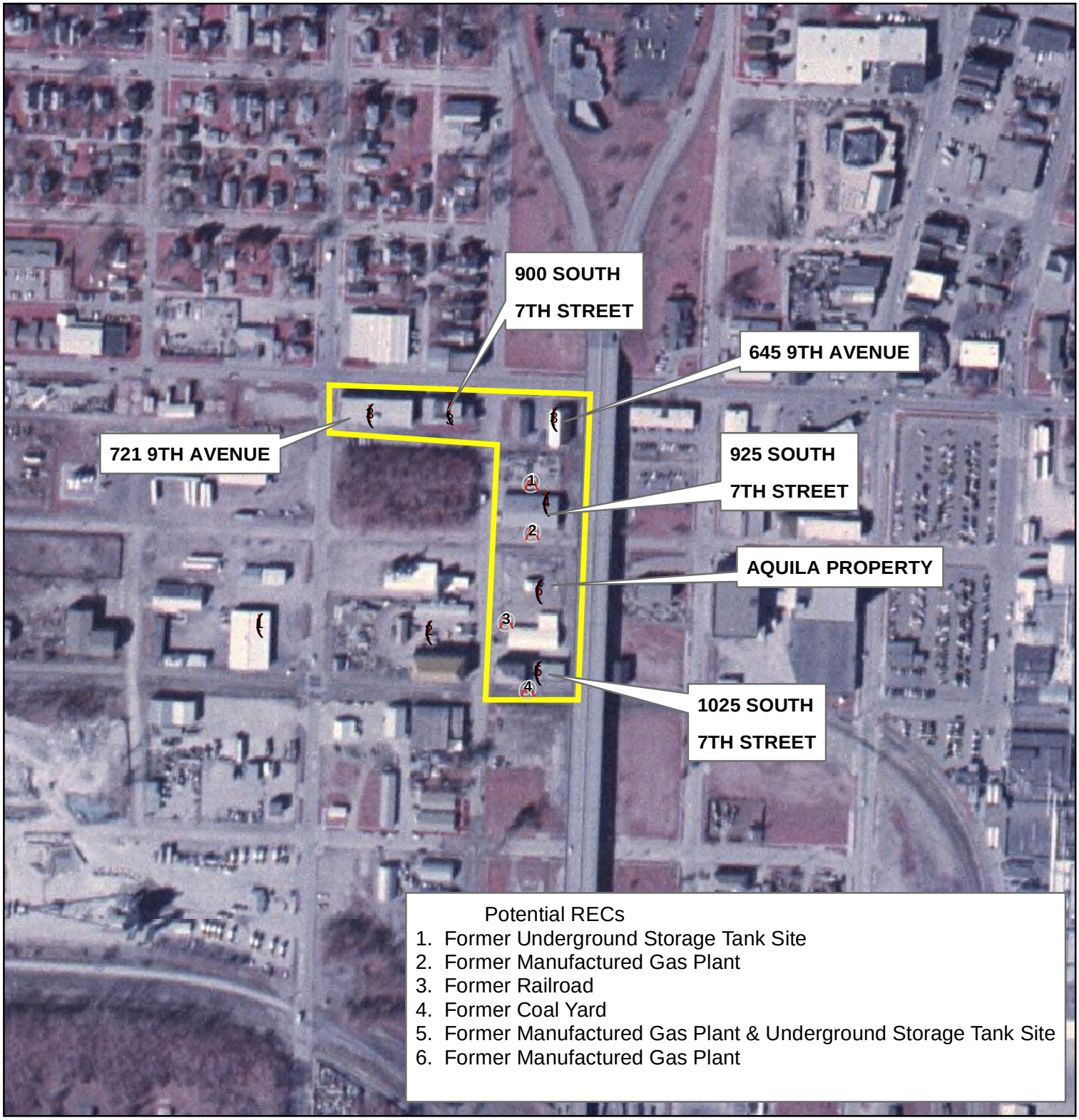
South Main Brownfields Project
Cluster #4

Council Bluff, Iowa

0 150 300
Feet

U

Howard R. Green Company



Cluster #4 Sites

Potential REC Locations

Monitoring Well

FIGURE 2
GROUNDWATER SAMPLE LOCATION MAP

South Main Brownfields Project
Cluster #4

Council Bluff, Iowa

0 150 300
Feet

U

Howard R. Green Company

Attachment 2.1 – Table 1

Field Sample Summary

Table 1: Field Sample Summary							
Site Name: Council Bluffs South Main Brownfields Redevelopment Cluster #4				**City: Council Bluffs**			
Project Manager: Cynthia Quast				**Activity #: 728500J-0003**		**Date: February 2007**	
No. of Samples	**Matrix**	**Location**	**Purpose**	**Depth or other Descriptor**	**Requested Analysis**	**Sampling Method**	**Analytical Method/SOP**
1	Solid	West side of building (721 9th Avenue)	On-Site REC Evaluations	Range 1 (<2')	VOCs	5035	8260B
	"	"	"	"	SVOCs	4231.2012	8270C
	"	"	"	"	RCRA Metals	4231.2012	6010B, 7471A, 6200
	"	"	"	"	Pesticides	4231.2012	8081
	"	"	"	"	IAC 135 Low-Volatiles	4231.2012	Iowa OA-2
1	Solid	East Side of building (645 9th Avenue)	On-Site REC Evaluations	Range 1 (<2')	VOCs	5035	8260B
	"	"	"	"	SVOCs	4231.2012	8270C
	"	"	"	"	RCRA Metals	4231.2012	6010B, 7471A, 6200
	"	"	"	"	Pesticides	4231.2012	8081
	"	"	"	"	IAC 135 Low-Volatiles	4231.2012	Iowa OA-2
1	Solid	East side of building (900 7th Avenue)	On-Site REC Evaluations	Range 1 (<2')	VOCs	5035	8260B
	"	"	"	"	SVOCs	4231.2012	8270C
	"	"	"	"	RCRA Metals	4231.2012	6010B, 7471A, 6200
	"	"	"	"	Pesticides	4231.2012	8081
	"	"	"	"	IAC 135 Low-Volatiles	4231.2012	Iowa OA-2

* As per IDNR requirement, groundwater samples submitted for metals analysis will be field filtered for comparison to the Statewide Standards set forth in IAC Chapter 137.

Attachment 2.1 – Table 1

Field Sample Summary

Table 1: Field Sample Summary							
Site Name: Council Bluffs South Main Brownfields Redevelopment Cluster #4				**City: Council Bluffs**			
Project Manager: Cynthia Quast				**Activity #: 728500J-0003**		**Date: February 2007**	
No. of Samples	**Matrix**	**Location**	**Purpose**	**Depth or other Descriptor**	**Requested Analysis**	**Sampling Method**	**Analytical Method/SOP**
1	Solid	Middle of parking lot, north of building (925 South 7th Street)	On-Site REC Evaluations	Range 1 (<2')	VOCs	5035	8260B
	"	"	"	"	PAHs	4231.2012	8310
	"	"	"	"	RCRA Metals	4231.2012	6010B, 7471A, 6200
1	Aqueous	Middle of parking lot, north of building (925 South 7th Street)	On-Site REC Evaluations	Groundwater	VOCs	4230.15A	8260B
	"	"	"	"	PAHs	4230.15A	8310
	"	"	"	"	RCRA Metals*(diss.)	4230.15A	6010B, 7060A, 7131A, 7421, 7740, 7470A
	"	"	"	"	TDS	4230.15A	160.1
1	Solid	South side of building (925 South 7th Street)	On-Site REC Evaluations	Range 1 (<2')	VOCs	5035	8260B
	"	"	"	"	PAHs	4231.2012	8310
	"	"	"	"	RCRA Metals	4231.2012	6010B, 7471A, 6200
1	Aqueous	South side of building (925 South 7th Street)	On-Site REC Evaluations	Groundwater	VOCs	4230.15A	8260B
	"	"	"	"	PAHs	4230.15A	8310
	"	"	"	"	RCRA Metals*(diss.)	4230.15A	6010B, 7060A, 7131A, 7421, 7740, 7470A
	"	"	"	"	TDS	4230.15A	160.1

* As per IDNR requirement, groundwater samples submitted for metals analysis will be field filtered for comparison to the Statewide Standards set forth in IAC Chapter 137.

Attachment 2.1 – Table 1

Field Sample Summary

Table 1: Field Sample Summary							
Site Name: Council Bluffs South Main Brownfields Redevelopment Cluster #4				**City: Council Bluffs**			
Project Manager: Cynthia Quast				**Activity #: 728500J-0003**		**Date: February 2007**	
No. of Samples	**Matrix**	**Location**	**Purpose**	**Depth or other Descriptor**	**Requested Analysis**	**Sampling Method**	**Analytical Method/SOP**
1	Solid	South Side of building (1025 South 7th Street)	On-Site REC Evaluations	Range 1 (<2')	VOCs	5035	8260B
	"	"	"	"	PAHs	4231.2012	8310
	"	"	"	"	RCRA Metals	4231.2012	6010B, 7471A, 6200
	"	"	"	"	Cyanide	4231.2012	9010
	"	"	"	"	IAC 135 Low-Volatiles	4231.2012	Iowa OA-2
1	Solid	South Side of building (1025 South 7th Street)	On-Site REC Evaluations	Range 2 (>2')	VOCs	5035	8260B
	"	"	"	"	PAHs	4231.2012	8310
	"	"	"	"	RCRA Metals	4231.2012	6010B, 7471A, 6200
	"	"	"	"	Cyanide	4231.2012	9010
	"	"	"	"	IAC 135 Low-Volatiles	4231.2012	Iowa OA-2
1	Aqueous	South Side of building (1025 South 7th Street)	On-Site REC Evaluations	Groundwater	VOCs	4230.15A	8260B
	"	"	"	"	PAHs	4230.15A	8310
	"	"	"	"	RCRA Metals*(diss.)	4230.15A	6010B, 7060A, 7131A, 7421, 7740, 7470A
	"	"	"	"	Cyanide	4230.15A	9010
	"	"	"	"	IAC 135 Low-Volatiles	4230.15A	Iowa OA2
	"	"	"	"	TDS	4230.15A	160.1

* As per IDNR requirement, groundwater samples submitted for metals analysis will be field filtered for comparison to the Statewide Standards set forth in IAC Chapter 137.

Attachment 2.1 – Table 1

Field Sample Summary

Table 1: Field Sample Summary							
Site Name: Council Bluffs South Main Brownfields Redevelopment Cluster #4				**City: Council Bluffs**			
Project Manager: Cynthia Quast				**Activity #: 728500J-0003**		**Date: February 2007**	
No. of Samples	**Matrix**	**Location**	**Purpose**	**Depth or other Descriptor**	**Requested Analysis**	**Sampling Method**	**Analytical Method/SOP**
1	Solid	West side of property (Aquila Property)	On and Off-Site REC Evaluations	Range 1 (<2')	VOCs	5035	8260B
	"	"	"	"	PAHs	4231.2012	8310
	"	"	"	"	RCRA Metals	4231.2012	6010B, 7471A, 6200
	"	"	"	"	Cyanide	4231.2012	9010
	"	"	"	"	IAC 135 Low-Volatiles	4231.2012	Iowa OA-2
1	Solid	West side of property (Aquila Property)	On and Off-Site REC Evaluations	Range 2 (>2')	VOCs	5035	8260B
	"	"	"	"	PAHs	4231.2012	8310
	"	"	"	"	RCRA Metals	4231.2012	6010B, 7471A, 6200
	"	"	"	"	Cyanide	4231.2012	9010
	"	"	"	"	IAC 135 Low-Volatiles	4231.2012	Iowa OA-2
1	Aqueous	West side of property (Aquila Property)	On and Off-Site REC Evaluations	Groundwater	VOCs	5035	8260B
	"	"	"	"	PAHs	4230.15A	8310
	"	"	"	"	RCRA Metals*(diss)	4230.15A	6010B, 7060A, 7131A, 7421, 7740, 7470A
	"	"	"	"	Cyanide	4230.15A	9010
	"	"	"	"	IAC 135 Low-Volatiles	4230.15A	Iowa OA2
	"	"	"	"	TDS	4230.15A	160.1

* As per IDNR requirement, groundwater samples submitted for metals analysis will be field filtered for comparison to the Statewide Standards set forth in IAC Chapter 137.

Attachment 2.1 – Table 1

Field Sample Summary

Table 1: Field Sample Summary							
Site Name: Council Bluffs South Main Brownfields Redevelopment Cluster #4				**City: Council Bluffs**			
Project Manager: Cynthia Quast				**Activity #: 728500J-0003**		**Date: February 2007**	
No. of Samples	**Matrix**	**Location**	**Purpose**	**Depth or other Descriptor**	**Requested Analysis**	**Sampling Method**	**Analytical Method/SOP**
1	Solid	Southeast corner of property (Aquila Property)	On and Off-Site REC Evaluations	Range 1 (<2')	VOCs	5035	8260B
	"	"	"	"	PAHs	4231.2012	8310
	"	"	"	"	RCRA Metals	4231.2012	6010B, 7471A, 6200
	"	"	"	"	Cyanide	4231.2012	9010
	"	"	"	"	IAC 135 Low-Volatiles	4231.2012	Iowa OA-2
1	Solid	Southeast corner of property (Aquila Property)	On and Off-Site REC Evaluations	Range 2 (>2')	VOCs	5035	8260B
	"	"	"	"	PAHs	4231.2012	8310
	"	"	"	"	RCRA Metals	4231.2012	6010B, 7471A, 6200
	"	"	"	"	Cyanide	4231.2012	9010
	"	"	"	"	IAC 135 Low-Volatiles	4231.2012	Iowa OA-2

* As per IDNR requirement, groundwater samples submitted for metals analysis will be field filtered for comparison to the Statewide Standards set forth in IAC Chapter 137.

Attachment 2.1 – Table 2

Field Quality Control Sample Summary

Table 2: Field Quality Control Sample Summary							
Site Name: Council Bluffs South Main Brownfields Redevelopment Cluster #4				**City: Council Bluffs**			
Project Manager: Cynthia Quast				**Activity #: 728500J-0003**		**Date: February 2007**	
No. of Samples	**Matrix**	**Location**	**Purpose**	**Depth or other Descriptor**	**Requested Analysis**	**Sampling Method**	**Analytical Method/SOP**
1	Aqueous	Trip Blank	Field QC	Quality Control	VOCs	2420.11D	8260B
1	Aqueous	Equipment Rinsate Blank	Field QC	Quality Control	VOCs	4230.15A	8260B
	“	“	“	“	PAHs	4230.15A	8310
	“	“	“	“	RCRA Metals*(diss)	4230.15A	6010B, 7060A, 7131A, 7421, 7740, 7470A
	“	“	“	“	Cyanide	4230.15A	9010
	“	“	“	“	IAC 135 Low-Volatiles	4230.15A	Iowa OA2
1	Aqueous	Field Duplicate	Field QC	Quality Control	VOCs	4230.15A	8260B
	“	“	“	“	PAHs	4230.15A	8310
	“	“	“	“	RCRA Metals*(diss)	4230.15A	6010B, 7060A, 7131A, 7421, 7740, 7470A
	“	“	“	“	Cyanide	4230.15A	9010
	“	“	“	“	IAC 135 Low-Volatiles	4230.15A	Iowa OA2
1	Solid	Field Duplicate	Field QC	Quality Control	VOCs	5035	8260B
	“	“	“	“	SVOCs	4231.2012	8270C
	“	“	“	“	PAHs	4231.2012	8310
	“	“	“	“	RCRA Metals	4231.2012	6010B, 7471A / 6200
	“	“	“	“	Pesticides	4231.2012	8081
	“	“	“	“	Cyanide	4231.2012	9010
	“	“	“	“	IAC 135 Low-Volatiles	4231.2012	Iowa OA-2

Notes:

1. Should field sample quantities exceed the intended sampling design strategy outlined in Table 1, QC sample collection frequency will be conducted in accordance with the requirements outlined in Table 3.

2. Laboratory QA/QC requirements will be conducted in accordance with the procedures outlined in the TestAmerica Inc Quality Assurance Manual, Effective May 26, 2005 (see Attachment 1.5)

Attachment 2.1 - Table 3

Sample Preservation, Analytical Methods, Containers, Volume, and Holding Times

Table 3 – Sample Preservation, Analytical Methods, Containers, Volumes, and Holding Times						
Matrix	Parameter	Analytical Method	Container Size	Container Type	Preservative	Holding Time
Solid	VOCs	8260B	Two 40 mL	Glass vials	$NaHSO_4$/ Cool 4°C	14 days to extraction/14 days after extraction
			One 40 mL	Glass Vial	CH_3OH/ Cool 4°C	
Solid	SVOCs	8270C	4-ounce	Glass jar	Cool 4°C	7 days to extraction/40 days after extraction
Solid	RCRA Metals	6010B, 7471A	4-ounce	Glass jar	Cool 4°C	180 days to extraction/ 180 days after extraction
Solid	Pesticides	8081	8-ounce	Glass jar	Cool 4°C	7days to extraction/40 days after extraction
Solid	IAC 135 Low-Volatiles	Iowa OA2	4-ounce	Glass jar	Cool 4°C	14 days
Solid	PAHs	8310	4-ounces	Glass jar	Cool 4°C	7days to extraction/40 days after extraction
Solid	Cyanide	9010	4-ounces	Glass jar	Cool 4°C	14 days
Aqueous	VOCs	8260B	Two 40 mL	Glass Vials	HCl/ Cool 4°C	14 days
Aqueous	SVOCs	8270C	1 L	Amber Glass jar	Cool 4°C	7 days to extraction/40 days after extraction
Aqueous	RCRA Metals (Dissolved)	6010B, 7060A, 7131A, 7421, 7740, 7470A	250 mL	Plastic Container	HNO_3/ Cool 4°C	6 months (except Hg - 28 days)
Aqueous	IAC 135 Low-Volatiles	Iowa OA2	1 L	Amber Glass jar	Cool 4°C	7 days
Aqueous	TDS	160.1	250 mL	Plastic Container	Cool 4°C	7 days
Aqueous	Pesticides	8081	1 L	Amber Glass Jar	$Na_2S_2O_3$/ Cool 4°C	7 days to extraction/40 days after extraction
Aqueous	PAHs	8310	1 L	Amber Glass Jar	Cool 4°C	7days to extraction/40 days after extraction
Aqueous	Cyanide	9010	100 mL	Glass jar	NaOH/Cool 4°C	14 days

Attachment 2.4

Analytical Method Requirements

Attachment 2.4 - Table 1

Analytical Method Requirements

Table 1 – Analytical Method Requirements				
Media			Chemical Group	Analytical Method
Range 1 Soils	Range 2 Soils	Groundwater		
8	3		VOCs	8260B
3	0		SVOCs	8270C
8	3		RCRA Metals	6010B/ 7471A
3	0		Pesticides	8081
6	3		IAC 135 Low-Volatiles	Iowa OA2
5	3		PAHs	8310
3	3		Cyanide	9010
		4	VOCs	8260B
		0	SVOCs	8270C
		4	RCRA Metals (Diss)	6010B, 7060A, 7131A, 7421, 7740, 7470A
		0	Pesticides	8081
		2	IAC 135 Low-Volatiles	Iowa OA2
		4	PAHs	8310
		2	Cyanide	9010
		4	TDS	160.1

Attachment 2.4 - Table 2

Volatile Soil 8260
vs
Land Recycling Program

Volatile Soil 8260	Units	Method	Land Recycling Limits	MDL	Reporting Limits
Acetone	ug/kg	SW 8260B	7,800,000	8	50
Carbon disulfide	ug/kg	SW 8260B	7,800,000	0.83	5
Benzene	ug/kg	SW 8260B	73,000	0.55	5
Bromobenzene	ug/kg	SW 8260B		0.7	5
Bromochloromethane	ug/kg	SW 8260B	1,000,000	0.95	5
Bromodichloromethane	ug/kg	SW 8260B	34,000	2.25	5
Bromoform	ug/kg	SW 8260B	270,000	3.35	10
Bromomethane	ug/kg	SW 8260B	110,000	4.9	20
2-Butanone	ug/kg	SW 8260B	47,000,000	0.85	50
n-Butylbenzene	ug/kg	SW 8260B		0.47	5
sec-Butylbenzene	ug/kg	SW 8260B		1.45	5
tert-Butylbenzene	ug/kg	SW 8260B		0.5	5
Carbon tetrachloride	ug/kg	SW 8260B	16,000	6	5
Chlorobenzene	ug/kg	SW 8260B	1,600,000	0.425	5
Chlorodibromomethane	ug/kg	SW 8260B	1,600,000	1.4	5
Chloroethane	ug/kg	SW 8260B		0.7	20
Chloroform	ug/kg	SW 8260B	350,000	0.85	5
Chloromethane	ug/kg	SW 8260B	310,000	0.5	20
2-Chlorotoluene	ug/kg	SW 8260B	1,600,000	0.65	5
4-Chlorotoluene	ug/kg	SW 8260B	1,600,000	0.55	5
1,2-Dibromo-3-chloropropane	ug/kg	SW 8260B	1,500	10	50
1,2-Dibromoethane	ug/kg	SW 8260B	25	2.95	50
Dibromomethane	ug/kg	SW 8260B	780,000	0.75	5
1,2-Dichlorobenzene	ug/kg	SW 8260B	7,000,000	1.1	5
1,3-Dichlorobenzene	ug/kg	SW 8260B	7,000,000	1.1	5
1,4-Dichlorobenzene	ug/kg	SW 8260B	7,800,000	0.65	5
Dichlorodifluoromethane	ug/kg	SW 8260B	16,000,000	0.95	15
1,1-Dichloroethane	ug/kg	SW 8260B	7,800,000	0.8	5
1,2-Dichloroethane	ug/kg	SW 8260B	23,000	1.1	5
1,1-Dichloroethene	ug/kg	SW 8260B	700,000	0.335	5
cis-1,2-Dichloroethene	ug/kg	SW 8260B	780,000	0.95	5
trans-1,2-Dichloroethene	ug/kg	SW 8260B	1,600,000	0.75	5
Hexane	ug/kg	SW 8260B	4,700,000	0.9	25
1,2-Dichloropropane	ug/kg	SW 8260B	31,000	0.43	5

Volatile Soil 8260
vs
Land Recycling Program

Volatile Soil 8260	Units	Method	Land Recycling Limits	MDL	Reporting Limits
1,3-Dichloropropane	ug/kg	SW 8260B		0.85	5
2,2-Dichloropropane	ug/kg	SW 8260B		0.36	20
1,1-Dichloropropene	ug/kg	SW 8260B		0.85	5
cis-1,3-Dichloropropene	ug/kg	SW 8260B	12,000	0.8	5
trans-1,3-Dichloropropene	ug/kg	SW 8260B	12,000	0.75	5
Ethylbenzene	ug/kg	SW 8260B	7,800,000	0.55	5
Hexachlorobutadiene	ug/kg	SW 8260B	16,000	2.9	25
2-Hexanone	ug/kg	SW 8260B		0.55	50
Isopropylbenzene	ug/kg	SW 8260B	7,800,000	0.36	5
p-Isopropyltoluene	ug/kg	SW 8260B		0.5	5
Methylene chloride	ug/kg	SW 8260B	280,000	7	50
Methyl isobutyl ketone	ug/kg	SW 8260B	6,300,000	0.7	50
MTBE	ug/kg	SW 8260B	2,300,000	4.75	5
Naphthalene	ug/kg	SW 8260B	1,600,000	0.8	25
n-Propylbenzene	ug/kg	SW 8260B		0.55	5
Styrene	ug/kg	SW 8260B	16,000,000	0.38	5
1,1,1,2-Tetrachloroethane	ug/kg	SW 8260B	2,300,000	1.8	5
1,1,2,2-Tetrachloroethane	ug/kg	SW 8260B		1.1	5
Tetrachloroethene	ug/kg	SW 8260B	780,000	0.65	5
Toluene	ug/kg	SW 8260B	16,000,000	0.7	5
1,2,3-Trichlorobenzene	ug/kg	SW 8260B		1.6	25
1,2,4-Trichlorobenzene	ug/kg	SW 8260B	780,000	0.32	25
1,1,1-Trichloroethane	ug/kg	SW 8260B	2,700,000	1.05	5
1,1,2-Trichloroethane	ug/kg	SW 8260B	310,000	1.2	5
Trichloroethylene	ug/kg	SW 8260B	180,000	0.95	5
Trichlorofluoromethane	ug/kg	SW 8260B	23,000,000	0.44	20
1,2,3-Trichloropropane	ug/kg	SW 8260B	300	0.9	5
1,1,2-Trichlorotrifluoroethane	ug/kg	SW 8260B			10
trans-1,4-Dichloro-2-butene	ug/kg	SW 8260B			<10
Vinyl acetate	ug/kg	SW 8260B		10	<10
1,2,4-Trimethylbenzene	ug/kg	SW 8260B		1.4	5
1,3,5-Trimethylbenzene	ug/kg	SW 8260B		2.3	5
Acrolein	ug/kg	SW 8260B		100	<100
2-Chloroethyl vinyl ether	ug/kg	SW 8260B			<50

Attachment 2.4 - Table 2

Volatile Soil 8260
vs
Land Recycling Program

Volatile Soil 8260	Units	Method	Land Recycling Limits	MDL	Reporting Limits
Vinyl Chloride	ug/kg	SW 8260B	1,100	0.75	15
Iodomethane	ug/kg	SW 8260B			5
Xylenes, Total	ug/kg	SW 8260B	160,000,000	1.6	15

Attachment 2.4 - Table 3

Volatile Water 8260
vs
Land Recycling Program

Volatile Water 8260	Units	Method	Land Recycling Limits	MDL	Reporting Limits
Acetone	ug/L	SW 8260B	700	3.4	20
Acrolein	ug/L	SW 8260B		3.9	10
Benzene	ug/L	SW 8260B	5	0.25	0.5
Acrylonitrile	ug/L	SW 8260B	0.32	0.48	10
Bromobenzene	ug/L	SW 8260B		0.38	1
Bromochloromethane	ug/L	SW 8260B	10	0.4	5
Bromodichloromethane	ug/L	SW 8260B	100	0.46	1
Bromoform	ug/L	SW 8260B	100	0.38	5
Bromomethane	ug/L	SW 8260B	10	0.62	4
2-Butanone (MEK)	ug/L	SW 8260B	4,200	3.4	10
n-Butylbenzene	ug/L	SW 8260B		0.13	1
sec-Butylbenzene	ug/L	SW 8260B		0.16	1
tert-Butylbenzene	ug/L	SW 8260B		0.16	1
Carbon Disulfide	ug/L	SW 8260B	700	0.25	1
Carbon Tetrachloride	ug/L	SW 8260B	5	0.25	2
Chlorobenzene	ug/L	SW 8260B	100	0.25	1
Chlorodibromomethane	ug/L	SW 8260B	100	0.42	5
Chloroethane	ug/L	SW 8260B		0.12	4
Chloroform	ug/L	SW 8260B	100	0.25	1
Chloromethane	ug/L	SW 8260B	3	0.24	3
2-Chlorotoluene	ug/L	SW 8260B	100	0.25	1
4-Chlorotoluene	ug/L	SW 8260B	100	0.25	1
1,2-Dibromo-3-Chloropropane	ug/L	SW 8260B	0.20	0.3	10
1,2-Dibromoethane (EDB)	ug/L	SW 8260B	0.05	0.42	10
Dibromomethane	ug/L	SW 8260B	70	0.44	1
1,2-Dichlorobenzene	ug/L	SW 8260B	600	0.25	1
1,3-Dichlorobenzene	ug/L	SW 8260B	600	0.25	1
1,4-Dichlorobenzene	ug/L	SW 8260B	75	0.25	1
Dichlorofluoromethane	ug/L	SW 8260B		0.25	10
Dichlorodifluoromethane	ug/L	SW 8260B	1,000	0.4	3
1,1-Dichloroethane	ug/L	SW 8260B	70	0.25	1
1,2-Dichloroethane	ug/L	SW 8260B	5	0.25	1
1,1-Dichloroethene	ug/L	SW 8260B	7	0.44	2
cis-1,2-Dichloroethene	ug/L	SW 8260B	70	0.44	1

Attachment 2.4 - Table 3

Volatile Water 8260
vs
Land Recycling Program

Volatile Water 8260	Units	Method	Land Recycling Limits	MDL	Reporting Limits
trans-1,2-Dichloroethene	ug/L	SW 8260B	100	0.25	1
Trans-1,4-dichloro-2-butene	ug/L	SW 8260B		0.25	10
Di-Isopropylether	ug/L	SW 8260B		0.32	1
1,2-Dichloropropane	ug/L	SW 8260B	5	0.12	1
1,3-Dichloropropane	ug/L	SW 8260B	1	0.25	1
2,2-Dichloropropane	ug/L	SW 8260B		0.73	4
1,1-Dichloropropene	ug/L	SW 8260B		0.25	1
Dichlorofluoromethane	ug/L	SW 8260B		0.4	10
cis-1,3-Dichloropropene	ug/L	SW 8260B		0.43	5
trans-1,3-Dichloropropene	ug/L	SW 8260B		0.44	5
Ethylbenzene	ug/L	SW 8260B	700	0.43	1
Heptane	ug/L	SW 8260B			10
Hexachlorobutadiene	ug/L	SW 8260B	1	0.22	5
2-Hexanone	ug/L	SW 8260B		0.25	10
Isopropylbenzene	ug/L	SW 8260B	700	0.44	1
Iodomethane	ug/L	SW 8260B		0.51	10
p-Isopropyltoluene	ug/L	SW 8260B		0.44	1
Methylene Chloride	ug/L	SW 8260B	5	0.63	5
MTBE	ug/L	SW 8260B	20	0.25	1
Methyl isobutyl ketone	ug/L	SW 8260B	560	0.47	10
Naphthalene	ug/L	SW 8260B	20	0.86	5
n-Propylbenzene	ug/L	SW 8260B		0.25	1
MTBE	ug/L	SW 8260B	20	0.25	1
Styrene	ug/L	SW 8260B	100	0.41	1
1,1,1,2-Tetrachloroethane	ug/L	SW 8260B	70	0.4	1
1,1,2,2-Tetrachloroethane	ug/L	SW 8260B		0.25	1
Tetrachloroethene	ug/L	SW 8260B	5	0.37	1
Toluene	ug/L	SW 8260B	1,000	0.25	1
1,2,3-Trichlorobenzene	ug/L	SW 8260B		0.4	5
1,2,4-Trichlorobenzene	ug/L	SW 8260B	70	0.25	5
1,1,1-Trichloroethane	ug/L	SW 8260B	200	0.25	1
1,1,2-Trichloroethane	ug/L	SW 8260B	5	0.1	1
Trichloroethylene	ug/L	SW 8260B	5	0.43	1
Trichlorofluoromethane	ug/L	SW 8260B	2,000	0.47	4

Attachment 2.4 - Table 3

Volatile Water 8260
vs
Land Recycling Program

Volatile Water 8260	Units	Method	Land Recycling Limits	MDL	Reporting Limits
Trichlorotrifluoroethane	ug/L	SW 8260B			2
1,2,3-Trichloropropane	ug/L	SW 8260B	40	0.49	1
1,2,4-Trimethylbenzene	ug/L	SW 8260B		0.25	1
1,3,5-Trimethylbenzene	ug/L	SW 8260B		0.14	1
Vinyl acetate	ug/L	SW 8260B		0.48	10
Vinyl Chloride	ug/L	SW 8260B	2	0.47	1
Xylenes, Total	ug/L	SW 8260B	10,000	0.38	3
Hexane	ug/L	SW 8260B	420	0.18	1
Methyl acetate	ug/L	SW 8260B			100
2-Chloroethylvinyl ether	ug/L	SW 8260B		0.74	2
t-Butanol	ug/L	SW 8260B			100
t-Butyl ethyl ether	ug/L	SW 8260B			10
t-Amyl methyl ether	ug/L	SW 8260B			10
Ethanol	ug/L	SW 8260B			1,000

Attachment 2.4 - Table 4

BNA Soil 8270
vs
Land Recycling Program Statewide Standards

BNA Soil 8270	Units	Method	Land Recycling Limits	MDL	Reporting Limits
Acenaphthene	mg/kg	SW 8270C	4,700	0.067	0.33
Acenaphthylene	mg/kg	SW 8270C		0.066	0.33
Anthracene	mg/kg	SW 8270C	23000	0.085	0.33
Benzidine	mg/kg	SW 8270C		0.12	3.3
Benzo(a)anthracene	mg/kg	SW 8270C	2.9	0.092	0.33
Benzo(b)fluoranthene	mg/kg	SW 8270C	2.9	0.11	0.33
Benzo(k)fluoranthene	mg/kg	SW 8270C	29	0.1	0.33
Benzo(a)pyrene	mg/kg	SW 8270C	0.29	0.1	0.33
Benzo(ghi)perylene	mg/kg	SW 8270C		0.11	0.33
Benzyl alcohol	mg/kg	SW 8270C		0.066	0.33
Benzyl butyl phthalate	mg/kg	SW 8270C	16000	0.11	0.33
Bis(2-chloroethyl)ether	mg/kg	SW 8270C	1.9	0.077	0.33
Bis(2-chloroethoxy)methane	mg/kg	SW 8270C		0.07	0.33
Bis(2-ethylhexyl)phthalate	mg/kg	SW 8270C	150	0.13	0.33
Bis(2chloroisopropyl)ether	mg/kg	SW 8270C	3100	0.08	0.33
4-Bromophenyl phenyl ether	mg/kg	SW 8270C		0.081	0.33
Carbazole	mg/kg	SW 8270C	110	0.096	0.33
4-Chloroaniline	mg/kg	SW 8270C	310	0.12	0.33
2-Chloronaphthalene	mg/kg	SW 8270C	6300	0.076	0.33
4-Chlorophenylphenyl ether	mg/kg	SW 8270C		0.08	0.33
Chrysene	mg/kg	SW 8270C	290	0.095	0.33
Dibenzo(a,h)anthracene	mg/kg	SW 8270C	0.29	0.1	0.33
Dibenzofuran	mg/kg	SW 8270C		0.073	0.33
Di-n-butylphthalate	mg/kg	SW 8270C	7800	0.1	0.33
1,2-Dichlorobenzene	mg/kg	SW 8270C	7000	0.081	0.33
1,3-Dichlorobenzene	mg/kg	SW 8270C	7000	0.085	0.33
1,4-Dichlorobenzene	mg/kg	SW 8270C	7800	0.09	0.33
3,3-Dichlorobenzidine	mg/kg	SW 8270C	4.7	0.13	0.33
Diethyl phthalate	mg/kg	SW 8270C	63000	0.11	0.33
1,2-Diphenylhydrazine	mg/kg	SW 8270C			0.33
Dimethyl phthalate	mg/kg	SW 8270C		0.33	0.33
2,4-Dinitrotoluene	mg/kg	SW 8270C	3.1	0.08	0.33
2,6-Dinitrotoluene	mg/kg	SW 8270C	3.1	0.065	0.33
Di-n-octylphthalate	mg/kg	SW 8270C	1,600	0.12	0.33

Attachment 2.4 - Table 4

BNA Soil 8270
vs
Land Recycling Program Statewide Standards

BNA Soil 8270	Units	Method	Land Recycling Limits	MDL	Reporting Limits
Fluoranthene	mg/kg	SW 8270C	3100	0.086	0.33
Fluorene	mg/kg	SW 8270C	3100	0.078	0.33
Hexachlorobenzene	mg/kg	SW 8270C	1.3	0.087	0.33
Hexachloro-1,3-butadiene	mg/kg	SW 8270C	16	0.095	0.33
Hexachlorocyclopentadiene	mg/kg	SW 8270C	550	0.097	0.66
Hexachloroethane	mg/kg	SW 8270C	78	0.078	0.33
Indeno(1,2,3-cd)pyrene	mg/kg	SW 8270C	2.9	0.1	0.33
Isophorone	mg/kg	SW 8270C	16000	0.071	0.33
2-Methylnaphthalene	mg/kg	SW 8270C		0.071	0.33
Naphthalene	mg/kg	SW 8270C	1600	0.072	0.33
2-Nitroaniline	mg/kg	SW 8270C		0.072	0.33
3-Nitroaniline	mg/kg	SW 8270C		0.097	0.33
4-Nitroaniline	mg/kg	SW 8270C		0.097	0.33
Nitrobenzene	mg/kg	SW 8270C	39	0.081	0.33
N-Nitrosodimethylamine	mg/kg	SW 8270C		0.08	0.33
N-Nitrosodiphenylamine	mg/kg	SW 8270C	430	0.09	0.33
N-Nitrosodi-n-propylamine	mg/kg	SW 8270C		0.072	0.33
Phenanthrene	mg/kg	SW 8270C		0.086	0.33
Pyrene	mg/kg	SW 8270C	2300	0.093	0.33
Pyridine	mg/kg	SW 8270C		0.07	0.33
1,2,4-Trichlorobenzene	mg/kg	SW 8270C	780	0.071	0.33
Nitrobenzene-d5 (Surr.)	%	SW 8270C		1.2	1.2
2-Fluorobiphenyl (Surr.)	%	SW 8270C		0.91	0.91
Terphenyl-d14 (Surr.)	%	SW 8270C		1.1	1.1
Benzoic Acid	mg/kg	SW 8270C		0.28	0.66
4-Chloro-3-methylphenol	mg/kg	SW 8270C		0.067	0.33
2-chlorophenol	mg/kg	SW 8270C	390	0.08	0.33
Cresols, Total	mg/kg	SW 8270C	390	0.065	0.33
2,4-Dichlorophenol	mg/kg	SW 8270C	230	0.06	0.33
2,4-Dimethylphenol	mg/kg	SW 8270C	1600	0.074	0.33
2,4-Dinitrophenol	mg/kg	SW 8270C	160	0.33	0.33
2-Methyl-4,6-dinitrophenol	mg/kg	SW 8270C		0.055	0.33
2-Nitrophenol	mg/kg	SW 8270C		0.25	0.33
4-Nitrophenol	mg/kg	SW 8270C	630	0.16	0.33

Attachment 2.4 - Table 4

BNA Soil 8270
vs
Land Recycling Program Statewide Standards

BNA Soil 8270	Units	Method	Land Recycling Limits	MDL	Reporting Limits
Pentachlorophenol	mg/kg	SW 8270C	18	0.1	0.33
Phenol	mg/kg	SW 8270C	47000	0.082	0.33
2,4,5-Trichlorophenol	mg/kg	SW 8270C	7800	0.085	0.33
2,4,6-Trichlorophenol	mg/kg	SW 8270C	190	0.25	0.33
2-Methylphenol	mg/kg	SW 8270C	3,900	0.065	
4-Methylphenol	mg/kg	SW 8270C	390	0.065	

Attachment 2.4 - Table 5

BNAWater 8270
vs
Land Recycling Program

BNAWater 8270	Units	Method	Land Recycling Limits	MDL	Reporting Limits
Acenaphthene	ug/L	SW 8270C	420	0.82	10
Acenaphthylene	ug/L	SW 8270C		0.83	10
Anthracene	ug/L	SW 8270C	2100	0.88	10
Benzidine	ug/L	SW 8270C		4.5	100
Benzo(a)anthracene	ug/L	SW 8270C	0.24	1.1	10
Benzo(b)fluoranthene	ug/L	SW 8270C	0.24	1.1	10
Benzo(k)fluoranthene	ug/L	SW 8270C	2.4	1	10
Benzo(a)pyrene	ug/L	SW 8270C	0.2	0.91	10
Benzo(ghi)perylene	ug/L	SW 8270C		1.1	10
Benzyl Alcohol	ug/L	SW 8270C		1.2	10
Benzyl butyl phthalate	ug/L	SW 8270C	140	3.6	10
Bis(2-chloroethyl)ether	ug/L	SW 8270C	0.16	1.5	10
Bis(2-chloroethoxy)methane	ug/L	SW 8270C		2.2	10
Bis(2-ethylhexyl)phthalate	ug/L	SW 8270C	6	1.6	10
Bis(2chloroisopropyl)ether	ug/L	SW 8270C	300	1.5	10
4-Bromophenyl phenyl ether	ug/L	SW 8270C		0.93	10
Carbazole	ug/L	SW 8270C	8.8		10
4-Chloroaniline	ug/L	SW 8270C	28	2.1	10
2-Chloronaphthalene	ug/L	SW 8270C	560	1	10
4-Chlorophenylphenyl ether	ug/L	SW 8270C		0.78	10
Chrysene	ug/L	SW 8270C	24	1	10
Dibenzo(a,h)anthracene	ug/L	SW 8270C	0.024	0.99	10
Dibenzofuran	ug/L	SW 8270C		0.81	10
Di-n-butylphthalate	ug/L	SW 8270C	700	1.1	10
1,2-Dichlorobenzene	ug/L	SW 8270C	600	1.4	10
1,3-Dichlorobenzene	ug/L	SW 8270C	600	1.3	10
1,4-Dichlorobenzene	ug/L	SW 8270C	75	1.3	10
3,3-Dichlorobenzidine	ug/L	SW 8270C	0.39	4.2	50
Diethyl phthalate	ug/L	SW 8270C	5,000	1.3	10
1,2-Diphenylhydrazine	ug/L	SW 8270C		0.97	10
Dimethyl phthalate	ug/L	SW 8270C		1.1	10
2,4-Dinitrotoluene	ug/L	SW 8270C	0.26	1.4	10
2,6-Dinitrotoluene	ug/L	SW 8270C	0.26	1.5	10
Di-n-octylphthalate	ug/L	SW 8270C	140	1.4	10

Attachment 2.4 - Table 5

BNAWater 8270
vs
Land Recycling Program

BNAWater 8270	Units	Method	Land Recycling Limits	MDL	Reporting Limits
Fluoranthene	ug/L	SW 8270C	280	1.2	10
Fluorene	ug/L	SW 8270C	280	0.71	10
Hexachlorobenzene	ug/L	SW 8270C	1	0.78	10
Hexachloro-1,3-butadiene	ug/L	SW 8270C	1	0.95	10
Hexachlorocyclopentadiene	ug/L	SW 8270C	50	0.92	20
Hexachloroethane	ug/L	SW 8270C	1	1.2	10
Indeno(1,2,3-cd)pyrene	ug/L	SW 8270C	0.24	1	10
Isophorone	ug/L	SW 8270C	100	2	10
2-Methylnapthalene	ug/L	SW 8270C		1.1	10
Naphthalene	ug/L	SW 8270C	20	1.1	10
2-Nitroaniline	ug/L	SW 8270C		0.92	10
3-Nitroaniline	ug/L	SW 8270C		1.1	10
4-Nitroaniline	ug/L	SW 8270C		1.3	10
Nitrobenzene	ug/L	SW 8270C	3.5	1.1	10
N-Nitrosodimethylamine	ug/L	SW 8270C		6	10
N-Nitrosodiphenylamine	ug/L	SW 8270C	36	2.5	10
N-Nitrosodi-n-propylamine	ug/L	SW 8270C		1.6	10
N-Nitrosodi-n-butylamine	ug/L	SW 8270C	0.032	1	10
N-Nitrosodiethylamine	ug/L	SW 8270C		1.3	10
Phenanthrene	ug/L	SW 8270C		1	10
Pentachlorobenzene	ug/L	SW 8270C		0.81	10
Pyrene	ug/L	SW 8270C	210	1.2	10
Pyridine	ug/L	SW 8270C		3.5	10
1,2,4,5-Tetrachlorobenzene	ug/L	SW 8270C	2	1.2	10
1,2,4-Trichlorobenzene	ug/L	SW 8270C		1.1	10
Nitrobenzene-d5 (Surr.)	ug/L	SW 8270C		100	
2-Fluorobiphenyl (Surr.)	ug/L	SW 8270C		100	
Terphenyl-d14 (Surr.)	ug/L	SW 8270C		100	
Benzoic Acid	ug/L	SW 8270C		3.7	20
4-Chloro-3-methylphenol	ug/L	SW 8270C		1.7	10
2-chlorophenol	ug/L	SW 8270C	40	0.78	10
Cresols, Total	ug/L	SW 8270C	3.5	1.9	10
2,4-Dichlorophenol	ug/L	SW 8270C	20	1.1	10

Attachment 2.4 - Table 5

BNAWater 8270
vs
Land Recycling Program

BNAWater 8270	Units	Method	Land Recycling Limits	MDL	Reporting Limits
2,4-Dimethylphenol	ug/L	SW 8270C	140	2.8	10
2,4-Dinitrophenol	ug/L	SW 8270C	14	1.1	10
2-Methyl-4,6-dinitrophenol	ug/L	SW 8270C		3.2	10
4-Methylphenol	ug/L	SW 8270C	3.5	1.6	10
2-Nitrophenol	ug/L	SW 8270C		2	10
4-Nitrophenol	ug/L	SW 8270C	60	2.8	10
Pentachlorophenol	ug/L	SW 8270C	1	1.6	10
Phenol	ug/L	SW 8270C	4,000	0.72	10
2,4,5-Trichlorophenol	ug/L	SW 8270C	700	0.77	10
2,4,6-Trichlorophenol	ug/L	SW 8270C	16	0.7	10
2-Methylphenol	ug/L	SW 8270C	35	1.6	10
Phenol-d6 (Surr.)	ug/L	SW 8270C		100	
2-Fluorophenol (Surr.)	ug/L	SW 8270C		100	
Tribromophenol (Surr.)	ug/L	SW 8270C		100	

Attachment 2.4 - Table 6

Metals Soils
vs
Land Recycling Program

Metals Soils	Units	Method	Land Recycling Limits	MDL	Reporting Limits
Antimony	mg/kg	SW 6010B	31	5	5
Arsenic	mg/kg	SW 7060A	1.4	0.26	1
Barium	mg/kg	SW 6010B	5500	0.24	0.5
Cadmium	mg/kg	SW 6010B	39	0.24	1
Chromium	mg/kg	SW 6010B	230	0.38	1
Copper	mg/kg	SW 6010B	2900	0.21	1
Lead	mg/kg	SW 6010B	400	5	5
Mercury	mg/kg	EPA 245.5	23	0.00087	0.02
Molybdenum	mg/kg	SW 6010B	390	2.1	2.5
Nickel	mg/kg	SW 6010B	1600	1.2	2.5
Selenium	mg/kg	SW 6010B	390	7.5	7.5
Silver	mg/kg	SW 6010B	390	0.16	1
Strontium	mg/kg	SW 6010B	47000	1.4	15
Thallium	mg/kg	SW 7841	5.5	0.28	1
Vanadium	mg/kg	SW 6010B	550	0.24	2.5
Zinc	mg/kg	SW 6010B	23000	1	1

Attachment 2.4 - Table 7

Metals Waters
vs
Land Recycling Program

Metals Waters	**Units**	**Method**	**Land Recycling Limits**	**MDL**	**Reporting Limits**
Antimony	mg/L	SW 7041	0.0060	0.0022	0.0060
Arsenic	mg/L	SW 7060A	0.0500	0.00088	0.0010
Barium	mg/L	SW 6010B	2.0	0.0016	0.010
Cadmium	mg/L	SW 7131A	0.0050	0.00014	0.0005
Chromium	mg/L	SW 6010B	0.10	0.0025	0.020
Copper	mg/L	SW 6010B	1.3	0.0014	0.020
Lead	mg/L	SW 7421	0.015	0.00053	0.0040
Manganese	mg/L	SW 6010B	0.98	0.0010	0.010
Mercury	mg/L	SW 7470A	0.0020	0.000043	0.0002
Molybdenum	mg/L	SW 7481	0.0400	0.0015	0.010
Nickel	mg/L	SW 6010B	0.10	0.0078	0.050
Selenium	mg/L	SW 7740	0.050	0.00073	0.0050
Silver	mg/L	SW 6010B	0.10	0.0011	0.020
Strontium	mg/L	SW 6010B	17	0.0096	0.10
Thallium	mg/L	SW 7841	0.0020	0.00093	0.0020
Vanadium	mg/L	SW 6010B	0.049	0.0016	0.050
Zinc	mg/L	SW 6010B	2.0	0.0091	0.020

Attachment 2.4 - Table 8

PNA Soil 8310
vs
Land Recycling Program

PNA Soil 8310	Units	Method	Land Recycling Limits	MDL	Reporting Limit
Acenaphthene	ug/Kg	SW 8310	4,700,000	12.30	42.0
Acenaphthylene	ug/Kg	SW 8310		7.61	42.0
Anthracene	ug/Kg	SW 8310	23,000,000	8.94	17.0
Benzo(a)anthracene	ug/Kg	SW 8310	2,900	10.13	17.0
Benzo(a)pyrene	ug/Kg	SW 8310	290	10.30	17.0
Benzo(b)fluoranthene	ug/Kg	SW 8310	2900	5.66	17.0
Benzo(g,h,i)perylene	ug/Kg	SW 8310		10.63	17.0
Benzo(k)fluoranthene	ug/Kg	SW 8310	29,000	7.53	17.0
Chrysene	ug/Kg	SW 8310	290,000	8.10	17.0
Dibenzo(a,h)anthracene	ug/Kg	SW 8310	290	7.50	17.0
Fluoranthene	ug/Kg	SW 8310	3,100,000	6.04	17.0
Fluorene	ug/Kg	SW 8310	3,100,000	7.79	35.0
Indeno(1,2,3-c,d)pyrene	ug/Kg	SW 8310	2900	9.23	17.0
Naphthalene	ug/Kg	SW 8310	1,600,000	7.17	17.0
Phenanthrene	ug/Kg	SW 8310		7.93	17.0
Pyrene	ug/Kg	SW 8310	2,300,00	7.43	42.0

Attachment 2.4 - Table 9

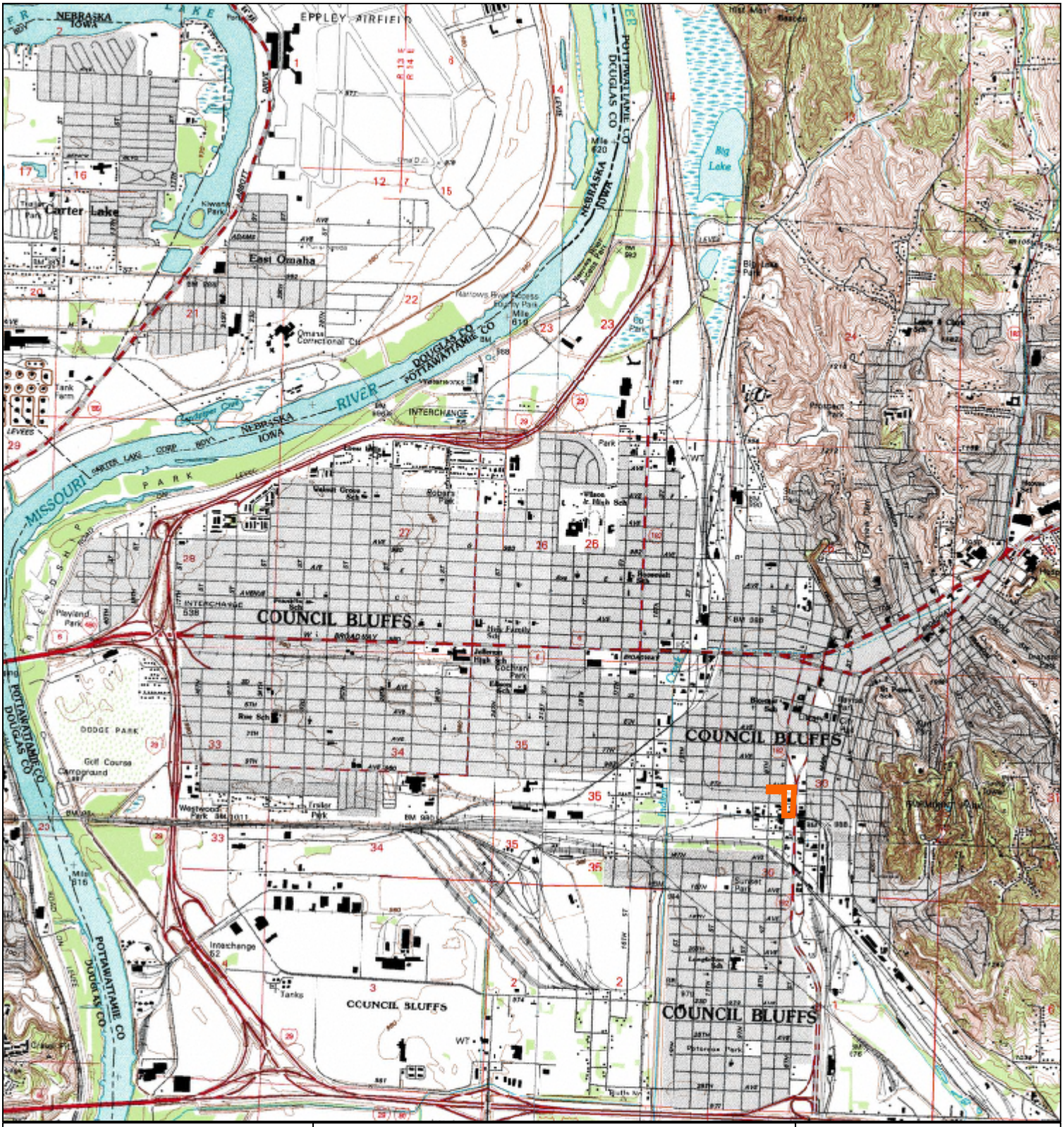
PNA Water 8310
vs
Land Recycling Program

PNA Water 8310	Units	Method	Land Recycling Limits	MDL	Reporting Limit
Acenaphthene	ug/L	SW 8310	420	0.070	0.19
Acenaphthylene	ug/L	SW 8310		0.143	0.19
Anthracene	ug/L	SW 8310	2,100	0.063	0.10
Benzo(a)anthracene	ug/L	SW 8310	0.24	0.041	0.10
Benzo(a)pyrene	ug/L	SW 8310	0.2	0.101	0.10
Benzo(b)fluoranthene	ug/L	SW 8310	0.24	0.044	0.10
Benzo(g,h,i)perylene	ug/L	SW 8310		0.054	0.10
Benzo(k)fluoranthene	ug/L	SW 8310	2.4	0.081	0.10
Chrysene	ug/L	SW 8310	24	0.038	0.10
Dibenzo(a,h)anthracene	ug/L	SW 8310	0.024	0.045	0.10
Fluoranthene	ug/L	SW 8310	280	0.046	0.10
Fluorene	ug/L	SW 8310	280	0.098	0.19
Indeno(1,2,3-c,d)pyrene	ug/L	SW 8310	0.24	0.042	0.10
Naphthalene	ug/L	SW 8310	20	0.078	0.10
Phenanthrene	ug/L	SW 8310		0.080	0.10
Pyrene	ug/L	SW 8310	210	0.082	0.19

APPENDIX B

Figures

Figure 1 – Site Vicinity Map
Figure 2 – Soil Sampling Map
Figure 3 – Groundwater Map
Figure 4a – Groundwater Contour Map – Water Table Monitoring Wells
Figure 4b – Groundwater Contour Map – Deep Monitoring Wells
Figure 5a – Arsenic Concentrations Contour Map
Figure 5b – Benzopyrene Concentrations Contour Map
Figure 5c – Historical Perspective Sanborn Map



Cluster #4

FIGURE 1
SITE VICINITY MAP

Phase II ESA - Cluster #4
South Main Brownfields Project

Council Bluffs, Iowa

0 0.3 0.6 Miles

1 inch equals 0.6 miles

N

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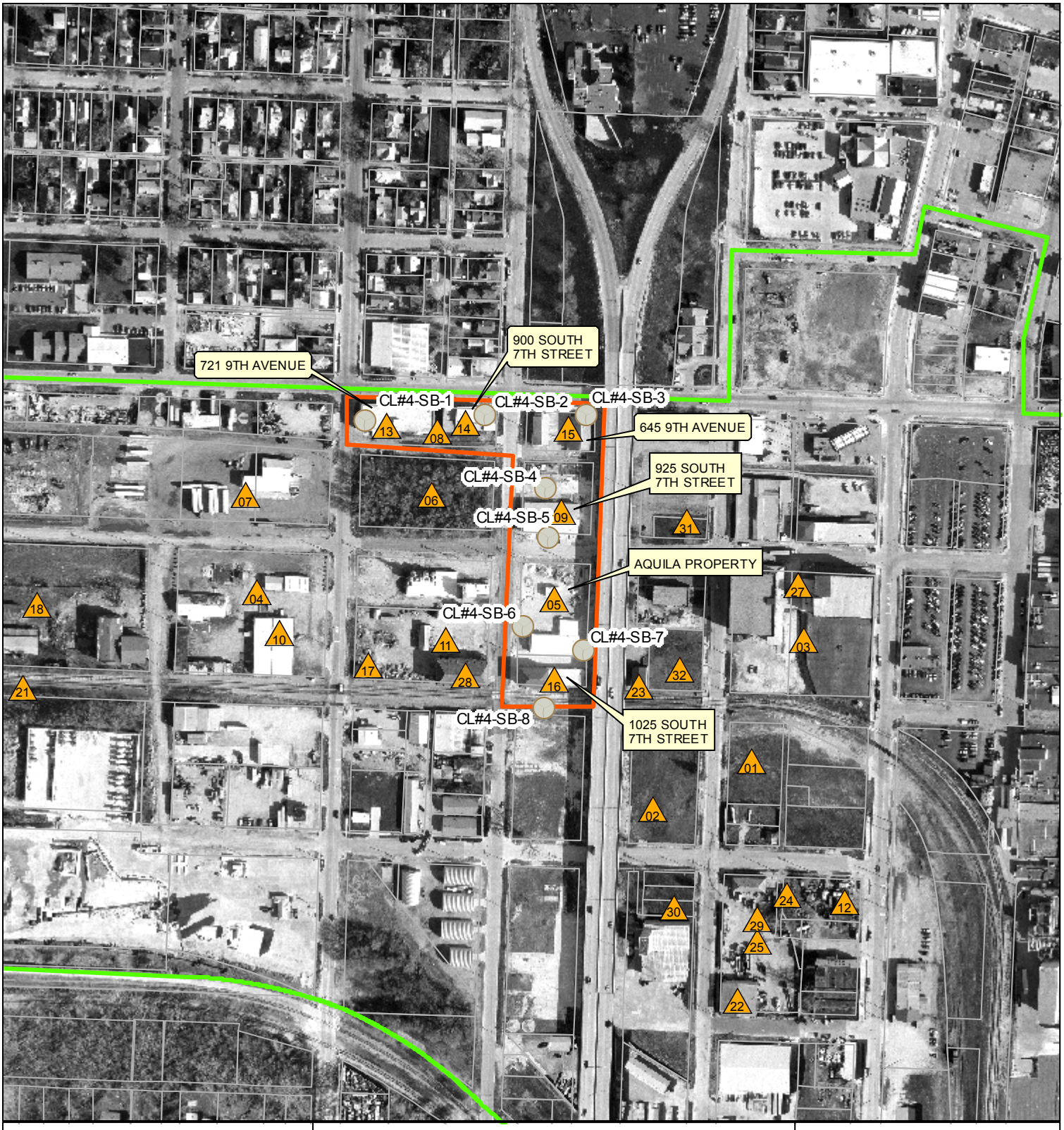

RECs*

Soil Borings

Project Area

Cluster #4

Parcels

*See REC List following Figure 2 for a description of each REC location.

FIGURE 2
SOIL SAMPLE LOCATION MAP

Phase II ESA - Cluster #4
South Main Brownfields Project

Council Bluffs, Iowa

0 150 300 Feet

1 inch equals 300 feet

N

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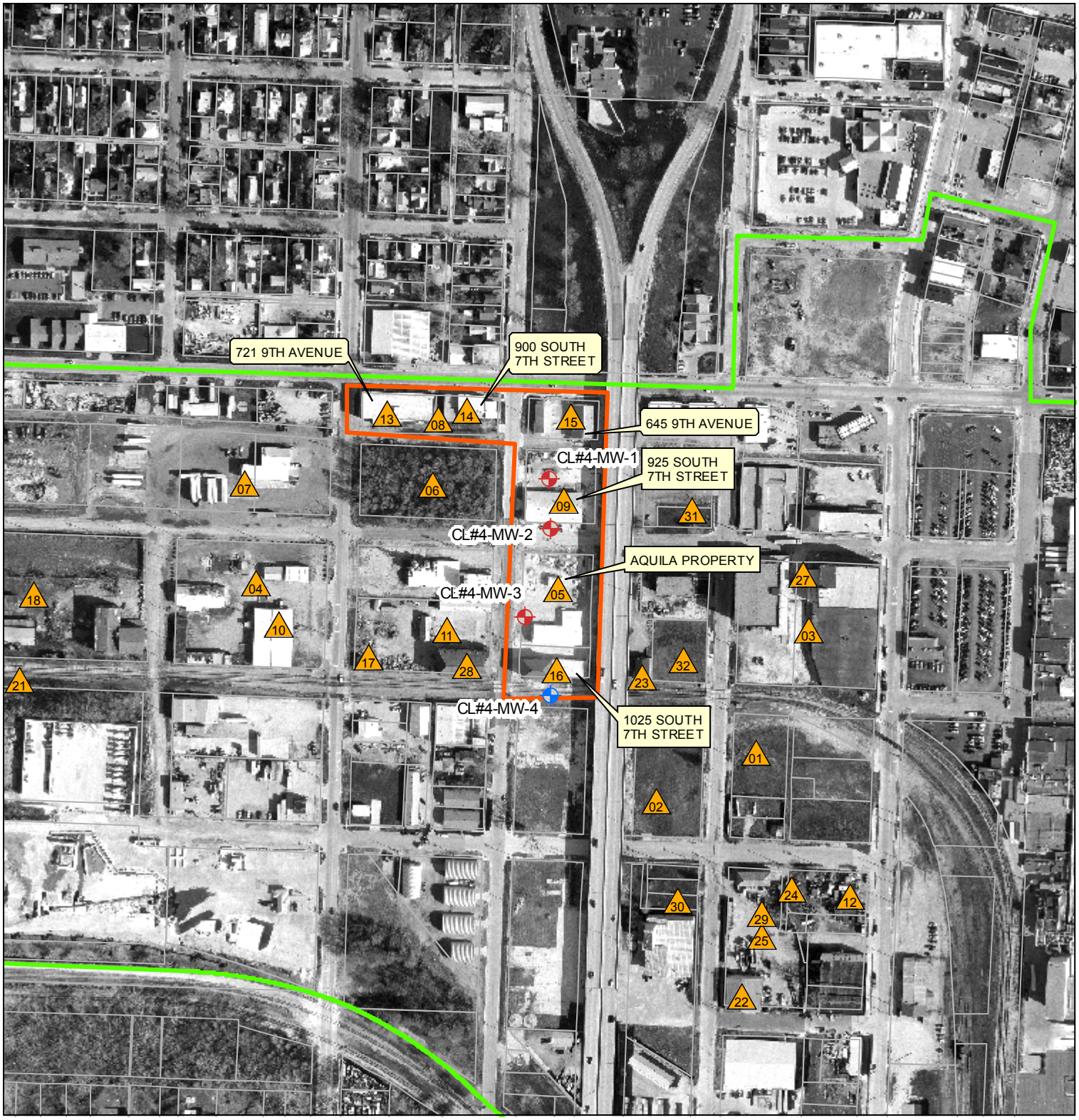

RECs*

Water Table Wells

Deep Wells

Project Area

Cluster #4

Parcels

*See REC List following Figure 2 for a description of each REC location.

FIGURE 3
GROUNDWATER SAMPLE LOCATION MAP

Phase II ESA - Cluster #4
South Main Brownfields Project

Council Bluffs, Iowa

0 150 300 Feet

1 inch equals 300 feet

N

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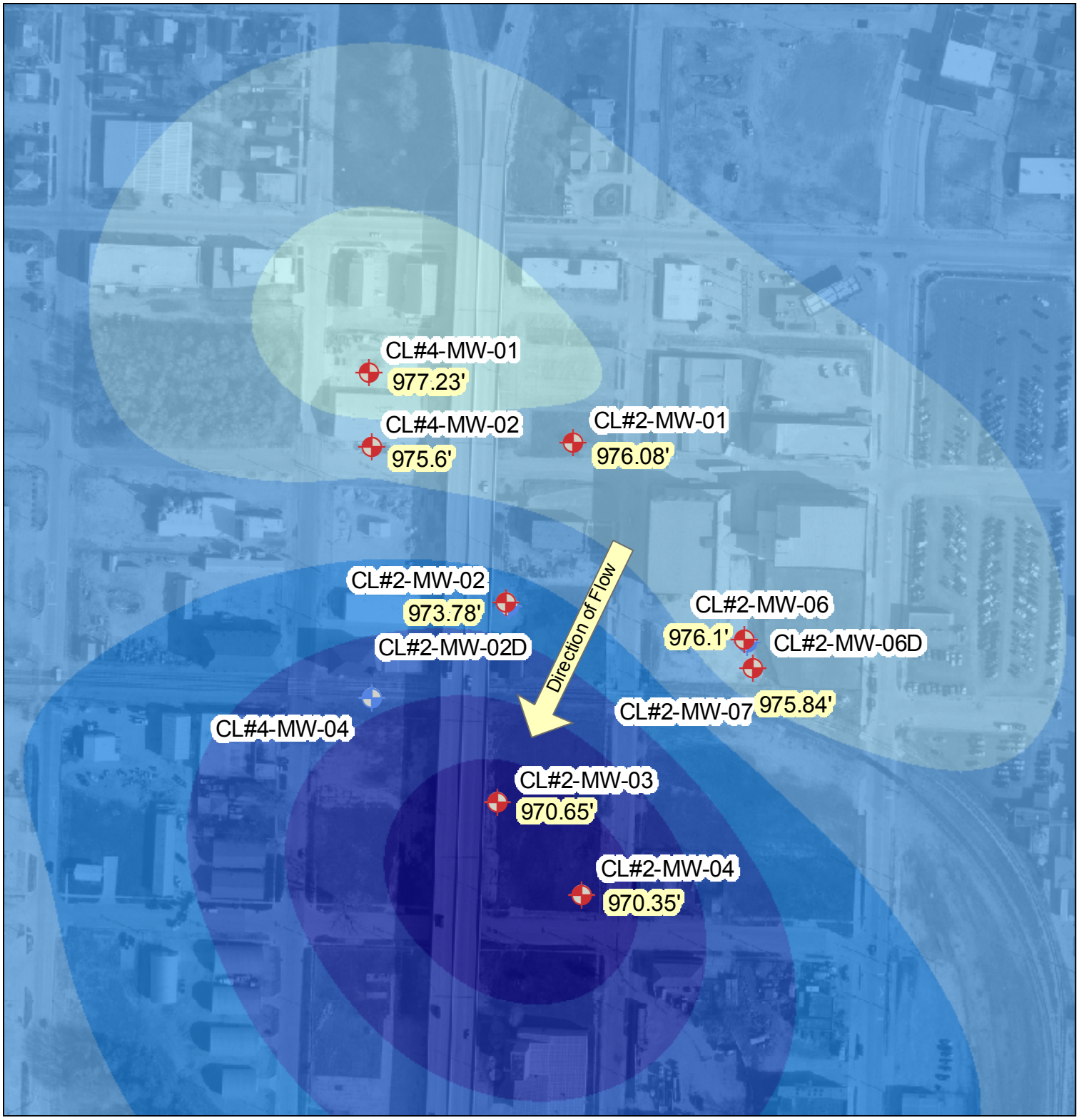


Water Table Wells

Deep Wells

Groundwater Elevation*
(ft. above mean sea level)

976.25 - 977.22	972.32 - 973.3
975.27 - 976.24	971.34 - 972.31
974.29 - 975.26	970.35 - 971.33
973.31 - 974.28	

*Groundwater elevation was interpolated using the Krige method.

FIGURE 4a

GROUNDWATER CONTOUR MAP - WATER TABLE MONITORING WELLS

South Main Brownfields Project
Clusters #2 & #4

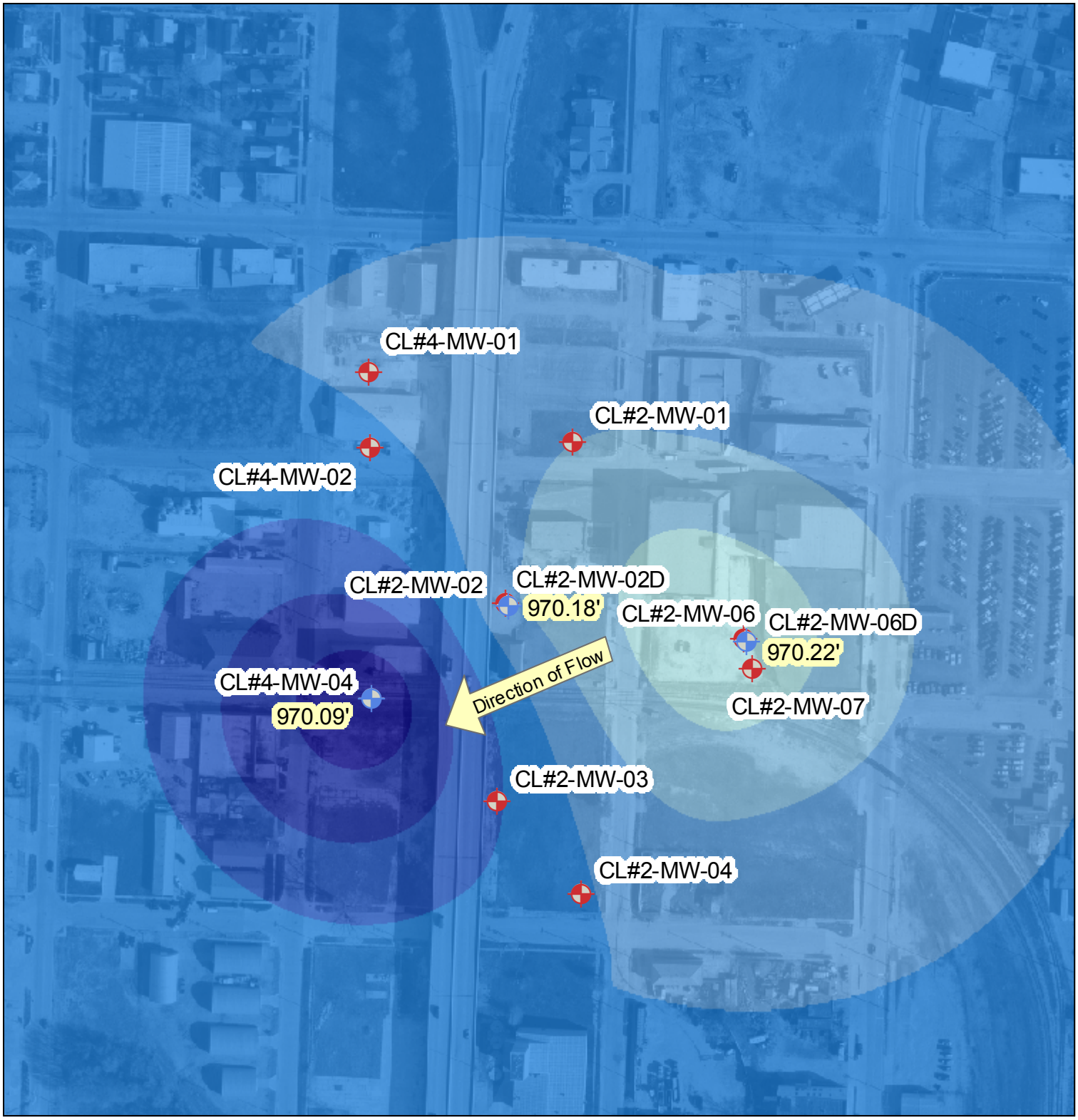
Council Bluffs, Iowa

0 100 200 Feet

1 inch equals 200 feet

N

Howard R. Green Company



Deep Wells

Water Table Wells

Groundwater Elevation*
(ft. above mean sea level)

970.21 - 970.22	970.14 - 970.15
970.19 - 970.2	970.12 - 970.13
970.17 - 970.18	970.09 - 970.11
970.16 - 970.16	

*Groundwater elevation was interpolated using the Krige method.

FIGURE 4b

GROUNDWATER CONTOUR MAP - DEEP MONITORING WELLS

South Main Brownfields Project
Clusters #2 & #4

Council Bluffs, Iowa

0 100 200 Feet

1 inch equals 200 feet

N

Howard R. Green Company

Arsenic Sample Locations

Arsenic Concentrations*† (mg/kg)

- 19.97 - 22.39
- 17.53 - 19.96
- 15.09 - 17.52
- 12.65 - 15.08
- 10.22 - 12.64
- 7.769 - 10.21
- 5.331 - 7.768

* Darker colors represent higher concentrations.

† Arsenic concentrations were interpolated using the inverse distance weighted (IDW) method.

