Limited Hexavalent Chromium Soil Sampling

N.W. Mauthe Superfund Site

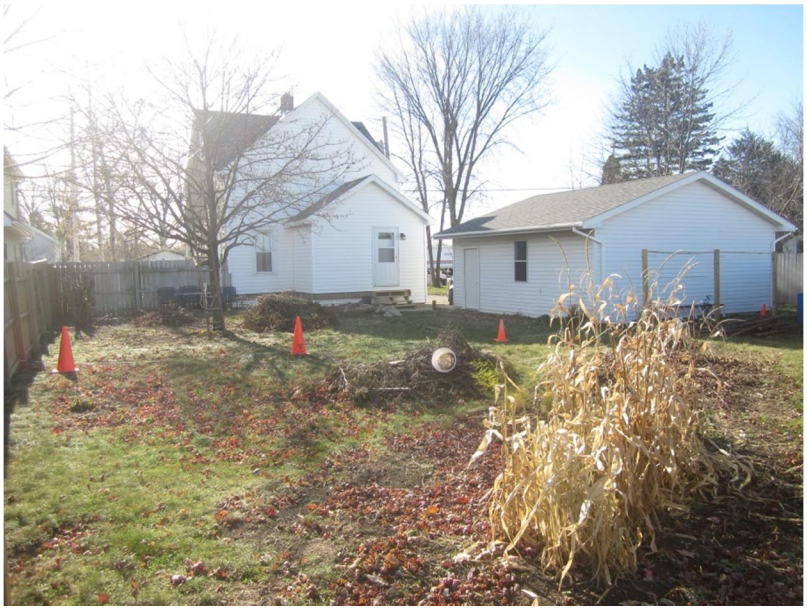
(Erik Anderson Residence-1414 West Second Street)

Appleton, Wisconsin

July 8, 2014

Terracon Project No. 58117057

WDNR BRRTS No. 02-45-000127



Prepared for:

Wisconsin Department of Natural Resources
Oshkosh, Wisconsin

Prepared by:

Terracon Consultants, Inc.
Franklin, Wisconsin

July 8, 2014

Wisconsin Department of Natural Resources
Remediation and Redevelopment Program
625 East County Road Y, Suite 700
Oshkosh, Wisconsin 54901-9731

Attn: Ms. Jennifer Borski

Re: **Limited Hexavalent Chromium Soil Sampling**
N.W. Mauthe Superfund Site
(Erik Anderson Residence-1414 West Second Street)
725 South Outagamie Street
Appleton, Wisconsin
WDNR BRRTS No. 02-45-000127
Terracon Project No. 58117057

Dear Ms. Borski:

Terracon Consultants, Inc. (Terracon) is pleased to submit this Limited Hexavalent Chromium Soil Sampling report for the above-referenced site. The data was collected generally as described in your May 5, 2014 email "Request for Cost Estimate - Hex Chrome Soil Sampling at 1414 West Second Street for Mauthe Site" and Terracon's cost estimate, which was approved on May 16, 2014.

We appreciate the opportunity to perform these services. Please contact Terracon at (414) 423-0255 if you have questions regarding the information provided in the report.

Sincerely,

Christopher W. Ingram
Staff Geologist

for

Scott A. Hodgson, P.G.
Senior Project Manager

CWI/SAH:njh/N:\Projects\2011\58117057\PROPOSAL-CONTRACT DOCUMENTS\Add Work Approvals\Soil Borings 1414 2nd Street\2014\Limited Soil Hex Chromium Sampling Report (N.W. Mauthe Superfund Site, Erik Anderson Residence 1414 West Second Street).final.docx

Copy to: File

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APPENDICES

LIMITED HEXAVALENT CHROMIUM SOIL SAMPLING
N.W. MAUTHE SUPERFUND SITE
(ERIK ANDERSON RESIDENCE--1414 WEST SECOND STREET)
725 SOUTH OUTAGAMIE STREET
APPLETON, WISCONSIN
TERRACON PROJECT NO. 58117057
JULY 8, 2014

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) was retained by the Wisconsin Department of Natural Resources (WDNR) to perform limited soil sampling at the property located at 1414 West Second Street in Appleton, Wisconsin (site). The sampling was conducted as requested by the WDNR in a May 5, 2014, email and in conformance with Terracon's cost estimate, which was approved by WDNR on May 16, 2013.

1.1 Site Description

The site consists of approximately 0.18 acres of land improved with a two story residence, with a detached garage and paved driveway. Currently, the home is owned and occupied by Erik Anderson. The northern portion of the property consists of a fenced back yard containing three garden areas. A raspberry bush is located on the west side of the detached garage. A topographic map showing the site location is included as Figure 1, Appendix A, and a detailed site map is included as Figure 2, Appendix A.

