



ADDITIONAL SOIL EXCAVATION AND CONFIRMATION SAMPLING

SOUTHWEST SUBSTATION
2749 WEST MORRIS STREET
INDIANAPOLIS, INDIANA

ATC PROJECT NO. 170EM00362

APRIL 7, 2017

PREPARED FOR:

INDIANAPOLIS POWER & LIGHT COMPANY
1230 WEST MORRIS STREET
INDIANAPOLIS, INDIANA 46221
ATTENTION: MR. THOM O'LEARY



April 7, 2017

Mr. Thom O'Leary
Indianapolis Power & Light Company
1230 West Morris Street
Indianapolis, Indiana 46221

ATC Group Services LLC

7988 Centerpoint Dr.
Suite 100
Indianapolis, IN 46256

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Re: Additional Soil Excavation and Confirmation Sampling
Southwest Substation
2749 West Morris Street
Indianapolis, Indiana
ATC Project No. 170EM00362

Dear Mr. O'Leary:

ATC Group Services, Inc. (ATC) is pleased to provide the Indianapolis Power & Light Company (IPL) this letter report concerning the Additional Soil Excavation and Confirmation Sampling conducted at 2749 West Morris Street in Indianapolis, Indiana (site).

We appreciate the opportunity to assist you with this project. If you have any questions concerning information contained in this report, please do not hesitate to call either of the undersigned at 317-849-4990.

Sincerely,

ATC Group Services LLC

A handwritten signature in black ink, appearing to read 'Christopher J. Bishop'.

Christopher J Bishop, LPG
Senior Project Geologist
Direct Line (317) 579-4015

A handwritten signature in black ink, appearing to read 'Rachel Taylor'.

Rachel Taylor
Staff Geologist
Direct Line (317) 579-4063

Background

ATC understands that in 2015, during the construction of an underdrain for an electrical substation located at 2749 West Morris Street in Indianapolis, Indiana (“the site”), IPL encountered debris, including discarded lead acid battery casings, which represent a potential environmental concern. Preliminary tests indicated that the debris contained a range of lead concentrations, some of which were determined to warrant further investigation. A subsurface investigation was completed by ATC in July 2015. During the subsurface investigation, forty-five soil borings were advanced across the site to evaluate subsurface soil quality. The soil borings were advanced to a maximum depth of 16 feet below ground surface (ft. bgs), until refusal, or until field screening results suggested total lead concentrations in the soil were below the Indiana Department of Environmental Management (IDEM) Remediation Closure Guide (RCG) Residential Migration to Groundwater (RMG) Screening Level (SL) of 270 mg/kg. Groundwater was not encountered in any of the soil borings and groundwater wells were not identified at the site. The RCG RMG SL was used as a conservative approach to evaluate soil lead concentrations and to manage excavated soil. Refer to the *Subsurface Investigation Report* (September 15, 2015) for soil boring analytical records.

Soil excavation activities were conducted at the site between August 26 and October 15, 2015. ATC (formerly Cardno ATC) provided oversight and testing services during the excavation activities. Denney Excavation Companies (Denney) provided soil excavation services and Heritage Environmental Services (Heritage) provided transportation, treatment and disposal services. The excavated soil was loaded onto dump trucks provided by Heritage and transported to the Heritage landfill in Roachdale, IN for processing and disposal. Approximately 17,910 tons of lead impacted soil and debris was removed from the excavation and transported to the Heritage landfill.

Following the completion of the excavation activities, sixty-two soil samples were collected from the base and sidewalls of the excavation. Confirmatory soil samples were collected approximately every forty feet along the sidewalls and approximately every 400 square feet from the base of the excavations. The soil samples were field screened for total lead concentrations with a portable x-ray fluorescence (XRF) analyzer. Approximately 5% of the soil samples collected from the base and sidewalls of the excavation were submitted to Pace Analytical in Indianapolis, Indiana (Pace) and analyzed for total lead using SW-846 Method 6010B. After confirmatory soil samples were collected, the excavated areas were backfilled with clean silty clay. Refer to the *Soil Excavation Report* dated December 29, 2015 for additional information.