FIGURE 5a

ARSENIC CONCENTRATIONS CONTOUR MAP

South Main Brownfields Project
Cluster #4

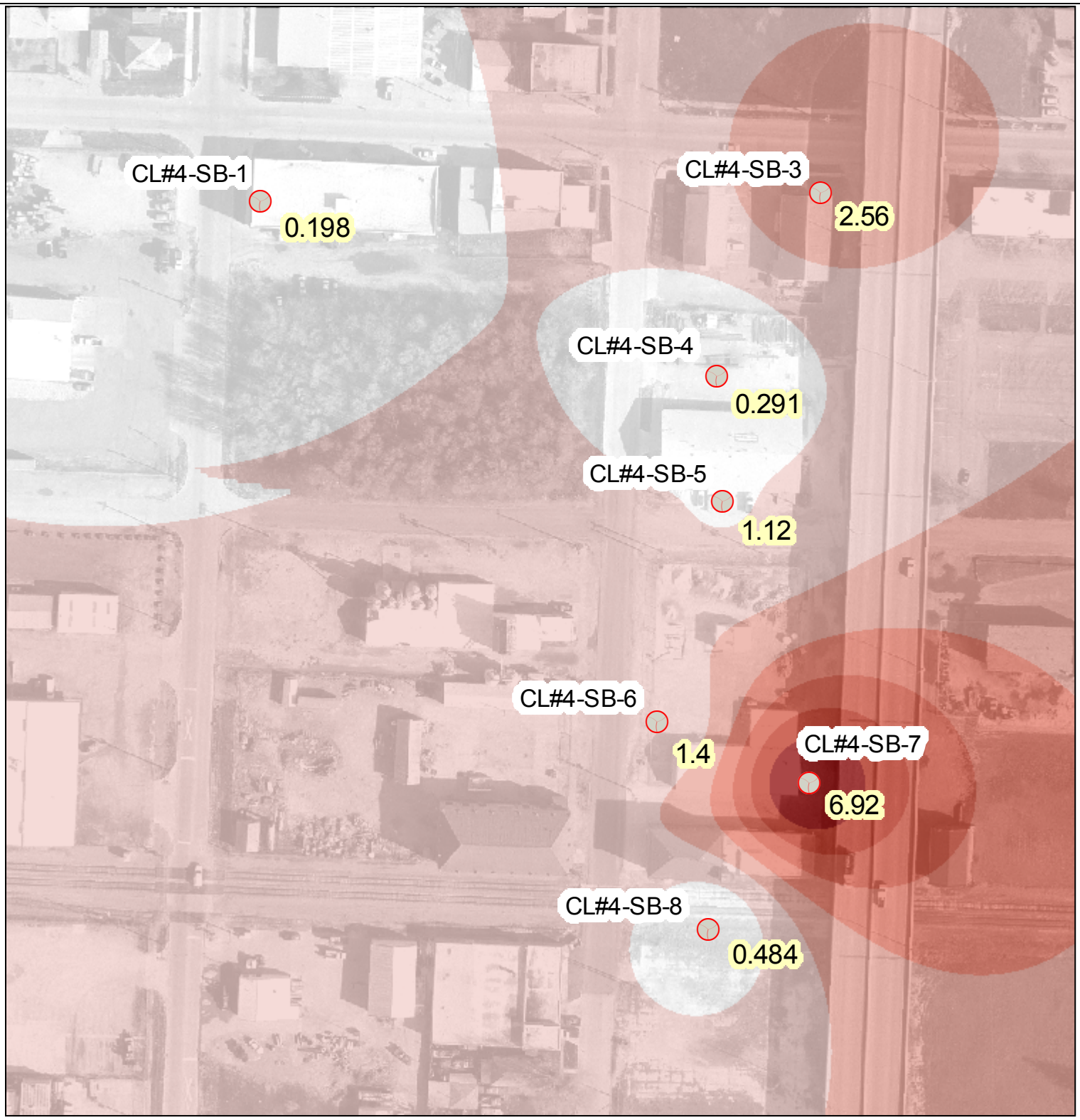
Council Bluffs, Iowa

0 60 120 Feet

1 inch equals 120 feet

N

Howard R. Green Company



Benzo (a) pyrene Sample Locations

Benzo (a) pyrene Concentrations*† (mg/kg)

- 5.97 - 6.92
- 5.01 - 5.96
- 4.05 - 5
- 3.09 - 4.04
- 2.13 - 3.08
- 1.17 - 2.12
- 0.198 - 1.16

* Darker colors represent higher concentrations.
† Benzo (a) pyrene concentrations were interpolated using the inverse distance weighted (IDW) method.

FIGURE 5b
BENZOPYRENE CONCENTRATIONS CONTOUR MAP

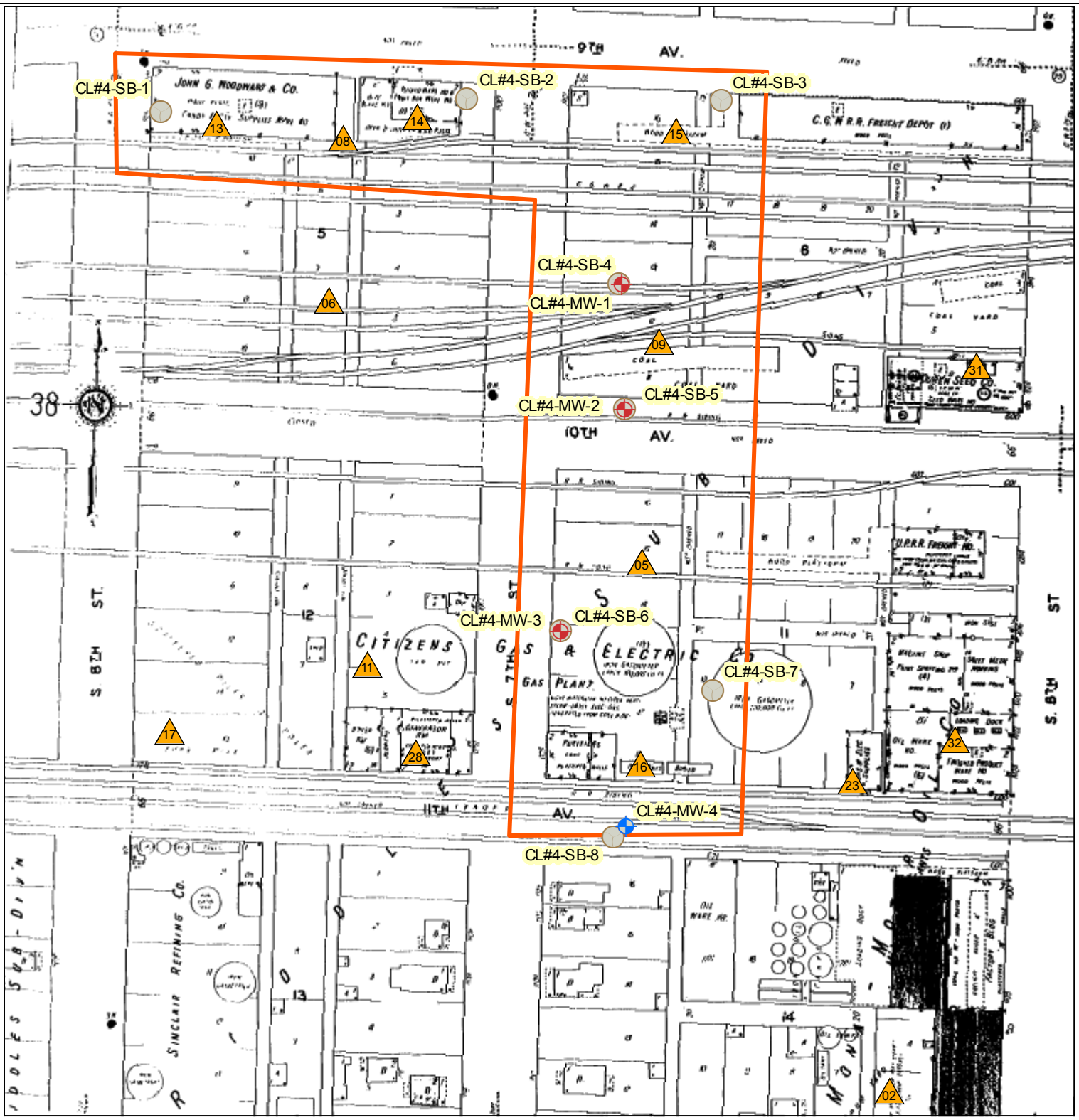
South Main Brownfields Project
Cluster #4

Council Bluffs, Iowa

0 60 120 Feet
1 inch equals 120 feet

N

Howard R. Green Company



RECs*

Water Table Wells

Deep Wells

Soil Borings

Cluster #4

*See REC List following Figure 2 for a description of each REC location.

FIGURE 5c
HISTORICAL PERSPECTIVE
1928 SANBORN

South Main Brownfields Project
Cluster #4

Council Bluffs, Iowa

0 60 120 Feet

1 inch equals 120 feet

N

Howard R. Green Company

APPENDIX C

Laboratory Reports/
Chain of Custody Documentation

TestAmerica
ANALYTICAL TESTING CORPORATION
704 Enterprise Drive Cedar Falls, IA 50613 * 800-750-2401 * Fax 319-277-2425

July 30, 2007

Client:
HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322

Attn: Scott Mattes

Work Order: CQG0956
Project Name: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Date Received: 07/19/07

An executed copy of the chain of custody is also included as an addendum to this report.

If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-(800)750-2401

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
CL#4-SB-04 0-2'	CQG0956-01	07/16/07 16:30
CL#4-SB-01 0-2'	CQG0956-02	07/17/07 16:20
CL#4-SB-02 0-2'	CQG0956-03	07/17/07 16:30
CL#4-SB-03 0-2'	CQG0956-04	07/17/07 16:45
CL#4-SB-05 0-2'	CQG0956-05	07/18/07 09:15
CL#4-SB-06 0-2'	CQG0956-06	07/18/07 10:20
CL#4-SB-06 2-3'	CQG0956-07	07/18/07 10:30
Soil Duplicate #1	CQG0956-08	07/17/07

SW 8081 analysis performed at Lab ID: 131

Samples were received into laboratory at a temperature of 0 °C.

NELAC states that samples which require thermal preservation shall be considered acceptable if the arrival temperature is within 2 degrees C of the required temperature or the method specified range. For samples with a temperature requirement of 4 degrees C, an arrival temperature from 0 degrees C to 6 degrees C meets specifications. Samples that are delivered to the laboratory on the same day that they are collected may not meet these criteria. In these cases, the samples are considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice.

Please refer to the Temperature and Sample Receipt form that is included with this report for additional information regarding the condition of samples at the time of receipt by the laboratory.

The reported results were obtained in compliance with the 2003 NELAC standards unless otherwise noted.
Iowa Certification Number: 007

Reproduction of this analytical report is permitted only in its entirety. This report shall not be reproduced except in full without the written approval of the laboratory.

TestAmerica Analytical Testing Corporation certifies that the analytical results contained herein apply only to the specific sample analyzed.

Approved By:

TestAmerica - Cedar Falls, IA
Derrick Klinkenberg
Organics Manager

TestAmerica
ANALYTICAL TESTING CORPORATION
704 Enterprise Drive Cedar Falls, IA 50613 * 800-750-2401 * Fax 319-277-2425

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-01 (CL#4-SB-04 0-2' - Soil)					**Sampled: 07/16/07 16:30**		**Recvd: 07/19/07 09:15**		
General Chemistry Parameters									
% Solids	**79.0**		%	0.100	1	07/19/07 09:30	sas	7070768	SM 2540 G
Total Metals by SW 846 Series Methods									
Arsenic	**10.5**		mg/kg dry	1.27	0.947	07/20/07 15:58	llw	7070813	SW 7060A
Barium	**188**		mg/kg dry	1.27	1.95	07/20/07 16:20	llw	7070817	SW 6010B
Cadmium	<2.53		mg/kg dry	2.53	1.95	07/20/07 16:20	llw	7070817	SW 6010B
Chromium	**15.7**		mg/kg dry	2.53	1.95	07/20/07 16:20	llw	7070817	SW 6010B
Lead	**209**	M1	mg/kg dry	12.7	1.95	07/20/07 16:20	llw	7070817	SW 6010B
Mercury	**0.105**		mg/kg dry	0.0253	0.959	07/25/07 12:00	llw	7070965	SW 7471A
Selenium	<19.0		mg/kg dry	19.0	1.95	07/20/07 16:20	llw	7070817	SW 6010B
Silver	<2.53		mg/kg dry	2.53	1.95	07/20/07 16:20	llw	7070817	SW 6010B
Volatile Organic Compounds									
Acetone	**0.147**		mg/kg dry	0.0633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Acrylonitrile	<0.0633		mg/kg dry	0.0633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Benzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Bromobenzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Bromochloromethane	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Bromodichloromethane	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Bromoform	<0.0127		mg/kg dry	0.0127	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Bromomethane	<0.0253		mg/kg dry	0.0253	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
2-Butanone (MEK)	<0.0633		mg/kg dry	0.0633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
n-Butylbenzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
sec-Butylbenzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
tert-Butylbenzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Carbon disulfide	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Carbon Tetrachloride	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Chlorobenzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Chlorodibromomethane	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Chloroethane	<0.0253		mg/kg dry	0.0253	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Chloroform	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Chloromethane	<0.0253		mg/kg dry	0.0253	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
2-Chlorotoluene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
4-Chlorotoluene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,2-Dibromo-3-chloropropane	<0.0633		mg/kg dry	0.0633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,2-Dibromoethane (EDB)	<0.0633		mg/kg dry	0.0633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Dibromomethane	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,2-Dichlorobenzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,3-Dichlorobenzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,4-Dichlorobenzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Dichlorodifluoromethane	<0.0190		mg/kg dry	0.0190	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,1-Dichloroethane	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,2-Dichloroethane	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,1-Dichloroethene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
cis-1,2-Dichloroethene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B

TestAmerica
ANALYTICAL TESTING CORPORATION
704 Enterprise Drive Cedar Falls, IA 50613 * 800-750-2401 * Fax 319-277-2425

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-01 (CL#4-SB-04 0-2' - Soil) - cont.					**Sampled: 07/16/07 16:30**		**Recvd: 07/19/07 09:15**		
Volatile Organic Compounds - cont.									
trans-1,2-Dichloroethene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,2-Dichloropropane	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,3-Dichloropropane	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
2,2-Dichloropropane	<0.0253		mg/kg dry	0.0253	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,1-Dichloropropene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
cis-1,3-Dichloropropene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
trans-1,3-Dichloropropene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Ethylbenzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Hexachlorobutadiene	<0.0316		mg/kg dry	0.0316	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Hexane	<0.0316		mg/kg dry	0.0316	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Isopropylbenzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
p-Isopropyltoluene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Methylene Chloride	<0.0633		mg/kg dry	0.0633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Methyl tert-Butyl Ether	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Naphthalene	<0.0316		mg/kg dry	0.0316	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
n-Propylbenzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Styrene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,1,1,2-Tetrachloroethane	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,1,2,2-Tetrachloroethane	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Tetrachloroethene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Toluene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,2,3-Trichlorobenzene	<0.0316		mg/kg dry	0.0316	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,2,4-Trichlorobenzene	<0.0316		mg/kg dry	0.0316	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,1,1-Trichloroethane	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,1,2-Trichloroethane	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Trichloroethene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Trichlorofluoromethane	<0.0253		mg/kg dry	0.0253	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,2,3-Trichloropropane	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,2,4-Trimethylbenzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
1,3,5-Trimethylbenzene	<0.00633		mg/kg dry	0.00633	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Vinyl chloride	<0.0190		mg/kg dry	0.0190	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Xylenes, total	<0.0190		mg/kg dry	0.0190	1.01	07/20/07 13:41	MMK	7070899	SW 8260B
Surr: Dibromofluoromethane (75-125%)	*106 %*								
Surr: Toluene-d8 (65-130%)	*112 %*								
Surr: 4-Bromofluorobenzene (70-125%)	*90 %*								
PNA compounds by HPLC									
Acenaphthene	<0.0532		mg/kg dry	0.0532	0.973	07/26/07 02:57	eee	7070799	SW 8310
Acenaphthylene	<0.0532		mg/kg dry	0.0532	0.973	07/26/07 02:57	eee	7070799	SW 8310
Anthracene	**0.0384**		mg/kg dry	0.0215	0.973	07/26/07 02:57	eee	7070799	SW 8310
Benzo (a) anthracene	**0.155**		mg/kg dry	0.0215	0.973	07/26/07 02:57	eee	7070799	SW 8310
Benzo (b) fluoranthene	**0.330**		mg/kg dry	0.0215	0.973	07/26/07 02:57	eee	7070799	SW 8310
Benzo (k) fluoranthene	**0.0811**		mg/kg dry	0.0215	0.973	07/26/07 02:57	eee	7070799	SW 8310
Benzo (a) pyrene	**0.291**		mg/kg dry	0.108	4.87	07/27/07 02:48	eee	7070799	SW 8310

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-01 (CL#4-SB-04 0-2' - Soil) - cont.					**Sampled: 07/16/07 16:30**		**Recvd: 07/19/07 09:15**		
PNA compounds by HPLC - cont.									
Benzo (g,h,i) perylene	**0.170**		mg/kg dry	0.0215	0.973	07/26/07 02:57	eee	7070799	SW 8310
Chrysene	**0.259**		mg/kg dry	0.108	4.87	07/27/07 02:48	eee	7070799	SW 8310
Dibenzo (a,h) anthracene	**0.0364**		mg/kg dry	0.0215	0.973	07/26/07 02:57	eee	7070799	SW 8310
Fluoranthene	**0.512**		mg/kg dry	0.108	4.87	07/27/07 02:48	eee	7070799	SW 8310
Fluorene	**0.0763**		mg/kg dry	0.0443	0.973	07/26/07 02:57	eee	7070799	SW 8310
Indeno (1,2,3-cd) pyrene	**0.235**		mg/kg dry	0.0215	0.973	07/26/07 02:57	eee	7070799	SW 8310
1-Methylnaphthalene	**0.164**		mg/kg dry	0.0532	0.973	07/26/07 02:57	eee	7070799	SW 8310
2-Methylnaphthalene	**0.192**		mg/kg dry	0.0532	0.973	07/26/07 02:57	eee	7070799	SW 8310
Naphthalene	**0.0714**		mg/kg dry	0.0215	0.973	07/26/07 02:57	eee	7070799	SW 8310
Phenanthrene	**0.401**		mg/kg dry	0.108	4.87	07/27/07 02:48	eee	7070799	SW 8310
Pyrene	**1.62**		mg/kg dry	0.532	9.73	07/27/07 03:16	eee	7070799	SW 8310
Surr: 2-Fluorobiphenyl (20-115%)	*86 %*								
Sample ID: CQG0956-02 (CL#4-SB-01 0-2' - Soil)					**Sampled: 07/17/07 16:20**		**Recvd: 07/19/07 09:15**		
General Chemistry Parameters									
% Solids	**84.0**		%	0.100	1	07/19/07 09:30	sas	7070768	SM 2540 G
Total Metals by SW 846 Series Methods									
Arsenic	**7.30**		mg/kg dry	1.19	0.939	07/20/07 16:02	llw	7070813	SW 7060A
Barium	**202**		mg/kg dry	0.595	0.926	07/20/07 16:40	llw	7070817	SW 6010B
Cadmium	<1.19		mg/kg dry	1.19	0.926	07/20/07 16:40	llw	7070817	SW 6010B
Chromium	**13.5**		mg/kg dry	1.19	0.926	07/20/07 16:40	llw	7070817	SW 6010B
Lead	**55.1**		mg/kg dry	5.95	0.926	07/20/07 16:40	llw	7070817	SW 6010B
Mercury	**0.0731**		mg/kg dry	0.0238	0.971	07/25/07 12:06	llw	7070965	SW 7471A
Selenium	<8.93		mg/kg dry	8.93	0.926	07/20/07 16:40	llw	7070817	SW 6010B
Silver	<1.19		mg/kg dry	1.19	0.926	07/20/07 16:40	llw	7070817	SW 6010B
Volatile Organic Compounds									
Acetone	**0.105**		mg/kg dry	0.0595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Acrylonitrile	<0.0595		mg/kg dry	0.0595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Benzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Bromobenzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Bromochloromethane	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Bromodichloromethane	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Bromoform	<0.0119		mg/kg dry	0.0119	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Bromomethane	<0.0238		mg/kg dry	0.0238	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
2-Butanone (MEK)	<0.0595		mg/kg dry	0.0595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
n-Butylbenzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
sec-Butylbenzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
tert-Butylbenzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Carbon disulfide	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Carbon Tetrachloride	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Chlorobenzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Chlorodibromomethane	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Chloroethane	<0.0238		mg/kg dry	0.0238	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Chloroform	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-02 (CL#4-SB-01 0-2' - Soil) - cont.					**Sampled: 07/17/07 16:20**		**Recvd: 07/19/07 09:15**		
Volatile Organic Compounds - cont.									
Chloromethane	<0.0238		mg/kg dry	0.0238	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
2-Chlorotoluene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
4-Chlorotoluene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,2-Dibromo-3-chloropropane	<0.0595		mg/kg dry	0.0595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,2-Dibromoethane (EDB)	<0.0595		mg/kg dry	0.0595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Dibromomethane	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,2-Dichlorobenzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,3-Dichlorobenzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,4-Dichlorobenzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Dichlorodifluoromethane	<0.0179		mg/kg dry	0.0179	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,1-Dichloroethane	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,2-Dichloroethane	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,1-Dichloroethene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
cis-1,2-Dichloroethene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
trans-1,2-Dichloroethene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,2-Dichloropropane	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,3-Dichloropropane	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
2,2-Dichloropropane	<0.0238		mg/kg dry	0.0238	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,1-Dichloropropene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
cis-1,3-Dichloropropene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
trans-1,3-Dichloropropene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Ethylbenzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Hexachlorobutadiene	<0.0298		mg/kg dry	0.0298	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Hexane	<0.0298		mg/kg dry	0.0298	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Isopropylbenzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
p-Isopropyltoluene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Methylene Chloride	<0.0595		mg/kg dry	0.0595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Methyl tert-Butyl Ether	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Naphthalene	<0.0298		mg/kg dry	0.0298	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
n-Propylbenzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Styrene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,1,1,2-Tetrachloroethane	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,1,2,2-Tetrachloroethane	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Tetrachloroethene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Toluene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,2,3-Trichlorobenzene	<0.0298		mg/kg dry	0.0298	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,2,4-Trichlorobenzene	<0.0298		mg/kg dry	0.0298	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,1,1-Trichloroethane	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,1,2-Trichloroethane	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Trichloroethene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Trichlorofluoromethane	<0.0238		mg/kg dry	0.0238	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,2,3-Trichloropropane	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
1,2,4-Trimethylbenzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B

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Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-02 (CL#4-SB-01 0-2' - Soil) - cont.					**Sampled: 07/17/07 16:20**			**Recvd: 07/19/07 09:15**	
Volatile Organic Compounds - cont.									
1,3,5-Trimethylbenzene	<0.00595		mg/kg dry	0.00595	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Vinyl chloride	<0.0179		mg/kg dry	0.0179	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Xylenes, total	<0.0179		mg/kg dry	0.0179	0.991	07/20/07 14:11	MMK	7070899	SW 8260B
Surr: Dibromofluoromethane (75-125%)	*107 %*								
Surr: Toluene-d8 (65-130%)	*111 %*								
Surr: 4-Bromofluorobenzene (70-125%)	*92 %*								

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ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-02 (CL#4-SB-01 0-2' - Soil) - cont.						**Sampled: 07/17/07 16:20**			**Recvd: 07/19/07 09:15**	
Volatile Organic Compounds - cont.										
Semivolatile Organics by GC/MS										
Acenaphthene	<0.0964		mg/kg dry	0.0964	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Acenaphthylene	<0.0893		mg/kg dry	0.0893	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Anthracene	<0.0929		mg/kg dry	0.0929	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Benzidine	<0.0381		mg/kg dry	0.0381	3.93	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Benzo (a) anthracene	**0.220**	J	mg/kg dry	0.100	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Benzo (b) fluoranthene	**0.178**	J	mg/kg dry	0.0976	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Benzo (k) fluoranthene	**0.172**	J	mg/kg dry	0.100	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Benzo (a) pyrene	**0.198**	J	mg/kg dry	0.0881	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Benzo (g,h,i) perylene	**0.133**	J	mg/kg dry	0.0893	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Benzyl alcohol	<0.0774		mg/kg dry	0.0774	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Butyl benzyl phthalate	<0.100		mg/kg dry	0.100	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Bis(2-chloroethyl)ether	<0.0988		mg/kg dry	0.0988	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Bis(2-chloroethoxy)methane	<0.0976		mg/kg dry	0.0976	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Bis(2-ethylhexyl)phthalate	<0.0381		mg/kg dry	0.0381	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Bis(2-chloroisopropyl) ether	<0.0952		mg/kg dry	0.0952	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
4-Bromophenyl phenyl ether	<0.104		mg/kg dry	0.104	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Carbazole	<0.0964		mg/kg dry	0.0964	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
4-Chloroaniline	<0.124		mg/kg dry	0.124	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
2-Chloronaphthalene	<0.105		mg/kg dry	0.105	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
4-Chlorophenyl phenyl ether	<0.112		mg/kg dry	0.112	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Chrysene	**0.262**	J	mg/kg dry	0.0988	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Dibenzo (a,h) anthracene	<0.0702		mg/kg dry	0.0702	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Dibenzofuran	<0.0976		mg/kg dry	0.0976	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Di-n-butyl phthalate	<0.105		mg/kg dry	0.105	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
1,2-Dichlorobenzene	<0.0905		mg/kg dry	0.0905	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
1,3-Dichlorobenzene	<0.0988		mg/kg dry	0.0988	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
1,4-Dichlorobenzene	<0.102		mg/kg dry	0.102	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
3,3'-Dichlorobenzidine	<0.0917		mg/kg dry	0.0917	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Diethyl phthalate	<0.106		mg/kg dry	0.106	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Dimethyl phthalate	<0.0964		mg/kg dry	0.0964	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
2,4-Dinitrotoluene	<0.0702		mg/kg dry	0.0702	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
2,6-Dinitrotoluene	<0.0726		mg/kg dry	0.0726	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Di-n-octyl phthalate	<0.101		mg/kg dry	0.101	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Fluoranthene	**0.612**		mg/kg dry	0.0905	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Fluorene	<0.0976		mg/kg dry	0.0976	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Hexachlorobenzene	<0.0976		mg/kg dry	0.0976	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Hexachlorobutadiene	<0.101		mg/kg dry	0.101	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Hexachlorocyclopentadiene	<0.0702		mg/kg dry	0.0702	0.786	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Hexachloroethane	<0.0976		mg/kg dry	0.0976	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Indeno (1,2,3-cd) pyrene	**0.147**	J	mg/kg dry	0.0881	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Isophorone	<0.0976		mg/kg dry	0.0976	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
2-Methylnaphthalene	<0.0964		mg/kg dry	0.0964	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Naphthalene	<0.0917		mg/kg dry	0.0917	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
2-Nitroaniline	<0.0833		mg/kg dry	0.0833	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
3-Nitroaniline	<0.0762		mg/kg dry	0.0762	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
4-Nitroaniline	<0.0667		mg/kg dry	0.0667	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Nitrobenzene	<0.114		mg/kg dry	0.114	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
N-Nitrosodimethylamine	<0.156		mg/kg dry	0.156	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
N-Nitrosodiphenylamine	<0.0881		mg/kg dry	0.0881	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C

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Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Sample ID: CQG0956-02 (CL#4-SB-01 0-2' - Soil) - cont. **Sampled: 07/17/07 16:20** **Recvd: 07/19/07 09:15**

Semivolatile Organics by GC/MS - cont.

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
N-Nitrosodi-n-propylamine	<0.0810		mg/kg dry	0.0810	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Phenanthrene	**0.382**	J	mg/kg dry	0.0964	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Pyrene	**0.456**		mg/kg dry	0.107	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Pyridine	<0.0452		mg/kg dry	0.0452	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
1,2,4-Trichlorobenzene	<0.108		mg/kg dry	0.108	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Benzoic acid	<0.0274		mg/kg dry	0.0274	0.786	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
4-Chloro-3-methylphenol	<0.0512		mg/kg dry	0.0512	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
2-Chlorophenol	<0.0488		mg/kg dry	0.0488	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Cresol(s)	<0.0536		mg/kg dry	0.0536	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
2,4-Dichlorophenol	<0.0571		mg/kg dry	0.0571	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
2,4-Dimethylphenol	<0.0512		mg/kg dry	0.0512	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
2,4-Dinitrophenol	<0.0369	CIN	mg/kg dry	0.0369	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
4,6-Dinitro-2-methylphenol	<0.0226		mg/kg dry	0.0226	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
2-Methylphenol (o-Cresol)	<0.0536		mg/kg dry	0.0536	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
4-Methylphenol (p-Cresol)	<0.0476		mg/kg dry	0.0476	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
2-Nitrophenol	<0.0536		mg/kg dry	0.0536	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
4-Nitrophenol	<0.0393		mg/kg dry	0.0393	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Pentachlorophenol	<0.0417		mg/kg dry	0.0417	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Phenol	<0.0369		mg/kg dry	0.0369	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
2,4,5-Trichlorophenol	<0.0583		mg/kg dry	0.0583	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
2,4,6-Trichlorophenol	<0.0524		mg/kg dry	0.0524	0.393	0.98	07/23/07 19:10	AKE	7070775	SW 8270C
Surr: Nitrobenzene-d5 (25-110%)	*71 %*									
Surr: 2-Fluorobiphenyl (20-115%)	*70 %*									
Surr: Terphenyl-d14 (40-135%)	*79 %*									
Surr: Phenol-d6 (30-125%)	*70 %*									
Surr: 2-Fluorophenol (25-120%)	*66 %*									
Surr: 2,4,6-Tribromophenol (35-130%)	*87 %*									

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Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-02 (CL#4-SB-01 0-2' - Soil) - cont.					**Sampled: 07/17/07 16:20**			**Recvd: 07/19/07 09:15**	
Semivolatile Organics by GC/MS - cont.									
UST ANALYSIS PARAMETERS									
Total Extractable Hydrocarbons	**60.6**		mg/kg	10.0	1	07/23/07 21:32	fmk	[CALC]	OA-2 - 8015B
Diesel	**12.9**		mg/kg	10.0	0.997	07/23/07 21:32	fmk	7070831	OA-2
Gasoline	<10.0		mg/kg	10.0	0.997	07/23/07 21:32	fmk	7070831	OA-2
Motor Oil	**47.7**		mg/kg	10.0	0.997	07/23/07 21:32	fmk	7070831	OA-2
Surr: Octacosane (55-120%)	*134 %*	*ZX*							
Organochlorine Pesticides by EPA Method 8081A									
Aldrin	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
delta-BHC	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
alpha-BHC	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
beta-BHC	<0.0650		mg/kg wet	0.0650	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
gamma-BHC (Lindane)	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
alpha-Chlordane	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
gamma-Chlordane	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
Chlordane	<1.31		mg/kg wet	1.31	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
4,4'-DDD	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
4,4'-DDE	**0.427**		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
4,4'-DDT	**0.118**		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
Dieldrin	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
Endosulfan I	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
Endosulfan II	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
Endosulfan sulfate	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
Endrin	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
Endrin aldehyde	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
Endrin ketone	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
Heptachlor	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
Heptachlor epoxide	<0.0335		mg/kg wet	0.0335	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
Methoxychlor	<0.0650		mg/kg wet	0.0650	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
Toxaphene	<1.31		mg/kg wet	1.31	19.7	07/27/07 17:56	BES	7073746	SW846 8081A
Surr: Tetrachloro-meta-xylene (27-165%)	*80 %*								
Surr: Decachlorobiphenyl (37-171%)	*160 %*								

TestAmerica
ANALYTICAL TESTING CORPORATION
704 Enterprise Drive Cedar Falls, IA 50613 * 800-750-2401 * Fax 319-277-2425

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-03 (CL#4-SB-02 0-2' - Soil)					**Sampled: 07/17/07 16:30**		**Recvd: 07/19/07 09:15**		
General Chemistry Parameters									
% Solids	**82.5**		%	0.100	1	07/19/07 09:30	sas	7070768	SM 2540 G
Total Metals by SW 846 Series Methods									
Arsenic	**7.71**		mg/kg dry	1.21	0.971	07/20/07 16:13	llw	7070813	SW 7060A
Barium	**256**		mg/kg dry	0.606	0.93	07/20/07 16:45	llw	7070817	SW 6010B
Cadmium	<1.21		mg/kg dry	1.21	0.93	07/20/07 16:45	llw	7070817	SW 6010B
Chromium	**15.9**		mg/kg dry	1.21	0.93	07/20/07 16:45	llw	7070817	SW 6010B
Lead	**30.1**		mg/kg dry	6.06	0.93	07/20/07 16:45	llw	7070817	SW 6010B
Mercury	**0.0672**		mg/kg dry	0.0242	0.91	07/25/07 12:08	llw	7070965	SW 7471A
Selenium	<9.09		mg/kg dry	9.09	0.93	07/20/07 16:45	llw	7070817	SW 6010B
Silver	<1.21		mg/kg dry	1.21	0.93	07/20/07 16:45	llw	7070817	SW 6010B
Volatile Organic Compounds									
Acetone	**0.0706**		mg/kg dry	0.0606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Acrylonitrile	<0.0606		mg/kg dry	0.0606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Benzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Bromobenzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Bromochloromethane	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Bromodichloromethane	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Bromoform	<0.0121		mg/kg dry	0.0121	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Bromomethane	<0.0242		mg/kg dry	0.0242	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
2-Butanone (MEK)	<0.0606		mg/kg dry	0.0606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
n-Butylbenzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
sec-Butylbenzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
tert-Butylbenzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Carbon disulfide	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Carbon Tetrachloride	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Chlorobenzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Chlorodibromomethane	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Chloroethane	<0.0242		mg/kg dry	0.0242	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Chloroform	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Chloromethane	<0.0242		mg/kg dry	0.0242	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
2-Chlorotoluene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
4-Chlorotoluene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,2-Dibromo-3-chloropropane	<0.0606		mg/kg dry	0.0606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,2-Dibromoethane (EDB)	<0.0606		mg/kg dry	0.0606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Dibromomethane	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,2-Dichlorobenzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,3-Dichlorobenzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,4-Dichlorobenzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Dichlorodifluoromethane	<0.0182		mg/kg dry	0.0182	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,1-Dichloroethane	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,2-Dichloroethane	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,1-Dichloroethene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
cis-1,2-Dichloroethene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B

HOWARD R. GREEN CO.- DES MOINES <
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Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Sample ID: CQG0956-03 (CL#4-SB-02 0-2' - Soil) - cont. **Sampled: 07/17/07 16:30** **Recvd: 07/19/07 09:15**

Volatile Organic Compounds - cont.

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
trans-1,2-Dichloroethene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,2-Dichloropropane	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,3-Dichloropropane	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
2,2-Dichloropropane	<0.0242		mg/kg dry	0.0242	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,1-Dichloropropene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
cis-1,3-Dichloropropene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
trans-1,3-Dichloropropene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Ethylbenzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Hexachlorobutadiene	<0.0303		mg/kg dry	0.0303	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Hexane	<0.0303		mg/kg dry	0.0303	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Isopropylbenzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
p-Isopropyltoluene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Methylene Chloride	<0.0606		mg/kg dry	0.0606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Methyl tert-Butyl Ether	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Naphthalene	<0.0303		mg/kg dry	0.0303	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
n-Propylbenzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Styrene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,1,1,2-Tetrachloroethane	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,1,2,2-Tetrachloroethane	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Tetrachloroethene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Toluene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,2,3-Trichlorobenzene	<0.0303		mg/kg dry	0.0303	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,2,4-Trichlorobenzene	<0.0303		mg/kg dry	0.0303	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,1,1-Trichloroethane	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,1,2-Trichloroethane	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Trichloroethene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Trichlorofluoromethane	<0.0242		mg/kg dry	0.0242	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,2,3-Trichloropropane	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,2,4-Trimethylbenzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
1,3,5-Trimethylbenzene	<0.00606		mg/kg dry	0.00606	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Vinyl chloride	<0.0182		mg/kg dry	0.0182	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Xylenes, total	<0.0182		mg/kg dry	0.0182	0.984	07/20/07 14:41	MMK	7070899	SW 8260B
Surr: Dibromofluoromethane (75-125%)	*99 %*								
Surr: Toluene-d8 (65-130%)	*107 %*								
Surr: 4-Bromofluorobenzene (70-125%)	*94 %*								

HOWARD R. GREEN CO.- DES MOINES <
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Work Order: CQG0956
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Received: 07/19/07
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ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-03 (CL#4-SB-02 0-2' - Soil) - cont.						**Sampled: 07/17/07 16:30**			**Recvd: 07/19/07 09:15**	
Volatile Organic Compounds - cont.										
Semivolatile Organics by GC/MS										
Acenaphthene	<0.0982		mg/kg dry	0.0982	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Acenaphthylene	<0.0909		mg/kg dry	0.0909	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Anthracene	<0.0945		mg/kg dry	0.0945	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Benzidine	<0.0388		mg/kg dry	0.0388	4.00	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Benzo (a) anthracene	<0.102		mg/kg dry	0.102	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Benzo (b) fluoranthene	<0.0994		mg/kg dry	0.0994	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Benzo (k) fluoranthene	<0.102		mg/kg dry	0.102	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Benzo (a) pyrene	<0.0897		mg/kg dry	0.0897	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Benzo (g,h,i) perylene	<0.0909		mg/kg dry	0.0909	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Benzyl alcohol	<0.0788		mg/kg dry	0.0788	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Butyl benzyl phthalate	<0.102		mg/kg dry	0.102	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Bis(2-chloroethyl)ether	<0.101		mg/kg dry	0.101	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Bis(2-chloroethoxy)methane	<0.0994		mg/kg dry	0.0994	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Bis(2-ethylhexyl)phthalate	<0.0388		mg/kg dry	0.0388	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Bis(2-chloroisopropyl) ether	<0.0970		mg/kg dry	0.0970	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
4-Bromophenyl phenyl ether	<0.105		mg/kg dry	0.105	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Carbazole	<0.0982		mg/kg dry	0.0982	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
4-Chloroaniline	<0.126		mg/kg dry	0.126	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
2-Chloronaphthalene	<0.107		mg/kg dry	0.107	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
4-Chlorophenyl phenyl ether	<0.114		mg/kg dry	0.114	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Chrysene	<0.101		mg/kg dry	0.101	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Dibenzo (a,h) anthracene	<0.0715		mg/kg dry	0.0715	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Dibenzofuran	<0.0994		mg/kg dry	0.0994	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Di-n-butyl phthalate	<0.107		mg/kg dry	0.107	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
1,2-Dichlorobenzene	<0.0921		mg/kg dry	0.0921	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
1,3-Dichlorobenzene	<0.101		mg/kg dry	0.101	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
1,4-Dichlorobenzene	<0.104		mg/kg dry	0.104	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
3,3'-Dichlorobenzidine	<0.0933		mg/kg dry	0.0933	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Diethyl phthalate	<0.108		mg/kg dry	0.108	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Dimethyl phthalate	<0.0982		mg/kg dry	0.0982	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
2,4-Dinitrotoluene	<0.0715		mg/kg dry	0.0715	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
2,6-Dinitrotoluene	<0.0739		mg/kg dry	0.0739	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Di-n-octyl phthalate	<0.103		mg/kg dry	0.103	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Fluoranthene	**0.144**	J	mg/kg dry	0.0921	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Fluorene	<0.0994		mg/kg dry	0.0994	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Hexachlorobenzene	<0.0994		mg/kg dry	0.0994	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Hexachlorobutadiene	<0.103		mg/kg dry	0.103	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Hexachlorocyclopentadiene	<0.0715		mg/kg dry	0.0715	0.800	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Hexachloroethane	<0.0994		mg/kg dry	0.0994	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Indeno (1,2,3-cd) pyrene	<0.0897		mg/kg dry	0.0897	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Isophorone	<0.0994		mg/kg dry	0.0994	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
2-Methylnaphthalene	<0.0982		mg/kg dry	0.0982	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Naphthalene	<0.0933		mg/kg dry	0.0933	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
2-Nitroaniline	<0.0848		mg/kg dry	0.0848	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
3-Nitroaniline	<0.0776		mg/kg dry	0.0776	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
4-Nitroaniline	<0.0679		mg/kg dry	0.0679	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Nitrobenzene	<0.116		mg/kg dry	0.116	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
N-Nitrosodimethylamine	<0.159		mg/kg dry	0.159	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
N-Nitrosodiphenylamine	<0.0897		mg/kg dry	0.0897	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Sample ID: CQG0956-03 (CL#4-SB-02 0-2' - Soil) - cont. **Sampled: 07/17/07 16:30** **Recvd: 07/19/07 09:15**

Semivolatile Organics by GC/MS - cont.

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
N-Nitrosodi-n-propylamine	<0.0824		mg/kg dry	0.0824	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Phenanthrene	<0.0982		mg/kg dry	0.0982	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Pyrene	**0.119**	J	mg/kg dry	0.109	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Pyridine	<0.0461		mg/kg dry	0.0461	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
1,2,4-Trichlorobenzene	<0.110		mg/kg dry	0.110	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Benzoic acid	<0.0279		mg/kg dry	0.0279	0.800	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
4-Chloro-3-methylphenol	<0.0521		mg/kg dry	0.0521	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
2-Chlorophenol	<0.0497		mg/kg dry	0.0497	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Cresol(s)	<0.0545		mg/kg dry	0.0545	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
2,4-Dichlorophenol	<0.0582		mg/kg dry	0.0582	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
2,4-Dimethylphenol	<0.0521		mg/kg dry	0.0521	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
2,4-Dinitrophenol	<0.0376	CIN	mg/kg dry	0.0376	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
4,6-Dinitro-2-methylphenol	<0.0230		mg/kg dry	0.0230	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
2-Methylphenol (o-Cresol)	<0.0545		mg/kg dry	0.0545	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
4-Methylphenol (p-Cresol)	<0.0485		mg/kg dry	0.0485	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
2-Nitrophenol	<0.0545		mg/kg dry	0.0545	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
4-Nitrophenol	<0.0400		mg/kg dry	0.0400	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Pentachlorophenol	<0.0424		mg/kg dry	0.0424	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Phenol	<0.0376		mg/kg dry	0.0376	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
2,4,5-Trichlorophenol	<0.0594		mg/kg dry	0.0594	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
2,4,6-Trichlorophenol	<0.0533		mg/kg dry	0.0533	0.400	0.993	07/23/07 19:38	AKE	7070775	SW 8270C
Surr: Nitrobenzene-d5 (25-110%)	*64 %*									
Surr: 2-Fluorobiphenyl (20-115%)	*67 %*									
Surr: Terphenyl-d14 (40-135%)	*77 %*									
Surr: Phenol-d6 (30-125%)	*60 %*									
Surr: 2-Fluorophenol (25-120%)	*58 %*									
Surr: 2,4,6-Tribromophenol (35-130%)	*82 %*									

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4685 Merle Hay Rd Ste. 106
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Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-03 (CL#4-SB-02 0-2' - Soil) - cont.					**Sampled: 07/17/07 16:30**			**Recvd: 07/19/07 09:15**	
Semivolatile Organics by GC/MS - cont.									
UST ANALYSIS PARAMETERS									
Total Extractable Hydrocarbons	**34.0**		mg/kg	10.0	1	07/23/07 22:28	fmk	[CALC]	OA-2 - 8015B
Diesel	<10.0		mg/kg	10.0	0.991	07/23/07 22:28	fmk	7070831	OA-2
Gasoline	<10.0		mg/kg	10.0	0.991	07/23/07 22:28	fmk	7070831	OA-2
Motor Oil	**34.0**		mg/kg	10.0	0.991	07/23/07 22:28	fmk	7070831	OA-2
Surr: Octacosane (55-120%)	*116 %*								
Organochlorine Pesticides by EPA Method 8081A									
Aldrin	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
delta-BHC	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
alpha-BHC	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
beta-BHC	<0.00322		mg/kg wet	0.00322	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
gamma-BHC (Lindane)	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
alpha-Chlordane	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
gamma-Chlordane	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
Chlordane	<0.0651		mg/kg wet	0.0651	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
4,4'-DDD	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
4,4'-DDE	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
4,4'-DDT	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
Dieldrin	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
Endosulfan I	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
Endosulfan II	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
Endosulfan sulfate	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
Endrin	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
Endrin aldehyde	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
Endrin ketone	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
Heptachlor	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
Heptachlor epoxide	<0.00166		mg/kg wet	0.00166	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
Methoxychlor	<0.00322		mg/kg wet	0.00322	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
Toxaphene	<0.0651		mg/kg wet	0.0651	0.976	07/27/07 18:25	BES	7073746	SW846 8081A
Surr: Tetrachloro-meta-xylene (27-165%)	*74 %*								
Surr: Decachlorobiphenyl (37-171%)	*78 %*								

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4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-04 (CL#4-SB-03 0-2' - Soil)					**Sampled: 07/17/07 16:45**		**Recvd: 07/19/07 09:15**		
General Chemistry Parameters									
% Solids	**94.5**		%	0.100	1	07/19/07 15:00	sas	7070843	SM 2540 G
Total Metals by SW 846 Series Methods									
Arsenic	**5.33**		mg/kg dry	1.06	0.951	07/20/07 16:23	llw	7070813	SW 7060A
Barium	**180**		mg/kg dry	0.529	0.99	07/20/07 16:50	llw	7070817	SW 6010B
Cadmium	<1.06		mg/kg dry	1.06	0.99	07/20/07 16:50	llw	7070817	SW 6010B
Chromium	**13.2**		mg/kg dry	1.06	0.99	07/20/07 16:50	llw	7070817	SW 6010B
Lead	**70.5**		mg/kg dry	5.29	0.99	07/20/07 16:50	llw	7070817	SW 6010B
Mercury	**0.0599**		mg/kg dry	0.0212	0.968	07/25/07 12:10	llw	7070965	SW 7471A
Selenium	<7.94		mg/kg dry	7.94	0.99	07/20/07 16:50	llw	7070817	SW 6010B
Silver	<1.06		mg/kg dry	1.06	0.99	07/20/07 16:50	llw	7070817	SW 6010B
Volatile Organic Compounds									
Acetone	**0.0580**		mg/kg dry	0.0474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Acrylonitrile	<0.0474		mg/kg dry	0.0474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Benzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Bromobenzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Bromochloromethane	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Bromodichloromethane	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Bromoform	<0.00948		mg/kg dry	0.00948	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Bromomethane	<0.0190		mg/kg dry	0.0190	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
2-Butanone (MEK)	<0.0474		mg/kg dry	0.0474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
n-Butylbenzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
sec-Butylbenzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
tert-Butylbenzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Carbon disulfide	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Carbon Tetrachloride	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Chlorobenzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Chlorodibromomethane	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Chloroethane	<0.0190		mg/kg dry	0.0190	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Chloroform	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Chloromethane	<0.0190		mg/kg dry	0.0190	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
2-Chlorotoluene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
4-Chlorotoluene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,2-Dibromo-3-chloropropane	<0.0474		mg/kg dry	0.0474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,2-Dibromoethane (EDB)	<0.0474		mg/kg dry	0.0474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Dibromomethane	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,2-Dichlorobenzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,3-Dichlorobenzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,4-Dichlorobenzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Dichlorodifluoromethane	<0.0142		mg/kg dry	0.0142	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,1-Dichloroethane	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,2-Dichloroethane	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,1-Dichloroethene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
cis-1,2-Dichloroethene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B

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Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Sample ID: CQG0956-04 (CL#4-SB-03 0-2' - Soil) - cont. **Sampled: 07/17/07 16:45** **Recvd: 07/19/07 09:15**

Volatile Organic Compounds - cont.

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
trans-1,2-Dichloroethene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,2-Dichloropropane	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,3-Dichloropropane	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
2,2-Dichloropropane	<0.0190		mg/kg dry	0.0190	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,1-Dichloropropene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
cis-1,3-Dichloropropene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
trans-1,3-Dichloropropene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Ethylbenzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Hexachlorobutadiene	<0.0237		mg/kg dry	0.0237	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Hexane	<0.0237		mg/kg dry	0.0237	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Isopropylbenzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
p-Isopropyltoluene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Methylene Chloride	<0.0474		mg/kg dry	0.0474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Methyl tert-Butyl Ether	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Naphthalene	<0.0237		mg/kg dry	0.0237	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
n-Propylbenzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Styrene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,1,1,2-Tetrachloroethane	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,1,2,2-Tetrachloroethane	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Tetrachloroethene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Toluene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,2,3-Trichlorobenzene	<0.0237		mg/kg dry	0.0237	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,2,4-Trichlorobenzene	<0.0237		mg/kg dry	0.0237	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,1,1-Trichloroethane	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,1,2-Trichloroethane	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Trichloroethene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Trichlorofluoromethane	<0.0190		mg/kg dry	0.0190	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,2,3-Trichloropropane	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,2,4-Trimethylbenzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
1,3,5-Trimethylbenzene	<0.00474		mg/kg dry	0.00474	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Vinyl chloride	<0.0142		mg/kg dry	0.0142	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Xylenes, total	<0.0142		mg/kg dry	0.0142	0.896	07/20/07 15:12	MMK	7070899	SW 8260B
Surr: Dibromofluoromethane (75-125%)	*93 %*								
Surr: Toluene-d8 (65-130%)	*112 %*								
Surr: 4-Bromofluorobenzene (70-125%)	*88 %*								

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Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Sample ID: CQG0956-04 (CL#4-SB-03 0-2' - Soil) - cont. **Sampled: 07/17/07 16:45** **Recvd: 07/19/07 09:15**

Volatile Organic Compounds - cont.

Semivolatile Organics by GC/MS

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Acenaphthene	**0.639**	RL1,J	mg/kg dry	0.429	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Acenaphthylene	<0.397	RL1	mg/kg dry	0.397	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Anthracene	**1.94**	RL1	mg/kg dry	0.413	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Benzidine	<0.169	RL1	mg/kg dry	0.169	17.5	5	07/23/07 21:56	AKE	7070775	SW 8270C
Benzo (a) anthracene	**3.29**	RL1	mg/kg dry	0.444	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Benzo (b) fluoranthene	**2.36**	RL1	mg/kg dry	0.434	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Benzo (k) fluoranthene	**2.12**	RL1	mg/kg dry	0.444	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Benzo (a) pyrene	**2.56**	RL1	mg/kg dry	0.392	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Benzo (g,h,i) perylene	**1.50**	RL1,J	mg/kg dry	0.397	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Benzyl alcohol	<0.344	RL1	mg/kg dry	0.344	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Butyl benzyl phthalate	<0.444	RL1	mg/kg dry	0.444	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Bis(2-chloroethyl)ether	<0.439	RL1	mg/kg dry	0.439	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Bis(2-chloroethoxy)methane	<0.434	RL1	mg/kg dry	0.434	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Bis(2-ethylhexyl)phthalate	<0.169	RL1	mg/kg dry	0.169	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Bis(2-chloroisopropyl) ether	<0.423	RL1	mg/kg dry	0.423	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
4-Bromophenyl phenyl ether	<0.460	RL1	mg/kg dry	0.460	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Carbazole	**0.877**	RL1,J	mg/kg dry	0.429	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
4-Chloroaniline	<0.550	RL1	mg/kg dry	0.550	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
2-Chloronaphthalene	<0.466	RL1	mg/kg dry	0.466	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
4-Chlorophenyl phenyl ether	<0.497	RL1	mg/kg dry	0.497	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Chrysene	**3.36**	RL1	mg/kg dry	0.439	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Dibenzo (a,h) anthracene	<0.312	RL1	mg/kg dry	0.312	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Dibenzofuran	**0.729**	RL1,J	mg/kg dry	0.434	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Di-n-butyl phthalate	<0.466	RL1	mg/kg dry	0.466	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
1,2-Dichlorobenzene	<0.402	RL1	mg/kg dry	0.402	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
1,3-Dichlorobenzene	<0.439	RL1	mg/kg dry	0.439	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
1,4-Dichlorobenzene	<0.455	RL1	mg/kg dry	0.455	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
3,3'-Dichlorobenzidine	<0.407	RL1	mg/kg dry	0.407	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Diethyl phthalate	<0.471	RL1	mg/kg dry	0.471	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Dimethyl phthalate	<0.429	RL1	mg/kg dry	0.429	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
2,4-Dinitrotoluene	<0.312	RL1	mg/kg dry	0.312	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
2,6-Dinitrotoluene	<0.323	RL1	mg/kg dry	0.323	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Di-n-octyl phthalate	<0.450	RL1	mg/kg dry	0.450	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Fluoranthene	**8.78**	RL1	mg/kg dry	0.402	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Fluorene	**1.16**	RL1,J	mg/kg dry	0.434	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Hexachlorobenzene	<0.434	RL1	mg/kg dry	0.434	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Hexachlorobutadiene	<0.450	RL1	mg/kg dry	0.450	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Hexachlorocyclopentadiene	<0.312	RL1	mg/kg dry	0.312	3.49	5	07/23/07 21:56	AKE	7070775	SW 8270C
Hexachloroethane	<0.434	RL1	mg/kg dry	0.434	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Indeno (1,2,3-cd) pyrene	**1.63**	RL1,J	mg/kg dry	0.392	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Isophorone	<0.434	RL1	mg/kg dry	0.434	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
2-Methylnaphthalene	<0.429	RL1	mg/kg dry	0.429	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Naphthalene	**0.456**	RL1,J	mg/kg dry	0.407	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
2-Nitroaniline	<0.370	RL1	mg/kg dry	0.370	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
3-Nitroaniline	<0.339	RL1	mg/kg dry	0.339	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
4-Nitroaniline	<0.296	RL1	mg/kg dry	0.296	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Nitrobenzene	<0.508	RL1	mg/kg dry	0.508	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
N-Nitrosodimethylamine	<0.693	RL1	mg/kg dry	0.693	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
N-Nitrosodiphenylamine	<0.392	RL1	mg/kg dry	0.392	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C

TestAmerica
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ANALYTICAL REPORT

Sample ID: CQG0956-04 (CL#4-SB-03 0-2' - Soil) - cont. **Sampled: 07/17/07 16:45** **Recvd: 07/19/07 09:15**

Semivolatile Organics by GC/MS - cont.

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
N-Nitrosodi-n-propylamine	<0.360	RL1	mg/kg dry	0.360	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Phenanthrene	**8.52**	RL1	mg/kg dry	0.429	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Pyrene	**6.59**	RL1	mg/kg dry	0.476	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Pyridine	<0.201	RL1	mg/kg dry	0.201	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
1,2,4-Trichlorobenzene	<0.481	RL1	mg/kg dry	0.481	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Benzoic acid	<0.122	RL1	mg/kg dry	0.122	3.49	5	07/23/07 21:56	AKE	7070775	SW 8270C
4-Chloro-3-methylphenol	<0.228	RL1	mg/kg dry	0.228	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
2-Chlorophenol	<0.217	RL1	mg/kg dry	0.217	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Cresol(s)	<0.238	RL1	mg/kg dry	0.238	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
2,4-Dichlorophenol	<0.254	RL1	mg/kg dry	0.254	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
2,4-Dimethylphenol	<0.228	RL1	mg/kg dry	0.228	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
2,4-Dinitrophenol	<0.164	RL1,CIN	mg/kg dry	0.164	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
4,6-Dinitro-2-methylphenol	<0.101	RL1	mg/kg dry	0.101	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
2-Methylphenol (o-Cresol)	<0.238	RL1	mg/kg dry	0.238	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
4-Methylphenol (p-Cresol)	<0.212	RL1	mg/kg dry	0.212	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
2-Nitrophenol	<0.238	RL1	mg/kg dry	0.238	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
4-Nitrophenol	<0.175	RL1	mg/kg dry	0.175	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Pentachlorophenol	<0.185	RL1	mg/kg dry	0.185	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Phenol	<0.164	RL1	mg/kg dry	0.164	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
2,4,5-Trichlorophenol	<0.259	RL1	mg/kg dry	0.259	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
2,4,6-Trichlorophenol	<0.233	RL1	mg/kg dry	0.233	1.75	5	07/23/07 21:56	AKE	7070775	SW 8270C
Surr: Nitrobenzene-d5 (25-110%)	*68 %*	*RL1*								
Surr: 2-Fluorobiphenyl (20-115%)	*76 %*	*RL1*								
Surr: Terphenyl-d14 (40-135%)	*97 %*	*RL1*								
Surr: Phenol-d6 (30-125%)	*73 %*	*RL1*								
Surr: 2-Fluorophenol (25-120%)	*63 %*	*RL1*								
Surr: 2,4,6-Tribromophenol (35-130%)	*97 %*	*RL1*								

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Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-04 (CL#4-SB-03 0-2' - Soil) - cont.					**Sampled: 07/17/07 16:45**			**Recvd: 07/19/07 09:15**	
Semivolatile Organics by GC/MS - cont.									
UST ANALYSIS PARAMETERS									
Total Extractable Hydrocarbons	**98.2**		mg/kg	10.0	1	07/23/07 23:23	fmk	[CALC]	OA-2 - 8015B
Diesel	**10.3**		mg/kg	10.0	0.995	07/23/07 23:23	fmk	7070831	OA-2
Gasoline	<10.0		mg/kg	10.0	0.995	07/23/07 23:23	fmk	7070831	OA-2
Motor Oil	**87.9**		mg/kg	10.0	0.995	07/23/07 23:23	fmk	7070831	OA-2
Surr: Octacosane (55-120%)	*158 %*	*ZX*							
Organochlorine Pesticides by EPA Method 8081A									
Aldrin	<0.00164		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
delta-BHC	<0.00164		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
alpha-BHC	<0.00164		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
beta-BHC	**0.0228**	R1	mg/kg wet	0.00319	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
gamma-BHC (Lindane) [2C]	**0.00933**	R1	mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
alpha-Chlordane	**0.00869**		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
gamma-Chlordane	**0.00804**		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
Chlordane	<0.0644		mg/kg wet	0.0644	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
4,4'-DDD	<0.00164		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
4,4'-DDE	**0.00225**		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
4,4'-DDT	**0.00322**		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
Dieldrin	<0.00164		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
Endosulfan I	<0.00164		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
Endosulfan II	<0.00164		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
Endosulfan sulfate	<0.00164		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
Endrin	<0.00164		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
Endrin aldehyde	<0.00164		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
Endrin ketone	<0.00164		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
Heptachlor	<0.00164		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
Heptachlor epoxide	<0.00164		mg/kg wet	0.00164	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
Methoxychlor	<0.00319		mg/kg wet	0.00319	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
Toxaphene	<0.0644		mg/kg wet	0.0644	0.965	07/27/07 18:54	BES	7073746	SW846 8081A
Surr: Tetrachloro-meta-xylene (27-165%)	*88 %*								
Surr: Decachlorobiphenyl (37-171%)	*106 %*								

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Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-05 (CL#4-SB-05 0-2' - Soil)					**Sampled: 07/18/07 09:15**		**Recvd: 07/19/07 09:15**		
General Chemistry Parameters									
% Solids	**81.7**		%	0.100	1	07/19/07 15:00	sas	7070843	SM 2540 G
Total Metals by SW 846 Series Methods									
Arsenic	**22.4**		mg/kg dry	6.12	4.63	07/20/07 16:40	llw	7070813	SW 7060A
Barium	**189**		mg/kg dry	1.22	1.97	07/20/07 16:55	llw	7070817	SW 6010B
Cadmium	<2.45		mg/kg dry	2.45	1.97	07/20/07 16:55	llw	7070817	SW 6010B
Chromium	**9.82**		mg/kg dry	2.45	1.97	07/20/07 16:55	llw	7070817	SW 6010B
Lead	**279**		mg/kg dry	12.2	1.97	07/20/07 16:55	llw	7070817	SW 6010B
Mercury	**0.108**		mg/kg dry	0.0245	0.971	07/25/07 12:12	llw	7070965	SW 7471A
Selenium	<18.4		mg/kg dry	18.4	1.97	07/20/07 16:55	llw	7070817	SW 6010B
Silver	<2.45		mg/kg dry	2.45	1.97	07/20/07 16:55	llw	7070817	SW 6010B
Volatile Organic Compounds									
Acetone	<0.0808		mg/kg dry	0.0808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Acrylonitrile	<0.0808		mg/kg dry	0.0808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Benzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Bromobenzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Bromochloromethane	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Bromodichloromethane	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Bromoform	<0.0162		mg/kg dry	0.0162	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Bromomethane	<0.0323		mg/kg dry	0.0323	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
2-Butanone (MEK)	<0.0808		mg/kg dry	0.0808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
n-Butylbenzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
sec-Butylbenzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
tert-Butylbenzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Carbon disulfide	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Carbon Tetrachloride	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Chlorobenzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Chlorodibromomethane	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Chloroethane	<0.0323		mg/kg dry	0.0323	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Chloroform	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Chloromethane	<0.0323		mg/kg dry	0.0323	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
2-Chlorotoluene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
4-Chlorotoluene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,2-Dibromo-3-chloropropane	<0.0808		mg/kg dry	0.0808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,2-Dibromoethane (EDB)	<0.0808		mg/kg dry	0.0808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Dibromomethane	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,2-Dichlorobenzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,3-Dichlorobenzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,4-Dichlorobenzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Dichlorodifluoromethane	<0.0242		mg/kg dry	0.0242	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,1-Dichloroethane	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,2-Dichloroethane	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,1-Dichloroethene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
cis-1,2-Dichloroethene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-05 (CL#4-SB-05 0-2' - Soil) - cont.					**Sampled: 07/18/07 09:15**		**Recvd: 07/19/07 09:15**		
Volatile Organic Compounds - cont.									
trans-1,2-Dichloroethene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,2-Dichloropropane	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,3-Dichloropropane	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
2,2-Dichloropropane	<0.0323		mg/kg dry	0.0323	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,1-Dichloropropene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
cis-1,3-Dichloropropene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
trans-1,3-Dichloropropene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Ethylbenzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Hexachlorobutadiene	<0.0404		mg/kg dry	0.0404	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Hexane	<0.0404		mg/kg dry	0.0404	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Isopropylbenzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
p-Isopropyltoluene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Methylene Chloride	<0.0808		mg/kg dry	0.0808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Methyl tert-Butyl Ether	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Naphthalene	<0.0404		mg/kg dry	0.0404	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
n-Propylbenzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Styrene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,1,1,2-Tetrachloroethane	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,1,2,2-Tetrachloroethane	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Tetrachloroethene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Toluene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,2,3-Trichlorobenzene	<0.0404		mg/kg dry	0.0404	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,2,4-Trichlorobenzene	<0.0404		mg/kg dry	0.0404	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,1,1-Trichloroethane	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,1,2-Trichloroethane	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Trichloroethene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Trichlorofluoromethane	<0.0323		mg/kg dry	0.0323	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,2,3-Trichloropropane	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,2,4-Trimethylbenzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
1,3,5-Trimethylbenzene	<0.00808		mg/kg dry	0.00808	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Vinyl chloride	<0.0242		mg/kg dry	0.0242	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Xylenes, total	<0.0242		mg/kg dry	0.0242	1.32	07/20/07 15:43	MMK	7070899	SW 8260B
Surr: Dibromofluoromethane (75-125%)	*96 %*								
Surr: Toluene-d8 (65-130%)	*114 %*								
Surr: 4-Bromofluorobenzene (70-125%)	*89 %*								
PNA compounds by HPLC									
Acenaphthene	<0.0514		mg/kg dry	0.0514	0.993	07/26/07 03:25	eee	7070799	SW 8310
Acenaphthylene	<0.0514		mg/kg dry	0.0514	0.993	07/26/07 03:25	eee	7070799	SW 8310
Anthracene	**0.211**		mg/kg dry	0.104	4.96	07/27/07 03:44	eee	7070799	SW 8310
Benzo (a) anthracene	**0.681**		mg/kg dry	0.104	4.96	07/27/07 03:44	eee	7070799	SW 8310
Benzo (b) fluoranthene	**0.809**		mg/kg dry	0.104	4.96	07/27/07 03:44	eee	7070799	SW 8310
Benzo (k) fluoranthene	**0.385**		mg/kg dry	0.104	4.96	07/27/07 03:44	eee	7070799	SW 8310
Benzo (a) pyrene	**1.12**		mg/kg dry	0.208	9.93	07/27/07 04:12	eee	7070799	SW 8310

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-05 (CL#4-SB-05 0-2' - Soil) - cont.					**Sampled: 07/18/07 09:15**		**Recvd: 07/19/07 09:15**		
PNA compounds by HPLC - cont.									
Benzo (g,h,i) perylene	**0.432**		mg/kg dry	0.104	4.96	07/27/07 03:44	eee	7070799	SW 8310
Chrysene	**1.05**		mg/kg dry	0.104	4.96	07/27/07 03:44	eee	7070799	SW 8310
Dibenzo (a,h) anthracene	**0.145**		mg/kg dry	0.0208	0.993	07/26/07 03:25	eee	7070799	SW 8310
Fluoranthene	**1.63**		mg/kg dry	0.104	4.96	07/27/07 03:44	eee	7070799	SW 8310
Fluorene	**0.182**		mg/kg dry	0.0428	0.993	07/26/07 03:25	eee	7070799	SW 8310
Indeno (1,2,3-cd) pyrene	**0.537**		mg/kg dry	0.104	4.96	07/27/07 03:44	eee	7070799	SW 8310
1-Methylnaphthalene	**0.628**		mg/kg dry	0.0514	0.993	07/26/07 03:25	eee	7070799	SW 8310
2-Methylnaphthalene	**0.888**		mg/kg dry	0.257	4.96	07/27/07 03:44	eee	7070799	SW 8310
Naphthalene	**0.398**		mg/kg dry	0.0208	0.993	07/26/07 03:25	eee	7070799	SW 8310
Phenanthrene	**1.79**		mg/kg dry	0.208	9.93	07/27/07 04:12	eee	7070799	SW 8310
Pyrene	**6.10**		mg/kg dry	2.57	49.6	07/27/07 04:40	eee	7070799	SW 8310
Surr: 2-Fluorobiphenyl (20-115%)	*71 %*								
Sample ID: CQG0956-06 (CL#4-SB-06 0-2' - Soil)					**Sampled: 07/18/07 10:20**		**Recvd: 07/19/07 09:15**		
General Chemistry Parameters									
% Solids	**79.4**		%	0.100	1	07/19/07 15:00	sas	7070843	SM 2540 G
Cyanide	<1.26		mg/kg dry	1.26	0.987	07/20/07 09:58	leh	7070828	SW 9012
Total Metals by SW 846 Series Methods									
Arsenic	**7.63**		mg/kg dry	1.26	0.926	07/20/07 16:35	llw	7070813	SW 7060A
Barium	**294**		mg/kg dry	0.630	0.967	07/20/07 17:00	llw	7070817	SW 6010B
Cadmium	<1.26		mg/kg dry	1.26	0.967	07/20/07 17:01	llw	7070817	SW 6010B
Chromium	**15.8**		mg/kg dry	1.26	0.967	07/20/07 17:01	llw	7070817	SW 6010B
Lead	**9.46**		mg/kg dry	6.30	0.967	07/20/07 17:01	llw	7070817	SW 6010B
Mercury	<0.0252		mg/kg dry	0.0252	0.951	07/25/07 12:13	llw	7070965	SW 7471A
Selenium	<9.45		mg/kg dry	9.45	0.967	07/20/07 17:01	llw	7070817	SW 6010B
Silver	<1.26		mg/kg dry	1.26	0.967	07/20/07 17:01	llw	7070817	SW 6010B
Volatile Organic Compounds									
Acetone	<0.0409		mg/kg dry	0.0409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Acrylonitrile	<0.0409		mg/kg dry	0.0409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Benzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Bromobenzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Bromochloromethane	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Bromodichloromethane	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Bromoform	<0.00818		mg/kg dry	0.00818	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Bromomethane	<0.0164		mg/kg dry	0.0164	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
2-Butanone (MEK)	<0.0409		mg/kg dry	0.0409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
n-Butylbenzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
sec-Butylbenzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
tert-Butylbenzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Carbon disulfide	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Carbon Tetrachloride	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Chlorobenzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Chlorodibromomethane	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Chloroethane	<0.0164		mg/kg dry	0.0164	0.649	07/20/07 16:13	MMK	7070899	SW 8260B

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
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Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Sample ID: CQG0956-06 (CL#4-SB-06 0-2' - Soil) - cont. **Sampled: 07/18/07 10:20** **Recvd: 07/19/07 09:15**

Volatile Organic Compounds - cont.

