#5945

SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT
EAST FIFTH AND BELL STREETS
PORT OF DUBUQUE BROWNFIELDS REDEVELOPMENT PROJECT
DUBUQUE, IOWA

Project No. 07037005
August 18, 2006

Prepared For:

CITY OF DUBUQUE
Dubuque, Iowa

Prepared By:

Terracon
Bettendorf, Iowa

Terracon

Form 101—1-87

August 18, 2006

Terracon
Consulting Engineers & Scientists
870 40th Avenue
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City of Dubuque
50 West 13th Street
Dubuque, Iowa 52001

Attention: Mr. Aaron DeJong
Assistant Economic Development Director

Re: Supplemental Phase II Environmental Site Assessment
East Fifth and Bell Streets
Dubuque, Iowa
Project No. 07037005

Dear Mr. DeJong:

Terracon is pleased to submit our report of Supplemental Phase II Environmental Site Assessment activities completed at the site referenced above. The report presents data from recent field activities that included the completion of soil borings and the collection of soil and water samples for chemical analysis.

Terracon appreciates this opportunity to provide environmental engineering services to the City of Dubuque. Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,
Terracon

J. David Wildharber, G.R.I.T.
Geologist

John F. Brimeyer, P.E.
Environmental Manager

JDW/JFB/dw1
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Terracon

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EAST FIFTH AND BELL STREETS
PORT OF DUBUQUE BROWNFIELDS REDEVELOPMENT PROJECT
DUBUQUE, IOWA

Project No. 07037005
August 18, 2006

1.0 INTRODUCTION

Terracon has completed Supplemental Phase II Environmental Site Assessment activities at the East 5th and Bell Streets property as described in our proposal dated February 14, 2006. Written authorization to proceed with the assessment was provided by Mr. David Heiar, City of Dubuque, on February 16, 2006.

1.1 Site Description

Site Name	Port of Dubuque Brownfields Redevelopment Project
Site Location/Address	East Fifth and Bell Streets, Dubuque, Iowa
General Site Description	The site was vacant, grassed land.

A Topographic Vicinity Map is included as Figure 1 in Appendix A. A Site Diagram is included as Figure 2.

1.2 Scope of Work

Terracon conducted a supplemental Phase II at the East Bell and Fifth Streets in Dubuque, Iowa. At your request, Terracon's supplemental Phase II was undertaken due to the Iowa Department of Natural Resources (IDNR) response to the results of Terracon's Phase II Environmental Site Assessment (ESA Report No. 07037005) dated June 21, 2005, which identified environmental impairment associated with soil impacted by arsenic, lead, and polynuclear aromatic hydrocarbons (PAHs) above IDNR Statewide Standards and groundwater impacted by metals and pesticides above Statewide Standards. The results of the investigation were submitted to the IDNR on June 21, 2005, for review and issuance of an IDNR "Comfort Letter".

In correspondence dated September 28, 2005, the IDNR noted that lead was detected in soil at a concentration of 599.3 milligrams per kilogram (mg/kg) in soil boring SB-04 at a depth of four to six feet below ground surface (bgs). The reported concentration would exceed the Statewide Standard of 400 mg/kg if the material were brought to the surface (0-2 feet bgs) as a result of future construction/excavation activities. The correspondence further noted that arsenic, benzo(a)anthracene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, cadmium,

dieldren, lead, and Aroclor 1260 were detected in groundwater at concentrations which exceeded the Statewide Standard for Protected Groundwater. The IDNR correspondence indicated that Dubuque could either conduct additional investigation to determine the extent of the contamination, or accept an environmental covenant prohibiting the installation of water wells, requiring confirmation sampling of shallow soils for residential land use, and requiring IDNR notification of any future construction activity.

Terracon reviewed the results of the Phase II with Mr. Hylton Jackson, IDNR, and discussed supplemental site investigation activities to further evaluate the extent of observed impact as an alternative to implementation of an environmental covenant. Based on the results of Phase II assessment activities throughout the Port of Dubuque area, it appears that the observed lead impact may be consistent with random isolated lead "hot spots" located throughout the uncontrolled fill material, as opposed to a source area. Mr. Jackson indicated that additional information would be required to characterize the observed lead impact at SB-04.

Terracon proposed to advance one soil boring within approximately 25 feet of and down-gradient from SB-04 and one soil boring within approximately 25 feet of and up-gradient from SB-04. The borings would be sampled continuously with one sample each from the zero to two foot bgs, two to ten foot bgs, and greater than ten foot bgs sample intervals analyzed for total lead.

Mr. Jackson noted that due to the lack of groundwater analytical data at SB-04 it could not be determined if the elevated lead impact was resulting in a corresponding impact in groundwater. To address the soil leaching to groundwater pathway, Terracon proposed converting the down-gradient soil boring into a monitoring well and collecting a groundwater sample for analysis of total lead. The intent of the groundwater sampling and analysis was to evaluate the soil leaching to groundwater pathway. Further, Terracon proposed the implementation of a City Ordinance prohibiting the installation of water wells within the Port of Dubuque area as a means of severing the groundwater ingestion pathway.

To address future construction/excavation activities, Terracon proposed the development of a Soil Management Plan (SMP) as a means of reducing potential future exposure. The purpose of the SMP would be to provide notification to future on-site construction workers, identify appropriate construction worker health and safety protocols, and provide soil handling procedures intended to reduce the likelihood of placing impacted soil within two feet of the ground surface.

