



Stantec Consulting Services Inc.
12075 Corporate Parkway, Suite 200 Mequon WI 53092

January 3, 2017

Attention: Mr. Nicolas Sparacio, AICP

Community Development Director
City of Manitowoc
900 Quay Street
Manitowoc, WI 54220-4543

**Reference: Waste Characterization – Former Heat Treating Pit
1512 Washington Street
Manitowoc, Wisconsin
USEPA Cooperative Agreement No. BF-00E01529-0
Stantec Project No. 193703931**

Dear Mr. Sparacio:

As a continuance of the September 2016 site-specific sampling and analysis plan for waste characterization, Stantec sampled residual water contained in the brick-lined heat treating pit and sludge in the doorway between the heat treating pit and the subsurface service tunnel network at the former industrial buildings located at 1512 Washington Street, Manitowoc, Wisconsin (herein referred to as the Site). The work described in this letter report was performed using funds from an assessment grant for hazardous substance brownfields awarded to the City by the United States Environmental Protection Agency (USEPA) in 2015 under cooperative agreement BF-00E01529-0.

BACKGROUND AND PURPOSE

As suggested by others in several prior investigations, the former heat treating area located in the southeast corner of the South building (Figure 1) was previously utilized during industrial operations to heat treat metal using a petroleum-based process. As noted previously by Stantec, most the mechanical and electrical components associated with the former heat treating system have been removed/deconstructed. The remaining components primarily consist of remaining kettles and a shallow below-grade brick-lined pit containing residual water and plastic drums/debris (Attachment A, Photo 1-2). Previous reports prepared by others speculated the white plastic drums currently located in the pit may have been used to store electrical transformer oil and therefore could have contain residual polychlorinated biphenyls (PCBs). Therefore, the primary purpose of this sampling is to characterize the remaining water in the pit for removal/disposal purposes to prepare the area for demolition. Secondly, water quality results will be used to evaluate the heat treating pit as a possible PCB release area.

As noted previously by Stantec, the heat treating pit connects to the subsurface tunnel network through a small doorway (Appendix A, Photo No. 3). While collecting the water sample from the pit, Stantec noted the presence of sludge with an apparent petroleum impact in the tunnel adjacent to the heat treating pit (Attachment A, Photo Nos. 4-6). Stantec sampled the sludge to characterize the material for removal/disposal purposes and to further evaluate the area as a possible PCB release area.

METHODS

Stantec collected samples of the water in the heat treating pit and samples of the sludge in the tunnel on December 9, 2016. Water samples were collected directly into laboratory-supplied sample containers per Stantec Standard Operating Procedure (SOP-05) and were not field-



Reference: Waste Characterization – Former Heat Treating

filtered. Sludge samples were collected directly into laboratory-supplied sample containers per Stantec SOP-02. Samples were placed in coolers on ice and submitted to TestAmerica Laboratories, Inc. (Chicago, Illinois) under chain of custody procedures per Stantec SOP-07 for extraction and analysis per the Stantec (2015) Quality Assurance Project Plan and associated addenda. The laboratory report is provided in Attachment B.

RESULTS

Heat Treating Pit Water. Samples of the water in the heat treating pit were analyzed for PCBs (Method 8082A) and Resource Conservation and Recovery Act (RCRA) metals (6010C/7470A) following Toxicity Characteristic Leaching Procedure (TCLP) extraction. As noted in the laboratory report, the concentrations of the target 7 PCB Aroclors were all less than the detection limit of 0.18 micrograms per liter, including Aroclor 1260, which is the PCB mixture associated with two former electrical transformers at the Site. Therefore, water quality data suggests the heat treating pit is not likely a PCB release area. The concentrations of heavy metals following TCLP extraction were all less than laboratory reporting limits and less than respective TCLP standards indicating the water is not considered characteristically hazardous for the constituents analyzed per 40 CFR 261.24. Of additional note, the concentration of lead in the water sample following TCLP extraction was slightly greater than the method detection limit of 0.0075 milligrams per liter, but less than the laboratory reporting limit of 0.05 milligrams per liter.

Sludge. Samples of the sludge were analyzed for PCBs (Method 8082A), volatile organic compounds (VOCs; 8260B), and polycyclic aromatic hydrocarbons (PAHs; Method 8270D). As noted in the laboratory report, the concentrations VOCs and the target 7 PCB Aroclors in the sludge were all less than laboratory detection limits, including Aroclor 1260, which is the PCB mixture associated with two former electrical transformers at the Site. Therefore, sludge data further suggests the heat treating pit is not likely a PCB release area. The concentrations of 5 PAHs in the sludge that were greater than the laboratory detection limits are summarized below:

PAH Compound	Concentration (milligrams per kilogram)
Chrysene	15.0
Fluoranthene	2.9J
Fluorene	2.6J
Phenanthrene	19.0
Pyrene	13.0

"J" = concentration is greater than the method detection limit, but less than the laboratory reporting limit and is therefore an estimated value.

CONCLUSIONS

Stantec recommends pumping the water from the heat treating pit and removal of the sludge from the tunnel prior to building demolition. The removed water and sludge should be managed appropriately and disposed of offsite at an approved facility.



January 3, 2017
Mr. Nicolas Sparacio
Page 3 of 3

Reference: Waste Characterization – Former Heat Treating

We trust this information meets your needs. Please feel free to contact me at 414-581-6476 if you have any questions or concerns.

Regards,

STANTEC CONSULTING SERVICES INC.

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Attachments:

- Figure 1: Site Basemap
- A – Photographic Documentation
- B – Laboratory Reports

LIMITATIONS

Stantec's observations, findings, and opinions should not be considered as scientific certainties, but only as opinion based on our professional judgment concerning the significance of the data gathered during the course of this investigation. Specifically, Stantec cannot represent that the Site does not contain any hazardous or toxic materials/wastes or other latent conditions beyond that observed by Stantec during the course of the investigation. Additionally, due to limitations of this investigation process and the necessary use of data furnished by others, Stantec and its subcontractors cannot assume liability if actual conditions differ from the information presented in this report.

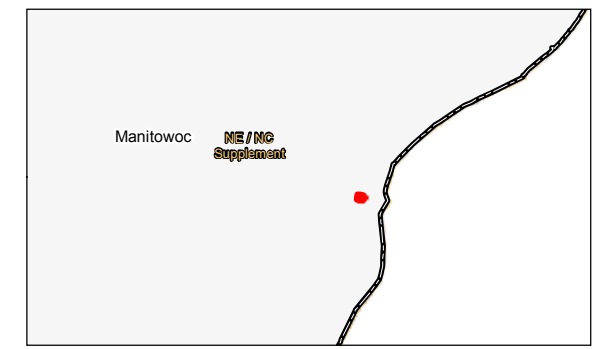
FIGURE



Figure No. **1**
 Title **Figure 1 Site Basemap**
 Client/Project
 City of Manitowoc
 USEPA Brownfield Assessment Grant
 Hazardous Substances

0 65 130 Feet
 193703931
 Prepared by HLB on 1-3-17

Legend
 Target Site
 Parcels



Notes
 1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803
 2. Feet
 3. Data Sources Include:
 Orthophotography: 2015 City of Manitowoc



R:\Data\Manitowoc\Map\1512_Washington\01.mxd
 Revised: 2016-05-24 By: bbyers

ATTACHMENT A

PHOTOGRAPHIC DOCUMENTATION



#1 - Former Heat Treating Area



#2 - Drums and water in heat treating pit



#3 - Door from tunnel to heat treating pit



#4 - Sludge in doorway from tunnel to heat treating pit



#5 - Debris and sludge in tunnel by heat treating pit



#6 - Debris and sludge in tunnel by heat treating pit

ATTACHMENT B

LABORATORY REPORTS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

TestAmerica Job ID: 500-121318-1

Client Project/Site: Mirro Building Heat Treat Pit 193703931

For:

Stantec Consulting Corp.
12075 Corporate Pkwy, Suite 200
Mequon, Wisconsin 53092

Attn: Harris Byers



Authorized for release by:
12/16/2016 3:24:53 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandie.fredrick@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

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Case Narrative

Client: Stantec Consulting Corp.
Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Job ID: 500-121318-1

Laboratory: TestAmerica Chicago

Narrative

Job Narrative 500-121318-1

Comments

No additional comments.

Receipt

The samples were received on 12/10/2016 10:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.5° C.

GC/MS VOA

Method(s) 5035: extract vial has < 8 grams of sample in 10 ml of methanol. Mirro Building Heat Treat Pit Sludge (500-121318-2)

Method(s) 8260B: The laboratory control sample (LCS) for 365158 recovered outside control limits for the following analytes: 1,2,3-Trichlorobenzene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method(s) 8260B: The extraction LCS associated with preparation batch 364575 had several analyte recoveries above control limits. The data have been reported and qualified.

Mirro Building Heat Treat Pit Sludge (500-121318-2)

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

GC/MS Semi VOA

Method(s) 8270D: The following sample was diluted due to the nature of the sample matrix (large hydrocarbon background): Mirro Building Heat Treat Pit Sludge (500-121318-2). Elevated reporting limits (RLs) are provided.