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Chloroform	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Chloromethane	<0.0164		mg/kg dry	0.0164	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
2-Chlorotoluene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
4-Chlorotoluene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,2-Dibromo-3-chloropropane	<0.0409		mg/kg dry	0.0409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,2-Dibromoethane (EDB)	<0.0409		mg/kg dry	0.0409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Dibromomethane	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,2-Dichlorobenzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,3-Dichlorobenzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,4-Dichlorobenzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Dichlorodifluoromethane	<0.0123		mg/kg dry	0.0123	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,1-Dichloroethane	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,2-Dichloroethane	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,1-Dichloroethene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
cis-1,2-Dichloroethene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
trans-1,2-Dichloroethene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,2-Dichloropropane	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,3-Dichloropropane	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
2,2-Dichloropropane	<0.0164		mg/kg dry	0.0164	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,1-Dichloropropene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
cis-1,3-Dichloropropene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
trans-1,3-Dichloropropene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Ethylbenzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Hexachlorobutadiene	<0.0204		mg/kg dry	0.0204	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Hexane	<0.0204		mg/kg dry	0.0204	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Isopropylbenzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
p-Isopropyltoluene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Methylene Chloride	<0.0409		mg/kg dry	0.0409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Methyl tert-Butyl Ether	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Naphthalene	<0.0204		mg/kg dry	0.0204	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
n-Propylbenzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Styrene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,1,1,2-Tetrachloroethane	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,1,2,2-Tetrachloroethane	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Tetrachloroethene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Toluene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,2,3-Trichlorobenzene	<0.0204		mg/kg dry	0.0204	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,2,4-Trichlorobenzene	<0.0204		mg/kg dry	0.0204	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,1,1-Trichloroethane	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,1,2-Trichloroethane	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Trichloroethene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Trichlorofluoromethane	<0.0164		mg/kg dry	0.0164	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,2,3-Trichloropropane	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B

TestAmerica
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704 Enterprise Drive Cedar Falls, IA 50613 * 800-750-2401 * Fax 319-277-2425

HOWARD R. GREEN CO.- DES MOINES <
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Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-06 (CL#4-SB-06 0-2' - Soil) - cont.					**Sampled: 07/18/07 10:20**		**Recvd: 07/19/07 09:15**		
Volatile Organic Compounds - cont.									
1,2,4-Trimethylbenzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
1,3,5-Trimethylbenzene	<0.00409		mg/kg dry	0.00409	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Vinyl chloride	<0.0123		mg/kg dry	0.0123	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Xylenes, total	<0.0123		mg/kg dry	0.0123	0.649	07/20/07 16:13	MMK	7070899	SW 8260B
Surr: Dibromofluoromethane (75-125%)	*105 %*								
Surr: Toluene-d8 (65-130%)	*112 %*								
Surr: 4-Bromofluorobenzene (70-125%)	*94 %*								
PNA compounds by HPLC									
Acenaphthene	<0.0529		mg/kg dry	0.0529	0.985	07/26/07 03:53	eee	7070799	SW 8310
Acenaphthylene	<0.0529		mg/kg dry	0.0529	0.985	07/26/07 03:53	eee	7070799	SW 8310
Anthracene	**0.0350**		mg/kg dry	0.0214	0.985	07/26/07 03:53	eee	7070799	SW 8310
Benzo (a) anthracene	**0.939**		mg/kg dry	0.214	9.85	07/27/07 05:36	eee	7070799	SW 8310
Benzo (b) fluoranthene	**0.824**		mg/kg dry	0.107	4.92	07/27/07 05:08	eee	7070799	SW 8310
Benzo (k) fluoranthene	**0.534**		mg/kg dry	0.107	4.92	07/27/07 05:08	eee	7070799	SW 8310
Benzo (a) pyrene	**1.40**		mg/kg dry	0.214	9.85	07/27/07 05:36	eee	7070799	SW 8310
Benzo (g,h,i) perylene	**0.607**		mg/kg dry	0.107	4.92	07/27/07 05:08	eee	7070799	SW 8310
Chrysene	**1.01**		mg/kg dry	0.107	4.92	07/27/07 05:08	eee	7070799	SW 8310
Dibenzo (a,h) anthracene	**0.134**		mg/kg dry	0.0214	0.985	07/26/07 03:53	eee	7070799	SW 8310
Fluoranthene	**0.751**		mg/kg dry	0.107	4.92	07/27/07 05:08	eee	7070799	SW 8310
Fluorene	<0.0441		mg/kg dry	0.0441	0.985	07/26/07 03:53	eee	7070799	SW 8310
Indeno (1,2,3-cd) pyrene	**0.772**		mg/kg dry	0.107	4.92	07/27/07 05:08	eee	7070799	SW 8310
1-Methylnaphthalene	**0.0685**		mg/kg dry	0.0529	0.985	07/26/07 03:53	eee	7070799	SW 8310
2-Methylnaphthalene	<0.0529		mg/kg dry	0.0529	0.985	07/26/07 03:53	eee	7070799	SW 8310
Naphthalene	<0.0214		mg/kg dry	0.0214	0.985	07/26/07 03:53	eee	7070799	SW 8310
Phenanthrene	**0.0371**		mg/kg dry	0.0214	0.985	07/26/07 03:53	eee	7070799	SW 8310
Pyrene	**2.11**		mg/kg dry	0.529	9.85	07/27/07 05:36	eee	7070799	SW 8310
Surr: 2-Fluorobiphenyl (20-115%)	*100 %*								
UST ANALYSIS PARAMETERS									
Total Extractable Hydrocarbons	**43.5**		mg/kg	10.0	1	07/24/07 00:18	fmk	[CALC]	OA-2 - 8015B
Diesel	<10.0		mg/kg	10.0	0.976	07/24/07 00:18	fmk	7070831	OA-2
Gasoline	<10.0		mg/kg	10.0	0.976	07/24/07 00:18	fmk	7070831	OA-2
Motor Oil	**43.5**		mg/kg	10.0	0.976	07/24/07 00:18	fmk	7070831	OA-2
Surr: Octacosane (55-120%)	*122 %*	*ZX*							

TestAmerica
ANALYTICAL TESTING CORPORATION
704 Enterprise Drive Cedar Falls, IA 50613 * 800-750-2401 * Fax 319-277-2425

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-07 (CL#4-SB-06 2-3' - Soil)					**Sampled: 07/18/07 10:30**		**Recvd: 07/19/07 09:15**		
General Chemistry Parameters									
% Solids	**74.3**		%	0.100	1	07/19/07 15:00	sas	7070843	SM 2540 G
Cyanide	<1.35		mg/kg dry	1.35	0.98	07/20/07 10:00	leh	7070828	SW 9012
Total Metals by SW 846 Series Methods									
Arsenic	**6.80**		mg/kg dry	1.35	0.978	07/20/07 16:50	llw	7070813	SW 7060A
Barium	**236**		mg/kg dry	0.673	0.946	07/20/07 17:05	llw	7070817	SW 6010B
Cadmium	<1.35		mg/kg dry	1.35	0.946	07/20/07 17:06	llw	7070817	SW 6010B
Chromium	**18.8**		mg/kg dry	1.35	0.946	07/20/07 17:06	llw	7070817	SW 6010B
Lead	**22.2**		mg/kg dry	6.73	0.946	07/20/07 17:06	llw	7070817	SW 6010B
Mercury	**0.121**		mg/kg dry	0.0269	0.937	07/25/07 12:15	llw	7070965	SW 7471A
Selenium	<10.1		mg/kg dry	10.1	0.946	07/20/07 17:06	llw	7070817	SW 6010B
Silver	<1.35		mg/kg dry	1.35	0.946	07/20/07 17:05	llw	7070817	SW 6010B
Volatile Organic Compounds									
Acetone	<0.0522		mg/kg dry	0.0522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Acrylonitrile	<0.0522		mg/kg dry	0.0522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Benzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Bromobenzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Bromochloromethane	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Bromodichloromethane	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Bromoform	<0.0104		mg/kg dry	0.0104	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Bromomethane	<0.0209		mg/kg dry	0.0209	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
2-Butanone (MEK)	<0.0522		mg/kg dry	0.0522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
n-Butylbenzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
sec-Butylbenzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
tert-Butylbenzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Carbon disulfide	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Carbon Tetrachloride	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Chlorobenzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Chlorodibromomethane	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Chloroethane	<0.0209		mg/kg dry	0.0209	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Chloroform	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Chloromethane	<0.0209		mg/kg dry	0.0209	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
2-Chlorotoluene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
4-Chlorotoluene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,2-Dibromo-3-chloropropane	<0.0522		mg/kg dry	0.0522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,2-Dibromoethane (EDB)	<0.0522		mg/kg dry	0.0522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Dibromomethane	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,2-Dichlorobenzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,3-Dichlorobenzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,4-Dichlorobenzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Dichlorodifluoromethane	<0.0157		mg/kg dry	0.0157	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,1-Dichloroethane	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,2-Dichloroethane	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,1-Dichloroethene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
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Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-07 (CL#4-SB-06 2-3' - Soil) - cont.					**Sampled: 07/18/07 10:30**		**Recvd: 07/19/07 09:15**		
Volatile Organic Compounds - cont.									
cis-1,2-Dichloroethene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
trans-1,2-Dichloroethene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,2-Dichloropropane	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,3-Dichloropropane	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
2,2-Dichloropropane	<0.0209		mg/kg dry	0.0209	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,1-Dichloropropene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
cis-1,3-Dichloropropene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
trans-1,3-Dichloropropene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Ethylbenzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Hexachlorobutadiene	<0.0261		mg/kg dry	0.0261	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Hexane	<0.0261		mg/kg dry	0.0261	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Isopropylbenzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
p-Isopropyltoluene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Methylene Chloride	<0.0522		mg/kg dry	0.0522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Methyl tert-Butyl Ether	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Naphthalene	<0.0261		mg/kg dry	0.0261	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
n-Propylbenzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Styrene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,1,1,2-Tetrachloroethane	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,1,2,2-Tetrachloroethane	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Tetrachloroethene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Toluene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,2,3-Trichlorobenzene	<0.0261		mg/kg dry	0.0261	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,2,4-Trichlorobenzene	<0.0261		mg/kg dry	0.0261	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,1,1-Trichloroethane	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,1,2-Trichloroethane	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Trichloroethene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Trichlorofluoromethane	<0.0209		mg/kg dry	0.0209	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,2,3-Trichloropropane	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,2,4-Trimethylbenzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
1,3,5-Trimethylbenzene	<0.00522		mg/kg dry	0.00522	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Vinyl chloride	<0.0157		mg/kg dry	0.0157	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Xylenes, total	<0.0157		mg/kg dry	0.0157	0.775	07/20/07 16:44	MMK	7070899	SW 8260B
Surr: Dibromofluoromethane (75-125%)	*94 %*								
Surr: Toluene-d8 (65-130%)	*108 %*								
Surr: 4-Bromofluorobenzene (70-125%)	*92 %*								
PNA compounds by HPLC									
Acenaphthene	<0.0565		mg/kg dry	0.0565	0.975	07/26/07 04:21	eee	7070799	SW 8310
Acenaphthylene	**0.130**		mg/kg dry	0.0565	0.975	07/26/07 04:21	eee	7070799	SW 8310
Anthracene	**0.560**		mg/kg dry	0.114	4.88	07/27/07 06:04	eee	7070799	SW 8310
Benzo (a) anthracene	**3.07**		mg/kg dry	1.14	48.8	07/27/07 07:01	eee	7070799	SW 8310
Benzo (b) fluoranthene	**3.60**		mg/kg dry	0.229	9.75	07/27/07 06:33	eee	7070799	SW 8310
Benzo (k) fluoranthene	**2.17**		mg/kg dry	0.229	9.75	07/27/07 06:33	eee	7070799	SW 8310

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG0956-07 (CL#4-SB-06 2-3' - Soil) - cont.					**Sampled: 07/18/07 10:30**		**Recvd: 07/19/07 09:15**		
PNA compounds by HPLC - cont.									
Benzo (a) pyrene	**5.93**		mg/kg dry	1.14	48.8	07/27/07 07:01	eee	7070799	SW 8310
Benzo (g,h,i) perylene	**2.46**		mg/kg dry	0.229	9.75	07/27/07 06:33	eee	7070799	SW 8310
Chrysene	**3.40**		mg/kg dry	1.14	48.8	07/27/07 07:01	eee	7070799	SW 8310
Dibenzo (a,h) anthracene	**0.573**		mg/kg dry	0.114	4.88	07/27/07 06:04	eee	7070799	SW 8310
Fluoranthene	**2.62**		mg/kg dry	0.114	4.88	07/27/07 06:04	eee	7070799	SW 8310
Fluorene	**0.192**		mg/kg dry	0.0471	0.975	07/26/07 04:21	eee	7070799	SW 8310
Indeno (1,2,3-cd) pyrene	**2.85**		mg/kg dry	1.14	48.8	07/27/07 07:01	eee	7070799	SW 8310
1-Methylnaphthalene	**0.193**		mg/kg dry	0.0565	0.975	07/26/07 04:21	eee	7070799	SW 8310
2-Methylnaphthalene	<0.0565		mg/kg dry	0.0565	0.975	07/26/07 04:21	eee	7070799	SW 8310
Naphthalene	**0.0465**		mg/kg dry	0.0229	0.975	07/26/07 04:21	eee	7070799	SW 8310
Phenanthrene	**0.730**		mg/kg dry	0.114	4.88	07/27/07 06:04	eee	7070799	SW 8310
Pyrene	**7.19**		mg/kg dry	2.83	48.8	07/27/07 07:01	eee	7070799	SW 8310
Surr: 2-Fluorobiphenyl (20-115%)	*106 %*								
UST ANALYSIS PARAMETERS									
Total Extractable Hydrocarbons	**249**		mg/kg	10.0	1	07/24/07 08:28	fmk	[CALC]	OA-2 - 8015B
Diesel	**56.9**		mg/kg	10.0	0.974	07/24/07 08:28	fmk	7070831	OA-2
Gasoline	**10.8**		mg/kg	10.0	0.974	07/24/07 08:28	fmk	7070831	OA-2
Motor Oil	**181**		mg/kg	10.0	0.974	07/24/07 08:28	fmk	7070831	OA-2
Surr: Octacosane (55-120%)	*212 %*	*ZX*							
Sample ID: CQG0956-08 (Soil Duplicate #1 - Soil)					**Sampled: 07/17/07**		**Recvd: 07/19/07 09:15**		
General Chemistry Parameters									
% Solids	**84.7**		%	0.100	1	07/19/07 15:00	sas	7070843	SM 2540 G
Total Metals by SW 846 Series Methods									
Arsenic	**6.22**		mg/kg dry	1.18	0.994	07/20/07 16:53	llw	7070813	SW 7060A
Barium	**194**		mg/kg dry	0.590	0.978	07/20/07 17:38	llw	7070817	SW 6010B
Cadmium	<1.18		mg/kg dry	1.18	0.978	07/20/07 17:38	llw	7070817	SW 6010B
Chromium	**13.3**		mg/kg dry	1.18	0.978	07/20/07 17:38	llw	7070817	SW 6010B
Lead	**1720**		mg/kg dry	5.90	0.978	07/20/07 17:38	llw	7070817	SW 6010B
Mercury	**0.0853**		mg/kg dry	0.0236	0.949	07/25/07 12:17	llw	7070965	SW 7471A
Selenium	<8.85		mg/kg dry	8.85	0.978	07/20/07 17:38	llw	7070817	SW 6010B
Silver	<1.18		mg/kg dry	1.18	0.978	07/20/07 17:38	llw	7070817	SW 6010B

HOWARD R. GREEN CO.- DES MOINES <
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Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Sample ID: CQG0956-08 (Soil Duplicate #1 - Soil) - cont. **Sampled: 07/17/07** **Recvd: 07/19/07 09:15**

Total Metals by SW 846 Series Methods - cont.

Semivolatile Organics by GC/MS

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Acenaphthene	<0.0956		mg/kg dry	0.0956	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Acenaphthylene	**0.138**	J	mg/kg dry	0.0885	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Anthracene	**0.262**	J	mg/kg dry	0.0921	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Benzidine	<0.0378		mg/kg dry	0.0378	3.90	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Benzo (a) anthracene	**0.740**		mg/kg dry	0.0992	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Benzo (b) fluoranthene	**0.603**		mg/kg dry	0.0968	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Benzo (k) fluoranthene	**0.564**		mg/kg dry	0.0992	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Benzo (a) pyrene	**0.628**		mg/kg dry	0.0874	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Benzo (g,h,i) perylene	**0.394**		mg/kg dry	0.0885	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Benzyl alcohol	<0.0767		mg/kg dry	0.0767	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Butyl benzyl phthalate	<0.0992		mg/kg dry	0.0992	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Bis(2-chloroethyl)ether	<0.0980		mg/kg dry	0.0980	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Bis(2-chloroethoxy)methane	<0.0968		mg/kg dry	0.0968	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Bis(2-ethylhexyl)phthalate	<0.0378		mg/kg dry	0.0378	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Bis(2-chloroisopropyl) ether	<0.0945		mg/kg dry	0.0945	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
4-Bromophenyl phenyl ether	<0.103		mg/kg dry	0.103	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Carbazole	**0.144**	J	mg/kg dry	0.0956	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
4-Chloroaniline	<0.123		mg/kg dry	0.123	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
2-Chloronaphthalene	<0.104		mg/kg dry	0.104	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
4-Chlorophenyl phenyl ether	<0.111		mg/kg dry	0.111	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Chrysene	**0.807**		mg/kg dry	0.0980	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Dibenzo (a,h) anthracene	**0.0871**	J	mg/kg dry	0.0697	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Dibenzofuran	<0.0968		mg/kg dry	0.0968	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Di-n-butyl phthalate	<0.104		mg/kg dry	0.104	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
1,2-Dichlorobenzene	<0.0897		mg/kg dry	0.0897	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
1,3-Dichlorobenzene	<0.0980		mg/kg dry	0.0980	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
1,4-Dichlorobenzene	<0.102		mg/kg dry	0.102	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
3,3'-Dichlorobenzidine	<0.0909		mg/kg dry	0.0909	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Diethyl phthalate	<0.105		mg/kg dry	0.105	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Dimethyl phthalate	<0.0956		mg/kg dry	0.0956	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
2,4-Dinitrotoluene	<0.0697		mg/kg dry	0.0697	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
2,6-Dinitrotoluene	<0.0720		mg/kg dry	0.0720	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Di-n-octyl phthalate	<0.100		mg/kg dry	0.100	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Fluoranthene	**1.87**		mg/kg dry	0.0897	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Fluorene	**0.106**	J	mg/kg dry	0.0968	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Hexachlorobenzene	<0.0968		mg/kg dry	0.0968	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Hexachlorobutadiene	<0.100		mg/kg dry	0.100	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Hexachlorocyclopentadiene	<0.0697		mg/kg dry	0.0697	0.779	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Hexachloroethane	<0.0968		mg/kg dry	0.0968	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Indeno (1,2,3-cd) pyrene	**0.426**		mg/kg dry	0.0874	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Isophorone	<0.0968		mg/kg dry	0.0968	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
2-Methylnaphthalene	<0.0956		mg/kg dry	0.0956	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Naphthalene	<0.0909		mg/kg dry	0.0909	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
2-Nitroaniline	<0.0826		mg/kg dry	0.0826	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
3-Nitroaniline	<0.0756		mg/kg dry	0.0756	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
4-Nitroaniline	<0.0661		mg/kg dry	0.0661	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Nitrobenzene	<0.113		mg/kg dry	0.113	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
N-Nitrosodimethylamine	<0.155		mg/kg dry	0.155	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
N-Nitrosodiphenylamine	<0.0874		mg/kg dry	0.0874	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C

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4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Sample ID: CQG0956-08 (Soil Duplicate #1 - Soil) - cont. **Sampled: 07/17/07** **Recvd: 07/19/07 09:15**

Semivolatile Organics by GC/MS - cont.

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
N-Nitrosodi-n-propylamine	<0.0803		mg/kg dry	0.0803	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Phenanthrene	**1.29**		mg/kg dry	0.0956	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Pyrene	**1.44**		mg/kg dry	0.106	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Pyridine	<0.0449		mg/kg dry	0.0449	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
1,2,4-Trichlorobenzene	<0.107		mg/kg dry	0.107	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Benzoic acid	<0.0272		mg/kg dry	0.0272	0.779	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
4-Chloro-3-methylphenol	<0.0508		mg/kg dry	0.0508	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
2-Chlorophenol	<0.0484		mg/kg dry	0.0484	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Cresol(s)	<0.0531		mg/kg dry	0.0531	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
2,4-Dichlorophenol	<0.0567		mg/kg dry	0.0567	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
2,4-Dimethylphenol	<0.0508		mg/kg dry	0.0508	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
2,4-Dinitrophenol	<0.0366	CIN	mg/kg dry	0.0366	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
4,6-Dinitro-2-methylphenol	<0.0224		mg/kg dry	0.0224	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
2-Methylphenol (o-Cresol)	<0.0531		mg/kg dry	0.0531	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
4-Methylphenol (p-Cresol)	<0.0472		mg/kg dry	0.0472	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
2-Nitrophenol	<0.0531		mg/kg dry	0.0531	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
4-Nitrophenol	<0.0390		mg/kg dry	0.0390	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Pentachlorophenol	<0.0413		mg/kg dry	0.0413	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Phenol	<0.0366		mg/kg dry	0.0366	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
2,4,5-Trichlorophenol	<0.0579		mg/kg dry	0.0579	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
2,4,6-Trichlorophenol	<0.0519		mg/kg dry	0.0519	0.390	0.98	07/23/07 20:06	AKE	7070775	SW 8270C
Surr: Nitrobenzene-d5 (25-110%)	*72 %*									
Surr: 2-Fluorobiphenyl (20-115%)	*72 %*									
Surr: Terphenyl-d14 (40-135%)	*82 %*									
Surr: Phenol-d6 (30-125%)	*67 %*									
Surr: 2-Fluorophenol (25-120%)	*63 %*									
Surr: 2,4,6-Tribromophenol (35-130%)	*81 %*									

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

ANALYTICAL REPORT

Sample ID: CQG0956-08 (Soil Duplicate #1 - Soil) - cont. **Sampled: 07/17/07** **Recvd: 07/19/07 09:15**

Semivolatile Organics by GC/MS - cont.

UST ANALYSIS PARAMETERS

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Total Extractable Hydrocarbons	**54.0**		mg/kg	10.0	1	07/24/07 09:23	fmk	[CALC]	OA-2 - 8015B
Diesel	**11.4**		mg/kg	10.0	0.996	07/24/07 09:23	fmk	7070831	OA-2
Gasoline	<10.0		mg/kg	10.0	0.996	07/24/07 09:23	fmk	7070831	OA-2
Motor Oil	**42.6**		mg/kg	10.0	0.996	07/24/07 09:23	fmk	7070831	OA-2
Surr: Octacosane (55-120%)	*129 %*	*ZX*							

Organochlorine Pesticides by EPA Method 8081A

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Aldrin	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
delta-BHC	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
alpha-BHC	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
beta-BHC	<0.162		mg/kg wet	0.162	49	07/27/07 19:23	BES	7073746	SW846 8081A
gamma-BHC (Lindane)	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
alpha-Chlordane	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
gamma-Chlordane	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
Chlordane	<3.27		mg/kg wet	3.27	49	07/27/07 19:23	BES	7073746	SW846 8081A
4,4'-DDD	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
4,4'-DDE	**0.604**		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
4,4'-DDT	**0.212**		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
Dieldrin	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
Endosulfan I	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
Endosulfan II	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
Endosulfan sulfate	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
Endrin	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
Endrin aldehyde	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
Endrin ketone	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
Heptachlor	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
Heptachlor epoxide	<0.0833		mg/kg wet	0.0833	49	07/27/07 19:23	BES	7073746	SW846 8081A
Methoxychlor	<0.162		mg/kg wet	0.162	49	07/27/07 19:23	BES	7073746	SW846 8081A
Toxaphene	<3.27		mg/kg wet	3.27	49	07/27/07 19:23	BES	7073746	SW846 8081A
Surr: Tetrachloro-meta-xylene (27-165%)	*	*Z3*							
Surr: Decachlorobiphenyl (37-171%)	*	*Z3*							

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Extraction Method
PNA compounds by HPLC							
SW 8310	7070799	CQG0956-01	31	2	07/19/07 17:52	AM	SW 3550B
SW 8310	7070799	CQG0956-01RE1	31	2	07/19/07 17:52	AM	SW 3550B
SW 8310	7070799	CQG0956-01RE2	31	2	07/19/07 17:52	AM	SW 3550B
SW 8310	7070799	CQG0956-05	30	2	07/19/07 17:52	AM	SW 3550B
SW 8310	7070799	CQG0956-05RE1	30	2	07/19/07 17:52	AM	SW 3550B
SW 8310	7070799	CQG0956-05RE2	30	2	07/19/07 17:52	AM	SW 3550B
SW 8310	7070799	CQG0956-05RE3	30	2	07/19/07 17:52	AM	SW 3550B
SW 8310	7070799	CQG0956-06	30	2	07/19/07 17:52	AM	SW 3550B
SW 8310	7070799	CQG0956-06RE1	30	2	07/19/07 17:52	AM	SW 3550B
SW 8310	7070799	CQG0956-06RE2	30	2	07/19/07 17:52	AM	SW 3550B
SW 8310	7070799	CQG0956-07	31	2	07/19/07 17:52	AM	SW 3550B
SW 8310	7070799	CQG0956-07RE1	31	2	07/19/07 17:52	AM	SW 3550B
SW 8310	7070799	CQG0956-07RE2	31	2	07/19/07 17:52	AM	SW 3550B
SW 8310	7070799	CQG0956-07RE3	31	2	07/19/07 17:52	AM	SW 3550B
Semivolatile Organics by GC/MS							
SW 8270C	7070775	CQG0956-02	31	1	07/19/07 12:32	JLC	SW 3550B GCMS
SW 8270C	7070775	CQG0956-03	30	1	07/19/07 12:32	JLC	SW 3550B GCMS
SW 8270C	7070775	CQG0956-04	30	1	07/19/07 12:32	JLC	SW 3550B GCMS
SW 8270C	7070775	CQG0956-08	31	1	07/19/07 12:32	JLC	SW 3550B GCMS
Total Metals by SW 846 Series Methods							
SW 6010B	7070817	CQG0956-01	1	50	07/20/07 09:56	PTH	SW 3050B
SW 6010B	7070817	CQG0956-02	1	50	07/20/07 09:56	PTH	SW 3050B
SW 6010B	7070817	CQG0956-03	1	50	07/20/07 09:56	PTH	SW 3050B
SW 6010B	7070817	CQG0956-04	1	50	07/20/07 09:56	PTH	SW 3050B
SW 6010B	7070817	CQG0956-05	1	50	07/20/07 09:56	PTH	SW 3050B
SW 6010B	7070817	CQG0956-06	1	50	07/20/07 09:56	PTH	SW 3050B
SW 6010B	7070817	CQG0956-07	1	50	07/20/07 09:56	PTH	SW 3050B
SW 6010B	7070817	CQG0956-08	1	50	07/20/07 09:56	PTH	SW 3050B
SW 7060A	7070813	CQG0956-01	1	50	07/20/07 09:40	PTH	SW 3050B GFAA
SW 7060A	7070813	CQG0956-02	1	50	07/20/07 09:40	PTH	SW 3050B GFAA
SW 7060A	7070813	CQG0956-03	1	50	07/20/07 09:40	PTH	SW 3050B GFAA
SW 7060A	7070813	CQG0956-04	1	50	07/20/07 09:40	PTH	SW 3050B GFAA
SW 7060A	7070813	CQG0956-05	1	50	07/20/07 09:40	PTH	SW 3050B GFAA
SW 7060A	7070813	CQG0956-06	1	50	07/20/07 09:40	PTH	SW 3050B GFAA
SW 7060A	7070813	CQG0956-07	1	50	07/20/07 09:40	PTH	SW 3050B GFAA
SW 7060A	7070813	CQG0956-08	1	50	07/20/07 09:40	PTH	SW 3050B GFAA
SW 7471A	7070965	CQG0956-01	1	30	07/24/07 14:31	LLW	EPA 245.5/SW 7471.
SW 7471A	7070965	CQG0956-02	1	30	07/24/07 14:31	LLW	EPA 245.5/SW 7471.
SW 7471A	7070965	CQG0956-03	1	30	07/24/07 14:31	LLW	EPA 245.5/SW 7471.
SW 7471A	7070965	CQG0956-04	1	30	07/24/07 14:31	LLW	EPA 245.5/SW 7471.
SW 7471A	7070965	CQG0956-05	1	30	07/24/07 14:31	LLW	EPA 245.5/SW 7471.
SW 7471A	7070965	CQG0956-06	1	30	07/24/07 14:31	LLW	EPA 245.5/SW 7471.
SW 7471A	7070965	CQG0956-07	1	30	07/24/07 14:31	LLW	EPA 245.5/SW 7471.
SW 7471A	7070965	CQG0956-08	1	30	07/24/07 14:31	LLW	EPA 245.5/SW 7471.
UST ANALYSIS PARAMETERS							

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Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Extraction Method
OA-2	7070831	CQG0956-02	30	3	07/20/07 11:54	ZTB	SW 3550B GC
OA-2	7070831	CQG0956-03	30	3	07/20/07 11:54	ZTB	SW 3550B GC
OA-2	7070831	CQG0956-04	30	3	07/20/07 11:54	ZTB	SW 3550B GC
OA-2	7070831	CQG0956-06	31	3	07/20/07 11:54	ZTB	SW 3550B GC
OA-2	7070831	CQG0956-07	31	3	07/20/07 11:54	ZTB	SW 3550B GC
OA-2	7070831	CQG0956-08	30	3	07/20/07 11:54	ZTB	SW 3550B GC
OA-2 - 8015B	[CALC]	CQG0956-02	1	1	07/20/07 11:54		[CALC]
OA-2 - 8015B	[CALC]	CQG0956-03	1	1	07/20/07 11:54		[CALC]
OA-2 - 8015B	[CALC]	CQG0956-04	1	1	07/20/07 11:54		[CALC]
OA-2 - 8015B	[CALC]	CQG0956-06	1	1	07/20/07 11:54		[CALC]
OA-2 - 8015B	[CALC]	CQG0956-07	1	1	07/20/07 11:54		[CALC]
OA-2 - 8015B	[CALC]	CQG0956-08	1	1	07/20/07 11:54		[CALC]

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Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
General Chemistry Parameters														
Cyanide	7070828			mg/kg wet	N/A	1.00	<1.00							
Total Metals by SW 846 Series Methods														
Arsenic	7070813			mg/kg wet	N/A	1.00	<1.00							
Barium	7070817			mg/kg wet	N/A	0.500	<0.500							
Cadmium	7070817			mg/kg wet	N/A	1.00	<1.00							
Chromium	7070817			mg/kg wet	N/A	1.00	<1.00							
Lead	7070817			mg/kg wet	N/A	5.00	<5.00							
Selenium	7070817			mg/kg wet	N/A	7.50	<7.50							
Silver	7070817			mg/kg wet	N/A	1.00	<1.00							
Mercury	7070965			mg/kg wet	N/A	0.0200	<0.0200							
Volatile Organic Compounds														
Acetone	7070899			mg/kg wet	N/A	0.0778	<0.0778							
Acrylonitrile	7070899			mg/kg wet	N/A	0.0778	<0.0778							
Benzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Bromobenzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Bromochloromethane	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Bromodichloromethane	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Bromoform	7070899			mg/kg wet	N/A	0.0156	<0.0156							
Bromomethane	7070899			mg/kg wet	N/A	0.0311	<0.0311							
2-Butanone (MEK)	7070899			mg/kg wet	N/A	0.0778	<0.0778							
n-Butylbenzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
sec-Butylbenzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
tert-Butylbenzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Carbon disulfide	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Carbon Tetrachloride	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Chlorobenzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Chlorodibromomethane	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Chloroethane	7070899			mg/kg wet	N/A	0.0311	<0.0311							
Chloroform	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Chloromethane	7070899			mg/kg wet	N/A	0.0311	<0.0311							
2-Chlorotoluene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
4-Chlorotoluene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
1,2-Dibromo-3-chloropropane	7070899			mg/kg wet	N/A	0.0778	<0.0778							
1,2-Dibromoethane (EDB)	7070899			mg/kg wet	N/A	0.0778	<0.0778							
Dibromomethane	7070899			mg/kg wet	N/A	0.00778	<0.00778							
1,2-Dichlorobenzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
1,3-Dichlorobenzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
1,4-Dichlorobenzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Dichlorodifluoromethane	7070899			mg/kg wet	N/A	0.0233	<0.0233							
1,1-Dichloroethane	7070899			mg/kg wet	N/A	0.00778	<0.00778							
1,2-Dichloroethane	7070899			mg/kg wet	N/A	0.00778	<0.00778							
1,1-Dichloroethene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
cis-1,2-Dichloroethene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
trans-1,2-Dichloroethene	7070899			mg/kg wet	N/A	0.00778	<0.00778							

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
1,2-Dichloropropane	7070899			mg/kg wet	N/A	0.00778	<0.00778							
1,3-Dichloropropane	7070899			mg/kg wet	N/A	0.00778	<0.00778							
2,2-Dichloropropane	7070899			mg/kg wet	N/A	0.0311	<0.0311							
1,1-Dichloropropene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
cis-1,3-Dichloropropene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
trans-1,3-Dichloropropene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Ethylbenzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Hexachlorobutadiene	7070899			mg/kg wet	N/A	0.0389	<0.0389							
Hexane	7070899			mg/kg wet	N/A	0.0389	<0.0389							
Isopropylbenzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
p-Isopropyltoluene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Methylene Chloride	7070899			mg/kg wet	N/A	0.0778	<0.0778							
Methyl tert-Butyl Ether	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Naphthalene	7070899			mg/kg wet	N/A	0.0389	<0.0389							
n-Propylbenzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Styrene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
1,1,1,2-Tetrachloroethane	7070899			mg/kg wet	N/A	0.00778	<0.00778							
1,1,2,2-Tetrachloroethane	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Tetrachloroethene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Toluene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
1,2,3-Trichlorobenzene	7070899			mg/kg wet	N/A	0.0389	<0.0389							
1,2,4-Trichlorobenzene	7070899			mg/kg wet	N/A	0.0389	<0.0389							
1,1,1-Trichloroethane	7070899			mg/kg wet	N/A	0.00778	<0.00778							
1,1,2-Trichloroethane	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Trichloroethene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Trichlorofluoromethane	7070899			mg/kg wet	N/A	0.0311	<0.0311							
1,2,3-Trichloropropane	7070899			mg/kg wet	N/A	0.00778	<0.00778							
1,2,4-Trimethylbenzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
1,3,5-Trimethylbenzene	7070899			mg/kg wet	N/A	0.00778	<0.00778							
Vinyl chloride	7070899			mg/kg wet	N/A	0.0233	<0.0233							
Xylenes, total	7070899			mg/kg wet	N/A	0.0233	<0.0233							
Surrogate: Dibromofluoromethane	*7070899*			ug/L					*98*		*75-125*			
Surrogate: Toluene-d8	*7070899*			ug/L					*108*		*65-130*			
Surrogate: 4-Bromofluorobenzene	*7070899*			ug/L					*92*		*70-125*			
Semivolatile Organics by GC/MS														
Acenaphthene	7070775			mg/kg wet	0.0810	0.330	<0.0810							
Acenaphthylene	7070775			mg/kg wet	0.0750	0.330	<0.0750							
Anthracene	7070775			mg/kg wet	0.0780	0.330	<0.0780							
Benzidine	7070775			mg/kg wet	0.0320	3.30	<0.0320							
Benzo (a) anthracene	7070775			mg/kg wet	0.0840	0.330	<0.0840							
Benzo (b) fluoranthene	7070775			mg/kg wet	0.0820	0.330	<0.0820							
Benzo (k) fluoranthene	7070775			mg/kg wet	0.0840	0.330	<0.0840							
Benzo (a) pyrene	7070775			mg/kg wet	0.0740	0.330	<0.0740							
Benzo (g,h,i) perylene	7070775			mg/kg wet	0.0750	0.330	<0.0750							

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Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Semivolatile Organics by GC/MS														
Benzyl alcohol	7070775			mg/kg wet	0.0650	0.330	<0.0650							
Butyl benzyl phthalate	7070775			mg/kg wet	0.0840	0.330	<0.0840							
Bis(2-chloroethyl)ether	7070775			mg/kg wet	0.0830	0.330	<0.0830							
Bis(2-chloroethoxy)methane	7070775			mg/kg wet	0.0820	0.330	<0.0820							
Bis(2-ethylhexyl)phthalate	7070775			mg/kg wet	0.0320	0.330	<0.0320							
Bis(2-chloroisopropyl) ether	7070775			mg/kg wet	0.0800	0.330	<0.0800							
4-Bromophenyl phenyl ether	7070775			mg/kg wet	0.0870	0.330	<0.0870							
Carbazole	7070775			mg/kg wet	0.0810	0.330	<0.0810							
4-Chloroaniline	7070775			mg/kg wet	0.104	0.330	<0.104							
2-Chloronaphthalene	7070775			mg/kg wet	0.0880	0.330	<0.0880							
4-Chlorophenyl phenyl ether	7070775			mg/kg wet	0.0940	0.330	<0.0940							
Chrysene	7070775			mg/kg wet	0.0830	0.330	<0.0830							
Dibenzo (a,h) anthracene	7070775			mg/kg wet	0.0590	0.330	<0.0590							
Dibenzofuran	7070775			mg/kg wet	0.0820	0.330	<0.0820							
Di-n-butyl phthalate	7070775			mg/kg wet	0.0880	0.330	<0.0880							
1,2-Dichlorobenzene	7070775			mg/kg wet	0.0760	0.330	<0.0760							
1,3-Dichlorobenzene	7070775			mg/kg wet	0.0830	0.330	<0.0830							
1,4-Dichlorobenzene	7070775			mg/kg wet	0.0860	0.330	<0.0860							
3,3'-Dichlorobenzidine	7070775			mg/kg wet	0.0770	0.330	<0.0770							
Diethyl phthalate	7070775			mg/kg wet	0.0890	0.330	<0.0890							
Dimethyl phthalate	7070775			mg/kg wet	0.0810	0.330	<0.0810							
2,4-Dinitrotoluene	7070775			mg/kg wet	0.0590	0.330	<0.0590							
2,6-Dinitrotoluene	7070775			mg/kg wet	0.0610	0.330	<0.0610							
Di-n-octyl phthalate	7070775			mg/kg wet	0.0850	0.330	<0.0850							
Fluoranthene	7070775			mg/kg wet	0.0760	0.330	<0.0760							
Fluorene	7070775			mg/kg wet	0.0820	0.330	<0.0820							
Hexachlorobenzene	7070775			mg/kg wet	0.0820	0.330	<0.0820							
Hexachlorobutadiene	7070775			mg/kg wet	0.0850	0.330	<0.0850							
Hexachlorocyclopentadiene	7070775			mg/kg wet	0.0590	0.660	<0.0590							
Hexachloroethane	7070775			mg/kg wet	0.0820	0.330	<0.0820							
Indeno (1,2,3-cd) pyrene	7070775			mg/kg wet	0.0740	0.330	<0.0740							
Isophorone	7070775			mg/kg wet	0.0820	0.330	<0.0820							
2-Methylnaphthalene	7070775			mg/kg wet	0.0810	0.330	<0.0810							
Naphthalene	7070775			mg/kg wet	0.0770	0.330	<0.0770							
2-Nitroaniline	7070775			mg/kg wet	0.0700	0.330	<0.0700							
3-Nitroaniline	7070775			mg/kg wet	0.0640	0.330	<0.0640							
4-Nitroaniline	7070775			mg/kg wet	0.0560	0.330	<0.0560							
Nitrobenzene	7070775			mg/kg wet	0.0960	0.330	<0.0960							
N-Nitrosodimethylamine	7070775			mg/kg wet	0.131	0.330	<0.131							
N-Nitrosodiphenylamine	7070775			mg/kg wet	0.0740	0.330	<0.0740							
N-Nitrosodi-n-propylamine	7070775			mg/kg wet	0.0680	0.330	<0.0680							
Phenanthrene	7070775			mg/kg wet	0.0810	0.330	<0.0810							
Pyrene	7070775			mg/kg wet	0.0900	0.330	<0.0900							
Pyridine	7070775			mg/kg wet	0.0380	0.330	<0.0380							
1,2,4-Trichlorobenzene	7070775			mg/kg wet	0.0910	0.330	<0.0910							

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Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Semivolatile Organics by GC/MS														
Benzoic acid	7070775			mg/kg wet	0.0230	0.660	<0.0230							
4-Chloro-3-methylphenol	7070775			mg/kg wet	0.0430	0.330	<0.0430							
2-Chlorophenol	7070775			mg/kg wet	0.0410	0.330	<0.0410							
Cresol(s)	7070775			mg/kg wet	0.0450	0.330	<0.0450							
2,4-Dichlorophenol	7070775			mg/kg wet	0.0480	0.330	<0.0480							
2,4-Dimethylphenol	7070775			mg/kg wet	0.0430	0.330	<0.0430							
2,4-Dinitrophenol	7070775			mg/kg wet	0.0310	0.330	<0.0310							CIN
4,6-Dinitro-2-methylphenol	7070775			mg/kg wet	0.0190	0.330	<0.0190							
2-Methylphenol (o-Cresol)	7070775			mg/kg wet	0.0450	0.330	<0.0450							
4-Methylphenol (p-Cresol)	7070775			mg/kg wet	0.0400	0.330	<0.0400							
2-Nitrophenol	7070775			mg/kg wet	0.0450	0.330	<0.0450							
4-Nitrophenol	7070775			mg/kg wet	0.0330	0.330	<0.0330							
Pentachlorophenol	7070775			mg/kg wet	0.0350	0.330	<0.0350							
Phenol	7070775			mg/kg wet	0.0310	0.330	<0.0310							
2,4,5-Trichlorophenol	7070775			mg/kg wet	0.0490	0.330	<0.0490							
2,4,6-Trichlorophenol	7070775			mg/kg wet	0.0440	0.330	<0.0440							
Surrogate: Nitrobenzene-d5	*7070775*			mg/kg wet					*82*		*25-110*			
Surrogate: 2-Fluorobiphenyl	*7070775*			mg/kg wet					*81*		*20-115*			
Surrogate: Terphenyl-d14	*7070775*			mg/kg wet					*86*		*40-135*			
Surrogate: Phenol-d6	*7070775*			mg/kg wet					*77*		*30-125*			
Surrogate: 2-Fluorophenol	*7070775*			mg/kg wet					*74*		*25-120*			
Surrogate: 2,4,6-Tribromophenol	*7070775*			mg/kg wet					*86*		*35-130*			
PNA compounds by HPLC														
Acenaphthene	7070799			mg/kg wet	N/A	0.0420	<0.0420							
Acenaphthylene	7070799			mg/kg wet	N/A	0.0420	<0.0420							
Anthracene	7070799			mg/kg wet	N/A	0.0170	<0.0170							
Benzo (a) anthracene	7070799			mg/kg wet	N/A	0.0170	<0.0170							
Benzo (b) fluoranthene	7070799			mg/kg wet	N/A	0.0170	<0.0170							
Benzo (k) fluoranthene	7070799			mg/kg wet	N/A	0.0170	<0.0170							
Benzo (a) pyrene	7070799			mg/kg wet	N/A	0.0170	<0.0170							
Benzo (g,h,i) perylene	7070799			mg/kg wet	N/A	0.0170	<0.0170							
Chrysene	7070799			mg/kg wet	N/A	0.0170	<0.0170							
Dibenzo (a,h) anthracene	7070799			mg/kg wet	N/A	0.0170	<0.0170							
Fluoranthene	7070799			mg/kg wet	N/A	0.0170	<0.0170							
Fluorene	7070799			mg/kg wet	N/A	0.0350	<0.0350							
Indeno (1,2,3-cd) pyrene	7070799			mg/kg wet	N/A	0.0170	<0.0170							
1-Methylnaphthalene	7070799			mg/kg wet	N/A	0.0420	<0.0420							
2-Methylnaphthalene	7070799			mg/kg wet	N/A	0.0420	<0.0420							
Naphthalene	7070799			mg/kg wet	N/A	0.0170	<0.0170							
Phenanthrene	7070799			mg/kg wet	N/A	0.0170	<0.0170							
Pyrene	7070799			mg/kg wet	N/A	0.0420	<0.0420							
Surrogate: 2-Fluorobiphenyl	*7070799*			mg/kg wet					*81*		*20-115*			

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Work Order: CQG0956
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LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
UST ANALYSIS PARAMETERS														
Diesel	7070831			mg/kg	N/A	10.0	<10.0							
Gasoline	7070831			mg/kg	N/A	10.0	<10.0							
Motor Oil	7070831			mg/kg	N/A	10.0	<10.0							
Surrogate: Octacosane	*7070831*			mg/kg					*111*		*55-120*			
Organochlorine Pesticides by EPA Method 8081A														
Aldrin	7073746			mg/kg wet	N/A	0.00170	<0.00170							
delta-BHC	7073746			mg/kg wet	N/A	0.00170	<0.00170							
alpha-BHC	7073746			mg/kg wet	N/A	0.00170	<0.00170							
beta-BHC	7073746			mg/kg wet	N/A	0.00170	<0.00170							
gamma-BHC (Lindane)	7073746			mg/kg wet	N/A	0.00170	<0.00170							
alpha-Chlordane	7073746			mg/kg wet	N/A	0.00170	<0.00170							
gamma-Chlordane	7073746			mg/kg wet	N/A	0.00170	<0.00170							
Chlordane	7073746			mg/kg wet	N/A	0.0667	<0.0667							
4,4'-DDD	7073746			mg/kg wet	N/A	0.00170	<0.00170							
4,4'-DDE	7073746			mg/kg wet	N/A	0.00170	<0.00170							
4,4'-DDT	7073746			mg/kg wet	N/A	0.00170	<0.00170							
Dieldrin	7073746			mg/kg wet	N/A	0.00170	<0.00170							
Endosulfan I	7073746			mg/kg wet	N/A	0.00170	<0.00170							
Endosulfan II	7073746			mg/kg wet	N/A	0.00170	<0.00170							
Endosulfan sulfate	7073746			mg/kg wet	N/A	0.00170	<0.00170							
Endrin	7073746			mg/kg wet	N/A	0.00170	<0.00170							
Endrin aldehyde	7073746			mg/kg wet	N/A	0.00170	<0.00170							
Endrin ketone	7073746			mg/kg wet	N/A	0.00170	<0.00170							
Heptachlor	7073746			mg/kg wet	N/A	0.00170	<0.00170							
Heptachlor epoxide	7073746			mg/kg wet	N/A	0.00170	<0.00170							
Methoxychlor	7073746			mg/kg wet	N/A	0.00330	<0.00330							
Toxaphene	7073746			mg/kg wet	N/A	0.0667	<0.0667							
Surrogate: Tetrachloro-meta-xylene	*7073746*			mg/kg wet					*112*		*55-165*			
Surrogate: Decachlorobiphenyl	*7073746*			mg/kg wet					*112*		*56-148*			

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LABORATORY DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
General Chemistry Parameters													
QC Source Sample: CQG0895-01													
% Solids	7070768	88.3		%	N/A	0.100	87.0				1	10	
QC Source Sample: CQG0895-09													
% Solids	7070768	90.8		%	N/A	0.100	89.3				2	10	
QC Source Sample: CQG0956-04													
% Solids	7070843	94.5		%	N/A	0.100	94.3				0	10	
QC Source Sample: CQG0958-08													
% Solids	7070843	81.4		%	N/A	0.100	83.4				2	10	

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Received: 07/19/07
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LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
General Chemistry Parameters														
Cyanide	7070828		9.69	mg/kg wet	N/A	1.00	10.2		105		90-110			
Total Metals by SW 846 Series Methods														
Arsenic	7070813		2.00	mg/kg wet	N/A	1.00	1.61		80		80-120			
Barium	7070817		50.0	mg/kg wet	N/A	0.500	52.5		105		80-110			
Cadmium	7070817		50.0	mg/kg wet	N/A	1.00	51.7		103		80-115			
Chromium	7070817		50.0	mg/kg wet	N/A	1.00	50.5		101		80-110			
Lead	7070817		100	mg/kg wet	N/A	5.00	103		103		80-115			
Selenium	7070817		200	mg/kg wet	N/A	7.50	205		103		80-110			
Silver	7070817		50.0	mg/kg wet	N/A	1.00	52.2		104		80-110			
Mercury	7070965		0.163	mg/kg wet	N/A	0.0200	0.147		90		70-105			
Volatile Organic Compounds														
Acetone	7070899		0.0276	mg/kg wet	N/A	0.0691	0.0322	0.0329	117	110	55-150	2	20	
Acrylonitrile	7070899		0.0276	mg/kg wet	N/A	0.0691	0.0240	0.0257	87	86	45-140	7	20	
Benzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0230	0.0232	83	78	60-135	1	20	
Bromobenzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0243	0.0241	88	81	55-140	1	20	
Bromochloromethane	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0221	0.0237	80	79	60-145	7	20	
Bromodichloromethane	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0222	0.0227	80	76	55-135	2	20	
Bromoform	7070899		0.0276	mg/kg wet	N/A	0.0138	0.0199	0.0195	72	65	55-120	2	20	
Bromomethane	7070899		0.0276	mg/kg wet	N/A	0.0276	0.0276	0.0276	100	92	45-140	0	20	
2-Butanone (MEK)	7070899		0.0276	mg/kg wet	N/A	0.0691	0.0247	0.0254	89	85	50-145	3	20	
n-Butylbenzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0259	0.0266	94	89	35-130	3	20	
sec-Butylbenzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0246	0.0253	89	85	45-130	3	20	
tert-Butylbenzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0238	0.0247	86	83	45-130	4	20	
Carbon disulfide	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0225	0.0233	81	78	45-130	3	20	
Carbon Tetrachloride	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0188	0.0197	68	66	55-145	4	20	
Chlorobenzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0235	0.0235	85	79	55-130	0	20	
Chlorodibromomethane	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0201	0.0202	73	68	55-125	1	20	
Chloroethane	7070899		0.0276	mg/kg wet	N/A	0.0276	0.0280	0.0278	101	93	50-135	1	20	
Chloroform	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0214	0.0228	78	76	50-135	6	20	
Chloromethane	7070899		0.0276	mg/kg wet	N/A	0.0276	0.0265	0.0267	96	90	50-125	1	20	
2-Chlorotoluene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0250	0.0247	90	83	50-145	1	20	
4-Chlorotoluene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0244	0.0242	88	81	45-140	1	20	
1,2-Dibromo-3-chloropropane	7070899		0.0276	mg/kg wet	N/A	0.0691	0.0218	0.0241	79	81	40-125	10	20	
1,2-Dibromoethane (EDB)	7070899		0.0276	mg/kg wet	N/A	0.0691	0.0256	0.0253	93	85	60-135	1	20	
Dibromomethane	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0241	0.0244	87	82	60-145	1	20	
1,2-Dichlorobenzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0258	0.0257	93	86	50-125	0	20	
1,3-Dichlorobenzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0256	0.0257	92	86	40-135	0	20	
1,4-Dichlorobenzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0257	0.0265	93	89	45-130	3	20	
Dichlorodifluoromethane	7070899		0.0276	mg/kg wet	N/A	0.0207	0.0238	0.0241	86	81	45-115	2	20	
1,1-Dichloroethane	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0213	0.0230	77	77	50-145	7	20	
1,2-Dichloroethane	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0216	0.0220	78	74	50-140	2	20	
1,1-Dichloroethene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0223	0.0237	81	79	55-140	6	20	
cis-1,2-Dichloroethene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0223	0.0238	81	79	60-140	6	20	

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4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
trans-1,2-Dichloroethene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0207	0.0219	75	73	50-140	6	20	
1,2-Dichloropropane	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0249	0.0250	90	84	55-135	0	20	
1,3-Dichloropropane	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0241	0.0239	87	80	65-135	1	20	
2,2-Dichloropropane	7070899		0.0276	mg/kg wet	N/A	0.0276	0.0206	0.0215	74	72	40-130	5	20	
1,1-Dichloropropene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0222	0.0230	80	77	55-135	4	20	
cis-1,3-Dichloropropene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0231	0.0235	84	79	50-130	2	20	
trans-1,3-Dichloropropene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0217	0.0217	79	73	50-130	0	20	
Ethylbenzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0241	0.0237	87	79	50-140	2	20	
Hexachlorobutadiene	7070899		0.0276	mg/kg wet	N/A	0.0346	0.0230	0.0226	83	76	30-125	2	20	
Hexane	7070899		0.0276	mg/kg wet	N/A	0.0346	0.0213	0.0215	77	72	30-125	1	20	
Isopropylbenzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0229	0.0226	83	76	50-140	1	20	
p-Isopropyltoluene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0244	0.0248	88	83	40-135	2	20	
Methylene Chloride	7070899		0.0276	mg/kg wet	N/A	0.0691	0.0231	0.0241	84	81	50-145	4	20	
Methyl tert-Butyl Ether	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0230	0.0244	83	82	50-145	6	20	
Naphthalene	7070899		0.0276	mg/kg wet	N/A	0.0346	0.0273	0.0281	99	94	50-125	3	20	
n-Propylbenzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0242	0.0241	88	81	40-135	1	20	
Styrene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0236	0.0232	85	78	55-135	2	20	
1,1,1,2-Tetrachloroethane	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0218	0.0222	79	74	55-135	2	20	
1,1,2,2-Tetrachloroethane	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0271	0.0272	98	91	60-125	1	20	
Tetrachloroethene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0232	0.0224	84	75	45-135	4	20	
Toluene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0240	0.0234	87	78	55-135	3	20	
1,2,3-Trichlorobenzene	7070899		0.0276	mg/kg wet	N/A	0.0346	0.0261	0.0278	94	93	40-125	6	20	
1,2,4-Trichlorobenzene	7070899		0.0276	mg/kg wet	N/A	0.0346	0.0257	0.0264	93	88	30-125	3	20	
1,1,1-Trichloroethane	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0210	0.0217	76	73	45-140	3	20	
1,1,2-Trichloroethane	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0250	0.0253	90	85	65-130	1	20	
Trichloroethene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0220	0.0225	79	75	50-135	2	20	
Trichlorofluoromethane	7070899		0.0276	mg/kg wet	N/A	0.0276	0.0260	0.0267	94	89	50-130	2	20	
1,2,3-Trichloropropane	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0241	0.0244	87	82	55-150	1	20	
1,2,4-Trimethylbenzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0239	0.0238	87	80	55-135	1	20	
1,3,5-Trimethylbenzene	7070899		0.0276	mg/kg wet	N/A	0.00691	0.0235	0.0231	85	77	50-140	1	20	
Vinyl chloride	7070899		0.0276	mg/kg wet	N/A	0.0207	0.0262	0.0267	95	89	55-125	2	20	
Xylenes, total	7070899		0.0829	mg/kg wet	N/A	0.0207	0.0703	0.0699	85	78	55-135	1	20	
Surrogate: Dibromofluoromethane	*7070899*			ug/L					*97*	*99*	*80-125*			
Surrogate: Toluene-d8	*7070899*			ug/L					*108*	*106*	*85-110*			
Surrogate: 4-Bromofluorobenzene	*7070899*			ug/L					*96*	*92*	*85-120*			
Semivolatile Organics by GC/MS														
Acenaphthene	7070775		3.33	mg/kg wet	0.0810	0.330	3.09		93		55-120			
Acenaphthylene	7070775		3.33	mg/kg wet	0.0750	0.330	3.00		90		45-130			
Anthracene	7070775		3.33	mg/kg wet	0.0780	0.330	3.13		94		60-130			
Benzidine	7070775		3.33	mg/kg wet	0.0320	3.30	2.49		75		35-130			J
Benzo (a) anthracene	7070775		3.33	mg/kg wet	0.0840	0.330	2.92		88		60-140			
Benzo (b) fluoranthene	7070775		3.33	mg/kg wet	0.0820	0.330	3.21		96		60-135			
Benzo (k) fluoranthene	7070775		3.33	mg/kg wet	0.0840	0.330	3.19		96		55-135			
Benzo (a) pyrene	7070775		3.33	mg/kg wet	0.0740	0.330	3.26		98		60-135			

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Work Order: CQG0956
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Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Semivolatile Organics by GC/MS														
Benzo (g,h,i) perylene	7070775		3.33	mg/kg wet	0.0750	0.330	3.23		97		60-130			
Benzyl alcohol	7070775		3.33	mg/kg wet	0.0650	0.330	2.73		82		35-120			
Butyl benzyl phthalate	7070775		3.33	mg/kg wet	0.0840	0.330	3.01		90		55-140			
Bis(2-chloroethyl)ether	7070775		3.33	mg/kg wet	0.0830	0.330	2.59		78		35-105			
Bis(2-chloroethoxy)methane	7070775		3.33	mg/kg wet	0.0820	0.330	2.67		80		40-105			
Bis(2-ethylhexyl)phthalate	7070775		3.33	mg/kg wet	0.0320	0.330	2.80		84		55-140			
Bis(2-chloroisopropyl) ether	7070775		3.33	mg/kg wet	0.0800	0.330	2.54		76		35-105			
4-Bromophenyl phenyl ether	7070775		3.33	mg/kg wet	0.0870	0.330	3.07		92		60-135			
Carbazole	7070775		3.33	mg/kg wet	0.0810	0.330	3.06		92		50-145			
4-Chloroaniline	7070775		3.33	mg/kg wet	0.104	0.330	2.85		85		35-120			
2-Chloronaphthalene	7070775		3.33	mg/kg wet	0.0880	0.330	2.74		82		55-115			
4-Chlorophenyl phenyl ether	7070775		3.33	mg/kg wet	0.0940	0.330	2.89		87		60-130			
Chrysene	7070775		3.33	mg/kg wet	0.0830	0.330	2.80		84		60-140			
Dibenzo (a,h) anthracene	7070775		3.33	mg/kg wet	0.0590	0.330	3.43		103		60-135			
Dibenzofuran	7070775		3.33	mg/kg wet	0.0820	0.330	3.01		90		60-135			
Di-n-butyl phthalate	7070775		3.33	mg/kg wet	0.0880	0.330	3.07		92		60-135			
1,2-Dichlorobenzene	7070775		3.33	mg/kg wet	0.0760	0.330	2.52		76		40-100			
1,3-Dichlorobenzene	7070775		3.33	mg/kg wet	0.0830	0.330	2.49		75		35-100			
1,4-Dichlorobenzene	7070775		3.33	mg/kg wet	0.0860	0.330	2.57		77		35-100			
3,3'-Dichlorobenzidine	7070775		3.33	mg/kg wet	0.0770	0.330	2.88		86		60-140			
Diethyl phthalate	7070775		3.33	mg/kg wet	0.0890	0.330	3.31		99		60-140			
Dimethyl phthalate	7070775		3.33	mg/kg wet	0.0810	0.330	3.09		93		60-130			
2,4-Dinitrotoluene	7070775		3.33	mg/kg wet	0.0590	0.330	3.39		102		65-140			
2,6-Dinitrotoluene	7070775		3.33	mg/kg wet	0.0610	0.330	3.31		99		65-140			
Di-n-octyl phthalate	7070775		3.33	mg/kg wet	0.0850	0.330	3.27		98		50-145			
Fluoranthene	7070775		3.33	mg/kg wet	0.0760	0.330	3.15		94		60-135			
Fluorene	7070775		3.33	mg/kg wet	0.0820	0.330	3.16		95		60-125			
Hexachlorobenzene	7070775		3.33	mg/kg wet	0.0820	0.330	3.10		93		65-140			
Hexachlorobutadiene	7070775		3.33	mg/kg wet	0.0850	0.330	2.62		79		35-110			
Hexachlorocyclopentadiene	7070775		3.33	mg/kg wet	0.0590	0.660	2.76		83		20-115			
Hexachloroethane	7070775		3.33	mg/kg wet	0.0820	0.330	2.63		79		35-105			
Indeno (1,2,3-cd) pyrene	7070775		3.33	mg/kg wet	0.0740	0.330	3.27		98		60-135			
Isophorone	7070775		3.33	mg/kg wet	0.0820	0.330	2.80		84		45-120			
2-Methylnaphthalene	7070775		3.33	mg/kg wet	0.0810	0.330	2.74		82		45-110			
Naphthalene	7070775		3.33	mg/kg wet	0.0770	0.330	2.75		83		40-100			
2-Nitroaniline	7070775		3.33	mg/kg wet	0.0700	0.330	3.35		100		50-145			
3-Nitroaniline	7070775		3.33	mg/kg wet	0.0640	0.330	3.39		102		50-145			
4-Nitroaniline	7070775		3.33	mg/kg wet	0.0560	0.330	3.49		105		50-145			
Nitrobenzene	7070775		3.33	mg/kg wet	0.0960	0.330	2.74		82		40-105			
N-Nitrosodimethylamine	7070775		3.33	mg/kg wet	0.131	0.330	2.47		74		35-105			
N-Nitrosodiphenylamine	7070775		3.33	mg/kg wet	0.0740	0.330	3.18		95		50-130			
N-Nitrosodi-n-propylamine	7070775		3.33	mg/kg wet	0.0680	0.330	2.59		78		45-115			
Phenanthrene	7070775		3.33	mg/kg wet	0.0810	0.330	3.16		95		60-130			
Pyrene	7070775		3.33	mg/kg wet	0.0900	0.330	2.97		89		55-135			
Pyridine	7070775		3.33	mg/kg wet	0.0380	0.330	2.05		61		25-90			

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Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Semivolatile Organics by GC/MS														
1,2,4-Trichlorobenzene	7070775		3.33	mg/kg wet	0.0910	0.330	2.69		81		40-105			
Benzoic acid	7070775		3.33	mg/kg wet	0.0230	0.660	0.771		23		10-75			
4-Chloro-3-methylphenol	7070775		3.33	mg/kg wet	0.0430	0.330	3.06		92		55-115			
2-Chlorophenol	7070775		3.33	mg/kg wet	0.0410	0.330	2.61		78		45-100			
Cresol(s)	7070775		6.67	mg/kg wet	0.0450	0.330	5.38		81		45-110			
2,4-Dichlorophenol	7070775		3.33	mg/kg wet	0.0480	0.330	2.78		84		50-105			
2,4-Dimethylphenol	7070775		3.33	mg/kg wet	0.0430	0.330	2.65		79		45-100			
2,4-Dinitrophenol	7070775		3.33	mg/kg wet	0.0310	0.330	2.16		65		10-100			CIN
4,6-Dinitro-2-methylphenol	7070775		3.33	mg/kg wet	0.0190	0.330	3.02		91		15-110			
2-Methylphenol (o-Cresol)	7070775		3.33	mg/kg wet	0.0450	0.330	2.70		81		45-105			
4-Methylphenol (p-Cresol)	7070775		3.33	mg/kg wet	0.0400	0.330	2.68		80		50-105			
2-Nitrophenol	7070775		3.33	mg/kg wet	0.0450	0.330	2.81		84		45-100			
4-Nitrophenol	7070775		3.33	mg/kg wet	0.0330	0.330	3.26		98		50-145			
Pentachlorophenol	7070775		3.33	mg/kg wet	0.0350	0.330	3.02		91		25-120			
Phenol	7070775		3.33	mg/kg wet	0.0310	0.330	2.68		80		45-100			
2,4,5-Trichlorophenol	7070775		3.33	mg/kg wet	0.0490	0.330	3.14		94		65-125			
2,4,6-Trichlorophenol	7070775		3.33	mg/kg wet	0.0440	0.330	3.05		92		60-120			
Surrogate: Nitrobenzene-d5	*7070775*			mg/kg wet					*81*		*40-100*			
Surrogate: 2-Fluorobiphenyl	*7070775*			mg/kg wet					*84*		*55-115*			
Surrogate: Terphenyl-d14	*7070775*			mg/kg wet					*87*		*65-135*			
Surrogate: Phenol-d6	*7070775*			mg/kg wet					*75*		*45-105*			
Surrogate: 2-Fluorophenol	*7070775*			mg/kg wet					*72*		*40-95*			
Surrogate: 2,4,6-Tribromophenol	*7070775*			mg/kg wet					*95*		*55-130*			
PNA compounds by HPLC														
Acenaphthene	7070799		0.333	mg/kg wet	N/A	0.0420	0.287		86		45-120			
Acenaphthylene	7070799		0.667	mg/kg wet	N/A	0.0420	0.538		81		45-105			
Anthracene	7070799		0.0333	mg/kg wet	N/A	0.0170	0.0244		73		50-105			
Benzo (a) anthracene	7070799		0.0333	mg/kg wet	N/A	0.0170	0.0288		86		50-110			
Benzo (b) fluoranthene	7070799		0.0667	mg/kg wet	N/A	0.0170	0.0588		88		50-110			
Benzo (k) fluoranthene	7070799		0.0333	mg/kg wet	N/A	0.0170	0.0290		87		50-110			
Benzo (a) pyrene	7070799		0.0333	mg/kg wet	N/A	0.0170	0.0220		66		45-100			
Benzo (g,h,i) perylene	7070799		0.0667	mg/kg wet	N/A	0.0170	0.0534		80		50-105			
Chrysene	7070799		0.0333	mg/kg wet	N/A	0.0170	0.0310		93		55-110			
Dibenzo (a,h) anthracene	7070799		0.0667	mg/kg wet	N/A	0.0170	0.0572		86		50-110			
Fluoranthene	7070799		0.0667	mg/kg wet	N/A	0.0170	0.0622		93		50-110			
Fluorene	7070799		0.0667	mg/kg wet	N/A	0.0350	0.0554		83		50-110			
Indeno (1,2,3-cd) pyrene	7070799		0.0333	mg/kg wet	N/A	0.0170	0.0280		84		50-110			
1-Methylnaphthalene	7070799		0.333	mg/kg wet	N/A	0.0420	0.243		73		45-105			
2-Methylnaphthalene	7070799		0.333	mg/kg wet	N/A	0.0420	0.238		71		40-100			
Naphthalene	7070799		0.333	mg/kg wet	N/A	0.0170	0.250		75		45-100			
Phenanthrene	7070799		0.0333	mg/kg wet	N/A	0.0170	0.0295		88		55-115			
Pyrene	7070799		0.0333	mg/kg wet	N/A	0.0420	0.0308		92		45-130			
Surrogate: 2-Fluorobiphenyl	*7070799*			mg/kg wet					*84*		*50-105*			

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
UST ANALYSIS PARAMETERS														
Diesel	7070831		66.7	mg/kg	N/A	10.0	47.7		72		50-140			
Surrogate: Octacosane	*7070831*			mg/kg					*99*		*60-150*			
Organochlorine Pesticides by EPA Method 8081A														
Aldrin	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0170		102		66-130			
delta-BHC	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0153		92		64-130			
alpha-BHC	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0153		92		66-129			
beta-BHC	7073746		0.0167	mg/kg wet	N/A	0.00330	0.0167		100		69-131			
gamma-BHC (Lindane)	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0157		94		65-131			
alpha-Chlordane	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0163		98		61-132			
gamma-Chlordane	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0167		100		63-135			
4,4'-DDD	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0187		112		66-136			
4,4'-DDE	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0167		100		65-136			
4,4'-DDT	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0140		84		63-132			
Dieldrin	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0167		100		63-125			
Endosulfan I	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0153		92		65-132			
Endosulfan II	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0163		98		63-136			
Endosulfan sulfate	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0157		94		63-136			
Endrin	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0177		106		67-141			
Endrin aldehyde	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0153		92		50-139			
Endrin ketone	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0160		96		62-131			
Heptachlor	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0157		94		64-132			
Heptachlor epoxide	7073746		0.0167	mg/kg wet	N/A	0.00170	0.0160		96		63-136			
Methoxychlor	7073746		0.0167	mg/kg wet	N/A	0.00330	0.0150		90		62-144			
Surrogate: Tetrachloro-meta-xylene	*7073746*			mg/kg wet					*95*		*55-165*			
Surrogate: Decachlorobiphenyl	*7073746*			mg/kg wet					*103*		*56-148*			
Chlordane	7073746		0.167	mg/kg wet	N/A	0.0667	0.180		108		62-155			
Toxaphene	7073746		0.333	mg/kg wet	N/A	0.0667	0.323		97		72-149			
Surrogate: Tetrachloro-meta-xylene	*7073746*			mg/kg wet					*104*		*55-165*			
Surrogate: Decachlorobiphenyl	*7073746*			mg/kg wet					*110*		*56-148*			

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
General Chemistry Parameters														
QC Source Sample: CQG0956-06														
Cyanide	7070828	0.282	12.1	mg/kg dry	N/A	1.26	12.9	12.6	104	104	90-110	2	20	
Total Metals by SW 846 Series Methods														
QC Source Sample: CQG0798-01														
Arsenic	7070813	23.2	4.26	mg/kg dry	N/A	1.13	3.78	3.55	-456	-444	75-125	6	20	M1
QC Source Sample: CQG0956-01														
Barium	7070817	188	120	mg/kg dry	N/A	1.27	334	323	122	111	75-125	3	20	
Cadmium	7070817	1.17	120	mg/kg dry	N/A	2.53	117	115	97	94	75-115	2	20	
Chromium	7070817	15.7	120	mg/kg dry	N/A	2.53	131	130	96	94	75-125	1	20	
Lead	7070817	209	240	mg/kg dry	N/A	12.7	465	1760	107	638	75-125	116	20	M1,R
Selenium	7070817	<7.50	480	mg/kg dry	N/A	19.0	473	464	98	95	75-120	2	20	
Silver	7070817	<1.00	120	mg/kg dry	N/A	2.53	115	114	96	94	75-125	1	20	
QC Source Sample: CQG0798-01														
Mercury	7070965	0.0200	0.172	mg/kg dry	N/A	0.0226	0.196	0.207	103	103	70-105	6	35	
Semivolatile Organics by GC/MS														
QC Source Sample: CQG0895-01														
Acenaphthene	7070775	<0.081	3.72	mg/kg dry	0.459	1.87	3.00	3.22	81	88	35-130	7	40	RL1
Acenaphthylene	7070775	0.459	3.72	mg/kg dry	0.425	1.87	3.34	3.54	78	84	35-130	6	40	RL1
Anthracene	7070775	0.504	3.72	mg/kg dry	0.442	1.87	3.77	3.91	88	93	35-130	4	40	RL1
Benzidine	7070775	<0.032	3.72	mg/kg dry	0.181	18.7	<0.181	<0.181			20-115		40	RL1,M1
Benzo (a) anthracene	7070775	1.14	3.72	mg/kg dry	0.476	1.87	3.85	4.13	73	81	40-135	7	40	RL1
Benzo (b) fluoranthene	7070775	1.55	3.72	mg/kg dry	0.464	1.87	3.94	4.46	64	79	35-130	13	40	RL1
Benzo (k) fluoranthene	7070775	1.26	3.72	mg/kg dry	0.476	1.87	3.83	4.16	69	79	25-120	8	40	RL1
Benzo (a) pyrene	7070775	1.32	3.72	mg/kg dry	0.419	1.87	3.71	4.09	64	75	30-125	10	40	RL1
Benzo (g,h,i) perylene	7070775	1.10	3.72	mg/kg dry	0.425	1.87	3.44	3.82	63	74	30-125	11	40	RL1
Benzyl alcohol	7070775	<0.065	3.72	mg/kg dry	0.368	1.87	2.60	2.86	70	78	40-120	9	40	RL1
Butyl benzyl phthalate	7070775	<0.084	3.72	mg/kg dry	0.476	1.87	2.89	3.27	78	89	35-130	12	40	RL1
Bis(2-chloroethyl)ether	7070775	<0.083	3.72	mg/kg dry	0.470	1.87	2.33	2.60	63	71	25-120	11	40	RL1
Bis(2-chloroethoxy)methane	7070775	<0.082	3.72	mg/kg dry	0.464	1.87	2.53	2.87	68	78	25-120	12	40	RL1
Bis(2-ethylhexyl)phthalate	7070775	<0.032	3.72	mg/kg dry	0.181	1.87	3.23	3.70	87	101	35-130	13	40	RL1
Bis(2-chloroisopropyl) ether	7070775	<0.080	3.72	mg/kg dry	0.453	1.87	2.26	2.64	61	72	30-115	15	40	RL1
4-Bromophenyl phenyl ether	7070775	<0.087	3.72	mg/kg dry	0.493	1.87	2.84	3.30	77	90	40-130	15	40	RL1
Carbazole	7070775	<0.081	3.72	mg/kg dry	0.459	1.87	3.19	3.49	86	95	40-135	9	40	RL1
4-Chloroaniline	7070775	<0.10	3.72	mg/kg dry	0.589	1.87	2.23	2.59	60	70	25-120	15	40	RL1
2-Chloronaphthalene	7070775	<0.088	3.72	mg/kg dry	0.498	1.87	2.56	2.94	69	80	35-120	14	40	RL1
4-Chlorophenyl phenyl ether	7070775	<0.094	3.72	mg/kg dry	0.532	1.87	2.87	3.28	77	89	40-125	13	35	RL1
Chrysene	7070775	1.49	3.72	mg/kg dry	0.470	1.87	3.97	4.33	67	77	40-135	9	40	RL1
Dibenzo (a,h) anthracene	7070775	<0.059	3.72	mg/kg dry	0.334	1.87	2.83	3.24	76	88	30-125	14	40	RL1
Dibenzofuran	7070775	<0.082	3.72	mg/kg dry	0.464	1.87	3.00	3.34	81	91	35-130	11	40	RL1
Di-n-butyl phthalate	7070775	<0.088	3.72	mg/kg dry	0.498	1.87	2.97	3.36	80	91	40-130	12	40	RL1
1,2-Dichlorobenzene	7070775	<0.076	3.72	mg/kg dry	0.430	1.87	2.37	2.48	64	67	25-110	5	40	RL1
1,3-Dichlorobenzene	7070775	<0.083	3.72	mg/kg dry	0.470	1.87	2.25	2.36	60	64	20-110	5	40	RL1
1,4-Dichlorobenzene	7070775	<0.086	3.72	mg/kg dry	0.487	1.87	2.24	2.47	60	67	20-110	10	40	RL1
3,3'-Dichlorobenzidine	7070775	<0.077	3.72	mg/kg dry	0.436	1.87	1.96	2.13	53	58	40-135	8	35	RL1
Diethyl phthalate	7070775	<0.089	3.72	mg/kg dry	0.504	1.87	2.72	3.08	73	84	45-130	12	40	RL1
Dimethyl phthalate	7070775	<0.081	3.72	mg/kg dry	0.459	1.87	2.46	2.78	66	76	50-130	13	35	RL1
2,4-Dinitrotoluene	7070775	<0.059	3.72	mg/kg dry	0.334	1.87	2.47	2.91	66	79	40-135	16	40	RL1
2,6-Dinitrotoluene	7070775	<0.061	3.72	mg/kg dry	0.345	1.87	2.73	3.02	74	82	40-135	10	40	RL1
Di-n-octyl phthalate	7070775	<0.085	3.72	mg/kg dry	0.481	1.87	2.85	3.29	77	89	35-130	15	40	RL1

