Foth | Envirocon Joint Venture

Memorandum

101 International Drive, P.O. Box 16655
Missoula, MT 59808

July 20, 2017

TO: Eric Ealy and Tom Perry

CC: Pat Carr, Brad Hay, Ken Aukerman, Denis Roznowski, Alan Buell, Tyler Lee, Greg Smith, Ross Johnson, Brian Bell

FR: Steve Garbaciak

RE: Selected Sheen Management Option
Ashland/NSP Lakefront Site

Introduction

Based on the approach identified in a Foth Infrastructure & Environment/Envirocon Joint Venture (FE JV) June 26, 2017 memorandum to Eric Ealy and Tom Perry, subject *Sheen Management Options*, FE JV field staff tested the effectiveness of various options for managing oil sheens generated during Ashland Phase 2 dredging activities. This memorandum summarizes the options tested and recommends the implementation of the USEPA-approved NCP Product Schedule bioremediation agent BioRem-2000 oil digester to manage oil sheens and their associated odors at the Ashland/NSP Lakefront Site (Site).

The field tests were performed by obtaining small quantities of the candidate sheen management materials from vendors and collecting small-volume samples of oil sheen-containing water from hopper barges on the Site. Additional tests were also performed in the hopper barges.

The sheen management materials tested were:

Organoclay – PM199, Greens Grade and Hydrosil were tested at dosages of 100 grams and 200 grams per 1.5 gallons of oil sheen-containing water. Performance was marginal with a slight improvement using the Hydrosil material at the 200 gram dosage.

GAC and PAC – Several particle sizes of granular activated carbon (GAC) and powdered activated carbon (PAC) were tested on 1.5 gallon samples. The products were not effective due to their light weight and difficulty in mixing and applying to the water surface.

BioRem-2000 Oil Digester – 1 ounce in 1.5 gallons of oil sheen-containing water was tested with good performance. Tests at dosages of 0.2 gallons and 1 gallon were conducted on hopper barges with oil sheen-containing water with very good performance.

Shellbond – Vendor was not able to provide their product for testing as it is something they create per job from locally-available materials. Insufficient time was available to locate such sources and produce enough material for testing. Furthermore having enough material generated for use during the remaining four months of the project was not achievable.

Based on the positive field tests, water samples were collected from a hopper barge prior to and following application of the BioRem-2000. The samples were analyzed for the same parameters as required for Compliance Monitoring, to determine if the product had any influence on contaminant of concern (COC) concentrations. The analytical results are presented in the following table.

Analytical Data

Ashland/NSP Lakefront Site

Sample ID: Sample Name: Sample Date:		Project Water Quality Standard (µg/L)	Pre-Application 490-132480-1 07/11/2017	Post-Application 490-132480-2 07/12/2017
VOCs	1,2,4-Trimethylbenzene	12.3	**240**	**160**
	1,3,5-Trimethylbenzene	12.3	**70**	**47**
	Benzene	0.34	**58**	**45**
	Ethylbenzene	14	**610**	**420**
	Toluene	N/A	240	180
	Xylene, m & p	N/A	500	340
	Xylenes (Total)	27	**800**	**540**
SVOCs	1-Methylnaphthalene	433	**840**	**600**
	2-Methylnaphthalene	24.3	**850**	**570**
	Acenaphthene	38	**240**	**200**
	Acenaphthylene	N/A	30	23
	Anthracene	0.035	**33**	**25**
	Benzo(a)anthracene	0.025	**8.2**	**5.2**
	Benzo(a)pyrene	0.003	**6.1**	**3.8**
	Benzo(b)fluoranthene	0.003	<0.95	**1.6**
	Benzo(e) pyrene	N/A	3.0	<2.5
	Benzo(g,h,i)perylene	7.64	2.8	1.6
	Benzo(k)fluoranthene	0.14	<0.95	**2.8**
	Chrysene	0.07	**8.2**	**5.1**
	Dibenzo(a,h)anthracene	0.003	<0.95	<1.0
	Dibenzofuran	N/A	27	23
	Fluoranthene	1.9	**22**	**16**
	Fluorene	N/A	97	78
	Indeno(1,2,3-cd)pyrene	0.03	**1.8**	**1.1**
	Naphthalene	6.2	**2700**	**1500**
	Phenanthrene	3.6	**110**	**93**
	Pyrene	0.3	**28**	**21**
	Total Suspended Solids	N/A	430	120

Indicates Contaminant of Concern (COC) concentration equal to or greater than the corresponding water quality standard.

Option Selected and Application Approach

Based on the field test results described above, BioRem-2000 Oil Digester is proposed for use at the Site. BioRem-2000 is a liquid material that can be sprayed on any solid or liquid surface. It contains microbes that secrete enzymes that in turn cleave and digest hydrocarbons, with end products of carbon dioxide and water. This material is on the USEPA NCP Product Schedule as a bioremediation agent.

The BioRem-2000 will be applied using small sprayers mounted on the sheen management boats currently operating at the site. The boat operator will spray the solution into the moon pool area, other "corralled" areas, or on visible dark sheens in the open water using a wand or boom. All application will take place within the area enclosed by the primary curtain. Smaller hand sprayers will also be available to the deck hands for use in applying the BioRem-2000 to the full hopper barges prior to their transfer to the unloading dock.

Hydrosil is also a potential candidate as a back up to the BioRem-2000 product.

Safety data sheets for the BioRem-2000 are included in Attachment 1 for easy reference. Laboratory reports are also provided in Attachment 2.

FE JV hereby respectfully requests Agency approval for use of BioRem-2000 in the open waters of the Site. We intend to begin application to the open waters of the Site as soon as July 24, 2017.

Please contact Steve Garbaciak at (630) 368-3069, with any questions.

Attachment 1

BioRem-2000 Safety Data Sheets

Clift Industries, Inc.

BioRem-2000 Surface Cleaner™

Toxicity Test Results Summary

BioRem-2000 Surface CleanerÊ was tested in June of 2008 for toxicity. The test is performed to quantify the concentration of a substance-causing mortality in 50% of the test organisms for a specified time interval.

BioRem-2000 Surface CleanerÊ was found to be practically non-toxic when tested with M. beryllina in a 96-hour test. Additionally, BioRem-2000 Surface CleanerÊ was found to be slightly toxic when tested with M. bahia in a 48-hour test. The values are lower than expected because the product was not being properly diluted with water and a decrease in dissolved oxygen in the test solution (due to microbial respiration), which increased the mortality rate.

Results	M. bahia 48 hr	M. beryllina 96 hr
BioRem-2000 Surface CleanerÊ	87.7 ppm	236 ppm
No. Fuel Oil	2.81 ppm	25.2 ppm
1:10 BioRem-2000 Surface CleanerÊ /No. 2 Fuel Oil	2.70 ppm	21.8 ppm
Reference Toxicant SDS	8.24 ppm	4.37 ppm

The EPA uses a five-step scale of toxicity categories to classify pesticides based on their acute toxicity to aquatic organisms.