1.2 Background Information

The site adjoins and is part of the N.W. Mauthe (Mauthe) Superfund site, which is located at 725 South Outagamie Street, Appleton, Wisconsin 54914-5072 to the north across the railroad right-of-way (Figure 2). The Mauthe site is a former electroplating facility. The facility consisted of a zinc building and a chromium building. Zinc, cadmium, copper, and possibly silver were electroplated in the zinc building from 1978 to 1987. Hard chromium plating was conducted in the chromium building from 1960 to 1976. In 1982, the WDNR received a report that yellowish-green water was observed south of the chromium building. Apparently, for several years plating solutions and waste solvents had leaked from holding vats and tanks, and sump pumps allegedly discharged plating tank solutions onto the ground outside the facility.

Remedial activities conducted at the site included the following:

- Installation of groundwater collection trenches and construction and operation of a groundwater treatment facility to contain and/or control groundwater contamination with ultimate compliance with groundwater Applicable or Relevant and Appropriate Requirements (ARARs)

- Improvement or installation of foundation drain systems and cleaning, painting or sealing of basement walls and floors, as needed, for homes or businesses in the area of the site, to prevent seepage of contaminated water into the buildings

- Construction of Monitoring Wells (MW-103 and PZ-8)

As depicted on Figure 2 the groundwater trench runs along the northern property line and the foundation drain system is connected from the house to the groundwater collection trench bisecting the backyard. In addition, monitoring wells MW-103 and PZ-8 are located in the center of the backyard.

Based on a September 17, 2013 meeting with the new home owner, Erik Anderson, the WDNR learned that the backyard of the residence now contained three gardens. Due to the gardening practices at the site Terracon was retained by the WDNR to assess the shallow soils located at 1414 Second Street residence for the presence of chromium associated with the Mauthe site, which could be taken up by the garden plants and subsequently ingested.

On November 13, 2013, Terracon advanced 12 soil borings (P-1 through P-12) to depths of 4 feet below ground surface (bgs) on a 15-foot grid pattern throughout the back yard. Two samples from each boring were submitted for analysis of total chromium. The results indicated total chromium concentrations above the background threshold value of 44 milligrams per kilogram (mg/kg) in 11 of the 12 soil borings. As such, the WDNR requested resampling of selected soil borings for hexavalent chromium. This report provides details and results of the hexavalent chromium sampling.

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 period. 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 services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal.

2.0 FIELD ACTIVITIES

Terracon's field activities were conducted on May 29, 2014. As part of the approved scope of services, six hand-auger soil borings were advanced to a depth of approximately 1 foot bgs at previous soil boring locations P-2, P-3, P-7, P-8, P-9, P-11 as directed by WDNR. The approximate sample locations are depicted on Figure 3, Appendix A. The previous boring

locations were originally generated by using a 15 foot grid spacing across the northern portion of the back yard.

Drilling services were performed using a hand-operated auger. Boring equipment was decontaminated between uses at each boring location.

Soil borings P-2, P-3, P-7, P-8, P-9, P-11 were advanced across the three main gardening beds to assess whether hexavalent chromium associated with the NW Mauthe property may have migrated onto the site.

In general, the surface was composed of 3 to 6 inches of top soil. Underlying soils consisted of silty clay and medium grained sand with some gravel to the boring terminus.

In accordance with the proposed scope of services, one soil sample from each boring was selected for laboratory analysis from 1 foot bgs.

The soil samples were submitted for laboratory analysis of hexavalent chromium by US Environmental Protection Agency (EPA) Method SW-846-3060A. Soil samples were placed in laboratory-supplied containers, the containers were placed in an ice chest to cool to approximately 4 degrees Celsius (4°C), and the containers were transported under chain-of-custody protocol to a Wisconsin-certified laboratory.

3.0 ANALYTICAL RESULTS

The WDNR has published soil residual contaminant levels (RCLs) for non-industrial direct-contact exposure in their RCL Spreadsheet, which is updated twice a year. The RCLs were calculated using the US EPA Regional Screening Level Web Calculator in accordance with the WDNR guidance document, *Soil Residual Contaminant Level Determinations using the US EPA Regional Screening Level Web Calculator*, PUB-RR-890. The June 2014 WDNR RCL Spreadsheet, was used to establish RCLs for this site.

Hexavalent chromium was detected in each of the soil samples collected from the hand-auger borings. Hexavalent chromium was detected above its non-industrial direct-contact RCL of 0.293 mg/kg in samples from borings P-2, P-3, P-7, P-8, and P-11 at concentrations ranging from 0.89 mg/kg to 4.8 mg/kg. Chromium results for soil borings P-2, P-3, P-7, P-8, P-9 and P-11 are included in Table 1, Appendix B. Laboratory reports and the chain-of-custody forms are included in Appendix C.