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Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Semivolatile Organics by GC/MS														
QC Source Sample: CQG0895-01														
Fluoranthene	7070775	2.03	3.72	mg/kg dry	0.430	1.87	4.47	4.72	65	73	40-135	5	40	RL1
Fluorene	7070775	<0.082	3.72	mg/kg dry	0.464	1.87	3.26	3.61	88	98	40-130	10	40	RL1
Hexachlorobenzene	7070775	<0.082	3.72	mg/kg dry	0.464	1.87	3.07	3.46	83	94	40-135	12	40	RL1
Hexachlorobutadiene	7070775	<0.085	3.72	mg/kg dry	0.481	1.87	2.71	3.02	73	82	20-110	11	40	RL1
Hexachlorocyclopentadiene	7070775	<0.059	3.72	mg/kg dry	0.334	3.74	1.27	1.29	34	35	10-95	1	40	RL1,J
Hexachloroethane	7070775	<0.082	3.72	mg/kg dry	0.464	1.87	2.26	2.38	61	65	15-110	5	40	RL1
Indeno (1,2,3-cd) pyrene	7070775	1.10	3.72	mg/kg dry	0.419	1.87	3.43	3.82	63	74	30-125	11	40	RL1
Isophorone	7070775	<0.082	3.72	mg/kg dry	0.464	1.87	2.65	3.09	71	84	40-115	15	40	RL1
2-Methylnaphthalene	7070775	<0.081	3.72	mg/kg dry	0.459	1.87	2.88	3.25	78	88	30-120	12	40	RL1
Naphthalene	7070775	<0.077	3.72	mg/kg dry	0.436	1.87	2.85	3.26	77	89	30-115	14	40	RL1
2-Nitroaniline	7070775	<0.070	3.72	mg/kg dry	0.396	1.87	2.75	3.10	74	84	45-135	12	40	RL1
3-Nitroaniline	7070775	<0.064	3.72	mg/kg dry	0.362	1.87	2.50	2.91	67	79	40-135	15	40	RL1
4-Nitroaniline	7070775	<0.056	3.72	mg/kg dry	0.317	1.87	2.41	2.92	65	79	40-135	19	40	RL1
Nitrobenzene	7070775	<0.096	3.72	mg/kg dry	0.544	1.87	2.60	2.80	70	76	30-115	8	40	RL1
N-Nitrosodimethylamine	7070775	<0.13	3.72	mg/kg dry	0.742	1.87	2.09	2.35	56	64	35-110	12	40	RL1
N-Nitrosodiphenylamine	7070775	<0.074	3.72	mg/kg dry	0.419	1.87	3.16	3.46	85	94	30-125	9	40	RL1
N-Nitrosodi-n-propylamine	7070775	<0.068	3.72	mg/kg dry	0.385	1.87	2.41	2.66	65	72	35-120	10	40	RL1
Phenanthrene	7070775	0.772	3.72	mg/kg dry	0.459	1.87	3.62	3.94	77	86	40-130	8	40	RL1
Pyrene	7070775	2.28	3.72	mg/kg dry	0.510	1.87	4.58	4.87	62	70	40-135	6	40	RL1
Pyridine	7070775	<0.038	3.72	mg/kg dry	0.215	1.87	1.66	2.13	45	58	25-105	25	40	RL1,J
1,2,4-Trichlorobenzene	7070775	<0.091	3.72	mg/kg dry	0.515	1.87	2.63	2.92	71	79	25-115	11	40	RL1
Benzoic acid	7070775	<0.023	3.72	mg/kg dry	0.130	3.74	<0.130	0.747		20	10-30		40	RL1,M1,J
4-Chloro-3-methylphenol	7070775	<0.043	3.72	mg/kg dry	0.243	1.87	2.83	3.36	76	91	50-125	17	40	RL1
2-Chlorophenol	7070775	<0.041	3.72	mg/kg dry	0.232	1.87	2.52	2.73	68	74	35-115	8	40	RL1
Cresol(s)	7070775	<0.045	7.44	mg/kg dry	0.255	1.87	5.41	6.06	73	82	45-115	11	40	RL1
2,4-Dichlorophenol	7070775	<0.048	3.72	mg/kg dry	0.272	1.87	2.83	3.20	76	87	35-115	12	40	RL1
2,4-Dimethylphenol	7070775	<0.043	3.72	mg/kg dry	0.243	1.87	2.79	3.12	75	85	40-110	11	40	RL1
2,4-Dinitrophenol	7070775	<0.031	3.72	mg/kg dry	0.176	1.87	<0.176	0.417		11	10-75		40	RL1,CIN,M1,J
4,6-Dinitro-2-methylphenol	7070775	<0.019	3.72	mg/kg dry	0.108	1.87	0.491	0.974	13	26	10-105	66	40	RL1,J,R
2-Methylphenol (o-Cresol)	7070775	<0.045	3.72	mg/kg dry	0.255	1.87	2.71	2.94	73	80	40-115	8	40	RL1
4-Methylphenol (p-Cresol)	7070775	<0.040	3.72	mg/kg dry	0.227	1.87	2.70	3.12	73	85	45-115	15	35	RL1
2-Nitrophenol	7070775	<0.045	3.72	mg/kg dry	0.255	1.87	2.37	2.96	64	81	25-120	22	40	RL1
4-Nitrophenol	7070775	<0.033	3.72	mg/kg dry	0.187	1.87	2.13	3.04	57	83	25-120	36	40	RL1
Pentachlorophenol	7070775	12.1	3.72	mg/kg dry	0.198	1.87	16.3	13.2	113	29	10-95	21	40	RL1,M1
Phenol	7070775	<0.031	3.72	mg/kg dry	0.176	1.87	2.63	3.02	71	82	40-115	14	35	RL1
2,4,5-Trichlorophenol	7070775	<0.049	3.72	mg/kg dry	0.277	1.87	2.67	3.33	72	90	35-130	22	40	RL1
2,4,6-Trichlorophenol	7070775	<0.044	3.72	mg/kg dry	0.249	1.87	2.78	3.31	75	90	30-125	17	40	RL1
Surrogate: Nitrobenzene-d5	*7070775*			mg/kg dry					*65*	*74*	*35-110*			RL1
Surrogate: 2-Fluorobiphenyl	*7070775*			mg/kg dry					*71*	*81*	*30-115*			RL1
Surrogate: Terphenyl-d14	*7070775*			mg/kg dry					*80*	*92*	*40-135*			RL1
Surrogate: Phenol-d6	*7070775*			mg/kg dry					*66*	*77*	*45-120*			RL1
Surrogate: 2-Fluorophenol	*7070775*			mg/kg dry					*60*	*69*	*30-110*			RL1
Surrogate: 2,4,6-Tribromophenol	*7070775*			mg/kg dry					*78*	*91*	*40-130*			RL1

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Work Order: CQG0956
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Project Number: 728500J - Cluster #4

Received: 07/19/07
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MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
PNA compounds by HPLC														
QC Source Sample: CQG0735-20														
Acenaphthene	7070799	1.86	0.341	mg/kg dry	N/A	0.884	1.54	0.910	-94	-274	25-120	52	40	MHA
Acenaphthylene	7070799	<42.0	0.682	mg/kg dry	N/A	0.884	0.523	0.357	77	51	30-110	38	40	MHA
Anthracene	7070799	1.37E9	0.0341	mg/kg dry	N/A	0.358	2.37	1.28	)0000000020000000(		25-120	60	40	MHA
Benzo (b) fluoranthene	7070799	1.37E9	0.0682	mg/kg dry	N/A	0.358	7.55	3.93	)0000000060000000(		15-110	63	40	MHA
Benzo (k) fluoranthene	7070799	1.37E9	0.0341	mg/kg dry	N/A	0.358	3.28	1.72	)0000000020000000(		15-105	62	40	MHA
Benzo (g,h,i) perylene	7070799	4.82	0.0682	mg/kg dry	N/A	0.358	3.84	2.04	-1440	-3990	10-100	61	40	MHA
Dibenzo (a,h) anthracene	7070799	1.13	0.0682	mg/kg dry	N/A	0.358	0.934	0.504	-286	-897	10-105	60	40	MHA
Fluorene	7070799	1.87	0.0682	mg/kg dry	N/A	0.737	1.32	0.736	-816	-1630	30-110	57	40	MHA
Naphthalene	7070799	0.745	0.341	mg/kg dry	N/A	0.358	0.697	0.424	-14	-92	40-100	49	40	MHA
Surrogate: 2-Fluorobiphenyl	*7070799*			mg/kg dry					*308*	*142*	*25-115*			ZX
QC Source Sample: CQG0735-20RE1														
Benzo (a) anthracene	7070799	8.30	0.0341	mg/kg dry	N/A	1.79	6.49	3.50	-5290	-13800	20-115	60	40	MHA
Benzo (a) pyrene	7070799	8.60	0.0341	mg/kg dry	N/A	1.79	7.02	3.64	-4650	-14200	15-110	63	40	MHA
Chrysene	7070799	10.6	0.0341	mg/kg dry	N/A	1.79	8.31	4.48	-6770	-17600	25-120	60	40	MHA
Fluoranthene	7070799	23.1	0.0682	mg/kg dry	N/A	1.79	17.7	9.47	-7990	-19600	25-120	60	40	MHA
Indeno (1,2,3-cd) pyrene	7070799	6.02	0.0341	mg/kg dry	N/A	1.79	4.61		-4140		15-110			MHA
Phenanthrene	7070799	14.8	0.0341	mg/kg dry	N/A	1.79	10.4	5.68	-13200	-26300	30-125	58	40	MHA
Pyrene	7070799	6.83E9	0.0341	mg/kg dry	N/A	8.84	24.9	12.6	0000000600000000		30-125	66	40	MHA
UST ANALYSIS PARAMETERS														
QC Source Sample: CQG0950-01														
Diesel	7070831	<10.0	66.3	mg/kg	N/A	10.0	47.4	45.2	72	70	40-135	5	40	
Surrogate: Octacosane	*7070831*			mg/kg					*109*	*101*	*60-150*			
Organochlorine Pesticides by EPA Method 8081A														
QC Source Sample: NQG2022-12														
Aldrin	7073746	0.000703	0.0174	mg/kg dry	N/A	0.00177	0.0146	0.0173	80	92	53-134	17	39	
delta-BHC	7073746	<0.0017	0.0174	mg/kg dry	N/A	0.00177	0.0136	0.0155	78	86	50-137	14	34	
alpha-BHC	7073746	<0.0017	0.0174	mg/kg dry	N/A	0.00177	0.0142	0.0163	82	90	50-137	13	41	
beta-BHC	7073746	<0.0033	0.0174	mg/kg dry	N/A	0.00344	0.0160	0.0181	92	100	50-137	12	41	
gamma-BHC (Lindane)	7073746	<0.0017	0.0174	mg/kg dry	N/A	0.00177	0.0142	0.0163	82	90	48-140	13	41	
alpha-Chlordane	7073746	0.0313	0.0174	mg/kg dry	N/A	0.00177	0.0191	0.0426	-70	63	50-139	76	41	M8,Ra
gamma-Chlordane	7073746	0.0127	0.0174	mg/kg dry	N/A	0.00177	0.0167		23		50-138			M8,Ra
4,4'-DDD	7073746	<0.0017	0.0174	mg/kg dry	N/A	0.00177	0.0160	0.0173	92	96	50-137	8	41	
4,4'-DDE	7073746	0.00352	0.0174	mg/kg dry	N/A	0.00177	0.0163	0.0220	74	103	50-137	30	41	
4,4'-DDT	7073746	<0.0017	0.0174	mg/kg dry	N/A	0.00177	0.0142	0.0166	82	92	40-139	15	41	
Dieldrin [2C]	7073746	0.0162	0.0174	mg/kg dry	N/A	0.00177	0.0212		29		24-156			
Endosulfan I	7073746	<0.0017	0.0174	mg/kg dry	N/A	0.00177	0.0149	0.0192	86	106	50-137	25	41	
Endosulfan II	7073746	0.00211	0.0174	mg/kg dry	N/A	0.00177	0.0153	0.0188	76	92	50-137	21	41	
Endosulfan sulfate	7073746	0.00281	0.0174	mg/kg dry	N/A	0.00177	0.0163	0.0206	78	98	50-138	23	41	
Endrin	7073746	<0.0017	0.0174	mg/kg dry	N/A	0.00177	0.0160	0.0199	92	110	52-143	22	41	
Endrin aldehyde	7073746	0.00105	0.0174	mg/kg dry	N/A	0.00177	0.0142	0.0145	76	74	50-145	1	41	
Endrin ketone	7073746	0.00316	0.0174	mg/kg dry	N/A	0.00177	0.0160	0.0213	74	100	50-137	29	41	
Heptachlor	7073746	0.00246	0.0174	mg/kg dry	N/A	0.00177	0.0153	0.0210	74	102	52-134	31	42	
Heptachlor epoxide [2C]	7073746	0.0134	0.0174	mg/kg dry	N/A	0.00177	0.0195		35		24-159			
Methoxychlor	7073746	0.00457	0.0174	mg/kg dry	N/A	0.00344	0.0170	0.0235	72	105	50-137	32	41	
Surrogate: Tetrachloro-meta-xylene	*7073746*			mg/kg dry					*84*	*86*	*55-165*			
Surrogate: Decachlorobiphenyl	*7073746*			mg/kg dry					*91*	*93*	*56-148*			

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG0956
Project: Council Bluffs Brownfields
Project Number: 728500J - Cluster #4

Received: 07/19/07
Reported: 07/30/07 17:01

CERTIFICATION SUMMARY

TestAmerica - Cedar Falls, IA

Method	Matrix	Nelac	Iowa
OA-2 - 8015B	Solid/Soil		
OA-2	Solid/Soil		X
SM 2540 G	Solid/Soil		
SW 6010B	Solid/Soil	X	X
SW 7060A	Solid/Soil	X	X
SW 7471A	Solid/Soil	X	X
SW 8260B	Solid/Soil	X	X
SW 8270C	Solid/Soil	X	X
SW 8310	Solid/Soil	X	X
SW 9012	Solid/Soil	X	X

Subcontracted Laboratories

TestAmerica Analytical Testing Corp.- Nashville NELAC Cert #87358, Illinois Cert #001366, Iowa Cert #131, Kansas Cert #E-10229, Minnesota Cert #047-999-345, Wisconsin Cert #998020436
2960 Foster Creighton Dr. - Nashville, TN 37204

Method Performed: SW846 8081A
Samples: CQG0956-02RE1, CQG0956-03RE1, CQG0956-04RE1, CQG0956-08RE1

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Termperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC) and are sampled in accordance with TA-CF SOP CF09-01.

HOWARD R. GREEN CO.- DES MOINES < 4685 Merle Hay Rd Ste. 106 Des Moines, IA 50322 Scott Mattes	Work Order: CQG0956 Project: Council Bluffs Brownfields Project Number: 728500J - Cluster #4	Received: 07/19/07 Reported: 07/30/07 17:01	

DATA QUALIFIERS AND DEFINITIONS

CIN	The % RSD for this compound was above 15%. The average % RSD for all compounds in the calibration met the 15% criteria specified in EPA methods 8260B/8270C.
J	Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). Concentrations within this range are estimated.
M1	The MS and/or MSD were outside control limits.
M8	The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS).
MHA	Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information.
R	Sample duplicate RPD exceeded the laboratory control limit.
R1	The RPD between the primary and confirmatory analysis exceeded 40%. Per method 8000B, the higher value was reported.
Ra	The RPD exceeded the method control limit. The individual analyte QA/QC recoveries, however, were within acceptance limits.
RL1	Reporting limit raised due to sample matrix effects.
Z3	The sample required a dilution due to the nature of the sample matrix. Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.
ZX	Due to sample matrix effects, the surrogate recovery was outside the control limits.

ADDITIONAL COMMENTS

Results are reported on a wet weight basis unless otherwise noted.

TestAmerica
ANALYTICAL TESTING CORPORATION

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: Howard R. Green Company Client #: _____
Address: 4685 Merle Hay Rd., Suite 106
City/State/Zip Code: Des Moines, IA 50322
Project Manager: Scott Mattes
Telephone Number: 515-278-2913 Fax: 515-278-1846
Sampler Name: (Print Name) Mike Goalen
Sampler Signature: [signature]
Email Address: smattes@hrgreen.com

Project Name: Council Bluffs South Main Brownfields Area
Project #: 728500J
Site/Location ID: Cluster 4 State: IA
Report To: Scott Mattes
Invoice To: Same
Quote #: _____ PO#: _____

TAT
X Standard
__ Rush (surcharges may apply)
Date Needed: 7/26/07
Fax Results: Y N
Email Results: (Y) N

Matrix: SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other

Preservation & # of Containers

Analyze For:

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other	HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify) $Na_2S_2O_3$	VOC (8260B)	PAH (8310)	RCRA Metals (6010B, 7471A, 6200)	BNAs/SVOCs (8270C)	Pesticides (8081)	TEH (Iowa OA-2)	Cyanide (9010)				REMARKS
CL#4-SB-04 0-2'	7/16/07	16:30	C	N	S					X	X	X	X	X	X								
CL#4-SB-01 0-2'	7/17/07	16:20	C	N	S						X		X		X	X	X	X					
CL#4-SB-02 0-2'	7/17/07	16:30	C	N	S						X		X		X	X	X	X					
CL#4-SB-03 0-2'	7/17/07	16:45	C	N	S						X		X		X	X	X	X					
CL#4-SB-05 0-2'	7/18/07	9:15	C	N	S					X	X	X	X	X	X								
CL#4-SB-06 0-2'	7/18/07	10:20	C	N	S					X	X	X	X	X	X			X	X				
CL#4-SB-06 2-3'	7/18/07	10:30	G	N	S					X	X	X	X	X	X			X	X				
Soil Duplicate #1	—	—	C	N	S						X				X	X	X	X					

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

Special Instructions: Please send spreadsheet of results.

Relinquished By: [signature]	Date: 7/18/07	Time: 13:15	Received By: Edna Mueller	Date: 7/19/07	Time: 9:15
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

LABORATORY COMMENTS:

TestAmerica
ANALYTICAL TESTING CORPORATION

704 ENTERPRISE DRIVE • CEDAR FALLS, IA 50613 • 800-750-2401 • 319-277-2425 FAX

Sample Receipt and Temperature Log Form

Client: Howard R Green Project: Council Bluffs

City: _____

Date: 7-19-07 Receiver's Initials: CH Time (Delivered): 9:15

Temperature Record:

Cooler ID# (If Applicable) 451

0.6 °C / On Ice

Thermometer:

- [x] IR - 905085 "A"
- [ ] IR - 809065 "B"
- [ ] IR - 61854108
- [ ] 22126775

Courier:

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

- [x] Temp Blank
- [ ] Temperature out of compliance

Custody seals present?
- [x] Yes

Custody seals intact?
- [x] Yes
- [ ] No

- [ ] Non-Conformance report started

Exceptions Noted

- [ ] Sample(s) not received in a cooler.
- [ ] Samples(s) received same day of sampling.
- [ ] Evidence of a chilling process
- [ ] Temperature not taken: _____

***Refer to SOP CF01-01 for Temperature Criteria**

C:\QA Folder\QA Forms & Log Book pgs\Cooler Receipt rev10.doc

TestAmerica
ANALYTICAL TESTING CORPORATION
704 Enterprise Drive Cedar Falls, IA 50613 * 800-750-2401 * Fax 319-277-2425

August 02, 2007

Client:
HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322

Attn: Scott Mattes

Work Order: CQG1135
Project Name: Council Bluffs Brownfields
Project Number: 728500J

Date Received: 07/23/07

An executed copy of the chain of custody is also included as an addendum to this report.

If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-(800)750-2401

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
CL#4-SB-08 0-2'	CQG1135-01	07/19/07 11:15
CL#4-SB-08 72-74'	CQG1135-02	07/19/07 16:15
CL#4-SB-07 0-2'	CQG1135-03	07/20/07 09:30
CL#4-SB-07 10-12'	CQG1135-04	07/20/07 09:45
Soil Duplciate #2	CQG1135-05	07/20/07
CL#4-MW-03	CQG1135-06	07/20/07 12:40
CL#4-MW-01	CQG1135-07	07/20/07 14:10
CL#4-MW-02	CQG1135-08	07/21/07 14:10
CL#4-MW-04	CQG1135-09	07/21/07 15:15
GW Field Duplicate	CQG1135-10	07/21/07
Equipment Rinsate Blank	CQG1135-11	07/21/07 18:30
Trip Blank	CQG1135-12	07/21/07

Samples were received into laboratory on ice.

NELAC states that samples which require thermal preservation shall be considered acceptable if the arrival temperature is within 2 degrees C of the required temperature or the method specified range. For samples with a temperature requirement of 4 degrees C, an arrival temperature from 0 degrees C to 6 degrees C meets specifications. Samples that are delivered to the laboratory on the same day that they are collected may not meet these criteria. In these cases, the samples are considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice.

Please refer to the Temperature and Sample Receipt form that is included with this report for additional information regarding the condition of samples at the time of receipt by the laboratory.

The reported results were obtained in compliance with the 2003 NELAC standards unless otherwise noted.
Iowa Certification Number: 007

Reproduction of this analytical report is permitted only in its entirety. This report shall not be reproduced except in full without the written approval of the laboratory.

TestAmerica Analytical Testing Corporation certifies that the analytical results contained herein apply only to the specific sample analyzed.

TestAmerica - Cedar Falls, IA
Angie Miller
Project Coordinator

HOWARD R. GREEN CO.- DES MOINES <	Work Order:	CQG1135	Received: 07/23/07
4685 Merle Hay Rd Ste. 106			Reported: 08/02/07 10:15
Des Moines, IA 50322	Project:	Council Bluffs Brownfields	
Scott Mattes	Project Number:	728500J	

Approved By:

Angela Miller

TestAmerica - Cedar Falls, IA
Angie Miller
Project Coordinator

TestAmerica
ANALYTICAL TESTING CORPORATION
704 Enterprise Drive Cedar Falls, IA 50613 * 800-750-2401 * Fax 319-277-2425

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-01 (CL#4-SB-08 0-2' - Soil) **Sampled: 07/19/07 11:15** **Recvd: 07/23/07 18:00**

Sampled By: Mike Goalen **Phone (515) 278-2913**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
General Chemistry Parameters										
% Solids	**87.8**		%		0.100	1	07/24/07 13:40	sas	7070956	SM 2540 G
Cyanide	**1.14**		mg/kg dry		1.14	0.979	07/31/07 11:44	leh	7071275	SW 9012
Total Metals by SW 846 Series Methods										
Arsenic	**18.9**		mg/kg dry		2.28	1.98	07/26/07 08:47	llw	7070996	SW 7060A
Barium	**222**	MHA	mg/kg dry		0.569	0.957	07/26/07 12:52	lbb	7070990	SW 6010B
Cadmium	**1.37**		mg/kg dry		1.14	0.957	07/26/07 12:53	lbb	7070990	SW 6010B
Chromium	**14.7**		mg/kg dry		1.14	0.957	07/26/07 12:53	lbb	7070990	SW 6010B
Lead	**131**		mg/kg dry		5.69	0.957	07/26/07 12:53	lbb	7070990	SW 6010B
Mercury	**0.246**		mg/kg dry		0.0228	0.931	07/26/07 13:08	llw	7071022	SW 7471A
Selenium	<8.54		mg/kg dry		8.54	0.957	07/26/07 12:53	lbb	7070990	SW 6010B
Silver	<1.14		mg/kg dry		1.14	0.957	07/26/07 12:53	lbb	7070990	SW 6010B
Volatile Organic Compounds										
Acetone	**0.114**	L1	mg/kg dry		0.0569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Acrylonitrile	<0.0569		mg/kg dry		0.0569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Benzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Bromobenzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Bromochloromethane	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Bromodichloromethane	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Bromoform	<0.0114		mg/kg dry		0.0114	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Bromomethane	<0.0228		mg/kg dry		0.0228	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
2-Butanone (MEK)	<0.0569		mg/kg dry		0.0569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
n-Butylbenzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
sec-Butylbenzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
tert-Butylbenzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Carbon disulfide	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Carbon Tetrachloride	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Chlorobenzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Chlorodibromomethane	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Chloroethane	<0.0228		mg/kg dry		0.0228	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Chloroform	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Chloromethane	<0.0228	L1	mg/kg dry		0.0228	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
2-Chlorotoluene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
4-Chlorotoluene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,2-Dibromo-3-chloropropane	<0.0569		mg/kg dry		0.0569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,2-Dibromoethane (EDB)	<0.0569		mg/kg dry		0.0569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Dibromomethane	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,2-Dichlorobenzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,3-Dichlorobenzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,4-Dichlorobenzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Dichlorodifluoromethane	<0.0171		mg/kg dry		0.0171	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,1-Dichloroethane	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,2-Dichloroethane	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,1-Dichloroethene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
cis-1,2-Dichloroethene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
trans-1,2-Dichloroethene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,2-Dichloropropane	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,3-Dichloropropane	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
2,2-Dichloropropane	<0.0228		mg/kg dry		0.0228	0.981	07/27/07 15:47	MMK	7071211	SW 8260B

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-01 (CL#4-SB-08 0-2' - Soil) - cont. **Sampled: 07/19/07 11:15** **Recvd: 07/23/07 18:00**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Volatile Organic Compounds - cont.										
1,1-Dichloropropene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
cis-1,3-Dichloropropene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
trans-1,3-Dichloropropene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Ethylbenzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Hexachlorobutadiene	<0.0285		mg/kg dry		0.0285	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Hexane	<0.0285	L1	mg/kg dry		0.0285	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Isopropylbenzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
p-Isopropyltoluene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Methylene Chloride	<0.0569	L1, S2	mg/kg dry		0.0569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Methyl tert-Butyl Ether	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Naphthalene	<0.0285		mg/kg dry		0.0285	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
n-Propylbenzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Styrene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,1,1,2-Tetrachloroethane	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,1,2,2-Tetrachloroethane	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Tetrachloroethene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Toluene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,2,3-Trichlorobenzene	<0.0285		mg/kg dry		0.0285	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,2,4-Trichlorobenzene	<0.0285		mg/kg dry		0.0285	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,1,1-Trichloroethane	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,1,2-Trichloroethane	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Trichloroethene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Trichlorofluoromethane	<0.0228	L1	mg/kg dry		0.0228	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,2,3-Trichloropropane	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,2,4-Trimethylbenzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
1,3,5-Trimethylbenzene	<0.00569		mg/kg dry		0.00569	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Vinyl chloride	<0.0171	L1	mg/kg dry		0.0171	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Xylenes, total	<0.0171		mg/kg dry		0.0171	0.981	07/27/07 15:47	MMK	7071211	SW 8260B
Surr: Dibromofluoromethane (75-125%)	*116 %*									
Surr: Toluene-d8 (65-130%)	*109 %*									
Surr: 4-Bromofluorobenzene (70-125%)	*94 %*									
PNA compounds by HPLC										
Acenaphthene	<0.478	RL1	mg/kg dry		0.478	9.94	07/28/07 11:32	eee	7070969	SW 8310
Acenaphthylene	<0.478	RL1	mg/kg dry		0.478	9.94	07/28/07 11:32	eee	7070969	SW 8310
Anthracene	<0.194	RL1	mg/kg dry		0.194	9.94	07/28/07 11:32	eee	7070969	SW 8310
Benzo (a) anthracene	**0.285**	RL1	mg/kg dry		0.194	9.94	07/28/07 11:32	eee	7070969	SW 8310
Benzo (b) fluoranthene	**0.456**	RL1	mg/kg dry		0.194	9.94	07/28/07 11:32	eee	7070969	SW 8310
Benzo (k) fluoranthene	**0.235**	RL1	mg/kg dry		0.194	9.94	07/28/07 11:32	eee	7070969	SW 8310
Benzo (a) pyrene	**0.484**	RL1	mg/kg dry		0.194	9.94	07/28/07 11:32	eee	7070969	SW 8310
Benzo (g,h,i) perylene	**0.322**	RL1	mg/kg dry		0.194	9.94	07/28/07 11:32	eee	7070969	SW 8310
Chrysene	**0.412**	RL1	mg/kg dry		0.194	9.94	07/28/07 11:32	eee	7070969	SW 8310
Dibenzo (a,h) anthracene	<0.194	RL1	mg/kg dry		0.194	9.94	07/28/07 11:32	eee	7070969	SW 8310
Fluoranthene	**2.43**	RL1	mg/kg dry		0.194	9.94	07/31/07 04:55	eee	7070969	SW 8310
Fluorene	<0.399	RL1	mg/kg dry		0.399	9.94	07/28/07 11:32	eee	7070969	SW 8310
Indeno (1,2,3-cd) pyrene	**0.341**	RL1	mg/kg dry		0.194	9.94	07/28/07 11:32	eee	7070969	SW 8310
1-Methylnaphthalene	<0.478	RL1	mg/kg dry		0.478	9.94	07/28/07 11:32	eee	7070969	SW 8310
2-Methylnaphthalene	<0.478	RL1	mg/kg dry		0.478	9.94	07/28/07 11:32	eee	7070969	SW 8310
Naphthalene	<0.194	RL1	mg/kg dry		0.194	9.94	07/28/07 11:32	eee	7070969	SW 8310
Phenanthrene	**0.317**	RL1	mg/kg dry		0.194	9.94	07/28/07 11:32	eee	7070969	SW 8310
Pyrene	**1.49**	RL1	mg/kg dry		0.478	9.94	07/28/07 11:32	eee	7070969	SW 8310

TestAmerica
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704 Enterprise Drive Cedar Falls, IA 50613 * 800-750-2401 * Fax 319-277-2425

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG1135-01 (CL#4-SB-08 0-2' - Soil) - cont.						**Sampled: 07/19/07 11:15**			**Recvd: 07/23/07 18:00**	
PNA compounds by HPLC - cont.										
Surr: 2-Fluorobiphenyl (20-115%)	*82 %*	*RL1*								
UST ANALYSIS PARAMETERS										
Total Extractable Hydrocarbons	**251**		mg/kg		10.0	1	07/27/07 19:59	fmk	[CALC]	OA-2 - 8015B
Diesel	**44.7**		mg/kg		10.0	0.97	07/27/07 19:59	fmk	7070938	OA-2
Gasoline	**11.9**		mg/kg		10.0	0.97	07/27/07 19:59	fmk	7070938	OA-2
Motor Oil	**195**		mg/kg		10.0	0.97	07/27/07 19:59	fmk	7070938	OA-2
Surr: Octacosane (55-120%)	*252 %*	*ZX*								

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-02 (CL#4-SB-08 72-74' - Soil) **Sampled: 07/19/07 16:15** **Recvd: 07/23/07 18:00**

Sampled By: Mike Goalen **Phone (515) 278-2913**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
General Chemistry Parameters										
% Solids	**85.7**		%		0.100	1	07/24/07 13:40	sas	7070956	SM 2540 G
Cyanide	<1.17		mg/kg dry		1.17	0.91	07/25/07 16:54	leh	7071059	SW 9012
Total Metals by SW 846 Series Methods										
Arsenic	**2.39**		mg/kg dry		1.17	0.956	07/26/07 08:50	llw	7070996	SW 7060A
Barium	**80.3**		mg/kg dry		0.583	0.926	07/26/07 13:13	lbb	7070990	SW 6010B
Cadmium	<1.17		mg/kg dry		1.17	0.926	07/26/07 13:13	lbb	7070990	SW 6010B
Chromium	**6.79**		mg/kg dry		1.17	0.926	07/26/07 13:13	lbb	7070990	SW 6010B
Lead	<5.83		mg/kg dry		5.83	0.926	07/26/07 13:13	lbb	7070990	SW 6010B
Mercury	<0.0233		mg/kg dry		0.0233	0.956	07/26/07 13:10	llw	7071022	SW 7471A
Selenium	<8.75		mg/kg dry		8.75	0.926	07/26/07 13:13	lbb	7070990	SW 6010B
Silver	<1.17		mg/kg dry		1.17	0.926	07/26/07 13:13	lbb	7070990	SW 6010B
Volatile Organic Compounds										
Acetone	<0.0391	L1	mg/kg dry		0.0391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Acrylonitrile	<0.0391		mg/kg dry		0.0391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Benzene	<0.952		mg/kg dry		0.952	163	07/30/07 14:05	MMK	7071257	SW 8260B
Bromobenzene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Bromochloromethane	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Bromodichloromethane	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Bromoform	<0.00782		mg/kg dry		0.00782	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Bromomethane	<0.0156		mg/kg dry		0.0156	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
2-Butanone (MEK)	<0.0391		mg/kg dry		0.0391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
n-Butylbenzene	**0.101**		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
sec-Butylbenzene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
tert-Butylbenzene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Carbon disulfide	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Carbon Tetrachloride	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Chlorobenzene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Chlorodibromomethane	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Chloroethane	<0.0156		mg/kg dry		0.0156	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Chloroform	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Chloromethane	<0.0156	L1	mg/kg dry		0.0156	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
2-Chlorotoluene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
4-Chlorotoluene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,2-Dibromo-3-chloropropane	<0.0391		mg/kg dry		0.0391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,2-Dibromoethane (EDB)	<0.0391		mg/kg dry		0.0391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Dibromomethane	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,2-Dichlorobenzene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,3-Dichlorobenzene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,4-Dichlorobenzene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Dichlorodifluoromethane	<0.0117		mg/kg dry		0.0117	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,1-Dichloroethane	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,2-Dichloroethane	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,1-Dichloroethene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
cis-1,2-Dichloroethene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
trans-1,2-Dichloroethene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,2-Dichloropropane	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,3-Dichloropropane	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
2,2-Dichloropropane	<0.0156		mg/kg dry		0.0156	0.67	07/27/07 16:19	MMK	7071211	SW 8260B

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-02 (CL#4-SB-08 72-74' - Soil) - cont. **Sampled: 07/19/07 16:15** **Recvd: 07/23/07 18:00**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Volatile Organic Compounds - cont.										
1,1-Dichloropropene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
cis-1,3-Dichloropropene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
trans-1,3-Dichloropropene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Ethylbenzene	<0.952		mg/kg dry		0.952	163	07/30/07 14:05	MMK	7071257	SW 8260B
Hexachlorobutadiene	<0.0196		mg/kg dry		0.0196	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Hexane	<0.0196	L1	mg/kg dry		0.0196	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Isopropylbenzene	**0.0284**		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
p-Isopropyltoluene	**0.00573**		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Methylene Chloride	<0.0391	L1, S2	mg/kg dry		0.0391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Methyl tert-Butyl Ether	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Naphthalene	<4.76		mg/kg dry		4.76	163	07/30/07 14:05	MMK	7071257	SW 8260B
n-Propylbenzene	**0.0106**		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Styrene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,1,1,2-Tetrachloroethane	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,1,2,2-Tetrachloroethane	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Tetrachloroethene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Toluene	**0.00526**		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,2,3-Trichlorobenzene	<0.0196		mg/kg dry		0.0196	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,2,4-Trichlorobenzene	<0.0196		mg/kg dry		0.0196	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,1,1-Trichloroethane	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,1,2-Trichloroethane	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Trichloroethene	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Trichlorofluoromethane	<0.0156	L1	mg/kg dry		0.0156	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,2,3-Trichloropropane	<0.00391		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,2,4-Trimethylbenzene	**0.0891**		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
1,3,5-Trimethylbenzene	**0.0967**		mg/kg dry		0.00391	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Vinyl chloride	<0.0117	L1	mg/kg dry		0.0117	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Xylenes, total	**0.410**		mg/kg dry		0.0117	0.67	07/27/07 16:19	MMK	7071211	SW 8260B
Surr: Dibromofluoromethane (75-125%)	*113 %*									
Surr: Toluene-d8 (65-130%)	*105 %*									
Surr: 4-Bromofluorobenzene (70-125%)	*119 %*									
PNA compounds by HPLC										
Acenaphthene	**0.268**		mg/kg dry		0.0490	0.994	07/28/07 12:00	eee	7070969	SW 8310
Acenaphthylene	<0.0490		mg/kg dry		0.0490	0.994	07/28/07 12:00	eee	7070969	SW 8310
Anthracene	<0.0198		mg/kg dry		0.0198	0.994	07/28/07 12:00	eee	7070969	SW 8310
Benzo (a) anthracene	<0.0198		mg/kg dry		0.0198	0.994	07/28/07 12:00	eee	7070969	SW 8310
Benzo (b) fluoranthene	<0.0198		mg/kg dry		0.0198	0.994	07/28/07 12:00	eee	7070969	SW 8310
Benzo (k) fluoranthene	<0.0198		mg/kg dry		0.0198	0.994	07/28/07 12:00	eee	7070969	SW 8310
Benzo (a) pyrene	<0.0198		mg/kg dry		0.0198	0.994	07/28/07 12:00	eee	7070969	SW 8310
Benzo (g,h,i) perylene	<0.0198		mg/kg dry		0.0198	0.994	07/28/07 12:00	eee	7070969	SW 8310
Chrysene	<0.0198		mg/kg dry		0.0198	0.994	07/28/07 12:00	eee	7070969	SW 8310
Dibenzo (a,h) anthracene	<0.0198		mg/kg dry		0.0198	0.994	07/28/07 12:00	eee	7070969	SW 8310
Fluoranthene	<0.0198		mg/kg dry		0.0198	0.994	07/28/07 12:00	eee	7070969	SW 8310
Fluorene	<0.0408		mg/kg dry		0.0408	0.994	07/28/07 12:00	eee	7070969	SW 8310
Indeno (1,2,3-cd) pyrene	<0.0198		mg/kg dry		0.0198	0.994	07/28/07 12:00	eee	7070969	SW 8310
1-Methylnaphthalene	**0.387**		mg/kg dry		0.0490	0.994	07/28/07 12:00	eee	7070969	SW 8310
2-Methylnaphthalene	**0.625**		mg/kg dry		0.0490	0.994	07/28/07 12:00	eee	7070969	SW 8310
Naphthalene	**4.39**		mg/kg dry		0.198	9.94	07/31/07 05:23	eee	7070969	SW 8310
Phenanthrene	<0.0198		mg/kg dry		0.0198	0.994	07/28/07 12:00	eee	7070969	SW 8310
Pyrene	<0.0490		mg/kg dry		0.0490	0.994	07/28/07 12:00	eee	7070969	SW 8310

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG1135-02 (CL#4-SB-08 72-74' - Soil) - cont.						**Sampled: 07/19/07 16:15**			**Recvd: 07/23/07 18:00**	
PNA compounds by HPLC - cont.										
Surr: 2-Fluorobiphenyl (20-115%)	*80 %*									
UST ANALYSIS PARAMETERS										
Total Extractable Hydrocarbons	**42.9**		mg/kg		10.0	1	07/27/07 20:55	fmk	[CALC]	OA-2 - 8015B
Diesel	<10.0		mg/kg		10.0	0.977	07/27/07 20:55	fmk	7070938	OA-2
Gasoline	**26.6**		mg/kg		10.0	0.977	07/27/07 20:55	fmk	7070938	OA-2
Motor Oil	**16.3**		mg/kg		10.0	0.977	07/27/07 20:55	fmk	7070938	OA-2
Surr: Octacosane (55-120%)	*95 %*									

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Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-03 (CL#4-SB-07 0-2' - Soil) **Sampled: 07/20/07 09:30** **Recvd: 07/23/07 18:00**

Sampled By: Mike Goalen **Phone (515) 278-2913**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
General Chemistry Parameters										
% Solids	**80.0**		%		0.100	1	07/24/07 13:40	sas	7070956	SM 2540 G
Cyanide	<1.25		mg/kg dry		1.25	0.983	07/25/07 16:55	leh	7071059	SW 9012
Total Metals by SW 846 Series Methods										
Arsenic	**5.86**		mg/kg dry		1.25	0.967	07/26/07 08:53	llw	7070996	SW 7060A
Barium	**220**		mg/kg dry		0.625	0.972	07/26/07 13:32	lbb	7070990	SW 6010B
Cadmium	<1.25		mg/kg dry		1.25	0.972	07/26/07 13:33	lbb	7070990	SW 6010B
Chromium	**17.6**		mg/kg dry		1.25	0.972	07/26/07 13:33	lbb	7070990	SW 6010B
Lead	**13.3**		mg/kg dry		6.25	0.972	07/26/07 13:33	lbb	7070990	SW 6010B
Mercury	**0.0596**		mg/kg dry		0.0250	0.962	07/26/07 13:12	llw	7071022	SW 7471A
Selenium	<9.38		mg/kg dry		9.38	0.972	07/26/07 13:33	lbb	7070990	SW 6010B
Silver	<1.25		mg/kg dry		1.25	0.972	07/26/07 13:32	lbb	7070990	SW 6010B
Volatile Organic Compounds										
Acetone	**0.0598**	L1	mg/kg dry		0.0540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Acrylonitrile	<0.0540		mg/kg dry		0.0540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Benzene	**0.0490**		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Bromobenzene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Bromochloromethane	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Bromodichloromethane	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Bromoform	<0.0108		mg/kg dry		0.0108	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Bromomethane	<0.0216		mg/kg dry		0.0216	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
2-Butanone (MEK)	<0.0540		mg/kg dry		0.0540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
n-Butylbenzene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
sec-Butylbenzene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
tert-Butylbenzene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Carbon disulfide	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Carbon Tetrachloride	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Chlorobenzene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Chlorodibromomethane	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Chloroethane	<0.0216		mg/kg dry		0.0216	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Chloroform	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Chloromethane	<0.0216	L1	mg/kg dry		0.0216	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
2-Chlorotoluene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
4-Chlorotoluene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,2-Dibromo-3-chloropropane	<0.0540		mg/kg dry		0.0540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,2-Dibromoethane (EDB)	<0.0540		mg/kg dry		0.0540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Dibromomethane	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,2-Dichlorobenzene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,3-Dichlorobenzene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,4-Dichlorobenzene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Dichlorodifluoromethane	<0.0162		mg/kg dry		0.0162	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,1-Dichloroethane	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,2-Dichloroethane	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,1-Dichloroethene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
cis-1,2-Dichloroethene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
trans-1,2-Dichloroethene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,2-Dichloropropane	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,3-Dichloropropane	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
2,2-Dichloropropane	<0.0216		mg/kg dry		0.0216	0.864	07/27/07 16:50	MMK	7071211	SW 8260B

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Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-03 (CL#4-SB-07 0-2' - Soil) - cont. **Sampled: 07/20/07 09:30** **Recvd: 07/23/07 18:00**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Volatile Organic Compounds - cont.										
1,1-Dichloropropene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
cis-1,3-Dichloropropene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
trans-1,3-Dichloropropene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Ethylbenzene	**0.0431**		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Hexachlorobutadiene	<0.0270		mg/kg dry		0.0270	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Hexane	**0.0396**	L1	mg/kg dry		0.0270	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Isopropylbenzene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
p-Isopropyltoluene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Methylene Chloride	<0.0540	L1, S2	mg/kg dry		0.0540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Methyl tert-Butyl Ether	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Naphthalene	**0.0387**		mg/kg dry		0.0270	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
n-Propylbenzene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Styrene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,1,1,2-Tetrachloroethane	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,1,2,2-Tetrachloroethane	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Tetrachloroethene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Toluene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,2,3-Trichlorobenzene	<0.0270		mg/kg dry		0.0270	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,2,4-Trichlorobenzene	<0.0270		mg/kg dry		0.0270	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,1,1-Trichloroethane	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,1,2-Trichloroethane	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Trichloroethene	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Trichlorofluoromethane	<0.0216	L1	mg/kg dry		0.0216	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,2,3-Trichloropropane	<0.00540		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,2,4-Trimethylbenzene	**0.0339**		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
1,3,5-Trimethylbenzene	**0.0140**		mg/kg dry		0.00540	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Vinyl chloride	<0.0162	L1	mg/kg dry		0.0162	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Xylenes, total	**0.0964**		mg/kg dry		0.0162	0.864	07/27/07 16:50	MMK	7071211	SW 8260B
Surr: Dibromofluoromethane (75-125%)	*112 %*									
Surr: Toluene-d8 (65-130%)	*102 %*									
Surr: 4-Bromofluorobenzene (70-125%)	*111 %*									
PNA compounds by HPLC										
Acenaphthene	<1.29	RL1	mg/kg dry		1.29	24.5	07/28/07 12:28	eee	7070969	SW 8310
Acenaphthylene	<1.29	RL1	mg/kg dry		1.29	24.5	07/28/07 12:28	eee	7070969	SW 8310
Anthracene	**2.05**	RL1	mg/kg dry		0.521	24.5	07/28/07 12:28	eee	7070969	SW 8310
Benzo (a) anthracene	**3.68**	RL1	mg/kg dry		0.521	24.5	07/28/07 12:28	eee	7070969	SW 8310
Benzo (b) fluoranthene	**8.62**	RL1	mg/kg dry		0.521	24.5	07/28/07 12:28	eee	7070969	SW 8310
Benzo (k) fluoranthene	**3.32**	RL1	mg/kg dry		0.521	24.5	07/28/07 12:28	eee	7070969	SW 8310
Benzo (a) pyrene	**6.92**	RL1	mg/kg dry		2.60	122	07/31/07 05:51	eee	7070969	SW 8310
Benzo (g,h,i) perylene	**5.82**	RL1	mg/kg dry		0.521	24.5	07/28/07 12:28	eee	7070969	SW 8310
Chrysene	**4.55**	RL1	mg/kg dry		0.521	24.5	07/28/07 12:28	eee	7070969	SW 8310
Dibenzo (a,h) anthracene	**1.49**	RL1	mg/kg dry		0.521	24.5	07/28/07 12:28	eee	7070969	SW 8310
Fluoranthene	**2.14**	RL1	mg/kg dry		0.521	24.5	07/28/07 12:28	eee	7070969	SW 8310
Fluorene	**1.83**	RL1	mg/kg dry		1.07	24.5	07/28/07 12:28	eee	7070969	SW 8310
Indeno (1,2,3-cd) pyrene	**3.64**	RL1	mg/kg dry		2.60	122	07/31/07 05:51	eee	7070969	SW 8310
1-Methylnaphthalene	<1.29	RL1	mg/kg dry		1.29	24.5	07/28/07 12:28	eee	7070969	SW 8310
2-Methylnaphthalene	<1.29	RL1	mg/kg dry		1.29	24.5	07/28/07 12:28	eee	7070969	SW 8310
Naphthalene	<0.521	RL1	mg/kg dry		0.521	24.5	07/28/07 12:28	eee	7070969	SW 8310
Phenanthrene	**0.772**	RL1	mg/kg dry		0.521	24.5	07/28/07 12:28	eee	7070969	SW 8310
Pyrene	<6.43	RL1	mg/kg dry		6.43	122	07/31/07 05:51	eee	7070969	SW 8310

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Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG1135-03 (CL#4-SB-07 0-2' - Soil) - cont.						**Sampled: 07/20/07 09:30**			**Recvd: 07/23/07 18:00**	
PNA compounds by HPLC - cont.										
Surr: 2-Fluorobiphenyl (20-115%)	*306 %*	*RL1, ZX*								
UST ANALYSIS PARAMETERS										
Total Extractable Hydrocarbons	**2680**		mg/kg		30.0	3	07/30/07 19:55	fmk	[CALC]	OA-2 - 8015B
Diesel	**869**		mg/kg		10.0	0.981	07/27/07 21:49	fmk	7070938	OA-2
Gasoline	**134**		mg/kg		10.0	0.981	07/27/07 21:49	fmk	7070938	OA-2
Motor Oil	**1680**		mg/kg		30.0	2.94	07/30/07 19:55	fmk	7070938	OA-2
Surr: Octacosane (55-120%)	*1210 %*	*ZX*								

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Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-04 (CL#4-SB-07 10-12' - Soil) **Sampled: 07/20/07 09:45** **Recvd: 07/23/07 18:00**

Sampled By: Mike Goalen **Phone (515) 278-2913**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
General Chemistry Parameters										
% Solids	**72.6**		%		0.100	1	07/24/07 13:40	sas	7070956	SM 2540 G
Cyanide	<1.38		mg/kg dry		1.38	0.971	07/25/07 16:56	leh	7071059	SW 9012
Total Metals by SW 846 Series Methods										
Arsenic	**6.63**		mg/kg dry		1.38	0.988	07/26/07 08:56	llw	7070996	SW 7060A
Barium	**255**		mg/kg dry		0.689	0.941	07/26/07 13:37	lbb	7070990	SW 6010B
Cadmium	<1.38		mg/kg dry		1.38	0.941	07/26/07 13:38	lbb	7070990	SW 6010B
Chromium	**26.3**		mg/kg dry		1.38	0.941	07/26/07 13:38	lbb	7070990	SW 6010B
Lead	**15.2**		mg/kg dry		6.89	0.941	07/26/07 13:38	lbb	7070990	SW 6010B
Mercury	**0.0765**	M1	mg/kg dry		0.0275	0.91	07/26/07 13:13	llw	7071022	SW 7471A
Selenium	<10.3		mg/kg dry		10.3	0.941	07/26/07 13:38	lbb	7070990	SW 6010B
Silver	<1.38		mg/kg dry		1.38	0.941	07/26/07 13:37	lbb	7070990	SW 6010B
Volatile Organic Compounds										
Acetone	<0.0486	L1	mg/kg dry		0.0486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Acrylonitrile	<0.0486		mg/kg dry		0.0486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Benzene	**4.56**		mg/kg dry		1.21	176	07/30/07 14:36	MMK	7071257	SW 8260B
Bromobenzene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Bromochloromethane	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Bromodichloromethane	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Bromoform	<0.00972		mg/kg dry		0.00972	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Bromomethane	<0.0194		mg/kg dry		0.0194	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
2-Butanone (MEK)	<0.0486		mg/kg dry		0.0486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
n-Butylbenzene	**0.152**		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
sec-Butylbenzene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
tert-Butylbenzene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Carbon disulfide	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Carbon Tetrachloride	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Chlorobenzene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Chlorodibromomethane	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Chloroethane	<0.0194		mg/kg dry		0.0194	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Chloroform	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Chloromethane	<0.0194	L1	mg/kg dry		0.0194	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
2-Chlorotoluene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
4-Chlorotoluene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,2-Dibromo-3-chloropropane	<0.0486		mg/kg dry		0.0486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,2-Dibromoethane (EDB)	<0.0486		mg/kg dry		0.0486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Dibromomethane	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,2-Dichlorobenzene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,3-Dichlorobenzene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,4-Dichlorobenzene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Dichlorodifluoromethane	<0.0146		mg/kg dry		0.0146	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,1-Dichloroethane	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,2-Dichloroethane	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,1-Dichloroethene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
cis-1,2-Dichloroethene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
trans-1,2-Dichloroethene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,2-Dichloropropane	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,3-Dichloropropane	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
2,2-Dichloropropane	<0.0194		mg/kg dry		0.0194	0.706	07/27/07 17:22	MMK	7071211	SW 8260B

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-04 (CL#4-SB-07 10-12' - Soil) - cont. **Sampled: 07/20/07 09:45** **Recvd: 07/23/07 18:00**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Volatile Organic Compounds - cont.										
1,1-Dichloropropene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
cis-1,3-Dichloropropene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
trans-1,3-Dichloropropene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Ethylbenzene	**49.9**		mg/kg dry		1.21	176	07/30/07 14:36	MMK	7071257	SW 8260B
Hexachlorobutadiene	<0.0243		mg/kg dry		0.0243	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Hexane	**0.0601**	L1	mg/kg dry		0.0243	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Isopropylbenzene	**5.33**		mg/kg dry		1.21	176	07/30/07 14:36	MMK	7071257	SW 8260B
p-Isopropyltoluene	**0.147**		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Methylene Chloride	<0.0486	L1, S2	mg/kg dry		0.0486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Methyl tert-Butyl Ether	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Naphthalene	**243**		mg/kg dry		26.6	774	08/01/07 14:49	MMK	7080072	SW 8260B
n-Propylbenzene	**0.244**		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Styrene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,1,1,2-Tetrachloroethane	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,1,2,2-Tetrachloroethane	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Tetrachloroethene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Toluene	**2.95**		mg/kg dry		1.21	176	07/30/07 14:36	MMK	7071257	SW 8260B
1,2,3-Trichlorobenzene	<0.0243		mg/kg dry		0.0243	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,2,4-Trichlorobenzene	<0.0243		mg/kg dry		0.0243	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,1,1-Trichloroethane	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,1,2-Trichloroethane	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Trichloroethene	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Trichlorofluoromethane	<0.0194	L1	mg/kg dry		0.0194	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,2,3-Trichloropropane	<0.00486		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
1,2,4-Trimethylbenzene	**20.7**		mg/kg dry		1.21	176	07/30/07 14:36	MMK	7071257	SW 8260B
1,3,5-Trimethylbenzene	**0.380**		mg/kg dry		0.00486	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Vinyl chloride	<0.0146	L1	mg/kg dry		0.0146	0.706	07/27/07 17:22	MMK	7071211	SW 8260B
Xylenes, total	**69.6**		mg/kg dry		3.64	176	07/30/07 14:36	MMK	7071257	SW 8260B
Surr: Dibromofluoromethane (75-125%)	*101 %*									
Surr: Toluene-d8 (65-130%)	*97 %*									
Surr: 4-Bromofluorobenzene (70-125%)	*91 %*									
PNA compounds by HPLC										
Acenaphthene	**32.3**	RL1	mg/kg dry		2.89	49.8	07/31/07 06:19	eee	7070969	SW 8310
Acenaphthylene	**4.00**	RL1	mg/kg dry		0.579	9.97	07/28/07 12:56	eee	7070969	SW 8310
Anthracene	**16.2**	RL1	mg/kg dry		2.34	99.7	07/31/07 06:48	eee	7070969	SW 8310
Benzo (a) anthracene	**5.72**	RL1	mg/kg dry		1.17	49.8	07/31/07 06:19	eee	7070969	SW 8310
Benzo (b) fluoranthene	**3.31**	RL1	mg/kg dry		0.234	9.97	07/28/07 12:56	eee	7070969	SW 8310
Benzo (k) fluoranthene	**1.53**	RL1	mg/kg dry		0.234	9.97	07/28/07 12:56	eee	7070969	SW 8310
Benzo (a) pyrene	**4.78**	RL1	mg/kg dry		1.17	49.8	07/31/07 06:19	eee	7070969	SW 8310
Benzo (g,h,i) perylene	**1.45**	RL1	mg/kg dry		0.234	9.97	07/28/07 12:56	eee	7070969	SW 8310
Chrysene	**7.00**	RL1	mg/kg dry		1.17	49.8	07/31/07 06:19	eee	7070969	SW 8310
Dibenzo (a,h) anthracene	**0.315**	RL1	mg/kg dry		0.234	9.97	07/28/07 12:56	eee	7070969	SW 8310
Fluoranthene	**18.3**	RL1	mg/kg dry		1.17	49.8	07/31/07 06:19	eee	7070969	SW 8310
Fluorene	**31.9**	RL1	mg/kg dry		4.82	99.7	07/31/07 06:48	eee	7070969	SW 8310
Indeno (1,2,3-cd) pyrene	**1.75**	RL1	mg/kg dry		0.234	9.97	07/28/07 12:56	eee	7070969	SW 8310
1-Methylnaphthalene	**63.7**	RL1	mg/kg dry		5.79	99.7	07/31/07 06:48	eee	7070969	SW 8310
2-Methylnaphthalene	**88.2**		mg/kg dry		28.9	498	07/31/07 08:12	eee	7070969	SW 8310
Naphthalene	**117**		mg/kg dry		11.7	498	07/31/07 08:12	eee	7070969	SW 8310
Phenanthrene	**46.1**		mg/kg dry		11.7	498	07/31/07 08:12	eee	7070969	SW 8310
Pyrene	**94.8**		mg/kg dry		28.9	498	07/31/07 08:12	eee	7070969	SW 8310

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4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG1135-04 (CL#4-SB-07 10-12' - Soil) - cont.						**Sampled: 07/20/07 09:45**			**Recvd: 07/23/07 18:00**	
PNA compounds by HPLC - cont.										
Surr: 2-Fluorobiphenyl (20-115%)	*123 %*	*RL1, ZX*								
UST ANALYSIS PARAMETERS										
Total Extractable Hydrocarbons	**4600**		mg/kg		40.0	4	07/30/07 20:51	fmk	[CALC]	OA-2 - 8015B
Diesel	**1050**		mg/kg		40.0	3.92	07/30/07 20:51	fmk	7070938	OA-2
Gasoline	**2810**		mg/kg		10.0	0.98	07/27/07 22:44	fmk	7070938	OA-2
Motor Oil	**750**		mg/kg		10.0	0.98	07/27/07 22:44	fmk	7070938	OA-2
Surr: Octacosane (55-120%)	*479 %*	*ZX*								

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Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-05 (Soil Duplciate #2 - Soil) **Sampled: 07/20/07** **Recvd: 07/23/07 18:00**

Sampled By: **Mike Goalen** **Phone** **(515) 278-2913**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
General Chemistry Parameters										
% Solids	**87.9**		%		0.100	1	07/24/07 13:40	sas	7070956	SM 2540 G
Cyanide	<1.14	M1	mg/kg dry		1.14	0.951	07/25/07 16:51	leh	7071059	SW 9012
PNA compounds by HPLC										
Acenaphthene	<0.478		mg/kg dry		0.478	9.93	07/28/07 13:24	eee	7070969	SW 8310
Acenaphthylene	<0.478		mg/kg dry		0.478	9.93	07/28/07 13:24	eee	7070969	SW 8310
Anthracene	<0.193		mg/kg dry		0.193	9.93	07/28/07 13:24	eee	7070969	SW 8310
Benzo (a) anthracene	**0.847**		mg/kg dry		0.193	9.93	07/28/07 13:24	eee	7070969	SW 8310
Benzo (b) fluoranthene	**1.72**		mg/kg dry		0.193	9.93	07/28/07 13:24	eee	7070969	SW 8310
Benzo (k) fluoranthene	**0.927**		mg/kg dry		0.193	9.93	07/28/07 13:24	eee	7070969	SW 8310
Benzo (a) pyrene	**1.43**		mg/kg dry		0.193	9.93	07/28/07 13:24	eee	7070969	SW 8310
Benzo (g,h,i) perylene	**2.27**		mg/kg dry		0.193	9.93	07/28/07 13:24	eee	7070969	SW 8310
Chrysene	**1.57**		mg/kg dry		0.193	9.93	07/28/07 13:24	eee	7070969	SW 8310
Dibenzo (a,h) anthracene	**0.235**		mg/kg dry		0.193	9.93	07/28/07 13:24	eee	7070969	SW 8310
Fluoranthene	**3.20**	RL1	mg/kg dry		0.193	9.93	07/31/07 09:08	eee	7070969	SW 8310
Fluorene	<0.398		mg/kg dry		0.398	9.93	07/28/07 13:24	eee	7070969	SW 8310
Indeno (1,2,3-cd) pyrene	**1.64**		mg/kg dry		0.193	9.93	07/28/07 13:24	eee	7070969	SW 8310
1-Methylnaphthalene	<0.478		mg/kg dry		0.478	9.93	07/28/07 13:24	eee	7070969	SW 8310
2-Methylnaphthalene	<0.478		mg/kg dry		0.478	9.93	07/28/07 13:24	eee	7070969	SW 8310
Naphthalene	<0.193		mg/kg dry		0.193	9.93	07/28/07 13:24	eee	7070969	SW 8310
Phenanthrene	**0.631**		mg/kg dry		0.193	9.93	07/28/07 13:24	eee	7070969	SW 8310
Pyrene	**2.76**	RL1	mg/kg dry		0.956	19.9	07/31/07 09:36	eee	7070969	SW 8310
Surr: 2-Fluorobiphenyl (20-115%)	*105 %*	*RL1*								

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Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-06 (CL#4-MW-03 - Ground Water) **Sampled: 07/20/07 12:40** **Recvd: 07/23/07 18:00**

Sampled By: Mike Goalen **Phone (515) 278-2913**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
General Chemistry Parameters										
Cyanide	**0.0460**		mg/L		0.0100	1	07/25/07 16:40	leh	7071056	SW 9012 Mod.
General Chemistry Parameters - Dissolved										
Total Dissolved Solids	**1260**		mg/L		20.0	1	07/24/07 15:42	sas	7071116	SM 2540C/97
Total Metals by SW 846 Series Methods										
Arsenic	<0.00100		mg/L		0.00100	1	07/26/07 12:51	llw	7070993	SW 7060A
Barium	**0.136**		mg/L		0.0100	1	07/25/07 18:29	lbb	7070991	SW 6010B
Cadmium	<0.000500		mg/L		0.000500	1	07/26/07 17:15	DJS	7070993	SW 7131A
Chromium	<0.0200		mg/L		0.0200	1	07/25/07 18:29	lbb	7070991	SW 6010B
Lead	<0.00400		mg/L		0.00400	1	07/26/07 11:54	llw	7070993	SW 7421
Mercury	<0.000200		mg/L		0.000200	1	07/27/07 12:06	llw	7071099	SW 7470A
Selenium	<0.00500		mg/L		0.00500	1	07/26/07 08:57	llw	7070993	SW 7740
Silver	<0.0200		mg/L		0.0200	1	07/25/07 18:29	lbb	7070991	SW 6010B
Dissolved Metals by SW 846 Series Methods										
Arsenic	<0.00100		mg/L		0.00100	1	07/26/07 14:19	llw	7070994	SW 7060A
Barium	**0.126**		mg/L		0.0100	1	07/25/07 22:03	lbb	7070992	SW 6010B
Cadmium	<0.000500		mg/L		0.000500	1	07/26/07 18:24	DJS	7070994	SW 7131A
Chromium	<0.0200		mg/L		0.0200	1	07/25/07 22:03	lbb	7070992	SW 6010B
Lead	<0.00400		mg/L		0.00400	1	07/26/07 13:10	llw	7070994	SW 7421
Mercury	<0.000200		mg/L		0.000200	1	07/27/07 11:37	llw	7071098	SW 7470A
Selenium	<0.00500		mg/L		0.00500	1	07/26/07 10:02	llw	7070994	SW 7740
Silver	<0.0200		mg/L		0.0200	1	07/25/07 22:03	lbb	7070992	SW 6010B
Volatile Organic Compounds										
Acetone	**0.00690**	J	mg/L	0.00462	0.0100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Acrylonitrile	<0.00128		mg/L	0.00128	0.0100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Benzene	<0.000160		mg/L	0.000160	0.000500	1	07/27/07 06:02	DMD	7071214	SW 8260B
Bromobenzene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Bromochloromethane	<0.000310		mg/L	0.000310	0.00500	1	07/27/07 06:02	DMD	7071214	SW 8260B
Bromodichloromethane	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Bromoform	<0.000150		mg/L	0.000150	0.00500	1	07/27/07 06:02	DMD	7071214	SW 8260B
Bromomethane	<0.000480		mg/L	0.000480	0.00400	1	07/27/07 06:02	DMD	7071214	SW 8260B
2-Butanone (MEK)	<0.000910		mg/L	0.000910	0.0100	1	07/27/07 06:02	DMD	7071214	SW 8260B
n-Butylbenzene	<0.0000900		mg/L	0.0000900	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
sec-Butylbenzene	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
tert-Butylbenzene	<0.000140		mg/L	0.000140	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Carbon disulfide	<0.000140	C	mg/L	0.000140	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Carbon Tetrachloride	<0.000130		mg/L	0.000130	0.00200	1	07/27/07 06:02	DMD	7071214	SW 8260B
Chlorobenzene	<0.0000800		mg/L	0.0000800	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Chlorodibromomethane	<0.000250		mg/L	0.000250	0.00500	1	07/27/07 06:02	DMD	7071214	SW 8260B
Chloroethane	<0.000500		mg/L	0.000500	0.00400	1	07/27/07 06:02	DMD	7071214	SW 8260B
Chloroform	<0.0000800		mg/L	0.0000800	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Chloromethane	<0.000200		mg/L	0.000200	0.00300	1	07/27/07 06:02	DMD	7071214	SW 8260B
2-Chlorotoluene	<0.000200		mg/L	0.000200	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
4-Chlorotoluene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,2-Dibromo-3-chloropropane	<0.000750		mg/L	0.000750	0.0100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,2-Dibromoethane (EDB)	<0.000130		mg/L	0.000130	0.0100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Dibromomethane	<0.000220		mg/L	0.000220	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B

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Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-06 (CL#4-MW-03 - Ground Water) - cont. **Sampled: 07/20/07 12:40** **Recvd: 07/23/07 18:00**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Volatile Organic Compounds - cont.										
1,2-Dichlorobenzene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,3-Dichlorobenzene	<0.000130		mg/L	0.000130	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,4-Dichlorobenzene	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Dichlorodifluoromethane	<0.000170		mg/L	0.000170	0.00300	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,1-Dichloroethane	<0.000090 0	C	mg/L	0.0000900	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,2-Dichloroethane	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,1-Dichloroethene	<0.000190		mg/L	0.000190	0.00200	1	07/27/07 06:02	DMD	7071214	SW 8260B
cis-1,2-Dichloroethene	<0.000200		mg/L	0.000200	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
trans-1,2-Dichloroethene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,2-Dichloropropane	<0.000400		mg/L	0.000400	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,3-Dichloropropane	<0.000190		mg/L	0.000190	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
2,2-Dichloropropane	<0.000240	CIN	mg/L	0.000240	0.00400	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,1-Dichloropropene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
cis-1,3-Dichloropropene	<0.000160		mg/L	0.000160	0.00500	1	07/27/07 06:02	DMD	7071214	SW 8260B
trans-1,3-Dichloropropene	<0.000160		mg/L	0.000160	0.00500	1	07/27/07 06:02	DMD	7071214	SW 8260B
Ethylbenzene	<0.000180		mg/L	0.000180	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Hexachlorobutadiene	<0.000390		mg/L	0.000390	0.00500	1	07/27/07 06:02	DMD	7071214	SW 8260B
Hexane	<0.000440		mg/L	0.000440	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Isopropylbenzene	<0.000190		mg/L	0.000190	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
p-Isopropyltoluene	<0.000130		mg/L	0.000130	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Methylene Chloride	<0.000450		mg/L	0.000450	0.00500	1	07/27/07 06:02	DMD	7071214	SW 8260B
Methyl tert-Butyl Ether	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Naphthalene	<0.000350		mg/L	0.000350	0.00500	1	07/27/07 06:02	DMD	7071214	SW 8260B
n-Propylbenzene	<0.000140		mg/L	0.000140	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Styrene	<0.000100		mg/L	0.000100	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,1,1,2-Tetrachloroethane	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,1,2,2-Tetrachloroethane	<0.000230		mg/L	0.000230	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Tetrachloroethene	<0.000240		mg/L	0.000240	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Toluene	**0.000130**	J	mg/L	0.000100	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,2,3-Trichlorobenzene	<0.00215		mg/L	0.00215	0.00500	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,2,4-Trichlorobenzene	<0.000490		mg/L	0.000490	0.00500	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,1,1-Trichloroethane	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,1,2-Trichloroethane	<0.000300		mg/L	0.000300	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Trichloroethene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Trichlorofluoromethane	<0.000150		mg/L	0.000150	0.00400	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,2,3-Trichloropropane	<0.000180		mg/L	0.000180	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,2,4-Trimethylbenzene	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
1,3,5-Trimethylbenzene	<0.000140		mg/L	0.000140	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Vinyl chloride	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 06:02	DMD	7071214	SW 8260B
Xylenes, total	<0.000170		mg/L	0.000170	0.00300	1	07/27/07 06:02	DMD	7071214	SW 8260B
Surr: Dibromofluoromethane (80-120%)	*105 %*									
Surr: Toluene-d8 (80-110%)	*92 %*									
Surr: 4-Bromofluorobenzene (65-115%)	*83 %*									
VOC Preservation Check										
pH	<2.00		units		2.00	1	07/25/07 14:33	sjn	7071026	SW
PNA compounds by HPLC										
Acenaphthene	<0.000049 0		mg/L	0.0000490	0.000200	1.08	07/26/07 23:03	eee	7071009	SW 8310

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-06 (CL#4-MW-03 - Ground Water) - cont. **Sampled: 07/20/07 12:40** **Recvd: 07/23/07 18:00**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
PNA compounds by HPLC - cont.										
Acenaphthylene	<0.0000850		mg/L	0.0000850	0.000200	1.08	07/26/07 23:03	eee	7071009	SW 8310
Anthracene	**0.0000959**	J	mg/L	0.0000100	0.000100	1.08	07/26/07 23:03	eee	7071009	SW 8310
Benzo (a) anthracene	**0.0000999**	J	mg/L	3.00E-6	0.000100	1.08	07/26/07 23:03	eee	7071009	SW 8310
Benzo (b) fluoranthene	**0.000127**		mg/L	0.0000130	0.000100	1.08	07/26/07 23:03	eee	7071009	SW 8310
Benzo (k) fluoranthene	**0.0000561**	J	mg/L	0.0000150	0.000100	1.08	07/26/07 23:03	eee	7071009	SW 8310
Benzo (a) pyrene	**0.000173**		mg/L	0.0000320	0.000100	1.08	07/26/07 23:03	eee	7071009	SW 8310
Benzo (g,h,i) perylene	**0.000113**	J	mg/L	9.00E-6	0.000200	1.08	07/26/07 23:03	eee	7071009	SW 8310
Chrysene	**0.000124**		mg/L	5.00E-6	0.000100	1.08	07/26/07 23:03	eee	7071009	SW 8310
Dibenzo (a,h) anthracene	<0.0000100		mg/L	0.0000100	0.000100	1.08	07/26/07 23:03	eee	7071009	SW 8310
Fluoranthene	**0.000206**		mg/L	0.0000100	0.000100	1.08	07/26/07 23:03	eee	7071009	SW 8310
Fluorene	**0.000155**		mg/L	0.0000100	0.000100	1.08	07/26/07 23:03	eee	7071009	SW 8310
Indeno (1,2,3-cd) pyrene	**0.000166**		mg/L	7.00E-6	0.000100	1.08	07/26/07 23:03	eee	7071009	SW 8310
1-Methylnaphthalene	**0.000134**	J	mg/L	0.0000560	0.000200	1.08	07/26/07 23:03	eee	7071009	SW 8310
2-Methylnaphthalene	<0.0000520		mg/L	0.0000520	0.000200	1.08	07/26/07 23:03	eee	7071009	SW 8310
Naphthalene	**0.000112**	J	mg/L	0.0000540	0.000200	1.08	07/26/07 23:03	eee	7071009	SW 8310
Phenanthrene	**0.000271**		mg/L	7.00E-6	0.000100	1.08	07/26/07 23:03	eee	7071009	SW 8310
Pyrene	**0.000579**		mg/L	0.0000190	0.000100	1.08	07/26/07 23:03	eee	7071009	SW 8310
Surr: 2-Fluorobiphenyl (15-110%)	*70 %*									
UST ANALYSIS PARAMETERS										
Total Extractable Hydrocarbons	<300		ug/L		300	1	07/26/07 19:44	fmk	[CALC]	OA-2 - 8015B
Diesel	<0.300		mg/L		0.300	1.04	07/26/07 19:44	fmk	7070973	OA-2
Gasoline	<0.300		mg/L		0.300	1.04	07/26/07 19:44	fmk	7070973	OA-2
Motor Oil	<0.300		mg/L		0.300	1.04	07/26/07 19:44	fmk	7070973	OA-2
Surr: Octacosane (40-135%)	*94 %*									

TestAmerica
ANALYTICAL TESTING CORPORATION
704 Enterprise Drive Cedar Falls, IA 50613 * 800-750-2401 * Fax 319-277-2425

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-07 (CL#4-MW-01 - Ground Water) **Sampled: 07/20/07 14:10** **Recvd: 07/23/07 18:00**

Sampled By: Mike Goalen **Phone (515) 278-2913**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
General Chemistry Parameters - Dissolved										
Total Dissolved Solids	**784**		mg/L		20.0	1	07/24/07 15:42	sas	7071116	SM 2540C/97
Total Metals by SW 846 Series Methods										
Arsenic	<0.00100		mg/L		0.00100	1	07/26/07 12:55	llw	7070993	SW 7060A
Barium	**0.196**		mg/L		0.0100	1	07/25/07 18:48	lbb	7070991	SW 6010B
Cadmium	<0.000500	M1	mg/L		0.000500	1	07/26/07 17:18	DJS	7070993	SW 7131A
Chromium	<0.0200		mg/L		0.0200	1	07/25/07 18:49	lbb	7070991	SW 6010B
Lead	<0.00400		mg/L		0.00400	1	07/26/07 11:58	llw	7070993	SW 7421
Mercury	<0.000200		mg/L		0.000200	1	07/27/07 12:09	llw	7071099	SW 7470A
Selenium	<0.00500		mg/L		0.00500	1	07/26/07 09:00	llw	7070993	SW 7740
Silver	<0.0200		mg/L		0.0200	1	07/25/07 18:48	lbb	7070991	SW 6010B
Dissolved Metals by SW 846 Series Methods										
Arsenic	<0.00100		mg/L		0.00100	1	07/26/07 14:22	llw	7070994	SW 7060A
Barium	**0.197**		mg/L		0.0100	1	07/25/07 22:08	lbb	7070992	SW 6010B
Cadmium	<0.000500		mg/L		0.000500	1	07/26/07 18:27	DJS	7070994	SW 7131A
Chromium	<0.0200		mg/L		0.0200	1	07/25/07 22:08	lbb	7070992	SW 6010B
Lead	<0.00400		mg/L		0.00400	1	07/26/07 13:14	llw	7070994	SW 7421
Mercury	<0.000200		mg/L		0.000200	1	07/27/07 11:39	llw	7071098	SW 7470A
Selenium	**0.00528**		mg/L		0.00500	1	07/26/07 10:12	llw	7070994	SW 7740
Silver	<0.0200		mg/L		0.0200	1	07/25/07 22:08	lbb	7070992	SW 6010B
Volatile Organic Compounds										
Acetone	<0.00462		mg/L	0.00462	0.0100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Acrylonitrile	<0.00128		mg/L	0.00128	0.0100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Benzene	<0.000160		mg/L	0.000160	0.000500	1	07/27/07 23:14	DMD	7071222	SW 8260B
Bromobenzene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Bromochloromethane	<0.000310		mg/L	0.000310	0.00500	1	07/27/07 23:14	DMD	7071222	SW 8260B
Bromodichloromethane	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Bromoform	<0.000150		mg/L	0.000150	0.00500	1	07/27/07 23:14	DMD	7071222	SW 8260B
Bromomethane	<0.000480		mg/L	0.000480	0.00400	1	07/27/07 23:14	DMD	7071222	SW 8260B
2-Butanone (MEK)	**0.000910**	J	mg/L	0.000910	0.0100	1	07/27/07 23:14	DMD	7071222	SW 8260B
n-Butylbenzene	<0.0000900		mg/L	0.0000900	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
sec-Butylbenzene	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
tert-Butylbenzene	<0.000140		mg/L	0.000140	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Carbon disulfide	<0.000140		mg/L	0.000140	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Carbon Tetrachloride	<0.000130		mg/L	0.000130	0.00200	1	07/27/07 23:14	DMD	7071222	SW 8260B
Chlorobenzene	<0.0000800		mg/L	0.0000800	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Chlorodibromomethane	<0.000250		mg/L	0.000250	0.00500	1	07/27/07 23:14	DMD	7071222	SW 8260B
Chloroethane	<0.000500		mg/L	0.000500	0.00400	1	07/27/07 23:14	DMD	7071222	SW 8260B
Chloroform	<0.0000800		mg/L	0.0000800	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Chloromethane	<0.000200		mg/L	0.000200	0.00300	1	07/27/07 23:14	DMD	7071222	SW 8260B
2-Chlorotoluene	<0.000200		mg/L	0.000200	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
4-Chlorotoluene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,2-Dibromo-3-chloropropane	<0.000750		mg/L	0.000750	0.0100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,2-Dibromoethane (EDB)	<0.000130		mg/L	0.000130	0.0100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Dibromomethane	<0.000220		mg/L	0.000220	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,2-Dichlorobenzene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,3-Dichlorobenzene	<0.000130		mg/L	0.000130	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-07 (CL#4-MW-01 - Ground Water) - cont. **Sampled: 07/20/07 14:10** **Recvd: 07/23/07 18:00**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Volatile Organic Compounds - cont.										
1,4-Dichlorobenzene	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Dichlorodifluoromethane	<0.000170		mg/L	0.000170	0.00300	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,1-Dichloroethane	<0.000090	C 0	mg/L	0.0000900	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,2-Dichloroethane	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,1-Dichloroethene	<0.000190		mg/L	0.000190	0.00200	1	07/27/07 23:14	DMD	7071222	SW 8260B
cis-1,2-Dichloroethene	<0.000200		mg/L	0.000200	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
trans-1,2-Dichloroethene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,2-Dichloropropane	<0.000400		mg/L	0.000400	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,3-Dichloropropane	<0.000190		mg/L	0.000190	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
2,2-Dichloropropane	<0.000240	CIN	mg/L	0.000240	0.00400	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,1-Dichloropropene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
cis-1,3-Dichloropropene	<0.000160		mg/L	0.000160	0.00500	1	07/27/07 23:14	DMD	7071222	SW 8260B
trans-1,3-Dichloropropene	<0.000160		mg/L	0.000160	0.00500	1	07/27/07 23:14	DMD	7071222	SW 8260B
Ethylbenzene	<0.000180		mg/L	0.000180	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Hexachlorobutadiene	<0.000390		mg/L	0.000390	0.00500	1	07/27/07 23:14	DMD	7071222	SW 8260B
Hexane	<0.000440		mg/L	0.000440	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Isopropylbenzene	<0.000190		mg/L	0.000190	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
p-Isopropyltoluene	<0.000130		mg/L	0.000130	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Methylene Chloride	**0.000590**	J	mg/L	0.000450	0.00500	1	07/27/07 23:14	DMD	7071222	SW 8260B
Methyl tert-Butyl Ether	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Naphthalene	<0.000350		mg/L	0.000350	0.00500	1	07/27/07 23:14	DMD	7071222	SW 8260B
n-Propylbenzene	<0.000140		mg/L	0.000140	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Styrene	<0.000100		mg/L	0.000100	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,1,1,2-Tetrachloroethane	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,1,2,2-Tetrachloroethane	<0.000230		mg/L	0.000230	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Tetrachloroethene	<0.000240		mg/L	0.000240	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Toluene	<0.000100		mg/L	0.000100	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,2,3-Trichlorobenzene	<0.00215		mg/L	0.00215	0.00500	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,2,4-Trichlorobenzene	<0.000490		mg/L	0.000490	0.00500	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,1,1-Trichloroethane	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,1,2-Trichloroethane	<0.000300		mg/L	0.000300	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Trichloroethene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Trichlorofluoromethane	<0.000150		mg/L	0.000150	0.00400	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,2,3-Trichloropropane	<0.000180		mg/L	0.000180	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,2,4-Trimethylbenzene	**0.000510**	J	mg/L	0.000160	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
1,3,5-Trimethylbenzene	**0.000170**	J	mg/L	0.000140	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Vinyl chloride	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 23:14	DMD	7071222	SW 8260B
Xylenes, total	**0.00115**	J	mg/L	0.000170	0.00300	1	07/27/07 23:14	DMD	7071222	SW 8260B
Surr: Dibromofluoromethane (80-120%)	*105 %*									
Surr: Toluene-d8 (80-110%)	*92 %*									
Surr: 4-Bromofluorobenzene (65-115%)	*84 %*									
VOC Preservation Check										
pH	<2.00		units		2.00	1	07/30/07 13:03	sjn	7071208	SW
PNA compounds by HPLC										
Acenaphthene	<0.000049 0		mg/L	0.0000490	0.000200	1.09	07/26/07 23:31	eee	7071009	SW 8310
Acenaphthylene	<0.000085 0		mg/L	0.0000850	0.000200	1.09	07/26/07 23:31	eee	7071009	SW 8310

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-07 (CL#4-MW-01 - Ground Water) - cont. **Sampled: 07/20/07 14:10** **Recvd: 07/23/07 18:00**

PNA compounds by HPLC - cont.