Method(s) 8270D: The following sample required a dilution due to the nature of the sample matrix: Mirro Building Heat Treat Pit Sludge (500-121318-2). 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.

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

GC Semi VOA

Method(s) 8082A: The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 500-364595 recovered outside control limits for the following analytes: PCB-1016 and PCB-1260; however, %R was within control limits for both the LCS and LCSD. Data has been qualified and reported.

Method(s) 8082A: The following samples required a mercury clean-up, via EPA Method 3660A, to reduce matrix interferences caused by sulfur: Mirro Building Heat Treat Pit Sludge (500-121318-2). The reagent lot number used was: 153166.

Method(s) 8082A: The following sample was diluted due to the nature of the sample matrix: Mirro Building Heat Treat Pit Sludge (500-121318-2). Elevated reporting limits (RLs) are provided.

Method(s) 8082A: The following sample required a dilution due to the nature of the sample matrix: Mirro Building Heat Treat Pit Sludge (500-121318-2). 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.

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

Metals

Method(s) 6010C: The low level check standard recovery associated with batch 500-365148 at line 8 was above the control limits for Selenium. The associated sample is a non-detect (ND) for Selenium, therefore the data have been reported.

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

Case Narrative

Client: Stantec Consulting Corp.
Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Job ID: 500-121318-1 (Continued)

Laboratory: TestAmerica Chicago (Continued)

Organic Prep

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

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Detection Summary

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Client Sample ID: Mirro Building Heat Treat Pit

Lab Sample ID: 500-121318-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.018	J	0.050	0.0075	mg/L	1		6010C	TCLP

Client Sample ID: Mirro Building Heat Treat Pit Sludge

Lab Sample ID: 500-121318-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chrysene	15000		7700	2100	ug/Kg	100	⊛	8270D	Total/NA
Fluoranthene	2900	J	7700	1400	ug/Kg	100	⊛	8270D	Total/NA
Fluorene	2600	J	7700	1100	ug/Kg	100	⊛	8270D	Total/NA
Phenanthrene	19000		7700	1100	ug/Kg	100	⊛	8270D	Total/NA
Pyrene	13000		7700	1500	ug/Kg	100	⊛	8270D	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago



Method Summary

Client: Stantec Consulting Corp.
Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CHI
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL CHI
6010C	Metals (ICP)	SW846	TAL CHI
7470A	Mercury (CVAA)	SW846	TAL CHI
Moisture	Percent Moisture	EPA	TAL CHI

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Stantec Consulting Corp.
Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-121318-1	Mirro Building Heat Treat Pit	Water	12/09/16 14:45	12/10/16 10:10
500-121318-2	Mirro Building Heat Treat Pit Sludge	Solid	12/09/16 15:00	12/10/16 10:10

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Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Client Sample ID: Mirro Building Heat Treat Pit

Date Collected: 12/09/16 14:45

Date Received: 12/10/16 10:10

Lab Sample ID: 500-121318-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.061	*	0.36	0.061	ug/L		12/12/16 07:50	12/13/16 09:40	1
PCB-1221	<0.18		0.36	0.18	ug/L		12/12/16 07:50	12/13/16 09:40	1
PCB-1232	<0.18		0.36	0.18	ug/L		12/12/16 07:50	12/13/16 09:40	1
PCB-1242	<0.18		0.36	0.18	ug/L		12/12/16 07:50	12/13/16 09:40	1
PCB-1248	<0.18		0.36	0.18	ug/L		12/12/16 07:50	12/13/16 09:40	1
PCB-1254	<0.18		0.36	0.18	ug/L		12/12/16 07:50	12/13/16 09:40	1
PCB-1260	<0.064	*	0.36	0.064	ug/L		12/12/16 07:50	12/13/16 09:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	70		30 - 127	12/12/16 07:50	12/13/16 09:40	1
DCB Decachlorobiphenyl	47		30 - 150	12/12/16 07:50	12/13/16 09:40	1

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.010		0.050	0.010	mg/L		12/13/16 14:15	12/14/16 14:31	1
Barium	<0.050		0.50	0.050	mg/L		12/13/16 14:15	12/14/16 14:31	1
Cadmium	<0.0020		0.0050	0.0020	mg/L		12/13/16 14:15	12/14/16 14:31	1
Chromium	<0.010		0.025	0.010	mg/L		12/13/16 14:15	12/14/16 14:31	1
Lead	0.018	J	0.050	0.0075	mg/L		12/13/16 14:15	12/14/16 14:31	1
Selenium	<0.020	^	0.050	0.020	mg/L		12/13/16 14:15	12/14/16 14:31	1
Silver	<0.010		0.025	0.010	mg/L		12/13/16 14:15	12/14/16 14:31	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020	0.00020	mg/L		12/13/16 13:00	12/14/16 09:21	1

Client Sample ID: Mirro Building Heat Treat Pit Sludge

Date Collected: 12/09/16 15:00

Date Received: 12/10/16 10:10

Lab Sample ID: 500-121318-2

Matrix: Solid

Percent Solids: 41.3

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<120		250	120	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,1,1-Trichloroethane	<95		250	95	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,1,2,2-Tetrachloroethane	<99	*	250	99	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,1,2-Trichloroethane	<88		250	88	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,1-Dichloroethane	<100		250	100	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,1-Dichloroethene	<97		250	97	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,1-Dichloropropene	<74		250	74	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,2,3-Trichlorobenzene	<110	*	250	110	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,2,3-Trichloropropane	<100	*	250	100	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,2,4-Trichlorobenzene	<85		250	85	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,2,4-Trimethylbenzene	<89	*	250	89	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,2-Dibromo-3-Chloropropane	<500		1200	500	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,2-Dibromoethane	<96		250	96	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,2-Dichlorobenzene	<83		250	83	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,2-Dichloroethane	<98		250	98	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,2-Dichloropropane	<110		250	110	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,3,5-Trimethylbenzene	<95	*	250	95	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,3-Dichlorobenzene	<100		250	100	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50

TestAmerica Chicago

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Client Sample ID: Mirro Building Heat Treat Pit Sludge

Lab Sample ID: 500-121318-2

Date Collected: 12/09/16 15:00

Matrix: Solid

Date Received: 12/10/16 10:10

Percent Solids: 41.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropane	<90	*	250	90	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
1,4-Dichlorobenzene	<91		250	91	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
2,2-Dichloropropane	<110		250	110	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
2-Chlorotoluene	<78	*	250	78	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
4-Chlorotoluene	<87	*	250	87	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Benzene	<36		62	36	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Bromobenzene	<89		250	89	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Bromochloromethane	<110		250	110	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Bromodichloromethane	<93		250	93	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Bromoform	<120		250	120	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Bromomethane	<200		500	200	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Carbon tetrachloride	<96		250	96	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Chlorobenzene	<96		250	96	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Chloroethane	<130		250	130	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Chloroform	<92		250	92	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Chloromethane	<80		250	80	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
cis-1,2-Dichloroethene	<100		250	100	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
cis-1,3-Dichloropropene	<100		250	100	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Dibromochloromethane	<120		250	120	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Dibromomethane	<67		250	67	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Dichlorodifluoromethane	<170	*	500	170	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Ethylbenzene	<46		62	46	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Hexachlorobutadiene	<110		250	110	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Isopropyl ether	<69		250	69	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Isopropylbenzene	<96	*	250	96	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Methyl tert-butyl ether	<98		250	98	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Methylene Chloride	<410	*	1200	410	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Naphthalene	<83		250	83	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
n-Butylbenzene	<97	*	250	97	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
N-Propylbenzene	<100	*	250	100	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
p-Isopropyltoluene	<90		250	90	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
sec-Butylbenzene	<99	*	250	99	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Styrene	<96		250	96	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
tert-Butylbenzene	<99	*	250	99	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Tetrachloroethene	<92		250	92	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Toluene	<37		62	37	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
trans-1,2-Dichloroethene	<87		250	87	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
trans-1,3-Dichloropropene	<90	*	250	90	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Trichloroethene	<41		120	41	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Trichlorofluoromethane	<110		250	110	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Vinyl chloride	<65		120	65	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50
Xylenes, Total	<55		120	55	ug/Kg	☼	12/09/16 15:00	12/15/16 05:34	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		71 - 127	12/09/16 15:00	12/15/16 05:34	50
4-Bromofluorobenzene (Surr)	89		71 - 120	12/09/16 15:00	12/15/16 05:34	50
Dibromofluoromethane	92		70 - 120	12/09/16 15:00	12/15/16 05:34	50
Toluene-d8 (Surr)	92		75 - 120	12/09/16 15:00	12/15/16 05:34	50

TestAmerica Chicago

Client Sample Results

Client: Stantec Consulting Corp.
Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Client Sample ID: Mirro Building Heat Treat Pit Sludge