LC50 Values (ppm)	Toxicity Category
> 100	Consider practically nontoxic
> 10 - 100	Slightly toxic
> 1 - 10	Moderately toxic
.01 - 1	Highly toxic
< 0.1	Very highly toxic

(USEPA, 2010b)

PO Box 67153 ð Charlotte, NC 28226 ð 800-996-9901 ð 704-752-0031 ð Fax: 704-544-2532
info@cliftindustries.com ð www.cliftindustries.com

BIOREM-2000 OIL DIGESTER™/(aka, BIOREM-2000 Surface Cleaner)

TECHNICAL PRODUCT BULLETIN: B-63
USEPA, OFFICE OF EMERGENCY MANAGEMENT
REGULATION AND POLICY DEVELOPMENT DIVISION
NATIONAL CONTINGENCY PLAN
LISTING DATE: DECEMBER 15, 2010
"BIOREM-2000 OIL DIGESTER™"/(aka, BIOREM-2000 Surface Cleaner)

I. NAME, BRAND, OR TRADEMARK
BIOREM-2000 OIL DIGESTER™ (aka, BIOREM-2000 Surface Cleaner)
Type of Product: Bioremediation Agent (Biological Additive: Microbiological Culture)

II. NAME, ADDRESS, AND TELEPHONE NUMBER OF MANUFACTURER/CONTACT
Clift Industries, Inc.
P.O. Box 67153
Charlotte, NC 28226
Customer Service:
Phone: (800) 996-9901
Product Management:
Phone: (704) 752-0031
Fax: (704) 544-2532
E-mail: matt@cliftindustries.com
(Mr. Matt Barnhill)

III. NAME, ADDRESS, AND TELEPHONE NUMBER OF PRIMARY DISTRIBUTORS
Clift Industries, Inc.
P.O. Box 67153
Charlotte, NC 28226
Customer Service:
Phone: (800) 996-9901
Product Management:
Phone: (704) 752-0031
Fax: (704) 544-2532
E-mail: matt@cliftindustries.com
(Mr. Matt Barnhill)

IV. SPECIAL HANDLING AND WORKER PRECAUTIONS FOR STORAGE AND FIELD APPLICATION
1. Flammability: Non-flammable
2. Ventilation: No special requirements.
3. Skin and eye contact; protective clothing; treatment in case of contact: No special equipment or clothing is required in the handling, storage and field application of this product. For skin and eye contact, wear gloves and goggles.
4.a. Maximum storage temperature: 140°F
4.b. Minimum storage temperature: 35°F

4.c. Optimum storage temperature range: 85°F

V. SHELF LIFE

The shelf life of the product is two (2) years when stored within the storage temperature range in the original container.

VI. RECOMMENDED APPLICATION PROCEDURE

1. Application Method: Spray from boats, aircraft, fire eductor systems on boats, helicopter buckets, hand-held or backpack sprayers, or from hoses attached to small pumps, water trucks and aerial spray, including typical spreading systems.

2. Concentration/Application Rate:

Shoreline Treatment:

To treat beaches, coarse sand, rocks, rip rap, sea walls, cobble shorelines and rocky shores, oiled pilings and piers use one (1) part BIOREM-2000 OIL DIGESTER™ diluted with five (5) parts water. Use one (1) gallon per 1,500 square feet of contaminated area.

Treating Marine Vegetation/Wetlands:

Dilute one (1) part BIOREM-2000 OIL DIGESTER™ with five (5) parts water and apply with non-pressure, non-impact spraying equipment onto reeds, grasses, trees, and rocks in marsh areas and vegetated wetlands. Use one (1) gallon per 1,500 square feet of contaminated area.

For Treating Water:

Do no dilute BIOREM-2000 OIL DIGESTER™ and apply directly spraying onto the surface of oil.

Small Applications:

BIOREM-2000 OIL DIGESTER™ may be applied with hand sprayers or portable pumps to spray the product directly onto oiled surfaces. Dose rates will vary with the type and amount of petroleum spilled, the extent of weathering, and other site-specific conditions, including temperature, porosity of surface, and residence time available to let the product contact the oil.

3. Conditions for Use: Effective at temperatures above 40°F.

VII. TOXICITY AND EFFECTIVENESS

a. Effectiveness:

Bioremediation Agent Effectiveness Test (40 CFR 300.900), Federal Register September 15, 1994:

Summary Data Table DAYS

DAYS	PRODUCT 3 REPS/PROD	TOTAL MEAN ALKANES (ppm)	RED% 28 DAYS	TOTAL MEAN AROMATICS (ppm)	RED% 28 DAYS
0	CONTROL	43163	0	6001	0
	NUTRIENT	36643	0	4813	0
	BIOREM-2000 OIL DIGESTER™	36492	0	4634	0
7	CONTROL	39249	9.0	5067	15.5
	NUTRIENT	2946	91.9	3832	20.0
	BIOREM-2000 OIL DIGESTER™	5390	85.2	4114	11.0
28	CONTROL	33961	21.0	3812	36.0
	NUTRIENT	106	99.7	729	84.0
	BIOREM-2000 OIL DIGESTER™	64	99.8	1324	71.0

Results of Gravimetric Analysis:
Percentage (%) Decrease in Weight of Oil on Day 28
Control: 10.7%
Nutrient: 68.9%
Product: 67.0%

b. Toxicity:
NA

VIII. MICROBIOLOGICAL ANALYSIS
1. Listing of all microorganisms by species and percentages in the composition:
CONFIDENTIAL
2. Optimum pH, temperature, and salinity ranges for use of the additive:
pH: 7.0
Temperature: 85°F
Salinity: <10%
3. Minimum and maximum pH, temperature, and salinity levels below or above which the effectiveness of the additive is reduced to half its optimum capacity:
pH: 3.0 or 11.5
Temperature: <35°F or >125°F
Salinity: >40%
4. Special nutrient requirements: None
5. Test results regarding the determination of the presence of the following:
Salmonella: Negative
Fecal coliform: Negative
Shigella: Negative
Staphylococcus Coagulase positive: Negative
Beta hemolytic Streptococci: Negative

IX. PHYSICAL PROPERTIES
NA

X. ANALYSIS FOR HEAVY METALS, CYANIDE, AND CHLORINATED HYDROCARBONS
NA

Safety Data Sheet

1. Product and Company Identification

Product Identifier: BioRem-2000 Surface Cleaner
General Use: Designed to remediate oil, grease and other hydrocarbons on hard surfaces.
Product Description: Amber liquid

Manufacturer:
Clift Industries, Inc.
PO Box 471578
Charlotte, NC 28247
704-752-0031

Emergency Telephone
CHEMTREC
800-424-9300

2. Hazards Identification

Classification: Acute toxicity, Oral, Dermal, Inhalation Category 5
Eye Irritation, Category 2B

Signal Word: Warning!

Hazard Statement:	H303+H313 +H333	Maybe harmful if swallowed, in contact with skin or if inhaled.
	H320	Causes eye irritation.
Precautionary Statements Prevention:	P264	Wash hands thoroughly after handling.
Precautionary Statements Response:	P304 + 340	**IF INHALED**: Remove victim to fresh air and keep at rest in a position comfortable for breathing
	P301+330+ 331	**IF SWALLOWED**: Rinse mouth. Do NOT induce vomiting.
	P303+352	**IF ON SKIN**: Wash with plenty of soap and water.
	P305+351+ 338	**IF IN EYES**: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue Rinsing.

3. Composition/Information on Ingredients

Ingredients	CAS No.	Weight %
Aqua	7732-18-5	70-90
Microbes	Proprietary	1-5
Enzymes	Proprietary	1-5
Cleaning Aid	Proprietary	10-20
Nutrients	Proprietary	1-5

4. First Aid Measures

Eye Contact: Flush eyes for fifteen minutes with water. If irritation persists, contact a physician.
Skin Contact: Wash with soap and water. If irritation persists, contact a physician.
Inhalation: Not normally required. Move to fresh air. If symptoms persist, get medical attention.
Ingestion: Not normally required. Contact a physician if ingested.

5. Fire Fighting Measures

Extinguishing Media: Unused form: Water spray, dry chemical or carbon dioxide.
Used form: That which is compatible to liquid (s) absorbed.
Special Fire Fighting Procedures: None required.
Hazardous Combustion Products: Carbon monoxide and/or carbon dioxide.
Unusual Hazards: None expected. Refer to absorbed liquid(s) MSDS(s). Extreme heat may cause pressure to build up inside drum.