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Anthracene	<0.0000100		mg/L	0.0000100	0.000100	1.09	07/26/07 23:31	eee	7071009	SW 8310
Benzo (a) anthracene	<3.00E-6		mg/L	3.00E-6	0.000100	1.09	07/26/07 23:31	eee	7071009	SW 8310
Benzo (b) fluoranthene	<0.0000130		mg/L	0.0000130	0.000100	1.09	07/26/07 23:31	eee	7071009	SW 8310
Benzo (k) fluoranthene	<0.0000150		mg/L	0.0000150	0.000100	1.09	07/26/07 23:31	eee	7071009	SW 8310
Benzo (a) pyrene	<0.0000320		mg/L	0.0000320	0.000100	1.09	07/26/07 23:31	eee	7071009	SW 8310
Benzo (g,h,i) perylene	<9.00E-6		mg/L	9.00E-6	0.000200	1.09	07/26/07 23:31	eee	7071009	SW 8310
Chrysene	<5.00E-6		mg/L	5.00E-6	0.000100	1.09	07/26/07 23:31	eee	7071009	SW 8310
Dibenzo (a,h) anthracene	<0.0000100		mg/L	0.0000100	0.000100	1.09	07/26/07 23:31	eee	7071009	SW 8310
Fluoranthene	<0.0000100		mg/L	0.0000100	0.000100	1.09	07/26/07 23:31	eee	7071009	SW 8310
Fluorene	**0.0000329** J		mg/L	0.0000100	0.000100	1.09	07/26/07 23:31	eee	7071009	SW 8310
Indeno (1,2,3-cd) pyrene	<7.00E-6		mg/L	7.00E-6	0.000100	1.09	07/26/07 23:31	eee	7071009	SW 8310
1-Methylnaphthalene	**0.0000887** J		mg/L	0.0000560	0.000200	1.09	07/26/07 23:31	eee	7071009	SW 8310
2-Methylnaphthalene	<0.0000520		mg/L	0.0000520	0.000200	1.09	07/26/07 23:31	eee	7071009	SW 8310
Naphthalene	<0.0000540		mg/L	0.0000540	0.000200	1.09	07/26/07 23:31	eee	7071009	SW 8310
Phenanthrene	<7.00E-6		mg/L	7.00E-6	0.000100	1.09	07/26/07 23:31	eee	7071009	SW 8310
Pyrene	<0.0000190		mg/L	0.0000190	0.000100	1.09	07/26/07 23:31	eee	7071009	SW 8310
Surr: 2-Fluorobiphenyl (15-110%)	*77 %*									

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Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-08 (CL#4-MW-02 - Ground Water) **Sampled: 07/21/07 14:10** **Recvd: 07/23/07 18:00**

Sampled By: Mike Goalen **Phone (515) 278-2913**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
General Chemistry Parameters - Dissolved										
Total Dissolved Solids	**580**		mg/L		20.0	1	07/24/07 15:42	sas	7071116	SM 2540C/97
Total Metals by SW 846 Series Methods										
Arsenic	**0.0130**		mg/L		0.00100	1	07/26/07 13:09	llw	7070993	SW 7060A
Barium	**0.278**		mg/L		0.0100	1	07/25/07 19:08	lbb	7070991	SW 6010B
Cadmium	<0.000500		mg/L		0.000500	1	07/26/07 17:37	DJS	7070993	SW 7131A
Chromium	<0.0200		mg/L		0.0200	1	07/25/07 19:08	lbb	7070991	SW 6010B
Lead	<0.00400		mg/L		0.00400	1	07/26/07 12:11	llw	7070993	SW 7421
Mercury	<0.000200		mg/L		0.000200	1	07/27/07 12:11	llw	7071099	SW 7470A
Selenium	<0.00500		mg/L		0.00500	1	07/26/07 09:13	llw	7070993	SW 7740
Silver	<0.0200		mg/L		0.0200	1	07/25/07 19:08	lbb	7070991	SW 6010B
Dissolved Metals by SW 846 Series Methods										
Arsenic	**0.0165**		mg/L		0.00100	1	07/26/07 14:26	llw	7070994	SW 7060A
Barium	**0.320**		mg/L		0.0100	1	07/25/07 22:27	lbb	7070992	SW 6010B
Cadmium	<0.000500		mg/L		0.000500	1	07/26/07 18:30	DJS	7070994	SW 7131A
Chromium	<0.0200		mg/L		0.0200	1	07/25/07 22:28	lbb	7070992	SW 6010B
Lead	<0.00400		mg/L		0.00400	1	07/26/07 13:17	llw	7070994	SW 7421
Mercury	<0.000200		mg/L		0.000200	1	07/27/07 11:41	llw	7071098	SW 7470A
Selenium	<0.00500		mg/L		0.00500	1	07/26/07 10:15	llw	7070994	SW 7740
Silver	<0.0200		mg/L		0.0200	1	07/25/07 22:27	lbb	7070992	SW 6010B
Volatile Organic Compounds										
Acetone	**0.00588**	J	mg/L	0.00462	0.0100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Acrylonitrile	<0.00128		mg/L	0.00128	0.0100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Benzene	**0.000420**	J	mg/L	0.000160	0.000500	1	07/27/07 23:45	DMD	7071222	SW 8260B
Bromobenzene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Bromochloromethane	<0.000310		mg/L	0.000310	0.00500	1	07/27/07 23:45	DMD	7071222	SW 8260B
Bromodichloromethane	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Bromoform	<0.000150		mg/L	0.000150	0.00500	1	07/27/07 23:45	DMD	7071222	SW 8260B
Bromomethane	<0.000480		mg/L	0.000480	0.00400	1	07/27/07 23:45	DMD	7071222	SW 8260B
2-Butanone (MEK)	**0.00117**	J	mg/L	0.000910	0.0100	1	07/27/07 23:45	DMD	7071222	SW 8260B
n-Butylbenzene	**0.0335**		mg/L	0.0000900	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
sec-Butylbenzene	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
tert-Butylbenzene	**0.000720**	J	mg/L	0.000140	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Carbon disulfide	<0.000140		mg/L	0.000140	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Carbon Tetrachloride	<0.000130		mg/L	0.000130	0.00200	1	07/27/07 23:45	DMD	7071222	SW 8260B
Chlorobenzene	<0.0000800		mg/L	0.0000800	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Chlorodibromomethane	<0.000250		mg/L	0.000250	0.00500	1	07/27/07 23:45	DMD	7071222	SW 8260B
Chloroethane	<0.000500		mg/L	0.000500	0.00400	1	07/27/07 23:45	DMD	7071222	SW 8260B
Chloroform	<0.0000800		mg/L	0.0000800	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Chloromethane	<0.000200		mg/L	0.000200	0.00300	1	07/27/07 23:45	DMD	7071222	SW 8260B
2-Chlorotoluene	<0.000200		mg/L	0.000200	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
4-Chlorotoluene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,2-Dibromo-3-chloropropane	<0.000750		mg/L	0.000750	0.0100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,2-Dibromoethane (EDB)	<0.000130		mg/L	0.000130	0.0100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Dibromomethane	<0.000220		mg/L	0.000220	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,2-Dichlorobenzene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,3-Dichlorobenzene	<0.000130		mg/L	0.000130	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,4-Dichlorobenzene	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
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Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-08 (CL#4-MW-02 - Ground Water) - cont. **Sampled: 07/21/07 14:10** **Recvd: 07/23/07 18:00**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Volatile Organic Compounds - cont.										
Dichlorodifluoromethane	<0.000170		mg/L	0.000170	0.00300	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,1-Dichloroethane	<0.000090	C	mg/L	0.0000900	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
	0									
1,2-Dichloroethane	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,1-Dichloroethene	<0.000190		mg/L	0.000190	0.00200	1	07/27/07 23:45	DMD	7071222	SW 8260B
cis-1,2-Dichloroethene	<0.000200		mg/L	0.000200	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
trans-1,2-Dichloroethene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,2-Dichloropropane	<0.000400		mg/L	0.000400	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,3-Dichloropropane	<0.000190		mg/L	0.000190	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
2,2-Dichloropropane	<0.000240	CIN	mg/L	0.000240	0.00400	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,1-Dichloropropene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
cis-1,3-Dichloropropene	<0.000160		mg/L	0.000160	0.00500	1	07/27/07 23:45	DMD	7071222	SW 8260B
trans-1,3-Dichloropropene	<0.000160		mg/L	0.000160	0.00500	1	07/27/07 23:45	DMD	7071222	SW 8260B
Ethylbenzene	**0.00155**		mg/L	0.000180	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Hexachlorobutadiene	<0.000390		mg/L	0.000390	0.00500	1	07/27/07 23:45	DMD	7071222	SW 8260B
Hexane	<0.000440		mg/L	0.000440	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Isopropylbenzene	**0.00487**		mg/L	0.000190	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
p-Isopropyltoluene	<0.000130		mg/L	0.000130	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Methylene Chloride	**0.000540**	J	mg/L	0.000450	0.00500	1	07/27/07 23:45	DMD	7071222	SW 8260B
Methyl tert-Butyl Ether	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Naphthalene	**0.285**		mg/L	0.000350	0.00500	1	07/27/07 23:45	DMD	7071222	SW 8260B
n-Propylbenzene	**0.000400**	J	mg/L	0.000140	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Styrene	<0.000100		mg/L	0.000100	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,1,1,2-Tetrachloroethane	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,1,2,2-Tetrachloroethane	<0.000230		mg/L	0.000230	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Tetrachloroethene	<0.000240		mg/L	0.000240	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Toluene	**0.000160**	J	mg/L	0.000100	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,2,3-Trichlorobenzene	<0.00215		mg/L	0.00215	0.00500	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,2,4-Trichlorobenzene	<0.000490		mg/L	0.000490	0.00500	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,1,1-Trichloroethane	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,1,2-Trichloroethane	<0.000300		mg/L	0.000300	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Trichloroethene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Trichlorofluoromethane	<0.000150		mg/L	0.000150	0.00400	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,2,3-Trichloropropane	<0.000180		mg/L	0.000180	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,2,4-Trimethylbenzene	**0.00705**		mg/L	0.000160	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
1,3,5-Trimethylbenzene	**0.00229**		mg/L	0.000140	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Vinyl chloride	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 23:45	DMD	7071222	SW 8260B
Xylenes, total	**0.0339**		mg/L	0.000170	0.00300	1	07/27/07 23:45	DMD	7071222	SW 8260B
Surr: Dibromofluoromethane (80-120%)	*104 %*									
Surr: Toluene-d8 (80-110%)	*90 %*									
Surr: 4-Bromofluorobenzene (65-115%)	*85 %*									
VOC Preservation Check										
pH	<2.00		units		2.00	1	07/25/07 14:33	sjn	7071026	SW
PNA compounds by HPLC										
Acenaphthene	**0.00300**		mg/L	0.0000490	0.000200	1.05	07/26/07 23:59	eee	7071009	SW 8310
Acenaphthylene	<0.000085		mg/L	0.0000850	0.000200	1.05	07/26/07 23:59	eee	7071009	SW 8310
	0									
Anthracene	**0.0000116**	J	mg/L	0.0000100	0.000100	1.05	07/26/07 23:59	eee	7071009	SW 8310
Benzo (a) anthracene	<3.00E-6		mg/L	3.00E-6	0.000100	1.05	07/26/07 23:59	eee	7071009	SW 8310

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4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-08 (CL#4-MW-02 - Ground Water) - cont. **Sampled: 07/21/07 14:10** **Recvd: 07/23/07 18:00**

PNA compounds by HPLC - cont.

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Benzo (b) fluoranthene	<0.0000130		mg/L	0.0000130	0.000100	1.05	07/26/07 23:59	eee	7071009	SW 8310
Benzo (k) fluoranthene	<0.0000150		mg/L	0.0000150	0.000100	1.05	07/26/07 23:59	eee	7071009	SW 8310
Benzo (a) pyrene	<0.0000320		mg/L	0.0000320	0.000100	1.05	07/26/07 23:59	eee	7071009	SW 8310
Benzo (g,h,i) perylene	<9.00E-6		mg/L	9.00E-6	0.000200	1.05	07/26/07 23:59	eee	7071009	SW 8310
Chrysene	<5.00E-6		mg/L	5.00E-6	0.000100	1.05	07/26/07 23:59	eee	7071009	SW 8310
Dibenzo (a,h) anthracene	<0.0000100		mg/L	0.0000100	0.000100	1.05	07/26/07 23:59	eee	7071009	SW 8310
Fluoranthene	<0.0000100		mg/L	0.0000100	0.000100	1.05	07/26/07 23:59	eee	7071009	SW 8310
Fluorene	<0.0000100		mg/L	0.0000100	0.000100	1.05	07/26/07 23:59	eee	7071009	SW 8310
Indeno (1,2,3-cd) pyrene	<7.00E-6		mg/L	7.00E-6	0.000100	1.05	07/26/07 23:59	eee	7071009	SW 8310
1-Methylnaphthalene	**0.0546**		mg/L	0.000560	0.00200	10.5	07/28/07 06:22	eee	7071009	SW 8310
2-Methylnaphthalene	**0.00106**		mg/L	0.0000520	0.000200	1.05	07/26/07 23:59	eee	7071009	SW 8310
Naphthalene	**0.169**		mg/L	0.000540	0.00200	10.5	07/28/07 06:22	eee	7071009	SW 8310
Phenanthrene	**0.000169**		mg/L	7.00E-6	0.000100	1.05	07/26/07 23:59	eee	7071009	SW 8310
Pyrene	**0.000162**		mg/L	0.0000190	0.000100	1.05	07/26/07 23:59	eee	7071009	SW 8310
Surr: 2-Fluorobiphenyl (15-110%)	*75 %*									

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Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-09 (CL#4-MW-04 - Ground Water) **Sampled: 07/21/07 15:15** **Recvd: 07/23/07 18:00**

Sampled By: Mike Goalen **Phone (515) 278-2913**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
General Chemistry Parameters										
Cyanide	**0.0270**		mg/L		0.0100	1	07/27/07 16:08	leh	7071195	SW 9012 Mod.
General Chemistry Parameters - Dissolved										
Total Dissolved Solids	**808**		mg/L		20.0	1	07/24/07 15:42	sas	7071116	SM 2540C/97
Total Metals by SW 846 Series Methods										
Arsenic	**0.00112**		mg/L		0.00100	1	07/26/07 13:12	llw	7070993	SW 7060A
Barium	**1.05**		mg/L		0.0100	1	07/25/07 19:13	lbb	7070991	SW 6010B
Cadmium	<0.000500		mg/L		0.000500	1	07/26/07 17:40	DJS	7070993	SW 7131A
Chromium	<0.0200		mg/L		0.0200	1	07/25/07 19:13	lbb	7070991	SW 6010B
Lead	<0.00400		mg/L		0.00400	1	07/26/07 12:14	llw	7070993	SW 7421
Mercury	<0.000200		mg/L		0.000200	1	07/27/07 12:13	llw	7071099	SW 7470A
Selenium	<0.00500		mg/L		0.00500	1	07/26/07 09:16	llw	7070993	SW 7740
Silver	<0.0200		mg/L		0.0200	1	07/25/07 19:13	lbb	7070991	SW 6010B
Dissolved Metals by SW 846 Series Methods										
Arsenic	**0.00113**		mg/L		0.00100	1	07/26/07 14:29	llw	7070994	SW 7060A
Barium	**1.34**		mg/L		0.0100	1	07/25/07 22:32	lbb	7070992	SW 6010B
Cadmium	<0.000500		mg/L		0.000500	1	07/26/07 18:33	DJS	7070994	SW 7131A
Chromium	<0.0200		mg/L		0.0200	1	07/25/07 22:32	lbb	7070992	SW 6010B
Lead	<0.00400		mg/L		0.00400	1	07/26/07 13:20	llw	7070994	SW 7421
Mercury	<0.000200		mg/L		0.000200	1	07/27/07 11:43	llw	7071098	SW 7470A
Selenium	<0.00500		mg/L		0.00500	1	07/26/07 10:18	llw	7070994	SW 7740
Silver	<0.0200		mg/L		0.0200	1	07/25/07 22:32	lbb	7070992	SW 6010B
Volatile Organic Compounds										
Acetone	<0.0462		mg/L	0.0462	0.100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Acrylonitrile	<0.0128		mg/L	0.0128	0.100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Benzene	**8.51**		mg/L	0.00800	0.0250	50	07/27/07 08:10	DMD	7071214	SW 8260B
Bromobenzene	<0.00170		mg/L	0.00170	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Bromochloromethane	<0.00310		mg/L	0.00310	0.0500	10	07/28/07 01:21	DMD	7071222	SW 8260B
Bromodichloromethane	**0.00340**	J	mg/L	0.00120	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Bromoform	<0.00150		mg/L	0.00150	0.0500	10	07/28/07 01:21	DMD	7071222	SW 8260B
Bromomethane	<0.00480		mg/L	0.00480	0.0400	10	07/28/07 01:21	DMD	7071222	SW 8260B
2-Butanone (MEK)	<0.00910		mg/L	0.00910	0.100	10	07/28/07 01:21	DMD	7071222	SW 8260B
n-Butylbenzene	**0.112**		mg/L	0.000900	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
sec-Butylbenzene	<0.00120		mg/L	0.00120	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
tert-Butylbenzene	**0.00540**	J	mg/L	0.00140	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Carbon disulfide	<0.00140		mg/L	0.00140	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Carbon Tetrachloride	<0.00130		mg/L	0.00130	0.0200	10	07/28/07 01:21	DMD	7071222	SW 8260B
Chlorobenzene	<0.000800		mg/L	0.000800	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Chlorodibromomethane	<0.00250		mg/L	0.00250	0.0500	10	07/28/07 01:21	DMD	7071222	SW 8260B
Chloroethane	<0.00500		mg/L	0.00500	0.0400	10	07/28/07 01:21	DMD	7071222	SW 8260B
Chloroform	**0.0169**		mg/L	0.000800	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Chloromethane	**0.00490**	J	mg/L	0.00200	0.0300	10	07/28/07 01:21	DMD	7071222	SW 8260B
2-Chlorotoluene	<0.00200		mg/L	0.00200	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
4-Chlorotoluene	<0.00150		mg/L	0.00150	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,2-Dibromo-3-chloropropane	<0.00750		mg/L	0.00750	0.100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,2-Dibromoethane (EDB)	<0.00130		mg/L	0.00130	0.100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Dibromomethane	<0.00220		mg/L	0.00220	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,2-Dichlorobenzene	<0.00150		mg/L	0.00150	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,3-Dichlorobenzene	<0.00130		mg/L	0.00130	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-09 (CL#4-MW-04 - Ground Water) - cont. **Sampled: 07/21/07 15:15** **Recvd: 07/23/07 18:00**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Volatile Organic Compounds - cont.										
1,4-Dichlorobenzene	<0.00120		mg/L	0.00120	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Dichlorodifluoromethane	<0.00170		mg/L	0.00170	0.0300	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,1-Dichloroethane	<0.000900	C	mg/L	0.000900	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,2-Dichloroethane	<0.00160		mg/L	0.00160	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,1-Dichloroethene	<0.00190		mg/L	0.00190	0.0200	10	07/28/07 01:21	DMD	7071222	SW 8260B
cis-1,2-Dichloroethene	<0.00200		mg/L	0.00200	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
trans-1,2-Dichloroethene	<0.00150		mg/L	0.00150	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,2-Dichloropropane	<0.00400		mg/L	0.00400	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,3-Dichloropropane	<0.00190		mg/L	0.00190	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
2,2-Dichloropropane	<0.00240	CIN	mg/L	0.00240	0.0400	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,1-Dichloropropene	<0.00170		mg/L	0.00170	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
cis-1,3-Dichloropropene	<0.00160		mg/L	0.00160	0.0500	10	07/28/07 01:21	DMD	7071222	SW 8260B
trans-1,3-Dichloropropene	<0.00160		mg/L	0.00160	0.0500	10	07/28/07 01:21	DMD	7071222	SW 8260B
Ethylbenzene	**0.620**		mg/L	0.00180	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Hexachlorobutadiene	<0.00390		mg/L	0.00390	0.0500	10	07/28/07 01:21	DMD	7071222	SW 8260B
Hexane	**0.00440**	J	mg/L	0.00440	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Isopropylbenzene	**0.0158**		mg/L	0.00190	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
p-Isopropyltoluene	<0.00130		mg/L	0.00130	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Methylene Chloride	**0.00520**	J	mg/L	0.00450	0.0500	10	07/28/07 01:21	DMD	7071222	SW 8260B
Methyl tert-Butyl Ether	<0.00120		mg/L	0.00120	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Naphthalene	**1.88**		mg/L	0.00350	0.0500	10	07/28/07 01:21	DMD	7071222	SW 8260B
n-Propylbenzene	**0.0114**		mg/L	0.00140	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Styrene	<0.00100		mg/L	0.00100	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,1,1,2-Tetrachloroethane	<0.00160		mg/L	0.00160	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,1,2,2-Tetrachloroethane	<0.00230		mg/L	0.00230	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Tetrachloroethene	<0.00240		mg/L	0.00240	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Toluene	**0.0337**		mg/L	0.00100	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,2,3-Trichlorobenzene	<0.0215		mg/L	0.0215	0.0500	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,2,4-Trichlorobenzene	<0.00490		mg/L	0.00490	0.0500	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,1,1-Trichloroethane	<0.00150		mg/L	0.00150	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,1,2-Trichloroethane	<0.00300		mg/L	0.00300	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Trichloroethene	<0.00170		mg/L	0.00170	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Trichlorofluoromethane	<0.00150		mg/L	0.00150	0.0400	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,2,3-Trichloropropane	<0.00180		mg/L	0.00180	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,2,4-Trimethylbenzene	**0.0682**		mg/L	0.00160	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
1,3,5-Trimethylbenzene	**0.0239**		mg/L	0.00140	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Vinyl chloride	<0.00160		mg/L	0.00160	0.0100	10	07/28/07 01:21	DMD	7071222	SW 8260B
Xylenes, total	**0.438**		mg/L	0.00170	0.0300	10	07/28/07 01:21	DMD	7071222	SW 8260B
Surr: Dibromofluoromethane (80-120%)	*101 %*									
Surr: Toluene-d8 (80-110%)	*89 %*									
Surr: 4-Bromofluorobenzene (65-115%)	*83 %*									
VOC Preservation Check										
pH	<2.00		units		2.00	1	07/25/07 14:33	sjn	7071026	SW
PNA compounds by HPLC										
Acenaphthene	**0.0308**		mg/L	0.0000490	0.000200	1.06	07/27/07 00:27	eee	7071009	SW 8310
Acenaphthylene	<0.0000850		mg/L	0.0000850	0.000200	1.06	07/27/07 00:27	eee	7071009	SW 8310
Anthracene	**0.00526**		mg/L	0.0000500	0.000500	5.32	07/28/07 06:51	eee	7071009	SW 8310
Benzo (a) anthracene	**0.000104**		mg/L	3.00E-6	0.000100	1.06	07/27/07 00:27	eee	7071009	SW 8310

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-09 (CL#4-MW-04 - Ground Water) - cont. **Sampled: 07/21/07 15:15** **Recvd: 07/23/07 18:00**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
PNA compounds by HPLC - cont.										
Benzo (b) fluoranthene	<0.0000130		mg/L	0.0000130	0.000100	1.06	07/27/07 00:27	eee	7071009	SW 8310
Benzo (k) fluoranthene	<0.0000150		mg/L	0.0000150	0.000100	1.06	07/27/07 00:27	eee	7071009	SW 8310
Benzo (a) pyrene	<0.0000320		mg/L	0.0000320	0.000100	1.06	07/27/07 00:27	eee	7071009	SW 8310
Benzo (g,h,i) perylene	<9.00E-6		mg/L	9.00E-6	0.000200	1.06	07/27/07 00:27	eee	7071009	SW 8310
Chrysene	**0.0000966** J		mg/L	5.00E-6	0.000100	1.06	07/27/07 00:27	eee	7071009	SW 8310
Dibenzo (a,h) anthracene	<0.0000100		mg/L	0.0000100	0.000100	1.06	07/27/07 00:27	eee	7071009	SW 8310
Fluoranthene	**0.00397**		mg/L	0.0000100	0.000100	1.06	07/27/07 00:27	eee	7071009	SW 8310
Fluorene	**0.0288**		mg/L	0.0000500	0.000500	5.32	07/28/07 06:51	eee	7071009	SW 8310
Indeno (1,2,3-cd) pyrene	<7.00E-6		mg/L	7.00E-6	0.000100	1.06	07/27/07 00:27	eee	7071009	SW 8310
1-Methylnaphthalene	**0.158**		mg/L	0.000560	0.00200	10.6	07/28/07 07:19	eee	7071009	SW 8310
2-Methylnaphthalene	**0.0895**		mg/L	0.000260	0.00100	5.32	07/28/07 06:51	eee	7071009	SW 8310
Naphthalene	**1.80**		mg/L	0.00540	0.0200	106	07/28/07 07:47	eee	7071009	SW 8310
Phenanthrene	**0.0231**		mg/L	0.0000350	0.000500	5.32	07/28/07 06:51	eee	7071009	SW 8310
Pyrene	**0.0103**		mg/L	0.0000950	0.000500	5.32	07/28/07 06:51	eee	7071009	SW 8310
Surr: 2-Fluorobiphenyl (15-110%)	*67 %*									
UST ANALYSIS PARAMETERS										
Total Extractable Hydrocarbons	**18100**		ug/L		300	1	07/26/07 20:39	fmk	[CALC]	OA-2 - 8015B
Diesel	**1.58**		mg/L		0.300	1.1	07/26/07 20:39	fmk	7070973	OA-2
Gasoline	**16.5**		mg/L		0.300	1.1	07/26/07 20:39	fmk	7070973	OA-2
Motor Oil	<0.300		mg/L		0.300	1.1	07/26/07 20:39	fmk	7070973	OA-2
Surr: Octacosane (40-135%)	*88 %*									

TestAmerica
ANALYTICAL TESTING CORPORATION
704 Enterprise Drive Cedar Falls, IA 50613 * 800-750-2401 * Fax 319-277-2425

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-10 (GW Field Duplicate - Ground Water) **Sampled: 07/21/07** **Recvd: 07/23/07 18:00**

Sampled By: **Mike Goalen** **Phone** **(515) 278-2913**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
PNA compounds by HPLC										
Acenaphthene	**0.0417**		mg/L	0.0000490	0.000200	1.05	07/27/07 00:55	eee	7071009	SW 8310
Acenaphthylene	<0.0000850		mg/L	0.0000850	0.000200	1.05	07/27/07 00:55	eee	7071009	SW 8310
Anthracene	**0.00486**		mg/L	0.0000500	0.000500	5.26	07/28/07 09:11	eee	7071009	SW 8310
Benzo (a) anthracene	**0.0000939** J		mg/L	3.00E-6	0.000100	1.05	07/27/07 00:55	eee	7071009	SW 8310
Benzo (b) fluoranthene	<0.0000130		mg/L	0.0000130	0.000100	1.05	07/27/07 00:55	eee	7071009	SW 8310
Benzo (k) fluoranthene	<0.0000150		mg/L	0.0000150	0.000100	1.05	07/27/07 00:55	eee	7071009	SW 8310
Benzo (a) pyrene	<0.0000320		mg/L	0.0000320	0.000100	1.05	07/27/07 00:55	eee	7071009	SW 8310
Benzo (g,h,i) perylene	<9.00E-6		mg/L	9.00E-6	0.000200	1.05	07/27/07 00:55	eee	7071009	SW 8310
Chrysene	**0.0000969** J		mg/L	5.00E-6	0.000100	1.05	07/27/07 00:55	eee	7071009	SW 8310
Dibenzo (a,h) anthracene	<0.0000100		mg/L	0.0000100	0.000100	1.05	07/27/07 00:55	eee	7071009	SW 8310
Fluoranthene	**0.00342**		mg/L	0.0000100	0.000100	1.05	07/27/07 00:55	eee	7071009	SW 8310
Fluorene	**0.0269**		mg/L	0.0000500	0.000500	5.26	07/28/07 09:11	eee	7071009	SW 8310
Indeno (1,2,3-cd) pyrene	<7.00E-6		mg/L	7.00E-6	0.000100	1.05	07/27/07 00:55	eee	7071009	SW 8310
1-Methylnaphthalene	**0.148**		mg/L	0.000560	0.00200	10.5	07/28/07 09:39	eee	7071009	SW 8310
2-Methylnaphthalene	**0.0875**		mg/L	0.000260	0.00100	5.26	07/28/07 09:11	eee	7071009	SW 8310
Naphthalene	**1.74**		mg/L	0.00540	0.0200	105	07/28/07 10:07	eee	7071009	SW 8310
Phenanthrene	**0.0214**		mg/L	0.0000350	0.000500	5.26	07/28/07 09:11	eee	7071009	SW 8310
Pyrene	**0.00954**		mg/L	0.0000950	0.000500	5.26	07/28/07 09:11	eee	7071009	SW 8310
Surr: 2-Fluorobiphenyl (15-110%)	*62 %*									

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-11 (Equipment Rinsate Blank - Ground Water) **Sampled: 07/21/07 18:30** **Recvd: 07/23/07 18:00**

Sampled By: Mike Goalen **Phone (515) 278-2913**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
General Chemistry Parameters										
Cyanide	<0.0100		mg/L		0.0100	1	07/25/07 16:42	leh	7071056	SW 9012 Mod.
Total Metals by SW 846 Series Methods										
Arsenic	<0.00100		mg/L		0.00100	1	07/26/07 13:16	llw	7070993	SW 7060A
Barium	<0.0100		mg/L		0.0100	1	07/25/07 19:18	lbb	7070991	SW 6010B
Cadmium	<0.000500		mg/L		0.000500	1	07/26/07 17:43	DJS	7070993	SW 7131A
Chromium	<0.0200		mg/L		0.0200	1	07/25/07 19:18	lbb	7070991	SW 6010B
Lead	<0.00400		mg/L		0.00400	1	07/26/07 12:17	llw	7070993	SW 7421
Mercury	<0.000200		mg/L		0.000200	1	07/27/07 12:15	llw	7071099	SW 7470A
Selenium	<0.00500		mg/L		0.00500	1	07/26/07 09:19	llw	7070993	SW 7740
Silver	<0.0200		mg/L		0.0200	1	07/25/07 19:18	lbb	7070991	SW 6010B
Volatile Organic Compounds										
Acetone	<0.00462		mg/L	0.00462	0.0100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Acrylonitrile	<0.00128		mg/L	0.00128	0.0100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Benzene	<0.000160		mg/L	0.000160	0.000500	1	07/27/07 04:59	DMD	7071214	SW 8260B
Bromobenzene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Bromochloromethane	<0.000310		mg/L	0.000310	0.00500	1	07/27/07 04:59	DMD	7071214	SW 8260B
Bromodichloromethane	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Bromoform	<0.000150		mg/L	0.000150	0.00500	1	07/27/07 04:59	DMD	7071214	SW 8260B
Bromomethane	<0.000480		mg/L	0.000480	0.00400	1	07/27/07 04:59	DMD	7071214	SW 8260B
2-Butanone (MEK)	<0.000910		mg/L	0.000910	0.0100	1	07/27/07 04:59	DMD	7071214	SW 8260B
n-Butylbenzene	<0.0000900		mg/L	0.0000900	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
sec-Butylbenzene	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
tert-Butylbenzene	<0.000140		mg/L	0.000140	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Carbon disulfide	<0.000140	C	mg/L	0.000140	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Carbon Tetrachloride	<0.000130		mg/L	0.000130	0.00200	1	07/27/07 04:59	DMD	7071214	SW 8260B
Chlorobenzene	<0.0000800		mg/L	0.0000800	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Chlorodibromomethane	<0.000250		mg/L	0.000250	0.00500	1	07/27/07 04:59	DMD	7071214	SW 8260B
Chloroethane	<0.000500		mg/L	0.000500	0.00400	1	07/27/07 04:59	DMD	7071214	SW 8260B
Chloroform	<0.0000800		mg/L	0.0000800	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Chloromethane	<0.000200		mg/L	0.000200	0.00300	1	07/27/07 04:59	DMD	7071214	SW 8260B
2-Chlorotoluene	<0.000200		mg/L	0.000200	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
4-Chlorotoluene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,2-Dibromo-3-chloropropane	<0.000750		mg/L	0.000750	0.0100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,2-Dibromoethane (EDB)	<0.000130		mg/L	0.000130	0.0100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Dibromomethane	<0.000220		mg/L	0.000220	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,2-Dichlorobenzene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,3-Dichlorobenzene	<0.000130		mg/L	0.000130	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,4-Dichlorobenzene	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Dichlorodifluoromethane	<0.000170		mg/L	0.000170	0.00300	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,1-Dichloroethane	<0.0000900	C	mg/L	0.0000900	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,2-Dichloroethane	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,1-Dichloroethene	<0.000190		mg/L	0.000190	0.00200	1	07/27/07 04:59	DMD	7071214	SW 8260B
cis-1,2-Dichloroethene	<0.000200		mg/L	0.000200	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
trans-1,2-Dichloroethene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,2-Dichloropropane	<0.000400		mg/L	0.000400	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-11 (Equipment Rinsate Blank - Ground Water) - cont. **Sampled: 07/21/07 18:30** **Recvd: 07/23/07 18:00**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Volatile Organic Compounds - cont.										
1,3-Dichloropropane	<0.000190		mg/L	0.000190	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
2,2-Dichloropropane	<0.000240	CIN	mg/L	0.000240	0.00400	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,1-Dichloropropene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
cis-1,3-Dichloropropene	<0.000160		mg/L	0.000160	0.00500	1	07/27/07 04:59	DMD	7071214	SW 8260B
trans-1,3-Dichloropropene	<0.000160		mg/L	0.000160	0.00500	1	07/27/07 04:59	DMD	7071214	SW 8260B
Ethylbenzene	<0.000180		mg/L	0.000180	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Hexachlorobutadiene	<0.000390		mg/L	0.000390	0.00500	1	07/27/07 04:59	DMD	7071214	SW 8260B
Hexane	<0.000440		mg/L	0.000440	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Isopropylbenzene	<0.000190		mg/L	0.000190	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
p-Isopropyltoluene	<0.000130		mg/L	0.000130	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Methylene Chloride	<0.000450		mg/L	0.000450	0.00500	1	07/27/07 04:59	DMD	7071214	SW 8260B
Methyl tert-Butyl Ether	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Naphthalene	**0.000580**	J	mg/L	0.000350	0.00500	1	07/27/07 04:59	DMD	7071214	SW 8260B
n-Propylbenzene	<0.000140		mg/L	0.000140	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Styrene	<0.000100		mg/L	0.000100	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,1,1,2-Tetrachloroethane	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,1,2,2-Tetrachloroethane	<0.000230		mg/L	0.000230	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Tetrachloroethene	<0.000240		mg/L	0.000240	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Toluene	**0.000130**	J	mg/L	0.000100	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,2,3-Trichlorobenzene	<0.00215		mg/L	0.00215	0.00500	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,2,4-Trichlorobenzene	<0.000490		mg/L	0.000490	0.00500	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,1,1-Trichloroethane	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,1,2-Trichloroethane	<0.000300		mg/L	0.000300	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Trichloroethene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Trichlorofluoromethane	<0.000150		mg/L	0.000150	0.00400	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,2,3-Trichloropropane	<0.000180		mg/L	0.000180	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,2,4-Trimethylbenzene	**0.000170**	J	mg/L	0.000160	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
1,3,5-Trimethylbenzene	<0.000140		mg/L	0.000140	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Vinyl chloride	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 04:59	DMD	7071214	SW 8260B
Xylenes, total	<0.000170		mg/L	0.000170	0.00300	1	07/27/07 04:59	DMD	7071214	SW 8260B
Surr: Dibromofluoromethane (80-120%)	*102 %*									
Surr: Toluene-d8 (80-110%)	*93 %*									
Surr: 4-Bromofluorobenzene (65-115%)	*84 %*									
Semivolatile Organics by GC/MS										
Acenaphthene	<0.00222		mg/L	0.00222	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Acenaphthylene	<0.00166		mg/L	0.00166	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Anthracene	<0.00135		mg/L	0.00135	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Benzidine	<0.0388		mg/L	0.0388	0.118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Benzo (a) anthracene	<0.00129		mg/L	0.00129	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Benzo (b) fluoranthene	<0.00224		mg/L	0.00224	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Benzo (k) fluoranthene	<0.00249		mg/L	0.00249	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Benzo (a) pyrene	<0.00227		mg/L	0.00227	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Benzo (g,h,i) perylene	<0.00239		mg/L	0.00239	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Benzyl alcohol	<0.00148		mg/L	0.00148	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Butyl benzyl phthalate	<0.00181		mg/L	0.00181	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Bis(2-chloroethyl)ether	<0.00176		mg/L	0.00176	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Bis(2-chloroethoxy)methane	<0.00179		mg/L	0.00179	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Bis(2-ethylhexyl)phthalate	<0.00188		mg/L	0.00188	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Bis(2-chloroisopropyl) ether	<0.00156		mg/L	0.00156	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
4-Bromophenyl phenyl ether	<0.00231		mg/L	0.00231	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-11 (Equipment Rinsate Blank - Ground Water) - cont. **Sampled: 07/21/07 18:30** **Recvd: 07/23/07 18:00**

Semivolatile Organics by GC/MS - cont.

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Carbazole	<0.00167		mg/L	0.00167	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
4-Chloroaniline	<0.00145		mg/L	0.00145	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
2-Chloronaphthalene	<0.00211		mg/L	0.00211	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
4-Chlorophenyl phenyl ether	<0.00245		mg/L	0.00245	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Chrysene	<0.00156		mg/L	0.00156	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Dibenzo (a,h) anthracene	<0.00259		mg/L	0.00259	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Dibenzofuran	<0.00193		mg/L	0.00193	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Di-n-butyl phthalate	<0.00182		mg/L	0.00182	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
1,2-Dichlorobenzene	<0.00165		mg/L	0.00165	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
1,3-Dichlorobenzene	<0.00176		mg/L	0.00176	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
1,4-Dichlorobenzene	<0.00187		mg/L	0.00187	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
3,3'-Dichlorobenzidine	<0.00205		mg/L	0.00205	0.0588	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Diethyl phthalate	<0.00158		mg/L	0.00158	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Dimethyl phthalate	<0.00182		mg/L	0.00182	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
2,4-Dinitrotoluene	<0.00155		mg/L	0.00155	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
2,6-Dinitrotoluene	<0.00227		mg/L	0.00227	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Di-n-octyl phthalate	<0.00209		mg/L	0.00209	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Fluoranthene	<0.00149		mg/L	0.00149	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Fluorene	<0.00184		mg/L	0.00184	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Hexachlorobenzene	<0.00236		mg/L	0.00236	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Hexachlorobutadiene	<0.00228		mg/L	0.00228	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Hexachlorocyclopentadiene	<0.00128		mg/L	0.00128	0.0235	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Hexachloroethane	<0.00162		mg/L	0.00162	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Indeno (1,2,3-cd) pyrene	<0.00191		mg/L	0.00191	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Isophorone	<0.00175		mg/L	0.00175	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
2-Methylnaphthalene	<0.00176		mg/L	0.00176	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Naphthalene	<0.00175		mg/L	0.00175	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
2-Nitroaniline	<0.00181		mg/L	0.00181	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
3-Nitroaniline	<0.00198		mg/L	0.00198	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
4-Nitroaniline	<0.00219		mg/L	0.00219	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Nitrobenzene	<0.00179		mg/L	0.00179	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
N-Nitrosodimethylamine	<0.00105		mg/L	0.00105	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
N-Nitrosodiphenylamine	<0.00214		mg/L	0.00214	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
N-Nitrosodi-n-propylamine	<0.00229		mg/L	0.00229	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Phenanthrene	<0.00161		mg/L	0.00161	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Pyrene	<0.00151		mg/L	0.00151	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Pyridine	<0.000788		mg/L	0.000788	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
1,2,4-Trichlorobenzene	<0.00194		mg/L	0.00194	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Benzoic acid	<0.0153	L1	mg/L	0.0153	0.0235	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
4-Chloro-3-methylphenol	<0.00171		mg/L	0.00171	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
2-Chlorophenol	<0.00162		mg/L	0.00162	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Cresol(s)	<0.00144		mg/L	0.00144	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
2,4-Dichlorophenol	<0.00202		mg/L	0.00202	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
2,4-Dimethylphenol	<0.00106		mg/L	0.00106	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
2,4-Dinitrophenol	<0.00147		mg/L	0.00147	0.0235	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
4,6-Dinitro-2-methylphenol	<0.00193		mg/L	0.00193	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
2-Methylphenol (o-Cresol)	<0.00144		mg/L	0.00144	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
4-Methylphenol (p-Cresol)	<0.00124		mg/L	0.00124	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
2-Nitrophenol	<0.00194		mg/L	0.00194	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
4-Nitrophenol	<0.000981		mg/L	0.000981	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CQG1135-11 (Equipment Rinsate Blank - Ground Water) - cont.						**Sampled: 07/21/07 18:30**			**Recvd: 07/23/07 18:00**	
Semivolatile Organics by GC/MS - cont.										
Pentachlorophenol	<0.00241		mg/L	0.00241	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Phenol	<0.000859		mg/L	0.000859	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
2,4,5-Trichlorophenol	<0.00209		mg/L	0.00209	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
2,4,6-Trichlorophenol	<0.00216		mg/L	0.00216	0.0118	1.18	07/25/07 14:39	AKE	7070959	SW 8270C
Surr: Nitrobenzene-d5 (15-110%)	*75 %*									
Surr: 2-Fluorobiphenyl (15-110%)	*71 %*									
Surr: Terphenyl-d14 (20-115%)	*73 %*									
Surr: Phenol-d6 (10-75%)	*32 %*									
Surr: 2-Fluorophenol (10-85%)	*49 %*									
Surr: 2,4,6-Tribromophenol (35-130%)	*72 %*									
VOC Preservation Check										
pH	<2.00		units		2.00	1	07/30/07 13:03	sjn	7071208	SW
PNA compounds by HPLC										
Acenaphthene	<0.0000490		mg/L	0.0000490	0.000200	1.05	07/27/07 01:23	eee	7071009	SW 8310
Acenaphthylene	<0.0000850		mg/L	0.0000850	0.000200	1.05	07/27/07 01:23	eee	7071009	SW 8310
Anthracene	<0.0000100		mg/L	0.0000100	0.000100	1.05	07/27/07 01:23	eee	7071009	SW 8310
Benzo (a) anthracene	<3.00E-6		mg/L	3.00E-6	0.000100	1.05	07/27/07 01:23	eee	7071009	SW 8310
Benzo (b) fluoranthene	<0.0000130		mg/L	0.0000130	0.000100	1.05	07/27/07 01:23	eee	7071009	SW 8310
Benzo (k) fluoranthene	<0.0000150		mg/L	0.0000150	0.000100	1.05	07/27/07 01:23	eee	7071009	SW 8310
Benzo (a) pyrene	<0.0000320		mg/L	0.0000320	0.000100	1.05	07/27/07 01:23	eee	7071009	SW 8310
Benzo (g,h,i) perylene	<9.00E-6		mg/L	9.00E-6	0.000200	1.05	07/27/07 01:23	eee	7071009	SW 8310
Chrysene	<5.00E-6		mg/L	5.00E-6	0.000100	1.05	07/27/07 01:23	eee	7071009	SW 8310
Dibenzo (a,h) anthracene	<0.0000100		mg/L	0.0000100	0.000100	1.05	07/27/07 01:23	eee	7071009	SW 8310
Fluoranthene	<0.0000100		mg/L	0.0000100	0.000100	1.05	07/27/07 01:23	eee	7071009	SW 8310
Fluorene	<0.0000100		mg/L	0.0000100	0.000100	1.05	07/27/07 01:23	eee	7071009	SW 8310
Indeno (1,2,3-cd) pyrene	<7.00E-6		mg/L	7.00E-6	0.000100	1.05	07/27/07 01:23	eee	7071009	SW 8310
1-Methylnaphthalene	<0.0000560		mg/L	0.0000560	0.000200	1.05	07/27/07 01:23	eee	7071009	SW 8310
2-Methylnaphthalene	<0.0000520		mg/L	0.0000520	0.000200	1.05	07/27/07 01:23	eee	7071009	SW 8310
Naphthalene	**0.000311**		mg/L	0.0000540	0.000200	1.05	07/27/07 01:23	eee	7071009	SW 8310
Phenanthrene	<7.00E-6		mg/L	7.00E-6	0.000100	1.05	07/27/07 01:23	eee	7071009	SW 8310
Pyrene	<0.0000190		mg/L	0.0000190	0.000100	1.05	07/27/07 01:23	eee	7071009	SW 8310
Surr: 2-Fluorobiphenyl (15-110%)	*79 %*									
UST ANALYSIS PARAMETERS										
Total Extractable Hydrocarbons	<300		ug/L		300	1	07/26/07 21:35	fmk	[CALC]	OA-2 - 8015B
Diesel	<0.300		mg/L		0.300	1.04	07/26/07 21:35	fmk	7070973	OA-2
Gasoline	<0.300		mg/L		0.300	1.04	07/26/07 21:35	fmk	7070973	OA-2
Motor Oil	<0.300		mg/L		0.300	1.04	07/26/07 21:35	fmk	7070973	OA-2
Surr: Octacosane (40-135%)	*80 %*									

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-12 (Trip Blank - Water) **Sampled: 07/21/07** **Recvd: 07/23/07 18:00**

Sampled By: Mike Goalen **Phone (515) 278-2913**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Volatile Organic Compounds										
Acetone	<0.00462		mg/L	0.00462	0.0100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Acrylonitrile	<0.00128		mg/L	0.00128	0.0100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Benzene	<0.000160		mg/L	0.000160	0.000500	1	07/27/07 03:23	DMD	7071214	SW 8260B
Bromobenzene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Bromochloromethane	<0.000310		mg/L	0.000310	0.00500	1	07/27/07 03:23	DMD	7071214	SW 8260B
Bromodichloromethane	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Bromoform	<0.000150		mg/L	0.000150	0.00500	1	07/27/07 03:23	DMD	7071214	SW 8260B
Bromomethane	<0.000480		mg/L	0.000480	0.00400	1	07/27/07 03:23	DMD	7071214	SW 8260B
2-Butanone (MEK)	<0.000910		mg/L	0.000910	0.0100	1	07/27/07 03:23	DMD	7071214	SW 8260B
n-Butylbenzene	<0.0000900		mg/L	0.0000900	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
sec-Butylbenzene	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
tert-Butylbenzene	<0.000140		mg/L	0.000140	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Carbon disulfide	<0.000140	C	mg/L	0.000140	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Carbon Tetrachloride	<0.000130		mg/L	0.000130	0.00200	1	07/27/07 03:23	DMD	7071214	SW 8260B
Chlorobenzene	<0.0000800		mg/L	0.0000800	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Chlorodibromomethane	<0.000250		mg/L	0.000250	0.00500	1	07/27/07 03:23	DMD	7071214	SW 8260B
Chloroethane	<0.000500		mg/L	0.000500	0.00400	1	07/27/07 03:23	DMD	7071214	SW 8260B
Chloroform	**0.000390**	J	mg/L	0.0000800	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Chloromethane	<0.000200		mg/L	0.000200	0.00300	1	07/27/07 03:23	DMD	7071214	SW 8260B
2-Chlorotoluene	<0.000200		mg/L	0.000200	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
4-Chlorotoluene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,2-Dibromo-3-chloropropane	<0.000750		mg/L	0.000750	0.0100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,2-Dibromoethane (EDB)	<0.000130		mg/L	0.000130	0.0100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Dibromomethane	<0.000220		mg/L	0.000220	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,2-Dichlorobenzene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,3-Dichlorobenzene	<0.000130		mg/L	0.000130	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,4-Dichlorobenzene	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Dichlorodifluoromethane	<0.000170		mg/L	0.000170	0.00300	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,1-Dichloroethane	<0.0000900	C	mg/L	0.0000900	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,2-Dichloroethane	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,1-Dichloroethene	<0.000190		mg/L	0.000190	0.00200	1	07/27/07 03:23	DMD	7071214	SW 8260B
cis-1,2-Dichloroethene	<0.000200		mg/L	0.000200	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
trans-1,2-Dichloroethene	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,2-Dichloropropane	<0.000400		mg/L	0.000400	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,3-Dichloropropane	<0.000190		mg/L	0.000190	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
2,2-Dichloropropane	<0.000240	CIN	mg/L	0.000240	0.00400	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,1-Dichloropropene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
cis-1,3-Dichloropropene	<0.000160		mg/L	0.000160	0.00500	1	07/27/07 03:23	DMD	7071214	SW 8260B
trans-1,3-Dichloropropene	<0.000160		mg/L	0.000160	0.00500	1	07/27/07 03:23	DMD	7071214	SW 8260B
Ethylbenzene	<0.000180		mg/L	0.000180	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Hexachlorobutadiene	<0.000390		mg/L	0.000390	0.00500	1	07/27/07 03:23	DMD	7071214	SW 8260B
Hexane	<0.000440		mg/L	0.000440	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Isopropylbenzene	<0.000190		mg/L	0.000190	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
p-Isopropyltoluene	<0.000130		mg/L	0.000130	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Methylene Chloride	**0.000810**	J	mg/L	0.000450	0.00500	1	07/27/07 03:23	DMD	7071214	SW 8260B
Methyl tert-Butyl Ether	<0.000120		mg/L	0.000120	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

ANALYTICAL REPORT

Sample ID: CQG1135-12 (Trip Blank - Water) - cont. **Sampled: 07/21/07** **Recvd: 07/23/07 18:00**

Analyte	Sample Result	Data Qualifiers	Units	MDL	Quan Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Volatile Organic Compounds - cont.										
Naphthalene	<0.000350		mg/L	0.000350	0.00500	1	07/27/07 03:23	DMD	7071214	SW 8260B
n-Propylbenzene	<0.000140		mg/L	0.000140	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Styrene	<0.000100		mg/L	0.000100	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,1,1,2-Tetrachloroethane	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,1,2,2-Tetrachloroethane	<0.000230		mg/L	0.000230	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Tetrachloroethene	<0.000240		mg/L	0.000240	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Toluene	<0.000100		mg/L	0.000100	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,2,3-Trichlorobenzene	<0.00215		mg/L	0.00215	0.00500	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,2,4-Trichlorobenzene	<0.000490		mg/L	0.000490	0.00500	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,1,1-Trichloroethane	<0.000150		mg/L	0.000150	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,1,2-Trichloroethane	<0.000300		mg/L	0.000300	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Trichloroethene	<0.000170		mg/L	0.000170	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Trichlorofluoromethane	<0.000150		mg/L	0.000150	0.00400	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,2,3-Trichloropropane	<0.000180		mg/L	0.000180	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,2,4-Trimethylbenzene	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
1,3,5-Trimethylbenzene	<0.000140		mg/L	0.000140	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Vinyl chloride	<0.000160		mg/L	0.000160	0.00100	1	07/27/07 03:23	DMD	7071214	SW 8260B
Xylenes, total	<0.000170		mg/L	0.000170	0.00300	1	07/27/07 03:23	DMD	7071214	SW 8260B
Surr: Dibromofluoromethane (80-120%)	*104 %*									
Surr: Toluene-d8 (80-110%)	*90 %*									
Surr: 4-Bromofluorobenzene (65-115%)	*81 %*									
VOC Preservation Check										
pH	<2.00		units		2.00	1	07/30/07 13:03	sjn	7071208	SW

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Extraction Method
Dissolved Metals by SW 846 Series Methods							
SW 6010B	7070992	CQG1135-06	50	50	07/25/07 09:00	PTH	SW 3010A
SW 6010B	7070992	CQG1135-07	50	50	07/25/07 09:00	PTH	SW 3010A
SW 6010B	7070992	CQG1135-08	50	50	07/25/07 09:00	PTH	SW 3010A
SW 6010B	7070992	CQG1135-09	50	50	07/25/07 09:00	PTH	SW 3010A
SW 7060A	7070994	CQG1135-06	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7060A	7070994	CQG1135-07	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7060A	7070994	CQG1135-08	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7060A	7070994	CQG1135-09	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7131A	7070994	CQG1135-06	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7131A	7070994	CQG1135-07	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7131A	7070994	CQG1135-08	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7131A	7070994	CQG1135-09	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7421	7070994	CQG1135-06	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7421	7070994	CQG1135-07	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7421	7070994	CQG1135-08	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7421	7070994	CQG1135-09	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7470A	7071098	CQG1135-06	30	30	07/26/07 15:04	LLW	EPA 245.2/SW 7470.
SW 7470A	7071098	CQG1135-07	30	30	07/26/07 15:04	LLW	EPA 245.2/SW 7470.
SW 7470A	7071098	CQG1135-08	30	30	07/26/07 15:04	LLW	EPA 245.2/SW 7470.
SW 7470A	7071098	CQG1135-09	30	30	07/26/07 15:04	LLW	EPA 245.2/SW 7470.
SW 7740	7070994	CQG1135-06	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7740	7070994	CQG1135-07	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7740	7070994	CQG1135-08	50	50	07/25/07 09:19	PTH	SW 3020A
SW 7740	7070994	CQG1135-09	50	50	07/25/07 09:19	PTH	SW 3020A
PNA compounds by HPLC							
SW 8310	7070969	CQG1135-01	30	2	07/24/07 15:23	AM	SW 3550B
SW 8310	7070969	CQG1135-01RE1	30	2	07/24/07 15:23	AM	SW 3550B
SW 8310	7070969	CQG1135-02	30	2	07/24/07 15:23	AM	SW 3550B
SW 8310	7070969	CQG1135-02RE1	30	2	07/24/07 15:23	AM	SW 3550B
SW 8310	7070969	CQG1135-03	31	5	07/24/07 15:23	AM	SW 3550B
SW 8310	7070969	CQG1135-03RE1	31	5	07/24/07 15:23	AM	SW 3550B
SW 8310	7070969	CQG1135-04	30	2	07/24/07 15:23	AM	SW 3550B
SW 8310	7070969	CQG1135-04RE1	30	2	07/24/07 15:23	AM	SW 3550B
SW 8310	7070969	CQG1135-04RE2	30	2	07/24/07 15:23	AM	SW 3550B
SW 8310	7070969	CQG1135-04RE3	30	2	07/24/07 15:23	AM	SW 3550B
SW 8310	7070969	CQG1135-05	30	2	07/24/07 15:23	AM	SW 3550B
SW 8310	7070969	CQG1135-05RE1	30	2	07/24/07 15:23	AM	SW 3550B
SW 8310	7070969	CQG1135-05RE2	30	2	07/24/07 15:23	AM	SW 3550B
SW 8310	7071009	CQG1135-06	930	2	07/25/07 12:41	ZTB	SW 3510C_HPLC
SW 8310	7071009	CQG1135-07	920	2	07/25/07 12:41	ZTB	SW 3510C_HPLC
SW 8310	7071009	CQG1135-08	950	2	07/25/07 12:41	ZTB	SW 3510C_HPLC
SW 8310	7071009	CQG1135-08RE1	950	2	07/25/07 12:41	ZTB	SW 3510C_HPLC
SW 8310	7071009	CQG1135-09	940	2	07/25/07 12:41	ZTB	SW 3510C_HPLC
SW 8310	7071009	CQG1135-09RE1	940	2	07/25/07 12:41	ZTB	SW 3510C_HPLC
SW 8310	7071009	CQG1135-09RE2	940	2	07/25/07 12:41	ZTB	SW 3510C_HPLC

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Extraction Method
SW 8310	7071009	CQG1135-09RE3	940	2	07/25/07 12:41	ZTB	SW 3510C_HPLC
SW 8310	7071009	CQG1135-10	950	2	07/25/07 12:41	ZTB	SW 3510C_HPLC
SW 8310	7071009	CQG1135-10RE1	950	2	07/25/07 12:41	ZTB	SW 3510C_HPLC
SW 8310	7071009	CQG1135-10RE2	950	2	07/25/07 12:41	ZTB	SW 3510C_HPLC
SW 8310	7071009	CQG1135-10RE3	950	2	07/25/07 12:41	ZTB	SW 3510C_HPLC
SW 8310	7071009	CQG1135-11	950	2	07/25/07 12:41	ZTB	SW 3510C_HPLC
Semivolatile Organics by GC/MS							
SW 8270C	7070959	CQG1135-11	850	1	07/24/07 14:06	ZTB	SW 3510C_MS
Total Metals by SW 846 Series Methods							
SW 6010B	7070990	CQG1135-01	1	50	07/25/07 08:36	PTH	SW 3050B
SW 6010B	7070990	CQG1135-02	1	50	07/25/07 08:36	PTH	SW 3050B
SW 6010B	7070990	CQG1135-03	1	50	07/25/07 08:36	PTH	SW 3050B
SW 6010B	7070990	CQG1135-04	1	50	07/25/07 08:36	PTH	SW 3050B
SW 6010B	7070991	CQG1135-06	50	50	07/25/07 08:48	PTH	SW 3010A
SW 6010B	7070991	CQG1135-07	50	50	07/25/07 08:48	PTH	SW 3010A
SW 6010B	7070991	CQG1135-08	50	50	07/25/07 08:48	PTH	SW 3010A
SW 6010B	7070991	CQG1135-09	50	50	07/25/07 08:48	PTH	SW 3010A
SW 6010B	7070991	CQG1135-11	50	50	07/25/07 08:48	PTH	SW 3010A
SW 7060A	7070996	CQG1135-01	1	50	07/25/07 09:26	PTH	SW 3050B GFAA
SW 7060A	7070996	CQG1135-02	1	50	07/25/07 09:26	PTH	SW 3050B GFAA
SW 7060A	7070996	CQG1135-03	1	50	07/25/07 09:26	PTH	SW 3050B GFAA
SW 7060A	7070996	CQG1135-04	1	50	07/25/07 09:26	PTH	SW 3050B GFAA
SW 7060A	7070993	CQG1135-06	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7060A	7070993	CQG1135-07	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7060A	7070993	CQG1135-08	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7060A	7070993	CQG1135-09	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7060A	7070993	CQG1135-11	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7131A	7070993	CQG1135-06	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7131A	7070993	CQG1135-07	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7131A	7070993	CQG1135-08	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7131A	7070993	CQG1135-09	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7131A	7070993	CQG1135-11	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7421	7070993	CQG1135-06	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7421	7070993	CQG1135-07	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7421	7070993	CQG1135-08	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7421	7070993	CQG1135-09	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7421	7070993	CQG1135-11	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7470A	7071099	CQG1135-06	30	30	07/26/07 15:07	LLW	EPA 245.2/SW 7470.
SW 7470A	7071099	CQG1135-07	30	30	07/26/07 15:07	LLW	EPA 245.2/SW 7470.
SW 7470A	7071099	CQG1135-08	30	30	07/26/07 15:07	LLW	EPA 245.2/SW 7470.
SW 7470A	7071099	CQG1135-09	30	30	07/26/07 15:07	LLW	EPA 245.2/SW 7470.
SW 7470A	7071099	CQG1135-11	30	30	07/26/07 15:07	LLW	EPA 245.2/SW 7470.
SW 7471A	7071022	CQG1135-01	1	30	07/25/07 14:11	LLW	EPA 245.5/SW 7471.
SW 7471A	7071022	CQG1135-02	1	30	07/25/07 14:11	LLW	EPA 245.5/SW 7471.
SW 7471A	7071022	CQG1135-03	1	30	07/25/07 14:11	LLW	EPA 245.5/SW 7471.
SW 7471A	7071022	CQG1135-04	1	30	07/25/07 14:11	LLW	EPA 245.5/SW 7471.