Lab Sample ID: 500-121318-2

Date Collected: 12/09/16 15:00

Matrix: Solid

Date Received: 12/10/16 10:10

Percent Solids: 41.3

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<1900		16000	1900	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
2-Methylnaphthalene	<1400		16000	1400	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Acenaphthene	<1400		7700	1400	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Acenaphthylene	<1000		7700	1000	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Anthracene	<1300		7700	1300	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Benzo[a]anthracene	<1000		7700	1000	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Benzo[a]pyrene	<1500		7700	1500	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Benzo[b]fluoranthene	<1700		7700	1700	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Benzo[g,h,i]perylene	<2500		7700	2500	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Benzo[k]fluoranthene	<2300		7700	2300	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Chrysene	15000		7700	2100	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Dibenz(a,h)anthracene	<1500		7700	1500	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Fluoranthene	2900	J	7700	1400	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Fluorene	2600	J	7700	1100	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Indeno[1,2,3-cd]pyrene	<2000		7700	2000	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Naphthalene	<1200		7700	1200	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Phenanthrene	19000		7700	1100	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100
Pyrene	13000		7700	1500	ug/Kg	☼	12/12/16 16:47	12/16/16 05:07	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	0	D	42 - 115	12/12/16 16:47	12/16/16 05:07	100
Nitrobenzene-d5 (Surr)	0	D	33 - 124	12/12/16 16:47	12/16/16 05:07	100
Terphenyl-d14 (Surr)	0	D	25 - 150	12/12/16 16:47	12/16/16 05:07	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<280		790	280	ug/Kg	☼	12/13/16 16:25	12/14/16 13:43	20
PCB-1221	<350		790	350	ug/Kg	☼	12/13/16 16:25	12/14/16 13:43	20
PCB-1232	<340		790	340	ug/Kg	☼	12/13/16 16:25	12/14/16 13:43	20
PCB-1242	<260		790	260	ug/Kg	☼	12/13/16 16:25	12/14/16 13:43	20
PCB-1248	<310		790	310	ug/Kg	☼	12/13/16 16:25	12/14/16 13:43	20
PCB-1254	<170		790	170	ug/Kg	☼	12/13/16 16:25	12/14/16 13:43	20
PCB-1260	<390		790	390	ug/Kg	☼	12/13/16 16:25	12/14/16 13:43	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	0	D	41 - 124	12/13/16 16:25	12/14/16 13:43	20
DCB Decachlorobiphenyl	0	D	47 - 127	12/13/16 16:25	12/14/16 13:43	20

TestAmerica Chicago

Definitions/Glossary

Client: Stantec Consulting Corp.
Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.

GC/MS Semi VOA

Qualifier	Qualifier Description
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

Metals

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

Glossary

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

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

GC/MS VOA

Prep Batch: 364575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-2	Mirro Building Heat Treat Pit Sludge	Total/NA	Solid	5035	
LB3 500-364575/11-A	Method Blank	Total/NA	Solid	5035	
LCS 500-364575/12-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 365158

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-2	Mirro Building Heat Treat Pit Sludge	Total/NA	Solid	8260B	364575
LB3 500-364575/11-A	Method Blank	Total/NA	Solid	8260B	364575
MB 500-365158/6	Method Blank	Total/NA	Solid	8260B	
LCS 500-365158/7	Lab Control Sample	Total/NA	Solid	8260B	

Analysis Batch: 365232

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-365232/6	Method Blank	Total/NA	Solid	8260B	
LCS 500-364575/12-A	Lab Control Sample	Total/NA	Solid	8260B	364575

GC/MS Semi VOA

Prep Batch: 364737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-2	Mirro Building Heat Treat Pit Sludge	Total/NA	Solid	3541	
MB 500-364737/1-A	Method Blank	Total/NA	Solid	3541	
LCS 500-364737/2-A	Lab Control Sample	Total/NA	Solid	3541	

Analysis Batch: 364802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-364737/1-A	Method Blank	Total/NA	Solid	8270D	364737
LCS 500-364737/2-A	Lab Control Sample	Total/NA	Solid	8270D	364737

Analysis Batch: 365361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-2	Mirro Building Heat Treat Pit Sludge	Total/NA	Solid	8270D	364737

GC Semi VOA

Prep Batch: 364595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-1	Mirro Building Heat Treat Pit	Total/NA	Water	3510C	
MB 500-364595/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-364595/4-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 500-364595/5-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 364724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-364595/1-A	Method Blank	Total/NA	Water	8082A	364595
LCS 500-364595/4-A	Lab Control Sample	Total/NA	Water	8082A	364595
LCSD 500-364595/5-A	Lab Control Sample Dup	Total/NA	Water	8082A	364595

TestAmerica Chicago

QC Association Summary

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

GC Semi VOA (Continued)

Analysis Batch: 364817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-1	Mirro Building Heat Treat Pit	Total/NA	Water	8082A	364595

Prep Batch: 364935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-2	Mirro Building Heat Treat Pit Sludge	Total/NA	Solid	3541	
MB 500-364935/1-A	Method Blank	Total/NA	Solid	3541	
LCS 500-364935/3-A	Lab Control Sample	Total/NA	Solid	3541	

Analysis Batch: 365022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-2	Mirro Building Heat Treat Pit Sludge	Total/NA	Solid	8082A	364935
MB 500-364935/1-A	Method Blank	Total/NA	Solid	8082A	364935
LCS 500-364935/3-A	Lab Control Sample	Total/NA	Solid	8082A	364935

Metals

Leach Batch: 364867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-1	Mirro Building Heat Treat Pit	TCLP	Water	1311	
LB3 500-364867/1-B	Method Blank	TCLP	Water	1311	
LB3 500-364867/1-C	Method Blank	TCLP	Water	1311	
500-121318-1 MS	Mirro Building Heat Treat Pit	TCLP	Water	1311	
500-121318-1 DU	Mirro Building Heat Treat Pit	TCLP	Water	1311	

Prep Batch: 364878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-1	Mirro Building Heat Treat Pit	TCLP	Water	7470A	364867
LB3 500-364867/1-B	Method Blank	TCLP	Water	7470A	364867
MB 500-364878/12-A	Method Blank	Total/NA	Water	7470A	
LCS 500-364878/13-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 364891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-1	Mirro Building Heat Treat Pit	TCLP	Water	3010A	364867
LB3 500-364867/1-C	Method Blank	TCLP	Water	3010A	364867
LCS 500-364891/2-A	Lab Control Sample	Total/NA	Water	3010A	
500-121318-1 MS	Mirro Building Heat Treat Pit	TCLP	Water	3010A	364867
500-121318-1 DU	Mirro Building Heat Treat Pit	TCLP	Water	3010A	364867

Analysis Batch: 365078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-1	Mirro Building Heat Treat Pit	TCLP	Water	7470A	364878
LB3 500-364867/1-B	Method Blank	TCLP	Water	7470A	364878
MB 500-364878/12-A	Method Blank	Total/NA	Water	7470A	364878
LCS 500-364878/13-A	Lab Control Sample	Total/NA	Water	7470A	364878

Analysis Batch: 365148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-1	Mirro Building Heat Treat Pit	TCLP	Water	6010C	364891
LB3 500-364867/1-C	Method Blank	TCLP	Water	6010C	364891

TestAmerica Chicago

QC Association Summary

Client: Stantec Consulting Corp.
Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Metals (Continued)

Analysis Batch: 365148 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 500-364891/2-A	Lab Control Sample	Total/NA	Water	6010C	364891
500-121318-1 MS	Mirro Building Heat Treat Pit	TCLP	Water	6010C	364891
500-121318-1 DU	Mirro Building Heat Treat Pit	TCLP	Water	6010C	364891

General Chemistry

Analysis Batch: 364625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-121318-2	Mirro Building Heat Treat Pit Sludge	Total/NA	Solid	Moisture	

Surrogate Summary

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (71-127)	BFB (71-120)	DBFM (70-120)	TOL (75-120)
500-121318-2	Mirro Building Heat Treat Pit Slu	106	89	92	92
LB3 500-364575/11-A	Method Blank	97	90	88	92
LCS 500-364575/12-A	Lab Control Sample	110	107	95	103
LCS 500-365158/7	Lab Control Sample	97	88	92	92
MB 500-365158/6	Method Blank	101	90	91	91
MB 500-365232/6	Method Blank	112	108	98	103

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)
 BFB = 4-Bromofluorobenzene (Surr)
 DBFM = Dibromofluoromethane
 TOL = Toluene-d8 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		FBP (42-115)	NBZ (33-124)	TPH (25-150)
500-121318-2	Mirro Building Heat Treat Pit Slu	0 D	0 D	0 D
LCS 500-364737/2-A	Lab Control Sample	83	91	93
MB 500-364737/1-A	Method Blank	90	94	98

Surrogate Legend

FBP = 2-Fluorobiphenyl
 NBZ = Nitrobenzene-d5 (Surr)
 TPH = Terphenyl-d14 (Surr)

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

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX1 (41-124)	DCB1 (47-127)
500-121318-2	Mirro Building Heat Treat Pit Slu	0 D	0 D
LCS 500-364935/3-A	Lab Control Sample	94	100
MB 500-364935/1-A	Method Blank	87	93

Surrogate Legend

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		TCX2 (30-127)	DCB2 (30-150)
500-121318-1	Mirro Building Heat Treat Pit	70	47
LCS 500-364595/4-A	Lab Control Sample	60	63

TestAmerica Chicago

Surrogate Summary

Client: Stantec Consulting Corp.
Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	TCX2 (30-127)	DCB2 (30-150)
LCSD 500-364595/5-A	Lab Control Sample Dup	73	110
MB 500-364595/1-A	Method Blank	56	73