All of the base samples exhibited total lead concentrations below the IDEM RCG RMG SL (270 mg/kg). Five of the seventeen sidewall samples exhibited total lead concentrations greater than the IDEM RCG RMG SL (270 mg/kg). Soil could not be removed from these locations, which are located on the south portions of the site, due to excavation boundaries threatening existing structures and/or the property boundary.

Work Performed

Site Safety Plan

ATC prepared a site-specific Health and Safety Plan (HASP) that was followed during the on-site activities. The HASP provides background information about the site, project objectives, chemical and physical hazards that may be encountered, a list of safety equipment, monitoring procedures, and the

locations and telephone numbers of emergency services. All personnel associated with the on-site activities read the HASP, became familiar with its provisions, and signed the form attached to the HASP. The HASP complies with the OSHA Standard for Hazardous Waste Operations and Emergency Response (29 CFR 1910.120).

Prior to initiating site activities, ATC contacted the Indiana Underground Plant Protection Service (IUPPS) and requested the member utilities identify underground utility locations in the rights-of-way surrounding the site. ATC also consulted with IPL representatives concerning aboveground and underground utilities.

Additional Excavation Activities

The objective of the additional soil excavation activities was to remove lead impacted soil from the south and west perimeter of the original excavation to the site boundary. Soil excavation activities were conducted at the site on December 8 and 9, 2016. ATC provided oversight and testing services during the excavation activities. Denney provided soil excavation services and Heritage provided transportation, treatment and disposal services. The proposed extents of the additional excavation were based on the site boundary to the south and findings from the *Subsurface Investigation Report* (September 15, 2015) and the *Soil Excavation Report* (December 29, 2015). The proposed extents of the excavation were demarcated using spray paint and pin flags. Denney excavated soil and debris from the excavation and loaded it onto dump trucks provide by Heritage. The excavation areas are depicted on **Figure 1**.

The additional soil excavation was advanced to a maximum depth of two ft-bgs. Following confirmation sampling, the excavation was backfilled with clean fill. Groundwater was not encountered in the excavation. The excavated soil was loaded onto dump trucks provided by Heritage and transported to the Heritage landfill in Roachdale, Indiana for processing and disposal. Approximately 289.52 short tons of additional lead impacted soil was removed from the site.

Confirmatory Sample Collection

After the completion of the additional excavation activities, thirty-one soil samples were collected from the base and sidewalls of the excavation. Confirmatory soil samples were collected approximately every forty feet along the sidewalls and approximately every 400 square feet from the base of the excavation. Base and sidewall sample locations are depicted on **Figure 2**. The soil samples were field screened for total lead concentrations using a portable XRF analyzer (EPA Method 6200). Five soil samples (10% of the total number of samples collected) were submitted to Pace Analytical Laboratory for total lead analysis using SW-846 Method 6010B. The soil samples chosen were those exhibiting the highest field screened results for total lead concentrations using a portable XRF analyzer (EPA Method 6200).

Decontamination Procedures

Sampling equipment and supplies (i.e. gloves, hand augers, etc.) were dedicated to a specific sample location, disposed of after use, or decontaminated between sample collection. Sampling personnel wore clean nitrile gloves at any time they were handling equipment or containers and took precautions to avoid contamination of equipment and supplies.

Findings

Geology

According to the previous study, the soil encountered on the site consisted primarily of two soil types; silty clay with varying amounts of sand and gravel, and fine sand. The silty clay was encountered at the ground surface and extended to depths ranging from one to twelve feet bgs. The average depth of the silty clay was 6.6 ft-bgs. Fine sand was generally encountered below the silty clay and extended to the terminal depth of the soil borings. Plastic lead-acid battery casings were observed at the ground surface and within the soil samples.

Field Screening

Soil samples were collected from the base and sidewalls of the additional excavation area and field screened for total lead concentrations using a portable XRF analyzer (EPA Method 6200). The field screening results, which are summarized in **Table 1**, indicated lead concentrations ranged from 63 mg/kg to 7,273 mg/kg. The additional excavation areas and field screening results are depicted on **Figure 3**.