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

SAMPLE EXTRACTION DATA

Parameter	Batch	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Extraction Method
SW 7740	7070993	CQG1135-06	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7740	7070993	CQG1135-07	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7740	7070993	CQG1135-08	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7740	7070993	CQG1135-09	50	50	07/25/07 09:12	PTH	SW 3020A
SW 7740	7070993	CQG1135-11	50	50	07/25/07 09:12	PTH	SW 3020A
UST ANALYSIS PARAMETERS							
OA-2	7070938	CQG1135-01	31	3	07/24/07 09:29	AM	SW 3550B GC
OA-2	7070938	CQG1135-02	31	3	07/24/07 09:29	AM	SW 3550B GC
OA-2	7070938	CQG1135-03	31	3	07/24/07 09:29	AM	SW 3550B GC
OA-2	7070938	CQG1135-03RE1	31	3	07/24/07 09:29	AM	SW 3550B GC
OA-2	7070938	CQG1135-04	31	3	07/24/07 09:29	AM	SW 3550B GC
OA-2	7070938	CQG1135-04RE1	31	3	07/24/07 09:29	AM	SW 3550B GC
OA-2	7070973	CQG1135-06	960	1	07/24/07 16:16	MDM	SW 3510C GC
OA-2	7070973	CQG1135-09	910	1	07/24/07 16:16	MDM	SW 3510C GC
OA-2	7070973	CQG1135-11	960	1	07/24/07 16:16	MDM	SW 3510C GC
OA-2 - 8015B	[CALC]	CQG1135-01	1	1	07/24/07 09:29		[CALC]
OA-2 - 8015B	[CALC]	CQG1135-02	1	1	07/24/07 09:29		[CALC]
OA-2 - 8015B	[CALC]	CQG1135-03	1	1	07/24/07 09:29		[CALC]
OA-2 - 8015B	[CALC]	CQG1135-04	1	1	07/24/07 09:29		[CALC]
OA-2 - 8015B	[CALC]	CQG1135-06	1	1	07/24/07 16:16		[CALC]
OA-2 - 8015B	[CALC]	CQG1135-09	1	1	07/24/07 16:16		[CALC]
OA-2 - 8015B	[CALC]	CQG1135-11	1	1	07/24/07 16:16		[CALC]

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
General Chemistry Parameters														
Cyanide	7071056			mg/L	N/A	0.0100	<0.0100							
Cyanide	7071059			mg/kg wet	N/A	1.00	<1.00							
Cyanide	7071195			mg/L	N/A	0.0100	<0.0100							
Cyanide	7071275			mg/kg wet	N/A	1.00	<1.00							
General Chemistry Parameters - Dissolved														
Total Dissolved Solids	7071116			mg/L	N/A	20.0	<20.0							
Total Metals by SW 846 Series Methods														
Barium	7070990			mg/kg wet	N/A	0.500	<0.500							
Cadmium	7070990			mg/kg wet	N/A	1.00	<1.00							
Chromium	7070990			mg/kg wet	N/A	1.00	<1.00							
Lead	7070990			mg/kg wet	N/A	5.00	<5.00							
Selenium	7070990			mg/kg wet	N/A	7.50	<7.50							
Silver	7070990			mg/kg wet	N/A	1.00	<1.00							
Barium	7070991			mg/L	N/A	0.0100	<0.0100							
Chromium	7070991			mg/L	N/A	0.0200	<0.0200							
Silver	7070991			mg/L	N/A	0.0200	<0.0200							
Arsenic	7070993			mg/L	N/A	0.00100	<0.00100							
Cadmium	7070993			mg/L	N/A	0.000500	<0.000500							
Lead	7070993			mg/L	N/A	0.00400	<0.00400							
Selenium	7070993			mg/L	N/A	0.00500	<0.00500							
Arsenic	7070996			mg/kg wet	N/A	1.00	<1.00							
Mercury	7071022			mg/kg wet	N/A	0.0200	<0.0200							
Mercury	7071099			mg/L	N/A	0.000200	<0.000200							
Dissolved Metals by SW 846 Series Methods														
Barium	7070992			mg/L	N/A	0.0100	<0.0100							
Chromium	7070992			mg/L	N/A	0.0200	<0.0200							
Silver	7070992			mg/L	N/A	0.0200	<0.0200							
Arsenic	7070994			mg/L	N/A	0.00100	<0.00100							
Cadmium	7070994			mg/L	N/A	0.000500	<0.000500							
Lead	7070994			mg/L	N/A	0.00400	<0.00400							
Selenium	7070994			mg/L	N/A	0.00500	<0.00500							
Mercury	7071098			mg/L	N/A	0.000200	<0.000200							
Volatile Organic Compounds														
Acetone	7071211			mg/kg wet	N/A	0.0990	<0.0990							
Acrylonitrile	7071211			mg/kg wet	N/A	0.0990	<0.0990							
Benzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Bromobenzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Bromochloromethane	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Bromodichloromethane	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Bromoform	7071211			mg/kg wet	N/A	0.0198	<0.0198							

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
Bromomethane	7071211			mg/kg wet	N/A	0.0396	<0.0396							
2-Butanone (MEK)	7071211			mg/kg wet	N/A	0.0990	<0.0990							
n-Butylbenzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
sec-Butylbenzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
tert-Butylbenzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Carbon disulfide	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Carbon Tetrachloride	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Chlorobenzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Chlorodibromomethane	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Chloroethane	7071211			mg/kg wet	N/A	0.0396	<0.0396							
Chloroform	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Chloromethane	7071211			mg/kg wet	N/A	0.0396	<0.0396							
2-Chlorotoluene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
4-Chlorotoluene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,2-Dibromo-3-chloropropane	7071211			mg/kg wet	N/A	0.0990	<0.0990							
1,2-Dibromoethane (EDB)	7071211			mg/kg wet	N/A	0.0990	<0.0990							
Dibromomethane	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,2-Dichlorobenzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,3-Dichlorobenzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,4-Dichlorobenzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Dichlorodifluoromethane	7071211			mg/kg wet	N/A	0.0297	<0.0297							
1,1-Dichloroethane	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,2-Dichloroethane	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,1-Dichloroethene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
cis-1,2-Dichloroethene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
trans-1,2-Dichloroethene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,2-Dichloropropane	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,3-Dichloropropane	7071211			mg/kg wet	N/A	0.00990	<0.00990							
2,2-Dichloropropane	7071211			mg/kg wet	N/A	0.0396	<0.0396							
1,1-Dichloropropene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
cis-1,3-Dichloropropene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
trans-1,3-Dichloropropene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Ethylbenzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Hexachlorobutadiene	7071211			mg/kg wet	N/A	0.0495	<0.0495							
Hexane	7071211			mg/kg wet	N/A	0.0495	<0.0495							
Isopropylbenzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
p-Isopropyltoluene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Methylene Chloride	7071211			mg/kg wet	N/A	0.0990	<0.0990							S2
Methyl tert-Butyl Ether	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Naphthalene	7071211			mg/kg wet	N/A	0.0495	<0.0495							
n-Propylbenzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Styrene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,1,1,2-Tetrachloroethane	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,1,2,2-Tetrachloroethane	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Tetrachloroethene	7071211			mg/kg wet	N/A	0.00990	<0.00990							

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
Toluene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,2,3-Trichlorobenzene	7071211			mg/kg wet	N/A	0.0495	<0.0495							
1,2,4-Trichlorobenzene	7071211			mg/kg wet	N/A	0.0495	<0.0495							
1,1,1-Trichloroethane	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,1,2-Trichloroethane	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Trichloroethene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Trichlorofluoromethane	7071211			mg/kg wet	N/A	0.0396	<0.0396							
1,2,3-Trichloropropane	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,2,4-Trimethylbenzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
1,3,5-Trimethylbenzene	7071211			mg/kg wet	N/A	0.00990	<0.00990							
Vinyl chloride	7071211			mg/kg wet	N/A	0.0297	<0.0297							
Xylenes, total	7071211			mg/kg wet	N/A	0.0297	<0.0297							
Surrogate: Dibromofluoromethane	*7071211*			ug/L					*116*		*75-125*			
Surrogate: Toluene-d8	*7071211*			ug/L					*106*		*65-130*			
Surrogate: 4-Bromofluorobenzene	*7071211*			ug/L					*91*		*70-125*			
Acetone	7071214			mg/L	0.00462	0.0100	<0.00462							
Acrylonitrile	7071214			mg/L	0.00128	0.0100	<0.00128							
Benzene	7071214			mg/L	0.000160	0.000500	<0.000160							
Bromobenzene	7071214			mg/L	0.000170	0.00100	<0.000170							
Bromochloromethane	7071214			mg/L	0.000310	0.00500	<0.000310							
Bromodichloromethane	7071214			mg/L	0.000120	0.00100	<0.000120							
Bromoform	7071214			mg/L	0.000150	0.00500	<0.000150							
Bromomethane	7071214			mg/L	0.000480	0.00400	<0.000480							
2-Butanone (MEK)	7071214			mg/L	0.000910	0.0100	<0.000910							
n-Butylbenzene	7071214			mg/L	0.0000900	0.00100	<0.0000900							
sec-Butylbenzene	7071214			mg/L	0.000120	0.00100	<0.000120							
tert-Butylbenzene	7071214			mg/L	0.000140	0.00100	<0.000140							
Carbon disulfide	7071214			mg/L	0.000140	0.00100	<0.000140							
Carbon Tetrachloride	7071214			mg/L	0.000130	0.00200	<0.000130							
Chlorobenzene	7071214			mg/L	0.0000800	0.00100	<0.0000800							
Chlorodibromomethane	7071214			mg/L	0.000250	0.00500	<0.000250							
Chloroethane	7071214			mg/L	0.000500	0.00400	<0.000500							
Chloroform	7071214			mg/L	0.0000800	0.00100	0.000600							J
Chloromethane	7071214			mg/L	0.000200	0.00300	<0.000200							
2-Chlorotoluene	7071214			mg/L	0.000200	0.00100	<0.000200							
4-Chlorotoluene	7071214			mg/L	0.000150	0.00100	<0.000150							
1,2-Dibromo-3-chloropropane	7071214			mg/L	0.000750	0.0100	<0.000750							
1,2-Dibromoethane (EDB)	7071214			mg/L	0.000130	0.0100	<0.000130							
Dibromomethane	7071214			mg/L	0.000220	0.00100	<0.000220							
1,2-Dichlorobenzene	7071214			mg/L	0.000150	0.00100	<0.000150							
1,3-Dichlorobenzene	7071214			mg/L	0.000130	0.00100	<0.000130							
1,4-Dichlorobenzene	7071214			mg/L	0.000120	0.00100	<0.000120							
Dichlorodifluoromethane	7071214			mg/L	0.000170	0.00300	<0.000170							
1,1-Dichloroethane	7071214			mg/L	0.0000900	0.00100	<0.0000900							

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
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Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
1,2-Dichloroethane	7071214			mg/L	0.000160	0.00100	<0.000160							
1,1-Dichloroethene	7071214			mg/L	0.000190	0.00200	<0.000190							
cis-1,2-Dichloroethene	7071214			mg/L	0.000200	0.00100	<0.000200							
trans-1,2-Dichloroethene	7071214			mg/L	0.000150	0.00100	<0.000150							
1,2-Dichloropropane	7071214			mg/L	0.000400	0.00100	<0.000400							
1,3-Dichloropropane	7071214			mg/L	0.000190	0.00100	<0.000190							
2,2-Dichloropropane	7071214			mg/L	0.000240	0.00400	<0.000240							CIN
1,1-Dichloropropene	7071214			mg/L	0.000170	0.00100	<0.000170							
cis-1,3-Dichloropropene	7071214			mg/L	0.000160	0.00500	<0.000160							
trans-1,3-Dichloropropene	7071214			mg/L	0.000160	0.00500	<0.000160							
Ethylbenzene	7071214			mg/L	0.000180	0.00100	<0.000180							
Hexachlorobutadiene	7071214			mg/L	0.000390	0.00500	<0.000390							
Hexane	7071214			mg/L	0.000440	0.00100	<0.000440							
Isopropylbenzene	7071214			mg/L	0.000190	0.00100	<0.000190							
p-Isopropyltoluene	7071214			mg/L	0.000130	0.00100	<0.000130							
Methylene Chloride	7071214			mg/L	0.000450	0.00500	<0.000450							
Methyl tert-Butyl Ether	7071214			mg/L	0.000120	0.00100	<0.000120							
Naphthalene	7071214			mg/L	0.000350	0.00500	<0.000350							
n-Propylbenzene	7071214			mg/L	0.000140	0.00100	<0.000140							
Styrene	7071214			mg/L	0.000100	0.00100	<0.000100							
1,1,1,2-Tetrachloroethane	7071214			mg/L	0.000160	0.00100	<0.000160							
1,1,2,2-Tetrachloroethane	7071214			mg/L	0.000230	0.00100	<0.000230							
Tetrachloroethene	7071214			mg/L	0.000240	0.00100	<0.000240							
Toluene	7071214			mg/L	0.000100	0.00100	<0.000100							
1,2,3-Trichlorobenzene	7071214			mg/L	0.00215	0.00500	<0.00215							
1,2,4-Trichlorobenzene	7071214			mg/L	0.000490	0.00500	<0.000490							
1,1,1-Trichloroethane	7071214			mg/L	0.000150	0.00100	<0.000150							
1,1,2-Trichloroethane	7071214			mg/L	0.000300	0.00100	<0.000300							
Trichloroethene	7071214			mg/L	0.000170	0.00100	<0.000170							
Trichlorofluoromethane	7071214			mg/L	0.000150	0.00400	<0.000150							
1,2,3-Trichloropropane	7071214			mg/L	0.000180	0.00100	<0.000180							
1,2,4-Trimethylbenzene	7071214			mg/L	0.000160	0.00100	<0.000160							
1,3,5-Trimethylbenzene	7071214			mg/L	0.000140	0.00100	<0.000140							
Vinyl chloride	7071214			mg/L	0.000160	0.00100	<0.000160							
Xylenes, total	7071214			mg/L	0.000170	0.00300	<0.000170							
Surrogate: Dibromofluoromethane	*7071214*			ug/L					*106*		*80-120*			
Surrogate: Toluene-d8	*7071214*			ug/L					*91*		*80-110*			
Surrogate: 4-Bromofluorobenzene	*7071214*			ug/L					*83*		*65-115*			
Acetone	7071222			mg/L	0.00462	0.0100	<0.00462							
Acrylonitrile	7071222			mg/L	0.00128	0.0100	<0.00128							
Benzene	7071222			mg/L	0.000160	0.000500	<0.000160							
Bromobenzene	7071222			mg/L	0.000170	0.00100	<0.000170							
Bromochloromethane	7071222			mg/L	0.000310	0.00500	<0.000310							
Bromodichloromethane	7071222			mg/L	0.000120	0.00100	<0.000120							

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
Bromoform	7071222			mg/L	0.000150	0.00500	<0.000150							
Bromomethane	7071222			mg/L	0.000480	0.00400	<0.000480							
2-Butanone (MEK)	7071222			mg/L	0.000910	0.0100	<0.000910							
n-Butylbenzene	7071222			mg/L	0.0000900	0.00100	<0.0000900							
sec-Butylbenzene	7071222			mg/L	0.000120	0.00100	<0.000120							
tert-Butylbenzene	7071222			mg/L	0.000140	0.00100	<0.000140							
Carbon disulfide	7071222			mg/L	0.000140	0.00100	<0.000140							
Carbon Tetrachloride	7071222			mg/L	0.000130	0.00200	<0.000130							
Chlorobenzene	7071222			mg/L	0.0000800	0.00100	<0.0000800							
Chlorodibromomethane	7071222			mg/L	0.000250	0.00500	<0.000250							
Chloroethane	7071222			mg/L	0.000500	0.00400	<0.000500							
Chloroform	7071222			mg/L	0.0000800	0.00100	0.000340							J
Chloromethane	7071222			mg/L	0.000200	0.00300	<0.000200							
2-Chlorotoluene	7071222			mg/L	0.000200	0.00100	<0.000200							
4-Chlorotoluene	7071222			mg/L	0.000150	0.00100	<0.000150							
1,2-Dibromo-3-chloropropane	7071222			mg/L	0.000750	0.0100	<0.000750							
1,2-Dibromoethane (EDB)	7071222			mg/L	0.000130	0.0100	<0.000130							
Dibromomethane	7071222			mg/L	0.000220	0.00100	<0.000220							
1,2-Dichlorobenzene	7071222			mg/L	0.000150	0.00100	<0.000150							
1,3-Dichlorobenzene	7071222			mg/L	0.000130	0.00100	<0.000130							
1,4-Dichlorobenzene	7071222			mg/L	0.000120	0.00100	<0.000120							
Dichlorodifluoromethane	7071222			mg/L	0.000170	0.00300	<0.000170							
1,1-Dichloroethane	7071222			mg/L	0.0000900	0.00100	<0.0000900							
1,2-Dichloroethane	7071222			mg/L	0.000160	0.00100	<0.000160							
1,1-Dichloroethene	7071222			mg/L	0.000190	0.00200	<0.000190							
cis-1,2-Dichloroethene	7071222			mg/L	0.000200	0.00100	<0.000200							
trans-1,2-Dichloroethene	7071222			mg/L	0.000150	0.00100	<0.000150							
1,2-Dichloropropane	7071222			mg/L	0.000400	0.00100	<0.000400							
1,3-Dichloropropane	7071222			mg/L	0.000190	0.00100	<0.000190							
2,2-Dichloropropane	7071222			mg/L	0.000240	0.00400	<0.000240							CIN
1,1-Dichloropropene	7071222			mg/L	0.000170	0.00100	<0.000170							
cis-1,3-Dichloropropene	7071222			mg/L	0.000160	0.00500	<0.000160							
trans-1,3-Dichloropropene	7071222			mg/L	0.000160	0.00500	<0.000160							
Ethylbenzene	7071222			mg/L	0.000180	0.00100	<0.000180							
Hexachlorobutadiene	7071222			mg/L	0.000390	0.00500	0.000610							J
Hexane	7071222			mg/L	0.000440	0.00100	<0.000440							
Isopropylbenzene	7071222			mg/L	0.000190	0.00100	<0.000190							
p-Isopropyltoluene	7071222			mg/L	0.000130	0.00100	<0.000130							
Methylene Chloride	7071222			mg/L	0.000450	0.00500	<0.000450							
Methyl tert-Butyl Ether	7071222			mg/L	0.000120	0.00100	<0.000120							
Naphthalene	7071222			mg/L	0.000350	0.00500	<0.000350							
n-Propylbenzene	7071222			mg/L	0.000140	0.00100	<0.000140							
Styrene	7071222			mg/L	0.000100	0.00100	<0.000100							
1,1,1,2-Tetrachloroethane	7071222			mg/L	0.000160	0.00100	<0.000160							
1,1,2,2-Tetrachloroethane	7071222			mg/L	0.000230	0.00100	<0.000230							

HOWARD R. GREEN CO.- DES MOINES <
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Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
Tetrachloroethene	7071222			mg/L	0.000240	0.00100	<0.000240							
Toluene	7071222			mg/L	0.000100	0.00100	<0.000100							
1,2,3-Trichlorobenzene	7071222			mg/L	0.00215	0.00500	<0.00215							
1,2,4-Trichlorobenzene	7071222			mg/L	0.000490	0.00500	<0.000490							
1,1,1-Trichloroethane	7071222			mg/L	0.000150	0.00100	<0.000150							
1,1,2-Trichloroethane	7071222			mg/L	0.000300	0.00100	<0.000300							
Trichloroethene	7071222			mg/L	0.000170	0.00100	<0.000170							
Trichlorofluoromethane	7071222			mg/L	0.000150	0.00400	<0.000150							
1,2,3-Trichloropropane	7071222			mg/L	0.000180	0.00100	<0.000180							
1,2,4-Trimethylbenzene	7071222			mg/L	0.000160	0.00100	<0.000160							
1,3,5-Trimethylbenzene	7071222			mg/L	0.000140	0.00100	<0.000140							
Vinyl chloride	7071222			mg/L	0.000160	0.00100	<0.000160							
Xylenes, total	7071222			mg/L	0.000170	0.00300	<0.000170							
Surrogate: Dibromofluoromethane	*7071222*			ug/L					*105*		*80-120*			
Surrogate: Toluene-d8	*7071222*			ug/L					*90*		*80-110*			
Surrogate: 4-Bromofluorobenzene	*7071222*			ug/L					*83*		*65-115*			
Acetone	7071257			mg/kg wet	N/A	2.36	<2.36							
Acrylonitrile	7071257			mg/kg wet	N/A	2.36	<2.36							
Benzene	7071257			mg/kg wet	N/A	0.236	<0.236							
Bromobenzene	7071257			mg/kg wet	N/A	0.236	<0.236							
Bromochloromethane	7071257			mg/kg wet	N/A	0.236	<0.236							
Bromodichloromethane	7071257			mg/kg wet	N/A	0.236	<0.236							
Bromoform	7071257			mg/kg wet	N/A	0.471	<0.471							
Bromomethane	7071257			mg/kg wet	N/A	0.943	<0.943							
2-Butanone (MEK)	7071257			mg/kg wet	N/A	2.36	<2.36							
n-Butylbenzene	7071257			mg/kg wet	N/A	0.236	<0.236							
sec-Butylbenzene	7071257			mg/kg wet	N/A	0.236	<0.236							
tert-Butylbenzene	7071257			mg/kg wet	N/A	0.236	<0.236							
Carbon disulfide	7071257			mg/kg wet	N/A	0.236	<0.236							
Carbon Tetrachloride	7071257			mg/kg wet	N/A	0.236	<0.236							
Chlorobenzene	7071257			mg/kg wet	N/A	0.236	<0.236							
Chlorodibromomethane	7071257			mg/kg wet	N/A	0.236	<0.236							
Chloroethane	7071257			mg/kg wet	N/A	0.943	<0.943							
Chloroform	7071257			mg/kg wet	N/A	0.236	<0.236							
Chloromethane	7071257			mg/kg wet	N/A	0.943	<0.943							
2-Chlorotoluene	7071257			mg/kg wet	N/A	0.236	<0.236							
4-Chlorotoluene	7071257			mg/kg wet	N/A	0.236	<0.236							
1,2-Dibromo-3-chloropropane	7071257			mg/kg wet	N/A	2.36	<2.36							
1,2-Dibromoethane (EDB)	7071257			mg/kg wet	N/A	2.36	<2.36							
Dibromomethane	7071257			mg/kg wet	N/A	0.236	<0.236							
1,2-Dichlorobenzene	7071257			mg/kg wet	N/A	0.236	<0.236							
1,3-Dichlorobenzene	7071257			mg/kg wet	N/A	0.236	<0.236							
1,4-Dichlorobenzene	7071257			mg/kg wet	N/A	0.236	<0.236							
Dichlorodifluoromethane	7071257			mg/kg wet	N/A	0.707	<0.707							

TestAmerica
ANALYTICAL TESTING CORPORATION
704 Enterprise Drive Cedar Falls, IA 50613 * 800-750-2401 * Fax 319-277-2425

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
1,1-Dichloroethane	7071257			mg/kg wet	N/A	0.236	<0.236							
1,2-Dichloroethane	7071257			mg/kg wet	N/A	0.236	<0.236							
1,1-Dichloroethene	7071257			mg/kg wet	N/A	0.236	<0.236							
cis-1,2-Dichloroethene	7071257			mg/kg wet	N/A	0.236	<0.236							
trans-1,2-Dichloroethene	7071257			mg/kg wet	N/A	0.236	<0.236							
1,2-Dichloropropane	7071257			mg/kg wet	N/A	0.236	<0.236							
1,3-Dichloropropane	7071257			mg/kg wet	N/A	0.236	<0.236							
2,2-Dichloropropane	7071257			mg/kg wet	N/A	0.943	<0.943							
1,1-Dichloropropene	7071257			mg/kg wet	N/A	0.236	<0.236							
cis-1,3-Dichloropropene	7071257			mg/kg wet	N/A	0.236	<0.236							
trans-1,3-Dichloropropene	7071257			mg/kg wet	N/A	0.236	<0.236							
Ethylbenzene	7071257			mg/kg wet	N/A	0.236	<0.236							
Hexachlorobutadiene	7071257			mg/kg wet	N/A	1.18	<1.18							
Hexane	7071257			mg/kg wet	N/A	1.18	<1.18							
Isopropylbenzene	7071257			mg/kg wet	N/A	0.236	<0.236							
p-Isopropyltoluene	7071257			mg/kg wet	N/A	0.236	<0.236							
Methylene Chloride	7071257			mg/kg wet	N/A	2.36	<2.36							
Methyl tert-Butyl Ether	7071257			mg/kg wet	N/A	0.236	<0.236							
Naphthalene	7071257			mg/kg wet	N/A	1.18	<1.18							
n-Propylbenzene	7071257			mg/kg wet	N/A	0.236	<0.236							
Styrene	7071257			mg/kg wet	N/A	0.236	<0.236							
1,1,1,2-Tetrachloroethane	7071257			mg/kg wet	N/A	0.236	<0.236							
1,1,2,2-Tetrachloroethane	7071257			mg/kg wet	N/A	0.236	<0.236							
Tetrachloroethene	7071257			mg/kg wet	N/A	0.236	<0.236							
Toluene	7071257			mg/kg wet	N/A	0.236	<0.236							
1,2,3-Trichlorobenzene	7071257			mg/kg wet	N/A	1.18	<1.18							
1,2,4-Trichlorobenzene	7071257			mg/kg wet	N/A	1.18	<1.18							
1,1,1-Trichloroethane	7071257			mg/kg wet	N/A	0.236	<0.236							
1,1,2-Trichloroethane	7071257			mg/kg wet	N/A	0.236	<0.236							
Trichloroethene	7071257			mg/kg wet	N/A	0.236	<0.236							
Trichlorofluoromethane	7071257			mg/kg wet	N/A	0.943	<0.943							
1,2,3-Trichloropropane	7071257			mg/kg wet	N/A	0.236	<0.236							
1,2,4-Trimethylbenzene	7071257			mg/kg wet	N/A	0.236	<0.236							
1,3,5-Trimethylbenzene	7071257			mg/kg wet	N/A	0.236	<0.236							
Vinyl chloride	7071257			mg/kg wet	N/A	0.707	<0.707							
Xylenes, total	7071257			mg/kg wet	N/A	0.707	<0.707							
Surrogate: Dibromofluoromethane	*7071257*			ug/L					*97*		*75-125*			
Surrogate: Toluene-d8	*7071257*			ug/L					*105*		*65-130*			
Surrogate: 4-Bromofluorobenzene	*7071257*			ug/L					*87*		*70-125*			

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4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
Acetone	7080072			mg/kg wet	N/A	2.41	<2.41							
Acrylonitrile	7080072			mg/kg wet	N/A	2.41	<2.41							
Benzene	7080072			mg/kg wet	N/A	0.241	<0.241							
Bromobenzene	7080072			mg/kg wet	N/A	0.241	<0.241							
Bromochloromethane	7080072			mg/kg wet	N/A	0.241	<0.241							
Bromodichloromethane	7080072			mg/kg wet	N/A	0.241	<0.241							
Bromoform	7080072			mg/kg wet	N/A	0.481	<0.481							
Bromomethane	7080072			mg/kg wet	N/A	0.962	<0.962							
2-Butanone (MEK)	7080072			mg/kg wet	N/A	2.41	<2.41							
n-Butylbenzene	7080072			mg/kg wet	N/A	0.241	<0.241							
sec-Butylbenzene	7080072			mg/kg wet	N/A	0.241	<0.241							
tert-Butylbenzene	7080072			mg/kg wet	N/A	0.241	<0.241							
Carbon disulfide	7080072			mg/kg wet	N/A	0.241	<0.241							
Carbon Tetrachloride	7080072			mg/kg wet	N/A	0.241	<0.241							
Chlorobenzene	7080072			mg/kg wet	N/A	0.241	<0.241							
Chlorodibromomethane	7080072			mg/kg wet	N/A	0.241	<0.241							
Chloroethane	7080072			mg/kg wet	N/A	0.962	<0.962							
Chloroform	7080072			mg/kg wet	N/A	0.241	<0.241							
Chloromethane	7080072			mg/kg wet	N/A	0.962	<0.962							
2-Chlorotoluene	7080072			mg/kg wet	N/A	0.241	<0.241							
4-Chlorotoluene	7080072			mg/kg wet	N/A	0.241	<0.241							
1,2-Dibromo-3-chloropropane	7080072			mg/kg wet	N/A	2.41	<2.41							
1,2-Dibromoethane (EDB)	7080072			mg/kg wet	N/A	2.41	<2.41							
Dibromomethane	7080072			mg/kg wet	N/A	0.241	<0.241							
1,2-Dichlorobenzene	7080072			mg/kg wet	N/A	0.241	<0.241							
1,3-Dichlorobenzene	7080072			mg/kg wet	N/A	0.241	<0.241							
1,4-Dichlorobenzene	7080072			mg/kg wet	N/A	0.241	<0.241							
Dichlorodifluoromethane	7080072			mg/kg wet	N/A	0.722	<0.722							
1,1-Dichloroethane	7080072			mg/kg wet	N/A	0.241	<0.241							
1,2-Dichloroethane	7080072			mg/kg wet	N/A	0.241	<0.241							
1,1-Dichloroethene	7080072			mg/kg wet	N/A	0.241	<0.241							
cis-1,2-Dichloroethene	7080072			mg/kg wet	N/A	0.241	<0.241							
trans-1,2-Dichloroethene	7080072			mg/kg wet	N/A	0.241	<0.241							
1,2-Dichloropropane	7080072			mg/kg wet	N/A	0.241	<0.241							
1,3-Dichloropropane	7080072			mg/kg wet	N/A	0.241	<0.241							
2,2-Dichloropropane	7080072			mg/kg wet	N/A	0.962	<0.962							
1,1-Dichloropropene	7080072			mg/kg wet	N/A	0.241	<0.241							
cis-1,3-Dichloropropene	7080072			mg/kg wet	N/A	0.241	<0.241							
trans-1,3-Dichloropropene	7080072			mg/kg wet	N/A	0.241	<0.241							
Ethylbenzene	7080072			mg/kg wet	N/A	0.241	<0.241							
Hexachlorobutadiene	7080072			mg/kg wet	N/A	1.20	<1.20							
Hexane	7080072			mg/kg wet	N/A	1.20	<1.20							
Isopropylbenzene	7080072			mg/kg wet	N/A	0.241	<0.241							
p-Isopropyltoluene	7080072			mg/kg wet	N/A	0.241	<0.241							
Methylene Chloride	7080072			mg/kg wet	N/A	2.41	<2.41							

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Received: 07/23/07
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LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
Methyl tert-Butyl Ether	7080072			mg/kg wet	N/A	0.241	<0.241							
Naphthalene	7080072			mg/kg wet	N/A	1.20	<1.20							
n-Propylbenzene	7080072			mg/kg wet	N/A	0.241	<0.241							
Styrene	7080072			mg/kg wet	N/A	0.241	<0.241							
1,1,1,2-Tetrachloroethane	7080072			mg/kg wet	N/A	0.241	<0.241							
1,1,2,2-Tetrachloroethane	7080072			mg/kg wet	N/A	0.241	<0.241							
Tetrachloroethene	7080072			mg/kg wet	N/A	0.241	<0.241							
Toluene	7080072			mg/kg wet	N/A	0.241	<0.241							
1,2,3-Trichlorobenzene	7080072			mg/kg wet	N/A	1.20	<1.20							
1,2,4-Trichlorobenzene	7080072			mg/kg wet	N/A	1.20	<1.20							
1,1,1-Trichloroethane	7080072			mg/kg wet	N/A	0.241	<0.241							
1,1,2-Trichloroethane	7080072			mg/kg wet	N/A	0.241	<0.241							
Trichloroethene	7080072			mg/kg wet	N/A	0.241	<0.241							
Trichlorofluoromethane	7080072			mg/kg wet	N/A	0.962	<0.962							
1,2,3-Trichloropropane	7080072			mg/kg wet	N/A	0.241	<0.241							
1,2,4-Trimethylbenzene	7080072			mg/kg wet	N/A	0.241	<0.241							
1,3,5-Trimethylbenzene	7080072			mg/kg wet	N/A	0.241	<0.241							
Vinyl chloride	7080072			mg/kg wet	N/A	0.722	<0.722							
Xylenes, total	7080072			mg/kg wet	N/A	0.722	<0.722							
Surrogate: Dibromofluoromethane	*7080072*			ug/L					*105*		*75-125*			
Surrogate: Toluene-d8	*7080072*			ug/L					*126*		*65-130*			
Surrogate: 4-Bromofluorobenzene	*7080072*			ug/L					*84*		*70-125*			
Semivolatile Organics by GC/MS														
Acenaphthene	7070959			mg/L	0.00189	0.0100	<0.00189							
Acenaphthylene	7070959			mg/L	0.00141	0.0100	<0.00141							
Anthracene	7070959			mg/L	0.00115	0.0100	<0.00115							
Benzidine	7070959			mg/L	0.0330	0.100	<0.0330							
Benzo (a) anthracene	7070959			mg/L	0.00110	0.0100	<0.00110							
Benzo (b) fluoranthene	7070959			mg/L	0.00190	0.0100	<0.00190							
Benzo (k) fluoranthene	7070959			mg/L	0.00212	0.0100	<0.00212							
Benzo (a) pyrene	7070959			mg/L	0.00193	0.0100	<0.00193							
Benzo (g,h,i) perylene	7070959			mg/L	0.00203	0.0100	<0.00203							
Benzyl alcohol	7070959			mg/L	0.00126	0.0100	<0.00126							
Butyl benzyl phthalate	7070959			mg/L	0.00154	0.0100	<0.00154							
Bis(2-chloroethyl)ether	7070959			mg/L	0.00150	0.0100	<0.00150							
Bis(2-chloroethoxy)methane	7070959			mg/L	0.00152	0.0100	<0.00152							
Bis(2-ethylhexyl)phthalate	7070959			mg/L	0.00160	0.0100	<0.00160							
Bis(2-chloroisopropyl) ether	7070959			mg/L	0.00133	0.0100	<0.00133							
4-Bromophenyl phenyl ether	7070959			mg/L	0.00196	0.0100	<0.00196							
Carbazole	7070959			mg/L	0.00142	0.0100	<0.00142							
4-Chloroaniline	7070959			mg/L	0.00123	0.0100	<0.00123							
2-Chloronaphthalene	7070959			mg/L	0.00179	0.0100	<0.00179							
4-Chlorophenyl phenyl ether	7070959			mg/L	0.00208	0.0100	<0.00208							
Chrysene	7070959			mg/L	0.00133	0.0100	<0.00133							

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Semivolatile Organics by GC/MS														
Dibenzo (a,h) anthracene	7070959			mg/L	0.00220	0.0100	<0.00220							
Dibenzofuran	7070959			mg/L	0.00164	0.0100	<0.00164							
Di-n-butyl phthalate	7070959			mg/L	0.00155	0.0100	<0.00155							
1,2-Dichlorobenzene	7070959			mg/L	0.00140	0.0100	<0.00140							
1,3-Dichlorobenzene	7070959			mg/L	0.00150	0.0100	<0.00150							
1,4-Dichlorobenzene	7070959			mg/L	0.00159	0.0100	<0.00159							
3,3'-Dichlorobenzidine	7070959			mg/L	0.00174	0.0500	<0.00174							
Diethyl phthalate	7070959			mg/L	0.00134	0.0100	<0.00134							
Dimethyl phthalate	7070959			mg/L	0.00155	0.0100	<0.00155							
2,4-Dinitrotoluene	7070959			mg/L	0.00132	0.0100	<0.00132							
2,6-Dinitrotoluene	7070959			mg/L	0.00193	0.0100	<0.00193							
Di-n-octyl phthalate	7070959			mg/L	0.00178	0.0100	<0.00178							
Fluoranthene	7070959			mg/L	0.00127	0.0100	<0.00127							
Fluorene	7070959			mg/L	0.00156	0.0100	<0.00156							
Hexachlorobenzene	7070959			mg/L	0.00201	0.0100	<0.00201							
Hexachlorobutadiene	7070959			mg/L	0.00194	0.0100	<0.00194							
Hexachlorocyclopentadiene	7070959			mg/L	0.00109	0.0200	<0.00109							
Hexachloroethane	7070959			mg/L	0.00138	0.0100	<0.00138							
Indeno (1,2,3-cd) pyrene	7070959			mg/L	0.00162	0.0100	<0.00162							
Isophorone	7070959			mg/L	0.00149	0.0100	<0.00149							
2-Methylnaphthalene	7070959			mg/L	0.00150	0.0100	<0.00150							
Naphthalene	7070959			mg/L	0.00149	0.0100	<0.00149							
2-Nitroaniline	7070959			mg/L	0.00154	0.0100	<0.00154							
3-Nitroaniline	7070959			mg/L	0.00168	0.0100	<0.00168							
4-Nitroaniline	7070959			mg/L	0.00186	0.0100	<0.00186							
Nitrobenzene	7070959			mg/L	0.00152	0.0100	<0.00152							
N-Nitrosodimethylamine	7070959			mg/L	0.000892	0.0100	<0.000892							
N-Nitrosodiphenylamine	7070959			mg/L	0.00182	0.0100	<0.00182							
N-Nitrosodi-n-propylamine	7070959			mg/L	0.00195	0.0100	<0.00195							
Phenanthrene	7070959			mg/L	0.00137	0.0100	<0.00137							
Pyrene	7070959			mg/L	0.00128	0.0100	<0.00128							
Pyridine	7070959			mg/L	0.000670	0.0100	<0.000670							
1,2,4-Trichlorobenzene	7070959			mg/L	0.00165	0.0100	<0.00165							
Benzoic acid	7070959			mg/L	0.0130	0.0200	<0.0130							L1
4-Chloro-3-methylphenol	7070959			mg/L	0.00145	0.0100	<0.00145							
2-Chlorophenol	7070959			mg/L	0.00138	0.0100	<0.00138							
Cresol(s)	7070959			mg/L	0.00122	0.0100	<0.00122							
2,4-Dichlorophenol	7070959			mg/L	0.00172	0.0100	<0.00172							
2,4-Dimethylphenol	7070959			mg/L	0.000899	0.0100	<0.000899							
2,4-Dinitrophenol	7070959			mg/L	0.00125	0.0200	<0.00125							
4,6-Dinitro-2-methylphenol	7070959			mg/L	0.00164	0.0100	<0.00164							
2-Methylphenol (o-Cresol)	7070959			mg/L	0.00122	0.0100	<0.00122							
4-Methylphenol (p-Cresol)	7070959			mg/L	0.00105	0.0100	<0.00105							
2-Nitrophenol	7070959			mg/L	0.00165	0.0100	<0.00165							
4-Nitrophenol	7070959			mg/L	0.000834	0.0100	<0.000834							

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Received: 07/23/07
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LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Semivolatile Organics by GC/MS														
Pentachlorophenol	7070959			mg/L	0.00205	0.0100	<0.00205							
Phenol	7070959			mg/L	0.000730	0.0100	<0.000730							
2,4,5-Trichlorophenol	7070959			mg/L	0.00178	0.0100	<0.00178							
2,4,6-Trichlorophenol	7070959			mg/L	0.00184	0.0100	<0.00184							
Surrogate: Nitrobenzene-d5	*7070959*			mg/L					*77*		*15-110*			
Surrogate: 2-Fluorobiphenyl	*7070959*			mg/L					*70*		*15-110*			
Surrogate: Terphenyl-d14	*7070959*			mg/L					*78*		*20-115*			
Surrogate: Phenol-d6	*7070959*			mg/L					*32*		*10-75*			
Surrogate: 2-Fluorophenol	*7070959*			mg/L					*49*		*10-85*			
Surrogate: 2,4,6-Tribromophenol	*7070959*			mg/L					*72*		*35-130*			
PNA compounds by HPLC														
Acenaphthene	7070969			mg/kg wet	N/A	0.0420	<0.0420							
Acenaphthylene	7070969			mg/kg wet	N/A	0.0420	<0.0420							
Anthracene	7070969			mg/kg wet	N/A	0.0170	<0.0170							
Benzo (a) anthracene	7070969			mg/kg wet	N/A	0.0170	<0.0170							
Benzo (b) fluoranthene	7070969			mg/kg wet	N/A	0.0170	<0.0170							
Benzo (k) fluoranthene	7070969			mg/kg wet	N/A	0.0170	<0.0170							
Benzo (a) pyrene	7070969			mg/kg wet	N/A	0.0170	<0.0170							
Benzo (g,h,i) perylene	7070969			mg/kg wet	N/A	0.0170	<0.0170							
Chrysene	7070969			mg/kg wet	N/A	0.0170	<0.0170							
Dibenzo (a,h) anthracene	7070969			mg/kg wet	N/A	0.0170	<0.0170							
Fluoranthene	7070969			mg/kg wet	N/A	0.0170	<0.0170							
Fluorene	7070969			mg/kg wet	N/A	0.0350	<0.0350							
Indeno (1,2,3-cd) pyrene	7070969			mg/kg wet	N/A	0.0170	<0.0170							
1-Methylnaphthalene	7070969			mg/kg wet	N/A	0.0420	<0.0420							
2-Methylnaphthalene	7070969			mg/kg wet	N/A	0.0420	<0.0420							
Naphthalene	7070969			mg/kg wet	N/A	0.0170	<0.0170							
Phenanthrene	7070969			mg/kg wet	N/A	0.0170	<0.0170							
Pyrene	7070969			mg/kg wet	N/A	0.0420	<0.0420							
Surrogate: 2-Fluorobiphenyl	*7070969*			mg/kg wet					*89*		*20-115*			
Acenaphthene	7071009			mg/L	0.0000490	0.000200	<0.0000490							
Acenaphthylene	7071009			mg/L	0.0000850	0.000200	<0.0000850							
Anthracene	7071009			mg/L	0.0000100	0.000100	<0.0000100							
Benzo (a) anthracene	7071009			mg/L	3.00E-6	0.000100	<3.00E-6							
Benzo (b) fluoranthene	7071009			mg/L	0.0000130	0.000100	<0.0000130							
Benzo (k) fluoranthene	7071009			mg/L	0.0000150	0.000100	<0.0000150							
Benzo (a) pyrene	7071009			mg/L	0.0000320	0.000100	<0.0000320							
Benzo (g,h,i) perylene	7071009			mg/L	9.00E-6	0.000200	<9.00E-6							
Chrysene	7071009			mg/L	5.00E-6	0.000100	<5.00E-6							
Dibenzo (a,h) anthracene	7071009			mg/L	0.0000100	0.000100	<0.0000100							
Fluoranthene	7071009			mg/L	0.0000100	0.000100	<0.0000100							
Fluorene	7071009			mg/L	0.0000100	0.000100	<0.0000100							
Indeno (1,2,3-cd) pyrene	7071009			mg/L	7.00E-6	0.000100	<7.00E-6							

TestAmerica
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Received: 07/23/07
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LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
PNA compounds by HPLC														
1-Methylnaphthalene	7071009			mg/L	0.0000560	0.000200	<0.0000560							
2-Methylnaphthalene	7071009			mg/L	0.0000520	0.000200	<0.0000520							
Naphthalene	7071009			mg/L	0.0000540	0.000200	<0.0000540							
Phenanthrene	7071009			mg/L	7.00E-6	0.000100	<7.00E-6							
Pyrene	7071009			mg/L	0.0000190	0.000100	<0.0000190							
Surrogate: 2-Fluorobiphenyl	*7071009*			mg/L					*72*		*15-110*			
UST ANALYSIS PARAMETERS														
Diesel	7070938			mg/kg	N/A	10.0	<10.0							
Gasoline	7070938			mg/kg	N/A	10.0	<10.0							
Motor Oil	7070938			mg/kg	N/A	10.0	<10.0							
Surrogate: Octacosane	*7070938*			mg/kg					*86*		*55-120*			
Diesel	7070973			mg/L	N/A	0.300	<0.300							
Gasoline	7070973			mg/L	N/A	0.300	<0.300							
Motor Oil	7070973			mg/L	N/A	0.300	<0.300							
Surrogate: Octacosane	*7070973*			mg/L					*82*		*40-135*			

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LABORATORY DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
General Chemistry Parameters													
QC Source Sample: CQG1130-02													
% Solids	7070956	82.6		%	N/A	0.100	83.5				1	10	
General Chemistry Parameters - Dissolved													
QC Source Sample: CQG1077-01													
Total Dissolved Solids	7071116	1440		mg/L	N/A	20.0	1420				1	20	
QC Source Sample: CQG1139-01													
Total Dissolved Solids	7071116	940		mg/L	N/A	20.0	966				3	20	

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LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
General Chemistry Parameters														
Cyanide	7071056		0.196	mg/L	N/A	0.0100	0.197		101		90-110			
Cyanide	7071059		9.79	mg/kg wet	N/A	1.00	9.98		102		90-110			
Cyanide	7071195		0.196	mg/L	N/A	0.0100	0.204		104		90-110			
Cyanide	7071275		9.69	mg/kg wet	N/A	1.00	10.0		103		90-110			
General Chemistry Parameters - Dissolved														
Total Dissolved Solids	7071116		1000	mg/L	N/A	N/A	996		100		90-110			
Total Metals by SW 846 Series Methods														
Barium	7070990		50.0	mg/kg wet	N/A	0.500	48.2		96		80-110			
Cadmium	7070990		50.0	mg/kg wet	N/A	1.00	46.5		93		80-115			
Chromium	7070990		50.0	mg/kg wet	N/A	1.00	46.9		94		80-110			
Lead	7070990		100	mg/kg wet	N/A	5.00	95.3		95		80-115			
Selenium	7070990		200	mg/kg wet	N/A	7.50	189		95		80-110			
Silver	7070990		50.0	mg/kg wet	N/A	1.00	52.0		104		80-110			
Barium	7070991		1.00	mg/L	N/A	0.0100	0.938		94		85-115			
Chromium	7070991		1.00	mg/L	N/A	0.0200	0.913		91		85-115			
Silver	7070991		1.00	mg/L	N/A	0.0200	1.01		101		80-110			
Arsenic	7070993		0.0400	mg/L	N/A	0.00200	0.0391		98		80-120			
Cadmium	7070993		0.0200	mg/L	N/A	0.0100	0.0206		103		80-120			
Lead	7070993		0.0400	mg/L	N/A	0.00400	0.0388		97		85-115			
Selenium	7070993		0.0800	mg/L	N/A	0.0100	0.0814		102		80-115			
Arsenic	7070996		2.00	mg/kg wet	N/A	1.00	1.67		84		80-120			
Mercury	7071022		0.162	mg/kg wet	N/A	0.0200	0.142		88		70-105			
Mercury	7071099		1.64	ug/L	N/A	N/A	1.80		110		75-130			
Dissolved Metals by SW 846 Series Methods														
Barium	7070992		1.00	mg/L	N/A	0.0100	0.914		91		85-115			
Chromium	7070992		1.00	mg/L	N/A	0.0200	0.896		90		85-115			
Silver	7070992		1.00	mg/L	N/A	0.0200	0.978		98		80-110			
Arsenic	7070994		0.0400	mg/L	N/A	0.00200	0.0433		108		80-120			
Cadmium	7070994		0.0200	mg/L	N/A	0.0100	0.0216		108		80-120			
Lead	7070994		0.0400	mg/L	N/A	0.00400	0.0435		109		85-115			
Selenium	7070994		0.0800	mg/L	N/A	0.0100	0.0846		106		80-115			
Mercury	7071098		1.64	ug/L	N/A	N/A	1.78		109		75-130			

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LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
Acetone	7071211		0.0349	mg/kg wet	N/A	0.0873	0.0513	0.0515	147	168	55-150	0	20	L1
Acrylonitrile	7071211		0.0349	mg/kg wet	N/A	0.0873	0.0348	0.0374	100	122	45-140	7	20	
Benzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0336	0.0310	96	101	60-135	8	20	
Bromobenzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0285	0.0256	81	83	55-140	11	20	
Bromochloromethane	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0298	0.0289	85	94	60-145	3	20	
Bromodichloromethane	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0326	0.0325	93	106	55-135	0	20	
Bromoform	7071211		0.0349	mg/kg wet	N/A	0.0175	0.0253	0.0225	73	73	55-120	12	20	
Bromomethane	7071211		0.0349	mg/kg wet	N/A	0.0349	0.0359	0.0411	103	134	45-140	14	20	
2-Butanone (MEK)	7071211		0.0349	mg/kg wet	N/A	0.0873	0.0363	0.0356	104	116	50-145	2	20	
n-Butylbenzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0300	0.0256	86	84	35-130	16	20	
sec-Butylbenzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0292	0.0250	84	81	45-130	16	20	
tert-Butylbenzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0285	0.0240	82	78	45-130	17	20	
Carbon disulfide	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0356	0.0372	102	121	45-130	4	20	
Carbon Tetrachloride	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0271	0.0270	78	88	55-145	0	20	
Chlorobenzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0290	0.0259	83	85	55-130	11	20	
Chlorodibromomethane	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0302	0.0277	87	91	55-125	9	20	
Chloroethane	7071211		0.0349	mg/kg wet	N/A	0.0349	0.0401	0.0403	115	132	50-135	1	20	
Chloroform	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0351	0.0369	100	121	50-135	5	20	
Chloromethane	7071211		0.0349	mg/kg wet	N/A	0.0349	0.0441	0.0395	126	129	50-125	11	20	L1
2-Chlorotoluene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0323	0.0296	92	97	50-145	9	20	
4-Chlorotoluene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0332	0.0299	95	98	45-140	10	20	
1,2-Dibromo-3-chloropropane	7071211		0.0349	mg/kg wet	N/A	0.0873	0.0331	0.0278	95	91	40-125	17	20	
1,2-Dibromoethane (EDB)	7071211		0.0349	mg/kg wet	N/A	0.0873	0.0317	0.0292	91	95	60-135	8	20	
Dibromomethane	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0337	0.0329	96	107	60-145	2	20	
1,2-Dichlorobenzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0280	0.0245	80	80	50-125	13	20	
1,3-Dichlorobenzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0271	0.0234	77	76	40-135	14	20	
1,4-Dichlorobenzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0274	0.0241	78	79	45-130	13	20	
Dichlorodifluoromethane	7071211		0.0349	mg/kg wet	N/A	0.0262	0.0313	0.0296	90	97	45-115	5	20	
1,1-Dichloroethane	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0351	0.0367	100	120	50-145	4	20	
1,2-Dichloroethane	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0385	0.0397	110	130	50-140	3	20	
1,1-Dichloroethene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0350	0.0360	100	118	55-140	3	20	
cis-1,2-Dichloroethene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0317	0.0328	91	107	60-140	3	20	
trans-1,2-Dichloroethene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0287	0.0311	82	102	50-140	8	20	
1,2-Dichloropropane	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0365	0.0337	104	110	55-135	8	20	
1,3-Dichloropropane	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0362	0.0329	104	107	65-135	10	20	
2,2-Dichloropropane	7071211		0.0349	mg/kg wet	N/A	0.0349	0.0349	0.0355	100	116	40-130	2	20	
1,1-Dichloropropene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0332	0.0348	95	114	55-135	5	20	
cis-1,3-Dichloropropene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0330	0.0308	95	100	50-130	7	20	
trans-1,3-Dichloropropene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0336	0.0310	96	101	50-130	8	20	
Ethylbenzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0315	0.0283	90	92	50-140	11	20	
Hexachlorobutadiene	7071211		0.0349	mg/kg wet	N/A	0.0437	0.0211	0.0177	60	58	30-125	17	20	
Hexane	7071211		0.0349	mg/kg wet	N/A	0.0437	0.0476	0.0382	136	125	30-125	22	20	L1,R
Isopropylbenzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0299	0.0269	86	88	50-140	11	20	
p-Isopropyltoluene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0272	0.0235	78	77	40-135	14	20	
Methylene Chloride	7071211		0.0349	mg/kg wet	N/A	0.0873	0.0800	0.0808	229	264	50-145	1	20	L1,S2

TestAmerica
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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
Methyl tert-Butyl Ether	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0390	0.0385	112	126	50-145	1	20	
Naphthalene	7071211		0.0349	mg/kg wet	N/A	0.0437	0.0279	0.0246	80	80	50-125	12	20	
n-Propylbenzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0313	0.0286	90	93	40-135	9	20	
Styrene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0311	0.0276	89	90	55-135	12	20	
1,1,1,2-Tetrachloroethane	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0277	0.0258	79	84	55-135	7	20	
1,1,2,2-Tetrachloroethane	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0367	0.0328	105	107	60-125	11	20	
Tetrachloroethene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0246	0.0221	70	72	45-135	11	20	
Toluene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0314	0.0291	90	95	55-135	8	20	
1,2,3-Trichlorobenzene	7071211		0.0349	mg/kg wet	N/A	0.0437	0.0237	0.0212	68	69	40-125	11	20	
1,2,4-Trichlorobenzene	7071211		0.0349	mg/kg wet	N/A	0.0437	0.0220	0.0195	63	64	30-125	12	20	
1,1,1-Trichloroethane	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0296	0.0295	85	96	45-140	0	20	
1,1,2-Trichloroethane	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0354	0.0329	101	107	65-130	7	20	
Trichloroethene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0317	0.0288	91	94	50-135	10	20	
Trichlorofluoromethane	7071211		0.0349	mg/kg wet	N/A	0.0349	0.0431	0.0413	123	135	50-130	4	20	L1
1,2,3-Trichloropropane	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0343	0.0303	98	99	55-150	13	20	
1,2,4-Trimethylbenzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0302	0.0279	86	91	55-135	8	20	
1,3,5-Trimethylbenzene	7071211		0.0349	mg/kg wet	N/A	0.00873	0.0307	0.0279	88	91	50-140	10	20	
Vinyl chloride	7071211		0.0349	mg/kg wet	N/A	0.0262	0.0400	0.0393	115	128	55-125	2	20	L1
Xylenes, total	7071211		0.105	mg/kg wet	N/A	0.0262	0.0899	0.0808	86	88	55-135	11	20	
Surrogate: Dibromofluoromethane	*7071211*			ug/L					*109*	*125*	*80-125*			
Surrogate: Toluene-d8	*7071211*			ug/L					*108*	*110*	*85-110*			
Surrogate: 4-Bromofluorobenzene	*7071211*			ug/L					*93*	*94*	*85-120*			
Acetone	7071214		20.0	ug/L	N/A	N/A	20.7		103		50-145			
Acrylonitrile	7071214		20.0	ug/L	N/A	N/A	21.8		109		50-145			
Benzene	7071214		20.0	ug/L	N/A	N/A	21.9		110		75-125			
Bromobenzene	7071214		20.0	ug/L	N/A	N/A	16.0		80		75-120			
Bromochloromethane	7071214		20.0	ug/L	N/A	N/A	21.9		109		70-140			
Bromodichloromethane	7071214		20.0	ug/L	N/A	N/A	19.2		96		75-115			
Bromoform	7071214		20.0	ug/L	N/A	N/A	14.5		73		55-115			
Bromomethane	7071214		20.0	ug/L	N/A	N/A	22.9		114		40-130			
2-Butanone (MEK)	7071214		20.0	ug/L	N/A	N/A	19.8		99		50-140			
n-Butylbenzene	7071214		20.0	ug/L	N/A	N/A	22.8		114		65-130			
sec-Butylbenzene	7071214		20.0	ug/L	N/A	N/A	22.3		112		70-125			
tert-Butylbenzene	7071214		20.0	ug/L	N/A	N/A	21.5		107		70-125			
Carbon disulfide	7071214		20.0	ug/L	N/A	N/A	22.2		111		55-130			
Carbon Tetrachloride	7071214		20.0	ug/L	N/A	N/A	18.7		93		65-120			
Chlorobenzene	7071214		20.0	ug/L	N/A	N/A	17.4		87		75-115			
Chlorodibromomethane	7071214		20.0	ug/L	N/A	N/A	16.2		81		65-110			
Chloroethane	7071214		20.0	ug/L	N/A	N/A	22.1		111		60-145			
Chloroform	7071214		20.0	ug/L	N/A	N/A	23.4		117		70-125			
Chloromethane	7071214		20.0	ug/L	N/A	N/A	21.5		107		35-130			
2-Chlorotoluene	7071214		20.0	ug/L	N/A	N/A	17.1		85		75-125			
4-Chlorotoluene	7071214		20.0	ug/L	N/A	N/A	16.8		84		70-125			
1,2-Dibromo-3-chloropropane	7071214		20.0	ug/L	N/A	N/A	16.2		81		35-120			

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Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
1,2-Dibromoethane (EDB)	7071214		20.0	ug/L	N/A	N/A	16.2		81		75-120			
Dibromomethane	7071214		20.0	ug/L	N/A	N/A	22.5		113		75-125			
1,2-Dichlorobenzene	7071214		20.0	ug/L	N/A	N/A	20.8		104		70-115			
1,3-Dichlorobenzene	7071214		20.0	ug/L	N/A	N/A	20.3		102		70-120			
1,4-Dichlorobenzene	7071214		20.0	ug/L	N/A	N/A	20.4		102		70-120			
Dichlorodifluoromethane	7071214		20.0	ug/L	N/A	N/A	19.5		98		50-140			
1,1-Dichloroethane	7071214		20.0	ug/L	N/A	N/A	25.7		128		50-145			
1,2-Dichloroethane	7071214		20.0	ug/L	N/A	N/A	22.3		111		70-130			
1,1-Dichloroethene	7071214		20.0	ug/L	N/A	N/A	24.6		123		65-135			
cis-1,2-Dichloroethene	7071214		20.0	ug/L	N/A	N/A	24.7		124		75-130			
trans-1,2-Dichloroethene	7071214		20.0	ug/L	N/A	N/A	24.0		120		65-130			
1,2-Dichloropropane	7071214		20.0	ug/L	N/A	N/A	22.1		111		70-125			
1,3-Dichloropropane	7071214		20.0	ug/L	N/A	N/A	21.8		109		75-125			
2,2-Dichloropropane	7071214		20.0	ug/L	N/A	N/A	8.94		45		35-130			CIN
1,1-Dichloropropene	7071214		20.0	ug/L	N/A	N/A	24.0		120		65-130			
cis-1,3-Dichloropropene	7071214		20.0	ug/L	N/A	N/A	20.8		104		55-115			
trans-1,3-Dichloropropene	7071214		20.0	ug/L	N/A	N/A	18.0		90		45-120			
Ethylbenzene	7071214		20.0	ug/L	N/A	N/A	18.1		91		75-125			
Hexachlorobutadiene	7071214		20.0	ug/L	N/A	N/A	16.8		84		65-110			
Hexane	7071214		20.0	ug/L	N/A	N/A	24.7		124		50-135			
Isopropylbenzene	7071214		20.0	ug/L	N/A	N/A	17.2		86		75-120			
p-Isopropyltoluene	7071214		20.0	ug/L	N/A	N/A	21.6		108		70-125			
Methylene Chloride	7071214		20.0	ug/L	N/A	N/A	24.2		121		65-135			
Methyl tert-Butyl Ether	7071214		20.0	ug/L	N/A	N/A	22.4		112		60-135			
Naphthalene	7071214		20.0	ug/L	N/A	N/A	19.3		96		25-120			
n-Propylbenzene	7071214		20.0	ug/L	N/A	N/A	18.7		93		65-125			
Styrene	7071214		20.0	ug/L	N/A	N/A	18.1		90		70-120			
1,1,1,2-Tetrachloroethane	7071214		20.0	ug/L	N/A	N/A	16.4		82		75-115			
1,1,2,2-Tetrachloroethane	7071214		20.0	ug/L	N/A	N/A	17.0		85		70-120			
Tetrachloroethene	7071214		20.0	ug/L	N/A	N/A	16.5		83		70-120			
Toluene	7071214		20.0	ug/L	N/A	N/A	17.5		87		75-120			
1,2,3-Trichlorobenzene	7071214		20.0	ug/L	N/A	N/A	19.4		97		30-125			
1,2,4-Trichlorobenzene	7071214		20.0	ug/L	N/A	N/A	19.9		100		50-110			
1,1,1-Trichloroethane	7071214		20.0	ug/L	N/A	N/A	19.4		97		70-120			
1,1,2-Trichloroethane	7071214		20.0	ug/L	N/A	N/A	21.5		107		75-120			
Trichloroethene	7071214		20.0	ug/L	N/A	N/A	21.0		105		75-120			
Trichlorofluoromethane	7071214		20.0	ug/L	N/A	N/A	22.8		114		65-130			
1,2,3-Trichloropropane	7071214		20.0	ug/L	N/A	N/A	18.3		92		75-120			
1,2,4-Trimethylbenzene	7071214		20.0	ug/L	N/A	N/A	16.8		84		70-120			
1,3,5-Trimethylbenzene	7071214		20.0	ug/L	N/A	N/A	17.4		87		75-125			
Vinyl chloride	7071214		20.0	ug/L	N/A	N/A	23.8		119		60-135			
Xylenes, total	7071214		60.0	ug/L	N/A	N/A	53.5		89		75-125			
Surrogate: Dibromofluoromethane	*7071214*			ug/L					*107*		*80-115*			
Surrogate: Toluene-d8	*7071214*			ug/L					*84*		*85-110*			Z6
Surrogate: 4-Bromofluorobenzene	*7071214*			ug/L					*76*		*80-115*			Z6

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LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
Acetone	7071222		20.0	ug/L	N/A	N/A	19.5	20.9	98	104	50-145	7	25	
Acrylonitrile	7071222		20.0	ug/L	N/A	N/A	20.5	22.0	102	110	50-145	7	25	
Benzene	7071222		20.0	ug/L	N/A	N/A	21.5	21.1	107	106	75-125	2	15	
Bromobenzene	7071222		20.0	ug/L	N/A	N/A	17.7	18.8	89	94	75-120	6	15	
Bromochloromethane	7071222		20.0	ug/L	N/A	N/A	23.3	23.6	117	118	70-140	1	15	
Bromodichloromethane	7071222		20.0	ug/L	N/A	N/A	19.4	19.4	97	97	75-115	0	15	
Bromoform	7071222		20.0	ug/L	N/A	N/A	14.4	14.6	72	73	55-115	2	25	
Bromomethane	7071222		20.0	ug/L	N/A	N/A	23.1	21.1	115	105	40-130	9	30	
2-Butanone (MEK)	7071222		20.0	ug/L	N/A	N/A	19.0	20.2	95	101	50-140	6	30	
n-Butylbenzene	7071222		20.0	ug/L	N/A	N/A	21.5	21.1	108	106	65-130	2	15	
sec-Butylbenzene	7071222		20.0	ug/L	N/A	N/A	22.1	21.4	110	107	70-125	3	20	
tert-Butylbenzene	7071222		20.0	ug/L	N/A	N/A	20.1	20.0	101	100	70-125	1	15	
Carbon disulfide	7071222		20.0	ug/L	N/A	N/A	21.9	21.8	110	109	55-130	1	25	
Carbon Tetrachloride	7071222		20.0	ug/L	N/A	N/A	18.9	17.9	95	90	65-120	5	15	
Chlorobenzene	7071222		20.0	ug/L	N/A	N/A	18.9	19.6	94	98	75-115	4	15	
Chlorodibromomethane	7071222		20.0	ug/L	N/A	N/A	15.9	16.5	80	82	65-110	4	15	
Chloroethane	7071222		20.0	ug/L	N/A	N/A	22.1	21.6	111	108	60-145	3	25	
Chloroform	7071222		20.0	ug/L	N/A	N/A	23.0	23.1	115	115	70-125	0	15	
Chloromethane	7071222		20.0	ug/L	N/A	N/A	20.1	19.1	101	96	35-130	5	25	
2-Chlorotoluene	7071222		20.0	ug/L	N/A	N/A	18.7	17.6	93	88	75-125	6	25	
4-Chlorotoluene	7071222		20.0	ug/L	N/A	N/A	19.0	19.9	95	99	70-125	5	20	
1,2-Dibromo-3-chloropropane	7071222		20.0	ug/L	N/A	N/A	16.4	16.8	82	84	35-120	2	35	
1,2-Dibromoethane (EDB)	7071222		20.0	ug/L	N/A	N/A	18.2	18.9	91	95	75-120	4	15	
Dibromomethane	7071222		20.0	ug/L	N/A	N/A	22.8	22.9	114	115	75-125	1	20	
1,2-Dichlorobenzene	7071222		20.0	ug/L	N/A	N/A	19.6	19.3	98	96	70-115	2	15	
1,3-Dichlorobenzene	7071222		20.0	ug/L	N/A	N/A	20.0	19.3	100	96	70-120	4	15	
1,4-Dichlorobenzene	7071222		20.0	ug/L	N/A	N/A	19.8	19.9	99	99	70-120	0	15	
Dichlorodifluoromethane	7071222		20.0	ug/L	N/A	N/A	19.1	17.8	96	89	50-140	7	25	
1,1-Dichloroethane	7071222		20.0	ug/L	N/A	N/A	25.7	24.3	128	121	50-145	6	25	
1,2-Dichloroethane	7071222		20.0	ug/L	N/A	N/A	22.4	22.8	112	114	70-130	2	15	
1,1-Dichloroethene	7071222		20.0	ug/L	N/A	N/A	24.8	23.3	124	116	65-135	7	25	
cis-1,2-Dichloroethene	7071222		20.0	ug/L	N/A	N/A	24.2	23.6	121	118	75-130	2	15	
trans-1,2-Dichloroethene	7071222		20.0	ug/L	N/A	N/A	23.3	23.2	116	116	65-130	0	20	
1,2-Dichloropropane	7071222		20.0	ug/L	N/A	N/A	21.7	21.2	108	106	70-125	2	15	
1,3-Dichloropropane	7071222		20.0	ug/L	N/A	N/A	21.1	21.6	106	108	75-125	2	15	
2,2-Dichloropropane	7071222		20.0	ug/L	N/A	N/A	16.8	14.9	84	74	35-130	12	35	CIN
1,1-Dichloropropene	7071222		20.0	ug/L	N/A	N/A	23.6	22.8	118	114	65-130	4	15	
cis-1,3-Dichloropropene	7071222		20.0	ug/L	N/A	N/A	21.4	21.6	107	108	55-115	1	15	
trans-1,3-Dichloropropene	7071222		20.0	ug/L	N/A	N/A	18.8	18.7	94	94	45-120	1	15	
Ethylbenzene	7071222		20.0	ug/L	N/A	N/A	19.7	18.8	99	94	75-125	5	15	
Hexachlorobutadiene	7071222		20.0	ug/L	N/A	N/A	16.2	15.9	81	80	65-110	2	25	
Hexane	7071222		20.0	ug/L	N/A	N/A	25.0	23.1	125	116	50-135	8	35	
Isopropylbenzene	7071222		20.0	ug/L	N/A	N/A	18.4	19.0	92	95	75-120	3	20	
p-Isopropyltoluene	7071222		20.0	ug/L	N/A	N/A	20.1	19.8	101	99	70-125	2	10	

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LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
Methylene Chloride	7071222		20.0	ug/L	N/A	N/A	23.0	23.1	115	116	65-135	1	20	
Methyl tert-Butyl Ether	7071222		20.0	ug/L	N/A	N/A	23.1	23.1	115	116	60-135	0	15	
Naphthalene	7071222		20.0	ug/L	N/A	N/A	19.3	20.4	96	102	25-120	6	35	
n-Propylbenzene	7071222		20.0	ug/L	N/A	N/A	19.0	20.8	95	104	65-125	9	30	
Styrene	7071222		20.0	ug/L	N/A	N/A	19.9	20.3	99	101	70-120	2	15	
1,1,1,2-Tetrachloroethane	7071222		20.0	ug/L	N/A	N/A	17.4	18.6	87	93	75-115	7	15	
1,1,2,2-Tetrachloroethane	7071222		20.0	ug/L	N/A	N/A	18.6	19.8	93	99	70-120	7	20	
Tetrachloroethene	7071222		20.0	ug/L	N/A	N/A	18.3	18.2	91	91	70-120	1	15	
Toluene	7071222		20.0	ug/L	N/A	N/A	19.1	19.0	96	95	75-120	0	20	
1,2,3-Trichlorobenzene	7071222		20.0	ug/L	N/A	N/A	18.4	19.2	92	96	30-125	5	35	
1,2,4-Trichlorobenzene	7071222		20.0	ug/L	N/A	N/A	18.2	19.7	91	98	50-110	8	35	
1,1,1-Trichloroethane	7071222		20.0	ug/L	N/A	N/A	19.4	18.7	97	93	70-120	4	15	
1,1,2-Trichloroethane	7071222		20.0	ug/L	N/A	N/A	21.2	21.5	106	107	75-120	1	15	
Trichloroethene	7071222		20.0	ug/L	N/A	N/A	20.9	20.6	105	103	75-120	2	15	
Trichlorofluoromethane	7071222		20.0	ug/L	N/A	N/A	22.3	21.3	112	107	65-130	5	20	
1,2,3-Trichloropropane	7071222		20.0	ug/L	N/A	N/A	21.2	21.9	106	110	75-120	4	20	
1,2,4-Trimethylbenzene	7071222		20.0	ug/L	N/A	N/A	18.2	19.4	91	97	70-120	6	20	
1,3,5-Trimethylbenzene	7071222		20.0	ug/L	N/A	N/A	18.8	19.1	94	96	75-125	2	20	
Vinyl chloride	7071222		20.0	ug/L	N/A	N/A	23.4	22.2	117	111	60-135	6	25	
Xylenes, total	7071222		60.0	ug/L	N/A	N/A	57.1	59.4	95	99	75-125	4	15	
Surrogate: Dibromofluoromethane	*7071222*			ug/L					*109*	*108*	*80-115*			
Surrogate: Toluene-d8	*7071222*			ug/L					*92*	*97*	*85-110*			
Surrogate: 4-Bromofluorobenzene	*7071222*			ug/L					*86*	*90*	*80-115*			
Acetone	7071257		0.970	mg/kg wet	N/A	2.42	1.21		125		55-150			
Acrylonitrile	7071257		0.970	mg/kg wet	N/A	2.42	1.33		138		45-140			
Benzene	7071257		0.970	mg/kg wet	N/A	0.242	1.13		117		60-135			
Bromobenzene	7071257		0.970	mg/kg wet	N/A	0.242	1.15		119		55-140			
Bromochloromethane	7071257		0.970	mg/kg wet	N/A	0.242	1.33		137		60-145			
Bromodichloromethane	7071257		0.970	mg/kg wet	N/A	0.242	1.10		113		55-135			
Bromoform	7071257		0.970	mg/kg wet	N/A	0.485	0.843		87		55-120			
Bromomethane	7071257		0.970	mg/kg wet	N/A	0.970	0.644		66		45-140			
2-Butanone (MEK)	7071257		0.970	mg/kg wet	N/A	2.42	1.22		126		50-145			
n-Butylbenzene	7071257		0.970	mg/kg wet	N/A	0.242	1.08		112		35-130			
sec-Butylbenzene	7071257		0.970	mg/kg wet	N/A	0.242	1.16		120		45-130			
tert-Butylbenzene	7071257		0.970	mg/kg wet	N/A	0.242	1.19		123		45-130			
Carbon disulfide	7071257		0.970	mg/kg wet	N/A	0.242	1.13		117		45-130			
Carbon Tetrachloride	7071257		0.970	mg/kg wet	N/A	0.242	1.12		116		55-145			
Chlorobenzene	7071257		0.970	mg/kg wet	N/A	0.242	1.17		120		55-130			
Chlorodibromomethane	7071257		0.970	mg/kg wet	N/A	0.242	0.964		99		55-125			
Chloroethane	7071257		0.970	mg/kg wet	N/A	0.970	0.923		95		50-135			
Chloroform	7071257		0.970	mg/kg wet	N/A	0.242	1.25		129		50-135			
Chloromethane	7071257		0.970	mg/kg wet	N/A	0.970	0.841		87		50-125			
2-Chlorotoluene	7071257		0.970	mg/kg wet	N/A	0.242	1.15		119		50-145			
4-Chlorotoluene	7071257		0.970	mg/kg wet	N/A	0.242	1.16		120		45-140			

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
1,2-Dibromo-3-chloropropane	7071257		0.970	mg/kg wet	N/A	2.42	0.744		77		40-125			
1,2-Dibromoethane (EDB)	7071257		0.970	mg/kg wet	N/A	2.42	1.25		129		60-135			
Dibromomethane	7071257		0.970	mg/kg wet	N/A	0.242	1.18		122		60-145			
1,2-Dichlorobenzene	7071257		0.970	mg/kg wet	N/A	0.242	1.10		114		50-125			
1,3-Dichlorobenzene	7071257		0.970	mg/kg wet	N/A	0.242	1.13		117		40-135			
1,4-Dichlorobenzene	7071257		0.970	mg/kg wet	N/A	0.242	1.14		117		45-130			
Dichlorodifluoromethane	7071257		0.970	mg/kg wet	N/A	0.727	0.647		67		45-115			
1,1-Dichloroethane	7071257		0.970	mg/kg wet	N/A	0.242	1.37		141		50-145			
1,2-Dichloroethane	7071257		0.970	mg/kg wet	N/A	0.242	1.20		123		50-140			
1,1-Dichloroethene	7071257		0.970	mg/kg wet	N/A	0.242	1.22		126		55-140			
cis-1,2-Dichloroethene	7071257		0.970	mg/kg wet	N/A	0.242	1.31		135		60-140			
trans-1,2-Dichloroethene	7071257		0.970	mg/kg wet	N/A	0.242	1.33		138		50-140			
1,2-Dichloropropane	7071257		0.970	mg/kg wet	N/A	0.242	1.16		119		55-135			
1,3-Dichloropropane	7071257		0.970	mg/kg wet	N/A	0.242	1.03		107		65-135			
2,2-Dichloropropane	7071257		0.970	mg/kg wet	N/A	0.970	1.76		181		40-130			L1
1,1-Dichloropropene	7071257		0.970	mg/kg wet	N/A	0.242	1.12		115		55-135			
cis-1,3-Dichloropropene	7071257		0.970	mg/kg wet	N/A	0.242	1.12		116		50-130			
trans-1,3-Dichloropropene	7071257		0.970	mg/kg wet	N/A	0.242	1.03		106		50-130			
Ethylbenzene	7071257		0.970	mg/kg wet	N/A	0.242	1.28		132		50-140			
Hexachlorobutadiene	7071257		0.970	mg/kg wet	N/A	1.21	1.06		109		30-125			
Hexane	7071257		0.970	mg/kg wet	N/A	1.21	0.815		84		30-125			
Isopropylbenzene	7071257		0.970	mg/kg wet	N/A	0.242	1.19		123		50-140			
p-Isopropyltoluene	7071257		0.970	mg/kg wet	N/A	0.242	1.13		116		40-135			
Methylene Chloride	7071257		0.970	mg/kg wet	N/A	2.42	1.27		131		50-145			
Methyl tert-Butyl Ether	7071257		0.970	mg/kg wet	N/A	0.242	1.30		134		50-145			
Naphthalene	7071257		0.970	mg/kg wet	N/A	1.21	0.740		76		50-125			
n-Propylbenzene	7071257		0.970	mg/kg wet	N/A	0.242	1.18		121		40-135			
Styrene	7071257		0.970	mg/kg wet	N/A	0.242	1.19		123		55-135			
1,1,1,2-Tetrachloroethane	7071257		0.970	mg/kg wet	N/A	0.242	1.10		113		55-135			
1,1,2,2-Tetrachloroethane	7071257		0.970	mg/kg wet	N/A	0.242	1.07		111		60-125			
Tetrachloroethene	7071257		0.970	mg/kg wet	N/A	0.242	1.33		137		45-135			L1
Toluene	7071257		0.970	mg/kg wet	N/A	0.242	1.35		139		55-135			L5
1,2,3-Trichlorobenzene	7071257		0.970	mg/kg wet	N/A	1.21	0.926		96		40-125			
1,2,4-Trichlorobenzene	7071257		0.970	mg/kg wet	N/A	1.21	0.896		92		30-125			
1,1,1-Trichloroethane	7071257		0.970	mg/kg wet	N/A	0.242	1.20		124		45-140			
1,1,2-Trichloroethane	7071257		0.970	mg/kg wet	N/A	0.242	0.929		96		65-130			
Trichloroethene	7071257		0.970	mg/kg wet	N/A	0.242	1.14		118		50-135			
Trichlorofluoromethane	7071257		0.970	mg/kg wet	N/A	0.970	1.13		116		50-130			
1,2,3-Trichloropropane	7071257		0.970	mg/kg wet	N/A	0.242	1.22		125		55-150			
1,2,4-Trimethylbenzene	7071257		0.970	mg/kg wet	N/A	0.242	1.12		116		55-135			
1,3,5-Trimethylbenzene	7071257		0.970	mg/kg wet	N/A	0.242	1.16		119		50-140			
Vinyl chloride	7071257		0.970	mg/kg wet	N/A	0.727	1.09		113		55-125			
Xylenes, total	7071257		2.91	mg/kg wet	N/A	0.727	3.86		133		55-135			
Surrogate: Dibromofluoromethane	*7071257*			ug/L					*106*		*80-125*			
Surrogate: Toluene-d8	*7071257*			ug/L					*112*		*85-110*			Z6

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Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
Surrogate: 4-Bromofluorobenzene	*7071257*			ug/L					*96*		*85-120*			
Acetone	7080072		0.922	mg/kg wet	N/A	2.30	1.01		109		55-150			
Acrylonitrile	7080072		0.922	mg/kg wet	N/A	2.30	1.23		134		45-140			
Benzene	7080072		0.922	mg/kg wet	N/A	0.230	1.02		110		60-135			
Bromobenzene	7080072		0.922	mg/kg wet	N/A	0.230	0.974		106		55-140			
Bromochloromethane	7080072		0.922	mg/kg wet	N/A	0.230	1.24		134		60-145			
Bromodichloromethane	7080072		0.922	mg/kg wet	N/A	0.230	0.949		103		55-135			
Bromoform	7080072		0.922	mg/kg wet	N/A	0.461	0.712		77		55-120			
Bromomethane	7080072		0.922	mg/kg wet	N/A	0.922	0.502		54		45-140			
2-Butanone (MEK)	7080072		0.922	mg/kg wet	N/A	2.30	1.06		115		50-145			
n-Butylbenzene	7080072		0.922	mg/kg wet	N/A	0.230	0.934		101		35-130			
sec-Butylbenzene	7080072		0.922	mg/kg wet	N/A	0.230	1.04		113		45-130			
tert-Butylbenzene	7080072		0.922	mg/kg wet	N/A	0.230	1.10		119		45-130			
Carbon disulfide	7080072		0.922	mg/kg wet	N/A	0.230	1.03		112		45-130			
Carbon Tetrachloride	7080072		0.922	mg/kg wet	N/A	0.230	0.892		97		55-145			
Chlorobenzene	7080072		0.922	mg/kg wet	N/A	0.230	1.08		117		55-130			
Chlorodibromomethane	7080072		0.922	mg/kg wet	N/A	0.230	0.836		91		55-125			
Chloroethane	7080072		0.922	mg/kg wet	N/A	0.922	0.894		97		50-135			
Chloroform	7080072		0.922	mg/kg wet	N/A	0.230	1.10		119		50-135			
Chloromethane	7080072		0.922	mg/kg wet	N/A	0.922	0.811		88		50-125			
2-Chlorotoluene	7080072		0.922	mg/kg wet	N/A	0.230	1.09		118		50-145			
4-Chlorotoluene	7080072		0.922	mg/kg wet	N/A	0.230	1.02		111		45-140			
1,2-Dibromo-3-chloropropane	7080072		0.922	mg/kg wet	N/A	2.30	0.661		72		40-125			
1,2-Dibromoethane (EDB)	7080072		0.922	mg/kg wet	N/A	2.30	1.12		121		60-135			
Dibromomethane	7080072		0.922	mg/kg wet	N/A	0.230	1.05		114		60-145			
1,2-Dichlorobenzene	7080072		0.922	mg/kg wet	N/A	0.230	0.962		104		50-125			
1,3-Dichlorobenzene	7080072		0.922	mg/kg wet	N/A	0.230	0.996		108		40-135			
1,4-Dichlorobenzene	7080072		0.922	mg/kg wet	N/A	0.230	0.987		107		45-130			
Dichlorodifluoromethane	7080072		0.922	mg/kg wet	N/A	0.691	0.578		63		45-115			
1,1-Dichloroethane	7080072		0.922	mg/kg wet	N/A	0.230	1.23		134		50-145			
1,2-Dichloroethane	7080072		0.922	mg/kg wet	N/A	0.230	1.07		116		50-140			
1,1-Dichloroethene	7080072		0.922	mg/kg wet	N/A	0.230	1.09		118		55-140			
cis-1,2-Dichloroethene	7080072		0.922	mg/kg wet	N/A	0.230	1.17		127		60-140			
trans-1,2-Dichloroethene	7080072		0.922	mg/kg wet	N/A	0.230	1.16		126		50-140			
1,2-Dichloropropane	7080072		0.922	mg/kg wet	N/A	0.230	1.02		111		55-135			
1,3-Dichloropropane	7080072		0.922	mg/kg wet	N/A	0.230	0.913		99		65-135			
2,2-Dichloropropane	7080072		0.922	mg/kg wet	N/A	0.922	1.38		150		40-130			L1
1,1-Dichloropropene	7080072		0.922	mg/kg wet	N/A	0.230	0.974		106		55-135			
cis-1,3-Dichloropropene	7080072		0.922	mg/kg wet	N/A	0.230	0.988		107		50-130			
trans-1,3-Dichloropropene	7080072		0.922	mg/kg wet	N/A	0.230	0.965		105		50-130			
Ethylbenzene	7080072		0.922	mg/kg wet	N/A	0.230	1.05		114		50-140			
Hexachlorobutadiene	7080072		0.922	mg/kg wet	N/A	1.15	0.939		102		30-125			
Hexane	7080072		0.922	mg/kg wet	N/A	1.15	0.744		81		30-125			
Isopropylbenzene	7080072		0.922	mg/kg wet	N/A	0.230	1.03		112		50-140			