Surrogate Legend

TCX = Tetrachloro-m-xylene

DCB = DCB Decachlorobiphenyl

QC Sample Results

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: LB3 500-364575/11-A

Matrix: Solid

Analysis Batch: 365158

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 364575

Analyte	LB3	LB3	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1,2-Tetrachloroethane	<23		50	23	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,1,1-Trichloroethane	<19		50	19	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,1,2,2-Tetrachloroethane	<20		50	20	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,1,2-Trichloroethane	<18		50	18	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,1-Dichloroethane	<21		50	21	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,1-Dichloroethene	<20		50	20	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,1-Dichloropropene	<15		50	15	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,2,3-Trichlorobenzene	<23		50	23	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,2,3-Trichloropropane	<21		50	21	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,2,4-Trichlorobenzene	<17		50	17	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,2,4-Trimethylbenzene	<18		50	18	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,2-Dibromo-3-Chloropropane	<100		250	100	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,2-Dibromoethane	<19		50	19	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,2-Dichlorobenzene	<17		50	17	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,2-Dichloroethane	<20		50	20	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,2-Dichloropropane	<21		50	21	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,3,5-Trimethylbenzene	<19		50	19	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,3-Dichlorobenzene	<20		50	20	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,3-Dichloropropane	<18		50	18	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
1,4-Dichlorobenzene	<18		50	18	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
2,2-Dichloropropane	<22		50	22	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
2-Chlorotoluene	<16		50	16	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
4-Chlorotoluene	<18		50	18	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Benzene	<7.3		13	7.3	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Bromobenzene	<18		50	18	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Bromochloromethane	<21		50	21	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Bromodichloromethane	<19		50	19	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Bromoform	<24		50	24	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Bromomethane	<40		100	40	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Carbon tetrachloride	<19		50	19	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Chlorobenzene	<19		50	19	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Chloroethane	<25		50	25	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Chloroform	<19		50	19	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Chloromethane	<16		50	16	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
cis-1,2-Dichloroethene	<20		50	20	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
cis-1,3-Dichloropropane	<21		50	21	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Dibromochloromethane	<24		50	24	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Dibromomethane	<14		50	14	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Dichlorodifluoromethane	<34		100	34	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Ethylbenzene	<9.2		13	9.2	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Hexachlorobutadiene	<22		50	22	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Isopropyl ether	<14		50	14	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Isopropylbenzene	<19		50	19	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Methyl tert-butyl ether	<20		50	20	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Methylene Chloride	<82		250	82	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Naphthalene	<17		50	17	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
n-Butylbenzene	<19		50	19	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
N-Propylbenzene	<21		50	21	ug/Kg		12/11/16 17:55	12/14/16 23:49	50

TestAmerica Chicago

QC Sample Results

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

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

Lab Sample ID: LB3 500-364575/11-A
Matrix: Solid
Analysis Batch: 365158

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 364575

Analyte	LB3	LB3	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
p-Isopropyltoluene	<18		50	18	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
sec-Butylbenzene	<20		50	20	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Styrene	<19		50	19	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
tert-Butylbenzene	<20		50	20	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Tetrachloroethene	<19		50	19	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Toluene	<7.4		13	7.4	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
trans-1,2-Dichloroethene	<18		50	18	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
trans-1,3-Dichloropropene	<18		50	18	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Trichloroethene	<8.2		25	8.2	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Trichlorofluoromethane	<21		50	21	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Vinyl chloride	<13		25	13	ug/Kg		12/11/16 17:55	12/14/16 23:49	50
Xylenes, Total	<11		25	11	ug/Kg		12/11/16 17:55	12/14/16 23:49	50

Surrogate	LB3	LB3	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	97		71 - 127	12/11/16 17:55	12/14/16 23:49	50
4-Bromofluorobenzene (Surr)	90		71 - 120	12/11/16 17:55	12/14/16 23:49	50
Dibromofluoromethane	88		70 - 120	12/11/16 17:55	12/14/16 23:49	50
Toluene-d8 (Surr)	92		75 - 120	12/11/16 17:55	12/14/16 23:49	50

Lab Sample ID: LCS 500-364575/12-A
Matrix: Solid
Analysis Batch: 365232

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 364575

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
1,1,1,2-Tetrachloroethane	2500	2870		ug/Kg		115	68 - 125
1,1,1-Trichloroethane	2500	2880		ug/Kg		115	70 - 125
1,1,1,2-Tetrachloroethane	2500	3330	*	ug/Kg		133	68 - 125
1,1,2-Trichloroethane	2500	3100		ug/Kg		124	70 - 125
1,1-Dichloroethane	2500	3010		ug/Kg		121	70 - 125
1,1-Dichloroethene	2500	2730		ug/Kg		109	70 - 125
1,1-Dichloropropene	2500	3080		ug/Kg		123	70 - 125
1,2,3-Trichlorobenzene	2500	2610		ug/Kg		104	58 - 135
1,2,3-Trichloropropane	2500	3300	*	ug/Kg		132	63 - 125
1,2,4-Trichlorobenzene	2500	2620		ug/Kg		105	64 - 126
1,2,4-Trimethylbenzene	2500	3190	*	ug/Kg		128	70 - 125
1,2-Dibromo-3-Chloropropane	2500	3140		ug/Kg		125	51 - 125
1,2-Dibromoethane	2500	3090		ug/Kg		124	70 - 125
1,2-Dichlorobenzene	2500	2940		ug/Kg		118	70 - 125
1,2-Dichloroethane	2500	3130		ug/Kg		125	70 - 125
1,2-Dichloropropane	2500	3000		ug/Kg		120	70 - 125
1,3,5-Trimethylbenzene	2500	3180	*	ug/Kg		127	70 - 125
1,3-Dichlorobenzene	2500	2900		ug/Kg		116	70 - 125
1,3-Dichloropropane	2500	3330	*	ug/Kg		133	70 - 125
1,4-Dichlorobenzene	2500	2900		ug/Kg		116	70 - 125
2,2-Dichloropropane	2500	2830		ug/Kg		113	62 - 125
2-Chlorotoluene	2500	3230	*	ug/Kg		129	69 - 125
4-Chlorotoluene	2500	3280	*	ug/Kg		131	70 - 125
Benzene	2500	2860		ug/Kg		114	70 - 125

TestAmerica Chicago

QC Sample Results

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

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

Lab Sample ID: LCS 500-364575/12-A
Matrix: Solid
Analysis Batch: 365232

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 364575

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromobenzene	2500	2770		ug/Kg		111	70 - 125
Bromochloromethane	2500	2720		ug/Kg		109	70 - 125
Bromodichloromethane	2500	2930		ug/Kg		117	70 - 125
Bromoform	2500	2570		ug/Kg		103	54 - 128
Bromomethane	2500	2230		ug/Kg		89	40 - 150
Carbon tetrachloride	2500	2800		ug/Kg		112	70 - 125
Chlorobenzene	2500	2940		ug/Kg		118	70 - 125
Chloroethane	2500	2700		ug/Kg		108	60 - 139
Chloroform	2500	2890		ug/Kg		116	70 - 125
Chloromethane	2500	2330		ug/Kg		93	60 - 140
cis-1,2-Dichloroethene	2500	2750		ug/Kg		110	70 - 125
cis-1,3-Dichloropropene	2500	3120		ug/Kg		125	70 - 125
Dibromochloromethane	2500	2930		ug/Kg		117	66 - 125
Dibromomethane	2500	2990		ug/Kg		120	70 - 125
Dichlorodifluoromethane	2500	1260	*	ug/Kg		50	51 - 140
Ethylbenzene	2500	3010		ug/Kg		120	70 - 125
Hexachlorobutadiene	2500	2530		ug/Kg		101	57 - 140
Isopropylbenzene	2500	3210	*	ug/Kg		128	70 - 125
Methyl tert-butyl ether	2500	2900		ug/Kg		116	67 - 125
Methylene Chloride	2500	3500	*	ug/Kg		140	68 - 125
Naphthalene	2500	2850		ug/Kg		114	50 - 136
n-Butylbenzene	2500	3410	*	ug/Kg		136	70 - 125
N-Propylbenzene	2500	3360	*	ug/Kg		134	70 - 125
p-Isopropyltoluene	2500	3100		ug/Kg		124	70 - 125
sec-Butylbenzene	2500	3210	*	ug/Kg		128	70 - 125
Styrene	2500	2970		ug/Kg		119	70 - 125
tert-Butylbenzene	2500	3150	*	ug/Kg		126	70 - 125
Tetrachloroethene	2500	2630		ug/Kg		105	70 - 125
Toluene	2500	2920		ug/Kg		117	70 - 125
trans-1,2-Dichloroethene	2500	2800		ug/Kg		112	70 - 125
trans-1,3-Dichloropropene	2500	3170	*	ug/Kg		127	70 - 125
Trichloroethene	2500	2700		ug/Kg		108	70 - 125
Trichlorofluoromethane	2500	2790		ug/Kg		111	60 - 126
Vinyl chloride	2500	2420		ug/Kg		97	70 - 126
Xylenes, Total	5000	6010		ug/Kg		120	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	110		71 - 127
4-Bromofluorobenzene (Surr)	107		71 - 120
Dibromofluoromethane	95		70 - 120
Toluene-d8 (Surr)	103		75 - 120