Mr. Jackson indicated that, dependent on the results of the supplemental investigation and satisfactory development of an SMP, the proposed activities should be adequate to allow issuance of an IDNR "Comfort Letter" without implementation of an environmental covenant.

The objective of the supplemental Phase II ESA was to characterize the observed lead impact in the vicinity of soil boring SB-04 from Terracon's June 2005 Phase II ESA and to

determine if the elevated lead levels in the soil were impacting the groundwater. Soil borings were advanced 25 feet up-gradient and down-gradient of boring SB-04. The boring in the down-gradient direction was converted into a temporary groundwater monitoring well.

1.3 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, either express or implied, regarding the findings, conclusions, or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. These Phase II ESA services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal and were not restricted by ASTM E1903-97.

1.4 Additional Scope Limitations

Findings, conclusions, and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable, or not present during these services. We cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this Phase II ESA. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations, or exploratory services. The data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

1.5 Reliance

This report has been prepared for the exclusive use of the City of Dubuque, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of the City of Dubuque and Terracon. Any unauthorized distribution or reuse is at the client's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, Phase II ESA report, and Terracon's Terms and Conditions. The limitation of liability defined in the terms and conditions is the aggregate limit of Terracon's liability to the client and all relying parties unless otherwise agreed in writing.

2.0 SCOPE OF SERVICES

Terracon performed the following activities.

- Terracon prepared a Site Investigation Work Plan (Work Plan), consistent with the scope of services identified in the proposal, which was reviewed and approved by the IDNR.

- Following approval of the Work Plan by the IDNR, Terracon mobilized an environmental crew and truck-mounted drill rig to the subject site.

- Terracon advanced two soil borings with the drill rig within approximately 25 feet of SB-04; one boring in the apparent down-gradient direction (MW-09) and one boring in the apparent up-gradient direction (SB-08). Terracon advanced boring SB-08 to a depth of approximately 10 feet bgs. Terracon advanced boring MW-09 to a depth of approximately 18 feet bgs.

- One soil sample from each soil boring was collected for laboratory analyses from the zero to two foot interval. In each boring, Terracon obtained a subsample from each subsequent two foot interval in each boring, to a depth of ten feet. Each subsample was placed in a stainless steel mixing bowl. After the last subsample was placed in the bowl, the material was homogenized using a stainless steel mixing spoon. A composite soil sample from each boring was prepared from the homogenized materials. A second composite sample was similarly prepared from boring MW-09 for the sampled intervals below ten feet.

- Terracon submitted the soil samples to TestAmerica, Inc., (TestAmerica) in Cedar Falls, Iowa, for analysis of lead using United States Environmental Protection Agency (USEPA) Method 6010B.

- Terracon converted boring MW-09 into a temporary groundwater monitoring well. Following installation, Terracon developed the monitoring well by removing approximately three well casing volumes.

- Terracon collected a groundwater sample from monitoring well MW-09 and submitted the sample to TestAmerica for analysis of lead using USEPA Method 7421.

3.0 INTRUSIVE ASSESSMENT METHODOLOGIES

3.1 Drilling

Terracon used a truck-mounted auger drill that employs a hydraulic head for drilling and sampling. Terracon advanced the soil borings using 4¼-inch inside-diameter hollow stem augers. At the completion of field activities, Terracon abandoned the borings with soil cuttings mixed with commercial bentonite sealant. Terracon spread excess auger cuttings over the site.

3.2 Soil Sampling

Terracon collected soil samples continuously throughout the depth of the borings using split-spoon samplers. A Terracon field professional logged the soil samples based on visual classification and apparent textural properties of the recovered samples. The boring logs in Appendix B detail the observed soil lithology.

3.3 Soil Sample Screening

Terracon field screened the soil samples for organic vapors using a photoionization detector (PID). This device provides a direct reading in parts per million (ppm) isobutylene equivalents. The PID is a nonspecific, total vapor detector, and cannot be used to identify unknown substances; it can only roughly quantify them. Upon removal of the sampler from the borehole, Terracon cut a portion of each sample and sealed it in a Ziploc® bag. After a stabilization period, Terracon screened the headspace above the soil using the PID equipped with an approximate 10 electron-volt (eV) ultraviolet lamp source. Terracon calibrated the PID in accordance with the manufacturer's recommendations before the field activities. The boring logs include the field screening results for each soil boring.

3.4 Soil Sampling for Analytical Characterization

Terracon selected the zero to two foot samples and two to ten foot composite samples in borings SB-08 and MW-09 for analysis of lead by USEPA Method 6010B. Additionally, a composite sample from the 10 to 20 foot interval from boring MW-09 was submitted for lead analysis. Terracon selected the soil samples based on a pre-determined sampling plan. Terracon transferred the soil samples for analytical characterization to laboratory-prepared containers that were placed in an ice-packed cooler for transport to the laboratory. Terracon shipped the samples under standard Chain-of-Custody (COC) procedures via overnight carrier to TestAmerica.

3.5 Groundwater Sampling

Terracon converted the soil boring MW-09 into a temporary groundwater monitoring well. Terracon collected one groundwater sample from the monitoring well and submitted the sample for lead analysis by USEPA Method 7421. Terracon collected the groundwater sample using a pre-cleaned, single use, disposable PVC/polyethylene bailer. Terracon transferred the groundwater sample to a laboratory-prepared container that was placed in an ice-packed cooler for transport to the laboratory. Terracon shipped the sample under standard COC procedures via overnight carrier to TestAmerica.