Analytical Results

The laboratory results indicated soil lead concentrations ranging from 45 mg/kg to 5,430 mg/kg. Two of the samples [SW-1 (1) and SW-10 (1)] exhibited lead concentrations greater than the IDEM RCG Direct Contact Commercial/Industrial Screening Level of 800 mg/kg. The remaining samples [SW-5 (1), FS-5 (2), and FS-14 (2)] indicated lead concentrations below the IDEM RCG Direct Contact Residential Screening Level of 400 mg/kg. The laboratory results are summarized in **Table 2** and the complete analytical report is provided in **Appendix A**. The XRF lead results were compared to the laboratory lead results using a statistical comparison. The correlation coefficient was determined to be 0.26 which represents a weak positive linear relationship between the XRF measured concentrations and the laboratory measured concentrations.

Conclusion

Approximately 289.52 short tons of additional lead impacted soil was removed from the site and transported to the Heritage landfill in Roachdale, Indiana for processing and disposal. The excavated area extends from the south and west perimeter of the original excavation to the site boundary. Lead concentrations above the IDEM RCG RMG were detected in the sidewall and base samples collected following the excavation activities; however, potential exposure to direct contact with lead impacted soil was minimized by backfilling the excavation with a clean two foot soil cap.

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with customary principles and practices in the field of environmental science and engineering at the time and location where the services are performed. This warranty is in lieu of all other warranties expressed or implied and no other warranties will be given.

Tables

Table 1
XRF Results
Morris Street Substation
2749 West Morris Street
Indianapolis, Indiana
ATC Project No. 170EM00362

Parameter	Lead (XRF)
Method	EPA 6200*
Matrix	Solid
Units	mg/kg
Sample I.D. (sample depth - ft bgs)	
SW-1 (1)	907
SW-2 (1)	63
SW-3 (1)	3,110
SW-4 (1)	982
SW-5 (1)	404
SW-6 (1)	464
SW-7 (1)	5,057
SW-8 (1)	864
SW-9 (1)	5,606
SW-10 (1)	1,450
SW-11 (1)	1,343
FS-1 (2)	323
FS-2 (2)	6,932
FS-3 (2)	2,252
FS-4 (2)	2,345
FS-5 (2)	1,437
FS-6 (2)	5,644
FS-7 (2)	7,273
FS-8 (2)	1,417
FS-9 (2)	863
FS-10 (2)	264
FS-11 (2)	242
FS-12 (2)	5,644
FS-13 (2)	1,838
FS-14 (2)	115
FS-15 (2)	2,944
FS-16 (2)	1,460
FS-17 (2)	272
FS-18 (2)	619
FS-19 (2)	1,311
FS-20 (2)	819

NA = Not applicable

* EPA 6200 - soil samples were screened for lead using an XRF in general accordance with EPA Method 6200; however, the soil samples were not dried or sieved.

Soil samples collected December 22, 2016

Table 2
Soil Analytical Results
Morris Street Substation
2749 West Morris Street
Indianapolis, Indiana
ATC Project No. 170EM00362

Parameter	Lead (total)	Lead (XRF)
Method	EPA 6010	EPA 6200*
Matrix	Solid	Solid
Units	mg/kg	mg/kg
IDEM Screening Soil Exposure Direct Contact Excavation 2016	1,000	NA
IDEM Screening Soil Exposure Direct Contact Commercial/Industrial 2016	800	NA
IDEM Screening Soil Exposure Direct Contact Residential 2016	400	NA
IDEM Screening Soil Migration to Groundwater Residential 2016	270	NA
Sample I.D. (sample depth - ft bgs)		
SW-1 (1)	5,430	907
SW-5 (1)	320	404
SW-10 (1)	2,490	1,450
FS-5 (2)	45.0	1,437
FS-14 (2)	210	115

NA = Not applicable

* EPA 6200 - soil samples were screened for lead using an XRF in general accordance with EPA Method 6200; however, the soil samples were not dried or sieved.

Soil samples collected December 22, 2016

Figures

H:\2017\IPL\South-West Substation (170EM00362)\ENVIRO\170EM00362-OVERVIEW.DWG, SITE



Project Number: 170EM00362		Drn. By: AK
Drawing File: SEE LOWER LEFT		Ckd. By: RT
ATC		App'd By:
		Ckd. Date:

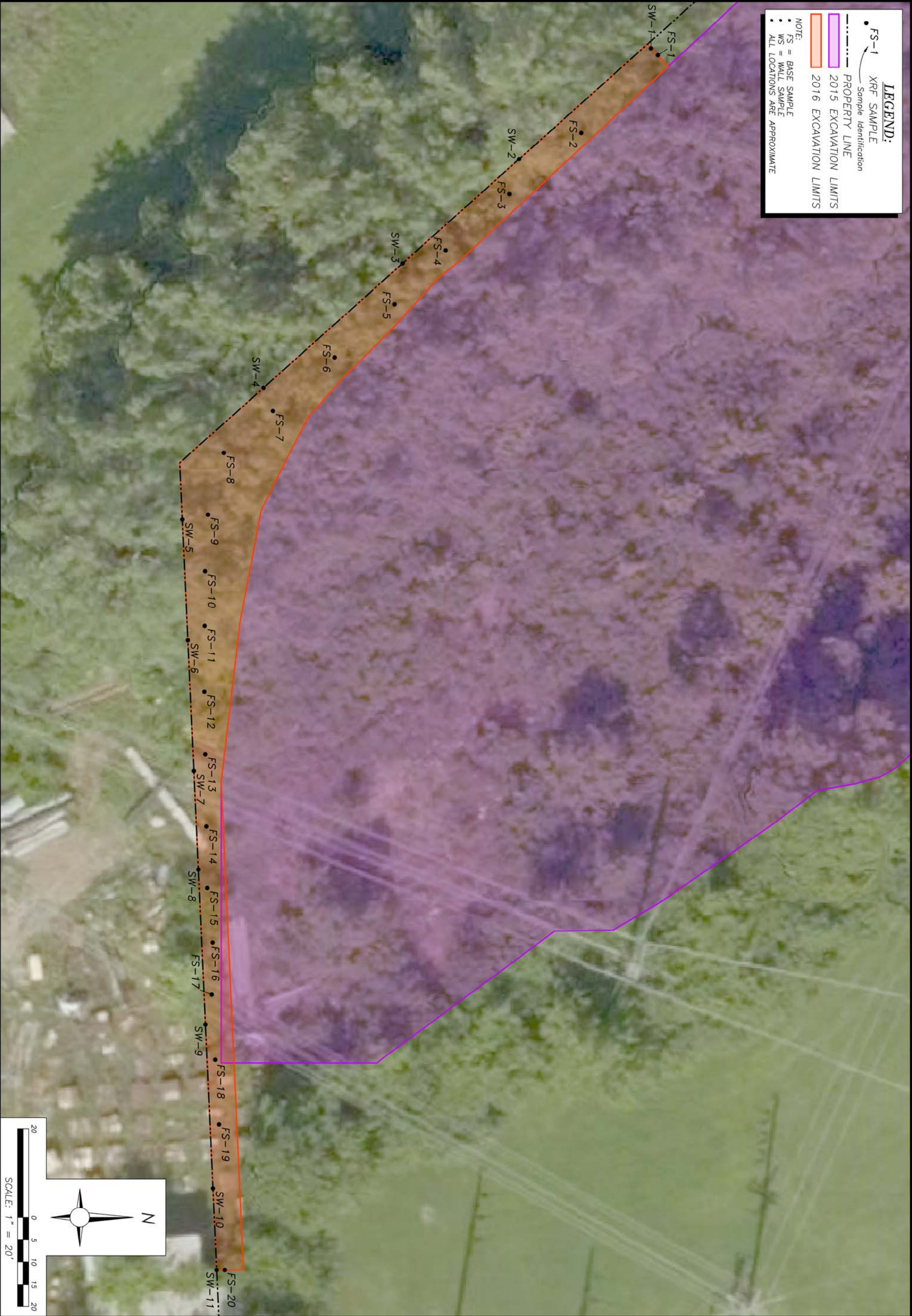
SITE OVERVIEW

IPL WEST MORRIS SUBSTATION
INDIANAPOLIS POWER AND LIGHT COMPANY
INDIANAPOLIS, INDIANA

Date:
2/17

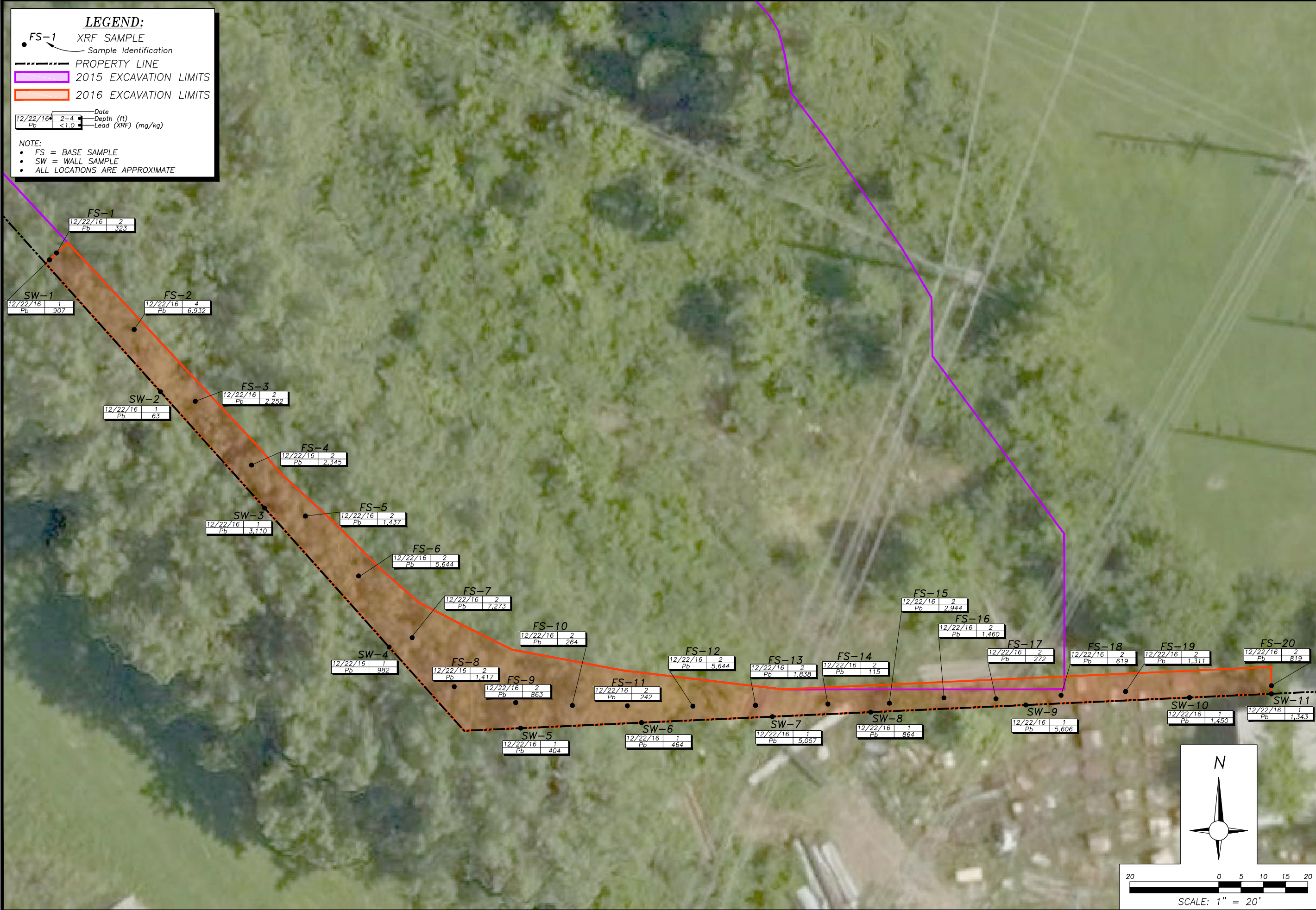
Scale:
AS SHOWN

Figure:
1



Date: 3/17 Scale: AS SHOWN Figure: 2	XRF SAMPLE LOCATION MAP IPL WEST MORRIS SUBSTATION INDIANAPOLIS POWER AND LIGHT COMPANY INDIANAPOLIS, INDIANA	Project Number: 170EM00362	Drn. By: PH
		Drawing File: SEE LOWER LEFT	Ckd. By: RT
			App'd By:
			Ckd. Date:

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LEGEND:

FS-1 XRF SAMPLE
Sample Identification

----- PROPERTY LINE

2015 EXCAVATION LIMITS

2016 EXCAVATION LIMITS

Date	Depth (ft)	Lead (XRF) (mg/kg)
12/22/16	2-4	Pb
		<1.0

NOTE:

- FS = BASE SAMPLE
- SW = WALL SAMPLE
- ALL LOCATIONS ARE APPROXIMATE

Drn. By:	PH
Project Number:	170EM00362
Ckd. By:	CB
Drawing File:	SEE LOWER LEFT
App'd By:	
Ckd. Date:	

ATC

XRF LEAD RESULTS
IPL WEST MORRIS SUBSTATION
INDIANAPOLIS POWER AND LIGHT COMPANY
INDIANAPOLIS, INDIANA

Date: 3/17
Scale: AS SHOWN
Figure: 3

Appendix A: Laboratory Analytical Report

December 29, 2016

Mr. Chris Bishop
ATC Group Services
7988 Centerpointe Drive
Suite 100
Indianapolis, IN 46256

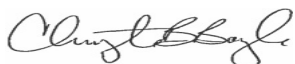
RE: Project: IPL West Morris
Pace Project No.: 50161885

Dear Mr. Bishop:

Enclosed are the analytical results for sample(s) received by the laboratory on December 22, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Chris Boyle
chris.boyle@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: IPL West Morris

Pace Project No.: 50161885

Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268

Illinois Certification #: 003971

Indiana Certification #: C-49-06

Kansas/NELAP Certification #: E-10177

Kentucky UST Certification #: 80226

Kentucky WW Certification #: 98019

Ohio VAP Certification #: CL-0065

Oklahoma Certification #: 2016-075

Texas Certification #: T104704355-16-10

West Virginia Certification #: 330

Wisconsin Certification #: 999788130

USDA Soil Permit #: P330-16-00257

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: IPL West Morris

Pace Project No.: 50161885

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50161885001	SW-1	Solid	12/22/16 13:00	12/22/16 15:50
50161885002	SW-5	Solid	12/22/16 13:05	12/22/16 15:50
50161885003	SW-10	Solid	12/22/16 13:10	12/22/16 15:50
50161885004	FS-5	Solid	12/22/16 13:15	12/22/16 15:50
50161885005	FS-14	Solid	12/22/16 13:20	12/22/16 15:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: IPL West Morris

Pace Project No.: 50161885

Lab ID	Sample ID	Method	Analysts	Analytes Reported
50161885001	SW-1	EPA 6010	JPJ	1
		SM 2540G	SKK	1
50161885002	SW-5	EPA 6010	JPJ	1
		SM 2540G	SKK	1
50161885003	SW-10	EPA 6010	JPJ	1
		SM 2540G	SKK	1
50161885004	FS-5	EPA 6010	JPJ	1
		SM 2540G	SKK	1
50161885005	FS-14	EPA 6010	JPJ	1
		SM 2540G	SKK	1

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: IPL West Morris

Pace Project No.: 50161885

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
50161885001	SW-1					
EPA 6010	Lead	5430	mg/kg	1.1	12/29/16 02:11	
SM 2540G	Percent Moisture	14.3	%	0.10	12/28/16 16:10	
50161885002	SW-5					
EPA 6010	Lead	320	mg/kg	1.0	12/29/16 02:13	
SM 2540G	Percent Moisture	12.4	%	0.10	12/28/16 16:11	
50161885003	SW-10					
EPA 6010	Lead	2490	mg/kg	1.0	12/29/16 02:15	
SM 2540G	Percent Moisture	5.5	%	0.10	12/28/16 16:11	
50161885004	FS-5					
EPA 6010	Lead	45.0	mg/kg	1.0	12/29/16 02:17	
SM 2540G	Percent Moisture	6.4	%	0.10	12/28/16 16:11	
50161885005	FS-14					
EPA 6010	Lead	210	mg/kg	0.99	12/29/16 02:20	
SM 2540G	Percent Moisture	12.1	%	0.10	12/28/16 16:11	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: IPL West Morris

Pace Project No.: 50161885

Sample: SW-1 **Lab ID: 50161885001** Collected: 12/22/16 13:00 Received: 12/22/16 15:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP								
Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Lead	5430	mg/kg	1.1	1	12/27/16 13:27	12/29/16 02:11	7439-92-1	
Percent Moisture								
Analytical Method: SM 2540G								
Percent Moisture	14.3	%	0.10	1		12/28/16 16:10		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: IPL West Morris