6. Accidental Release Measures

Spill or Leak Procedures: If material is unused, collect and recover for reuse. Wear protective equipment. Not a listed hazardous waste.

7. Handling and Storage

Handling Precautions: Avoid contact with skin and eyes. Do not swallow. Wash hands thoroughly after handling.
Storage Precautions: Store in cool, dry area. Prevent product from freezing. Keep out of reach of children. Shelf life: 3 years as long as the product is kept in a clean, dry environment away from direct sunlight and/or excessive heat.
General: Refer to absorbed liquid(s) MSDS(s). Follow label directions carefully. Make sure all containers are labeled properly. The container can be hazardous when empty. Follow label cautions even after the container is empty. Do not re-use empty containers for food, clothing or products for human or animal consumption, or where skin contact can occur.

8. Exposure Controls/Personal Protection

Engineering Controls: Use adequate ventilation to keep airborne concentrations low.
PERSONAL PROTECTION
Eyes: Safety goggles or glass with side shields
Respirator: NIOSH/MSHA approved respirator when ventilation is inadequate.
Gloves: Impervious gloves.
Other: Maintain eyewash and safety shower in work area.
OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200):

EXPOSURE LIMIT 8 hrs. TWA (ppm)
OSHA PEL ACGIH TLV

None

9. Physical/Chemical Characteristics

Appearance: Amber liquid
Odor: Bland
pH: 7
Melting Point/Freezing Point: 32º F (0º C)
Initial Boiling Point and Range: 212º F (100º C)
Flash Point: None **Method**: Not available.
Evaporation Rate: Not established.
Flammable Limits: Not applicable.
Conditions of Flammability: Non-flammable.
Explosive Properties: Not established.
Vapor Pressure: Not available.
Vapor Density: Not established.
Relative Density (H_2O =1): 1.079
Solubility in Water: Soluble
VOC (g/L): 0

10. Stability and Reactivity Data

General: This is a stable material
Conditions of Reactivity: Reacts with sodium hypochlorite or calcium hypochlorite.
Incompatible Materials: Strong oxidants
Conditions to Avoid: Excessive heat or flame.
Hazardous Decomposition: Not established.
Hazardous Polymerization: Will not occur.

11. Toxicological Data

LD50: Not established.
LC50: Not established.

Carcinogenicity: IRAC: None
National Toxicology Program: None
OSHA: None
California Prop 65: No listed ingredient

Reproduction Toxicity: Not available
Teratogenicity: Not available
Mutagenicity: Not available
Synergistic Products: Not available

12. Ecological Data

No data available

13. Disposal Considerations

Waste Disposal Method: Observe all federal, state and local regulations.

14. Transport Information

D.O.T. (Department of Transportation):
Proper Shipping Name: Non-hazardous liquid
Hazard Class: Not regulated
Identification Number: Not applicable

15. Regulatory Information

CERCLA (Comprehensive Environmental Response Compensation and Liability Act): No Reportable Quantity
OSHA Hazard Communication Standard, 28 CFR 1910.1200: No hazardous ingredient.
SARA Title III (Superfund Amendments and Reauthorization Act): No listed ingredient.
TSCA (Toxic Substances Control Act): All ingredients are listed.

16. OTHER INFORMATION:

NFPA Hazard Rating: **Health** – 1
None → Extreme **Fire** – 0
0 → 4 **Reactivity** – 0
PPE – B

Reason for Issue: GHS changes to Sections 2 & 3.
Prepared by: J. Pickett
Approved by: C. Matthews
Approval Date of Issue: 5/1/2015
Approval Date: 5/1/2015

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Attachment 2

Laboratory Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-132480-1
Client Project/Site: Ashland, WI - Sheen Management

For:
Foth Infrastructure & Environment, LLC
2121 Innovation Court
Suite 300
De Pere, Wisconsin 54115

Attn: Tara Van Hoof

Authorized for release by:
7/14/2017 3:34:59 PM
Shali Brown, Project Manager II
(615)301-5031
shali.brown@testamericainc.com

Designee for

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

LINKS

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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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Sample Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Ashland, WI - Sheen Management

TestAmerica Job ID: 490-132480-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-132480-1	PRE-BIOREM_170711 - Hopper Barge	Surface Water	07/11/17 14:22	07/13/17 10:00
490-132480-2	POST-BIOREM_170712 - Hopper Barge	Surface Water	07/12/17 09:48	07/13/17 10:00
490-132480-3	TB-1_170711	Water	07/11/17 00:00	07/13/17 10:00

Job ID: 490-132480-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-132480-1

Comments
No additional comments.

Receipt
The samples were received on 7/13/2017 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7º C.

GC/MS VOA
Method(s) 8260B: MSD was analyzed outside 12 hr clock time due to instrument error. Data has been reported. LCS/LCSD is also provided.(490-132480-F-2 MSD)

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 SIM: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 490-444716 and analytical batch 490-444592.

Method(s) 8270D SIM: The following samples was diluted due to the nature of the sample matrix: PRE-BIOREM_170711 - Hopper Barge (490-132480-1) and POST-BIOREM_170712 - Hopper Barge (490-132480-2). Elevated reporting limits (RLs) are provided.

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

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

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

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

Definitions/Glossary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Ashland, WI - Sheen Management

TestAmerica Job ID: 490-132480-1

Qualifiers

GC/MS Semi VOA

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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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)

Detection Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Ashland, WI - Sheen Management

TestAmerica Job ID: 490-132480-1

Client Sample ID: PRE-BIOREM_170711 - Hopper Barge — Lab Sample ID: 490-132480-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	240		50	8.5	ug/L	50		8260B	Total/NA
1,3,5-Trimethylbenzene	70		50	8.5	ug/L	50		8260B	Total/NA
Benzene	58		50	10	ug/L	50		8260B	Total/NA
Ethylbenzene	610		50	9.5	ug/L	50		8260B	Total/NA
m,p-Xylene	500		100	19	ug/L	50		8260B	Total/NA
Toluene	240		50	8.5	ug/L	50		8260B	Total/NA
Xylenes, Total	800		150	29	ug/L	50		8260B	Total/NA
1-Methylnaphthalene	840		24	4.8	ug/L	250		8270D SIM	Total/NA
2-Methylnaphthalene	850		4.8	1.4	ug/L	50		8270D SIM	Total/NA
Acenaphthene	240		4.8	0.95	ug/L	50		8270D SIM	Total/NA
Acenaphthylene	30		4.8	1.4	ug/L	50		8270D SIM	Total/NA
Anthracene	33		4.8	1.4	ug/L	50		8270D SIM	Total/NA
Benzo[a]anthracene	8.2		4.8	0.95	ug/L	50		8270D SIM	Total/NA
Benzo[a]pyrene	6.1		4.8	0.95	ug/L	50		8270D SIM	Total/NA
Benzo[e]pyrene	3.0	J	4.8	2.4	ug/L	50		8270D SIM	Total/NA
Benzo[g,h,i]perylene	2.8	J	4.8	0.95	ug/L	50		8270D SIM	Total/NA
Chrysene	8.2		4.8	0.95	ug/L	50		8270D SIM	Total/NA
Dibenzofuran	27		4.8	2.4	ug/L	50		8270D SIM	Total/NA
Fluoranthene	22		4.8	1.4	ug/L	50		8270D SIM	Total/NA
Fluorene	97		4.8	0.95	ug/L	50		8270D SIM	Total/NA
Indeno[1,2,3-cd]pyrene	1.8	J	4.8	0.95	ug/L	50		8270D SIM	Total/NA
Naphthalene	2700		24	4.8	ug/L	250		8270D SIM	Total/NA
Phenanthrene	110		4.8	1.4	ug/L	50		8270D SIM	Total/NA
Pyrene	28		4.8	0.95	ug/L	50		8270D SIM	Total/NA
Total Suspended Solids	430		10	7.0	mg/L	1		SM 2540D	Total/NA