3.6 Cleaning Procedures

Terracon cleaned the drilling equipment and the working end of the drill rig before field activities with high-pressure hot water and Alconox™ detergent. Terracon cleaned the split-spoon samplers at the beginning of the project and between each soil sample by hand scrubbing in an Alconox™ and potable water solution followed by rinsing in potable water. Terracon did not collect cleaning fluids.

3.7 Health and Safety

Terracon performed field activities under Level D safety precautions. Level D safety attire for this project consisted of a washable work uniform including safety shoes, hardhat, rubber gloves, and appropriate eye protection. Terracon developed a health and safety plan before mobilization.

4.0 SITE PHYSIOGRAPHY

4.1 Soil Lithology

Fill was encountered to a depth of approximately 18 feet bgs. The fill material generally consisted of silty clay mixed with sand, gravel and debris material (e.g. brick, wood, etc.).

4.2 Groundwater Conditions

Groundwater was encountered at approximately 12 feet bgs in MW-09.

5.0 ANALYTICAL DATA

The laboratory analytical report and COC are attached in Appendix C. The following sections describe the results of the testing.

5.1 Soil Sample Analysis

Lead was not detected above laboratory method detection limits in the zero to two foot soil sample from boring SB-08. Lead was detected at a laboratory reported concentration of 38.1 mg/kg in the two to ten foot composite sample from boring SB-08. The Statewide Standard for lead is 400 mg/kg.

Lead was detected at the following laboratory reported concentrations in three soil samples from boring MW-09: 282 mg/kg in the zero to two foot interval, 50.9 mg/kg in the two to ten

foot composite sample, and 62.8 mg/kg in the 10 to 20-foot composite sample. Lead was not detected above the Statewide Standard in any of the five soil samples submitted.

5.2 Groundwater Sample Analysis

Lead was detected at a laboratory reported concentration of 0.0104 milligrams per liter (mg/L) in sample MW-09, below the IDNR Statewide Standard for a Protected Groundwater Source (the most restrictive) is 0.015 mg/L.

6.0 IDNR COMPARISON

During Terracon's 2005 Phase II ESA, ten soil samples were submitted for lead analysis. Lead was detected at concentrations above analytical method detection limits in all ten samples. In nine of ten samples, laboratory reported concentrations were below the IDNR Statewide Standard for lead, 400 mg/kg. Lead was detected at a concentration of 599.3 mg/kg in sample SB-04, four to six feet.

In response to comments from the IDNR, Terracon proposed supplemental site investigation in the vicinity of boring SB-04 to delineate the area of lead impairment. Two soil borings were advanced within 25 feet of boring SB-04: one in the apparent up-gradient direction (SB-08) and one in the apparent down-gradient direction (MW-09). The table below summarizes analytical results for lead from the Phase II ESA and supplemental Phase II investigation.

Summary of Lead Analysis

Boring	0 to 2 feet	2 to 10 feet	>10 feet
SB-04	122.8	599.3	NA
SB-07	12.68	311	NA
MW-01	199.9	75.82	NA
MW-05	44.73	71.47	NA
MW-06	100.6	103	NA
SB-08	<29.0	38.1	NA
MW-09	282	50.9	62.8

NA = Not Analyzed

Four of five soil samples submitted for analysis exhibited lead concentrations above laboratory analytical method detection limits, but below the IDNR Statewide Standard for lead. Under Iowa Administrative Code (IAC) 137.10(5).a(1), in order to demonstrate compliance with the Statewide Standard for a Contaminant of Concern in an affected area, 75% of all soil samples collected during a single event shall be less than or equal to the Statewide Standard, with no sample exceeding ten times the Statewide Standard.

Lead was detected above laboratory analytical method detection limits in 80% of the soil samples submitted as part of the Supplemental Phase II Investigation, but at concentrations below the IDNR Statewide Standard. One of 15 (6.7%) total (from the Phase II and Supplemental Phase II ESAs) soil samples submitted for analysis exhibited lead concentrations in excess of the Statewide Standard. No detected lead concentration exceeded ten times the Statewide Standard.

Lead was detected above analytical method detection limits in six of seven soil samples submitted from the zero to two foot interval with no exceedences of the Statewide Standard. Lead was detected above analytical method detection limits in seven of seven soil samples submitted from the two to ten foot interval. One sample; SB-04, four to six feet; at a laboratory reported concentration of 599.3 mg/kg, exceeded the Statewide Standard. Lead was detected in one soil sample submitted from the ten to 20-foot interval, but at a concentration below the Statewide Standard.

Based on the absence of groundwater analytical data, the IDNR indicated that it could not be determined if elevated lead levels in boring SB-04 were resulting in associated impact to the groundwater. Therefore, Terracon proposed to convert the down-gradient soil boring, MW-09, into a monitoring well. One groundwater sample was submitted for lead analysis. Lead was detected in the groundwater sample at a laboratory reported concentration of 0.0104 mg/L, below the IDNR Statewide Standard for Protected Groundwater, 0.015 mg/L. Hydraulic conductivity is the primary criterion for determining Protected Groundwater (>0.44 meters/day) versus Nonprotected Groundwater (<0.44 meters/day) status. Hydraulic conductivity tests performed during Terracon's June 2005 Phase II ESA ranged from 0.30 meters/day to 6.84 meters/day. The wide range of hydraulic conductivities is attributed to the heterogeneity of the fill material, which underlies the site and surrounding properties.