4.0 GENERAL COMMENTS

The analysis and opinions expressed in this report are based upon data obtained during this investigation and laboratory chemical analyses at the indicated locations discussed in this

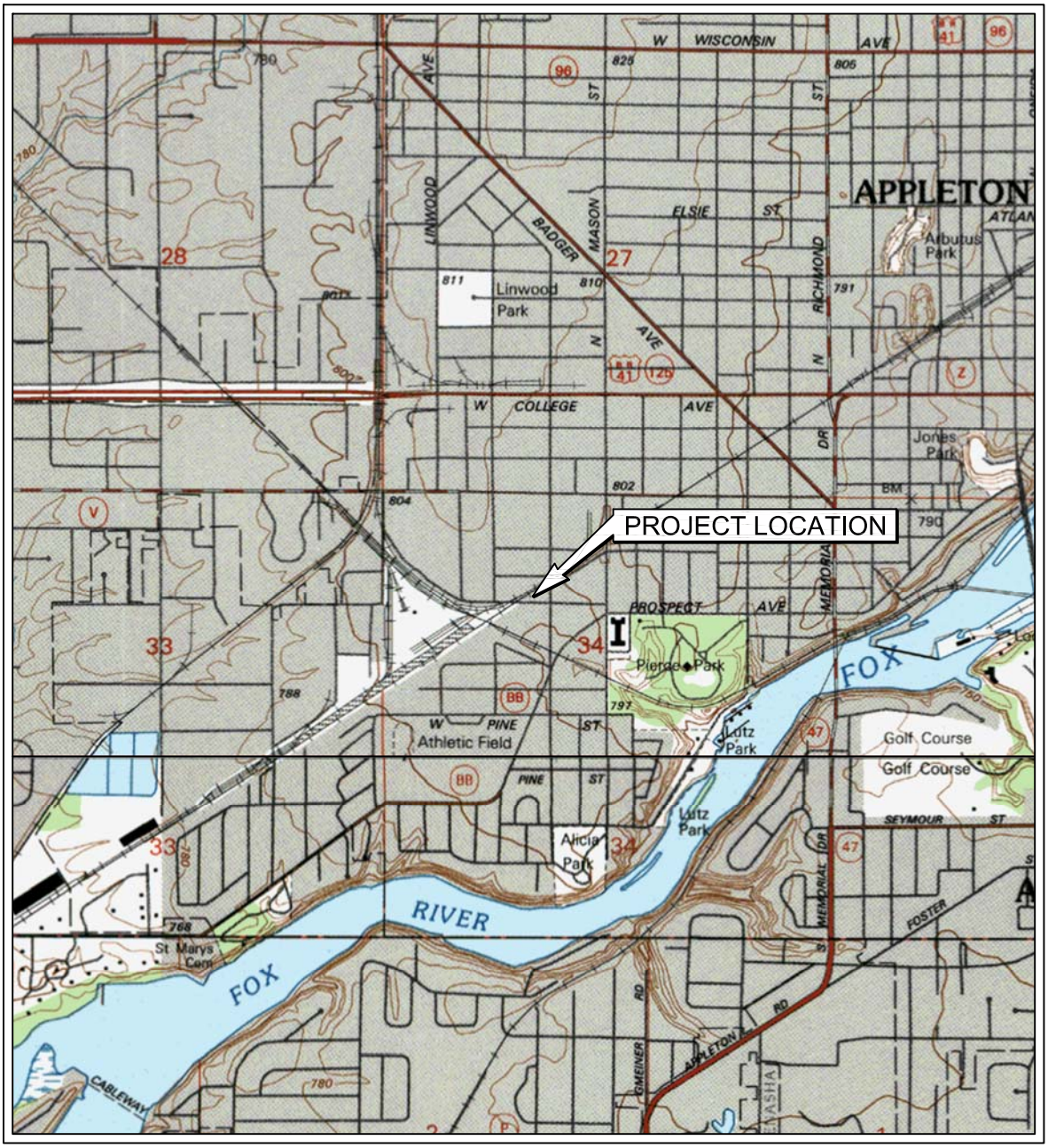
report. This report does not reflect variations in subsurface stratigraphy, hydrogeology, and contaminant distribution that may occur across the site. Actual subsurface conditions may vary and may not become evident without further investigation.

This report is prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted environmental engineering practices. No warranties, express or implied are intended or made. In the event any changes in the nature or location of suspected sources of contamination as outlined in this report are observed, the conclusions and recommendations contained in this report shall not be valid unless these changes are reviewed and the opinions of this report are modified or verified in writing by Terracon.