Client Sample ID: POST-BIOREM_170712 - Hopper Barge — Lab Sample ID: 490-132480-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene	160		5.0	0.85	ug/L	5		8260B	Total/NA
1,3,5-Trimethylbenzene	47		5.0	0.85	ug/L	5		8260B	Total/NA
Benzene	45		5.0	1.0	ug/L	5		8260B	Total/NA
Ethylbenzene	420		5.0	0.95	ug/L	5		8260B	Total/NA
m,p-Xylene	340		10	1.9	ug/L	5		8260B	Total/NA
Toluene	180		5.0	0.85	ug/L	5		8260B	Total/NA
Xylenes, Total	540		15	2.9	ug/L	5		8260B	Total/NA
1-Methylnaphthalene	600		5.0	1.0	ug/L	50		8270D SIM	Total/NA
2-Methylnaphthalene	570		5.0	1.5	ug/L	50		8270D SIM	Total/NA
Acenaphthene	200		5.0	1.0	ug/L	50		8270D SIM	Total/NA
Acenaphthylene	23		5.0	1.5	ug/L	50		8270D SIM	Total/NA
Anthracene	25		5.0	1.5	ug/L	50		8270D SIM	Total/NA
Benzo[a]anthracene	5.2		5.0	1.0	ug/L	50		8270D SIM	Total/NA
Benzo[a]pyrene	3.8	J	5.0	1.0	ug/L	50		8270D SIM	Total/NA
Benzo[b]fluoranthene	1.6	J	5.0	1.0	ug/L	50		8270D SIM	Total/NA
Benzo[g,h,i]perylene	1.6	J	5.0	1.0	ug/L	50		8270D SIM	Total/NA
Benzo[k]fluoranthene	2.8	J	5.0	1.0	ug/L	50		8270D SIM	Total/NA
Chrysene	5.1		5.0	1.0	ug/L	50		8270D SIM	Total/NA
Dibenzofuran	23		5.0	2.5	ug/L	50		8270D SIM	Total/NA
Fluoranthene	16		5.0	1.5	ug/L	50		8270D SIM	Total/NA
Fluorene	78		5.0	1.0	ug/L	50		8270D SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Ashland, WI - Sheen Management

TestAmerica Job ID: 490-132480-1

Client Sample ID: POST-BIOREM_170712 - Hopper Barge (Continued)

Lab Sample ID: 490-132480-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Indeno[1,2,3-cd]pyrene	1.1	J	5.0	1.0	ug/L	50		8270D SIM	Total/NA
Naphthalene	1500		25	5.0	ug/L	250		8270D SIM	Total/NA
Phenanthrene	93		5.0	1.5	ug/L	50		8270D SIM	Total/NA
Pyrene	21		5.0	1.0	ug/L	50		8270D SIM	Total/NA
Total Suspended Solids	120		5.0	3.5	mg/L	1		SM 2540D	Total/NA

Client Sample ID: TB-1_170711

Lab Sample ID: 490-132480-3

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: PRE-BIOREM_170711 - Hopper Barge

Date Collected: 07/11/17 14:22
Date Received: 07/13/17 10:00

Lab Sample ID: 490-132480-1

Matrix: Surface Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	240		50	8.5	ug/L			07/13/17 23:13	50
1,3,5-Trimethylbenzene	70		50	8.5	ug/L			07/13/17 23:13	50
Benzene	58		50	10	ug/L			07/13/17 23:13	50
Ethylbenzene	610		50	9.5	ug/L			07/13/17 23:13	50
m,p-Xylene	500		100	19	ug/L			07/13/17 23:13	50
Toluene	240		50	8.5	ug/L			07/13/17 23:13	50
Xylenes, Total	800		150	29	ug/L			07/13/17 23:13	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*119*		*70 - 130*		*07/13/17 23:13*	*50*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*		*07/13/17 23:13*	*50*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*07/13/17 23:13*	*50*
Toluene-d8 (Surr)	*103*		*70 - 130*		*07/13/17 23:13*	*50*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	840		24	4.8	ug/L		07/13/17 11:48	07/14/17 11:59	250
2-Methylnaphthalene	850		4.8	1.4	ug/L		07/13/17 11:48	07/13/17 18:03	50
Acenaphthene	240		4.8	0.95	ug/L		07/13/17 11:48	07/13/17 18:03	50
Acenaphthylene	30		4.8	1.4	ug/L		07/13/17 11:48	07/13/17 18:03	50
Anthracene	33		4.8	1.4	ug/L		07/13/17 11:48	07/13/17 18:03	50
Benzo[a]anthracene	8.2		4.8	0.95	ug/L		07/13/17 11:48	07/13/17 18:03	50
Benzo[a]pyrene	6.1		4.8	0.95	ug/L		07/13/17 11:48	07/13/17 18:03	50
Benzo[b]fluoranthene	<0.95		4.8	0.95	ug/L		07/13/17 11:48	07/13/17 18:03	50
Benzo[e]pyrene	3.0	J	4.8	2.4	ug/L		07/13/17 11:48	07/13/17 18:03	50
Benzo[g,h,i]perylene	2.8	J	4.8	0.95	ug/L		07/13/17 11:48	07/13/17 18:03	50
Benzo[k]fluoranthene	<0.95		4.8	0.95	ug/L		07/13/17 11:48	07/13/17 18:03	50
Chrysene	8.2		4.8	0.95	ug/L		07/13/17 11:48	07/13/17 18:03	50
Dibenz(a,h)anthracene	<0.95		4.8	0.95	ug/L		07/13/17 11:48	07/13/17 18:03	50
Dibenzofuran	27		4.8	2.4	ug/L		07/13/17 11:48	07/13/17 18:03	50
Fluoranthene	22		4.8	1.4	ug/L		07/13/17 11:48	07/13/17 18:03	50
Fluorene	97		4.8	0.95	ug/L		07/13/17 11:48	07/13/17 18:03	50
Indeno[1,2,3-cd]pyrene	1.8	J	4.8	0.95	ug/L		07/13/17 11:48	07/13/17 18:03	50
Naphthalene	2700		24	4.8	ug/L		07/13/17 11:48	07/13/17 20:47	250
Phenanthrene	110		4.8	1.4	ug/L		07/13/17 11:48	07/13/17 18:03	50
Pyrene	28		4.8	0.95	ug/L		07/13/17 11:48	07/13/17 18:03	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*60*		*10 - 120*	*07/13/17 11:48*	*07/13/17 18:03*	*50*
Nitrobenzene-d5	*64*		*27 - 120*	*07/13/17 11:48*	*07/13/17 18:03*	*50*
Terphenyl-d14	*55*		*13 - 120*	*07/13/17 11:48*	*07/13/17 18:03*	*50*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	430		10	7.0	mg/L			07/13/17 14:58	1