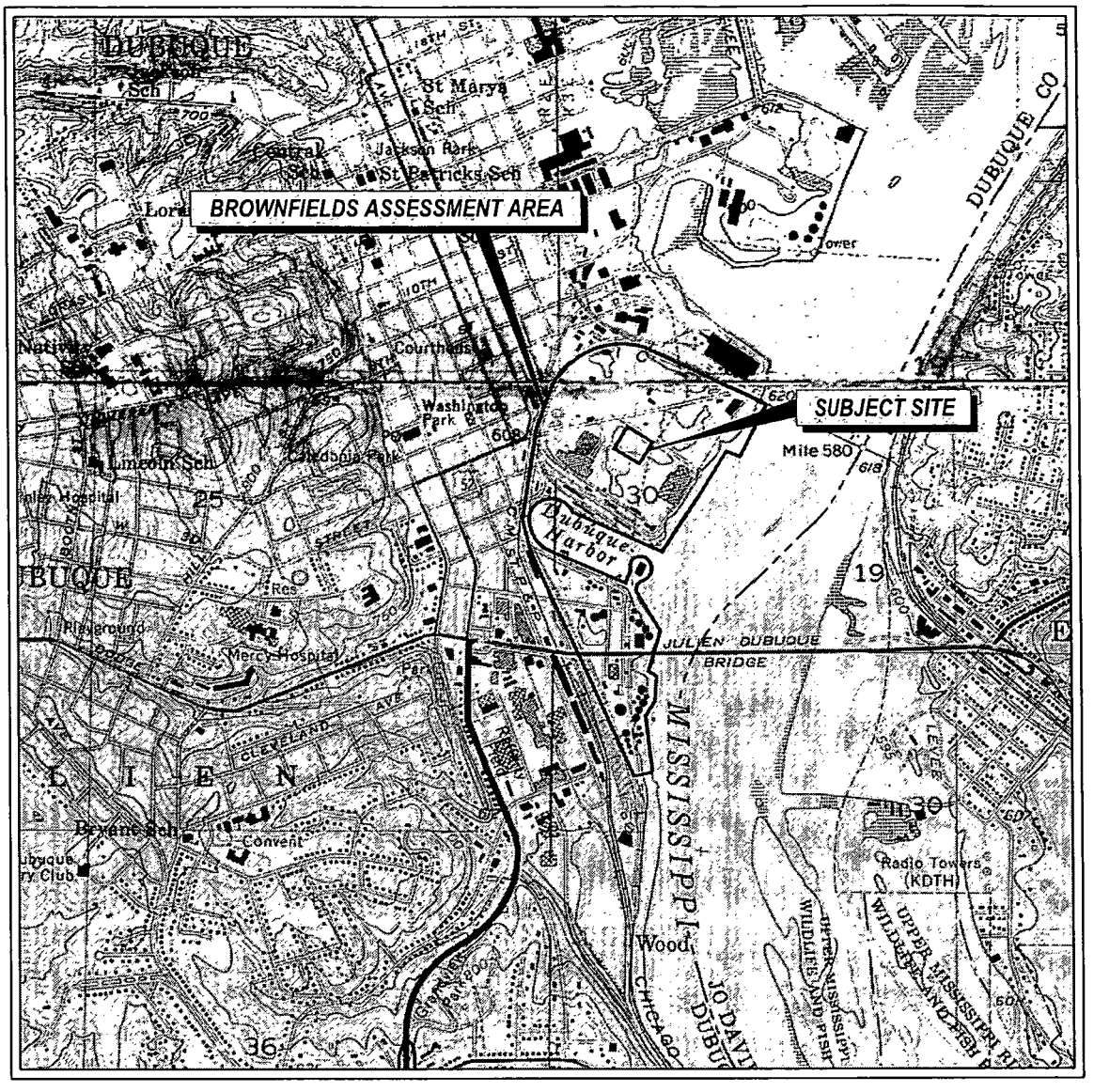
7.0 CONCLUSIONS

Based on the results of site investigation activities, lead impact in soil is in compliance with IDNR Statewide Standards. To address future construction/excavation activities, Terracon has prepared a Soil Management Plan (SMP) dated August 18, 2006.

Supplemental Phase II assessment activities have delineated the extent of lead impact in soil and have demonstrated that lead impact is associated with a random isolated "hot spot". Further assessment activities have demonstrated that observed lead impact in soil does not appear to be resulting in elevated impact in groundwater.

Terracon requests that the IDNR issue a "Comfort Letter" for the subject site. The "Comfort Letter" will be supported by the SMP and a city ordinance prohibiting the installation of drinking water wells in the Port of Dubuque area.