Lab Sample ID: MB 500-365158/6
Matrix: Solid
Analysis Batch: 365158

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.46		1.0	0.46	ug/Kg			12/14/16 22:02	1

TestAmerica Chicago

QC Sample Results

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

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

Lab Sample ID: MB 500-365158/6
Matrix: Solid
Analysis Batch: 365158

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	<0.38		1.0	0.38	ug/Kg			12/14/16 22:02	1
1,1,1,2-Tetrachloroethane	<0.40		1.0	0.40	ug/Kg			12/14/16 22:02	1
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/Kg			12/14/16 22:02	1
1,1-Dichloroethane	<0.41		1.0	0.41	ug/Kg			12/14/16 22:02	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/Kg			12/14/16 22:02	1
1,1-Dichloropropene	<0.30		1.0	0.30	ug/Kg			12/14/16 22:02	1
1,2,3-Trichlorobenzene	<0.46		1.0	0.46	ug/Kg			12/14/16 22:02	1
1,2,3-Trichloropropane	<0.41		1.0	0.41	ug/Kg			12/14/16 22:02	1
1,2,4-Trichlorobenzene	<0.34		1.0	0.34	ug/Kg			12/14/16 22:02	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/Kg			12/14/16 22:02	1
1,2-Dibromo-3-Chloropropane	<2.0		5.0	2.0	ug/Kg			12/14/16 22:02	1
1,2-Dibromoethane	<0.39		1.0	0.39	ug/Kg			12/14/16 22:02	1
1,2-Dichlorobenzene	<0.33		1.0	0.33	ug/Kg			12/14/16 22:02	1
1,2-Dichloroethane	<0.39		1.0	0.39	ug/Kg			12/14/16 22:02	1
1,2-Dichloropropane	<0.43		1.0	0.43	ug/Kg			12/14/16 22:02	1
1,3,5-Trimethylbenzene	<0.38		1.0	0.38	ug/Kg			12/14/16 22:02	1
1,3-Dichlorobenzene	<0.40		1.0	0.40	ug/Kg			12/14/16 22:02	1
1,3-Dichloropropane	<0.36		1.0	0.36	ug/Kg			12/14/16 22:02	1
1,4-Dichlorobenzene	<0.36		1.0	0.36	ug/Kg			12/14/16 22:02	1
2,2-Dichloropropane	<0.44		1.0	0.44	ug/Kg			12/14/16 22:02	1
2-Chlorotoluene	<0.31		1.0	0.31	ug/Kg			12/14/16 22:02	1
4-Chlorotoluene	<0.35		1.0	0.35	ug/Kg			12/14/16 22:02	1
Benzene	<0.15		0.25	0.15	ug/Kg			12/14/16 22:02	1
Bromobenzene	<0.36		1.0	0.36	ug/Kg			12/14/16 22:02	1
Bromochloromethane	<0.43		1.0	0.43	ug/Kg			12/14/16 22:02	1
Bromodichloromethane	<0.37		1.0	0.37	ug/Kg			12/14/16 22:02	1
Bromoform	<0.48		1.0	0.48	ug/Kg			12/14/16 22:02	1
Bromomethane	<0.80		2.0	0.80	ug/Kg			12/14/16 22:02	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/Kg			12/14/16 22:02	1
Chlorobenzene	<0.39		1.0	0.39	ug/Kg			12/14/16 22:02	1
Chloroethane	<0.50		1.0	0.50	ug/Kg			12/14/16 22:02	1
Chloroform	<0.37		1.0	0.37	ug/Kg			12/14/16 22:02	1
Chloromethane	<0.32		1.0	0.32	ug/Kg			12/14/16 22:02	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/Kg			12/14/16 22:02	1
cis-1,3-Dichloropropene	<0.42		1.0	0.42	ug/Kg			12/14/16 22:02	1
Dibromochloromethane	<0.49		1.0	0.49	ug/Kg			12/14/16 22:02	1
Dibromomethane	<0.27		1.0	0.27	ug/Kg			12/14/16 22:02	1
Dichlorodifluoromethane	<0.67		2.0	0.67	ug/Kg			12/14/16 22:02	1
Ethylbenzene	<0.18		0.25	0.18	ug/Kg			12/14/16 22:02	1
Hexachlorobutadiene	<0.45		1.0	0.45	ug/Kg			12/14/16 22:02	1
Isopropyl ether	<0.28		1.0	0.28	ug/Kg			12/14/16 22:02	1
Isopropylbenzene	<0.38		1.0	0.38	ug/Kg			12/14/16 22:02	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/Kg			12/14/16 22:02	1
Methylene Chloride	<1.6		5.0	1.6	ug/Kg			12/14/16 22:02	1
Naphthalene	<0.33		1.0	0.33	ug/Kg			12/14/16 22:02	1
n-Butylbenzene	<0.39		1.0	0.39	ug/Kg			12/14/16 22:02	1
N-Propylbenzene	<0.41		1.0	0.41	ug/Kg			12/14/16 22:02	1
p-Isopropyltoluene	<0.36		1.0	0.36	ug/Kg			12/14/16 22:02	1

TestAmerica Chicago

QC Sample Results

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

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

Lab Sample ID: MB 500-365158/6
Matrix: Solid
Analysis Batch: 365158

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	<0.40		1.0	0.40	ug/Kg			12/14/16 22:02	1
Styrene	<0.39		1.0	0.39	ug/Kg			12/14/16 22:02	1
tert-Butylbenzene	<0.40		1.0	0.40	ug/Kg			12/14/16 22:02	1
Tetrachloroethene	<0.37		1.0	0.37	ug/Kg			12/14/16 22:02	1
Toluene	<0.15		0.25	0.15	ug/Kg			12/14/16 22:02	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/Kg			12/14/16 22:02	1
trans-1,3-Dichloropropene	<0.36		1.0	0.36	ug/Kg			12/14/16 22:02	1
Trichloroethene	<0.16		0.50	0.16	ug/Kg			12/14/16 22:02	1
Trichlorofluoromethane	<0.43		1.0	0.43	ug/Kg			12/14/16 22:02	1
Vinyl chloride	<0.26		0.50	0.26	ug/Kg			12/14/16 22:02	1
Xylenes, Total	<0.22		0.50	0.22	ug/Kg			12/14/16 22:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		71 - 127		12/14/16 22:02	1
4-Bromofluorobenzene (Surr)	90		71 - 120		12/14/16 22:02	1
Dibromofluoromethane	91		70 - 120		12/14/16 22:02	1
Toluene-d8 (Surr)	91		75 - 120		12/14/16 22:02	1

Lab Sample ID: LCS 500-365158/7
Matrix: Solid
Analysis Batch: 365158

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	50.0	44.3		ug/Kg		89	68 - 125
1,1,1-Trichloroethane	50.0	46.5		ug/Kg		93	70 - 125
1,1,1,2-Tetrachloroethane	50.0	43.3		ug/Kg		87	68 - 125
1,1,2-Trichloroethane	50.0	43.6		ug/Kg		87	70 - 125
1,1-Dichloroethane	50.0	47.0		ug/Kg		94	70 - 125
1,1-Dichloroethene	50.0	44.8		ug/Kg		90	70 - 125
1,1-Dichloropropene	50.0	47.8		ug/Kg		96	70 - 125
1,2,3-Trichlorobenzene	50.0	69.3	*	ug/Kg		139	58 - 135
1,2,3-Trichloropropane	50.0	35.0		ug/Kg		70	63 - 125
1,2,4-Trichlorobenzene	50.0	56.8		ug/Kg		114	64 - 126
1,2,4-Trimethylbenzene	50.0	43.7		ug/Kg		87	70 - 125
1,2-Dibromo-3-Chloropropane	50.0	40.6		ug/Kg		81	51 - 125
1,2-Dibromoethane	50.0	42.5		ug/Kg		85	70 - 125
1,2-Dichlorobenzene	50.0	46.7		ug/Kg		93	70 - 125
1,2-Dichloroethane	50.0	45.0		ug/Kg		90	70 - 125
1,2-Dichloropropane	50.0	47.0		ug/Kg		94	70 - 125
1,3,5-Trimethylbenzene	50.0	44.9		ug/Kg		90	70 - 125
1,3-Dichlorobenzene	50.0	46.2		ug/Kg		92	70 - 125
1,3-Dichloropropane	50.0	42.1		ug/Kg		84	70 - 125
1,4-Dichlorobenzene	50.0	45.3		ug/Kg		91	70 - 125
2,2-Dichloropropane	50.0	45.3		ug/Kg		91	62 - 125
2-Chlorotoluene	50.0	43.4		ug/Kg		87	69 - 125
4-Chlorotoluene	50.0	43.3		ug/Kg		87	70 - 125
Benzene	50.0	45.4		ug/Kg		91	70 - 125
Bromobenzene	50.0	45.3		ug/Kg		91	70 - 125