HOWARD R. GREEN CO.- DES MOINES <
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Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
p-Isopropyltoluene	7080072		0.922	mg/kg wet	N/A	0.230	1.03		112		40-135			
Methylene Chloride	7080072		0.922	mg/kg wet	N/A	2.30	1.24		135		50-145			
Methyl tert-Butyl Ether	7080072		0.922	mg/kg wet	N/A	0.230	1.13		123		50-145			
Naphthalene	7080072		0.922	mg/kg wet	N/A	1.15	0.555		60		50-125			
n-Propylbenzene	7080072		0.922	mg/kg wet	N/A	0.230	0.994		108		40-135			
Styrene	7080072		0.922	mg/kg wet	N/A	0.230	1.04		113		55-135			
1,1,1,2-Tetrachloroethane	7080072		0.922	mg/kg wet	N/A	0.230	0.921		100		55-135			
1,1,2,2-Tetrachloroethane	7080072		0.922	mg/kg wet	N/A	0.230	0.917		100		60-125			
Tetrachloroethene	7080072		0.922	mg/kg wet	N/A	0.230	1.12		122		45-135			
Toluene	7080072		0.922	mg/kg wet	N/A	0.230	1.19		129		55-135			
1,2,3-Trichlorobenzene	7080072		0.922	mg/kg wet	N/A	1.15	0.769		83		40-125			
1,2,4-Trichlorobenzene	7080072		0.922	mg/kg wet	N/A	1.15	0.728		79		30-125			
1,1,1-Trichloroethane	7080072		0.922	mg/kg wet	N/A	0.230	1.02		110		45-140			
1,1,2-Trichloroethane	7080072		0.922	mg/kg wet	N/A	0.230	0.875		95		65-130			
Trichloroethene	7080072		0.922	mg/kg wet	N/A	0.230	0.974		106		50-135			
Trichlorofluoromethane	7080072		0.922	mg/kg wet	N/A	0.922	1.06		115		50-130			
1,2,3-Trichloropropane	7080072		0.922	mg/kg wet	N/A	0.230	1.02		111		55-150			
1,2,4-Trimethylbenzene	7080072		0.922	mg/kg wet	N/A	0.230	0.971		105		55-135			
1,3,5-Trimethylbenzene	7080072		0.922	mg/kg wet	N/A	0.230	1.04		112		50-140			
Vinyl chloride	7080072		0.922	mg/kg wet	N/A	0.691	0.948		103		55-125			
Xylenes, total	7080072		2.77	mg/kg wet	N/A	0.691	3.34		121		55-135			
Surrogate: Dibromofluoromethane	*7080072*			ug/L					*110*		*80-125*			
Surrogate: Toluene-d8	*7080072*			ug/L					*110*		*85-110*			
Surrogate: 4-Bromofluorobenzene	*7080072*			ug/L					*95*		*85-120*			
Semivolatile Organics by GC/MS														
Acenaphthene	7070959		0.100	mg/L	0.00189	0.0100	0.0799	0.0813	80	81	45-120	2	35	
Acenaphthylene	7070959		0.100	mg/L	0.00141	0.0100	0.0784	0.0797	78	80	45-115	2	35	
Anthracene	7070959		0.100	mg/L	0.00115	0.0100	0.0776	0.0794	78	79	50-125	2	35	
Benzidine	7070959		0.100	mg/L	0.0330	0.100	0.0641	0.0542	64	54	5-95	17	35	J
Benzo (a) anthracene	7070959		0.100	mg/L	0.00110	0.0100	0.0735	0.0736	74	74	50-130	0	35	
Benzo (b) fluoranthene	7070959		0.100	mg/L	0.00190	0.0100	0.0781	0.0791	78	79	50-130	1	35	
Benzo (k) fluoranthene	7070959		0.100	mg/L	0.00212	0.0100	0.0770	0.0832	77	83	50-130	8	35	
Benzo (a) pyrene	7070959		0.100	mg/L	0.00193	0.0100	0.0792	0.0802	79	80	45-125	1	35	
Benzo (g,h,i) perylene	7070959		0.100	mg/L	0.00203	0.0100	0.0806	0.0816	81	82	55-125	1	35	
Benzyl alcohol	7070959		0.100	mg/L	0.00126	0.0100	0.0720	0.0692	72	69	35-100	4	35	
Butyl benzyl phthalate	7070959		0.100	mg/L	0.00154	0.0100	0.0811	0.0804	81	80	45-140	1	35	
Bis(2-chloroethyl)ether	7070959		0.100	mg/L	0.00150	0.0100	0.0779	0.0769	78	77	40-110	1	30	
Bis(2-chloroethoxy)methane	7070959		0.100	mg/L	0.00152	0.0100	0.0773	0.0773	77	77	40-110	0	30	
Bis(2-ethylhexyl)phthalate	7070959		0.100	mg/L	0.00160	0.0100	0.0746	0.0757	75	76	45-140	1	35	
Bis(2-chloroisopropyl) ether	7070959		0.100	mg/L	0.00133	0.0100	0.0764	0.0746	76	75	40-110	2	30	
4-Bromophenyl phenyl ether	7070959		0.100	mg/L	0.00196	0.0100	0.0823	0.0814	82	81	55-130	1	35	
Carbazole	7070959		0.100	mg/L	0.00142	0.0100	0.0784	0.0774	78	77	40-135	1	35	
4-Chloroaniline	7070959		0.100	mg/L	0.00123	0.0100	0.0773	0.0779	77	78	15-110	1	35	
2-Chloronaphthalene	7070959		0.100	mg/L	0.00179	0.0100	0.0795	0.0783	79	78	40-120	1	35	

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Semivolatile Organics by GC/MS														
4-Chlorophenyl phenyl ether	7070959		0.100	mg/L	0.00208	0.0100	0.0747	0.0773	75	77	50-125	3	35	
Chrysene	7070959		0.100	mg/L	0.00133	0.0100	0.0686	0.0698	69	70	50-130	2	35	
Dibenzo (a,h) anthracene	7070959		0.100	mg/L	0.00220	0.0100	0.0809	0.0815	81	82	55-130	1	30	
Dibenzofuran	7070959		0.100	mg/L	0.00164	0.0100	0.0847	0.0861	85	86	45-130	2	30	
Di-n-butyl phthalate	7070959		0.100	mg/L	0.00155	0.0100	0.0790	0.0783	79	78	50-135	1	35	
1,2-Dichlorobenzene	7070959		0.100	mg/L	0.00140	0.0100	0.0661	0.0653	66	65	35-105	1	30	
1,3-Dichlorobenzene	7070959		0.100	mg/L	0.00150	0.0100	0.0646	0.0641	65	64	35-105	1	35	
1,4-Dichlorobenzene	7070959		0.100	mg/L	0.00159	0.0100	0.0670	0.0653	67	65	35-105	3	35	
3,3'-Dichlorobenzidine	7070959		0.100	mg/L	0.00174	0.0500	0.0680	0.0677	68	68	25-120	1	35	
Diethyl phthalate	7070959		0.100	mg/L	0.00134	0.0100	0.0863	0.0852	86	85	45-135	1	35	
Dimethyl phthalate	7070959		0.100	mg/L	0.00155	0.0100	0.0828	0.0834	83	83	50-130	1	35	
2,4-Dinitrotoluene	7070959		0.100	mg/L	0.00132	0.0100	0.0880	0.0879	88	88	55-135	0	35	
2,6-Dinitrotoluene	7070959		0.100	mg/L	0.00193	0.0100	0.0879	0.0892	88	89	55-135	2	35	
Di-n-octyl phthalate	7070959		0.100	mg/L	0.00178	0.0100	0.0853	0.0872	85	87	45-140	2	35	
Fluoranthene	7070959		0.100	mg/L	0.00127	0.0100	0.0743	0.0748	74	75	50-130	1	35	
Fluorene	7070959		0.100	mg/L	0.00156	0.0100	0.0773	0.0784	77	78	50-125	1	35	
Hexachlorobenzene	7070959		0.100	mg/L	0.00201	0.0100	0.0829	0.0862	83	86	55-135	4	35	
Hexachlorobutadiene	7070959		0.100	mg/L	0.00194	0.0100	0.0665	0.0671	67	67	35-100	1	35	
Hexachlorocyclopentadiene	7070959		0.100	mg/L	0.00109	0.0200	0.0804	0.0798	80	80	25-110	1	35	
Hexachloroethane	7070959		0.100	mg/L	0.00138	0.0100	0.0648	0.0631	65	63	30-110	3	35	
Indeno (1,2,3-cd) pyrene	7070959		0.100	mg/L	0.00162	0.0100	0.0781	0.0776	78	78	50-130	1	30	
Isophorone	7070959		0.100	mg/L	0.00149	0.0100	0.0796	0.0805	80	80	40-115	1	30	
2-Methylnaphthalene	7070959		0.100	mg/L	0.00150	0.0100	0.0733	0.0732	73	73	40-110	0	35	
Naphthalene	7070959		0.100	mg/L	0.00149	0.0100	0.0686	0.0692	69	69	40-105	1	35	
2-Nitroaniline	7070959		0.100	mg/L	0.00154	0.0100	0.0917	0.0931	92	93	45-135	2	30	
3-Nitroaniline	7070959		0.100	mg/L	0.00168	0.0100	0.0880	0.0876	88	88	40-135	0	35	
4-Nitroaniline	7070959		0.100	mg/L	0.00186	0.0100	0.0877	0.0857	88	86	40-135	2	35	
Nitrobenzene	7070959		0.100	mg/L	0.00152	0.0100	0.0789	0.0799	79	80	40-110	1	30	
N-Nitrosodimethylamine	7070959		0.100	mg/L	0.000892	0.0100	0.0517	0.0504	52	50	25-75	3	35	
N-Nitrosodiphenylamine	7070959		0.100	mg/L	0.00182	0.0100	0.0864	0.0846	86	85	35-130	2	35	
N-Nitrosodi-n-propylamine	7070959		0.100	mg/L	0.00195	0.0100	0.0742	0.0721	74	72	40-115	3	30	
Phenanthrene	7070959		0.100	mg/L	0.00137	0.0100	0.0773	0.0773	77	77	50-125	0	35	
Pyrene	7070959		0.100	mg/L	0.00128	0.0100	0.0786	0.0794	79	79	50-130	1	35	
Pyridine	7070959		0.100	mg/L	0.000670	0.0100	0.0465	0.0453	47	45	20-70	3	35	
1,2,4-Trichlorobenzene	7070959		0.100	mg/L	0.00165	0.0100	0.0715	0.0697	72	70	35-110	3	35	
Benzoic acid	7070959		0.100	mg/L	0.0130	0.0200	<0.0130	0.0130		13	10-50		35	L1,J
4-Chloro-3-methylphenol	7070959		0.100	mg/L	0.00145	0.0100	0.0757	0.0760	76	76	40-115	0	35	
2-Chlorophenol	7070959		0.100	mg/L	0.00138	0.0100	0.0720	0.0699	72	70	40-105	3	35	
Cresol(s)	7070959		0.200	mg/L	0.00122	0.0100	0.127	0.121	64	60	30-85	5	35	
2,4-Dichlorophenol	7070959		0.100	mg/L	0.00172	0.0100	0.0751	0.0752	75	75	40-110	0	35	
2,4-Dimethylphenol	7070959		0.100	mg/L	0.000899	0.0100	0.0686	0.0682	69	68	20-95	1	35	
2,4-Dinitrophenol	7070959		0.100	mg/L	0.00125	0.0200	0.0645	0.0712	65	71	25-120	10	35	
4,6-Dinitro-2-methylphenol	7070959		0.100	mg/L	0.00164	0.0100	0.0822	0.0811	82	81	40-135	1	35	
2-Methylphenol (o-Cresol)	7070959		0.100	mg/L	0.00122	0.0100	0.0659	0.0631	66	63	30-95	4	35	
4-Methylphenol (p-Cresol)	7070959		0.100	mg/L	0.00105	0.0100	0.0614	0.0578	61	58	30-90	6	35	

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Received: 07/23/07
Reported: 08/02/07 10:15

LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Semivolatile Organics by GC/MS														
2-Nitrophenol	7070959		0.100	mg/L	0.00165	0.0100	0.0796	0.0776	80	78	45-110	3	35	
4-Nitrophenol	7070959		0.100	mg/L	0.000834	0.0100	0.0387	0.0396	39	40	15-65	2	35	
Pentachlorophenol	7070959		0.100	mg/L	0.00205	0.0100	0.0724	0.0705	72	71	35-130	3	35	
Phenol	7070959		0.100	mg/L	0.000730	0.0100	0.0335	0.0322	34	32	15-50	4	35	
2,4,5-Trichlorophenol	7070959		0.100	mg/L	0.00178	0.0100	0.0834	0.0852	83	85	50-125	2	35	
2,4,6-Trichlorophenol	7070959		0.100	mg/L	0.00184	0.0100	0.0838	0.0839	84	84	45-125	0	35	
Surrogate: Nitrobenzene-d5	*7070959*			mg/L					*75*	*75*	*40-110*			
Surrogate: 2-Fluorobiphenyl	*7070959*			mg/L					*75*	*76*	*40-110*			
Surrogate: Terphenyl-d14	*7070959*			mg/L					*75*	*75*	*45-115*			
Surrogate: Phenol-d6	*7070959*			mg/L					*31*	*30*	*10-75*			
Surrogate: 2-Fluorophenol	*7070959*			mg/L					*47*	*46*	*20-65*			
Surrogate: 2,4,6-Tribromophenol	*7070959*			mg/L					*79*	*78*	*45-130*			
PNA compounds by HPLC														
Acenaphthene	7070969		0.333	mg/kg wet	N/A	0.0420	0.306		92		45-120			
Acenaphthylene	7070969		0.667	mg/kg wet	N/A	0.0420	0.611		92		45-105			
Anthracene	7070969		0.0333	mg/kg wet	N/A	0.0170	0.0279		84		50-105			
Benzo (a) anthracene	7070969		0.0333	mg/kg wet	N/A	0.0170	0.0293		88		50-110			
Benzo (b) fluoranthene	7070969		0.0667	mg/kg wet	N/A	0.0170	0.0591		89		50-110			
Benzo (k) fluoranthene	7070969		0.0333	mg/kg wet	N/A	0.0170	0.0294		88		50-110			
Benzo (a) pyrene	7070969		0.0333	mg/kg wet	N/A	0.0170	0.0250		75		45-100			
Benzo (g,h,i) perylene	7070969		0.0667	mg/kg wet	N/A	0.0170	0.0556		83		50-105			
Chrysene	7070969		0.0333	mg/kg wet	N/A	0.0170	0.0316		95		55-110			
Dibenzo (a,h) anthracene	7070969		0.0667	mg/kg wet	N/A	0.0170	0.0582		87		50-110			
Fluoranthene	7070969		0.0667	mg/kg wet	N/A	0.0170	0.0609		91		50-110			
Fluorene	7070969		0.0667	mg/kg wet	N/A	0.0350	0.0571		86		50-110			
Indeno (1,2,3-cd) pyrene	7070969		0.0333	mg/kg wet	N/A	0.0170	0.0288		86		50-110			
1-Methylnaphthalene	7070969		0.333	mg/kg wet	N/A	0.0420	0.263		79		45-105			
2-Methylnaphthalene	7070969		0.333	mg/kg wet	N/A	0.0420	0.257		77		40-100			
Naphthalene	7070969		0.333	mg/kg wet	N/A	0.0170	0.271		81		45-100			
Phenanthrene	7070969		0.0333	mg/kg wet	N/A	0.0170	0.0290		87		55-115			
Pyrene	7070969		0.0333	mg/kg wet	N/A	0.0420	0.0306		92		45-130			
Surrogate: 2-Fluorobiphenyl	*7070969*			mg/kg wet					*91*		*50-105*			
Acenaphthene	7071009		0.0100	mg/L	0.0000490	0.000200	0.00789	0.00719	79	72	15-110	9	35	
Acenaphthylene	7071009		0.0200	mg/L	0.0000850	0.000200	0.0157	0.0144	78	72	30-95	9	35	
Anthracene	7071009		0.00100	mg/L	0.0000100	0.000100	0.000577	0.000474	58	47	10-95	20	35	
Benzo (a) anthracene	7071009		0.00100	mg/L	3.00E-6	0.000100	0.000783	0.000731	78	73	25-95	7	35	
Benzo (b) fluoranthene	7071009		0.00200	mg/L	0.0000130	0.000100	0.00157	0.00157	78	79	30-100	0	35	
Benzo (k) fluoranthene	7071009		0.00100	mg/L	0.0000150	0.000100	0.000747	0.000754	75	75	30-95	1	35	
Benzo (a) pyrene	7071009		0.00100	mg/L	0.0000320	0.000100	0.000593	0.000563	59	56	10-95	5	35	
Benzo (g,h,i) perylene	7071009		0.00200	mg/L	9.00E-6	0.000200	0.00143	0.00144	72	72	15-90	1	35	
Chrysene	7071009		0.00100	mg/L	5.00E-6	0.000100	0.000866	0.000819	87	82	35-100	6	35	
Dibenzo (a,h) anthracene	7071009		0.00200	mg/L	0.0000100	0.000100	0.00147	0.00149	74	75	10-90	1	35	

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4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
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Project Number: 728500J

Received: 07/23/07
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LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
PNA compounds by HPLC														
Fluoranthene	7071009		0.00200	mg/L	0.0000100	0.000100	0.00173	0.00160	86	80	35-100	8	35	
Fluorene	7071009		0.00200	mg/L	0.0000100	0.000100	0.00161	0.00148	80	74	35-100	8	35	
Indeno (1,2,3-cd) pyrene	7071009		0.00100	mg/L	7.00E-6	0.000100	0.000728	0.000744	73	74	30-95	2	35	
1-Methylnaphthalene	7071009		0.0100	mg/L	0.0000560	0.000200	0.00738	0.00676	74	68	30-95	9	35	
2-Methylnaphthalene	7071009		0.0100	mg/L	0.0000520	0.000200	0.00722	0.00660	72	66	30-95	9	35	
Naphthalene	7071009		0.0100	mg/L	0.0000540	0.000200	0.00774	0.00710	77	71	30-95	9	35	
Phenanthrene	7071009		0.00100	mg/L	7.00E-6	0.000100	0.000833	0.000759	83	76	35-100	9	35	
Pyrene	7071009		0.00100	mg/L	0.0000190	0.000100	0.000861	0.000790	86	79	25-120	9	35	
Surrogate: 2-Fluorobiphenyl	*7071009*			mg/L					*83*	*75*	*25-100*			
UST ANALYSIS PARAMETERS														
Diesel	7070938		66.7	mg/kg	N/A	10.0	53.9		81		50-140			
Surrogate: Octacosane	*7070938*			mg/kg					*84*		*60-150*			
Diesel	7070973		2.00	mg/L	N/A	0.300	1.33	1.32	66	66	45-125	0	35	
Surrogate: Octacosane	*7070973*			mg/L					*79*	*76*	*55-150*			

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Received: 07/23/07
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MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
General Chemistry Parameters														
QC Source Sample: CQG1130-04														
Cyanide	7071056	<0.010	0.196	mg/L	N/A	0.0100	0.197	0.196	101	100	90-110	1	20	
QC Source Sample: CQG1135-05														
Cyanide	7071059	0.250	10.5	mg/kg dry	N/A	1.14	11.2	15.2	105	140	90-110	30	20	M1,R
QC Source Sample: CQG1321-01														
Cyanide	7071275	<1.00	33.7	mg/kg dry	N/A	3.50	25.1	30.2	74	90	90-110	19	20	M1
Total Metals by SW 846 Series Methods														
QC Source Sample: CQG1135-01														
Barium	7070990	222	106	mg/kg dry	N/A	0.569	376	399	145	164	75-125	6	20	MHA
Cadmium	7070990	1.37	106	mg/kg dry	N/A	1.14	85.7	92.0	80	84	75-115	7	20	
Chromium	7070990	14.7	106	mg/kg dry	N/A	1.14	107	112	87	90	75-125	5	20	
Lead	7070990	131	211	mg/kg dry	N/A	5.69	347	393	102	122	75-125	13	20	
Selenium	7070990	<7.50	422	mg/kg dry	N/A	8.54	382	398	91	93	75-120	4	20	
Silver	7070990	<1.00	106	mg/kg dry	N/A	1.14	97.5	101	92	94	75-125	4	20	
QC Source Sample: CQG1135-06														
Barium	7070991	0.136	1.00	mg/L	N/A	0.0100	1.03	1.03	89	89	75-120	0	10	
Chromium	7070991	<0.020	1.00	mg/L	N/A	0.0200	0.882	0.877	88	88	80-115	1	10	
Silver	7070991	<0.020	1.00	mg/L	N/A	0.0200	0.906	0.949	91	95	80-110	5	10	
QC Source Sample: CQG1135-07														
Arsenic	7070993	<0.0010	0.0400	mg/L	N/A	0.00200	0.0395	0.0393	99	98	75-125	1	20	
Cadmium	7070993	0.000174	0.0200	mg/L	N/A	0.0100	0.0258	0.0197	128	97	75-125	27	20	M1,R
Lead	7070993	0.00132	0.0400	mg/L	N/A	0.00400	0.0395	0.0381	95	92	75-125	4	20	
Selenium	7070993	<0.0050	0.0800	mg/L	N/A	0.0100	0.0783	0.0757	98	95	75-125	3	20	
QC Source Sample: CQG1084-01														
Arsenic	7070996	4.88	5.06	mg/kg dry	N/A	2.57	22.2	15.4	343	209	75-125	36	20	M1,R
QC Source Sample: CQG1135-04														
Mercury	7071022	0.0765	0.211	mg/kg dry	N/A	0.0275	0.216	0.208	66	66	70-105	4	35	M1
QC Source Sample: CQG1130-03														
Mercury	7071099	-0.00650	1.64	ug/L	N/A	N/A	1.64	1.65	100	101	75-130	1	10	
Dissolved Metals by SW 846 Series Methods														
QC Source Sample: CQG1130-03														
Barium	7070992	1.33	1.00	mg/L	N/A	0.0100	2.19	2.25	86	92	75-120	3	10	
Chromium	7070992	<0.020	1.00	mg/L	N/A	0.0200	0.874	0.892	87	89	85-115	2	10	
Silver	7070992	<0.020	1.00	mg/L	N/A	0.0200	1.01	0.932	101	93	80-110	8	10	
QC Source Sample: CQG1130-04														
Arsenic	7070994	0.00227	0.0400	mg/L	N/A	0.00200	0.0410	0.0424	97	100	75-125	3	20	
Cadmium	7070994	<0.00050	0.0200	mg/L	N/A	0.0100	0.0200	0.0202	100	101	75-125	1	20	
Lead	7070994	0.000850	0.0400	mg/L	N/A	0.00400	0.0382	0.0390	93	95	75-125	2	20	
Selenium	7070994	<0.0050	0.0800	mg/L	N/A	0.0100	0.0745	0.0750	93	94	75-125	1	20	
QC Source Sample: CQG1072-02														
Mercury	7071098	0.0110	1.64	ug/L	N/A	N/A	1.76	1.74	107	106	75-130	1	10	
Volatile Organic Compounds														
QC Source Sample: CQG1325-01														
Acetone	7071211	<50.0	0.0394	mg/kg dry	N/A	0.0985	0.0644	0.0543	163	139	45-140	17	40	M1
Acrylonitrile	7071211	<50.0	0.0394	mg/kg dry	N/A	0.0985	0.0477	0.0369	121	95	45-140	25	40	
Benzene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0354	0.0352	90	90	40-135	1	35	
Bromobenzene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0285	0.0289	72	74	40-135	1	40	
Bromochloromethane	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0343	0.0300	87	77	50-145	13	35	
Bromodichloromethane	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0374	0.0336	95	86	45-140	11	40	
Bromoform	7071211	<10.0	0.0394	mg/kg dry	N/A	0.0197	0.0271	0.0270	69	69	35-125	0	40	

HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
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Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
QC Source Sample: CQG1325-01														
Bromomethane	7071211	<20.0	0.0394	mg/kg dry	N/A	0.0394	0.0481	0.0468	122	120	40-130	3	35	
2-Butanone (MEK)	7071211	<50.0	0.0394	mg/kg dry	N/A	0.0985	0.0443	0.0375	112	96	40-135	17	40	
n-Butylbenzene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0265	0.0284	67	73	25-120	7	40	
sec-Butylbenzene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0265	0.0283	67	72	30-125	6	40	
tert-Butylbenzene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0269	0.0281	68	72	25-120	4	40	
Carbon disulfide	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0445	0.0379	113	97	45-120	16	35	
Carbon Tetrachloride	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0324	0.0285	82	73	40-135	13	35	
Chlorobenzene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0298	0.0309	76	79	40-135	3	35	
Chlorodibromomethane	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0320	0.0307	81	79	40-135	4	35	
Chloroethane	7071211	<20.0	0.0394	mg/kg dry	N/A	0.0394	0.0469	0.0443	119	114	50-125	6	35	
Chloroform	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0437	0.0363	111	93	45-140	19	35	
Chloromethane	7071211	<20.0	0.0394	mg/kg dry	N/A	0.0394	0.0476	0.0474	121	121	35-130	0	30	
2-Chlorotoluene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0334	0.0334	85	86	40-135	0	40	
4-Chlorotoluene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0331	0.0333	84	85	35-130	1	40	
1,2-Dibromo-3-chloropropane	7071211	<50.0	0.0394	mg/kg dry	N/A	0.0985	0.0331	0.0337	84	86	35-130	2	40	
1,2-Dibromoethane (EDB)	7071211	<50.0	0.0394	mg/kg dry	N/A	0.0985	0.0352	0.0330	89	85	45-140	6	35	
Dibromomethane	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0398	0.0347	101	89	55-145	14	35	
1,2-Dichlorobenzene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0255	0.0272	65	70	35-125	6	40	
1,3-Dichlorobenzene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0249	0.0255	63	65	30-125	2	40	
1,4-Dichlorobenzene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0260	0.0265	66	68	35-130	2	40	
Dichlorodifluoromethane	7071211	<15.0	0.0394	mg/kg dry	N/A	0.0296	0.0365	0.0341	93	87	25-120	7	35	
1,1-Dichloroethane	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0444	0.0379	113	97	45-140	16	35	
1,2-Dichloroethane	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0483	0.0400	123	102	45-140	19	35	
1,1-Dichloroethene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0424	0.0368	108	94	45-140	14	35	
cis-1,2-Dichloroethene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0398	0.0330	101	84	50-145	19	35	
trans-1,2-Dichloroethene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0372	0.0288	94	74	45-140	25	35	
1,2-Dichloropropane	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0398	0.0372	101	95	45-140	7	35	
1,3-Dichloropropane	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0387	0.0376	98	96	50-145	3	35	
2,2-Dichloropropane	7071211	<20.0	0.0394	mg/kg dry	N/A	0.0394	0.0415	0.0345	105	88	40-135	18	35	
1,1-Dichloropropene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0410	0.0368	104	94	40-135	11	35	
cis-1,3-Dichloropropene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0354	0.0338	90	86	40-135	5	35	
trans-1,3-Dichloropropene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0358	0.0338	91	87	40-135	6	40	
Ethylbenzene	7071211	0.000184	0.0394	mg/kg dry	N/A	0.00985	0.0333	0.0337	84	86	35-130	1	40	
Hexachlorobutadiene	7071211	<25.0	0.0394	mg/kg dry	N/A	0.0493	0.0170	0.0184	43	47	20-115	8	40	
Hexane	7071211	0.00181	0.0394	mg/kg dry	N/A	0.0493	0.0459	0.0467	112	115	20-110	2	40	M1
Isopropylbenzene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0303	0.0316	77	81	45-140	4	40	
p-Isopropyltoluene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0265	0.0268	67	69	40-135	1	40	
Methylene Chloride	7071211	0.0881	0.0394	mg/kg dry	N/A	0.0985	0.115	0.103	67	39	40-135	10	30	S2,M1
Methyl tert-Butyl Ether	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0468	0.0392	119	100	45-140	18	30	
Naphthalene	7071211	<25.0	0.0394	mg/kg dry	N/A	0.0493	0.0259	0.0271	66	69	20-115	4	40	
n-Propylbenzene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0318	0.0323	81	83	30-125	2	40	
Styrene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0313	0.0315	79	81	40-135	1	35	
1,1,1,2-Tetrachloroethane	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0301	0.0286	76	73	45-140	5	30	
1,1,2,2-Tetrachloroethane	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0393	0.0385	100	99	45-140	2	40	
Tetrachloroethene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0259	0.0263	66	67	40-135	1	35	

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Received: 07/23/07
Reported: 08/02/07 10:15

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
QC Source Sample: CQG1325-01														
Toluene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0341	0.0341	87	88	35-130	0	40	
1,2,3-Trichlorobenzene	7071211	<25.0	0.0394	mg/kg dry	N/A	0.0493	0.0208	0.0214	53	55	25-120	3	40	
1,2,4-Trichlorobenzene	7071211	<25.0	0.0394	mg/kg dry	N/A	0.0493	0.0191	0.0202	48	52	25-120	6	40	
1,1,1-Trichloroethane	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0357	0.0310	91	79	45-140	14	35	
1,1,2-Trichloroethane	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0390	0.0373	99	96	50-145	4	40	
Trichloroethene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0340	0.0321	86	82	45-140	6	35	
Trichlorofluoromethane	7071211	<20.0	0.0394	mg/kg dry	N/A	0.0394	0.0499	0.0452	127	116	45-120	10	35	M1
1,2,3-Trichloropropane	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0370	0.0357	94	92	45-140	4	35	
1,2,4-Trimethylbenzene	7071211	0.00141	0.0394	mg/kg dry	N/A	0.00985	0.0313	0.0324	76	79	35-130	4	40	
1,3,5-Trimethylbenzene	7071211	<5.00	0.0394	mg/kg dry	N/A	0.00985	0.0315	0.0320	80	82	35-130	2	35	
Vinyl chloride	7071211	<15.0	0.0394	mg/kg dry	N/A	0.0296	0.0468	0.0451	119	116	50-120	4	35	
Xylenes, total	7071211	0.00120	0.118	mg/kg dry	N/A	0.0296	0.0923	0.0955	77	81	35-130	3	40	
Surrogate: Dibromofluoromethane	*7071211*			ug/L					*128*	*105*	*80-120*			ZX
Surrogate: Toluene-d8	*7071211*			ug/L					*108*	*108*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*7071211*			ug/L					*94*	*95*	*80-120*			
QC Source Sample: CQG1130-07														
Acetone	7071214	1.24	20.0	ug/L	N/A	N/A	17.8		83		50-145			
Acrylonitrile	7071214	<1.28	20.0	ug/L	N/A	N/A	25.6		128		50-145			
Benzene	7071214	31.9	20.0	ug/L	N/A	N/A	49.4		87		70-125			
Bromobenzene	7071214	<0.17	20.0	ug/L	N/A	N/A	17.6		88		75-120			
Bromochloromethane	7071214	<0.31	20.0	ug/L	N/A	N/A	23.6		118		70-140			
Bromodichloromethane	7071214	<0.12	20.0	ug/L	N/A	N/A	19.2		96		70-120			
Bromoform	7071214	<0.15	20.0	ug/L	N/A	N/A	13.9		69		50-120			
Bromomethane	7071214	<0.48	20.0	ug/L	N/A	N/A	22.4		112		40-135			
2-Butanone (MEK)	7071214	<0.91	20.0	ug/L	N/A	N/A	25.0		125		50-145			
n-Butylbenzene	7071214	0.740	20.0	ug/L	N/A	N/A	19.8		95		55-130			
sec-Butylbenzene	7071214	<0.12	20.0	ug/L	N/A	N/A	19.5		98		65-125			
tert-Butylbenzene	7071214	0.500	20.0	ug/L	N/A	N/A	20.1		98		55-135			
Carbon disulfide	7071214	<0.14	20.0	ug/L	N/A	N/A	20.2		101		45-125			
Carbon Tetrachloride	7071214	<0.13	20.0	ug/L	N/A	N/A	17.7		89		60-115			
Chlorobenzene	7071214	<0.080	20.0	ug/L	N/A	N/A	19.0		95		70-115			
Chlorodibromomethane	7071214	<0.25	20.0	ug/L	N/A	N/A	15.5		77		55-125			
Chloroethane	7071214	<0.50	20.0	ug/L	N/A	N/A	22.3		111		60-140			
Chloroform	7071214	0.530	20.0	ug/L	N/A	N/A	22.9		112		65-125			
Chloromethane	7071214	<0.20	20.0	ug/L	N/A	N/A	20.8		104		30-125			
2-Chlorotoluene	7071214	<0.20	20.0	ug/L	N/A	N/A	21.2		106		65-125			
4-Chlorotoluene	7071214	<0.15	20.0	ug/L	N/A	N/A	20.4		102		65-130			
1,2-Dibromo-3-chloropropane	7071214	<0.75	20.0	ug/L	N/A	N/A	17.5		87		45-140			
1,2-Dibromoethane (EDB)	7071214	<0.13	20.0	ug/L	N/A	N/A	18.2		91		70-130			
Dibromomethane	7071214	<0.22	20.0	ug/L	N/A	N/A	22.7		113		75-130			
1,2-Dichlorobenzene	7071214	<0.15	20.0	ug/L	N/A	N/A	19.1		96		75-120			
1,3-Dichlorobenzene	7071214	<0.13	20.0	ug/L	N/A	N/A	18.8		94		70-120			
1,4-Dichlorobenzene	7071214	<0.12	20.0	ug/L	N/A	N/A	19.7		98		65-125			
Dichlorodifluoromethane	7071214	<0.17	20.0	ug/L	N/A	N/A	18.6		93		40-130			
1,1-Dichloroethane	7071214	<0.090	20.0	ug/L	N/A	N/A	25.6		128		55-135			

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Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
QC Source Sample: CQG1130-07														
1,2-Dichloroethane	7071214	0.610	20.0	ug/L	N/A	N/A	22.6		110		60-140			
1,1-Dichloroethene	7071214	<0.19	20.0	ug/L	N/A	N/A	23.5		118		55-130			
cis-1,2-Dichloroethene	7071214	<0.20	20.0	ug/L	N/A	N/A	23.7		119		65-135			
trans-1,2-Dichloroethene	7071214	<0.15	20.0	ug/L	N/A	N/A	23.0		115		60-125			
1,2-Dichloropropane	7071214	<0.40	20.0	ug/L	N/A	N/A	21.8		109		65-125			
1,3-Dichloropropane	7071214	<0.19	20.0	ug/L	N/A	N/A	21.3		107		70-125			
2,2-Dichloropropane	7071214	<0.24	20.0	ug/L	N/A	N/A	11.0		55		30-125			CIN
1,1-Dichloropropene	7071214	<0.17	20.0	ug/L	N/A	N/A	22.4		112		55-130			
cis-1,3-Dichloropropene	7071214	<0.16	20.0	ug/L	N/A	N/A	19.4		97		55-115			
trans-1,3-Dichloropropene	7071214	<0.16	20.0	ug/L	N/A	N/A	17.1		86		40-120			
Ethylbenzene	7071214	56.1	20.0	ug/L	N/A	N/A	69.4		67		65-125			
Hexachlorobutadiene	7071214	<0.39	20.0	ug/L	N/A	N/A	14.0		70		50-130			
Hexane	7071214	6.79	20.0	ug/L	N/A	N/A	23.5		84		35-125			
Isopropylbenzene	7071214	1.94	20.0	ug/L	N/A	N/A	20.1		91		60-130			
p-Isopropyltoluene	7071214	<0.13	20.0	ug/L	N/A	N/A	23.8		119		65-125			
Methylene Chloride	7071214	<0.45	20.0	ug/L	N/A	N/A	23.7		119		60-135			
Methyl tert-Butyl Ether	7071214	<0.12	20.0	ug/L	N/A	N/A	22.9		115		50-145			
Naphthalene	7071214	10.9	20.0	ug/L	N/A	N/A	27.6		83		55-150			
n-Propylbenzene	7071214	5.61	20.0	ug/L	N/A	N/A	24.5		95		50-130			
Styrene	7071214	<0.10	20.0	ug/L	N/A	N/A	20.0		100		30-125			
1,1,1,2-Tetrachloroethane	7071214	<0.16	20.0	ug/L	N/A	N/A	17.8		89		70-120			
1,1,2,2-Tetrachloroethane	7071214	<0.23	20.0	ug/L	N/A	N/A	19.5		98		65-135			
Tetrachloroethene	7071214	<0.24	20.0	ug/L	N/A	N/A	17.3		86		60-125			
Toluene	7071214	3.10	20.0	ug/L	N/A	N/A	22.3		96		60-130			
1,2,3-Trichlorobenzene	7071214	<2.15	20.0	ug/L	N/A	N/A	17.5		88		55-150			
1,2,4-Trichlorobenzene	7071214	<0.49	20.0	ug/L	N/A	N/A	18.0		90		60-130			
1,1,1-Trichloroethane	7071214	<0.15	20.0	ug/L	N/A	N/A	18.3		91		60-120			
1,1,2-Trichloroethane	7071214	<0.30	20.0	ug/L	N/A	N/A	21.6		108		70-125			
Trichloroethene	7071214	<0.17	20.0	ug/L	N/A	N/A	20.0		100		60-120			
Trichlorofluoromethane	7071214	<0.15	20.0	ug/L	N/A	N/A	21.2		106		60-125			
1,2,3-Trichloropropane	7071214	<0.18	20.0	ug/L	N/A	N/A	21.5		107		70-125			
1,2,4-Trimethylbenzene	7071214	38.7	20.0	ug/L	N/A	N/A	51.7		65		35-130			
1,3,5-Trimethylbenzene	7071214	44.8	20.0	ug/L	N/A	N/A	29.4		-77		40-135			M1
Vinyl chloride	7071214	<0.16	20.0	ug/L	N/A	N/A	22.8		114		55-130			
Xylenes, total	7071214	134	60.0	ug/L	N/A	N/A	180		78		50-135			
Surrogate: Dibromofluoromethane	*7071214*			ug/L					*108*		*85-120*			
Surrogate: Toluene-d8	*7071214*			ug/L					*94*		*85-110*			
Surrogate: 4-Bromofluorobenzene	*7071214*			ug/L					*88*		*75-115*			
QC Source Sample: CQG1263-02														
Acetone	7071222	16.7	20.0	ug/L	N/A	N/A	38.3	33.7	108	85	50-145	13	35	
Acrylonitrile	7071222	<1.28	20.0	ug/L	N/A	N/A	20.7	21.4	103	107	50-145	3	35	
Benzene	7071222	<0.16	20.0	ug/L	N/A	N/A	20.1	20.1	100	101	70-125	0	15	
Bromobenzene	7071222	<0.17	20.0	ug/L	N/A	N/A	17.4	17.2	87	86	75-120	1	15	
Bromochloromethane	7071222	<0.31	20.0	ug/L	N/A	N/A	23.2	23.5	116	118	70-140	1	20	
Bromodichloromethane	7071222	<0.12	20.0	ug/L	N/A	N/A	18.9	19.1	94	96	70-120	1	20	

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Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

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Reported: 08/02/07 10:15

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
QC Source Sample: CQG1263-02														
Bromoform	7071222	<0.15	20.0	ug/L	N/A	N/A	14.4	14.5	72	73	50-120	1	20	
Bromomethane	7071222	<0.48	20.0	ug/L	N/A	N/A	21.7	22.0	109	110	40-135	1	30	
2-Butanone (MEK)	7071222	<0.91	20.0	ug/L	N/A	N/A	18.8	19.0	94	95	50-145	1	35	
n-Butylbenzene	7071222	<0.090	20.0	ug/L	N/A	N/A	19.5	19.3	97	96	55-130	1	20	
sec-Butylbenzene	7071222	<0.12	20.0	ug/L	N/A	N/A	19.0	19.0	95	95	65-125	0	20	
tert-Butylbenzene	7071222	<0.14	20.0	ug/L	N/A	N/A	18.3	18.6	92	93	55-135	1	20	
Carbon disulfide	7071222	<0.14	20.0	ug/L	N/A	N/A	20.4	20.4	102	102	45-125	0	25	
Carbon Tetrachloride	7071222	<0.13	20.0	ug/L	N/A	N/A	16.3	16.4	81	82	60-115	0	20	
Chlorobenzene	7071222	<0.080	20.0	ug/L	N/A	N/A	18.3	18.3	91	91	70-115	0	15	
Chlorodibromomethane	7071222	<0.25	20.0	ug/L	N/A	N/A	17.1	17.2	85	86	55-125	1	20	
Chloroethane	7071222	<0.50	20.0	ug/L	N/A	N/A	20.3	20.3	101	102	60-140	0	20	
Chloroform	7071222	0.350	20.0	ug/L	N/A	N/A	21.7	21.7	107	107	65-125	0	20	
Chloromethane	7071222	<0.20	20.0	ug/L	N/A	N/A	19.9	18.8	99	94	30-125	6	35	
2-Chlorotoluene	7071222	<0.20	20.0	ug/L	N/A	N/A	17.9	17.5	90	87	65-125	3	25	
4-Chlorotoluene	7071222	<0.15	20.0	ug/L	N/A	N/A	18.2	18.3	91	92	65-130	1	20	
1,2-Dibromo-3-chloropropane	7071222	<0.75	20.0	ug/L	N/A	N/A	16.2	16.3	81	81	45-140	0	35	
1,2-Dibromoethane (EDB)	7071222	<0.13	20.0	ug/L	N/A	N/A	18.3	18.1	92	90	70-130	1	15	
Dibromomethane	7071222	<0.22	20.0	ug/L	N/A	N/A	22.1	22.0	110	110	75-130	0	25	
1,2-Dichlorobenzene	7071222	<0.15	20.0	ug/L	N/A	N/A	19.4	19.4	97	97	75-120	0	20	
1,3-Dichlorobenzene	7071222	<0.13	20.0	ug/L	N/A	N/A	18.8	17.7	94	89	70-120	6	20	
1,4-Dichlorobenzene	7071222	<0.12	20.0	ug/L	N/A	N/A	18.8	19.6	94	98	65-125	4	20	
Dichlorodifluoromethane	7071222	<0.17	20.0	ug/L	N/A	N/A	15.6	15.4	78	77	40-130	1	20	
1,1-Dichloroethane	7071222	<0.090	20.0	ug/L	N/A	N/A	24.2	24.3	121	122	55-135	1	20	
1,2-Dichloroethane	7071222	12.4	20.0	ug/L	N/A	N/A	32.7	32.4	102	100	60-140	1	30	
1,1-Dichloroethene	7071222	<0.19	20.0	ug/L	N/A	N/A	21.6	21.8	108	109	55-130	1	20	
cis-1,2-Dichloroethene	7071222	8.43	20.0	ug/L	N/A	N/A	29.8	30.0	107	108	65-135	1	20	
trans-1,2-Dichloroethene	7071222	<0.15	20.0	ug/L	N/A	N/A	21.4	21.5	107	108	60-125	1	20	
1,2-Dichloropropane	7071222	<0.40	20.0	ug/L	N/A	N/A	21.6	21.3	108	106	65-125	1	20	
1,3-Dichloropropane	7071222	<0.19	20.0	ug/L	N/A	N/A	20.5	20.7	102	104	70-125	1	15	
2,2-Dichloropropane	7071222	<0.24	20.0	ug/L	N/A	N/A	15.1	16.4	76	82	30-125	8	35	CIN
1,1-Dichloropropene	7071222	<0.17	20.0	ug/L	N/A	N/A	20.8	20.9	104	105	55-130	1	20	
cis-1,3-Dichloropropene	7071222	<0.16	20.0	ug/L	N/A	N/A	21.1	20.6	106	103	55-115	2	20	
trans-1,3-Dichloropropene	7071222	<0.16	20.0	ug/L	N/A	N/A	18.8	18.4	94	92	40-120	2	20	
Ethylbenzene	7071222	<0.18	20.0	ug/L	N/A	N/A	18.1	18.6	90	93	65-125	3	15	
Hexachlorobutadiene	7071222	<0.39	20.0	ug/L	N/A	N/A	14.5	14.4	72	72	50-130	0	25	
Hexane	7071222	<0.44	20.0	ug/L	N/A	N/A	20.2	19.8	101	99	35-125	2	20	
Isopropylbenzene	7071222	<0.19	20.0	ug/L	N/A	N/A	17.5	16.9	88	85	60-130	3	20	
p-Isopropyltoluene	7071222	<0.13	20.0	ug/L	N/A	N/A	18.6	18.8	93	94	65-125	1	20	
Methylene Chloride	7071222	<0.45	20.0	ug/L	N/A	N/A	22.8	22.9	114	115	60-135	1	20	
Methyl tert-Butyl Ether	7071222	<0.12	20.0	ug/L	N/A	N/A	22.7	22.8	114	114	50-145	0	25	
Naphthalene	7071222	<0.35	20.0	ug/L	N/A	N/A	19.4	19.8	97	99	55-150	2	35	
n-Propylbenzene	7071222	<0.14	20.0	ug/L	N/A	N/A	17.3	17.3	86	86	50-130	0	30	
Styrene	7071222	<0.10	20.0	ug/L	N/A	N/A	19.2	18.8	96	94	30-125	2	30	
1,1,1,2-Tetrachloroethane	7071222	<0.16	20.0	ug/L	N/A	N/A	17.9	17.6	90	88	70-120	2	15	
1,1,2,2-Tetrachloroethane	7071222	<0.23	20.0	ug/L	N/A	N/A	18.8	18.8	94	94	65-135	0	20	

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Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
QC Source Sample: CQG1263-02														
Tetrachloroethene	7071222	61.4	20.0	ug/L	N/A	N/A	64.7	63.0	16	8	60-125	3	20	M1
Toluene	7071222	<0.10	20.0	ug/L	N/A	N/A	18.2	18.0	91	90	60-130	1	15	
1,2,3-Trichlorobenzene	7071222	<2.15	20.0	ug/L	N/A	N/A	17.7	17.8	88	89	55-150	1	35	
1,2,4-Trichlorobenzene	7071222	<0.49	20.0	ug/L	N/A	N/A	18.6	17.6	93	88	60-130	5	30	
1,1,1-Trichloroethane	7071222	<0.15	20.0	ug/L	N/A	N/A	17.2	17.1	86	85	60-120	1	20	
1,1,2-Trichloroethane	7071222	<0.30	20.0	ug/L	N/A	N/A	20.9	20.8	104	104	70-125	0	20	
Trichloroethene	7071222	2.21	20.0	ug/L	N/A	N/A	20.8	20.6	93	92	60-120	1	30	
Trichlorofluoromethane	7071222	<0.15	20.0	ug/L	N/A	N/A	18.6	19.1	93	95	60-125	2	20	
1,2,3-Trichloropropane	7071222	<0.18	20.0	ug/L	N/A	N/A	21.0	20.7	105	104	70-125	1	20	
1,2,4-Trimethylbenzene	7071222	<0.16	20.0	ug/L	N/A	N/A	17.6	17.6	88	88	35-130	0	35	
1,3,5-Trimethylbenzene	7071222	<0.14	20.0	ug/L	N/A	N/A	17.8	17.6	89	88	40-135	1	30	
Vinyl chloride	7071222	<0.16	20.0	ug/L	N/A	N/A	19.8	20.2	99	101	55-130	2	20	
Xylenes, total	7071222	<0.17	60.0	ug/L	N/A	N/A	55.6	55.0	93	92	50-135	1	35	
Surrogate: Dibromofluoromethane	*7071222*			ug/L					*111*	*109*	*85-120*			
Surrogate: Toluene-d8	*7071222*			ug/L					*95*	*93*	*85-110*			
Surrogate: 4-Bromofluorobenzene	*7071222*			ug/L					*88*	*87*	*75-115*			
QC Source Sample: CQG1291-01														
Acetone	7071257	<50.0	0.955	mg/kg wet	N/A	2.39	1.17	0.948	123	98	45-140	21	40	
Acrylonitrile	7071257	<50.0	0.955	mg/kg wet	N/A	2.39	0.882	0.947	92	98	45-140	7	40	
Benzene	7071257	0.535	0.955	mg/kg wet	N/A	0.239	1.29	1.37	79	86	40-135	6	35	
Bromobenzene	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.905	0.932	95	97	40-135	3	40	
Bromochloromethane	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	1.07	1.07	112	111	50-145	1	35	
Bromodichloromethane	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.885	0.883	93	91	45-140	0	40	
Bromoform	7071257	<10.0	0.955	mg/kg wet	N/A	0.478	0.678	0.705	71	73	35-125	4	40	
Bromomethane	7071257	<20.0	0.955	mg/kg wet	N/A	0.955	0.516	0.507	54	53	40-130	2	35	
2-Butanone (MEK)	7071257	1.39	0.955	mg/kg wet	N/A	2.39	1.26	1.28	-14	-11	40-135	2	40	M1
n-Butylbenzene	7071257	1.14	0.955	mg/kg wet	N/A	0.239	1.95	2.07	84	96	25-120	6	40	
sec-Butylbenzene	7071257	0.370	0.955	mg/kg wet	N/A	0.239	1.14	1.20	81	86	30-125	5	40	
tert-Butylbenzene	7071257	1.71	0.955	mg/kg wet	N/A	0.239	2.18	2.28	49	59	25-120	4	40	
Carbon disulfide	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.871	0.903	91	94	45-120	4	35	
Carbon Tetrachloride	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.815	0.820	85	85	40-135	1	35	
Chlorobenzene	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.959	0.983	100	102	40-135	3	35	
Chlorodibromomethane	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.816	0.800	85	83	40-135	2	35	
Chloroethane	7071257	<20.0	0.955	mg/kg wet	N/A	0.955	0.716	0.796	75	82	50-125	11	35	
Chloroform	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	1.03	0.973	107	101	45-140	5	35	
Chloromethane	7071257	<20.0	0.955	mg/kg wet	N/A	0.955	0.618	0.677	65	70	35-130	9	30	
2-Chlorotoluene	7071257	0.916	0.955	mg/kg wet	N/A	0.239	1.87	2.05	100	117	40-135	9	40	
4-Chlorotoluene	7071257	0.751	0.955	mg/kg wet	N/A	0.239	1.15	1.23	42	50	35-130	6	40	
1,2-Dibromo-3-chloropropane	7071257	<50.0	0.955	mg/kg wet	N/A	2.39	0.702	0.831	74	86	35-130	17	40	
1,2-Dibromoethane (EDB)	7071257	<50.0	0.955	mg/kg wet	N/A	2.39	0.985	0.986	103	102	45-140	0	35	
Dibromomethane	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.911	0.913	95	95	55-145	0	35	
1,2-Dichlorobenzene	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.925	0.935	97	97	35-125	1	40	
1,3-Dichlorobenzene	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.986	0.989	103	102	30-125	0	40	
1,4-Dichlorobenzene	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.855	0.897	90	93	35-130	5	40	
Dichlorodifluoromethane	7071257	<15.0	0.955	mg/kg wet	N/A	0.716	0.420	0.485	44	50	25-120	14	35	

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Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
QC Source Sample: CQG1291-01														
1,1-Dichloroethane	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	1.07	1.03	112	106	45-140	4	35	
1,2-Dichloroethane	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.972	0.931	102	96	45-140	4	35	
1,1-Dichloroethene	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.942	0.939	99	97	45-140	0	35	
cis-1,2-Dichloroethene	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	1.01	1.02	106	106	50-145	1	35	
trans-1,2-Dichloroethene	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.964	0.927	101	96	45-140	4	35	
1,2-Dichloropropane	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.901	0.873	94	90	45-140	3	35	
1,3-Dichloropropane	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.864	0.887	90	92	50-145	3	35	
2,2-Dichloropropane	7071257	<20.0	0.955	mg/kg wet	N/A	0.955	1.24	1.12	130	116	40-135	10	35	
1,1-Dichloropropene	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.880	0.851	92	88	40-135	3	35	
cis-1,3-Dichloropropene	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.909	0.880	95	91	40-135	3	35	
trans-1,3-Dichloropropene	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.901	0.886	94	92	40-135	2	40	
Ethylbenzene	7071257	7.01	0.955	mg/kg wet	N/A	0.239	6.23	6.81	-81	-20	35-130	9	40	M1
Hexachlorobutadiene	7071257	0.106	0.955	mg/kg wet	N/A	1.19	0.931	0.974	86	90	20-115	5	40	
Hexane	7071257	1.20	0.955	mg/kg wet	N/A	1.19	1.53	1.57	35	39	20-110	3	40	
Isopropylbenzene	7071257	0.745	0.955	mg/kg wet	N/A	0.239	1.45	1.58	74	87	45-140	9	40	
p-Isopropyltoluene	7071257	0.530	0.955	mg/kg wet	N/A	0.239	1.35	1.39	86	89	40-135	3	40	
Methylene Chloride	7071257	<50.0	0.955	mg/kg wet	N/A	2.39	1.06	1.08	111	112	40-135	1	30	
Methyl tert-Butyl Ether	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	1.01	0.972	106	101	45-140	4	30	
Naphthalene	7071257	0.929	0.955	mg/kg wet	N/A	1.19	1.89	2.06	101	117	20-115	9	40	M1
n-Propylbenzene	7071257	2.66	0.955	mg/kg wet	N/A	0.239	3.01	3.25	38	61	30-125	7	40	
Styrene	7071257	0.141	0.955	mg/kg wet	N/A	0.239	0.992	1.09	89	98	40-135	9	35	
1,1,1,2-Tetrachloroethane	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.953	0.852	100	88	45-140	11	30	
1,1,2,2-Tetrachloroethane	7071257	0.0361	0.955	mg/kg wet	N/A	0.239	0.922	1.07	93	107	45-140	15	40	
Tetrachloroethene	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	1.01	1.02	105	105	40-135	1	35	
Toluene	7071257	0.383	0.955	mg/kg wet	N/A	0.239	1.32	1.31	98	96	35-130	1	40	
1,2,3-Trichlorobenzene	7071257	0.0434	0.955	mg/kg wet	N/A	1.19	0.926	0.908	92	90	25-120	2	40	
1,2,4-Trichlorobenzene	7071257	0.0301	0.955	mg/kg wet	N/A	1.19	0.894	0.920	90	92	25-120	3	40	
1,1,1-Trichloroethane	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.902	0.930	94	96	45-140	3	35	
1,1,2-Trichloroethane	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.951	0.881	100	91	50-145	8	40	
Trichloroethene	7071257	<5.00	0.955	mg/kg wet	N/A	0.239	0.885	0.927	93	96	45-140	5	35	
Trichlorofluoromethane	7071257	<20.0	0.955	mg/kg wet	N/A	0.955	0.863	0.864	90	90	45-120	0	35	
1,2,3-Trichloropropane	7071257	0.113	0.955	mg/kg wet	N/A	0.239	0.829	0.832	75	74	45-140	0	35	
1,2,4-Trimethylbenzene	7071257	12.5	0.955	mg/kg wet	N/A	0.239	9.61	10.5	-298	-208	35-130	8	40	M1
1,3,5-Trimethylbenzene	7071257	6.31	0.955	mg/kg wet	N/A	0.239	3.87	4.22	-256	-217	35-130	9	35	M1
Vinyl chloride	7071257	<15.0	0.955	mg/kg wet	N/A	0.716	0.805	0.813	84	84	50-120	1	35	
Xylenes, total	7071257	19.7	2.87	mg/kg wet	N/A	0.716	18.0	18.6	-57	-36	35-130	3	40	M1
Surrogate: Dibromofluoromethane	*7071257*			ug/L					*109*	*105*	*80-120*			
Surrogate: Toluene-d8	*7071257*			ug/L					*111*	*108*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*7071257*			ug/L					*91*	*94*	*80-120*			

TestAmerica
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Work Order: CQG1135
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Project Number: 728500J

Received: 07/23/07
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MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
QC Source Sample: CQG1486-06														
Acetone	7080072	4.54	0.911	mg/kg wet	N/A	2.28	5.22	4.57	75	4	45-140	13	40	M1
Acrylonitrile	7080072	<50.0	0.911	mg/kg wet	N/A	2.28	1.39	1.27	152	133	45-140	9	40	M1
Benzene	7080072	0.427	0.911	mg/kg wet	N/A	0.228	1.50	1.46	117	109	40-135	2	35	
Bromobenzene	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.09	1.15	120	122	40-135	6	40	
Bromochloromethane	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.21	1.24	132	130	50-145	2	35	
Bromodichloromethane	7080072	0.0482	0.911	mg/kg wet	N/A	0.228	1.12	1.11	117	112	45-140	0	40	
Bromoform	7080072	<10.0	0.911	mg/kg wet	N/A	0.456	0.702	0.746	77	78	35-125	6	40	
Bromomethane	7080072	<20.0	0.911	mg/kg wet	N/A	0.911	0.509	0.518	56	55	40-130	2	35	
2-Butanone (MEK)	7080072	8.87	0.911	mg/kg wet	N/A	2.28	9.60	8.46	80	-43	40-135	13	40	M1
n-Butylbenzene	7080072	2.84	0.911	mg/kg wet	N/A	0.228	4.41	4.28	172	152	25-120	3	40	M1
sec-Butylbenzene	7080072	19.0	0.911	mg/kg wet	N/A	0.228	1.53	1.58	-1920	-1840	30-125	3	40	M1
tert-Butylbenzene	7080072	2.85	0.911	mg/kg wet	N/A	0.228	4.05	3.95	131	115	25-120	3	40	M1
Carbon disulfide	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	0.831	0.839	91	88	45-120	1	35	
Carbon Tetrachloride	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	0.967	1.02	106	107	40-135	5	35	
Chlorobenzene	7080072	0.00709	0.911	mg/kg wet	N/A	0.228	1.21	1.23	132	128	40-135	1	35	
Chlorodibromomethane	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	0.765	0.806	84	85	40-135	5	35	
Chloroethane	7080072	<20.0	0.911	mg/kg wet	N/A	0.911	0.664	0.671	73	71	50-125	1	35	
Chloroform	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.16	1.17	127	123	45-140	1	35	
Chloromethane	7080072	0.109	0.911	mg/kg wet	N/A	0.911	0.695	0.684	64	60	35-130	2	30	
2-Chlorotoluene	7080072	1.45	0.911	mg/kg wet	N/A	0.228	3.49	3.44	224	210	40-135	1	40	M1
4-Chlorotoluene	7080072	1.18	0.911	mg/kg wet	N/A	0.228	1.69	1.69	55	53	35-130	0	40	
1,2-Dibromo-3-chloropropane	7080072	0.102	0.911	mg/kg wet	N/A	2.28	1.11	1.02	110	97	35-130	8	40	
1,2-Dibromoethane (EDB)	7080072	<50.0	0.911	mg/kg wet	N/A	2.28	1.40	1.41	153	149	45-140	1	35	M1
Dibromomethane	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.10	1.11	120	117	55-145	1	35	
1,2-Dichlorobenzene	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.12	1.19	123	125	35-125	6	40	
1,3-Dichlorobenzene	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.09	1.16	120	122	30-125	6	40	
1,4-Dichlorobenzene	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.05	1.11	115	117	35-130	6	40	
Dichlorodifluoromethane	7080072	<15.0	0.911	mg/kg wet	N/A	0.683	0.373	0.389	41	41	25-120	4	35	
1,1-Dichloroethane	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.09	1.10	119	116	45-140	2	35	
1,2-Dichloroethane	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.21	1.15	133	121	45-140	5	35	
1,1-Dichloroethene	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	0.896	0.928	98	98	45-140	4	35	
cis-1,2-Dichloroethene	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.14	1.13	125	118	50-145	1	35	
trans-1,2-Dichloroethene	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	0.999	1.03	110	109	45-140	3	35	
1,2-Dichloropropane	7080072	0.0449	0.911	mg/kg wet	N/A	0.228	1.12	1.15	118	116	45-140	2	35	
1,3-Dichloropropane	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	0.990	1.05	109	110	50-145	6	35	
2,2-Dichloropropane	7080072	<20.0	0.911	mg/kg wet	N/A	0.911	1.57	1.54	172	162	40-135	2	35	M1
1,1-Dichloropropene	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.09	1.10	120	116	40-135	0	35	
cis-1,3-Dichloropropene	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.08	1.15	118	121	40-135	6	35	
trans-1,3-Dichloropropene	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.00	1.10	110	116	40-135	9	40	
Ethylbenzene	7080072	6.60	0.911	mg/kg wet	N/A	0.228	8.81	8.16	242	165	35-130	8	40	M1
Hexachlorobutadiene	7080072	0.0506	0.911	mg/kg wet	N/A	1.14	1.26	1.27	132	128	20-115	1	40	M1
Hexane	7080072	4.32	0.911	mg/kg wet	N/A	1.14	4.53	4.12	23	-21	20-110	10	40	M1
Isopropylbenzene	7080072	0.757	0.911	mg/kg wet	N/A	0.228	2.05	2.01	142	132	45-140	2	40	M1
p-Isopropyltoluene	7080072	0.897	0.911	mg/kg wet	N/A	0.228	2.07	2.04	129	120	40-135	1	40	
Methylene Chloride	7080072	<50.0	0.911	mg/kg wet	N/A	2.28	1.08	1.11	118	116	40-135	3	30	

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HOWARD R. GREEN CO.- DES MOINES <
4685 Merle Hay Rd Ste. 106
Des Moines, IA 50322
Scott Mattes

Work Order: CQG1135
Project: Council Bluffs Brownfields
Project Number: 728500J

Received: 07/23/07
Reported: 08/02/07 10:15

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Volatile Organic Compounds														
QC Source Sample: CQG1486-06														
Methyl tert-Butyl Ether	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.34	1.33	147	140	45-140	0	30	M1
Naphthalene	7080072	3.25	0.911	mg/kg wet	N/A	1.14	4.96	4.49	188	131	20-115	10	40	M1
n-Propylbenzene	7080072	3.48	0.911	mg/kg wet	N/A	0.228	5.46	5.20	217	181	30-125	5	40	M1
Styrene	7080072	0.148	0.911	mg/kg wet	N/A	0.228	1.42	1.39	140	131	40-135	2	35	M1
1,1,1,2-Tetrachloroethane	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.07	1.01	118	106	45-140	6	30	
1,1,2,2-Tetrachloroethane	7080072	0.124	0.911	mg/kg wet	N/A	0.228	1.57	1.53	159	148	45-140	3	40	M1
Tetrachloroethene	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.34	1.37	147	144	40-135	2	35	M1
Toluene	7080072	0.579	0.911	mg/kg wet	N/A	0.228	1.97	1.94	153	143	35-130	2	40	M1
1,2,3-Trichlorobenzene	7080072	0.0336	0.911	mg/kg wet	N/A	1.14	1.12	1.09	119	111	25-120	3	40	
1,2,4-Trichlorobenzene	7080072	0.0222	0.911	mg/kg wet	N/A	1.14	1.15	1.12	123	115	25-120	3	40	M1
1,1,1-Trichloroethane	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.09	1.13	119	119	45-140	4	35	
1,1,2-Trichloroethane	7080072	<5.00	0.911	mg/kg wet	N/A	0.228	1.07	1.29	117	136	50-145	19	40	
Trichloroethene	7080072	0.0549	0.911	mg/kg wet	N/A	0.228	1.17	1.15	122	115	45-140	1	35	
Trichlorofluoromethane	7080072	<20.0	0.911	mg/kg wet	N/A	0.911	0.727	0.725	80	76	45-120	0	35	
1,2,3-Trichloropropane	7080072	0.168	0.911	mg/kg wet	N/A	0.228	0.973	1.07	88	95	45-140	10	35	
1,2,4-Trimethylbenzene	7080072	18.8	0.911	mg/kg wet	N/A	0.228	23.2	22.5	486	389	35-130	3	40	M1
1,3,5-Trimethylbenzene	7080072	6.25	0.911	mg/kg wet	N/A	0.228	7.98	7.74	189	157	35-130	3	35	M1
Vinyl chloride	7080072	<15.0	0.911	mg/kg wet	N/A	0.683	0.693	0.709	76	75	50-120	2	35	
Xylenes, total	7080072	23.5	2.73	mg/kg wet	N/A	0.683	30.8	28.6	265	179	35-130	7	40	M1
Surrogate: Dibromofluoromethane	*7080072*			ug/L					*101*	*101*	*80-120*			
Surrogate: Toluene-d8	*7080072*			ug/L					*122*	*123*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*7080072*			ug/L					*90*	*95*	*80-120*			
UST ANALYSIS PARAMETERS														
QC Source Sample: CQG1088-03														
Diesel	7070938	<10.0	65.1	mg/kg	N/A	10.0	51.7	53.8	79	82	40-135	4	40	
Surrogate: Octacosane	*7070938*			mg/kg					*91*	*86*	*60-150*			

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HOWARD R. GREEN CO.- DES MOINES <	Work Order:	CQG1135	Received: 07/23/07
4685 Merle Hay Rd Ste. 106			Reported: 08/02/07 10:15
Des Moines, IA 50322	Project:	Council Bluffs Brownfields	
Scott Mattes	Project Number:	728500J	

CERTIFICATION SUMMARY

TestAmerica - Cedar Falls, IA

Method	Matrix	Nelac	Iowa
OA-2 - 8015B	Solid/Soil		
OA-2 - 8015B	Water - NonPotable		
OA-2	Solid/Soil		X
OA-2	Water - NonPotable		X
SM 2540 G	Solid/Soil		
SM 2540C/97	Water - NonPotable		
SW 6010B	Solid/Soil	X	X
SW 6010B	Water - NonPotable	X	X
SW 7060A	Solid/Soil	X	X
SW 7060A	Water - NonPotable	X	X
SW 7131A	Water - NonPotable	X	X
SW 7421	Water - NonPotable	X	X
SW 7470A	Water - NonPotable	X	X
SW 7471A	Solid/Soil	X	X
SW 7740	Water - NonPotable	X	X
SW 8260B	Solid/Soil	X	X
SW 8260B	Water - NonPotable	X	X
SW 8270C	Water - NonPotable	X	X
SW 8310	Solid/Soil	X	X
SW 8310	Water - NonPotable	X	X
SW 9012 Mod.	Water - NonPotable		X
SW 9012	Solid/Soil	X	X
SW	Water - NonPotable		

Any abnormalities or departures from sample acceptance policy shall be documented on the 'Sample Receipt and Termperature Log Form' and 'Sample Non-conformance Form' (if applicable) included with this report.

For information concerning certifications of this facility or another TestAmerica facility, please visit our website at www.TestAmericaInc.com

Samples collected by TestAmerica Field Services personnel are noted on the Chain of Custody (COC) and are sampled in accordance with TA-CF SOP CF09-01.

HOWARD R. GREEN CO.- DES MOINES <	Work Order:	CQG1135	Received: 07/23/07
4685 Merle Hay Rd Ste. 106			Reported: 08/02/07 10:15
Des Moines, IA 50322	Project:	Council Bluffs Brownfields	
Scott Mattes	Project Number:	728500J	

DATA QUALIFIERS AND DEFINITIONS

C	Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
CIN	The % RSD for this compound was above 15%. The average % RSD for all compounds in the calibration met the 15% criteria specified in EPA methods 8260B/8270C.
J	Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). Concentrations within this range are estimated.
L1	Laboratory Control Sample and/or Laboratory Control Sample Duplicate recovery was outside control limits.
L5	Laboratory Control Sample was outside of acceptance limits. The MS or MSD was used to validate the batch.
M1	The MS and/or MSD were outside control limits.
MHA	Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information.
R	Sample duplicate RPD exceeded the laboratory control limit.
RL1	Reporting limit raised due to sample matrix effects.
S2	Compound is a common lab solvent and contaminant.
Z6	Surrogate recovery was outside control limits.
ZX	Due to sample matrix effects, the surrogate recovery was outside the control limits.

ADDITIONAL COMMENTS

Results are reported on a wet weight basis unless otherwise noted.

TestAmerica ANALYTICAL TESTING CORPORATION

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: Howard R. Green Company Client #: _____
Address: 4685 Merle Hay Rd., Suite 106
City/State/Zip Code: Des Moines, IA
Project Manager: Scott Matter
Telephone Number: 515-278-2913 Fax: 515-278-1846
Sampler Name: (Print Name) Mike Gaulen
Sampler Signature: [signature]
Email Address: smatter@hrgreen.com

Project Name: Council Bluffs S. Main Brownfields Area
Project #: 728503
Site/Location ID: Cluster 4 State: IA
Report To: Scott Matter
Invoice To: Same
Quote #: _____ PO#: _____

TAT: X Standard; ___ Rush (surcharges may apply)
Date Needed: 7/30/07
Fax Results: Y N
Email Results: (Y) N

Matrix: SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other

Preservation & # of Containers: HNO_3, HCl, NaOH, H_2SO_4, Methanol, None, Other (Specify) $Na_2S_2O_3$

Analyze For: VOC (8260B), PAH (8310), RCRA Metals (6010B, 7471A, 6200), TEH (Iowa OA-2), Cyanide (9010), RCRA Metals (6010B, 7471A, 6200) Dissolved, Total Dissolved Solids (160.1)

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

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix	HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	VOC (8260B)	PAH (8310)	RCRA Metals (6010B, 7471A, 6200)	TEH (Iowa OA-2)	Cyanide (9010)	RCRA Metals (6010B, 7471A, 6200) Dissolved	Total Dissolved Solids (160.1)				REMARKS
CL#4-SB-08 0-2'	7/19/07	11:15	C	N	S					X	X	X	X	X	X	X	X						
CL#4-SB-08 72-74'	7/19/07	16:15	G	N	S					X	X	X	X	X	X	X	X						
CL#4-SB-07 0-2'	7/20/07	9:30	C	N	S					X	X	X	X	X	X	X	X						
CL#4-SB07 10-12'	7/20/07	9:45	G	N	S					X	X	X	X	X	X	X	X						
Soil Duplicate #2	—	—	C	N	S					X	~~X~~ NO	~~X~~ NO	NO	X			X						Do not run VOCs
CL#4-MW-03	7/20/07	12:40	G	Y/N	GW	X	X	X			X		X	X	X	X	X	X	X				1-500mL Filtered
CL#4-MW-01	7/20/07	14:10	G	Y/N	GW	X	X	~~X~~ NO			X		X	X	X			X	X				1-500mL Filtered
CL#4-MW-02	7/21/07	14:10	G	Y/N	GW	X	X				X		X	X	X	NO		X	X				No TEH/1-500mL Filtered
CL#4-MW-04	7/21/07	15:15	G	Y/N	GW	X	X	X			X		X	X	X	X	X	X	X				1-500mL Filtered
GW Field Duplicate	—	-	G	N	GW						X			X									

Special Instructions: Send spreadsheet of results

LABORATORY COMMENTS:

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
[signature]	7-23-07	15:00	Test America [signature]	7-23-07	3:00 PM
[signature]	7-23-07	4:00 PM	[signature]	7/23/07	1800

TestAmerica
ANALYTICAL TESTING CORPORATION

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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: Howard R. Green Company Client #: _____
Address: 4685 Merle Hay Rd., Suite 106
City/State/Zip Code: Des Moines, IA 50322
Project Manager: Scott Mattes
Telephone Number: 515-278-2913 Fax: 515-278-2913
Sampler Name: (Print Name) Mike Gosler
Sampler Signature: [signature]
Email Address: smattes@hrgreen.com

Project Name: Council Bluffs S. Main Brownfields Area
Project #: T28 500J
Site/Location ID: Cluster 4 State: IA
Report To: Scott Mattes
Invoice To: Same
Quote #: _____ PO#: _____

TAT
X Standard
___ Rush (surcharges may apply)
Date Needed: 7/30/07
Fax Results: Y N
Email Results: Y N

Matrix: SL - Sludge DW - Drinking Water; GW - Groundwater S - Soil/Solid; WW - Wastewater Specify Other
Preservation & # of Containers
Analyze For:

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix	HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	VOC (8260B)	PAH (8310)	RCRA metals - metals	TEH (Ext & OR-2)	Cyanide (9010)	TDS (160.1)	BNA+ (Sulfides) (8270C)				
Equipment Rinsate Blank	7/21/07	13:30	G	N	GW	X	X	X			X		X	X	X	X	X		X				
Trip Blank	—	—	G	N	GW		X						X										

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

REMARKS

Special Instructions: Please Send Spreadsheet of results

LABORATORY COMMENTS:

	Date:	Time:		Date:	Time:
Relinquished By: [signature]	7-23-07	15:00	Received By: Test America	7-23-07	3:00 PM
Relinquished By: [signature]	7-23-07	6:00 PM	Received By: [signature]	7/23/07	1800
Relinquished By:			Received By:		

TestAmerica
ANALYTICAL TESTING CORPORATION

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Sample Receipt and Temperature Log Form

Client: Howard R. Green Project: Council Bluffs

City: Des Moines, Ia

Date: 7/23/07 Receiver's Initials: JMH Time (Delivered): 1800

Temperature Record:

Cooler ID# (If Applicable)
Test America Phoenix

9.9 °C / On Ice

[✓] Temp Blank

[✓] Temperature out of compliance

Thermometer:

[✓] IR - 905085 "A"
[ ] IR - 809065 "B"
[ ] IR - 61854108
[ ] 22126775

Courier:

[ ] UPS
[ ] FedEx
[ ] DHL
[ ] US Postal Service
[ ] Spee-Dee
[✓] TA Courier
[ ] TA Field Services
[ ] Client
[ ] Other

Custody seals present?
[ ] Yes
Custody seals intact?
[ ] Yes [ ] No

[ ] Non-Conformance report started

Exceptions Noted

[ ] Sample(s) not received in a cooler.
[ ] Samples(s) received same day of sampling.
[✓] Evidence of a chilling process
[ ] Temperature not taken:

Soil field duplicate
CL#4 SB07 10-12'
CL#4 SB07 0-2'
CL#4 SB08-0-2'
CL#4 SB08-72-74'

*Refer to SOP CF01-01 for Temperature Criteria

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Sample Receipt and Temperature Log Form

Client: Howard R. Green Project: Council Bluffs.