UNITED STATES – DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY



SCALE 1:24 000

1 .5 0 KILOMETERS 1 2

1000 0 METERS 1000 2000

1 .5 0 1

MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

FEET

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

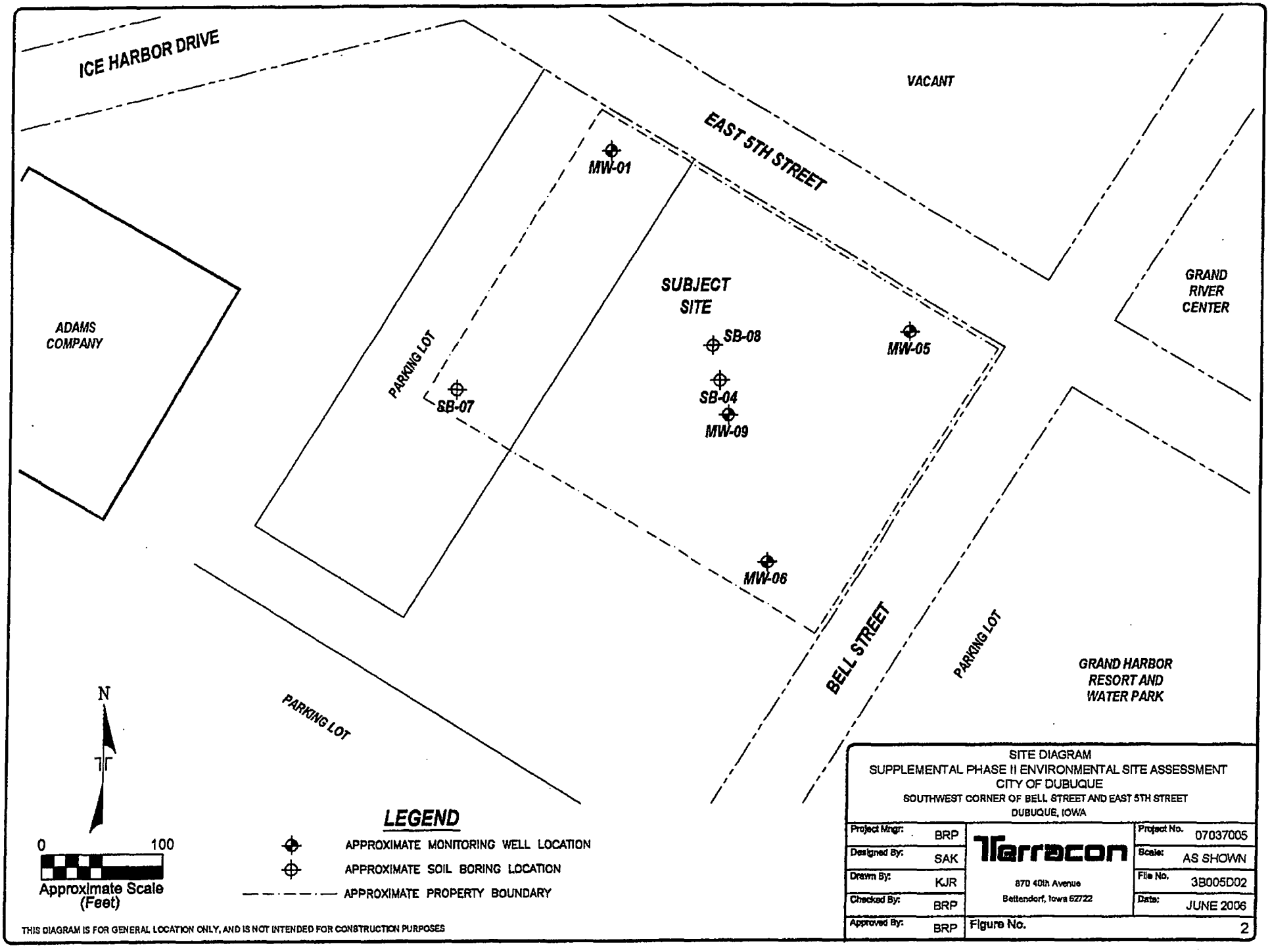
DOTTED LINES REPRESENT 5-FOOT CONTOURS

N

DUBUQUE NORTH, IA.–WI.–IL.
DUBUQUE SOUTH, IA.–IL.
QUADRANGLE
7.5 MINUTE SERIES (TOPOGRAPHIC)

TOPOGRAPHIC VICINITY MAP
SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT
CITY OF DUBUQUE
SOUTHWEST CORNER OF BELL STREET AND EAST 5TH STREET
DUBUQUE, IOWA

Project Mngr: BRP	Terracon	Project No.	07037005
Designed By: SAK		Scale:	AS SHOWN
Drawn By: KJR	870 40th Avenue Bettendorf, Iowa 52722	File No.	3B005D01
Checked By: BRP		Date:	JUNE 2006
Approved By: BRP	Figure No.		1



SITE DIAGRAM
SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT
CITY OF DUBUQUE
SOUTHWEST CORNER OF BELL STREET AND EAST 5TH STREET
DUBUQUE, IOWA

Project Mngr:	BRP	Project No.	07037005
Designed By:	SAK	Scale:	AS SHOWN
Drawn By:	KJR	File No.	3B005D02
Checked By:	BRP	Date:	JUNE 2006
Approved By:	BRP	Figure No.	2

Terracon
870 40th Avenue
Bettendorf, Iowa 52722

Appendix B

LOG OF BORING NO. MW-09

CLIENT **Port of Dubuque**

SITE **East 5th Street and Bell Street, Dubuque, IA**

PROJECT **Dubuque Brownfields-East 5th Street & Bell Street**

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY, in.	SAMPLES: SPT - N BLOWS / ft.	TESTS: WATER CONTENT, %	TESTS: FIELD VAPOR TEST (PPM)*	TESTS: SOIL SAMPLE SENT TO LABORATORY
	Fill; including Silty Clay; Gravel; Debris; and black, fine-grained Sand.			1	SS				0.0	
				2	SS				0.0	
		5		3	SS				0.0	
				4	SS				0.0	
				5	SS				0.0	
		10		6	SS				0.0	
				7	SS				0.0	
		15		8	SS				0.0	
				9	SS				2500	
	18									
	Bottom of boring.									