Client Sample ID: POST-BIOREM_170712 - Hopper Barge

Date Collected: 07/12/17 09:48
Date Received: 07/13/17 10:00

Lab Sample ID: 490-132480-2

Matrix: Surface Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	160		5.0	0.85	ug/L			07/14/17 12:51	5
1,3,5-Trimethylbenzene	47		5.0	0.85	ug/L			07/14/17 12:51	5
Benzene	45		5.0	1.0	ug/L			07/14/17 12:51	5
Ethylbenzene	420		5.0	0.95	ug/L			07/14/17 12:51	5
m,p-Xylene	340		10	1.9	ug/L			07/14/17 12:51	5
Toluene	180		5.0	0.85	ug/L			07/14/17 12:51	5
Xylenes, Total	540		15	2.9	ug/L			07/14/17 12:51	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*115*		*70 - 130*		*07/13/17 22:46*	*50*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 130*		*07/14/17 12:51*	*5*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*		*07/13/17 22:46*	*50*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*		*07/14/17 12:51*	*5*
Dibromofluoromethane (Surr)	*89*		*70 - 130*		*07/13/17 22:46*	*50*
Dibromofluoromethane (Surr)	*91*		*70 - 130*		*07/14/17 12:51*	*5*
Toluene-d8 (Surr)	*102*		*70 - 130*		*07/13/17 22:46*	*50*
Toluene-d8 (Surr)	*102*		*70 - 130*		*07/14/17 12:51*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	600		5.0	1.0	ug/L		07/13/17 11:48	07/13/17 19:50	50
2-Methylnaphthalene	570		5.0	1.5	ug/L		07/13/17 11:48	07/13/17 18:24	50
Acenaphthene	200		5.0	1.0	ug/L		07/13/17 11:48	07/13/17 18:24	50
Acenaphthylene	23		5.0	1.5	ug/L		07/13/17 11:48	07/13/17 18:24	50
Anthracene	25		5.0	1.5	ug/L		07/13/17 11:48	07/13/17 18:24	50
Benzo[a]anthracene	5.2		5.0	1.0	ug/L		07/13/17 11:48	07/13/17 18:24	50
Benzo[a]pyrene	3.8	J	5.0	1.0	ug/L		07/13/17 11:48	07/13/17 18:24	50
Benzo[b]fluoranthene	1.6	J	5.0	1.0	ug/L		07/13/17 11:48	07/13/17 18:24	50
Benzo[e]pyrene	<2.5		5.0	2.5	ug/L		07/13/17 11:48	07/13/17 18:24	50
Benzo[g,h,i]perylene	1.6	J	5.0	1.0	ug/L		07/13/17 11:48	07/13/17 18:24	50
Benzo[k]fluoranthene	2.8	J	5.0	1.0	ug/L		07/13/17 11:48	07/13/17 18:24	50
Chrysene	5.1		5.0	1.0	ug/L		07/13/17 11:48	07/13/17 18:24	50
Dibenz(a,h)anthracene	<1.0		5.0	1.0	ug/L		07/13/17 11:48	07/13/17 18:24	50
Dibenzofuran	23		5.0	2.5	ug/L		07/13/17 11:48	07/13/17 18:24	50
Fluoranthene	16		5.0	1.5	ug/L		07/13/17 11:48	07/13/17 18:24	50
Fluorene	78		5.0	1.0	ug/L		07/13/17 11:48	07/13/17 18:24	50
Indeno[1,2,3-cd]pyrene	1.1	J	5.0	1.0	ug/L		07/13/17 11:48	07/13/17 18:24	50
Naphthalene	1500		25	5.0	ug/L		07/13/17 11:48	07/13/17 21:07	250
Phenanthrene	93		5.0	1.5	ug/L		07/13/17 11:48	07/13/17 18:24	50
Pyrene	21		5.0	1.0	ug/L		07/13/17 11:48	07/13/17 18:24	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*52*		*10 - 120*	*07/13/17 11:48*	*07/13/17 18:24*	*50*
Nitrobenzene-d5	*77*		*27 - 120*	*07/13/17 11:48*	*07/13/17 18:24*	*50*
Terphenyl-d14	*29*		*13 - 120*	*07/13/17 11:48*	*07/13/17 18:24*	*50*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	120		5.0	3.5	mg/L			07/13/17 14:58	1

Client: Foth Infrastructure & Environment, LLC
Project/Site: Ashland, WI - Sheen Management

TestAmerica Job ID: 490-132480-1

Client Sample ID: TB-1_170711
Date Collected: 07/11/17 00:00
Date Received: 07/13/17 10:00

Lab Sample ID: 490-132480-3
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.17		1.0	0.17	ug/L			07/13/17 15:16	1
1,3,5-Trimethylbenzene	<0.17		1.0	0.17	ug/L			07/13/17 15:16	1
Benzene	<0.20		1.0	0.20	ug/L			07/13/17 15:16	1
Ethylbenzene	<0.19		1.0	0.19	ug/L			07/13/17 15:16	1
m,p-Xylene	<0.38		2.0	0.38	ug/L			07/13/17 15:16	1
Toluene	<0.17		1.0	0.17	ug/L			07/13/17 15:16	1
Xylenes, Total	<0.58		3.0	0.58	ug/L			07/13/17 15:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*		*07/13/17 15:16*	*1*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*		*07/13/17 15:16*	*1*
Dibromofluoromethane (Surr)	*94*		*70 - 130*		*07/13/17 15:16*	*1*
Toluene-d8 (Surr)	*102*		*70 - 130*		*07/13/17 15:16*	*1*

Surrogate Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Ashland, WI - Sheen Management

TestAmerica Job ID: 490-132480-1

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

Matrix: Surface Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
490-132480-1	PRE-BIOREM_170711 - Hopper	119	110	99	103
490-132480-2	POST-BIOREM_170712 - Hopper Barge	115	110	89	102
490-132480-2	POST-BIOREM_170712 - Hopper Barge	114	111	91	102
490-132480-2 MS	POST-BIOREM_170712 - Hopper Barge	129	111	92	105
490-132480-2 MSD	POST-BIOREM_170712 - Hopper Barge	127	110	92	104

Surrogate Legend

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

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		12DCE	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
490-132480-3	TB-1_170711	101	106	94	102
LCS 490-444660/4	Lab Control Sample	123	110	82	106
LCS 490-444881/3	Lab Control Sample	123	107	82	105
LCSD 490-444660/5	Lab Control Sample Dup	121	110	93	105
LCSD 490-444881/4	Lab Control Sample Dup	123	111	83	105
MB 490-444660/8	Method Blank	114	108	87	102
MB 490-444881/7	Method Blank	114	109	90	101

Surrogate Legend

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

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

Matrix: Surface Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPH
Lab Sample ID	Client Sample ID	(10-120)	(27-120)	(13-120)
490-132480-1	PRE-BIOREM_170711 - Hopper	60	64	55
490-132480-2	POST-BIOREM_170712 - Hopper Barge	52	77	29

Surrogate Legend

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

Surrogate Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Ashland, WI - Sheen Management

TestAmerica Job ID: 490-132480-1

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

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

		Percent Surrogate Recovery (Acceptance Limits)								
		FBP	NBZ	TPH						
Lab Sample ID	Client Sample ID	(10-120)	(27-120)	(13-120)						
LCS 490-444716/2-A	Lab Control Sample	51	80	87						
LCSD 490-444716/3-A	Lab Control Sample Dup	57	62	79						
MB 490-444716/1-A	Method Blank	77	88	84						

Surrogate Legend

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

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

Lab Sample ID: MB 490-444660/8
Matrix: Water
Analysis Batch: 444660

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.17		1.0	0.17	ug/L			07/13/17 14:50	1
1,3,5-Trimethylbenzene	<0.17		1.0	0.17	ug/L			07/13/17 14:50	1
Benzene	<0.20		1.0	0.20	ug/L			07/13/17 14:50	1
Ethylbenzene	<0.19		1.0	0.19	ug/L			07/13/17 14:50	1
m,p-Xylene	<0.38		2.0	0.38	ug/L			07/13/17 14:50	1
Toluene	<0.17		1.0	0.17	ug/L			07/13/17 14:50	1
Xylenes, Total	<0.58		3.0	0.58	ug/L			07/13/17 14:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 130*		*07/13/17 14:50*	*1*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*07/13/17 14:50*	*1*
Dibromofluoromethane (Surr)	*87*		*70 - 130*		*07/13/17 14:50*	*1*
Toluene-d8 (Surr)	*102*		*70 - 130*		*07/13/17 14:50*	*1*