Appendix A

Figures

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

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

APPLETON QUADRANGLE
WISCONSIN - OUTAGAMIE COUNTY
1992
7.5 MINUTE SERIES (TOPOGRAPHIC)

DIAGRAM IS FOR GENERAL LOCATION ONLY AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Mngr:	SAH
Drawn By:	AGC
Checked By:	SAH
Approved By:	SAH

Project No.	58117057
Scale:	AS SHOWN
File No.	58117057 SL
Date:	12/6/13

Terracon
Consulting Engineers and Scientists
9856 SOUTH 57th STREET FRANKLIN, WI 53132
PH. (414) 423-0255 FAX. (414) 423-0566

TOPOGRAPHIC MAP

N.W. MAUTHE SITE
1414 WEST SECOND STREET
APPLETON WISCONSIN

FIGURE
1

W MELVIN ST

W FOURTH ST

S OUTAGAMIE ST

W SECOND ST

MW-108

W-2

MW-111
(OB7)

MW-112
(OB8)

MW-110
(OB9)

MW-109
(OB5)

MW-101

MW-113
(OB6)

PZ5
(OB4)

Manhole #2

MW-102

PZ6
(OB3)

MW-107

Manhole #1

PZ8
(OB1)

MW-103

W-15

MW-104

PZ7
(OB2)

MW-106

W-8

MW-105

Approximate Extent of Erik Anderson's Residence

0 25 50 100 Feet

N

Legend

- Monitoring Well
- Piezometer
- Collection System
- Pump Discharge
- Railroad Tracks
- Former Building
- Approximate Soil Remediation Limits*
- Property Line

*Approximate Soil Remediation Limits
July 11 - October 27, 1995
(10,834 tons)

Note: Figure taken from Omni Site Detail Map, January 2011

FIGURE 2

SITE DIAGRAM

N.W. MAUTHE SITE
725 SOUTH OUTAGAMIE STREET
APPLETON WISCONSIN

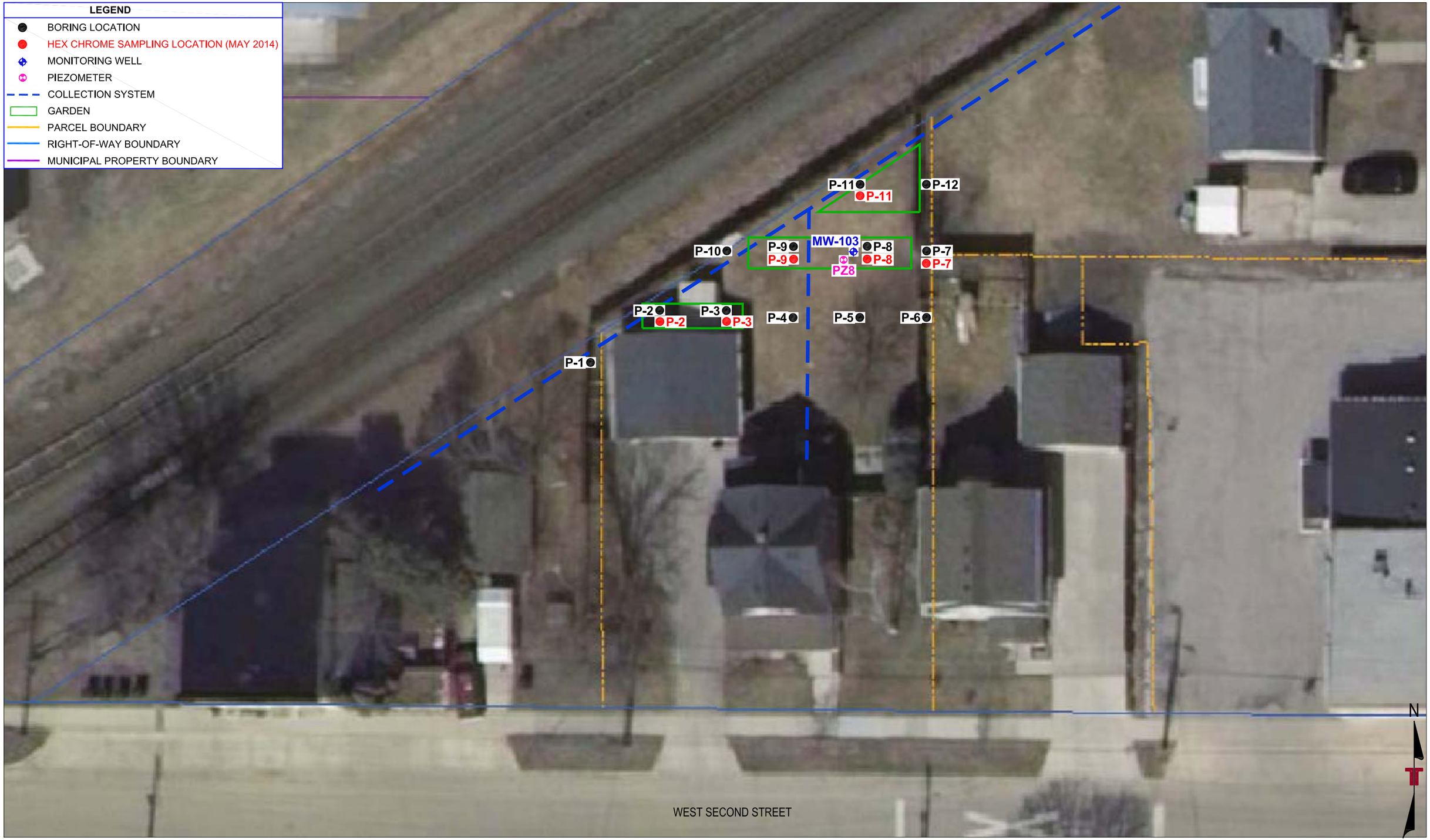
Terracon
Consulting Engineers and Scientists
9656 South 57th Street Franklin, WI 53132
PH.(414) 423-0255 FAX (414) 423-0566