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppmi).

WATER LEVEL OBSERVATIONS, ft		
WL	▽	▼
WL	▽	▽
WL		

Terracon

BORING STARTED	4-27-06
BORING COMPLETED	4-27-06
RIG	FOREMAN
APPROVED	JOB # 07037005

BOREHOLE 07037005 LOGS.GPJ TERRACON.GDT 6/29/06

LOG OF BORING NO. SB-08

CLIENT
Port of Dubuque

SITE
East 5th Street and Bell Street
Dubuque, IA

PROJECT
Dubuque Brownfields-East 5th Street & Bell Street

GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY, in.	SAMPLES SPT - N BLOWS / ft.	TESTS WATER CONTENT, %	TESTS FIELD VAPOR TEST (PPM)*	TESTS SOIL SAMPLE SENT TO LABORATORY
	Fill; including Silty Clay; Gravel; and Debris.			1	SS				0.0	
				2	SS				0.0	
		5		3	SS				0.0	
				4	SS				1.8	
				5	SS				0.5	
	10	10								
	Bottom of boring.									

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

* ND indicates a reading of less than the field detection limit (FDL) of one (1) part per million isobutylene equivalents (ppmi).

WATER LEVEL OBSERVATIONS, ft		
WL	▽	▼
WL	▽	▼
WL		

Terracon

BORING STARTED	4-27-06
BORING COMPLETED	4-27-06
RIG	FOREMAN
APPROVED	JOB # 07037005

BOREHOLE 07037005 LOGS.GPJ TERRACON.GDT 6/29/06

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

May 11, 2006

Client:
TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722

Attn: John Brimeyer

Work Order: CPE0018
Project Name: Port of Dubuque Brownfields #07037005
Project Number: 5th & Bell

Date Received: 05/01/06

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
SB-08 0-2'	CPE0018-01	04/27/06 09:34
SB-08 Composite	CPE0018-02	04/27/06 10:15
MW-09 0-2'	CPE0018-03	04/27/06 10:30
MW-09 Comp 2-10'	CPE0018-04	04/27/06 10:55
MW-09 Comp 10-20'	CPE0018-05	04/27/06 12:05

Samples were received into laboratory at a temperature of 5 °C.

Most environmental analytical testing methods require a sample temperature of 4 degrees C +/- 2 degrees C for preservation of the sample constituents prior to analysis. If sample temperatures are outside of this temperature range at the time of sample receipt, results may be impacted. 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

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

Approved By:

Linda Cmelik

TestAmerica Analytical - Cedar Falls
Linda Cmelik
Project Coordinator

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

TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722
John Brimeyer

Work Order: CPE0018
Project: Port of Dubuque Brownfields #07037005
Project Number: 5th & Bell

Received: 05/01/06
Reported: 05/11/06 15:46

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CPE0018-01 (SB-08 0-2' - Soil)					**Sampled: 04/27/06 09:34**				**Recvd: 05/01/06 09:30**
General Chemistry Parameters									
% Solids	86.1		%	0.100	1	05/02/06 08:00	sas	6050157	SM 2540 G
Total Metals by SW 846 Series Methods									
Lead	<29.0	RL1	mg/kg dry	29.0	4.8	05/10/06 20:19	llw	6050435	SW 6010B
Sample ID: CPE0018-02 (SB-08 Composite - Soil)					**Sampled: 04/27/06 10:15**				**Recvd: 05/01/06 09:30**
General Chemistry Parameters									
% Solids	88.9		%	0.100	1	05/02/06 08:00	sas	6050157	SM 2540 G
Total Metals by SW 846 Series Methods									
Lead	38.1		mg/kg dry	28.1	4.89	05/10/06 20:34	llw	6050435	SW 6010B
Sample ID: CPE0018-03 (MW-09 0-2' - Soil)					**Sampled: 04/27/06 10:30**				**Recvd: 05/01/06 09:30**
General Chemistry Parameters									
% Solids	89.0		%	0.100	1	05/02/06 08:00	sas	6050157	SM 2540 G
Total Metals by SW 846 Series Methods									
Lead	282		mg/kg dry	28.1	4.66	05/10/06 20:39	llw	6050435	SW 6010B
Sample ID: CPE0018-04 (MW-09 Comp 2-10' - Soil)					**Sampled: 04/27/06 10:55**				**Recvd: 05/01/06 09:30**
General Chemistry Parameters									
% Solids	88.7		%	0.100	1	05/02/06 08:00	sas	6050157	SM 2540 G
Total Metals by SW 846 Series Methods									
Lead	50.9		mg/kg dry	28.2	4.86	05/10/06 20:44	llw	6050435	SW 6010B
Sample ID: CPE0018-05 (MW-09 Comp 10-20' - Soil)					**Sampled: 04/27/06 12:05**				**Recvd: 05/01/06 09:30**
General Chemistry Parameters									
% Solids	81.8		%	0.100	1	05/02/06 08:00	sas	6050157	SM 2540 G
Total Metals by SW 846 Series Methods									
Lead	62.8		mg/kg dry	30.6	4.76	05/10/06 20:49	llw	6050435	SW 6010B