Lab Sample ID: LCS 490-444660/4
Matrix: Water
Analysis Batch: 444660

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trimethylbenzene	50.0	50.4		ug/L		101	70 - 130
1,3,5-Trimethylbenzene	50.0	51.4		ug/L		103	70 - 130
Benzene	50.0	49.1		ug/L		98	70 - 130
Ethylbenzene	50.0	50.5		ug/L		101	70 - 130
m,p-Xylene	50.0	50.0		ug/L		100	70 - 130
Toluene	50.0	49.5		ug/L		99	70 - 130
Xylenes, Total	100	99.2		ug/L		99	70 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*123*		*70 - 130*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
Dibromofluoromethane (Surr)	*82*		*70 - 130*
Toluene-d8 (Surr)	*106*		*70 - 130*

Lab Sample ID: LCSD 490-444660/5
Matrix: Water
Analysis Batch: 444660

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	50.0	48.9		ug/L		98	70 - 130	3	13
1,3,5-Trimethylbenzene	50.0	50.7		ug/L		101	70 - 130	1	14
Benzene	50.0	47.3		ug/L		95	70 - 130	4	12
Ethylbenzene	50.0	48.3		ug/L		97	70 - 130	5	12
m,p-Xylene	50.0	47.5		ug/L		95	70 - 130	5	12
Toluene	50.0	47.5		ug/L		95	70 - 130	4	13
Xylenes, Total	100	94.6		ug/L		95	70 - 132	5	11

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

Lab Sample ID: LCSD 490-444660/5
Matrix: Water
Analysis Batch: 444660

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

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*121*		*70 - 130*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
Dibromofluoromethane (Surr)	*93*		*70 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

Lab Sample ID: 490-132480-2 MS
Matrix: Surface Water
Analysis Batch: 444660

Client Sample ID: POST-BIOREM_170712 - Hopper Barge
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trimethylbenzene	160		2500	2470		ug/L		92	64 - 136
1,3,5-Trimethylbenzene	48	J	2500	2430		ug/L		95	69 - 139
Benzene	42	J	2500	2340		ug/L		92	55 - 147
Ethylbenzene	420		2500	2770		ug/L		94	65 - 139
m,p-Xylene	330		2500	2600		ug/L		91	70 - 130
Toluene	170		2500	2430		ug/L		90	64 - 136
Xylenes, Total	530		5000	5040		ug/L		90	69 - 132

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*129*		*70 - 130*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*
Dibromofluoromethane (Surr)	*92*		*70 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

Lab Sample ID: 490-132480-2 MSD
Matrix: Surface Water
Analysis Batch: 444660

Client Sample ID: POST-BIOREM_170712 - Hopper Barge
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	160		2500	2510		ug/L		94	64 - 136	2	18
1,3,5-Trimethylbenzene	48	J	2500	2510		ug/L		99	69 - 139	3	17
Benzene	42	J	2500	2390		ug/L		94	55 - 147	2	22
Ethylbenzene	420		2500	2770		ug/L		94	65 - 139	0	18
m,p-Xylene	330		2500	2640		ug/L		92	70 - 130	2	17
Toluene	170		2500	2480		ug/L		92	64 - 136	2	18
Xylenes, Total	530		5000	5130		ug/L		92	69 - 132	2	17

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*127*		*70 - 130*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
Dibromofluoromethane (Surr)	*92*		*70 - 130*
Toluene-d8 (Surr)	*104*		*70 - 130*

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

Lab Sample ID: MB 490-444881/7
Matrix: Water
Analysis Batch: 444881

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	<0.17		1.0	0.17	ug/L			07/14/17 12:25	1
1,3,5-Trimethylbenzene	<0.17		1.0	0.17	ug/L			07/14/17 12:25	1
Benzene	<0.20		1.0	0.20	ug/L			07/14/17 12:25	1
Ethylbenzene	<0.19		1.0	0.19	ug/L			07/14/17 12:25	1
m,p-Xylene	<0.38		2.0	0.38	ug/L			07/14/17 12:25	1
Toluene	<0.17		1.0	0.17	ug/L			07/14/17 12:25	1
Xylenes, Total	<0.58		3.0	0.58	ug/L			07/14/17 12:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*114*		*70 - 130*		*07/14/17 12:25*	*1*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*		*07/14/17 12:25*	*1*
Dibromofluoromethane (Surr)	*90*		*70 - 130*		*07/14/17 12:25*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*07/14/17 12:25*	*1*

Lab Sample ID: LCS 490-444881/3
Matrix: Water
Analysis Batch: 444881

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trimethylbenzene	50.0	48.9		ug/L		98	70 - 130
1,3,5-Trimethylbenzene	50.0	50.5		ug/L		101	70 - 130
Benzene	50.0	49.2		ug/L		98	70 - 130
Ethylbenzene	50.0	49.4		ug/L		99	70 - 130
m,p-Xylene	50.0	48.7		ug/L		97	70 - 130
Toluene	50.0	49.1		ug/L		98	70 - 130
Xylenes, Total	100	96.7		ug/L		97	70 - 132

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*123*		*70 - 130*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
Dibromofluoromethane (Surr)	*82*		*70 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

Lab Sample ID: LCSD 490-444881/4
Matrix: Water
Analysis Batch: 444881

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	50.0	50.4		ug/L		101	70 - 130	3	13
1,3,5-Trimethylbenzene	50.0	51.8		ug/L		104	70 - 130	2	14
Benzene	50.0	48.1		ug/L		96	70 - 130	2	12
Ethylbenzene	50.0	48.8		ug/L		98	70 - 130	1	12
m,p-Xylene	50.0	48.4		ug/L		97	70 - 130	1	12
Toluene	50.0	48.0		ug/L		96	70 - 130	2	13
Xylenes, Total	100	96.2		ug/L		96	70 - 132	1	11

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

Lab Sample ID: LCSD 490-444881/4
Matrix: Water
Analysis Batch: 444881

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

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	123		70 - 130
4-Bromofluorobenzene (Surr)	111		70 - 130
Dibromofluoromethane (Surr)	83		70 - 130
Toluene-d8 (Surr)	105		70 - 130