Project No.	58117057
Scale:	As Shown
File No.	58117057 MW Location Map.dwg
Date:	03/20/2012

Project Mngr:	PAL
Drawn By:	LES
Checked By:	PAL
Approved By:	PAL

LEGEND

- BORING LOCATION
- HEX CHROME SAMPLING LOCATION (MAY 2014)
- MONITORING WELL
- PIEZOMETER
- COLLECTION SYSTEM
- GARDEN
- PARCEL BOUNDARY
- RIGHT-OF-WAY BOUNDARY
- MUNICIPAL PROPERTY BOUNDARY



20 0 20

APPROXIMATE SCALE: 1" = 20'

DIAGRAM IS FOR GENERAL LOCATION ONLY AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Mngr:	SAH
Drawn By:	JMN
Checked By:	SAH
Approved By:	SAH

Project No.	58117057
Scale:	AS SHOWN
File No.	58117057 SD
Date:	6/23/2014

Terracon
Consulting Engineers and Scientists
9856 SOUTH 57th STREET FRANKLIN, WI 53132
PH. (414) 423-0255 FAX. (414) 423-0566

SITE DIAGRAM

N.W. MAUTHE SITE
1414 WEST SECOND STREET
APPLETON WISCONSIN

FIGURE 3

Appendix B

Soil Analytical Table

Table 1
Soil Analytical Test Results Summary for Chromium

N.W. Mauthe Superfund Site
Erik Anderson Residence 1414 West Second Street
Appleton, Wisconsin
Terracon Project No. 58117057

Sample ID	Sample Depth (feet)	Sample Date	Total Chromium (mg/kg)	Hexavalent Chromium (mg/kg)
P-1 (1')	1	11/13/2013	92.0	-
P-1 (3')	3	11/13/2013	42.7	-
P-2 (1')	1	11/13/2013	26.7	-
P-2 (1')	1	5/29/2014	-	**3.0**
P-2 (3')	3	11/13/2013	119	-
P-3 (1')	1	11/13/2013	27.1	-
P-3 (1')	1	5/29/2014	-	**0.89**
P-3 (3')	3	11/13/2013	75.3	-
P-4 (1')	1	11/13/2013	34.4	-
P-4 (3')	3	11/13/2013	44.8	-
P-5 (1')	1	11/13/2013	33.0	-
P-5 (3')	3	11/13/2013	118	-
P-6 (1')	1	11/13/2013	39.5	-
P-6 (3')	3	11/13/2013	271	-
P-7 (1')	1	11/13/2013	120	-
P-7 (1')	1	5/29/2014	-	**4.0**
P-7 (3')	3	11/13/2013	110	-
P-8 (1')	1	11/13/2013	65.2	-
P-8 (1')	1	5/29/2014	-	**3.4**
P-8 (3')	3	11/13/2013	136	-
P-9 (1')	1	11/13/2013	30.7	-
P-9 (1')	1	5/29/2014	-	0.23†
P-9 (3')	3	11/13/2013	31	-
P-10 (1')	1	11/13/2013	94.6	-
P-10 (3')	3	11/13/2013	47.8	-
P-11 (1')	1	11/13/2013	64.9	-
P-11 (1')	1	5/29/2014	-	**4.8**
P-11 (3')	3	11/13/2013	58.7	-
P-12 (1')	1	11/13/2013	101	-
P-12 (3')	3	11/13/2013	45.6	-
Direct Contact Non-Industrial RCL[1]			**-**	**0.293**

Notes:

Chromium results expressed in milligrams per kilogram (mg/kg)

[1] Non-Industrial Residual Contaminant Levels (RCLs) for Direct Contact per WDNR RCLs Spreadsheet (June 2014), which were calculated per Soil Residual Contaminant Level Determinations Using the US EPA Regional Screening Level Web Calculator PUB-RR-890, dated June 2014

† Concentration detected above the method detection limit, but below reporting limit

XX.XX Bold and pink = Exceeds Non-Industrial Direct Contact RCL

Appendix C

Laboratory Analytical Report

Pace Analytical Services, Inc.
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

June 17, 2014

Scott Hodgson
Terracon, Inc. - Franklin
9856 South 57th Street
Franklin, WI 53132

RE: Project: 58117057 NW MAUTHE
Pace Project No.: 4097212

Dear Scott Hodgson:
Enclosed are the analytical results for sample(s) received by the laboratory on May 30, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dan Milewsky
dan.milewsky@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: 58117057 NW MAUTHE
Pace Project No.: 4097212

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4097212001	**P-2**	Solid	05/29/14 14:50	05/30/14 12:35
4097212002	**P-3**	Solid	05/29/14 15:00	05/30/14 12:35
4097212003	**P-7**	Solid	05/29/14 15:30	05/30/14 12:35
4097212004	**P-8**	Solid	05/29/14 15:20	05/30/14 12:35
4097212005	**P-9**	Solid	05/29/14 15:10	05/30/14 12:35
4097212006	**P-11**	Solid	05/29/14 15:40	05/30/14 12:35

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

PROJECT NARRATIVE

Project:
Pace Project No.:

Method:
Description:
Client:
Date:

This data package has been reviewed for quality and completeness and is approved for release.