TestAmerica Analytical - Cedar Falls
Linda Cmelik
Project Coordinator

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

TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722
John Brimeyer

Work Order: CPE0018
Project: Port of Dubuque Brownfields #07037005
Project Number: 5th & Bell

Received: 05/01/06
Reported: 05/11/06 15:46

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
otal Metals by SW 846 Series Methods														
ead	6050435			mg/kg wet	N/A	5.00	<5.00							

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

TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722
John Brimeyer

Work Order: CPE0018
Project: Port of Dubuque Brownfields #07037005
Project Number: 5th & Bell

Received: 05/01/06
Reported: 05/11/06 15:46

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: CPD1441-01													
% Solids	6050157	84.5		%	N/A	0.100	84.9				1	20	
QC Source Sample: CPE0019-07													
% Solids	6050157	82.8		%	N/A	0.100	82.3				1	20	
QC Source Sample: CPE0022-01													
% Solids	6050157	3.90		%	N/A	0.100	3.91				0	20	

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

TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722
John Brimeyer

Work Order: CPE0018
Project: Port of Dubuque Brownfields #07037005
Project Number: 5th & Bell

Received: 05/01/06
Reported: 05/11/06 15:46

LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
otal Metals by SW 846 Series Methods													
ead	6050435		100	mg/kg wet	N/A	5.00	98.2	98		85-105			

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John Brimeyer

Work Order: CPE0018
Project: Port of Dubuque Brownfields #07037005
Project Number: 5th & Bell

Received: 05/01/06
Reported: 05/11/06 15:46

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
Total Metals by SW 846 Series Methods														
QC Source Sample: CPE0018-01														
Lead	6050435	<5.00	230	mg/kg dry	N/A	29.0	257	249	112	108	75-125	3	15	

TestAmerica Analytical - Cedar Falls
Linda Cmelik
Project Coordinator

TestAmerica
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TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722
John Brimeyer

Work Order: CPE0018
Project: Port of Dubuque Brownfields #07037005
Project Number: 5th & Bell

Received: 05/01/06
Reported: 05/11/06 15:46

CERTIFICATION SUMMARY

estAmerica Analytical - Cedar Falls

Method	Matrix	Nelac	Iowa
SM 2540 G	Solid/Soil		
SW 6010B	Solid/Soil	X	X

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.

DATA QUALIFIERS AND DEFINITIONS

RL1 Reporting limit raised due to sample matrix effects.

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: TERRACON Client #: _____
Address: 870 40th AVE
City/State/Zip Code: BETTENDORF, IA 52722
Project Manager: JOHN BRUMMEYER
Telephone Number: 563-355-0702 Fax: 563-355-4739
Sampler Name: (Print Name) DAVID WILDHABER
Sampler Signature: DW Wildhaber
Email Address: _____

Project Name: PORT OF DUBUQUE BROWNFIELDS 5TH & BELL
Project #: 07037005
Site/Location ID: DUBUQUE State: IA
Report To: JOHN BRUMMEYER
Invoice To: JOHN BRUMMEYER
Quote #: _____ PO#: _____

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

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

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: LEAD	REMARKS
SB-08, 0-2'	4-27-06	9:34A	G	-	S						X		X	
SB-08, COMPOSITE	4-27-06	10:15A	C	-	S						X		X	
MW-09, 0-2"	4-27-06	10:30A	G	-	S						X		X	
MW-09, COMP. 2-10'	4-27-06	10:55A	C	-	S						X		X	
MW-09, COMP. 10-20'	4-27-06	12:05P	C	-	S						X		X	

Special Instructions:

LABORATORY COMMENTS:

Relinquished By: DW Wildhaber	Date: 4-28-06	Time:	Received By:	Date: 4/28/06	Time: 3:08
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

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Sample Receipt and Temperature Log Form

Client: Terracon Project: _____

City: Betterdorf

Date: 5-1-06 Receiver's Initials JPH Time (Delivered): 9:30

Temperature Record

Cooler ID# (If Applicable)
TACF690

5 °C / On Ice

Thermometer:

- [X] IR – 905085 "A"
- [ ] IR – 809065 "B"
- [ ] CF07-03-T2
- [ ] 22126775

Courier:

- [ ] Airborne
- [ ] Speedy
- [ ] UPS
- [ ] TA Courier
- [ ] Velocity
- [ ] TA Field Svs
- [X] FedEx
- [ ] Client
- [ ] DHL
- [ ] US Postal
- [ ] 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:

_____

Log-In by:

CW MF EM

OT_____

*Refer to SOP CF01-01 for Temperature Criteria

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May 17, 2006

Client:
TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722

Attn: John Brimeyer

Work Order: CPE0715
Project Name: Dubuque Brownfields
Project Number: 07037005

Date Received: 05/12/06

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 at1-(800)750-2401

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
MW-9	CPE0715-01	05/10/06 15:00
MW-19	CPE0715-02	05/10/06 15:15

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

Most environmental analytical testing methods require a sample temperature of 4 degrees C +/- 2 degrees C for preservation of the sample constituents prior to analysis. If sample temperatures are outside of this temperature range at the time of sample receipt, results may be impacted. 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

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

Approved By:

Kristin Clay

TestAmerica Analytical - Cedar Falls
Kristin M. Clay
Inorganics Manager

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

TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722
John Brimeyer

Work Order: CPE0715
Project: Dubuque Brownfields
Project Number: 07037005

Received: 05/12/06
Reported: 05/17/06 10:37

ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Quan. Limit	Dilution Factor	Date Analyzed	Analyst	Seq/ Batch	Method
Sample ID: CPE0715-01 (MW-9 - Ground Water)					**Sampled: 05/10/06 15:00**				**Recvd: 05/12/06 08:50**
Total Metals by SW 846 Series Methods									
Lead	**0.0104**		mg/L	0.00400	1	05/16/06 14:55	heh	6050658	SW 7421
Sample ID: CPE0715-02 (MW-19 - Ground Water)					**Sampled: 05/10/06 15:15**				**Recvd: 05/12/06 08:50**
Total Metals by SW 846 Series Methods									
Lead	**0.0257**	pH>2	mg/L	0.00400	1	05/16/06 14:59	heh	6050658	SW 7421

TestAmerica Analytical - Cedar Falls
Kristin M. Clay

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TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722
John Brimeyer

Work Order: CPE0715
Project: Dubuque Brownfields
Project Number: 07037005

Received: 05/12/06
Reported: 05/17/06 10:37

LABORATORY BLANK QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
otal Metals by SW 846 Series Methods													
ead	6050658			mg/L	N/A	0.00400	<0.00400						

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TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722
John Brimeyer

Work Order: CPE0715
Project: Dubuque Brownfields
Project Number: 07037005

Received: 05/12/06
Reported: 05/17/06 10:37

LCS/LCS DUPLICATE QC DATA

Analyte	Seq/ Batch	Source Result	Spike Level	Units	MDL	MRL	Dup Result	% REC	Dup %REC	% REC Limits	RPD	RPD Limit	Q
Total Metals by SW 846 Series Methods													
Lead	6050658		0.0400	mg/L	N/A	0.00400	0.0408	102		80-120			

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TERRACON - BETTENDORF
870 40th Avenue
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John Brimeyer

Work Order: CPE0715
Project: Dubuque Brownfields
Project Number: 07037005

Received: 05/12/06
Reported: 05/17/06 10:37

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
otal Metals by SW 846 Series Methods														
C Source Sample: CPE0715-02														
Lead	6050658	0.0257	0.0400	mg/L	N/A	0.00400	0.0704	0.0749	112	123	75-125	6	20	

TestAmerica Analytical - Cedar Falls
Kristin M. Clay
Inorganics Manager

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TERRACON - BETTENDORF
870 40th Avenue
Bettendorf, IA 52722
John Brimeyer

Work Order: CPE0715
Project: Dubuque Brownfields
Project Number: 07037005

Received: 05/12/06
Reported: 05/17/06 10:37

CERTIFICATION SUMMARY

TestAmerica Analytical - Cedar Falls

Method	Matrix	Nelac	Iowa
SW 7421	Water - NonPotable	X	X

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.

DATA QUALIFIERS AND DEFINITIONS

pH>2 Sample received at pH>2. It was adjusted correctly prior to analysis.

ADDITIONAL COMMENTS

TestAmerica Analytical - Cedar Falls
Kristin M. Clay
Inorganics Manager

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: Terracon Client #: _____
Address: 820 40th Ave
City/State/Zip Code: Bettendorf, IA 52722
Project Manager: John Brimeyer
Telephone Number: 563-355-0702 Fax: 563-355-4789
Sampler Name: (Print Name) John Cameron
Sampler Signature: John M. Cameron
Email Address: jtbrimeyer@Terracon.com

Project Name: Dubuque Brownfields
Project #: 07037005
Site/Location ID: Dubuque State: IA
Report To: _____
Invoice To: _____
Quote #: _____ PO#: _____

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

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

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix: SL - Sludge, DW - Drinking Water, GW - Groundwater, S - Soil/Solid, WW - Wastewater, Specify Other	Preservation & # of Containers: HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	Analyze For: Lead 6010B	REMARKS
MW-9	5/10/06	15:40	G		GW	X							X	
MW-14	5/10/06	15:55	G		GW	X							X	

Special Instructions: WL MW-9 15.40'
WL MW-14 10.55'

LABORATORY COMMENTS:

	Date:	Time:		Date:	Time:
Relinquished By: John M Cameron	5/11/06	7:00	Received By:	5/11/06	2:00
Relinquished By:	5/11/06	3:30	Received By: Edgar Muehlbauer	5/12/06	8:35
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Page _____ of _____

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Sample Receipt and Temperature Log Form

Client: Terracon Project: DBQ Brownfields

City: _____

Date: 5-12-06 Receiver's Initials CH Time (Delivered): 8:50

Temperature Record

Cooler ID# (If Applicable)
EM-31

0° °C / On Ice
No ice in samples

☒ Temp Blank

☐ Temperature out of compliance

Thermometer:

☒ IR – 905085 "A"
☐ IR – 809065 "B"
☐ CF07-03-T2
☐ 22126775

Courier:

☐ Airborne	☐ Speedy
☒ UPS	☐ TA Courier
☐ Velocity	☐ TA Field Svs
☐ FedEx	☐ Client
☐ DHL	
☐ US Postal	☐ 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:

_____

Log-In by:
CW MF EM
OT_____

*Refer to SOP CF01-01 for Temperature Criteria