TestAmerica Chicago

QC Sample Results

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

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

Lab Sample ID: LCS 500-365158/7
Matrix: Solid
Analysis Batch: 365158

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromochloromethane	50.0	44.7		ug/Kg		89	70 - 125
Bromodichloromethane	50.0	41.9		ug/Kg		84	70 - 125
Bromoform	50.0	40.7		ug/Kg		81	54 - 128
Bromomethane	50.0	34.2		ug/Kg		68	40 - 150
Carbon tetrachloride	50.0	46.0		ug/Kg		92	70 - 125
Chlorobenzene	50.0	44.3		ug/Kg		89	70 - 125
Chloroethane	50.0	49.1		ug/Kg		98	60 - 139
Chloroform	50.0	44.7		ug/Kg		89	70 - 125
Chloromethane	50.0	65.4		ug/Kg		131	60 - 140
cis-1,2-Dichloroethene	50.0	45.4		ug/Kg		91	70 - 125
cis-1,3-Dichloropropene	50.0	42.4		ug/Kg		85	70 - 125
Dibromochloromethane	50.0	41.9		ug/Kg		84	66 - 125
Dibromomethane	50.0	42.2		ug/Kg		84	70 - 125
Dichlorodifluoromethane	50.0	60.1		ug/Kg		120	51 - 140
Ethylbenzene	50.0	44.3		ug/Kg		89	70 - 125
Hexachlorobutadiene	50.0	54.7		ug/Kg		109	57 - 140
Isopropylbenzene	50.0	45.6		ug/Kg		91	70 - 125
Methyl tert-butyl ether	50.0	43.7		ug/Kg		87	67 - 125
Methylene Chloride	50.0	41.5		ug/Kg		83	68 - 125
Naphthalene	50.0	59.1		ug/Kg		118	50 - 136
n-Butylbenzene	50.0	46.6		ug/Kg		93	70 - 125
N-Propylbenzene	50.0	44.7		ug/Kg		89	70 - 125
p-Isopropyltoluene	50.0	46.6		ug/Kg		93	70 - 125
sec-Butylbenzene	50.0	45.8		ug/Kg		92	70 - 125
Styrene	50.0	44.7		ug/Kg		89	70 - 125
tert-Butylbenzene	50.0	45.6		ug/Kg		91	70 - 125
Tetrachloroethene	50.0	49.0		ug/Kg		98	70 - 125
Toluene	50.0	45.9		ug/Kg		92	70 - 125
trans-1,2-Dichloroethene	50.0	45.4		ug/Kg		91	70 - 125
trans-1,3-Dichloropropene	50.0	42.4		ug/Kg		85	70 - 125
Trichloroethene	50.0	46.4		ug/Kg		93	70 - 125
Trichlorofluoromethane	50.0	52.7		ug/Kg		105	60 - 126
Vinyl chloride	50.0	60.5		ug/Kg		121	70 - 126
Xylenes, Total	100	90.1		ug/Kg		90	70 - 125

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	97		71 - 127
4-Bromofluorobenzene (Surr)	88		71 - 120
Dibromofluoromethane	92		70 - 120
Toluene-d8 (Surr)	92		75 - 120

Lab Sample ID: MB 500-365232/6
Matrix: Solid
Analysis Batch: 365232

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1,2-Tetrachloroethane	<0.46		1.0	0.46	ug/Kg			12/15/16 11:46	1
1,1,1-Trichloroethane	<0.38		1.0	0.38	ug/Kg			12/15/16 11:46	1

TestAmerica Chicago

QC Sample Results

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

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

Lab Sample ID: MB 500-365232/6
Matrix: Solid
Analysis Batch: 365232

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,2,2-Tetrachloroethane	<0.40		1.0	0.40	ug/Kg			12/15/16 11:46	1
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/Kg			12/15/16 11:46	1
1,1-Dichloroethane	<0.41		1.0	0.41	ug/Kg			12/15/16 11:46	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/Kg			12/15/16 11:46	1
1,1-Dichloropropene	<0.30		1.0	0.30	ug/Kg			12/15/16 11:46	1
1,2,3-Trichlorobenzene	<0.46		1.0	0.46	ug/Kg			12/15/16 11:46	1
1,2,3-Trichloropropane	<0.41		1.0	0.41	ug/Kg			12/15/16 11:46	1
1,2,4-Trichlorobenzene	<0.34		1.0	0.34	ug/Kg			12/15/16 11:46	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/Kg			12/15/16 11:46	1
1,2-Dibromo-3-Chloropropane	<2.0		5.0	2.0	ug/Kg			12/15/16 11:46	1
1,2-Dibromoethane	<0.39		1.0	0.39	ug/Kg			12/15/16 11:46	1
1,2-Dichlorobenzene	<0.33		1.0	0.33	ug/Kg			12/15/16 11:46	1
1,2-Dichloroethane	<0.39		1.0	0.39	ug/Kg			12/15/16 11:46	1
1,2-Dichloropropane	<0.43		1.0	0.43	ug/Kg			12/15/16 11:46	1
1,3,5-Trimethylbenzene	<0.38		1.0	0.38	ug/Kg			12/15/16 11:46	1
1,3-Dichlorobenzene	<0.40		1.0	0.40	ug/Kg			12/15/16 11:46	1
1,3-Dichloropropane	<0.36		1.0	0.36	ug/Kg			12/15/16 11:46	1
1,4-Dichlorobenzene	<0.36		1.0	0.36	ug/Kg			12/15/16 11:46	1
2,2-Dichloropropane	<0.44		1.0	0.44	ug/Kg			12/15/16 11:46	1
2-Chlorotoluene	<0.31		1.0	0.31	ug/Kg			12/15/16 11:46	1
4-Chlorotoluene	<0.35		1.0	0.35	ug/Kg			12/15/16 11:46	1
Benzene	<0.15		0.25	0.15	ug/Kg			12/15/16 11:46	1
Bromobenzene	<0.36		1.0	0.36	ug/Kg			12/15/16 11:46	1
Bromochloromethane	<0.43		1.0	0.43	ug/Kg			12/15/16 11:46	1
Bromodichloromethane	<0.37		1.0	0.37	ug/Kg			12/15/16 11:46	1
Bromoform	<0.48		1.0	0.48	ug/Kg			12/15/16 11:46	1
Bromomethane	<0.80		2.0	0.80	ug/Kg			12/15/16 11:46	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/Kg			12/15/16 11:46	1
Chlorobenzene	<0.39		1.0	0.39	ug/Kg			12/15/16 11:46	1
Chloroethane	<0.50		1.0	0.50	ug/Kg			12/15/16 11:46	1
Chloroform	<0.37		1.0	0.37	ug/Kg			12/15/16 11:46	1
Chloromethane	<0.32		1.0	0.32	ug/Kg			12/15/16 11:46	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/Kg			12/15/16 11:46	1
cis-1,3-Dichloropropene	<0.42		1.0	0.42	ug/Kg			12/15/16 11:46	1
Dibromochloromethane	<0.49		1.0	0.49	ug/Kg			12/15/16 11:46	1
Dibromomethane	<0.27		1.0	0.27	ug/Kg			12/15/16 11:46	1
Dichlorodifluoromethane	<0.67		2.0	0.67	ug/Kg			12/15/16 11:46	1
Ethylbenzene	<0.18		0.25	0.18	ug/Kg			12/15/16 11:46	1
Hexachlorobutadiene	<0.45		1.0	0.45	ug/Kg			12/15/16 11:46	1
Isopropyl ether	<0.28		1.0	0.28	ug/Kg			12/15/16 11:46	1
Isopropylbenzene	<0.38		1.0	0.38	ug/Kg			12/15/16 11:46	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/Kg			12/15/16 11:46	1
Methylene Chloride	<1.6		5.0	1.6	ug/Kg			12/15/16 11:46	1
Naphthalene	<0.33		1.0	0.33	ug/Kg			12/15/16 11:46	1
n-Butylbenzene	<0.39		1.0	0.39	ug/Kg			12/15/16 11:46	1
N-Propylbenzene	<0.41		1.0	0.41	ug/Kg			12/15/16 11:46	1
p-Isopropyltoluene	<0.36		1.0	0.36	ug/Kg			12/15/16 11:46	1
sec-Butylbenzene	<0.40		1.0	0.40	ug/Kg			12/15/16 11:46	1

TestAmerica Chicago

QC Sample Results

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

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

Lab Sample ID: MB 500-365232/6
Matrix: Solid
Analysis Batch: 365232

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Styrene	<0.39		1.0	0.39	ug/Kg			12/15/16 11:46	1
tert-Butylbenzene	<0.40		1.0	0.40	ug/Kg			12/15/16 11:46	1
Tetrachloroethene	<0.37		1.0	0.37	ug/Kg			12/15/16 11:46	1
Toluene	<0.15		0.25	0.15	ug/Kg			12/15/16 11:46	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/Kg			12/15/16 11:46	1
trans-1,3-Dichloropropene	<0.36		1.0	0.36	ug/Kg			12/15/16 11:46	1
Trichloroethene	<0.16		0.50	0.16	ug/Kg			12/15/16 11:46	1
Trichlorofluoromethane	<0.43		1.0	0.43	ug/Kg			12/15/16 11:46	1
Vinyl chloride	<0.26		0.50	0.26	ug/Kg			12/15/16 11:46	1
Xylenes, Total	<0.22		0.50	0.22	ug/Kg			12/15/16 11:46	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	112		71 - 127		12/15/16 11:46	1
4-Bromofluorobenzene (Surr)	108		71 - 120		12/15/16 11:46	1
Dibromofluoromethane	98		70 - 120		12/15/16 11:46	1
Toluene-d8 (Surr)	103		75 - 120		12/15/16 11:46	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 500-364737/1-A
Matrix: Solid
Analysis Batch: 364802