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

Lab Sample ID: MB 490-444716/1-A
Matrix: Water
Analysis Batch: 444592

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 444716

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.020		0.10	0.020	ug/L		07/13/17 11:48	07/13/17 15:46	1
2-Methylnaphthalene	<0.030		0.10	0.030	ug/L		07/13/17 11:48	07/13/17 15:46	1
Acenaphthene	<0.020		0.10	0.020	ug/L		07/13/17 11:48	07/13/17 15:46	1
Acenaphthylene	<0.030		0.10	0.030	ug/L		07/13/17 11:48	07/13/17 15:46	1
Anthracene	<0.030		0.10	0.030	ug/L		07/13/17 11:48	07/13/17 15:46	1
Benzo[a]anthracene	<0.020		0.10	0.020	ug/L		07/13/17 11:48	07/13/17 15:46	1
Benzo[a]pyrene	<0.020		0.10	0.020	ug/L		07/13/17 11:48	07/13/17 15:46	1
Benzo[b]fluoranthene	<0.020		0.10	0.020	ug/L		07/13/17 11:48	07/13/17 15:46	1
Benzo[e]pyrene	<0.050		0.10	0.050	ug/L		07/13/17 11:48	07/13/17 15:46	1
Benzo[g,h,i]perylene	<0.020		0.10	0.020	ug/L		07/13/17 11:48	07/13/17 15:46	1
Benzo[k]fluoranthene	<0.020		0.10	0.020	ug/L		07/13/17 11:48	07/13/17 15:46	1
Chrysene	<0.020		0.10	0.020	ug/L		07/13/17 11:48	07/13/17 15:46	1
Dibenz(a,h)anthracene	<0.020		0.10	0.020	ug/L		07/13/17 11:48	07/13/17 15:46	1
Dibenzofuran	<0.050		0.10	0.050	ug/L		07/13/17 11:48	07/13/17 15:46	1
Fluoranthene	<0.030		0.10	0.030	ug/L		07/13/17 11:48	07/13/17 15:46	1
Fluorene	<0.020		0.10	0.020	ug/L		07/13/17 11:48	07/13/17 15:46	1
Indeno[1,2,3-cd]pyrene	<0.020		0.10	0.020	ug/L		07/13/17 11:48	07/13/17 15:46	1
Naphthalene	<0.020		0.10	0.020	ug/L		07/13/17 11:48	07/13/17 15:46	1
Phenanthrene	<0.030		0.10	0.030	ug/L		07/13/17 11:48	07/13/17 15:46	1
Pyrene	<0.020		0.10	0.020	ug/L		07/13/17 11:48	07/13/17 15:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	77		10 - 120	07/13/17 11:48	07/13/17 15:46	1
Nitrobenzene-d5	88		27 - 120	07/13/17 11:48	07/13/17 15:46	1
Terphenyl-d14	84		13 - 120	07/13/17 11:48	07/13/17 15:46	1

Lab Sample ID: LCS 490-444716/2-A
Matrix: Water
Analysis Batch: 444592

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 444716

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1-Methylnaphthalene	2.00	1.49		ug/L		75	36 - 120
2-Methylnaphthalene	2.00	1.53		ug/L		76	31 - 120
Acenaphthene	2.00	1.58		ug/L		79	46 - 120
Acenaphthylene	2.00	1.57		ug/L		78	48 - 120

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

Lab Sample ID: LCS 490-444716/2-A
Matrix: Water
Analysis Batch: 444592

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 444716

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Anthracene	2.00	1.64		ug/L		82	58 - 130
Benzo[a]anthracene	2.00	1.88		ug/L		94	57 - 120
Benzo[a]pyrene	2.00	1.74		ug/L		87	57 - 124
Benzo[b]fluoranthene	2.00	1.82		ug/L		91	51 - 125
Benzo[e]pyrene	2.00	1.84		ug/L		92	57 - 124
Benzo[g,h,i]perylene	2.00	1.47		ug/L		74	51 - 123
Benzo[k]fluoranthene	2.00	1.72		ug/L		86	51 - 120
Chrysene	2.00	1.84		ug/L		92	55 - 120
Dibenz(a,h)anthracene	2.00	1.65		ug/L		82	50 - 125
Dibenzofuran	2.00	1.52		ug/L		76	60 - 140
Fluoranthene	2.00	1.91		ug/L		96	56 - 120
Fluorene	2.00	1.47		ug/L		74	52 - 120
Indeno[1,2,3-cd]pyrene	2.00	1.61		ug/L		80	54 - 125
Naphthalene	2.00	1.50		ug/L		75	37 - 120
Phenanthrene	2.00	1.79		ug/L		90	56 - 120
Pyrene	2.00	1.99		ug/L		99	53 - 129

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*51*		*10 - 120*
Nitrobenzene-d5	*80*		*27 - 120*
Terphenyl-d14	*87*		*13 - 120*

Lab Sample ID: LCSD 490-444716/3-A
Matrix: Water
Analysis Batch: 444592

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 444716

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1-Methylnaphthalene	2.00	1.39		ug/L		70	36 - 120	7	36
2-Methylnaphthalene	2.00	1.34		ug/L		67	31 - 120	13	35
Acenaphthene	2.00	1.53		ug/L		76	46 - 120	3	31
Acenaphthylene	2.00	1.57		ug/L		78	48 - 120	0	31
Anthracene	2.00	1.53		ug/L		77	58 - 130	7	28
Benzo[a]anthracene	2.00	1.69		ug/L		85	57 - 120	11	27
Benzo[a]pyrene	2.00	1.57		ug/L		78	57 - 124	10	27
Benzo[b]fluoranthene	2.00	1.52		ug/L		76	51 - 125	18	39
Benzo[e]pyrene	2.00	1.68		ug/L		84	57 - 124	9	27
Benzo[g,h,i]perylene	2.00	1.37		ug/L		68	51 - 123	8	27
Benzo[k]fluoranthene	2.00	1.59		ug/L		79	51 - 120	8	32
Chrysene	2.00	1.69		ug/L		85	55 - 120	8	27
Dibenz(a,h)anthracene	2.00	1.50		ug/L		75	50 - 125	9	28
Dibenzofuran	2.00	1.46		ug/L		73	60 - 140	4	20
Fluoranthene	2.00	1.45		ug/L		73	56 - 120	27	28
Fluorene	2.00	1.42		ug/L		71	52 - 120	3	28
Indeno[1,2,3-cd]pyrene	2.00	1.47		ug/L		74	54 - 125	9	27
Naphthalene	2.00	1.39		ug/L		70	37 - 120	7	37
Phenanthrene	2.00	1.56		ug/L		78	56 - 120	14	26
Pyrene	2.00	1.60		ug/L		80	53 - 129	21	29

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

Lab Sample ID: LCSD 490-444716/3-A
Matrix: Water
Analysis Batch: 444592

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 444716

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*57*		*10 - 120*
Nitrobenzene-d5	*62*		*27 - 120*
Terphenyl-d14	*79*		*13 - 120*

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 490-444730/1
Matrix: Water
Analysis Batch: 444730

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<0.70		1.0	0.70	mg/L			07/13/17 14:58	1

Lab Sample ID: LCS 490-444730/2
Matrix: Water
Analysis Batch: 444730

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	100	101		mg/L		101	90 - 110

GC/MS VOA

Analysis Batch: 444660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-132480-1	PRE-BIOREM_170711 - Hopper Barge	Total/NA	Surface Water	8260B	
490-132480-2	POST-BIOREM_170712 - Hopper Barge	Total/NA	Surface Water	8260B	
490-132480-3	TB-1_170711	Total/NA	Water	8260B	
MB 490-444660/8	Method Blank	Total/NA	Water	8260B	
LCS 490-444660/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-444660/5	Lab Control Sample Dup	Total/NA	Water	8260B	
490-132480-2 MS	POST-BIOREM_170712 - Hopper Barge	Total/NA	Surface Water	8260B	
490-132480-2 MSD	POST-BIOREM_170712 - Hopper Barge	Total/NA	Surface Water	8260B	

Analysis Batch: 444881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-132480-2	POST-BIOREM_170712 - Hopper Barge	Total/NA	Surface Water	8260B	
MB 490-444881/7	Method Blank	Total/NA	Water	8260B	
LCS 490-444881/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 490-444881/4	Lab Control Sample Dup	Total/NA	Water	8260B	

GC/MS Semi VOA

Analysis Batch: 444592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-132480-1	PRE-BIOREM_170711 - Hopper Barge	Total/NA	Surface Water	8270D SIM	444716
490-132480-1	PRE-BIOREM_170711 - Hopper Barge	Total/NA	Surface Water	8270D SIM	444716
490-132480-2	POST-BIOREM_170712 - Hopper Barge	Total/NA	Surface Water	8270D SIM	444716
490-132480-2	POST-BIOREM_170712 - Hopper Barge	Total/NA	Surface Water	8270D SIM	444716
MB 490-444716/1-A	Method Blank	Total/NA	Water	8270D SIM	444716
LCS 490-444716/2-A	Lab Control Sample	Total/NA	Water	8270D SIM	444716
LCSD 490-444716/3-A	Lab Control Sample Dup	Total/NA	Water	8270D SIM	444716