Pace Project No.: 50161885

Sample: SW-5 **Lab ID: 50161885002** Collected: 12/22/16 13:05 Received: 12/22/16 15:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP								
Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Lead	320	mg/kg	1.0	1	12/27/16 13:27	12/29/16 02:13	7439-92-1	
Percent Moisture								
Analytical Method: SM 2540G								
Percent Moisture	12.4	%	0.10	1		12/28/16 16:11		

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ANALYTICAL RESULTS

Project: IPL West Morris

Pace Project No.: 50161885

Sample: SW-10 **Lab ID: 50161885003** Collected: 12/22/16 13:10 Received: 12/22/16 15:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP								
Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Lead	2490	mg/kg	1.0	1	12/27/16 13:27	12/29/16 02:15	7439-92-1	
Percent Moisture								
Analytical Method: SM 2540G								
Percent Moisture	5.5	%	0.10	1		12/28/16 16:11		

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ANALYTICAL RESULTS

Project: IPL West Morris

Pace Project No.: 50161885

Sample: FS-5 **Lab ID: 50161885004** Collected: 12/22/16 13:15 Received: 12/22/16 15:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP								
Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Lead	45.0	mg/kg	1.0	1	12/27/16 13:27	12/29/16 02:17	7439-92-1	
Percent Moisture								
Analytical Method: SM 2540G								
Percent Moisture	6.4	%	0.10	1		12/28/16 16:11		

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ANALYTICAL RESULTS

Project: IPL West Morris

Pace Project No.: 50161885

Sample: FS-14 **Lab ID: 50161885005** Collected: 12/22/16 13:20 Received: 12/22/16 15:50 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP								
Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Lead	210	mg/kg	0.99	1	12/27/16 13:27	12/29/16 02:20	7439-92-1	
Percent Moisture								
Analytical Method: SM 2540G								
Percent Moisture	12.1	%	0.10	1		12/28/16 16:11		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: IPL West Morris

Pace Project No.: 50161885

QC Batch: 367839 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 50161885001, 50161885002, 50161885003, 50161885004, 50161885005

METHOD BLANK: 1699579 Matrix: Solid
Associated Lab Samples: 50161885001, 50161885002, 50161885003, 50161885004, 50161885005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Lead	mg/kg	ND	1.0	12/29/16 02:03	

LABORATORY CONTROL SAMPLE: 1699580

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Lead	mg/kg	50	49.4	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1699581 1699582

Parameter	Units	50161908003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead	mg/kg	1.2	48.3	48.6	47.5	47.2	96	95	75-125	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: IPL West Morris

Pace Project No.: 50161885

QC Batch: 368275

Analysis Method: SM 2540G

QC Batch Method: SM 2540G

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 50161885001, 50161885002, 50161885003, 50161885004, 50161885005

SAMPLE DUPLICATE: 1701435

Parameter	Units	50162016001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	9.7	10.9	12	5	R1

SAMPLE DUPLICATE: 1701436

Parameter	Units	50161955001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	27.6	26.9	3	5	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: IPL West Morris

Pace Project No.: 50161885

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: IPL West Morris

Pace Project No.: 50161885

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50161885001	SW-1	EPA 3050	367839	EPA 6010	368322
50161885002	SW-5	EPA 3050	367839	EPA 6010	368322
50161885003	SW-10	EPA 3050	367839	EPA 6010	368322
50161885004	FS-5	EPA 3050	367839	EPA 6010	368322
50161885005	FS-14	EPA 3050	367839	EPA 6010	368322
50161885001	SW-1	SM 2540G	368275		
50161885002	SW-5	SM 2540G	368275		
50161885003	SW-10	SM 2540G	368275		
50161885004	FS-5	SM 2540G	368275		
50161885005	FS-14	SM 2540G	368275		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Pace Analytical

Client Name: ATC

Project # 50161885

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

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

Date/Time 5035A kits placed in freezer

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

Thermometer 1 2 3 4 5 6 A B C D E F

Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature (Initial/Corrected) 1.7/1.7