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 364737

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1-Methylnaphthalene	<8.1		67	8.1	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
2-Methylnaphthalene	<6.1		67	6.1	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Acenaphthene	<6.0		33	6.0	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Acenaphthylene	<4.4		33	4.4	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Anthracene	<5.6		33	5.6	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Benzo[a]anthracene	<4.5		33	4.5	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Benzo[a]pyrene	<6.4		33	6.4	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Benzo[b]fluoranthene	<7.2		33	7.2	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Benzo[g,h,i]perylene	<11		33	11	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Benzo[k]fluoranthene	<9.8		33	9.8	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Chrysene	<9.1		33	9.1	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Dibenz(a,h)anthracene	<6.4		33	6.4	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Fluoranthene	<6.2		33	6.2	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Fluorene	<4.7		33	4.7	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Indeno[1,2,3-cd]pyrene	<8.6		33	8.6	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Naphthalene	<5.1		33	5.1	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Phenanthrene	<4.6		33	4.6	ug/Kg		12/12/16 16:47	12/13/16 10:57	1
Pyrene	<6.6		33	6.6	ug/Kg		12/12/16 16:47	12/13/16 10:57	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-Fluorobiphenyl	90		42 - 115	12/12/16 16:47	12/13/16 10:57	1
Nitrobenzene-d5 (Surr)	94		33 - 124	12/12/16 16:47	12/13/16 10:57	1
Terphenyl-d14 (Surr)	98		25 - 150	12/12/16 16:47	12/13/16 10:57	1

TestAmerica Chicago

QC Sample Results

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-364737/2-A
Matrix: Solid
Analysis Batch: 364802

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 364737

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1-Methylnaphthalene	1330	1150		ug/Kg		86	54 - 123
2-Methylnaphthalene	1330	1100		ug/Kg		83	55 - 120
Acenaphthene	1330	1130		ug/Kg		84	52 - 113
Acenaphthylene	1330	1090		ug/Kg		82	57 - 116
Anthracene	1330	1180		ug/Kg		88	57 - 118
Benzo[a]anthracene	1330	1230		ug/Kg		92	63 - 115
Benzo[a]pyrene	1330	1150		ug/Kg		87	64 - 122
Benzo[b]fluoranthene	1330	1130		ug/Kg		85	61 - 123
Benzo[g,h,i]perylene	1330	1190		ug/Kg		89	55 - 134
Benzo[k]fluoranthene	1330	1180		ug/Kg		88	59 - 125
Chrysene	1330	1110		ug/Kg		83	63 - 118
Dibenz(a,h)anthracene	1330	1200		ug/Kg		90	61 - 134
Fluoranthene	1330	1150		ug/Kg		86	61 - 124
Fluorene	1330	1110		ug/Kg		83	56 - 115
Indeno[1,2,3-cd]pyrene	1330	1160		ug/Kg		87	50 - 149
Naphthalene	1330	1160		ug/Kg		87	58 - 116
Phenanthrene	1330	1160		ug/Kg		87	58 - 125
Pyrene	1330	1160		ug/Kg		87	60 - 115

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl	83		42 - 115
Nitrobenzene-d5 (Surr)	91		33 - 124
Terphenyl-d14 (Surr)	93		25 - 150

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

Lab Sample ID: MB 500-364595/1-A
Matrix: Water
Analysis Batch: 364724

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 364595

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.067		0.40	0.067	ug/L		12/12/16 07:50	12/12/16 16:34	1
PCB-1221	<0.20		0.40	0.20	ug/L		12/12/16 07:50	12/12/16 16:34	1
PCB-1232	<0.20		0.40	0.20	ug/L		12/12/16 07:50	12/12/16 16:34	1
PCB-1242	<0.20		0.40	0.20	ug/L		12/12/16 07:50	12/12/16 16:34	1
PCB-1248	<0.20		0.40	0.20	ug/L		12/12/16 07:50	12/12/16 16:34	1
PCB-1254	<0.20		0.40	0.20	ug/L		12/12/16 07:50	12/12/16 16:34	1
PCB-1260	<0.070		0.40	0.070	ug/L		12/12/16 07:50	12/12/16 16:34	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	56		30 - 127	12/12/16 07:50	12/12/16 16:34	1
DCB Decachlorobiphenyl	73		30 - 150	12/12/16 07:50	12/12/16 16:34	1

TestAmerica Chicago

QC Sample Results

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

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

Lab Sample ID: LCS 500-364595/4-A
Matrix: Water
Analysis Batch: 364724

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 364595

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	4.00	3.34		ug/L		83	58 - 121
PCB-1260	4.00	3.38		ug/L		84	62 - 137

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	60		30 - 127
DCB Decachlorobiphenyl	63		30 - 150

Lab Sample ID: LCSD 500-364595/5-A
Matrix: Water
Analysis Batch: 364724

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 364595

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
PCB-1016	4.00	4.69	*	ug/L		117	58 - 121	34	20
PCB-1260	4.00	4.74	*	ug/L		119	62 - 137	34	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	73		30 - 127
DCB Decachlorobiphenyl	110		30 - 150

Lab Sample ID: MB 500-364935/1-A
Matrix: Solid
Analysis Batch: 365022

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 364935

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<5.9		17	5.9	ug/Kg		12/13/16 16:25	12/14/16 09:03	1
PCB-1221	<7.3		17	7.3	ug/Kg		12/13/16 16:25	12/14/16 09:03	1
PCB-1232	<7.3		17	7.3	ug/Kg		12/13/16 16:25	12/14/16 09:03	1
PCB-1242	<5.5		17	5.5	ug/Kg		12/13/16 16:25	12/14/16 09:03	1
PCB-1248	<6.6		17	6.6	ug/Kg		12/13/16 16:25	12/14/16 09:03	1
PCB-1254	<3.6		17	3.6	ug/Kg		12/13/16 16:25	12/14/16 09:03	1
PCB-1260	<8.2		17	8.2	ug/Kg		12/13/16 16:25	12/14/16 09:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	87		41 - 124	12/13/16 16:25	12/14/16 09:03	1
DCB Decachlorobiphenyl	93		47 - 127	12/13/16 16:25	12/14/16 09:03	1

Lab Sample ID: LCS 500-364935/3-A
Matrix: Solid
Analysis Batch: 365022

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 364935

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
PCB-1016	167	154		ug/Kg		92	60 - 118
PCB-1260	167	165		ug/Kg		99	66 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	94		41 - 124
DCB Decachlorobiphenyl	100		47 - 127

TestAmerica Chicago

QC Sample Results

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Method: 6010C - Metals (ICP)

Lab Sample ID: LCS 500-364891/2-A
Matrix: Water
Analysis Batch: 365148

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 364891

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.100	0.101		mg/L		101	80 - 120
Barium	2.00	2.06		mg/L		103	80 - 120
Cadmium	0.0500	0.0512		mg/L		102	80 - 120
Chromium	0.200	0.211		mg/L		106	80 - 120
Lead	0.100	0.102		mg/L		102	80 - 120
Selenium	0.100	0.0949	^	mg/L		95	80 - 120
Silver	0.0500	0.0459		mg/L		92	80 - 120

Lab Sample ID: LB3 500-364867/1-C
Matrix: Water
Analysis Batch: 365148

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 364891

Analyte	LB3 Result	LB3 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.010		0.050	0.010	mg/L		12/13/16 14:15	12/14/16 14:07	1
Barium	<0.050		0.50	0.050	mg/L		12/13/16 14:15	12/14/16 14:07	1
Cadmium	<0.0020		0.0050	0.0020	mg/L		12/13/16 14:15	12/14/16 14:07	1
Chromium	<0.010		0.025	0.010	mg/L		12/13/16 14:15	12/14/16 14:07	1
Lead	<0.0075		0.050	0.0075	mg/L		12/13/16 14:15	12/14/16 14:07	1
Selenium	<0.020		0.050	0.020	mg/L		12/13/16 14:15	12/14/16 14:07	1
Silver	<0.010		0.025	0.010	mg/L		12/13/16 14:15	12/14/16 14:07	1

Lab Sample ID: 500-121318-1 MS
Matrix: Water
Analysis Batch: 365148

Client Sample ID: Mirro Building Heat Treat Pit
Prep Type: TCLP
Prep Batch: 364891

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic	<0.010		0.100	0.105		mg/L		105	50 - 150
Barium	<0.050		2.00	2.07		mg/L		104	50 - 150
Cadmium	<0.0020		0.0500	0.0534		mg/L		107	50 - 150
Chromium	<0.010		0.200	0.215		mg/L		107	50 - 150
Lead	0.018	J	0.100	0.121		mg/L		103	50 - 150
Selenium	<0.020	^	0.100	0.0998	^	mg/L		100	50 - 150
Silver	<0.010		0.0500	0.0452		mg/L		90	50 - 150