UPPER MIDWEST REGION
MN: 612-607-1700 WI: 920-469-2436

Pace Analytical®
www.pacelabs.com

CHAIN OF CUSTODY

4097212

(Please Print Clearly)

Company Name:	TERRACON
Branch/Location:	FRANKLIN, WI
Project Contact:	SCOTT HODGSON
Phone:	414.423.0255
Project Number:	58117057
Project Name:	NW MAUTHE
Project State:	APPLETON, WI
Sampled By (Print):	CHRIS INGRAM
Sampled By (Sign):	[signature]
PO #:	58117057
Regulatory Program:	

*Preservation Codes
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

Quote #:	
Mail To Contact:	SAME
Mail To Company:	
Mail To Address:	
Invoice To Contact:	
Invoice To Company:	
Invoice To Address:	
Invoice To Phone:	

Data Package Options (billable)
- ☐ EPA Level III
- ☐ EPA Level IV

MS/MSD
- ☐ On your sample (billable)
- ☐ NOT needed on your sample

Matrix Codes
A = Air, B = Biota, C = Charcoal, O = Oil, S = Soil, Sl = Sludge
W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WW = Waste Water, WP = Wipe

FILTERED? (YES/NO): Y/N — N
PRESERVATION (CODE)*: Pick Letter — A
Analyses Requested: HEX CHROME

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	HEX CHROME							CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
001	P-2	5/29/14	1450	S	1								1-4ozag A	
002	P-3	↓	1500	↓	1								↓	
003	P-7	↓	1530	↓	1								↓	
004	P-8	↓	1520	↓	1								↓	
005	P-9	↓	1510	↓	1								↓	
006	P-11	↓	1540	↓	1								↓	

Rush Turnaround Time Requested - Prelims
(Rush TAT subject to approval/surcharge)
Date Needed:

Transmit Prelim Rush Results by (complete what you want):
Email #1:
Email #2:
Telephone:
Fax:

Samples on HOLD are subject to special pricing and release of liability

Relinquished By:	Date/Time:	Received By:	Date/Time:
[signature]	5/30/14 1235	Susan Kayle Pace	5-30-14

PACE Project No. 4097212
Receipt Temp = ROT °C
Sample Receipt pH OK / Adjusted
Cooler Custody Seal
Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06

(27Jun2006)

ORIGINAL

Pace Analytical™

Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Project #: **WO#: 4097212**

4097212

Client Name: Terracon

Courier: ☐ Fed Ex ☐ UPS ☒ Client ☐ Pace Other: ______

Tracking #: ______

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other ______

Thermometer Used N/A **Type of Ice:** (Wet) Blue Dry None ☒ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: ROT /Corr: ______ **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp Blank Present: ☐ yes ☒ no

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Person examining contents:
Date: 5-30-14
Initials: [initials]

		Comments:
Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☒Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No ☐N/A	5.
- VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☒No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☒No ☐N/A	7.
Sufficient Volume:	☒Yes ☐No ☐N/A	8.
Correct Containers Used:	☒Yes ☐No ☐N/A	9.
-Pace Containers Used:	☒Yes ☐No ☐N/A	
-Pace IR Containers Used:	☐Yes ☐No ☒N/A	
Containers Intact:	☒Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC:	☒Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: S		
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	☐Yes ☐No ☒N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ NaOH +ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	☐Yes ☐No ☒N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	☐Yes ☒No	Initial when completed / Lab Std #ID of preservative / Date/ Time:
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☒N/A	14.
Trip Blank Present:	☐Yes ☐No ☒N/A	15.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: ______ Date/Time: ______

Comments/ Resolution: ______

Project Manager Review: MAT for DM Date: 5.30.14

New England ACCUTEST LABORATORIES

06/18/14

Technical Report for

Pace Analytical Green Bay

SUBCONTRACT ANALYSIS

58117057 NW MAUTHE WO#4097212

Accutest Job Number: MC31008

Sampling Date: 05/29/14

Report to:

Pace Analytical Green Bay

dan.milewsky@pacelabs.com

ATTN: Dan Milewsky

Total number of pages in report: **20**

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Reza Tand
Lab Director

Client Service contact: Matthew Morrell 508-481-6200

Certifications: MA (M-MA136,SW846 NELAC) CT (PH-0109) NH (250210) RI (00071) ME (MA00136) FL (E87579) NY (11791) NJ (MA926) PA (6801121) ND (R-188) CO MN (11546AA) NC (653) IL (002337) WI (399080220) DoD ELAP (L-A-B L2235)

Test results relate only to samples analyzed.