Ice Visible in Sample Containers: ☐ yes ☒ no

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: UH 12-22-16

Are samples from West Virginia?	☐ Yes ☒ No	1.
Document any containers out of temp.		
Chain of Custody Present:	☒ Yes ☐ No	2.
Chain of Custody Filled Out:	☒ Yes ☐ No	3.
Chain of Custody Relinquished:	☒ Yes ☐ No	4.
Sampler Name & Signature on COC:	☒ Yes ☐ No	5.
Short Hold Time Analysis (<72hr):	☐ Yes ☒ No	6.
Rush Turn Around Time Requested:	☐ Yes ☒ No	7.
Containers Intact:	☒ Yes ☐ No	8.
Sample Labels match COC:	☒ Yes ☐ No	9. <u>Did not rec trip blank on COC</u>
-Includes date/time/ID/Analysis		
All containers needing acid/base pres. have been checked?	☐ Yes ☐ No ☒ N/A	10. (Circle) HNO ₃ H ₂ SO ₄ NaOH NaOH/ZnAc
exceptions: VOA, coliform, TOC, O&G		
All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.		
Residual Chlorine Check (SVOC 625 Pest/PCB 608)		11. Present Absent
Residual Chlorine Check (Total/Amenable/Free Cyanide)		12. Present Absent
Headspace in VOA Vials (>6mm):	☐ Yes ☐ No ☒ N/A	13.
Headspace Wisconsin Sulfide	☐ Yes ☒ No	14.
Trip Blank Present:	☐ Yes ☒ No	15.
Trip Blank Custody Seals Present	☐ Yes ☐ No	
Project Manager Review		
Samples Arrived within Hold Time:	☒ Yes ☐ No	15.
Sufficient Volume:	☒ Yes ☐ No	16.
Correct Containers Used:	☒ Yes ☐ No	17.

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: ATC Date/Time: _____

Comments/ Resolution: Did not rec trip blank

Project Manager Review: CMR

Date: 12-23-16

CLIENT: ATC

Bulk
Kit
SBS
DI

COC ID#

H69A
H69C[illegible]

AG1U WGFU AG0U R BP2N BP2U BP2S BP3N BP3U BP3S AG3S AG1H BP3C BP1U SP5T AG2U

$\text{pH} < 2$ $\text{pH} > 9$ $\text{pH} > 12$

[illegible]

	DG9H	40mL HCL amber vov vial	AG0U	100mL unpreserved amber glass	BP1N	1 liter HNO3 plastic	DG9P	40mL TSP amber vial
	AG1U	1liter unpreserved amber glass	AG1H	1 liter HCL amber glass	BP1S	1 liter H2SO4 plastic	DG9S	40mL H2SO4 amber vial
	WG9U	4oz clear soil jar	AG1S	1 liter H2SO4 amber glass	BP1U	1 liter unpreserved plastic	DG9T	40mL Na Thio amber vial
	R	terra core kit	AG1T	1 liter Na Thiosulfate amber glass	BP1Z	1 liter NaOH, Zn, Ac	DG9U	40mL unpreserved amber vial
	BP2N	500mL HNO3 plastic	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	SP5T	120mL Coliform Na Thiosulfate
	BP2U	500mL unpreserved plastic	AG2S	500mL H2SO4 amber glass	BP2O	500mL NaOH plastic	JGFU	4oz unpreserved amber wide
	BP2S	500mL H2SO4 plastic	AG2U	500mL unpreserved amber glass	BP2Z	500mL NaOH, Zn Ac	U	Summa Can
	BP3N	250mL HNO3 plastic	AG3U	250mL unpreserved amber glass	AF	Air Filter	VG9H	40mL HCL clear vial
	BP3U	250mL unpreserved plastic	BG1H	1 liter HCL clear glass	BP3C	250mL NaOH plastic	VG9T	40mL Na Thio. clear vial
	BP3S	250mL H2SO4 plastic	BG1S	1 liter H2SO4 clear glass	BP3Z	250mL NaOH, Zn Ac plastic	VG9U	40mL unpreserved clear vial
	AG3S	250mL H2SO4 glass amber	BG1T	1 liter Na Thiosulfate clear glass	C	Air Cassettes	VSG	Headspace septa vial & HCL
	AG1S	1 liter H2SO4 amber glass	BG1U	1 liter unpreserved glass	DG9B	40mL Na Bisulfate amber vial	WGFX	4oz wide jar w/hexane wipe
	BP1U	1 liter unpreserved plastic	BP1A	1 liter NaOH, Asc Acid plastic	DG9M	40mL MeOH clear vial	ZPLC	Ziploc Bag