Lab Sample ID: 500-121318-1 DU
Matrix: Water
Analysis Batch: 365148

Client Sample ID: Mirro Building Heat Treat Pit
Prep Type: TCLP
Prep Batch: 364891

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Arsenic	<0.010		<0.010		mg/L		NC	20
Barium	<0.050		<0.050		mg/L		NC	20
Cadmium	<0.0020		<0.0020		mg/L		NC	20
Chromium	<0.010		<0.010		mg/L		NC	20
Lead	0.018	J	0.0184	J	mg/L		0.5	20
Selenium	<0.020	^	<0.020	^	mg/L		NC	20
Silver	<0.010		<0.010		mg/L		NC	20

QC Sample Results

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 500-364878/12-A
Matrix: Water
Analysis Batch: 365078

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 364878

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020	0.00020	mg/L		12/13/16 13:00	12/14/16 09:15	1

Lab Sample ID: LCS 500-364878/13-A
Matrix: Water
Analysis Batch: 365078

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 364878

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00200	0.00215		mg/L		108	80 - 120

Lab Sample ID: LB3 500-364867/1-B
Matrix: Water
Analysis Batch: 365078

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 364878

Analyte	LB3 Result	LB3 Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020	0.00020	mg/L		12/13/16 13:00	12/14/16 09:20	1

Lab Chronicle

Client: Stantec Consulting Corp.
 Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Client Sample ID: Mirro Building Heat Treat Pit

Date Collected: 12/09/16 14:45

Date Received: 12/10/16 10:10

Lab Sample ID: 500-121318-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			364595	12/12/16 07:50	JJH	TAL CHI
Total/NA	Analysis	8082A		1	364817	12/13/16 09:40	BJH	TAL CHI
TCLP	Leach	1311			364867	12/13/16 11:47	RMP	TAL CHI
TCLP	Prep	3010A			364891	12/13/16 14:15	JNH	TAL CHI
TCLP	Analysis	6010C		1	365148	12/14/16 14:31	KML	TAL CHI
TCLP	Leach	1311			364867	12/13/16 11:47	RMP	TAL CHI
TCLP	Prep	7470A			364878	12/13/16 13:00	MJD	TAL CHI
TCLP	Analysis	7470A		1	365078	12/14/16 09:21	MJD	TAL CHI

Client Sample ID: Mirro Building Heat Treat Pit Sludge

Date Collected: 12/09/16 15:00

Date Received: 12/10/16 10:10

Lab Sample ID: 500-121318-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	364625	12/12/16 09:51	LWN	TAL CHI

Client Sample ID: Mirro Building Heat Treat Pit Sludge

Date Collected: 12/09/16 15:00

Date Received: 12/10/16 10:10

Lab Sample ID: 500-121318-2

Matrix: Solid

Percent Solids: 41.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			364575	12/09/16 15:00	WRE	TAL CHI
Total/NA	Analysis	8260B		50	365158	12/15/16 05:34	TCT	TAL CHI
Total/NA	Prep	3541			364737	12/12/16 16:47	JP1	TAL CHI
Total/NA	Analysis	8270D		100	365361	12/16/16 05:07	GES	TAL CHI
Total/NA	Prep	3541			364935	12/13/16 16:25	JP1	TAL CHI
Total/NA	Analysis	8082A		20	365022	12/14/16 13:43	BJH	TAL CHI

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: Stantec Consulting Corp.
Project/Site: Mirro Building Heat Treat Pit 193703931

TestAmerica Job ID: 500-121318-1

Laboratory: TestAmerica Chicago

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999580010	08-31-17
Analysis Method	Prep Method	Matrix	Analyte	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

TestAmerica

THE LEADER IN ENVIRONMENTAL

2417 Bond Street, University Park, IL 60
Phone: 708.534.5200 Fax: 708.534



500-121318 COC

Report To (optional)
Contact: HARRIS BYERS
Company: STANTEC
Address: _____
Address: _____
Phone: _____
Fax: _____
E-Mail: _____

Bill To (optional)
Contact: _____
Company: _____
Address: _____
Address: _____
Phone: _____
Fax: _____
PO#/Reference# _____

Chain of Custody Record

Lab Job #: 500-121318
Chain of Custody Number: _____
Page 1 of 1
Temperature °C of Cooler: 3.5

Client		Client Project #		Preservative		Parameter		Matrix		Preservative Key 1. HCL, Cool to 4° 2. H2SO4, Cool to 4° 3. HNO3, Cool to 4° 4. NaOH, Cool to 4° 5. NaOH/Zn, Cool to 4° 6. NaHSO4 7. Cool to 4° 8. None 9. Other		
Project Name		Lab Project #		Date		Time		# of Containers				
Project Location/State		Lab PM		Date		Time		# of Containers				
STANTEC		193703931		8		8		9		8		
Micro BUILDING HEAT TREAT PT				PCBS		TELEPCRA METALS		VOC		PAH		
WT				PCB								
N. Heim												
Lab ID	MS/MSD	Sample ID	Date	Time	# of Containers	Matrix					Comments	
1		Micro BUILDING HEAT TREAT PT	12/9/16	2:45	3	W	X	X				2 ADDITIONAL CONTAINERS SUBMITTED FOR EXTRA VOLUME OF needed - 1 extra 4oz jar
2		SLUDGE Micro BLDG HEAT TREAT PT	12/9/16	3:00	3	SL			X	X	X	

Turnaround Time Required (Business Days)

1 Day 2 Days 5 Days 7 Days 10 Days 15 Days Other

Sample Disposal

Return to Client Disposal by Lab Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Relinquished By <u>N. Heim</u>	Company <u>STANTEC</u>	Date <u>12/9/16</u>	Time <u>3:30</u>	Received By <u>Alvin...</u>	Company <u>STANTEC</u>	Date <u>12/10/16</u>	Time <u>10:10</u>
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier: _____
Shipped: FedEx
Hand Delivered: _____

Matrix Key

WW - Wastewater
W - Water
S - Soil
SL - Sludge
MS - Miscellaneous
OL - Oil
A - Air
SE - Sediment
SO - Soil
L - Leachate
WI - Wipe
DW - Drinking Water
O - Other

Client Comments

5 DAY TAT Requested
TELEPCRA METALS NOT F. HEND in FIELD

Lab Comments:

FedEx Express **NEW Package US Airbill**

FedEx Tracking Number **8064 6252 1089**

Form ID No **0200**

fedex.com 1.800.GoFedEx 1.800.463.3339

1 From


Date 11/11/16

Sender's Name M. Hansen Phone 500-121318

Company 500-121318

Address 500-121318 Waybill

City 500-121318



Dept./Floor/Suite/Room

2 Your Internal Billing Reference

3 To

Recipient's Name 500-121318 Phone 500-121318

Company 500-121318

Address 500-121318 Dept./Floor/Suite/Room

Address 500-121318

City 500-121318 State 500-121318 ZIP 500-121318

Use this line for the HOLD location address or for continuation of your shipping address.

HOLD Weekday
FedEx location address
REQUIRED. NOT available for
FedEx First Overnight.

HOLD Saturday
FedEx location address
REQUIRED. Available ONLY for
FedEx Priority Overnight and
FedEx 2Day to select locations.



8064 6252 1089

4 Express Package Service *To most locations. **Packages up to 150 lbs.**
NOTE: Service order has changed. Please select carefully. For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

Next Business Day	2 or 3 Business Days
<input type="checkbox"/> FedEx First Overnight Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.	<input type="checkbox"/> FedEx 2Day A.M. Second business morning.* Saturday Delivery NOT available.
<input checked="" type="checkbox"/> FedEx Priority Overnight Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.	<input type="checkbox"/> FedEx 2Day Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
<input type="checkbox"/> FedEx Standard Overnight Next business afternoon.* Saturday Delivery NOT available.	<input type="checkbox"/> FedEx Express Saver Third business day.* Saturday Delivery NOT available.

5 Packaging *Declared value limit \$500.

FedEx Envelope*
 FedEx Pak*
 FedEx Box
 FedEx Tube
 Other

6 Special Handling and Delivery Signature Options

SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

No Signature Required
Package may be left without obtaining a signature for delivery.
 Direct Signature
Someone at recipient's address may sign for delivery. *Fee applies.*
 Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. *Fee applies.*

Does this shipment contain dangerous goods?

One box must be checked.

No
 Yes As per attached Shipper's Declaration.
 Yes Shipper's Declaration not required.
 Dry Ice Dry Ice, B, UN 1845 _____ x _____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No.

Sender Acct. No. in Section I will be billed.
 Recipient
 Third Party
 Credit Card
 Cash/Check

Total Packages 1 Total Weight 1.50 lbs. Credit Card Auth. 644

*Our liability is limited to US\$100 unless you declare a higher value. See the current FedEx Service Guide for details.

fedex.com 1.800.GoFedEx 1.800.463.3339

Login Sample Receipt Checklist

Client: Stantec Consulting Corp.

Job Number: 500-121318-1

Login Number: 121318

List Source: TestAmerica Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	