Prep Batch: 444716

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-132480-1	PRE-BIOREM_170711 - Hopper Barge	Total/NA	Surface Water	3510C	
490-132480-2	POST-BIOREM_170712 - Hopper Barge	Total/NA	Surface Water	3510C	
MB 490-444716/1-A	Method Blank	Total/NA	Water	3510C	
LCS 490-444716/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 490-444716/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 444786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-132480-2	POST-BIOREM_170712 - Hopper Barge	Total/NA	Surface Water	8270D SIM	444716

Analysis Batch: 444985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-132480-1	PRE-BIOREM_170711 - Hopper Barge	Total/NA	Surface Water	8270D SIM	444716

General Chemistry

Analysis Batch: 444730

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-132480-1	PRE-BIOREM_170711 - Hopper Barge	Total/NA	Surface Water	SM 2540D	
490-132480-2	POST-BIOREM_170712 - Hopper Barge	Total/NA	Surface Water	SM 2540D	

General Chemistry (Continued)

Analysis Batch: 444730 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 490-444730/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 490-444730/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Lab Chronicle

Client: Foth Infrastructure & Environment, LLC
Project/Site: Ashland, WI - Sheen Management

TestAmerica Job ID: 490-132480-1

Client Sample ID: PRE-BIOREM_170711 - Hopper Barge

Lab Sample ID: 490-132480-1

Date Collected: 07/11/17 14:22

Matrix: Surface Water

Date Received: 07/13/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		50	10 mL	10 mL	444660	07/13/17 23:13	SW1	TAL NSH
Total/NA	Prep	3510C			1050 mL	1 mL	444716	07/13/17 11:48	SAT	TAL NSH
Total/NA	Analysis	8270D SIM		50			444592	07/13/17 18:03	RP	TAL NSH
Total/NA	Prep	3510C			1050 mL	1 mL	444716	07/13/17 11:48	SAT	TAL NSH
Total/NA	Analysis	8270D SIM		250			444592	07/13/17 20:47	RP	TAL NSH
Total/NA	Prep	3510C			1050 mL	1 mL	444716	07/13/17 11:48	SAT	TAL NSH
Total/NA	Analysis	8270D SIM		250			444985	07/14/17 11:59	WDS	TAL NSH
Total/NA	Analysis	SM 2540D		1	100 mL	1000 mL	444730	07/13/17 14:58	EAR	TAL NSH

Client Sample ID: POST-BIOREM_170712 - Hopper Barge

Lab Sample ID: 490-132480-2

Date Collected: 07/12/17 09:48

Matrix: Surface Water

Date Received: 07/13/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		50	10 mL	10 mL	444660	07/13/17 22:46	SW1	TAL NSH
Total/NA	Analysis	8260B		5	10 mL	10 mL	444881	07/14/17 12:51	TCT	TAL NSH
Total/NA	Prep	3510C			1000 mL	1 mL	444716	07/13/17 11:48	SAT	TAL NSH
Total/NA	Analysis	8270D SIM		50			444592	07/13/17 18:24	RP	TAL NSH
Total/NA	Prep	3510C			1000 mL	1 mL	444716	07/13/17 11:48	SAT	TAL NSH
Total/NA	Analysis	8270D SIM		250			444592	07/13/17 21:07	RP	TAL NSH
Total/NA	Prep	3510C			1000 mL	1 mL	444716	07/13/17 11:48	SAT	TAL NSH
Total/NA	Analysis	8270D SIM		50			444786	07/13/17 19:50	T1C	TAL NSH
Total/NA	Analysis	SM 2540D		1	200 mL	1000 mL	444730	07/13/17 14:58	EAR	TAL NSH

Client Sample ID: TB-1_170711

Lab Sample ID: 490-132480-3

Date Collected: 07/11/17 00:00

Matrix: Water

Date Received: 07/13/17 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	10 mL	10 mL	444660	07/13/17 15:16	SW1	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Method Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Ashland, WI - Sheen Management

TestAmerica Job ID: 490-132480-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL NSH
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL NSH
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL NSH

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Accreditation/Certification Summary

Client: Foth Infrastructure & Environment, LLC
Project/Site: Ashland, WI - Sheen Management

TestAmerica Job ID: 490-132480-1

Laboratory: TestAmerica Nashville

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	998020430	08-31-17

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-132480 Chain of Custody

Cooler Received/Opened On 7/13/2017 @1005

Time Samples Removed From Cooler 1045 Time Samples Placed In Storage 1050 (2 Hour Window)

1. Tracking # 4508 (last 4 digits, FedEx) Courier: _FEDEX_____

IR Gun ID 160406069_____ pH Strip Lot NA Chlorine Strip Lot 011217

2. Temperature of rep. sample or temp blank when opened: 1.7 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO...NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 2 Front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES..NO..NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (intial) _____

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 12/15/15

Foth | Envirocon
Joint Venture

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

Lab Information:

Lab Name:	Test America
Address:	2960 Foster Creighton Drive
	Nashville, TN 37204
Lab PM:	Sandie Fredrick
Phone/Fax:	708-534-5200
Lab PM email:	sandie.fredrick@testamericainc.com
Applicable Lab Quote #:	

Project Information:

Site ID #:	Ashland/NSPW Lakefront Site
Project #:	17X001
Site Address:	301 Lake Shore Dr. East
City-State-Zip:	Ashland, WI 54806
Site PM Name:	Ken Aukerman
Phone/Fax:	920-917-3834
Sampler Name:	Andy Pierre

Other Information:

Send Invoice to:	Lori Kurowski - Foth Accounts Payable: lori.kurowski@foth.com
Address:	2121 Innovation Ct.
City/State:	De Pere WI 54115
Phone #:	920-496-6858
Foth Project No.:	17X001
Send EDD to:	Steve.Lehrke@foth.com
CC Hard copy report to:	
CC Electronic reports (lab report and data in spreadsheet format):	Ken Aukerman, Kris Gamble, Scott Barton, Tara Van Hoof

Task: Sheen Management
Turn Around Time: Quick
QC level Required: 2

ITEM #	SAMPLE ID (Samples IDs MUST BE UNIQUE)	SAMPLE LOCATION	MATRIX CODE	G=GRAB C=COMP			#OF CONTAINERS	Comments/Lab Sample I.D.	Preservative: HCl	Preservative: None	Preservative: None									MS/MSD
									Analysis: VOCs (8260B)	Analysis: PAHs (8270D SIM)	Analysis: TSS (SM 2540D)									
1	PRE-BIOREM 170711	Hopper Barge	WS	G	7/11/17	14:22	6		X	X	X									
2	POST-BIOREM 170712	Hopper Barge	WS	G	7/12/17	9:48	6		X	X	X									
3	TB-1_170711		WS	G	7/12/17		2		X											
4																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				

490-132480

Additional Comments/Special Instructions:
Water contain NAPL free product.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	7-12-17	1000	TAN	7/13/17	1005

Sample Receipt Conditions

Temp in QC	Samples on Ice?	Sample Intact?	Trip Blank?
1.7	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SHIPPING INFO:
Company: FedEx
Tracking #:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Ken Aukerman
SIGNATURE of SAMPLER:
DATE Signed: 7/12/17
Time: 1000

Login Sample Receipt Checklist

Client: Foth Infrastructure & Environment, LLC

Job Number: 490-132480-1

Login Number: 132480
List Number: 1
Creator: Fredrick, Sandie J

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
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.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	