Sections: 1 2 3 4 5 6

Table of Contents

-1-

Sample Summary

Pace Analytical Green Bay

Job No: MC31008

SUBCONTRACT ANALYSIS
Project No: 58117057 NW MAUTHE WO#4097212

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
MC31008-1	05/29/14	14:50		06/03/14	SO	Solid	P-2
MC31008-2	05/29/14	15:00		06/03/14	SO	Solid	P-3
MC31008-3	05/29/14	15:30		06/03/14	SO	Solid	P-7
MC31008-4	05/29/14	15:20		06/03/14	SO	Solid	P-8
MC31008-5	05/29/14	15:10		06/03/14	SO	Solid	P-9
MC31008-6	05/29/14	15:40		06/03/14	SO	Solid	P-11

The reported LOD and LOQ values have been adjusted for dry weight unless otherwise indicated on the results page. The reported LOD and LOQ values have been adjusted for the same dilution factor as that used for the sample result unless otherwise indicated on the results page. LOD = MDL and LOQ = RL.

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	Pace Analytical Green Bay	**Job No**	MC31008
Site:	SUBCONTRACT ANALYSIS	**Report Date**	6/16/2014 7:51:57 AM

6 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 05/29/2014 and were received at Accutest on 06/03/2014 properly preserved, at 1.3 Deg. C and intact. These Samples received an Accutest job number of MC31008. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO **Batch ID:** GN47116

- Sample(s) MC31012-1DUP were used as the QC samples for Solids, Percent.

Wet Chemistry By Method SW846 3060A/7196A

Matrix: SO **Batch ID:** GP17695

- All samples were distilled and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) MC31068-6DUP, MC31068-6MS were used as the QC samples for Chromium, Hexavalent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety.The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(MC31008).

Summary of Hits

Job Number: MC31008
Account: Pace Analytical Green Bay
Project: SUBCONTRACT ANALYSIS
Collected: 05/29/14

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
MC31008-1	**P-2**					
Chromium, Hexavalent		3.0	0.44	0.12	mg/kg	SW846 3060A/7196A
MC31008-2	**P-3**					
Chromium, Hexavalent		0.89	0.45	0.12	mg/kg	SW846 3060A/7196A
MC31008-3	**P-7**					
Chromium, Hexavalent		4.0	0.44	0.12	mg/kg	SW846 3060A/7196A
MC31008-4	**P-8**					
Chromium, Hexavalent		3.4	0.45	0.12	mg/kg	SW846 3060A/7196A
MC31008-5	**P-9**					
Chromium, Hexavalent		0.23 B	0.52	0.14	mg/kg	SW846 3060A/7196A
MC31008-6	**P-11**					
Chromium, Hexavalent		4.8	0.45	0.12	mg/kg	SW846 3060A/7196A

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Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: P-2
Lab Sample ID: MC31008-1
Matrix: SO - Solid
Project: SUBCONTRACT ANALYSIS

Date Sampled: 05/29/14
Date Received: 06/03/14
Percent Solids: 90.1

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	3.0	0.44	0.12	mg/kg	1	06/06/14 15:30	MC	SW846 3060A/7196A
Solids, Percent	90.1			%	1	06/03/14	MA	SM21 2540 B MOD.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	P-3		
Lab Sample ID:	MC31008-2	**Date Sampled:**	05/29/14
Matrix:	SO - Solid	**Date Received:**	06/03/14
		Percent Solids:	89.1
Project:	SUBCONTRACT ANALYSIS		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.89	0.45	0.12	mg/kg	1	06/06/14 15:30	MC	SW846 3060A/7196A
Solids, Percent	89.1			%	1	06/03/14	MA	SM21 2540 B MOD.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	P-7		
Lab Sample ID:	MC31008-3	**Date Sampled:**	05/29/14
Matrix:	SO - Solid	**Date Received:**	06/03/14
		Percent Solids:	90.9
Project:	SUBCONTRACT ANALYSIS		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	4.0	0.44	0.12	mg/kg	1	06/06/14 15:30	MC	SW846 3060A/7196A
Solids, Percent	90.9			%	1	06/03/14	MA	SM21 2540 B MOD.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	P-8		
Lab Sample ID:	MC31008-4	**Date Sampled:**	05/29/14
Matrix:	SO - Solid	**Date Received:**	06/03/14
		Percent Solids:	88.7
Project:	SUBCONTRACT ANALYSIS		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	3.4	0.45	0.12	mg/kg	1	06/06/14 15:30	MC	SW846 3060A/7196A
Solids, Percent	88.7			%	1	06/03/14	MA	SM21 2540 B MOD.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	P-9		
Lab Sample ID:	MC31008-5	**Date Sampled:**	05/29/14
Matrix:	SO - Solid	**Date Received:**	06/03/14
		Percent Solids:	77.1
Project:	SUBCONTRACT ANALYSIS		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	0.23 B	0.52	0.14	mg/kg	1	06/06/14 15:30	MC	SW846 3060A/7196A
Solids, Percent	77.1			%	1	06/03/14	MA	SM21 2540 B MOD.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID:	P-11		
Lab Sample ID:	MC31008-6	**Date Sampled:**	05/29/14
Matrix:	SO - Solid	**Date Received:**	06/03/14
		Percent Solids:	89.4
Project:	SUBCONTRACT ANALYSIS		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	4.8	0.45	0.12	mg/kg	1	06/06/14 15:35	MC	SW846 3060A/7196A
Solids, Percent	89.4			%	1	06/03/14	MA	SM21 2540 B MOD.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Chain of Custody