City: Des Moines, Ia

Date: 7/23/07 Receiver's Initials: JMH Time (Delivered): 1800

Temperature Record:

Cooler ID# (If Applicable)
P.P 19

2.3 °C / On Ice

[x] Temp Blank

[ ] Temperature out of compliance

Thermometer:

[x] IR - 905085 "A"
[ ] IR - 809065 "B"
[ ] IR - 61854108
[ ] 22126775

Courier:

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

Custody seals present?
[ ] Yes
Custody seals intact?
[ ] Yes [ ] No

[ ] Non-Conformance report started

Exceptions Noted

[ ] Sample(s) not received in a cooler.
[ ] Samples(s) received same day of sampling.
[ ] Evidence of a chilling process
[ ] Temperature not taken:

Field Dup.
CL# 2 MW-07
CL# 2 MW 02D
TB - 3 vials.

***Refer to SOP CF01-01 for Temperature Criteria**

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Sample Receipt and Temperature Log Form

Client: Howard R. Green

Project: Council Bluffs.

City: Des Moines, Ia

Date: 7/23/07 Receiver's Initials: JMH Time (Delivered): 1800

Temperature Record:

Cooler ID# (If Applicable)
TKG9

3.8 °C / On Ice

☑ Temp Blank

☐ Temperature out of compliance

Thermometer:

☑ IR - 905085 "A"
☐ IR - 809065 "B"
☐ IR - 61854108
☐ 22126775

Courier:

☐ UPS
☐ FedEx
☐ DHL
☐ US Postal Service
☐ Spee-Dee
☑ TA Courier
☐ TA Field Services
☐ Client
☐ Other

Custody seals present?
☐ Yes

Custody seals intact?
☐ Yes ☐ No

☐ Non-Conformance report started

Exceptions Noted

☐ Sample(s) not received in a cooler.

☐ Samples(s) received same day of sampling.

☐ Evidence of a chilling process

☐ Temperature not taken:

1 Set TB (3 vials)
CL#4 MW02
CL#4 MW04
CL#4 MW03 1 amber
Equip. Rinse Blank

*Refer to SOP CF01-01 for Temperature Criteria

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Sample Receipt and Temperature Log Form

Client: Howard R. Green Project: Council Bluffs

City: Des Moines, Ia

Date: 7/23/07 Receiver's Initials: JMH Time (Delivered): 1800

Temperature Record:

Cooler ID# (If Applicable)
ZIP-42

2.6 **°C / On Ice**

☑ Temp Blank

☐ Temperature out of compliance

Thermometer:

☑ IR - 905085 "A"
☐ IR - 809065 "B"
☐ IR - 61854108
☐ 22126775

Courier:

☐ UPS
☐ FedEx
☐ DHL
☐ US Postal Service
☐ Spee-Dee
☑ TA Courier
☐ TA Field Services
☐ Client
☐ Other

Custody seals present?
☐ Yes
Custody seals intact?
☐ Yes ☐ No

☐ Non-Conformance report started

Exceptions Noted

☐ Sample(s) not received in a cooler.
☐ Samples(s) received same day of sampling.
☐ Evidence of a chilling process
☐ Temperature not taken:

CL#4 MW03 Vials
CL#4 MW01 &
CL#4 MW02 bottles
CL#4 MW04

1 set TB (3 vials)

***Refer to SOP CF01-01 for Temperature Criteria**

C:\QA Folder\QA Forms & Log Book pgs\Cooler Receipt rev10.doc

APPENDIX D

Soil Boring Logs/
Monitor Well Construction Details

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: CL#4-SB-1	Facility: Council Bluffs Cluster #4	Facility Street Address: Council Bluffs South Main Brownfields
Boring Depth (ft) X Diameter (in): 2 X 2		Drilling Method: Push Probe
Well contractor Name: Thiele Geotech Registration Number: # 40076		Logged By: M. Goalen
Ground Surface Elevation (ASL): --	Top of Casing Elevation (ASL): --	
Date: 7/17/2007 Start Time: 14:45	Date: 7/17/2007 End Time: 14:55	UST Number: NA LUST Number: NA

Depth (feet)	Well Construction Details	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
0		N/A					Grass
1						ML	Silt, brown, moist
2			*	PP	13.3		T.D. = 2'
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
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) PP (Push Probe)

Observations	Date:					
Water Levels (ASL)	Level:					
Static Water Level v	Time:					

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: CL#4-SB-2	Facility: Council Bluffs Cluster #4	Facility Street Address: Council Bluffs South Main Brownfields
Boring Depth (ft) X Diameter (in): 2 X 2		Drilling Method: Push Probe
Well contractor Name: Thiele Geotech Registration Number: # 40076		Logged By: M. Goalen
Ground Surface Elevation (ASL): --	Top of Casing Elevation (ASL): --	
Date: 7/17/2007 Start Time: 15:00	Date: 7/17/2007 End Time: 15:10	UST Number: NA LUST Number: NA

Depth (feet)	Well Construction Details	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
0		N/A					Grass
1						ML	Silt, brown with iron accumulations from 1 to 2', moist
2			*	PP	11.5		T.D. = 2'
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
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) PP (Push Probe)

Observations	Date:					
Water Levels (ASL)	Level:					
Static Water Level v	Time:					

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: CL#4-SB-3	Facility: Council Bluffs Cluster #4	Facility Street Address: Council Bluffs South Main Brownfields
Boring Depth (ft) X Diameter (in): 2 X 2		Drilling Method: Push Probe
Well contractor Name: Thiele Geotech Registration Number: # 40076		Logged By: M. Goalen
Ground Surface Elevation (ASL): --	Top of Casing Elevation (ASL): --	
Date: 7/17/2007 Start Time: 15:15	Date: 7/17/2007 End Time: 15:25	UST Number: NA LUST Number: NA

Depth (feet)	Well Construction Details	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
0		N/A					Grass
1						ML	Silt, brown with iron accumulations from 1 to 2', moist
2			*	PP	14.2		T.D. = 2'
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

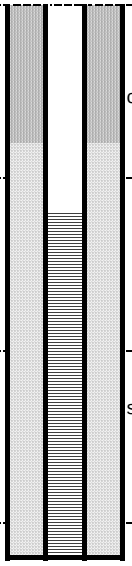
* SS (Split Spoon) HSA (Hollow Stem Auger) PP (Push Probe)

Observations	Date:					
Water Levels (ASL)	Level:					
Static Water Level v	Time:					

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: CL#4-SB-4/CL#4-MW-1	Facility: Council Bluffs Cluster #4	Facility Street Address: Council Bluffs South Main Brownfields
Boring Depth (ft) X Diameter (in): 17 X 4.25		Drilling Method: HSA
Well contractor Name: Thiele Geotech Registration Number: # 40076		Logged By: M. Goalen
Ground Surface Elevation (ASL): 985.16	Top of Casing Elevation (ASL): 984.77	
Date: 7/16/2007 Start Time: 15:30	Date: 7/16/2007 End Time: 16:15	UST Number: NA LUST Number: NA

Depth (feet)	Well Construction Details	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
0	Well casing-2" Dia. Sched 40 PVC	N/A					Concrete
1						Fill	Poorly graded sand with silt and gravel, black
2			*	SS	68.1		
3	bentonite casing						
4					8.1		No recovery from 4 to 5'
5						ML	Sandy silt with gravel, black, moist
6					2.3	CL	Lean Clay with trace gravel, dark gray, soft, some iron
7							accumulations
8					3.2		
9							
10					0.7	CL	Lean Clay, dark gray, dense, hard, wet, some iron
11			*	SS			accumulations
12	v screen				<1		
13	sand					ML	Silt, brown, wet, soft, iron staining
14					<1		
15					<1		
16						SM	Silty sand, gray, wet
17					<1		T.D. = 17'
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							



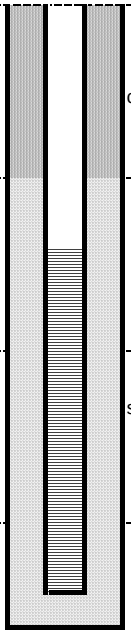
* SS (Split Spoon) HSA (Hollow Stem Auger)

Observations	Date:	7/21/2007				
Water Levels (ASL)	Level:	977.23				
Static Water Level v	Time:	8:15a.m.				

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: CL#4-SB-5/CL#4-MW-2	Facility: Council Bluffs Cluster #4	Facility Street Address: Council Bluffs South Main Brownfields
Boring Depth (ft) X Diameter (in): 19 X 4.25		Drilling Method: HSA
Well contractor Name: Thiele Geotech Registration Number: # 40076		Logged By: M. Goalen
Ground Surface Elevation (ASL): 985.06	Top of Casing Elevation (ASL): 984.79	
Date: 7/18/2007 Start Time: 8:15	Date: 7/18/2007 End Time: 9:30	UST Number: NA LUST Number: NA

Depth (feet)	Well Construction Details	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
0	Well casing-2" Dia. Sched 40 PVC	N/A					Concrete
1						Fill	Silty sand with gravel, black
2			*	SS	697	ML	Silt, gray with reddish brown mottles, moist
3	bentonite casing				258		No recovery from 3 to 5'
4							
5					263	ML	Silt, dark gray and black, some fragments of wood
6							
7							
8					1140	CL	Lean clay, gray with red mottles, soft, moist
9							No recovery from 8-10'
10						CH	Fat clay, dark gray with some reddish brown mottles,
11			*	SS			firm, high plasticity, moist
12	screen				385		
13	sand						
14					377		
15	v				193	CL	Lean clay, light gray with reddish brown mottles, soft, wet
16							
17					421	SM	Silt with sand, light gray, wet
18						CL	Lean clay, gray with some reddish brown mottles.
19					122		T.D. = 19'
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							



* SS (Split Spoon) HSA (Hollow Stem Auger)

Observations	Date:	7/21/2007				
Water Levels (ASL)	Level:	975.60				
Static Water Level v	Time:	8:18a.m.				

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: CL#4-SB-6/CL#4-MW-3	Facility: Council Bluffs Cluster #4	Facility Street Address: Council Bluffs South Main Brownfields
Boring Depth (ft) X Diameter (in): 18 X 4.25		Drilling Method: HSA
Well contractor Name: Thiele Geotech Registration Number: # 40076		Logged By: M. Goalen
Ground Surface Elevation (ASL): No access at time of survey	Top of Casing Elevation (ASL): No access at time of survey	
Date: 7/18/2007 Start Time: 9:40	Date: 7/18/2007 End Time: 10:30	UST Number: NA LUST Number: NA

Depth (feet)	Well Construction Details	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
0	Well casing-2" Dia. Sched 40 PVC	N/A					Gravel
1						ML	Silt, light brown, moist
2			*	SS	444	CL	Lean clay with sand, very dark gray, moist
3	bentonite casing		*	SS	532		No recovery from 3 to 5'
4							
5					137		
6						CL	Lean clay, dark gray with many iron accumulations, moist
7							
8					186		
9							
10					152		
11							
12	v screen				64	SM	Silty sand, light gray with some reddish brown mottles, wet
13	sand						
14					359		No recovery from 14-15'
15						SC	Clayey sand, light gray, wet
16							
17					23.2		No recovery from 17-18'
18							T.D. = 18'
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

* SS (Split Spoon) HSA (Hollow Stem Auger)

Observations	Date:	7/21/2007				
Water Levels (ASL)	Level:	975.60				
Static Water Level v	Time:	8:18a.m.				

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: CL#4-SB-7	Facility: Council Bluffs Cluster #4	Facility Street Address: Council Bluffs South Main Brownfields
Boring Depth (ft) X Diameter (in): 12 X 2		Drilling Method: push probe
Well contractor Name: Thiele Geotech Registration Number: # 40076		Logged By: M. Goalen
Ground Surface Elevation (ASL): --	Top of Casing Elevation (ASL): --	
Date: 7/20/2007 Start Time: 9:00	Date: 7/20/2007 End Time: 9:15	UST Number: NA LUST Number: NA

Depth (feet)	Well Construction Details	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
0		N/A					Concrete
1						ML	Sandy silt with gravel, brown, dry to moist
2			*	PP	144		
3							
4					626	CL	Lean clay, very dark gray, moist, odor
5							
6					1159		
7							
8					1455	CH	Fat clay, dark gray with a few red mottles, moist, odor
9							
10					1179		
11							
12	v		*	PP	1615		T.D. = 12'
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) PP (Push Probe)

Observations	Date:					
Water Levels (ASL)	Level:					
Static Water Level v	Time:					

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: CL#4-SB-8/CL#4-MW-4	Facility: Council Bluffs Cluster #4	Facility Street Address: Council Bluffs South Main Brownfields
Boring Depth (ft) X Diameter (in): 102 X 4.25		Drilling Method: HSA
Well contractor Name: Thiele Geotech Registration Number: # 40076		Logged By: M. Goalen
Ground Surface Elevation (ASL): 983.41	Top of Casing Elevation (ASL): 983.06	
Date: 7/19/2007 Start Time: 8:15 am	Date: 7/19/2007 End Time: 16:30	UST Number: NA LUST Number: NA

Depth (feet)	Well Construction Details	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
0	Well casing-2" Dia. Sched 40 PVC	N/A					Grass
1						ML	Silt with sand, light brown, moist
2			*	PP	1.4		
3	casing				1.9		No recovery from 3 to 5'
4	bentonite						
5					2.2	ML	Silt, light brown with few gray mottles, soft, moist
6						CH	Fat clay, gray with reddish brown mottles, firm, moist
7							
8					2.3		
9							
10					1.7		
11							
12	v				1.6	ML	Silt with sand, light brown and gray, very soft, wet
13							
14					1.4		
15							
16					0.4		
17							
18					1.2	CH	Fat clay, gray with red and light orange mottles, wet
19							
20					1.2	SP-SM	Poorly graded sand with silt, gray, wet
21							
22					2.6		
23						CH	Fat clay, gray with red mottles, firm, moist, odor
24					1.5		
25					30.5		Coal tar present in a few spots
26							
27						SP	Poorly graded sand, gray, fine, wet, visible sheen and Coal
28					738		Tar globules, odor
29							
30					111		**See Next Page**

* SS (Split Spoon) HSA (Hollow Stem Auger) PP (Push Probe)

Observations	Date:	7/21/2007				
Water Levels (ASL)	Level:	970.09				
Static Water Level v	Time:	8:25am.				

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: CL#4-SB-8/CL#4-MW-4	Facility: Council Bluffs Cluster #4	Facility Street Address: Council Bluffs South Main Brownfields
Boring Depth (ft) X Diameter (in): 102 X 4.25		Drilling Method: HSA
Well contractor Name: Thiele Geotech Registration Number: # 40076		Logged By: M. Goalen
Ground Surface Elevation (ASL): 983.41	Top of Casing Elevation (ASL): 983.06	
Date: 7/19/2007 Start Time: 8:15 am	Date: 7/19/2007 End Time: 16:30	UST Number: NA LUST Number: NA

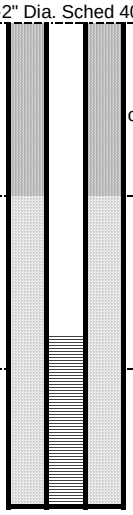
Depth (feet)	Well Construction Details	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
30	Well casing-2" Dia. Sched 40 PVC	N/A				SP	Poorly graded sand, gray, fine, wet, slight odor
31							
32					21.3		
33	casing						
34	bentonite				20.2		
35					25.5		No recovery from 35-40'
36							
37							
38							
39							
40						SP	Poorly graded sand, gray, fine to medium, wet, slight odor
41							
42					51.1		
43							
44					20.8		
45							
46					42.5		
47							
48					85		
49							
50					59.4		
51							
52					80.2		
53							
54					122		
55					145		No recovery from 55-60'
56							
57							
58							
59							
60							**See next page**

* SS (Split Spoon) HSA (Hollow Stem Auger) PP (Push Probe)

Observations	Date:	7/21/2007				
Water Levels (ASL)	Level:	970.09				
Static Water Level v	Time:	8:25am.				

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: CL#4-SB-8/CL#4-MW-4	Facility: Council Bluffs Cluster #4	Facility Street Address: Council Bluffs South Main Brownfields
Boring Depth (ft) X Diameter (in): 102 X 4.25		Drilling Method: HSA
Well contractor Name: Thiele Geotech Registration Number: # 40076		Logged By: M. Goalen
Ground Surface Elevation (ASL): 983.41	Top of Casing Elevation (ASL): 983.06	
Date: 7/19/2007 Start Time: 8:15 am	Date: 7/19/2007 End Time: 16:30	UST Number: NA LUST Number: NA



Depth (feet)	Well Construction Details	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
60	Well casing-2" Dia. Sched 40 PVC	N/A				SP	Poorly graded sand, gray, fine to medium, wet, slight odor
61							
62					163	SP	Poorly graded sand, dark gray, fine to medium,
63							wet, strong odor
64					101		
65							No recovery from 64-65'
66					235		
67							
68					264		
69							
70					257	SP	Poorly graded sand, dark gray, coarse to very coarse, wet,
71							some lignite, few 1" seams of clay, odor
72					705		
73							
74					939		
75					567	SP	Poorly graded sand, gray, coarse to very coarse, wet,
76					288		odor
77							
78					572	SP	Poorly graded sand, gray, fine, wet, odor
79							3" layer of Lean clay followed by coarse sand at 79.5
80					687	SP	Poorly graded sand, gray, coarse, wet, odor, 10% lignite
81							
82					648		
83							
84					520		
85					234	SP	Poorly graded sand, gray, medium to coarse, wet
86					19.9		
87							
88					16.2		
89							
90					15.4		See next page

* SS (Split Spoon) HSA (Hollow Stem Auger) PP (Push Probe)

Observations	Date:	7/21/2007				
Water Levels (ASL)	Level:	970.09				
Static Water Level v	Time:	8:25am.				

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: CL#4-SB-8/CL#4-MW-4	Facility: Council Bluffs Cluster #4	Facility Street Address: Council Bluffs South Main Brownfields
Boring Depth (ft) X Diameter (in): 102 X 4.25		Drilling Method: HSA
Well contractor Name: Thiele Geotech Registration Number: # 40076		Logged By: M. Goalen
Ground Surface Elevation (ASL): 983.41	Top of Casing Elevation (ASL): 983.06	
Date: 7/19/2007 Start Time: 8:15 am	Date: 7/19/2007 End Time: 16:30	UST Number: NA LUST Number: NA

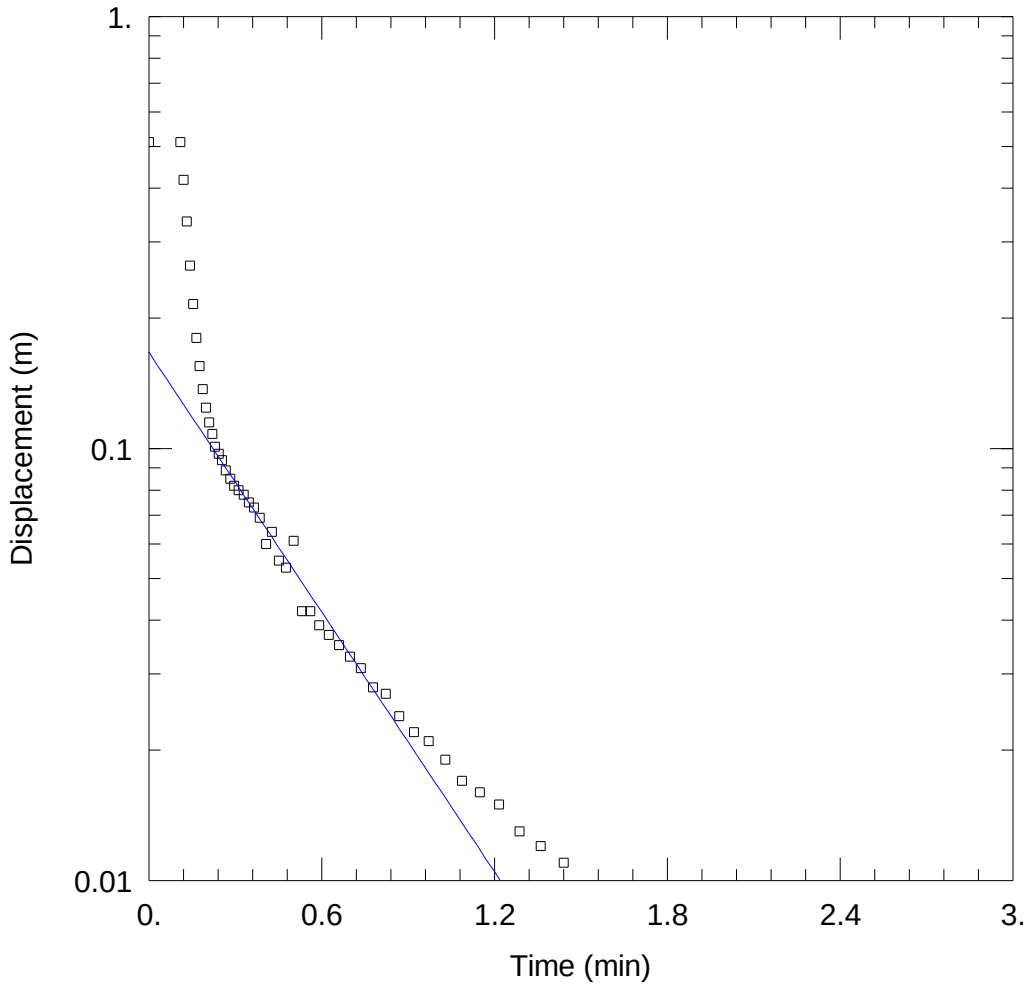
Depth (feet)	Well Construction Details	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
90		N/A			15.4	SP	Poorly graded sand, gray, medium to coarse, wet
91							
92					5.4		
93							
94					3.8		
95					3.4	SP	Poorly graded sand with gravel, gray, wet, 15% lignite
96					50.9		
97							
98					34.8		
99							
100					49.8		
101							
102							Limestone Bedrock at 102' T.D. = 102'

* SS (Split Spoon) HSA (Hollow Stem Auger) PP (Push Probe)

Observations	Date:	7/21/2007				
Water Levels (ASL)	Level:	970.09				
Static Water Level v	Time:	8:25am.				

APPENDIX E

Hydraulic Conductivity



SLUG TEST CLUSTER 4, MW-1

Data Set: C:\...\CL 4 - MW-1 Report.aqt
Date: 07/31/07 Time: 13:00:48

PROJECT INFORMATION

Company: Howard R. Green Company
Client: Council Bluffs
Project: 728500J
Location: Cluster 4
Test Well: MW-1
Test Date: 7/20/07

AQUIFER DATA

Saturated Thickness: 5.767 m Anisotropy Ratio (Kz/Kr): 1.

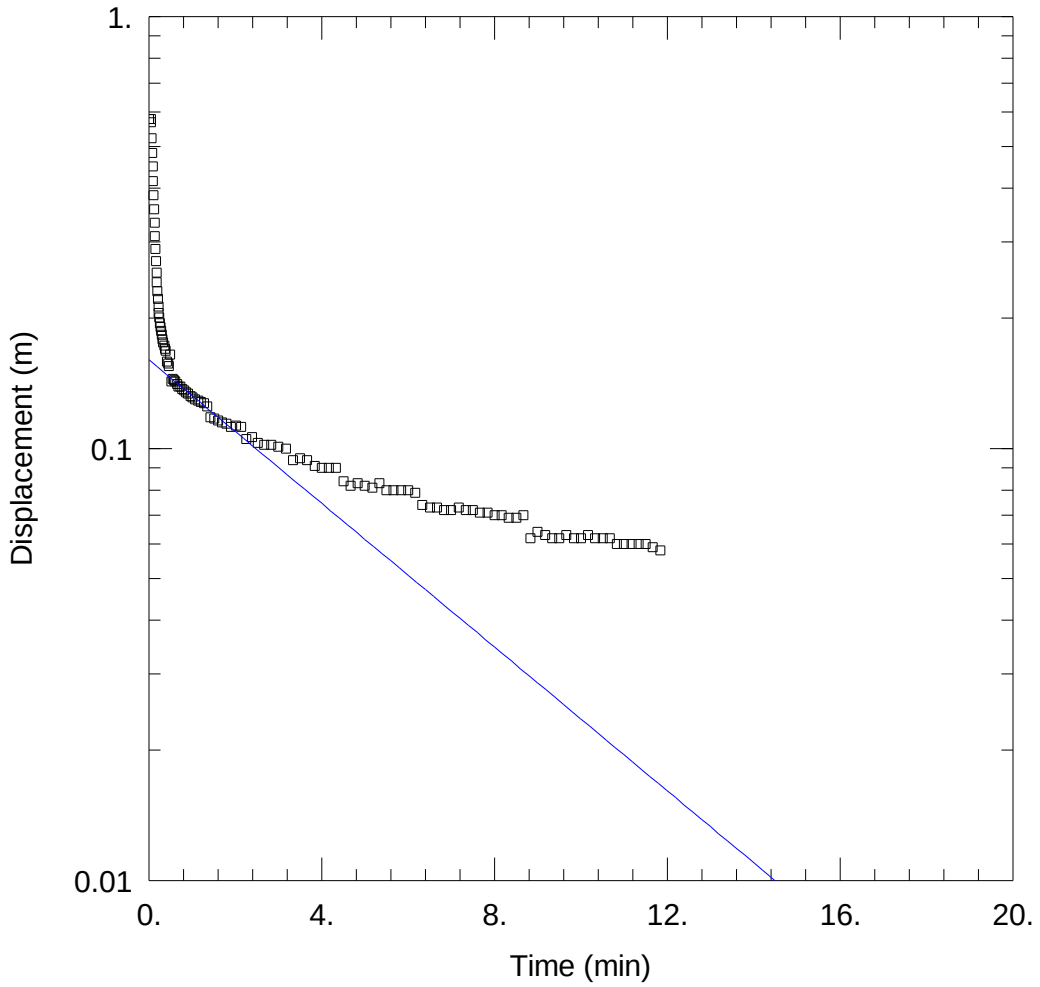
WELL DATA (MW-1)

Initial Displacement: 0.511 m
Total Well Penetration Depth: 2.883 m
Casing Radius: 0.0254 m
Static Water Column Height: 2.883 m
Screen Length: 2.883 m
Wellbore Radius: 0.1016 m
Gravel Pack Porosity: 0.15

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 2.631 m/day y0 = 0.1668 m



SLUG TEST CLUSTER 4, MW-2

Data Set: C:\...\CL 4 - MW-2 Report.aqt
Date: 07/31/07 Time: 13:12:25

PROJECT INFORMATION

Company: Howard R. Green Company
Client: Council Bluffs
Project: 728500J
Location: Cluster 4
Test Well: MW-2
Test Date: 7/22/07

AQUIFER DATA

Saturated Thickness: 1.219 m
Anisotropy Ratio (Kz/Kr): 1.

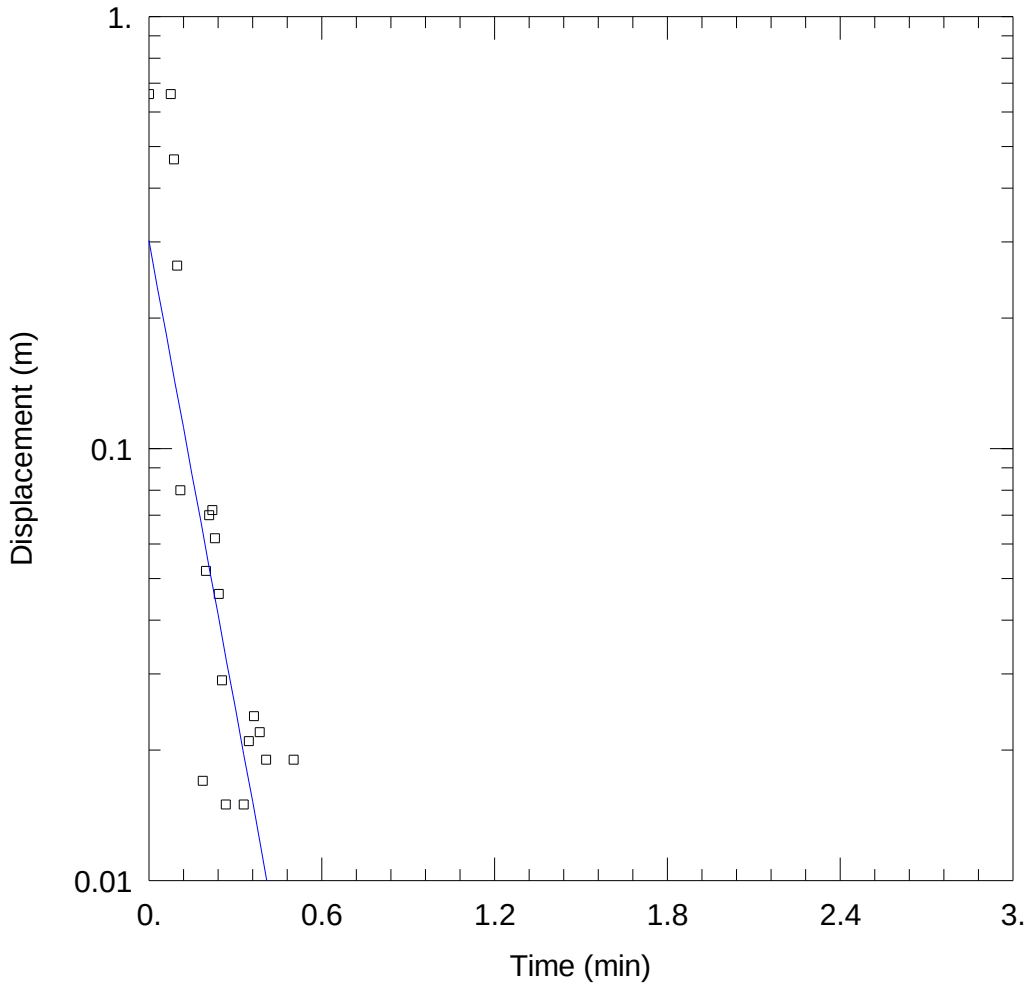
WELL DATA (MW-2)

Initial Displacement: 0.579 m
Total Well Penetration Depth: 2.99 m
Casing Radius: 0.0254 m
Static Water Column Height: 2.99 m
Screen Length: 2.99 m
Wellbore Radius: 0.0254 m
Gravel Pack Porosity: 0.15

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.1093 m/day
y0 = 0.1604 m



SLUG TEST CLUSTER 4, MW-4

Data Set: C:\...\CL 4 - MW4 Report.aqt
Date: 07/31/07 Time: 13:52:49

PROJECT INFORMATION

Company: Howard R. Green Company
Client: Council Bluffs
Project: 728500J
Location: Cluster 4
Test Well: MW-4
Test Date: 7/21/07

AQUIFER DATA

Saturated Thickness: 27.14 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4)

Initial Displacement: 0.661 m Static Water Column Height: 18.6 m
Total Well Penetration Depth: 18.6 m Screen Length: 1.524 m
Casing Radius: 0.0254 m Wellbore Radius: 0.0254 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 9.188 m/day y0 = 0.3026 m

APPENDIX F

Risk Calculator Summary

For: Brandon Neilson
Council Bluffs Brownfield Redevelopment Area Range 1
Council Bluffs IA

Date: 8/10/2007

Cancer Risk Output

Chemical Name	CASRN	Resident Soil
Arsenic, Inorganic	007440-38-2	0.09
Lead and Compounds	007439-92-1	NQ
Benzene	000071-43-2	0
Naphthalene	000091-20-3	NQ
Benzo[a]anthracene	000056-55-3	0.06
Benzo[a]pyrene	000050-32-8	1.12
Benzo[b]fluoranthene	000205-99-2	0.14
Benzo[k]fluoranthene	000207-08-9	0.01
Carbazole	000086-74-8	0
Chrysene	000218-01-9	0
Dibenz[a,h]anthracene	000053-70-3	0.24
Indeno[1,2,3-cd]pyrene	000193-39-5	0.06
TOTALS:		**1.72**

Cummulative Cancer Risk Site Resident: 1.72 (All cancer risk values are x 10^{-4})

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
Arsenic, Inorganic	**007440-38-2**															
		Soil	0.16		0.16		0.16									0.16

		Soil	0.10		0.10		0.10									0.10
Barium	**007440-39-3**															
		Soil	0.02			0.02										
Cadmium (soil)	**007440-43-9**															
		Soil				0.02										
Chromium VI (soil)	**018540-29-9**															
		Soil	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Lead and Compounds	**007439-92-1**															
		Soil	0.7		0.7	0.7					0.7	0.7				
Mercury	**007439-97-6**															
		Soil				0.01					0.01			0.01		
Acetone	**000067-64-1**															
		Soil		0	0	0										
Benzene	**000071-43-2**															
		Soil			0					0						
Ethylbenzene	**000100-41-4**															
		Soil		0		0										
Hexane, N-	**000110-54-3**															
		Soil									0	0				
Naphthalene	**000091-20-3**															
		Soil			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		
Acenaphthene	**000083-32-9**															
		Soil		0												
Anthracene	**000120-12-7**															
		Soil		0												
Benzo[a]anthracene	**000056-55-3**															
		Soil								0						
Benzo[a]pyrene	**000050-32-8**															

		Soil			0				0						0	
Benzo[b]fluoranthene	000205-99-2															
		Soil														
Benzo[k]fluoranthene	000207-08-9															
		Soil														
Carbazole	000086-74-8															
		Soil														
Chrysene	000218-01-9															
		Soil														
Dibenz[a,h]anthracene	000053-70-3															
		Soil	0	0		0			0							
Fluoranthene	000206-44-0															
		Soil		0	0	0										
Fluorene	000086-73-7															
		Soil		0	0	0			0						0	
Indeno[1,2,3-cd]pyrene	000193-39-5															
		Soil														
Methylnaphthalene, 2	000091-57-6															
		Soil	0										0			
Pyrene	000129-00-0															
		Soil				0										
		Sum:	**0.96**	**0.08**	**0.94**	**0.83**	**0.24**	**0.08**	**0.08**	**0.08**	**0.79**	**0.78**	**0.08**	**0.09**	**0.08**	**0.24**

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.

For: Brandon Neilson
Council Bluffs Brownfield Redevelopment Area Range 2
Council Bluffs IA

Date: 8/10/2007

Cancer Risk Output

Chemical Name	CASRN	Resident Soil
Arsenic, Inorganic	007440-38-2	0
Lead and Compounds	007439-92-1	NQ
Benzene	000071-43-2	0
Naphthalene	000091-20-3	NQ
Benzo[a]anthracene	000056-55-3	0.09
Benzo[a]pyrene	000050-32-8	0.96
Benzo[b]fluoranthene	000205-99-2	0.06
Benzo[k]fluoranthene	000207-08-9	0
Chrysene	000218-01-9	0
Dibenz[a,h]anthracene	000053-70-3	0.09
Indeno[1,2,3-cd]pyrene	000193-39-5	0.05
TOTALS:		**1.25**

Cummulative Cancer Risk Site Resident: 1.25 (All cancer risk values are x 10^{-4})

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
Arsenic, Inorganic	**007440-38-2**															
		Soil	0		0		0									0
Barium	**007440-39-3**															

Barium	007440-39-3															
		Soil	0.02			0.02										
Chromium VI (soil)	018540-29-9															
		Soil	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Lead and Compounds	007439-92-1															
		Soil	0.06		0.06	0.06					0.06	0.06				
Mercury	007439-97-6															
		Soil				0.01					0.01			0.01		
Benzene	000071-43-2															
		Soil			0.01					0.01						
Butylbenzene, n-	000104-51-8															
		Soil												0		
Cumene (Isopropylbenzene)	000098-82-8															
		Soil				0										
Ethylbenzene	000100-41-4															
		Soil		0.01		0.01										
Hexane, N-	000110-54-3															
		Soil									0	0				
Naphthalene	000091-20-3															
		Soil			0.21						0.21			0.21		
Toluene	000108-88-3															
		Soil		0		0				0	0	0			0	
Trimethylbenzene, 1,2,4-	000095-63-6															
		Soil												0.01		
Trimethylbenzene, 1,3,5-	000108-67-8															
		Soil												0		
Xylene, Mixture	001330-20-7															
		Soil									0			0		
Acenaphthene	000083-32-9															
		Soil		0.01												
Anthracene	000120-12-7															
		Soil		0												
Benzo[a]anthracene	000056-55-3															
		Soil								0						

Benzo[a]pyrene	**000050-32-8**															
		Soil			0					0						0
Benzo[b]fluoranthene	**000205-99-2**															
		Soil														
Benzo[k]fluoranthene	**000207-08-9**															
		Soil														
Chrysene	**000218-01-9**															
		Soil														
Dibenz[a,h]anthracene	**000053-70-3**															
		Soil	0	0		0				0						
Fluoranthene	**000206-44-0**															
		Soil		0.01	0.01	0.01										
Fluorene	**000086-73-7**															
		Soil		0.01	0.01	0.01				0.01					0.01	
Indeno[1,2,3-cd]pyrene	**000193-39-5**															
		Soil														
Methylnaphthalene, 2	**000091-57-6**															
		Soil	0.36										0.36			
Pyrene	**000129-00-0**															
		Soil				0.06										
		Sum:	**0.56**	**0.16**	**0.42**	**0.3**	**0.12**	**0.12**	**0.12**	**0.14**	**0.4**	**0.18**	**0.48**	**0.35**	**0.13**	**0.12**

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.

For: Brandon Neilson
Council Bluffs Brownfield Redevelopment Area Groundwater
Council Bluffs IA

Date: 8/10/2007

Cancer Risk Output

Chemical Name	CASRN	Resident Groundwater
Benzene	000071-43-2	46.18
Bromodichloromethane	000075-27-4	0.03
Chloroform	000067-66-3	0.02
Chloromethane	000074-87-3	0.01
Methylene Chloride (Dichloromethane)	000075-09-2	0.01
Naphthalene	000091-20-3	NQ
Benzo[a]anthracene	000056-55-3	0.01
Benzo[a]pyrene	000050-32-8	0.2
Benzo[b]fluoranthene	000205-99-2	0.01
Benzo[k]fluoranthene	000207-08-9	0
Chrysene	000218-01-9	0
Indeno[1,2,3-cd]pyrene	000193-39-5	0.02
Arsenic, Inorganic	007440-38-2	1.65
TOTALS:		**48.14**

Cummulative Cancer Risk Site Resident: 48.14 (All cancer risk values are x 10^{-4})

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	Ga
Acetone	000067-64-1															

Acetone	000067-64-1												
		Groundwater		0	0	0							
Benzene	000071-43-2												
		Groundwater			141.83			141.83					
Bromodichloromethane	000075-27-4												
		Groundwater		0.01		0.01							
Butylbenzene, n-	000104-51-8												
		Groundwater									0.02		
Chloroform	000067-66-3												
		Groundwater		0.11	0.11								
Chloromethane	000074-87-3												
		Groundwater	0.08	0.08		0.08			0.08	0.08			
Cumene (Isopropylbenzene)	000098-82-8												
		Groundwater				0.01							
Ethylbenzene	000100-41-4												
		Groundwater		0.41		0.41							
Hexane, N-	000110-54-3												
		Groundwater							0	0			
Methyl Ethyl Ketone	000078-93-3												
		Groundwater											0
Methylene Chloride (Dichloromethane)	000075-09-2												
		Groundwater		0.01					0.01				
Naphthalene	000091-20-3												
		Groundwater			6.27				6.27		6.27		
Toluene	000108-88-3												
		Groundwater		0.03		0.03		0.03	0.03	0.03		0.03	
Trimethylbenzene, 1,2,4-	000095-63-6												
		Groundwater									0.09		
Trimethylbenzene, 1,3,5-	000108-67-8												
		Groundwater									0.03		
Xylene, Mixture	001330-20-7												
		Groundwater							0.04		0.04		
Acenaphthene	000083-32-9												
		Groundwater		0.03									

Anthracene	**000120-12-7**														
		Groundwater		0											
Benzo[a]anthracene	**000056-55-3**														
		Groundwater							0						
Benzo[a]pyrene	**000050-32-8**														
		Groundwater			0				0					0	
Benzo[b]fluoranthene	**000205-99-2**														
		Groundwater													
Benzo[k]fluoranthene	**000207-08-9**														
		Groundwater													
Chrysene	**000218-01-9**														
		Groundwater													
Fluoranthene	**000206-44-0**														
		Groundwater		0.01	0.01	0.01									
Fluorene	**000086-73-7**														
		Groundwater		0.05	0.05	0.05			0.05					0.05	
Indeno[1,2,3-cd]pyrene	**000193-39-5**														
		Groundwater													
Methylnaphthalene, 2	**000091-57-6**														
		Groundwater	1.49									1.49			
Pyrene	**000129-00-0**														
		Groundwater				0.02									
Arsenic, Inorganic	**007440-38-2**														
		Groundwater	1.65		1.65		1.65								
Barium	**007440-39-3**														
		Groundwater	0.45			0.45									
Selenium	**007782-49-2**														
		Groundwater	0.07				0.07						0.07		
		Sum:	**3.74**	**0.74**	**149.92**	**1.07**	**1.72**	**0**	**0**	**141.91**	**6.43**	**0.11**	**1.49**	**6.52**	**0.08**

Interpretation of Results Summary?

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.

APPENDIX G

Field Documentation

Howard R. Green Company
CONSULTING ENGINEERS
Daily Report

Report No. 1

Project Name	Project No.	Hours	Miles	Exp.	O.T.
Council Bluffs S. Main ~~Brown~~	728500J	11.25			
Brownfields Development Area					

Day/Date 7/16/07 Weather/Temperature Sunny 75°F 8:00

Remarks 7:45 - Arrive onsite and ~~[illegible]~~ look around site. ~~Drillers~~ Utility meet is scheduled for 8:00. Drillers arrive 8:20. I drive around and mark boring locations so the utilities can be located. Call Cheryl Garst to get Keys to Building and Gate but she is not available. 10:15 - Keys finally arrive so drillers can stage equipment. ~~[illegible]~~ Boring location #8 on Cluster 4 will have to be moved due to tracks and BNSF Utilities. Talk with Scott Mattes and decide on moving to south side of tracks. Will have to call in locate. Finish MW-6 & MW-7 at 1000 S. Main and MW-1 (SB-4) at 925 S. ~~[illegible]~~ 7th Ave on Cluster 4. Locate was not completed at SB-5 so will need to wait on water. 6:00 - Set up Summa Canisters in Building. #1 (S. Building), #2 Basement, #3 (1st Floor), #4 Background. E. Building is used by City Maintenance man and has lots of potential sources to impact indoor air quality. (See form). 6:45 - leave site. ~~[illegible]~~

Calibrate PID @ 10:45 → 100 ppm.

Crew No. 1
Contractor Thiele Geotech Superintendent Doug
Working Hours 8:20 - onsite to 5:15 - 0.5 lunch No. of Men 3 - with 1 early to drop off Drums
Description of Work Drilling

Crew No. 2
Contractor Superintendent
Working Hours to No. of Men
Description of Work

Crew No. 3
Contractor Superintendent
Working Hours to No. of Men
Description of Work

By Mike Goalen

Howard R. Green Company
CONSULTING ENGINEERS
Daily Report

Report No. 2

Project Name	Project No.	Hours	Miles	Exp.	O.T.
Council Bluffs S. Main	728500J	12			
Brownfield Development					

Day/Date Tues. 7/17/07 Weather/Temperature Sunny - 98°F - Forecast high

Remarks 7:15 - leave for site and buy ice for samples. 7:45 - Drillers arrive and prep to start MW-2D. 11:30 - Doug (Asbestos) the contractor arrives onsite. I walk around with him in the building to show him around. Drillers will have geoprobe show up around 2:00pm to use to collect soil samples from shallow and the rest of the monitoring wells. 2:30 Probe arrives and will complete Range 1 sample locations. Complete MW-2D, SS-1 through SS-6 on Cluster #2 and finish SB-1, 2, 3 on Cluster 4. 6:30 - Pick up Summa Canisters and prep for shipping. 7:15 - leave site and get supplies for shipping.

Calibrate PID @ 8:15 - 100ppm.

Crew No. 1
Contractor Thiele Geotech Superintendent Doug
Working Hours 7:45 - onsite to 7:15 No. of Men 3
Description of Work

Crew No. 2
Contractor Thiele - Probe Superintendent Dave
Working Hours 2:30 - onsite to 7:15 No. of Men 2
Description of Work

Crew No. 3
Contractor Superintendent
Working Hours to No. of Men
Description of Work

By Mike Goalen

Howard R. Green Company
CONSULTING ENGINEERS
Daily Report

Report No. 3

Project Name	Project No.	Hours	Miles	Exp.	O.T.
Council Bluffs S. Main Brownfields	728500J	9.5			
Development					

Day/Date 7/18/07 Weather/Temperature 95° F - HOT!

Remarks 7:30 - Onsite and open gate 7:45 - Push-probe starts on MW-6D Sampling. Drill Rig starts on Cluster #4 Monitoring wells MW-2 & MW-3. ~~[illegible]~~ - 8:45 - Alloy Specialty Contracting arrives to do lead paint assessment. 12:30 - leave site to ship samples. Ship all soil samples from cluster #2 & some from cluster #4. ~~Also~~ Ship air samples to ESC. 4:15 Push probe finishes sampling MW-6D. Monitoring wells MW-1,2,3 on Cluster #4 were developed today. Approximately 15 gallons removed from each. ~~[illegible]~~ MW-1 was still a bit cloudy when finished. MW-2 + MW-3 ~~were~~ were developed and was clear.

Calibrate PID @ 8:00 + 13:30 - 100ppm.

Crew No. 1
Contractor Thiele Superintendent Dave
Working Hours 7:30 to 5:15 No. of Men 3
Description of Work Drilling (HSA)

Crew No. 2
Contractor Thiele Superintendent Dave
Working Hours 7:30 to 5:15 No. of Men 2 + 1 (Joe)
Description of Work Probing and one grab gloves to develop wells (shallow)

Crew No. 3
Contractor Alloy Specialty Contracting Superintendent Larry Affield
Working Hours 8:45 - onsite to 11:15 No. of Men 1
Description of Work Lead paint assessment

Well Development
MW-2 - 9.15 - 15 gallons -
MW-3 - 11.82 - 15 gallons -
MW-1 8.31 - 15 gallons - Somewhat cloudy

By Mike Goalen

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Howard R. Green Company
CONSULTING ENGINEERS
Daily Report

Report No. 4

Project Name	Project No.	Hours	Miles	Exp.	O.T.
Council Bluffs S. Main Brownfields Area	728500J	10.25			

Day/Date 7/19/07 Weather/Temperature 83°F - Rain in the morning

Remarks 6:45 - Arrive onsite and open gate for Drillers who arrive at 7:15. Probe starts sampling SB-8/MW-4. Drill rig starts to drill MW-6D to install. ~~Probably over~~ Thiele is developing MW-2D, MW-6, and MW-7 today. Approximately 150 gallons of drilling fluids were used on MW-2D. Need to remove 1-3 times that plus 5-10 well volumes. Property owner ~~of~~ for property adjacent to S. of Tracks where MW-4 will be installed shows up and is concerned we are on his property. We are 2' over the line on his property. Will install well 5' ~~into~~ the N off his property.

- Calibrate PID ~ 99 ppm

Crew No. 1
Contractor Thiele Superintendent Doug
Working Hours 7:15 to 5:15 No. of Men 2
Description of Work Drilling MW-6D and install, develop MW-2D, MW-6, MW-7

Crew No. 2
Contractor Thiele Superintendent Dave
Working Hours 7:15 to 5:15 No. of Men 3
Description of Work Sampling SB-8/MW-4

Crew No. 3
Contractor Superintendent
Working Hours to No. of Men
Description of Work

By Mike Goalen

Howard R. Green Company
CONSULTING ENGINEERS
Daily Report

Report No. 5

Project Name	Project No.	Hours	Miles	Exp.	O.T.
Council Bluffs S. Man Brownfields Area	728500J	10			

Day/Date 7/20/07 Weather/Temperature 85°F Sunny

Remarks 7:00 Onsite ~~on~~ Today - Install MW-4, develop MW-6D + MW-4
Resample SS-2 + SS-4 since bottles broke in shipment. Sample
MW-1 + MW-3. ~~Run~~ Complete hydraulic conductivity test on MW-1.
Survey elevations of monitoring wells. Near grade ends are almost
complete, 2 guys will return Saturday to finish.

Development → MW-6D (165 gallons) MW-4 - 165 gallons.
5:15 - leave site.
~~Leave site and not~~

Calibrate PID = ~101 ppm

Crew No. 1
Contractor Thiele Superintendent Doug
Working Hours 7:45 to 3:45 No. of Men 3
Description of Work Drill and install MW-4

Crew No. 2
Contractor Thiele Superintendent Dave
Working Hours 7:45 to 3:45 No. of Men 2
Description of Work
One guys stays until 5:00 to help survey.
- Probe completes SB-17, SS-2 + SS-4.

Crew No. 3
Contractor Superintendent
Working Hours to No. of Men
Description of Work

By Mike Goalen

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Howard R. Green Company
CONSULTING ENGINEERS

Daily Report

Report No. 6

Project Name	Project No.	Hours	Miles	Exp.	O.T.
Council Bluffs S. Main ~~Brown~~ Brownfields Area	728500J	11			

Day/Date 7/21/07 Weather/Temperature 86°F Sunny

Remarks 7:45 Arrive onsite to start sampling MWs and perform slug tests. End of day 7:15 - Sampled MW-2, ~~3~~ 4, ~~6~~ on cluster #4 and MW-6/6D, 7, and 2D on cluster 2. Perform slug tests on MW-4, MW-6, MW-6D, and MW-7. Will have to come back and do slug test on MW-2.

- Calibrate pH/Cond. meter ~ 7+10 / 141345

Crew No. 1
Contractor _____ Superintendent _____
Working Hours _____ to _____ No. of Men _____
Description of Work _____

Crew No. 2
Contractor _____ Superintendent _____
Working Hours _____ to _____ No. of Men _____
Description of Work _____

Crew No. 3
Contractor _____ Superintendent _____
Working Hours _____ to _____ No. of Men _____
Description of Work _____

By Mike Goalen

Howard R. Green Company
CONSULTING ENGINEERS
Daily Report

Report No. 7

Project Name	Project No.	Hours	Miles	Exp.	O.T.
Council Bluffs S. Main Brownfields Area	728500J	11.5			

Day/Date 7/22/07 Weather/Temperature Sunny 78°F

Remarks 8:45 - Arrive onsite and ~~prep~~ perform Slug Test on MW-2, Finish ~~GPS~~ collecting GPS data on site and put grass seed down in the area of ~~cluster~~ MW-4 on Cluster 4. Go around and map some of the ~~[illegible]~~ Monitoring wells for map. Count Drums and measure water in tank 11:45 - leave for Desmoines. 13:30 - Arrive in Desmoines and have to repack coolers with ice and make sure everything is ok. Unload equipment and leave Desmoines @ 15:15. 17:00 - ~~[illegible]~~ Have to change flat tire on rear passenger side. 20:00 - Arrive at home.

Crew No. 1
Contractor _____ Superintendent _____
Working Hours _____ to _____ No. of Men _____
Description of Work _____

Crew No. 2
Contractor _____ Superintendent _____
Working Hours _____ to _____ No. of Men _____
Description of Work _____

Crew No. 3
Contractor _____ Superintendent _____
Working Hours _____ to _____ No. of Men _____
Description of Work _____

By Mike Goalen

WATER-LEVEL MEASUREMENTS

Site Name Council Bluffs S. Main Brownfields Area	Job# 728500J	Task#	Date 7/21/07
Weather Conditions Cloudy		By MEG	

Monitoring Well/Piezometer No.	Protective Casing? Y/N	Well/Piezometer Locked? Y/N	Well/Piezometer Capped? Y/N	Concrete Seal Damaged? Y/N	Standing Water or Litter? Y/N	Depth to Water (feet)	Bottom of Well
MW-5	Y	N	Y	Y	N	7.61	
MW-6	Y	N	Y	N	N	8.11	
MW-6D	Y	N	Y	N	N	14.00	
MW-7	Y	N	Y	N	N	8.10	
MW-2D	Y	N	N	N	N	14.99	
MW-2	Y	N	Y	N	Y	10.98	
MW-1	Y	N	N	N	N	8.13	
~~[illegible]~~							
MW-3	Y	N	N	Y	N	13.28	
MW-4	Y	N	N	Y	N	12.93	
MW-1	Y	N	N	N	N	7.54	
MW-2	Y	N	N	N	N	9.19	
MW-3	Y	N	N	N	N	11.95	
MW-4	Y	N	N	N	N	12.92	75'

Cluster 4

Groundwater Monitoring Data Form

Project: Council Bluffs S. Main Brownfields Area - Cluster #4
Project Number: 728500J

Well Sampled: MW-2
Begin Time: 13:50
End Time: 14:10

Ferrous Iron:
Carbon Dioxide:

DTW: 9.19
TD: 19
Water Column Ht: 9.81
Well Volume: 1.59

Minimum Purge Volume (if applicable):
Volume Purged: ≈ 1 gallon
DTW after sampling: 9.73

Initial Purge Water: Clear

Final Purge Water: Cle

Low Flow Sampling Information:

Time	pH	Temperature (Celsius)	Conductivity (us/ohm)	~~Dissolved Oxygen~~ NTU	Oxidation Reduction Potential	Ferrous Iron	Carbon Dioxide
13:55	6.54	17.4	856	7.46			
14:00	6.48	17.4	814	6.36			
14:05	6.49	17.4	816	6.52			
14:10	6.48	17.4	816	6.48			

Groundwater Monitoring Data Form

Project: Council Bluffs S. Main Brownfield Cluster #4
Project Number: 728520J

Well Sampled: MW-1
Begin Time: 13:55
End Time: 14:10

Ferrous Iron:
Carbon Dioxide:

DTW: 7.29
TD: 17
Water Column Ht: 9.71
Well Volume: 1.58

Minimum Purge Volume (if applicable):
Volume Purged: 1/2 gallon
DTW after sampling: 7.29

Initial Purge Water: Clear

Final Purge Water: Clear

Low Flow Sampling Information:

Time	pH	Temperature (Celsius)	Conductivity (us/ohm)	Dissolved Oxygen	Oxidation Reduction Potential	~~Ferrous~~ Iron NTU	Carbon Dioxide
13:55	6.55	22.0	1099	—	—	6.25	
14:00	6.49	22.3	1105			6.10	
14:05	6.48	22.7	1107			7.25	
14:10	6.46	22.7	1110			6.30	

Hydraulic conductivity - WL → 7.29 start

C:\Documents and Settings\mgoalen\Desktop\Field Forms\GW monitor FormGW Monitor Info Form

Groundwater Monitoring Data Form

Project: Council Bluffs S. Main Brownfields Area Cluster #1
Project Number: 72285001

Well Sampled: MW-3
Begin Time: ~~[illegible]~~ am 11:25
End Time: 11:40

Ferrous Iron:
Carbon Dioxide:

DTW: 11.91
TD: 18
Water Column Ht: 6.09
Well Volume: ~1 gallon

Minimum Purge Volume (if applicable):
Volume Purged: 4 gallons
DTW after sampling: 12.20

Initial Purge Water: ~~[illegible]~~ 11.5 Cloudy

Final Purge Water: Clear Sampled @ 12:40 A

Low Flow Sampling Information:

Time	pH	Temperature (Celsius)	Conductivity (us/ohm)	Dissolved Oxygen	Oxidation Reduction Potential	~~Ferrous Iron~~ MTU	Carbon Dioxide
Start 11:25	7.13	16.3	783	—			
11:35	6.90	17.0	847	—	—	281.4	—
11:45	6.69	16.9	932		—	209.2	
11:55	6.69	17.0	1037	—	—	103.6	
12:05	6.69	17.0	~~[illegible]~~	—	—	76.69	
12:10	6.69	17.0	1296	—	—	47.33	
12:15	6.69	17.0	1299	—	—	35.06	
12:20	6.70	17.0	1307	—	—	29.53	
12:25	6.70	17.0	1296	—	—	20.83	
12:35	6.70	17.0	1303	—	—	9.8	—

Groundwater Monitoring Data Form

Project: Council Bluffs S. Main Brownfields Area - Cluster #4
Project Number: 72850005

Well Sampled: MW-4
Begin Time: 14:55
End Time: 15:15

Ferrous Iron:
Carbon Dioxide:

DTW: 12.97
TD: 75
Water Column Ht: 62.03
Well Volume: 10.11

Minimum Purge Volume (if applicable):
Volume Purged: ~1 gal
DTW after sampling: 12.99

Initial Purge Water: Clear

Final Purge Water: Clear

Low Flow Sampling Information:

Time	pH	Temperature (Celsius)	Conductivity (us/ohm)	~~Dissolved Oxygen~~ NTU	Oxidation Reduction Potential	Ferrous Iron	Carbon Dioxide
15:00	6.79	19.6	967	10.87			
15:05	6.73	19.5	993	8.30			
15:10	6.73	19.4	1016	7.91			
15:15	6.72	19.4	1022	7.85			

PAH Duplicate collected

APPENDIX H

Site Photographs

Photo 1 View looking northeast at west side of building at 721 9th Avenue (Location of CL#4-SB-1).

Photo 2 View looking southwest at northeast corner of building at 900 S. 7th Street (Location of CL#4-SB-2).

Photo 3 **View looking southeast at 645 9th Avenue (Habitat for Humanity). CL#4-SB-3 located near northeast corner of building.**

Photo 4 **View looking south at 925 S. 7th Street. CL#4-MW-1 located in fenced area approximately 50 feet north of white overhead door.**

Photo 5 Looking north east at 925 S. 7th Street. Location of monitoring well CL#4-MW-2.

Photo 6 View looking east at west side of building on the Aquila property.

Photo 7 **View of east side of building on the Aquila property. Soil boring CL#4-SB-7 located within this fenced area.**

Photo 8 **View looking northeast at south side of 1025 S. 7th Street. This was the original location of CL#4-SB-8/CL#4-MW-4.**

Photo 9 View looking west along the back side of the building at 1025 S. 7th Street.

Photo 10 View looking north at soil cuttings stored onsite.

Photo 11 View of 1,500 gallon tank used to store water generated during site assessment activities on Cluster #2 and Cluster#4.

Photo 12 View looking at a completed monitoring well pad.

Photo 13 View looking at Thiele Geotech HAS drill rig while installing monitoring well CL#4-MW-4.

APPENDIX I

Additional Information

USGS
science for a changing world

Arsenic in Coal

Sources of Arsenic

Arsenic is a persistent toxin that occurs naturally in trace amounts in rocks, sediments, and coal. Small amounts of arsenic may be present in ground water or, less commonly, surface waters, especially where there is a nearby source of arsenic. The most widespread natural source of arsenic is pyrite, a common mineral composed of iron and sulfur, which can contain a small amount of arsenic in its structure in place of sulfur.

Arsenic occurs in some ground-water aquifers due to chemical oxidation of pyrite or to reduction (the opposite of oxidation) of iron oxide minerals in the aquifer. Other sources of arsenic include past industrial activities, application of arsenic as a pesticide, and drainage from abandoned mine lands that contain pyrite. Prolonged consumption of drinking water from wells that greatly exceed arsenic health standards is the most serious arsenic-related health hazard in the United States and throughout the world.

Arsenic in bituminous coal occurs primarily in pyrite and, to a lesser extent, in organic portions of the coal. A small fraction of this arsenic is emitted during coal combustion. This Fact Sheet provides information on the arsenic content of U.S. coals, how arsenic occurs, and its behavior during mining, coal preparation, and coal combustion and in postcombustion beneficial uses.

Arsenic in U.S. Coal

All coals contain some arsenic. The U.S. Geological Survey (USGS) maintains an extensive database of over 7,000 analyses of U.S. coals. Data from this compilation indicate that the average arsenic concentration for U.S. coal is about 24 parts per million (ppm; Bragg and others, 1998; fig. 1). There is considerable variation by coal basin, ranging from an average low of 1.4 ppm in the Raton Mesa Basin of Colorado and New Mexico to a high of 71 ppm in the southern (Alabama-Tennessee) portion of the Appalachian Basin (table 1).

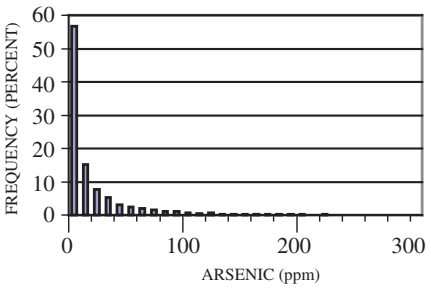


Figure 1. Histogram showing arsenic distribution in U.S. coal samples (data from Bragg and others, 1998). Arsenic (in parts per million, ppm) is expressed on a remnant moisture whole coal basis. Forty samples having arsenic values exceeding 300 ppm are excluded to make the sample distribution easier to view but are included in statistics given in table 1.

Many Eastern U.S. coals are subjected to a cleaning process prior to use in coal-burning power stations. Coal cleaning is primarily intended to reduce the sulfur content of these coals, but in many cases arsenic contents are reduced as well. As a result, for coals that are cleaned, the arsenic concentration is, on average, lower than equivalent in-ground arsenic contents.

Table 1. Comparison of average arsenic content in U.S. coals by basin and calculated average powerplant input loadings of arsenic.

[Data from Bragg and others, 1998. ppm, parts per million; Btu, British thermal unit; lb, pound]

Coal basin	Arsenic (ppm)			Calorific value (Btu/lb)			Arsenic input loadings (in 10^3 lbs per 10^{12} Btu)		
	Median	Mean	Number of samples	Median	Mean	Number of samples	Median	Mean	Number of samples
Appalachian, Northern	16	28	1,607	12,570	12,440	1,500	1.3	2.3	1,500
Appalachian, Central	7.8	22	1,742	13,360	13,210	1,643	0.6	1.7	1,643
Appalachian, Southern	29	71	974	12,850	12,760	968	2.2	5.8	968
Eastern Interior	10	19	289	11,510	11,450	255	0.92	1.7	255
Fort Union	4.2	8.5	280	6,340	6,410	257	0.7	1.4	257
Green River	1.2	4.8	391	9,950	9,560	264	0.13	0.44	264
Gulf Coast	2.2	3.2	141	6,440	6,470	110	0.34	0.54	110
Pennsylvania Anthracite	3.2	8.1	51	12,860	12,530	39	0.25	0.79	39
Powder River	1.6	4.2	602	8,050	8,080	486	0.2	0.5	486
Raton Mesa	0.99	1.4	40	12,500	12,300	34	0.073	0.1	34
San Juan River	0.92	2.5	185	9,380	9,640	169	0.095	0.26	169
Uinta	0.7	1.5	249	11,290	10,820	222	0.074	0.14	222
Western Interior	14	21	286	11,320	11,420	261	1.2	1.9	261
Wind River	2.4	7	41	9,630	9,570	41	0.25	0.75	41

Mode of Occurrence

The mode of occurrence of arsenic is important in determining its relative mobility during mining, combustion, and storage of coal for electric power generation; disposal or use of coal combustion byproducts; and leaching of coal beds in contact with ground water. Iron sulfides such as pyrite and marcasite are common inorganic constituents of coal, composing anywhere from a negligible amount to about 5 percent by weight. Other than iron and sulfur, arsenic is generally the most abundant element in pyrite and marcasite, but its concentration is highly variable (fig. 2).

In bituminous coals, pyrite generally accounts for the single largest fraction of arsenic, with lesser fractions in the organic portion of the coal and in other inorganic forms (fig. 3). Lower rank coals (lignite and subbituminous) generally have a larger proportion of their arsenic in the organic portion. Some coals have unusually high levels of arsenic, independent of coal rank. This enrichment is thought to result from past geologic interaction of coal beds with metal-enriched fluids, similar to the process by which metallic ore deposits are formed (Goldhaber and others, 2003).

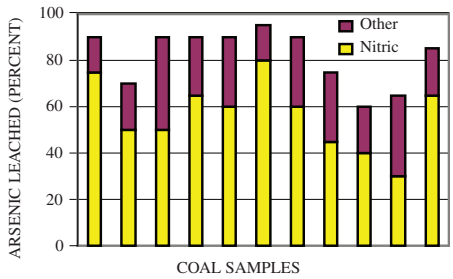


Figure 3. Selective leaching results for 11 U.S. bituminous coal samples. Plot shows that arsenic leached by nitric acid (yellow sub-bars) is the dominant form in these samples. Nitric acid is known to dissolve pyrite. The fraction of arsenic not leached (100 percent minus total bar height) represents organic-associated arsenic not removed by the leaching process. Arsenic present in all other forms is shown as "other." Modified from Palmer and others, 1998.

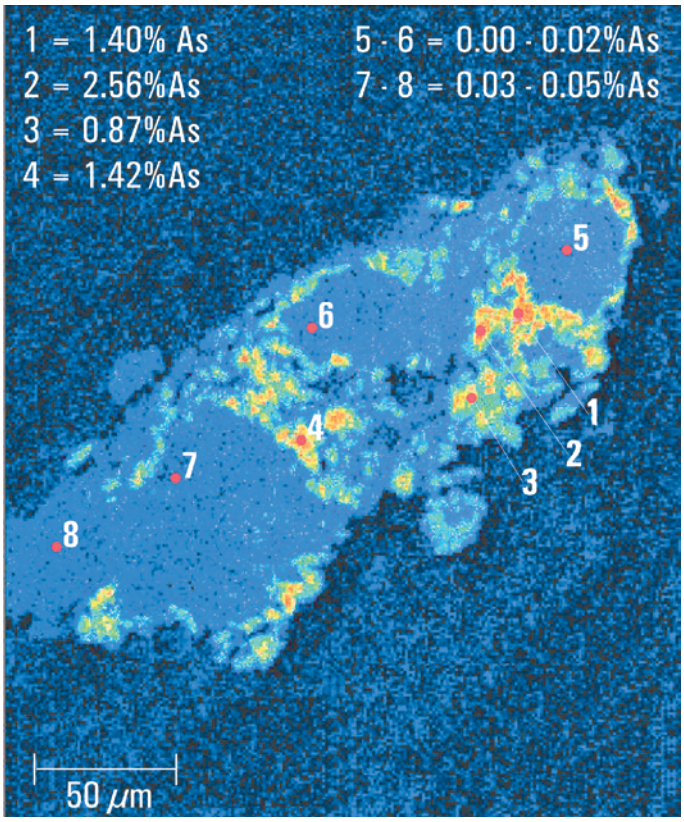
Arsenic in Waste from Coal Mining, Processing, and Storage

Mining operations in the United States generally must meet water-quality standards for discharge of mine water. In some abandoned mines or undisturbed pyrite-rich strata, however, decomposition of pyrite in coal and rock can lead to dispersal of arsenic to the environment. For example, in the Warrior Coal Field of Alabama, stream sediments in areas that have been mined have higher arsenic concentrations than stream sediments outside the coal-mining areas (Goldhaber and others, 2001).

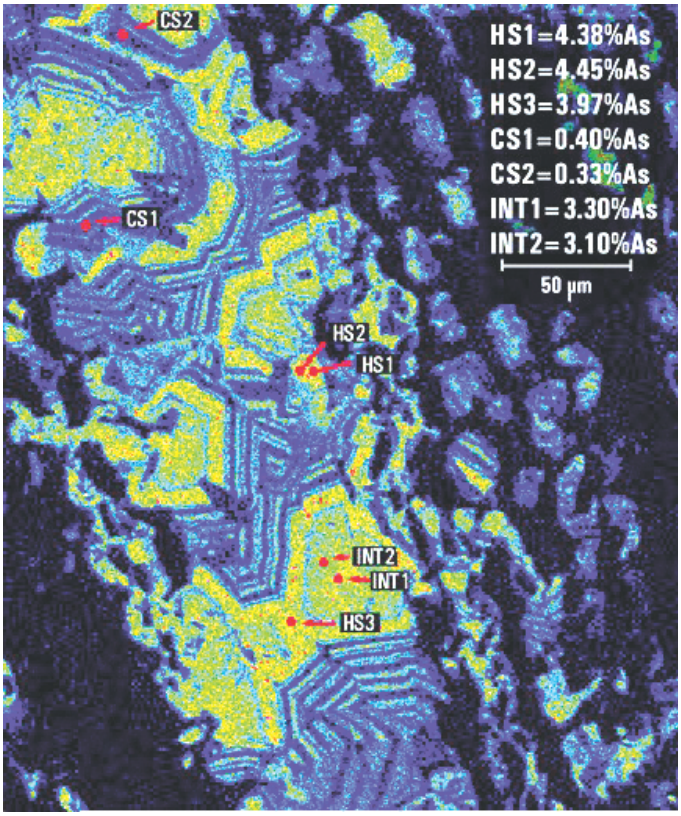
With exposure to moisture and atmospheric oxygen, arsenic in pyrite is rapidly converted to an oxidized form known as arsenate that is readily leached by precipitation and ground water (Huggins and others, 2002). The presence of arsenic in pyrite is thought to destabilize it, possibly hastening its decomposition to iron oxyhydroxide minerals. Because pyrite in coal oxidizes rapidly, coal storage facilities and waste materials from coal washing operations are potential sources of arsenic mobilization.

Arsenic in Coal Combustion Products

USGS studies indicate that, during coal combustion in modern coal-fired utilities, 90–100 percent of arsenic is



A



B

Figure 2. Elemental maps and microprobe analysis points showing distribution of arsenic (As) in pyrite in two Alabama coal samples. Maps are false-color images using a "thermal" intensity scale. *A*, Pyrite from a bituminous coal sampled in Cullman County, Alabama. Arsenic concentration at the points shown ranges from less than the detection limit (0.01 weight percent) to 2.6 weight percent. Image by Allan Kolker, USGS. *B*, Pyrite collected from a fracture in bituminous coal from Walker County, Alabama. Image shows zoning of arsenic content ranging up to nearly 4.5 weight percent. Image by Rob Koeppen, USGS; from Goldhaber and others (2003).

captured in coal combustion byproducts (Brownfield and others, 1999). Coal combustion byproducts such as fly ash and bottom ash likely contain multiple forms of arsenic. Some researchers have concluded that arsenic in coal ash is incorporated into iron-rich glass and crystalline silicate minerals that constitute the bulk of the solid ash. A more widely held view is that arsenic in flue gases combines with calcium oxide in the hot gases to form calcium arsenate ($Ca_3(AsO_4)_2$) that is concentrated on the surfaces of coal ash particles.

Coal combustion byproducts are widely used in a variety of commercial applications. These include cement and concrete, aggregates, structural fill, and even reclamation of abandoned coal mines. Such uses for coal ash are permitted by its designation as nonhazardous waste under the Resource Conservation and Recovery Act. Standardized tests, including the U.S. Environmental Protection Agency's (USEPA) Toxicity Characteristic Leaching Procedure, show that harmful substances such as arsenic are not readily leached from these materials under simulated environmental conditions. Additional information on coal combustion products is given in Kalyoncu and Olson (2001).

Technological Impact

Coal-fired utilities have been required to reduce emissions of nitrous oxides (NO_x) to meet air quality standards. To comply with these new emissions regulations, many existing coal-fired powerplants and new installations are equipped with selective catalytic reduction (SCR) technology. SCR works by injecting ammonia into the flue gas stream. The ammonia passes over a catalyst that reduces the nitrous oxides (NO_x) in the flue gas to elemental nitrogen and water. Although SCR is very effective in controlling NO_x emissions, the effectiveness of the catalyst is greatly reduced if there are elevated concentrations of arsenic and selenium present in the flue gas stream. As a result, the amounts of these two elements in utility feed coal are a potential concern to utilities (Rigby and others, 2000) and may be monitored closely.

Health Impact

In the United States, human exposure to arsenic primarily occurs in rural areas, through consumption of water from wells that greatly exceed the arsenic drinking water standard (10 micrograms per liter) specified by the USEPA. In the vast majority of cases, this exposure is unrelated to coal or emissions from coal-burning powerplants. More direct exposure to arsenic from coal occurs where coal is used for domestic purposes. In the United States, such exposure is very limited. Domestic coal use is far more common in countries such as China, India, and South Africa. Health effects from arsenic have been documented where extraordinarily arsenic-rich coals were used to dry foods that were later consumed (Finkelman and others, 2002; fig. 4).

Figure 4. Interior view of residence in southwestern Guizhou Province, China, where arsenic-rich coal and coal briquettes are used to dry crops (chili peppers) that are later consumed, resulting in arsenic toxicity. Note the lack of ventilation in this dwelling. Photograph by Harvey Belkin, USGS.

Summary

Arsenic in bituminous coals is present primarily within the mineral pyrite. Pyrite occurs in small amounts in many rock types and sediments and coal. Pyrite and its weathering products are potential sources of arsenic in ground water and, more locally, in surface water. During coal combustion in modern coal-fired utilities, most of the arsenic is captured in coal combustion byproducts, which are considered nonhazardous waste, on the basis of acceptable performance in standardized leaching tests. Arsenic exposure in the United States primarily results from consumption of drinking water from private wells that exceed drinking water standards. Documented health effects from arsenic in coal are known elsewhere in the world in cases where unusually arsenic-rich coal is used domestically.

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