Pace Analytical®
www.pacelabs.com

MC31008

Workorder: 4097212 **Workorder Name:** 58117057 NW MAUTHE **Results Requested** 6/17/2014

Report / Invoice To	Subcontract To
Dan Milewsky Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436 Email: dan.milewsky@pacelabs.com	Accutest 50 D'Angelo Drive 495 Technology Center West Bldg 1 Marlborough, MA 01752 508-481-6200 P.O._____

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Unpreserved	Preserved Containers						Hexavalent Chromium (Method 7196A w/ 3060Prep)	Requested Analysis										LAB USE ONLY
1	1	P-2	5/29/2014 14:50	4097212001	Solid	1						X											
2	2	P-3	5/29/2014 15:00	4097212002	Solid	1						X											
3	3	P-7	5/29/2014 15:30	4097212003	Solid	1						X											
4	4	P-8	5/29/2014 15:20	4097212004	Solid	1						X											8C
5	5	P-9	5/29/2014 15:10	4097212005	Solid	1						X											
6	6	P-11	5/29/2014 15:40	4097212006	Solid	1						X											

Transfers	Released By	Date/Time	Received By	Date/Time
1	[illegible] FedEx	6/2/14 1630		
2		6-3-14 930	[signature]	
3				

Comments: Report dry weight. Report to MDL
pH and ORP are not needed.

Cooler Temperature on Receipt 1.3 °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

MC31008: Chain of Custody
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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: MC31008 **Client:** PACE **Immediate Client Services Action Required:** No

Date / Time Received: 6/3/2014 **Delivery Method:** **Client Service Action Required at Login:** No

Project: MAUTHE **No. Coolers:** 1 **Airbill #'s:**

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Infared gun		
3. Cooler media:	Ice (bag)		

Quality Control -Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:508.481.6200

495 Technology Center West, Bldg One
F: 508.481.7753

Marlborough, MA
www/accutest.com

MC31008: Chain of Custody
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General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: MC31008
Account: PACEWIGB - Pace Analytical Green Bay
Project: SUBCONTRACT ANALYSIS

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP17695/GN47155	0.40	0.0	mg/kg	663	647	97.6	80-120%
Chromium, Hexavalent	GP17695/GN47155			mg/kg	40	40.8	102.0	80-120%

Associated Samples:
Batch GP17695: MC31008-1, MC31008-2, MC31008-3, MC31008-4, MC31008-5, MC31008-6
(*) Outside of QC limits

BLANK SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: MC31008
Account: PACEWIGB - Pace Analytical Green Bay
Project: SUBCONTRACT ANALYSIS

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Chromium, Hexavalent	GP17695/GN47155	mg/kg	40	41.2	1.0	

Associated Samples:
Batch GP17695: MC31008-1, MC31008-2, MC31008-3, MC31008-4, MC31008-5, MC31008-6
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: MC31008
Account: PACEWIGB - Pace Analytical Green Bay
Project: SUBCONTRACT ANALYSIS

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP17695/GN47155	MC31068-6	mg/kg	1.1	1.1	0.0	0-20%
Solids, Percent	GN47116	MC31012-1	%	90.3	90.4	0.1	0-20%

Associated Samples:
Batch GN47116: MC31008-1, MC31008-2, MC31008-3, MC31008-4, MC31008-5, MC31008-6
Batch GP17695: MC31008-1, MC31008-2, MC31008-3, MC31008-4, MC31008-5, MC31008-6
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: MC31008
Account: PACEWIGB - Pace Analytical Green Bay
Project: SUBCONTRACT ANALYSIS

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP17695/GN47155	MC31068-6	mg/kg	1.1	1220	1240	101.7	75-125%
Chromium, Hexavalent	GP17695/GN47155	MC31068-6	mg/kg	1.1	41.7	44.1	103.2	75-125%

Associated Samples:
Batch GP17695: MC31008-1, MC31008-2, MC31008-3, MC31008-4, MC31008-5, MC31008-6
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits