2018 Annual Groundwater Monitoring and Corrective Action Report

Lansing Generating Station
Lansing, Iowa

Prepared for:

Alliant Energy

SCS ENGINEERS

25216070.18 | January 31, 2019

2830 Dairy Drive
Madison, WI 53718-6751
608-224-2830

Table of Contents

Section Page

Tables

Figures

Appendix A – Analytical Laboratory Reports

I:\25216070.00\Deliverables\2018 Annual Groundwater Monitoring and Corrective Action Report\190131_2018 Annual CCR GW Report_LAN_Final.docx

[This page left blank intentionally]

1.0 INTRODUCTION

This 2018 Annual Groundwater Monitoring and Corrective Action Report was prepared to support compliance with the groundwater monitoring requirements of the "Coal Combustion Residuals (CCR) Rule [40 CFR 257.50-107]. Specifically, this report was prepared to fulfill the requirements of 40 CFR 257.90(e). The applicable sections of the Rule are provided below in *italics*, followed by applicable information relative to the 2018 Annual Groundwater Monitoring and Corrective Action Report for the CCR units.

This report covers the period of groundwater monitoring from January 1, 2018, through December 31, 2018.

The groundwater monitoring system at the Lansing Generating Station (LAN) is a multiunit system that includes the following two existing CCR units:

- LAN Landfill
- LAN Upper Ash Pond

The multiunit system is designed to detect monitored constituents at the waste boundary of the facility as required by 40 CFR 257.91(d). The groundwater monitoring system consists of one upgradient and three downgradient monitoring wells.

2.0 § 257.90(E) ANNUAL REPORT REQUIREMENTS

Annual groundwater monitoring and corrective action report. *For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2018, and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than January 31 of the year following the calendar year a groundwater monitoring system has been established for such CCR unit as required by this subpart, and annually thereafter. For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by § 257.105(h)(1). At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:*

2.1 §257.90(E)(1) SITE MAP

A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;

A map with an aerial image showing the CCR units and all background (or upgradient) and downgradient monitoring wells with identification numbers for the groundwater monitoring program is provided as **Figure 1**.

2.2 §257.90(E)(2) MONITORING SYSTEM CHANGES

Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

No new monitoring wells were installed and no wells were decommissioned as part of the groundwater monitoring program for the CCR units in 2018.

2.3 §257.90(E)(3) SUMMARY OF SAMPLING EVENTS

In addition to all the monitoring data obtained under §§ 257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;

Four groundwater samples were collected from each CCR monitoring well in 2018. As described in Section 2.4, the site transitioned to an assessment monitoring program in 2018. The first round of assessment monitoring samples was collected in April 2018. Resampling for select parameters was completed in late April and June 2018, to complete the first assessment monitoring round. The resampling events were necessary due to damage of sample bottles during shipment and a laboratory error. The second round of assessment monitoring samples was collected in August 2018. All of the CCR monitoring wells were sampled in October 2018 to continue the semiannual monitoring schedule established for the site.

Groundwater samples collected during the April, August, and October 2018 sampling events were analyzed for both Appendix III and Appendix IV constituents. Samples collected during the late April and June resampling events were analyzed for constituents that the April semiannual event samples could not be analyzed for due to damage or laboratory error. A summary including the number of groundwater samples that were collected for analysis for each background and downgradient well and the dates the samples were collected is included in Table 1. The results of the analytical laboratory analyses are provided in the laboratory reports in Appendices A1 through A4.

2.4 § 257.90(E)(4) MONITORING TRANSITION NARRATIVE

A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels);

Detection monitoring for the LAN CCR units was initiated in October 2017. The statistical evaluation of the October 2017 detection monitoring results, completed on January 15, 2018, identified statistically significant increases (SSIs) in detection monitoring constituents at the downgradient wells. SSIs were identified for boron, calcium, fluoride, sulfate, and total dissolved solids (TDS) at one or more wells based on the October 2017 detection monitoring event. IPL collected the first round of assessment monitoring samples in April 2018 and established an assessment monitoring program on July 16, 2018, in accordance with §257.95(b).

2.5 § 257.90(E)(5) OTHER REQUIREMENTS

Other information required to be included in the annual report as specified in §§ 257.90 through 257.98.

Additional potentially applicable requirements for the annual report, and the location of the requirement within the Rule, are provided in the following sections. For each cited section of the Rule, the portion referencing the annual report requirement is provided below in italics, followed by applicable information relative to the 2018 Annual Groundwater Monitoring and Corrective Action Report for the CCR units.

2.5.1 § 257.90(e) General Requirements

For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year.

Status of Groundwater Monitoring and Corrective Action Program. The groundwater monitoring and corrective action program is currently in Assessment Monitoring.

Summary of Key Actions Completed.

- Statistical evaluation and determination of SSIs for October 2017 monitoring event on January 15, 2018.
- Alternative source evaluation for the SSIs identified for the October 2017 detection monitoring event, completed April 16, 2018.
- Establishment of assessment monitoring program, completed July 16, 2018.
- Establishment of Groundwater Protection Standards (GPSs) for all detected Appendix IV constituents, completed October 15, 2018.
- Two semiannual groundwater sampling and analysis events (April and October 2018) plus the additional groundwater sampling event in August 2018 as specified in § 257.95(d)(1).

Description of Any Problems Encountered. Following the first assessment monitoring event in April 2018, the groundwater samples bottles for all of non-radium parameters from monitoring well MW-6 were damaged during transport to the laboratory. Additionally, the laboratory did not complete the TDS analysis within the specified hold time for all of the groundwater samples collected from the downgradient monitoring wells during the April 2018 event. SCS Engineers was made aware of the TDS lab analysis error in May 2018 when the laboratory report was delivered.

Discussion of Actions to Resolve the Problems. The background monitoring well, MW-6, was resampled on April 27, 2018, for all Appendix III and Appendix IV constituents with the exception of Radium-226, Radium-228, and Total Radium. All of the downgradient monitoring wells were resampled for TDS on June 4, 2018.

Projection of Key Activities for the Upcoming Year (2019):

- Statistical evaluation and determination of any statistically significant levels exceeding the GPS for the April, August, and October 2018 monitoring events (by 1/14/19);
- Statistical evaluation and determination of any statistically significant levels exceeding the GPS for the April 2019 monitoring events (by 7/15/19);
- If one or more Appendix IV constituents is detected at a statistically significant level above the GPS, then within 30 days IPL will prepare notification in accordance with §257.95(g) and within 90 days complete an alternative source demonstration or initiate an assessment of corrective measures ((§257.95(g)(3)). IPL will also characterize the release (§257.95(g)(1)) and notify property owners (§257.95(g)(2)).
- Two semiannual groundwater sampling and analysis events (April and October 2019).

2.5.2 § 257.94(d) Alternative Detection Monitoring Frequency

The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer in the annual groundwater monitoring and corrective action report required by § 257.90(e).

Not applicable. The LAN CCR units are no longer in the detection monitoring program.

2.5.3 § 257.94(e)(2) Alternative Source Demonstration for Detection Monitoring

The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer.

Not applicable. No alternative source demonstration was completed in 2018.

2.5.4 § 257.95(c) Alternative Assessment Monitoring Frequency

The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer in the annual groundwater monitoring and corrective action report required by § 257.90(e).

Not applicable. Assessment monitoring has been initiated at the site but no alternative assessment monitoring frequency is proposed at this time.

2.5.5 § 257.95(d)(3) Assessment Monitoring Results and Standards

Include the recorded concentrations required by paragraph (d)(1) of this section, identify the background concentrations established under § 257.94(b), and identify the groundwater protection standards established under paragraph (d)(2) of this section in the annual groundwater monitoring and corrective action report required by § 257.90(e).

The recorded concentrations for the assessment monitoring events are in the laboratory reports in Appendix A. The background concentrations established under §257.94(b) were provided in Appendix A of the 2017 Annual Groundwater Monitoring and Corrective Action Report for the Lansing

Generating Station. The groundwater protection standards established for the CCR units are provided in Table 2.

2.5.6 § 257.95(g)(3)(ii) Alternative Source Demonstration for Assessment Monitoring

The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer.

Not applicable. No alternative source demonstration evaluation for assessment monitoring was completed in 2018.

2.5.7 § 257.96(a) Extension of Time for Corrective Measures Assessment

The assessment of corrective measures must be completed within 90 days, unless the owner or operator demonstrates the need for additional time to complete the assessment of corrective measure due to site-specific conditions or circumstances. The owner or operator must obtain a certification from a qualified professional engineer attesting that the demonstration is accurate. The 90-day deadline to complete the assessment of corrective measures may be extended for longer than 60 days. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by § 257.90(e), in addition to the certification by a qualified professional engineer.

Not applicable. Corrective measures assessment has not been initiated.

[This page left blank intentionally]

Tables

Table 1. CCR Rule Groundwater Samples Summary
Lansing Generating Station / SCS Engineers Project #25216070

Sample Dates	Background Well	Downgradient Wells			Notes
	MW-6	MW-301	MW-302	MW-303	
4/16/2018	A	A	A	A	First assessment monitoring event: Sample from MW-6 was damaged during transit (non-radium parameters). Lab did not complete TDS analysis within specified hold time.
4/26/2018	A-R	--	--	--	Resample of MW-6 for non-radium parameters only.
6/4/2018	--	A-R	A-R	A-R	Resample of MW-301, MW-302, and MW-303 for TDS only.
8/7/2018	A	A	A	A	Second assessment monitoring event: Cadmium, lithium, and thallium were not analyzed in this second round of assessment sampling. These constituents were not detected in the first round of assessment monitoring in Spring 2018.
10/8/2018	A	A	A	A	Semiannual assessment monitoring event.
Total Samples	4	4	4	4	

Abbreviations:
A = Assessment Monitoring Sample
A-R = Assessment Monitoring Resample
-- = Not Sampled

Created by: NDK Date: 1/8/2018
Last revision by: NDK Date: 12/12/2018
Checked by: MDB Date: 12/12/2018

I:\25216070.00\Deliverables\2018 Annual Groundwater Monitoring and Corrective Action Report\Tables\[Table 1. GW_Samples_Summary_Table_2018.xlsx]GW Summary

Table 2. Groundwater Protection Standards - CCR Program - Assessment Monitoring
Lansing Generating Station / SCS Engineers Project #25216070.18

Parameter Name	GPS	Source
Antimony, ug/L	6	MCL
Arsenic, ug/L	10	MCL
Barium, ug/L	2000	MCL
Beryllium, ug/L	4	MCL
Cadmium, ug/L	5	MCL
Chromium, ug/L	100	MCL
Cobalt, ug/L	6	40 CFR 257.95(h)(2)
Fluoride, mg/L	4	MCL
Lead, ug/L	15	40 CFR 257.95(h)(2)
Lithium, ug/L	40	40 CFR 257.95(h)(2)
Mercury, ug/L	2	MCL
Molybdenum, ug/L	100	40 CFR 257.95(h)(2)
Selenium, ug/L	50	MCL
Thallium, ug/L	2	MCL
Radium 226/228 Combined, pCi/L	5	MCL

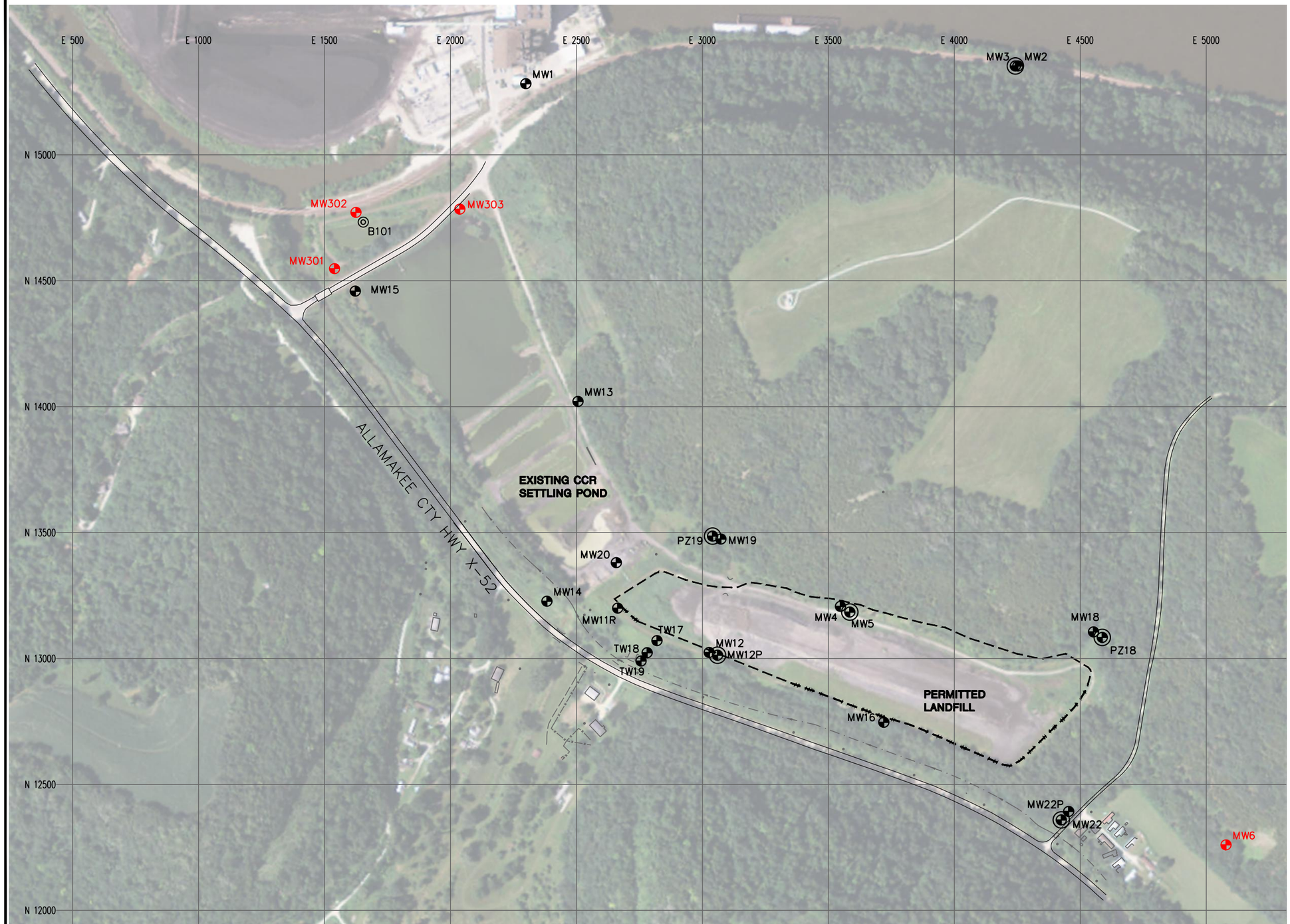
Abbreviations:
GPS = Groundwater Protection Standard
MCL = Maximum Contaminant Level established under 40 CFR 141.62 and 141.66

Created by: NDK, 9/24/2018
Checked by: SCC, 10/14/2018

I:\25216070.00\Deliverables\2018 Annual Groundwater Monitoring and Corrective Action Report\Tables\[Table 2. Groundwater Protection Standards.xlsx]Table

Figure 1

Site Plan and Well Location Map



NORTH GRID

400 0 400

SCALE: 1" = 400'

LEGEND

– – – – – –	APPROVED LIMITS OF WASTE
MW17	EXISTING MONITORING WELL
MW12P	EXISTING PIEZOMETER
B101	SOIL & BEDROCK BORING
MW6	CCR MONITORING WELL

NOTES:

1. MONITORING WELL LOCATIONS ARE APPROXIMATE.

PROJECT NO.	25216070.00	DRAWN BY:	BJM
DRAWN:	10/24/16	CHECKED BY:	NK
REVISED:	01/18/18	APPROVED BY:	

ENGINEER: SCS ENGINEERS
2830 DAIRY DRIVE MADISON, WI 53718-6751
PHONE: (608) 224-2830

CLIENT: ALLIANT ENERGY INTERSTATE POWER AND LIGHT
2320 POWER PLANT DRIVE
LANSING, IA 52151-9733

SITE: INTERSTATE POWER AND LIGHT
LANSING POWER STATION
COAL COMBUSTION RESIDUE LANDFILL
LANSING, IOWA

MONITORING WELL LOCATION MAP

FIGURE 1

I:\25216070.00\Drawings\2017 Annual Rpt.dwg, 1/18/2018 10:52:49 AM

Appendix A

Laboratory Reports

A1 Assessment Monitoring Round 1, April 2018

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

May 13, 2018

Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, WI 53718

RE: Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

Dear Meghan Blodgett:
Enclosed are the analytical results for sample(s) received by the laboratory on April 19, 2018. 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,

Trudy Gipson

Trudy Gipson
trudy.gipson@pacelabs.com
1(913)563-1405
Project Manager

Enclosures

cc: Tom Karwaski, SCS Engineers
Kyle Kramer, SCS Engineers
Jeff Maxted, Alliant Energy

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60268637001	**MW-301**	Water	04/16/18 14:26	04/19/18 08:55
60268637002	**MW-302**	Water	04/16/18 15:11	04/19/18 08:55
60268637003	**MW-303**	Water	04/16/18 15:56	04/19/18 08:55
60268637004	**MW-20**	Water	04/16/18 16:36	04/19/18 08:55
60268637005	**MW-6**	Water	04/16/18 13:26	04/19/18 08:55
60268637006	**FIELD BLANK**	Water	04/16/18 16:40	04/19/18 08:55

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60268637001	**MW-301**	EPA 6010	TDS	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	CRN	1	PASI-K
		SM 2540C	OL	1	PASI-K
		EPA 9040	MJK	1	PASI-K
		EPA 9056	AGO	3	PASI-K
60268637002	**MW-302**	EPA 6010	TDS	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	CRN	1	PASI-K
		SM 2540C	OL	1	PASI-K
		EPA 9040	MJK	1	PASI-K
		EPA 9056	AGO	3	PASI-K
60268637003	**MW-303**	EPA 6010	TDS	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	CRN	1	PASI-K
		SM 2540C	OL	1	PASI-K
		EPA 9040	MJK	1	PASI-K
		EPA 9056	AGO	3	PASI-K
60268637006	**FIELD BLANK**	EPA 6010	TDS	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	CRN	1	PASI-K
		SM 2540C	OL	1	PASI-K
		EPA 9040	MJK	1	PASI-K
		EPA 9056	AGO	3	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

Sample: MW-301 **Lab ID: 60268637001** Collected: 04/16/18 14:26 Received: 04/19/18 08:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**CLIENT**				1		04/16/18 14:26		
Collected Date	**04/16/2018**				1		04/16/18 14:26		
Collected Time	**1426**				1		04/16/18 14:26		
Field pH	**8.39**	Std. Units	0.10	0.050	1		04/16/18 14:26		
Field Temperature	**9.5**	deg C	0.50	0.25	1		04/16/18 14:26		
Field Specific Conductance	**505**	umhos/cm	1.0	1.0	1		04/16/18 14:26		
Field Oxidation Potential	**-40**	mV			1		04/16/18 14:26		
Oxygen, Dissolved	**1.0**	mg/L			1		04/16/18 14:26	7782-44-7	
Turbidity	**8.31**	NTU	1.0	1.0	1		04/16/18 14:26		
Groundwater Elevation	**624.29**	feet			1		04/16/18 14:26		
6010 MET ICP	Analytical Method: EPA 6010	Preparation Method: EPA 3010							
Boron	**198**	ug/L	100	12.5	1	04/25/18 17:19	04/26/18 20:36	7440-42-8	
Calcium	**64.5**	mg/L	0.20	0.054	1	04/25/18 17:19	04/26/18 20:36	7440-70-2	
Lithium	**<4.6**	ug/L	10.0	4.6	1	04/25/18 17:19	04/26/18 20:36	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020	Preparation Method: EPA 3010							
Antimony	**0.071J**	ug/L	1.0	0.026	1	04/25/18 17:19	05/01/18 21:54	7440-36-0	
Arsenic	**3.9**	ug/L	1.0	0.052	1	04/25/18 17:19	05/01/18 21:54	7440-38-2	
Barium	**163**	ug/L	1.0	0.095	1	04/25/18 17:19	05/01/18 21:54	7440-39-3	
Beryllium	**<0.012**	ug/L	0.50	0.012	1	04/25/18 17:19	05/09/18 12:42	7440-41-7	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	04/25/18 17:19	05/01/18 21:54	7440-43-9	
Chromium	**1.1**	ug/L	1.0	0.054	1	04/25/18 17:19	05/01/18 21:54	7440-47-3	
Cobalt	**0.086J**	ug/L	1.0	0.014	1	04/25/18 17:19	05/01/18 21:54	7440-48-4	
Lead	**0.037J**	ug/L	1.0	0.033	1	04/25/18 17:19	05/01/18 21:54	7439-92-1	
Molybdenum	**4.4**	ug/L	1.0	0.058	1	04/25/18 17:19	05/09/18 12:42	7439-98-7	
Selenium	**<0.086**	ug/L	1.0	0.086	1	04/25/18 17:19	05/01/18 21:54	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	04/25/18 17:19	05/01/18 21:54	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470	Preparation Method: EPA 7470							
Mercury	**0.31**	ug/L	0.20	0.090	1	04/24/18 14:05	04/25/18 09:35	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**300**	mg/L	5.0	5.0	1		04/24/18 11:55		H1
9040 pH	Analytical Method: EPA 9040								
pH	**8.0**	Std. Units	0.10	0.10	1		04/24/18 14:15		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**20.2**	mg/L	5.0	2.3	5		04/25/18 21:09	16887-00-6	
Fluoride	**0.24**	mg/L	0.20	0.063	1		04/25/18 21:22	16984-48-8	
Sulfate	**49.3**	mg/L	5.0	1.2	5		04/25/18 21:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

Sample: MW-302 **Lab ID: 60268637002** Collected: 04/16/18 15:11 Received: 04/19/18 08:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**CLIENT**				1		04/16/18 15:11		
Collected Date	**04/16/2018**				1		04/16/18 15:11		
Collected Time	**1511**				1		04/16/18 15:11		
Field pH	**7.26**	Std. Units	0.10	0.050	1		04/16/18 15:11		
Field Temperature	**6.0**	deg C	0.50	0.25	1		04/16/18 15:11		
Field Specific Conductance	**1098**	umhos/cm	1.0	1.0	1		04/16/18 15:11		
Field Oxidation Potential	**-152**	mV			1		04/16/18 15:11		
Oxygen, Dissolved	**0.8**	mg/L			1		04/16/18 15:11	7782-44-7	
Turbidity	**5.25**	NTU	1.0	1.0	1		04/16/18 15:11		
Groundwater Elevation	**628.98**	feet			1		04/16/18 15:11		
6010 MET ICP	Analytical Method: EPA 6010	Preparation Method: EPA 3010							
Boron	**489**	ug/L	100	12.5	1	04/25/18 17:19	04/26/18 20:38	7440-42-8	
Calcium	**120**	mg/L	0.20	0.054	1	04/25/18 17:19	04/26/18 20:38	7440-70-2	
Lithium	**<4.6**	ug/L	10.0	4.6	1	04/25/18 17:19	04/26/18 20:38	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020	Preparation Method: EPA 3010							
Antimony	**0.035J**	ug/L	1.0	0.026	1	04/25/18 17:19	05/01/18 21:58	7440-36-0	
Arsenic	**30.8**	ug/L	1.0	0.052	1	04/25/18 17:19	05/01/18 21:58	7440-38-2	
Barium	**789**	ug/L	1.0	0.095	1	04/25/18 17:19	05/01/18 21:58	7440-39-3	
Beryllium	**<0.012**	ug/L	0.50	0.012	1	04/25/18 17:19	05/09/18 12:45	7440-41-7	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	04/25/18 17:19	05/01/18 21:58	7440-43-9	
Chromium	**0.35J**	ug/L	1.0	0.054	1	04/25/18 17:19	05/01/18 21:58	7440-47-3	
Cobalt	**1.1**	ug/L	1.0	0.014	1	04/25/18 17:19	05/01/18 21:58	7440-48-4	
Lead	**0.084J**	ug/L	1.0	0.033	1	04/25/18 17:19	05/01/18 21:58	7439-92-1	
Molybdenum	**0.91J**	ug/L	1.0	0.058	1	04/25/18 17:19	05/09/18 12:45	7439-98-7	
Selenium	**<0.086**	ug/L	1.0	0.086	1	04/25/18 17:19	05/01/18 21:58	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	04/25/18 17:19	05/01/18 21:58	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470	Preparation Method: EPA 7470							
Mercury	**0.35**	ug/L	0.20	0.090	1	04/24/18 14:05	04/25/18 09:37	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**543**	mg/L	5.0	5.0	1		04/24/18 11:55		H1
9040 pH	Analytical Method: EPA 9040								
pH	**7.3**	Std. Units	0.10	0.10	1		04/24/18 14:16		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**13.0**	mg/L	1.0	0.46	1		04/25/18 21:36	16887-00-6	
Fluoride	**0.24**	mg/L	0.20	0.063	1		04/25/18 21:36	16984-48-8	
Sulfate	**<0.24**	mg/L	1.0	0.24	1		04/25/18 21:36	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

Sample: MW-303 **Lab ID: 60268637003** Collected: 04/16/18 15:56 Received: 04/19/18 08:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**CLIENT**				1		04/16/18 15:56		
Field pH	**8.00**	Std. Units	0.10	0.050	1		04/16/18 15:56		
Field Temperature	**4.1**	deg C	0.50	0.25	1		04/16/18 15:56		
Field Specific Conductance	**552**	umhos/cm	1.0	1.0	1		04/16/18 15:56		
Field Oxidation Potential	**53**	mV			1		04/16/18 15:56		
Oxygen, Dissolved	**3.5**	mg/L			1		04/16/18 15:56	7782-44-7	
Turbidity	**0.40**	NTU	1.0	1.0	1		04/16/18 15:56		
Groundwater Elevation	**638.62**	feet			1		04/16/18 15:56		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**144**	ug/L	100	12.5	1	04/25/18 17:19	04/26/18 20:40	7440-42-8	
Calcium	**54.6**	mg/L	0.20	0.054	1	04/25/18 17:19	04/26/18 20:40	7440-70-2	
Lithium	**<4.6**	ug/L	10.0	4.6	1	04/25/18 17:19	04/26/18 20:40	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**0.16J**	ug/L	1.0	0.026	1	04/25/18 17:19	05/01/18 22:03	7440-36-0	
Arsenic	**1.2**	ug/L	1.0	0.052	1	04/25/18 17:19	05/01/18 22:03	7440-38-2	
Barium	**173**	ug/L	1.0	0.095	1	04/25/18 17:19	05/01/18 22:03	7440-39-3	
Beryllium	**0.046J**	ug/L	0.50	0.012	1	04/25/18 17:19	05/09/18 12:49	7440-41-7	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	04/25/18 17:19	05/01/18 22:03	7440-43-9	
Chromium	**0.51J**	ug/L	1.0	0.054	1	04/25/18 17:19	05/01/18 22:03	7440-47-3	
Cobalt	**0.14J**	ug/L	1.0	0.014	1	04/25/18 17:19	05/01/18 22:03	7440-48-4	
Lead	**<0.033**	ug/L	1.0	0.033	1	04/25/18 17:19	05/01/18 22:03	7439-92-1	
Molybdenum	**7.3**	ug/L	1.0	0.058	1	04/25/18 17:19	05/09/18 12:49	7439-98-7	
Selenium	**3.3**	ug/L	1.0	0.086	1	04/25/18 17:19	05/01/18 22:03	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	04/25/18 17:19	05/01/18 22:03	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	04/24/18 14:05	04/25/18 09:39	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**296**	mg/L	5.0	5.0	1		04/24/18 11:55		H1
9040 pH	Analytical Method: EPA 9040								
pH	**8.0**	Std. Units	0.10	0.10	1		04/24/18 14:19		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**24.1**	mg/L	5.0	2.3	5		04/25/18 22:31	16887-00-6	
Fluoride	**0.32**	mg/L	0.20	0.063	1		04/25/18 22:17	16984-48-8	
Sulfate	**43.5**	mg/L	5.0	1.2	5		04/25/18 22:31	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

Sample: FIELD BLANK **Lab ID: 60268637006** Collected: 04/16/18 16:40 Received: 04/19/18 08:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**<12.5**	ug/L	100	12.5	1	04/25/18 17:19	04/26/18 20:43	7440-42-8	
Calcium	**0.065J**	mg/L	0.20	0.054	1	04/25/18 17:19	04/26/18 20:43	7440-70-2	
Lithium	**<4.6**	ug/L	10.0	4.6	1	04/25/18 17:19	04/26/18 20:43	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**<0.026**	ug/L	1.0	0.026	1	04/25/18 17:19	05/01/18 22:33	7440-36-0	
Arsenic	**<0.052**	ug/L	1.0	0.052	1	04/25/18 17:19	05/01/18 22:33	7440-38-2	
Barium	**0.21J**	ug/L	1.0	0.095	1	04/25/18 17:19	05/01/18 22:33	7440-39-3	
Beryllium	**<0.012**	ug/L	0.50	0.012	1	04/25/18 17:19	05/09/18 13:08	7440-41-7	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	04/25/18 17:19	05/01/18 22:33	7440-43-9	
Chromium	**0.076J**	ug/L	1.0	0.054	1	04/25/18 17:19	05/01/18 22:33	7440-47-3	
Cobalt	**<0.014**	ug/L	1.0	0.014	1	04/25/18 17:19	05/01/18 22:33	7440-48-4	
Lead	**<0.033**	ug/L	1.0	0.033	1	04/25/18 17:19	05/01/18 22:33	7439-92-1	
Molybdenum	**<0.058**	ug/L	1.0	0.058	1	04/25/18 17:19	05/09/18 13:08	7439-98-7	
Selenium	**<0.086**	ug/L	1.0	0.086	1	04/25/18 17:19	05/01/18 22:33	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	04/25/18 17:19	05/01/18 22:33	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	04/24/18 14:05	04/25/18 09:46	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		04/24/18 11:55		H1
9040 pH	Analytical Method: EPA 9040								
pH	**5.6**	Std. Units	0.10	0.10	1		04/24/18 14:20		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**<0.46**	mg/L	1.0	0.46	1		04/25/18 22:58	16887-00-6	
Fluoride	**<0.063**	mg/L	0.20	0.063	1		04/25/18 22:58	16984-48-8	
Sulfate	**<0.24**	mg/L	1.0	0.24	1		04/25/18 22:58	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

QC Batch: 523027 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60268637001, 60268637002, 60268637003, 60268637006

METHOD BLANK: 2141129 Matrix: Water
Associated Lab Samples: 60268637001, 60268637002, 60268637003, 60268637006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.090	0.20	0.090	04/25/18 12:34	

LABORATORY CONTROL SAMPLE: 2141130

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.5	91	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2141131 2141132

Parameter	Units	60268637001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	0.31	5	5	4.5	4.6	84	86	75-125	2	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

QC Batch: 523243 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60268637001, 60268637002, 60268637003, 60268637006

METHOD BLANK: 2141937 Matrix: Water
Associated Lab Samples: 60268637001, 60268637002, 60268637003, 60268637006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<12.5	100	12.5	04/26/18 20:06	
Calcium	mg/L	<0.054	0.20	0.054	04/26/18 20:06	
Lithium	ug/L	<4.6	10.0	4.6	04/26/18 20:06	

LABORATORY CONTROL SAMPLE: 2141938

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	948	95	80-120	
Calcium	mg/L	10	9.7	97	80-120	
Lithium	ug/L	1000	1060	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2141939 2141940

Parameter	Units	60268544002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	236	1000	1000	1140	1170	91	93	75-125	2	20	
Calcium	mg/L	170	10	10	176	178	64	80	75-125	1	20	M1
Lithium	ug/L	<4.6	1000	1000	1070	1080	107	108	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

QC Batch: 523241 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 60268637001, 60268637002, 60268637003, 60268637006

METHOD BLANK: 2141931 Matrix: Water
Associated Lab Samples: 60268637001, 60268637002, 60268637003, 60268637006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.026	1.0	0.026	05/01/18 20:50	
Arsenic	ug/L	<0.052	1.0	0.052	05/01/18 20:50	
Barium	ug/L	<0.095	1.0	0.095	05/01/18 20:50	
Beryllium	ug/L	<0.012	0.50	0.012	05/09/18 12:23	
Cadmium	ug/L	<0.018	0.50	0.018	05/01/18 20:50	
Chromium	ug/L	<0.054	1.0	0.054	05/01/18 20:50	
Cobalt	ug/L	<0.014	1.0	0.014	05/01/18 20:50	
Lead	ug/L	<0.033	1.0	0.033	05/01/18 20:50	
Molybdenum	ug/L	0.085J	1.0	0.058	05/09/18 12:23	
Selenium	ug/L	<0.086	1.0	0.086	05/01/18 20:50	
Thallium	ug/L	<0.036	1.0	0.036	05/01/18 20:50	

LABORATORY CONTROL SAMPLE: 2141932

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	37.8	94	80-120	
Arsenic	ug/L	40	37.4	93	80-120	
Barium	ug/L	40	38.8	97	80-120	
Beryllium	ug/L	40	41.9	105	80-120	
Cadmium	ug/L	40	39.8	100	80-120	
Chromium	ug/L	40	37.8	95	80-120	
Cobalt	ug/L	40	37.5	94	80-120	
Lead	ug/L	40	40.6	101	80-120	
Molybdenum	ug/L	40	43.1	108	80-120	
Selenium	ug/L	40	36.6	91	80-120	
Thallium	ug/L	40	39.5	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2141933 2141934

Parameter	Units	60268544001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.026	80	80	74.4	73.5	93	92	75-125	1	20	
Arsenic	ug/L	0.19J	80	80	74.6	73.1	93	91	75-125	2	20	
Barium	ug/L	44.9	80	80	117	117	90	91	75-125	0	20	
Beryllium	ug/L	<0.012	80	80	80.4	79.2	100	99	75-125	1	20	
Cadmium	ug/L	<0.018	80	80	76.2	75.5	95	94	75-125	1	20	
Chromium	ug/L	0.76J	80	80	76.2	74.2	94	92	75-125	3	20	
Cobalt	ug/L	<0.014	80	80	72.6	70.9	91	89	75-125	2	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2141933 2141934

Parameter	Units	60268544001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead	ug/L	<0.033	80	80	83.0	77.0	104	96	75-125	7	20	
Molybdenum	ug/L	0.35J	80	80	87.2	85.8	109	107	75-125	2	20	
Selenium	ug/L	0.24J	80	80	70.0	70.6	87	88	75-125	1	20	
Thallium	ug/L	<0.036	80	80	77.0	76.2	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

QC Batch: 522900 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60268637001, 60268637002, 60268637003, 60268637006

METHOD BLANK: 2140683 Matrix: Water
Associated Lab Samples: 60268637001, 60268637002, 60268637003, 60268637006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	04/24/18 11:55	

LABORATORY CONTROL SAMPLE: 2140684

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	999	100	80-120	

SAMPLE DUPLICATE: 2140685

Parameter	Units	60268297005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	506	507	0	10	H1

SAMPLE DUPLICATE: 2140686

Parameter	Units	60268634001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1400	1410	1	10	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

QC Batch: 522990 Analysis Method: EPA 9040
QC Batch Method: EPA 9040 Analysis Description: 9040 pH
Associated Lab Samples: 60268637001, 60268637002, 60268637003, 60268637006

SAMPLE DUPLICATE: 2140945

Parameter	Units	60268289002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	13.4	13.4	0	10	H6

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

QC Batch: 523195 Analysis Method: EPA 9056
QC Batch Method: EPA 9056 Analysis Description: 9056 IC Anions
Associated Lab Samples: 60268637001, 60268637002, 60268637003, 60268637006

METHOD BLANK: 2141792 Matrix: Water
Associated Lab Samples: 60268637001, 60268637002, 60268637003, 60268637006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.46	1.0	0.46	04/25/18 15:00	
Fluoride	mg/L	<0.063	0.20	0.063	04/25/18 15:00	
Sulfate	mg/L	<0.24	1.0	0.24	04/25/18 15:00	

LABORATORY CONTROL SAMPLE: 2141793

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	99	80-120	
Fluoride	mg/L	2.5	2.6	103	80-120	
Sulfate	mg/L	5	5.1	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2141795 2141796

Parameter	Units	60268626006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	54.4	25	25	82.8	82.7	114	113	80-120	0	15	
Fluoride	mg/L	0.11J	2.5	2.5	2.7	2.7	102	104	80-120	1	15	
Sulfate	mg/L	289	100	100	401	403	112	114	80-120	0	15	E

SAMPLE DUPLICATE: 2141794

Parameter	Units	60268544001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	6.7	6.7	0	15	
Fluoride	mg/L	0.11J	0.12J		15	
Sulfate	mg/L	26.4	25.6	3	15	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

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.

TNTC - Too Numerous To Count

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.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H1	Analysis conducted outside the EPA method holding time.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268637

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60268637001	**MW-301**		523704		
60268637002	**MW-302**		523704		
60268637003	**MW-303**		523704		
60268637001	**MW-301**	EPA 3010	523243	EPA 6010	523279
60268637002	**MW-302**	EPA 3010	523243	EPA 6010	523279
60268637003	**MW-303**	EPA 3010	523243	EPA 6010	523279
60268637006	**FIELD BLANK**	EPA 3010	523243	EPA 6010	523279
60268637001	**MW-301**	EPA 3010	523241	EPA 6020	523278
60268637002	**MW-302**	EPA 3010	523241	EPA 6020	523278
60268637003	**MW-303**	EPA 3010	523241	EPA 6020	523278
60268637006	**FIELD BLANK**	EPA 3010	523241	EPA 6020	523278
60268637001	**MW-301**	EPA 7470	523027	EPA 7470	523058
60268637002	**MW-302**	EPA 7470	523027	EPA 7470	523058
60268637003	**MW-303**	EPA 7470	523027	EPA 7470	523058
60268637006	**FIELD BLANK**	EPA 7470	523027	EPA 7470	523058
60268637001	**MW-301**	SM 2540C	522900		
60268637002	**MW-302**	SM 2540C	522900		
60268637003	**MW-303**	SM 2540C	522900		
60268637006	**FIELD BLANK**	SM 2540C	522900		
60268637001	**MW-301**	EPA 9040	522990		
60268637002	**MW-302**	EPA 9040	522990		
60268637003	**MW-303**	EPA 9040	522990		
60268637006	**FIELD BLANK**	EPA 9040	522990		
60268637001	**MW-301**	EPA 9056	523195		
60268637002	**MW-302**	EPA 9056	523195		
60268637003	**MW-303**	EPA 9056	523195		
60268637006	**FIELD BLANK**	EPA 9056	523195		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60268637

60268637

Client Name: SCS Engineers

Courier: FedEx ☐ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 4122 4945 6347 Pace Shipping Label Used? Yes ☐ No ☒

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

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

Thermometer Used: T-295 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** -0.3 **Corr. Factor** +1.3 **Corrected** 1.0

Date and initials of person examining contents: AE 4/19/18

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	pH
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	Received BP2U for sample
Correct containers used:	☒Yes ☐No ☐N/A	MW-20 with cap off
Pace containers used:	☒Yes ☐No ☐N/A	container and liquid in
Containers intact:	☒Yes ☐No ☐N/A	zip lock bag.
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	Received BP2U for sample
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	MW-16 with cap off container
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	and liquid in zip lock bag.
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☒No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☒No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

Client Notification/ Resolution: Copy COC to Client? Y / (N) Field Data Required? Y / N

Person Contacted: Meghan Blodgett Date/Time: 4-20-18

Comments/ Resolution: Per client- do not analyze MW-20 and MW-6. JDL

Project Manager Review: JDL Date: 4.23.18

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: of

Section A — **Required** Client Information:

Company:	SCS Engineers
Address:	2830 Dairy Drive
	Madison WI 53718
Email To:	mblodgett@scsengineers.com
Phone: 608-216-7362	Fax:
Requested Due Date/TAT:	

Section B — **Required** Project Information:

Report To:	Meghan Blodgett
Copy To:	Tom Karwaski
Purchase Order No.:	
Project Name:	Lansing Generating Station
Project Number:	25216073.18

Section C — Invoice Information:

Attention:	Meghan Blodgett/Jess Valcheff
Company Name:	SCS Engineers
Address:	
Pace Quote Reference:	
Pace Project Manager:	Trudy Gipson 913-563-1405
Pace Profile #:	6696 Line 2

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: IA

Section D — **Required** Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	6010 Total Metals: B-Ca-Li	6020 Total Metals *	7470 Total Hg	9056 Chloride-Fluoride-Sulfate	2540C TDS	9040 pH	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N					60268637
1	MW-301	WT	G	xxx	xxx	4/16/18	1426	9.5	3	1		2							X	X	X	X	X	X		a01
2	MW-302	WT	G	xxx	xxx	4/16/18	1511	6.0	3	1		2							X	X	X	X	X	X		a02
3	MW-303	WT	G	xxx	xxx	4/16/18	1556	4.1	3	1		2							X	X	X	X	X	X		a03
4 ✓	MW-20	WT	G	xxx	xxx	4/16/18	1636	7.0	3	1		2							X	X	X	X	X	X		a04
5 ✓	MW-6	WT	G	xxx	xxx	4/16/18	1326	9.2	3	1		2							X	X	X	X	X	X		a05
6	FIELD BLANK	WT	G	xxx	xxx	4/16/18	1640	7.0	3	1		2							X	X	X	X	X	X		a06
7																										
8																										
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Ship To: 9608 Loiret Boulevard, Lenexa, KS 66219	Gary Stinked SCS	4/18/18	1700	Alyssia Cortez - PASI	4/19/18	0855	1.0	Y	Y	Y
* Sb-As-Ba-Be-Cd-Cr-Co-Pb-Mo-Se-Tl										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

May 14, 2018

Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, WI 53718

RE: Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268546

Dear Meghan Blodgett:
Enclosed are the analytical results for sample(s) received by the laboratory on April 19, 2018. 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,

Trudy Gipson

Trudy Gipson
trudy.gipson@pacelabs.com
1(913)563-1405
Project Manager

Enclosures

cc: Tom Karwaski, SCS Engineers
Nicole Kron, SCS Engineers
Jeff Maxted, Alliant Energy

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268546

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268546

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60268546001	**MW-301**	Water	04/16/18 14:26	04/19/18 08:55
60268546002	**MW-302**	Water	04/16/18 15:11	04/19/18 08:55
60268546003	**MW-303**	Water	04/16/18 15:56	04/19/18 08:55
60268546004	**MW-20**	Water	04/16/18 16:36	04/19/18 08:55
60268546005	**MW-6**	Water	04/16/18 13:26	04/19/18 08:55
60268546006	**FIELD BLANK**	Water	04/16/18 16:40	04/19/18 08:55

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268546

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60268546001	**MW-301**	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60268546002	**MW-302**	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60268546003	**MW-303**	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60268546005	**MW-6**	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60268546006	**FIELD BLANK**	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268546

Sample: MW-301 **Lab ID: 60268546001** Collected: 04/16/18 14:26 Received: 04/19/18 08:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.364 (0.770) C:NA T:85%**	pCi/L	05/08/18 13:26	13982-63-3	
Radium-228	EPA 904.0	**0.689 ± 0.352 (0.605) C:84% T:81%**	pCi/L	05/10/18 12:12	15262-20-1	
Total Radium	Total Radium Calculation	**0.689 ± 0.716 (1.38)**	pCi/L	05/11/18 12:05	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268546

Sample: MW-302 **Lab ID: 60268546002** Collected: 04/16/18 15:11 Received: 04/19/18 08:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.776 ± 0.473 (0.557) C:NA T:98%**	pCi/L	05/08/18 13:28	13982-63-3	
Radium-228	EPA 904.0	**1.18 ± 0.441 (0.645) C:84% T:82%**	pCi/L	05/10/18 12:12	15262-20-1	
Total Radium	Total Radium Calculation	**1.96 ± 0.914 (1.20)**	pCi/L	05/11/18 12:05	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268546

Sample: MW-303 **Lab ID: 60268546003** Collected: 04/16/18 15:56 Received: 04/19/18 08:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.359 ± 0.335 (0.441) C:NA T:88%**	pCi/L	05/08/18 13:26	13982-63-3	
Radium-228	EPA 904.0	**0.428 ± 0.311 (0.607) C:83% T:93%**	pCi/L	05/10/18 12:12	15262-20-1	
Total Radium	Total Radium Calculation	**0.787 ± 0.646 (1.05)**	pCi/L	05/11/18 12:05	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268546

Sample: MW-6 **Lab ID: 60268546005** Collected: 04/16/18 13:26 Received: 04/19/18 08:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.000 ± 0.386 (0.801) C:NA T:91%**	pCi/L	05/08/18 13:28	13982-63-3	
Radium-228	EPA 904.0	**1.35 ± 0.597 (1.01) C:82% T:83%**	pCi/L	05/10/18 14:22	15262-20-1	
Total Radium	Total Radium Calculation	**1.35 ± 0.983 (1.81)**	pCi/L	05/11/18 12:05	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268546

Sample: FIELD BLANK **Lab ID: 60268546006** Collected: 04/16/18 16:40 Received: 04/19/18 08:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**-0.120 ± 0.408 (0.902) C:NA T:88%**	pCi/L	05/08/18 13:39	13982-63-3	
Radium-228	EPA 904.0	**1.05 ± 0.451 (0.743) C:83% T:81%**	pCi/L	05/10/18 12:10	15262-20-1	
Total Radium	Total Radium Calculation	**1.05 ± 0.859 (1.65)**	pCi/L	05/11/18 12:05	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268546

QC Batch: 295987 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60268546001, 60268546002, 60268546003, 60268546005, 60268546006

METHOD BLANK: 1449063 Matrix: Water
Associated Lab Samples: 60268546001, 60268546002, 60268546003, 60268546005, 60268546006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.219 ± 0.373 (0.658) C:NA T:93%	pCi/L	05/08/18 12:36	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268546

QC Batch: 296003 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60268546001, 60268546002, 60268546003, 60268546005, 60268546006

METHOD BLANK: 1449099 Matrix: Water
Associated Lab Samples: 60268546001, 60268546002, 60268546003, 60268546005, 60268546006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.197 ± 0.341 (0.746) C:81% T:70%	pCi/L	05/10/18 12:11	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268546

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.

TNTC - Too Numerous To Count

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.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60268546

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60268546001	**MW-301**	EPA 903.1	295987		
60268546002	**MW-302**	EPA 903.1	295987		
60268546003	**MW-303**	EPA 903.1	295987		
60268546005	**MW-6**	EPA 903.1	295987		
60268546006	**FIELD BLANK**	EPA 903.1	295987		
60268546001	**MW-301**	EPA 904.0	296003		
60268546002	**MW-302**	EPA 904.0	296003		
60268546003	**MW-303**	EPA 904.0	296003		
60268546005	**MW-6**	EPA 904.0	296003		
60268546006	**FIELD BLANK**	EPA 904.0	296003		
60268546001	**MW-301**	Total Radium Calculation	298017		
60268546002	**MW-302**	Total Radium Calculation	298017		
60268546003	**MW-303**	Total Radium Calculation	298017		
60268546005	**MW-6**	Total Radium Calculation	298017		
60268546006	**FIELD BLANK**	Total Radium Calculation	298017		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60268546

60268546

Client Name: SCS Engineers

Courier: FedEx ☒ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 4122 4945 6325 Pace Shipping Label Used? Yes ☐ No ☐

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

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

Thermometer Used: 301 **Type of Ice:** (Wet) Blue (None)

Cooler Temperature (°C): **As-read** 19.4 **Corr. Factor** +1.0 **Corrected** 20.4

TG

Date and initials of person examining contents: 4/18/18

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☒No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

Client Notification/ Resolution: Copy COC to Client? Y / (N) Field Data Required? Y / N

Person Contacted: Meghan Blodgett Date/Time: 4-20-18

Comments/ Resolution: Per client - do not analyze MW-20. JM

Project Manager Review: JM Date: 4.23.18

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: of

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	SCS Engineers	Report To:	Meghan Blodgett	Attention:	Meghan Blodgett/Jess Valcheff
Address:	2830 Dairy Drive	Copy To:	Tom Karwaski	Company Name:	SCS Engineers
	Madison WI 53718			Address:	
Email To:	mblodgett@scsengineers.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	608-216-7362 Fax:	Project Name:	Lansing Generating Station	Pace Project Manager:	Trudy Gipson 913-563-1405
Requested Due Date/TAT:		Project Number:	25216073.18	Pace Profile #:	6696 Line 2

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: IA

Requested Analysis Filtered (Y/N)

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	903.1 Radium-226	904.0 Radium-228	Total Radium	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-301	WT	G	xxx	xxx	4/16/18	1426	9.5	2			2							X	X	X		001
2	MW-302	WT	G	xxx	xxx	4/16/18	1511	6.0	2			2							X	X	X		002
3	MW-303	WT	G	xxx	xxx	4/16/18	1556	4.1	2			2							X	X	X		003
4 ✓	MW-20	WT	G	xxx	xxx	4/16/18	1636	7.0	2			2							X	X	X		004
5	MW-6	WT	G	xxx	xxx	4/16/18	1726	9.2	2			2							X	X	X		005
6	FIELD BLANK	WT	G	xxx	xxx	4/16/18	1640	7.0	2			2							X	X	X		006
7																							
8																							
9																							
10																							
11																							
12																							

60268546

(2) 8PINT

Pace Project No./ Lab I.D.

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Ship To: 9608 Loiret Boulevard, Lenexa, KS 66219	Gary Stuhr SCS	4/18/18	1700		4/19	0855	2.0/4	N	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-Feb-2007

Chain of Custody

☐ Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: IA

Pace Analytical
www.pacelabs.com

Workorder: 60268546 **Workorder Name:** Lansing Gen Sta/25216073.18

Owner Received Date: 4/19/2018 **Results Requested By:** 5/14/2018

Report To	Subcontract To
Trudy Gipson Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone 1(913)563-1405	Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600

WO# : 30250653

30250653

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers HNO3	903.1 Radium-226	904.0 Radium-228 & Total Radium	LAB USE ONLY
1	MW-301	PS	4/16/2018 14:26	60268546001	Water	2	X	X	001
2	MW-302	PS	4/16/2018 15:11	60268546002	Water	2	X	X	002
3	MW-303	PS	4/16/2018 15:56	60268546003	Water	2	X	X	003
4	MW-6	PS	4/16/2018 13:26	60268546005	Water	2	X	X	BLM 004 005
5	FIELD BLANK	PS	4/16/2018 16:40	60268546006	Water	2	X	X	4-25-18 005 006

Transfers	Released By	Date/Time	Received By	Date/Time
1	E Brackett IPSI	4/20/18 1540	[signature]	4-24-18 1030
2				
3				

Comments

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

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

Pittsburgh Lab Sample Condition Upon Receipt

Face Analytical

Client Name: Pace KS Project #30250653

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

Label _____

LIMS Login _____

Tracking #: 4360 7273 8451

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

Thermometer Used N-A Type of Ice: Wet Blue (None)

Cooler Temperature Observed Temp — °C Correction Factor: — °C Final Temp: — °C

Temp should be above freezing to 6°C

pH paper Lot# 10D36711 Date and Initials of person examining contents: BJH 4-24-18

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC:	✓	✓		5. BJH 4-24-18. sample 4 is not on C.O.C.
-Includes date/time/ID Matrix: WT				60260854le-004 - Date and time is
Samples Arrived within Hold Time:	✓			6. 4-16-18 16:36
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used:	✓			10.
-Pace Containers Used:	✓			
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation.	✓			16. pH<2
All containers needing preservation are found to be in compliance with EPA recommendation.	✓			
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed BJH Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present:		✓		18.
Trip Blank Custody Seals Present			✓	
Rad Aqueous Samples Screened > 0.5 mrem/hr		✓		Initial when completed: BJH Date: 4-24-18

Client Notification/ Resolution:

Person Contacted: Trudy Green Date/Time: 4/25/18 Contacted By: 4/25/18

Comments/ Resolution:

Client does not need Rad on 004- log with HOLD code

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

***PM review** is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

May 23, 2018

Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, WI 53718

RE: Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

Dear Meghan Blodgett:
Enclosed are the analytical results for sample(s) received by the laboratory on April 27, 2018. 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,

Trudy Gipson

Trudy Gipson
trudy.gipson@pacelabs.com
1(913)563-1405
Project Manager

Enclosures

cc: Tom Karwaski, SCS Engineers
Nicole Kron, SCS Engineers
Jeff Maxted, Alliant Energy

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60269123001	**MW-6**	Water	04/26/18 12:55	04/27/18 09:00
60269123002	**FIELD BLANK**	Water	04/26/18 12:30	04/27/18 09:00

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60269123001	**MW-6**	EPA 6010	JRS	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	SMW	1	PASI-K
		SM 2540C	LDB	1	PASI-K
		EPA 9040	MJK	1	PASI-K
		EPA 9056	LDB, OL	3	PASI-K
60269123002	**FIELD BLANK**	EPA 6010	JRS	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	SMW	1	PASI-K
		SM 2540C	LDB	1	PASI-K
		EPA 9040	MJK	1	PASI-K
		EPA 9056	LDB	3	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

Sample: MW-6 **Lab ID: 60269123001** Collected: 04/26/18 12:55 Received: 04/27/18 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**CLIENT**				1		04/26/18 12:55		
Collected Date	**04/26/2018**				1		04/26/18 12:55		
Collected Time	**12:55**				1		04/26/18 12:55		
Field pH	**7.34**	Std. Units	0.10	0.050	1		04/26/18 12:55		
Field Temperature	**11.1**	deg C	0.50	0.25	1		04/26/18 12:55		
Field Specific Conductance	**569.1**	umhos/cm	1.0	1.0	1		04/26/18 12:55		
Field Oxidation Potential	**34.6**	mV			1		04/26/18 12:55		
Oxygen, Dissolved	**3.46**	mg/L			1		04/26/18 12:55	7782-44-7	
Turbidity	**0.81**	NTU	1.0	1.0	1		04/26/18 12:55		
Groundwater Elevation	**667.96**	feet			1		04/26/18 12:55		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**29.8J**	ug/L	100	12.5	1	04/30/18 10:15	05/08/18 11:37	7440-42-8	
Calcium	**72.7**	mg/L	0.20	0.054	1	04/30/18 10:15	05/08/18 11:37	7440-70-2	M1
Lithium	**<4.6**	ug/L	10.0	4.6	1	04/30/18 10:15	05/08/18 11:37	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**<0.026**	ug/L	1.0	0.026	1	04/30/18 10:15	05/22/18 19:16	7440-36-0	
Arsenic	**0.23J**	ug/L	1.0	0.052	1	04/30/18 10:15	05/22/18 19:16	7440-38-2	
Barium	**44.1**	ug/L	1.0	0.095	1	04/30/18 10:15	05/22/18 19:16	7440-39-3	
Beryllium	**<0.012**	ug/L	0.50	0.012	1	04/30/18 10:15	05/22/18 19:16	7440-41-7	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	04/30/18 10:15	05/22/18 19:16	7440-43-9	
Chromium	**0.66J**	ug/L	1.0	0.054	1	04/30/18 10:15	05/22/18 19:16	7440-47-3	
Cobalt	**<0.014**	ug/L	1.0	0.014	1	04/30/18 10:15	05/22/18 19:16	7440-48-4	
Lead	**<0.033**	ug/L	1.0	0.033	1	04/30/18 10:15	05/22/18 19:16	7439-92-1	
Molybdenum	**0.26J**	ug/L	1.0	0.058	1	04/30/18 10:15	05/22/18 19:16	7439-98-7	B
Selenium	**0.47J**	ug/L	1.0	0.086	1	04/30/18 10:15	05/22/18 19:16	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	04/30/18 10:15	05/22/18 19:16	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	05/07/18 15:38	05/08/18 10:26	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**343**	mg/L	5.0	5.0	1		05/03/18 07:26		
9040 pH	Analytical Method: EPA 9040								
pH	**7.7**	Std. Units	0.10	0.10	1		05/03/18 10:33		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**6.5**	mg/L	1.0	0.46	1		04/28/18 20:03	16887-00-6	
Fluoride	**0.084J**	mg/L	0.20	0.063	1		04/28/18 20:03	16984-48-8	
Sulfate	**26.4**	mg/L	2.0	0.47	2		05/05/18 23:06	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

Sample: FIELD BLANK **Lab ID: 60269123002** Collected: 04/26/18 12:30 Received: 04/27/18 09:00 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**<12.5**	ug/L	100	12.5	1	04/30/18 10:15	05/08/18 11:44	7440-42-8	
Calcium	**<0.054**	mg/L	0.20	0.054	1	04/30/18 10:15	05/08/18 11:44	7440-70-2	
Lithium	**<4.6**	ug/L	10.0	4.6	1	04/30/18 10:15	05/08/18 11:44	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**<0.026**	ug/L	1.0	0.026	1	04/30/18 10:15	05/22/18 19:32	7440-36-0	
Arsenic	**<0.052**	ug/L	1.0	0.052	1	04/30/18 10:15	05/22/18 19:32	7440-38-2	
Barium	**0.13J**	ug/L	1.0	0.095	1	04/30/18 10:15	05/22/18 19:32	7440-39-3	B
Beryllium	**<0.012**	ug/L	0.50	0.012	1	04/30/18 10:15	05/22/18 19:32	7440-41-7	
Cadmium	**<0.018**	ug/L	0.50	0.018	1	04/30/18 10:15	05/22/18 19:32	7440-43-9	
Chromium	**0.099J**	ug/L	1.0	0.054	1	04/30/18 10:15	05/22/18 19:32	7440-47-3	B
Cobalt	**<0.014**	ug/L	1.0	0.014	1	04/30/18 10:15	05/22/18 19:32	7440-48-4	
Lead	**<0.033**	ug/L	1.0	0.033	1	04/30/18 10:15	05/22/18 19:32	7439-92-1	
Molybdenum	**<0.058**	ug/L	1.0	0.058	1	04/30/18 10:15	05/22/18 19:32	7439-98-7	
Selenium	**<0.086**	ug/L	1.0	0.086	1	04/30/18 10:15	05/22/18 19:32	7782-49-2	
Thallium	**<0.036**	ug/L	1.0	0.036	1	04/30/18 10:15	05/22/18 19:32	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	05/07/18 15:38	05/08/18 10:28	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		05/03/18 07:26		
9040 pH	Analytical Method: EPA 9040								
pH	**3.9**	Std. Units	0.10	0.10	1		05/03/18 10:35		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**<0.46**	mg/L	1.0	0.46	1		04/28/18 21:03	16887-00-6	
Fluoride	**<0.063**	mg/L	0.20	0.063	1		04/28/18 21:03	16984-48-8	
Sulfate	**<0.24**	mg/L	1.0	0.24	1		04/28/18 21:03	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

QC Batch: 524732 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60269123001, 60269123002

METHOD BLANK: 2148652 Matrix: Water
Associated Lab Samples: 60269123001, 60269123002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.090	0.20	0.090	05/08/18 10:22	

LABORATORY CONTROL SAMPLE: 2148653

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.8	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2148654 2148655

Parameter	Units	60269160002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	5	5	4.7	4.9	93	97	75-125	4	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

QC Batch: 523712 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60269123001, 60269123002

METHOD BLANK: 2144336 Matrix: Water
Associated Lab Samples: 60269123001, 60269123002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<12.5	100	12.5	05/08/18 11:33	
Calcium	mg/L	<0.054	0.20	0.054	05/08/18 11:33	
Lithium	ug/L	<4.6	10.0	4.6	05/08/18 11:33	

LABORATORY CONTROL SAMPLE: 2144337

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	989	99	80-120	
Calcium	mg/L	10	10.0	100	80-120	
Lithium	ug/L	1000	1080	108	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2144338 2144339

Parameter	Units	60269123001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	29.8J	1000	1000	1040	1030	101	100	75-125	1	20	
Calcium	mg/L	72.7	10	10	80.4	79.5	77	69	75-125	1	20	M1
Lithium	ug/L	<4.6	1000	1000	1090	1090	109	109	75-125	0	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

QC Batch: 523679 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 60269123001, 60269123002

METHOD BLANK: 2144223 Matrix: Water
Associated Lab Samples: 60269123001, 60269123002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.026	1.0	0.026	05/22/18 18:44	
Arsenic	ug/L	<0.052	1.0	0.052	05/10/18 10:35	
Barium	ug/L	0.88J	1.0	0.095	05/22/18 18:44	
Beryllium	ug/L	<0.012	0.50	0.012	05/22/18 18:44	
Cadmium	ug/L	<0.018	0.50	0.018	05/10/18 10:35	
Chromium	ug/L	0.065J	1.0	0.054	05/10/18 10:35	
Cobalt	ug/L	<0.014	1.0	0.014	05/22/18 18:44	
Lead	ug/L	0.096J	1.0	0.033	05/22/18 18:44	
Molybdenum	ug/L	0.13J	1.0	0.058	05/10/18 10:35	
Selenium	ug/L	<0.086	1.0	0.086	05/10/18 10:35	
Thallium	ug/L	<0.036	1.0	0.036	05/22/18 18:44	

LABORATORY CONTROL SAMPLE: 2144224

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	39.6	99	80-120	
Arsenic	ug/L	40	39.0	97	80-120	
Barium	ug/L	40	41.1	103	80-120	
Beryllium	ug/L	40	39.5	99	80-120	
Cadmium	ug/L	40	39.2	98	80-120	
Chromium	ug/L	40	39.1	98	80-120	
Cobalt	ug/L	40	39.1	98	80-120	
Lead	ug/L	40	41.1	103	80-120	
Molybdenum	ug/L	40	39.4	99	80-120	
Selenium	ug/L	40	37.0	92	80-120	
Thallium	ug/L	40	39.5	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2144225 2144226

Parameter	Units	60268722001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	ND	40	40	39.1	38.5	97	95	75-125	2	20	
Arsenic	ug/L	3.3	40	40	40.7	40.6	93	93	75-125	0	20	
Barium	ug/L	89.4	40	40	131	127	103	94	75-125	3	20	
Beryllium	ug/L	ND	40	40	27.6	26.7	69	67	75-125	3	20	M1
Cadmium	ug/L	ND	40	40	37.9	37.5	94	94	75-125	1	20	
Chromium	ug/L	1.4	40	40	39.8	39.9	96	96	75-125	0	20	
Cobalt	ug/L	ND	40	40	37.4	37.3	92	92	75-125	0	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2144225 2144226

Parameter	Units	60268722001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead	ug/L	1.1	40	40	39.4	39.0	96	95	75-125	1	20	
Molybdenum	ug/L	1.3	40	40	40.8	40.2	99	97	75-125	1	20	
Selenium	ug/L	6.0	40	40	40.6	40.0	87	85	75-125	1	20	
Thallium	ug/L	ND	40	40	37.8	37.4	94	93	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

QC Batch: 524125 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60269123001, 60269123002

METHOD BLANK: 2145622 Matrix: Water
Associated Lab Samples: 60269123001, 60269123002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	05/03/18 07:16	

LABORATORY CONTROL SAMPLE: 2145623

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	1100	110	80-120	

SAMPLE DUPLICATE: 2145624

Parameter	Units	60269085010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	811	811	0	10	

SAMPLE DUPLICATE: 2145625

Parameter	Units	60269109008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	178	176	1	10	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

QC Batch: 524242
QC Batch Method: EPA 9040
Analysis Method: EPA 9040
Analysis Description: 9040 pH
Associated Lab Samples: 60269123001, 60269123002

SAMPLE DUPLICATE: 2146145

Parameter	Units	60269054004 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	1.0	1.0	0	10	H6

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

QC Batch: 523619 Analysis Method: EPA 9056
QC Batch Method: EPA 9056 Analysis Description: 9056 IC Anions
Associated Lab Samples: 60269123001, 60269123002

METHOD BLANK: 2143926 Matrix: Water
Associated Lab Samples: 60269123001, 60269123002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.46	1.0	0.46	04/28/18 09:52	
Fluoride	mg/L	<0.063	0.20	0.063	04/28/18 09:52	
Sulfate	mg/L	<0.24	1.0	0.24	04/28/18 09:52	

LABORATORY CONTROL SAMPLE: 2143927

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	80-120	
Fluoride	mg/L	2.5	2.4	98	80-120	
Sulfate	mg/L	5	4.9	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2143928 2143929

Parameter	Units	60268626007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.11J	2.5	2.5	2.8	2.9	106	110	80-120	3	15	
Sulfate	mg/L	103	50	50	155	154	102	101	80-120	1	15	

SAMPLE DUPLICATE: 2143930

Parameter	Units	60268626008 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	mg/L	153	149	3	15	
Fluoride	mg/L	0.10J	0.11J		15	
Sulfate	mg/L	305	296	3	15	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

QC Batch: 524451 Analysis Method: EPA 9056
QC Batch Method: EPA 9056 Analysis Description: 9056 IC Anions
Associated Lab Samples: 60269123001

METHOD BLANK: 2147128 Matrix: Water
Associated Lab Samples: 60269123001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	<0.24	1.0	0.24	05/05/18 19:49	

LABORATORY CONTROL SAMPLE: 2147129

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	4.8	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2147130 2147131

Parameter	Units	60269106001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	4.4	5	5	9.6	9.7	104	106	80-120	1	15	

SAMPLE DUPLICATE: 2147132

Parameter	Units	60269106002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	mg/L	18.2	18.2	0	15	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

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.

TNTC - Too Numerous To Count

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.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Lansing Gen Sta/25216073.18
Pace Project No.: 60269123

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60269123001	**MW-6**		524800		
60269123001	**MW-6**	EPA 3010	523712	EPA 6010	523725
60269123002	**FIELD BLANK**	EPA 3010	523712	EPA 6010	523725
60269123001	**MW-6**	EPA 3010	523679	EPA 6020	523726
60269123002	**FIELD BLANK**	EPA 3010	523679	EPA 6020	523726
60269123001	**MW-6**	EPA 7470	524732	EPA 7470	524794
60269123002	**FIELD BLANK**	EPA 7470	524732	EPA 7470	524794
60269123001	**MW-6**	SM 2540C	524125		
60269123002	**FIELD BLANK**	SM 2540C	524125		
60269123001	**MW-6**	EPA 9040	524242		
60269123002	**FIELD BLANK**	EPA 9040	524242		
60269123001	**MW-6**	EPA 9056	523619		
60269123001	**MW-6**	EPA 9056	524451		
60269123002	**FIELD BLANK**	EPA 9056	523619		

Pace Analytical®
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60269123

60269123

Client Name: SCS Engineers

Courier: FedEx ☒ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 4368 7273 8576 Pace Shipping Label Used? Yes ☐ No ☐

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

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

Thermometer Used: 301 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 2.7 **Corr. Factor** +1.0 **Corrected** 3.7

Date and initials of person examining contents: JB 4/27

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☒Yes ☐No ☐N/A	pH JB 4/27
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☒Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Sylw Date: 4-27-2018

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: of

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	SCS Engineers	Report To:	Meghan Blodgett	Attention:	Meghan Blodgett/Jess Valcheff
Address:	2830 Dairy Drive	Copy To:	Tom Karwaski	Company Name:	SCS Engineers
	Madison WI 53718			Address:	
Email To:	mblodgett@scsengineers.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	608-216-7362 Fax:	Project Name:	Lansing Generating Station	Pace Project Manager:	Trudy Gipson 913-563-1405
Requested Due Date/TAT:		Project Number:	25216073.18	Pace Profile #:	6696 Line 2

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: IA

Requested Analysis Filtered (Y/N)

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	6010 Total Metals: B-Ca-Li	6020 Total Metals *	7470 Total Hg	9056 Chloride-Fluoride-Sulfate	2540C TDS	9040 pH	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		N	N	N						
1	MW-301	WT	G	xxx	xxx				3	1		2						X	X	X	X	X	X			60269123
2	MW-302	WT	G	xxx	xxx				3	1		2						X	X	X	X	X	X			
3	MW-303	WT	G	xxx	xxx				3	1		2						X	X	X	X	X	X			
4	MW-20	WT	G	xxx	xxx				3	1		2						X	X	X	X	X	X			
5	MW-6	WT	G	xxx	xxx	4.26.18	1235		3	1		2						X	X	X	X	X	X			BP2U (2)BP3N 01
6	FIELD BLANK	WT	G	xxx	xxx	4.26.18	1230		3	1		2						X	X	X	X	X	X			02
7																										
8																										
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Ship To: 9608 Loiret Boulevard, Lenexa, KS 66219		4.26.18	1800		4/27	0900	3.7	Y	Y	Y
* Sb-As-Ba-Be-Cd-Cr-Co-Pb-Mo-Se-Tl										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

A2 Resampling for Assessment Monitoring Round 1, April and June 2018

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

June 14, 2018

Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, WI 53718

RE: Project: ALLIANT-LANSING
Pace Project No.: 60271937

Dear Meghan Blodgett:
Enclosed are the analytical results for sample(s) received by the laboratory on June 06, 2018. 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,

Hank Kapka
hank.kapka@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Tom Karwaski, SCS Engineers
Nicole Kron, SCS Engineers
Jeff Maxted, Alliant Energy
Jess Valcheff, SCS Engeineers

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: ALLIANT-LANSING
Pace Project No.: 60271937

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: ALLIANT-LANSING
Pace Project No.: 60271937

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60271937001	**MW 301**	Water	06/04/18 16:50	06/06/18 09:45
60271937002	**MW 302**	Water	06/04/18 15:55	06/06/18 09:45
60271937003	**MW 303**	Water	06/04/18 15:00	06/06/18 09:45
60271937004	**FIELD BLANK**	Water	06/04/18 16:00	06/06/18 09:45

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: ALLIANT-LANSING
Pace Project No.: 60271937

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60271937001	**MW 301**	SM 2540C	JDA	1	PASI-K
60271937002	**MW 302**	SM 2540C	JDA	1	PASI-K
60271937003	**MW 303**	SM 2540C	JDA	1	PASI-K
60271937004	**FIELD BLANK**	SM 2540C	JDA	1	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: ALLIANT-LANSING
Pace Project No.: 60271937

Sample: MW 301 **Lab ID: 60271937001** Collected: 06/04/18 16:50 Received: 06/06/18 09:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		06/04/18 16:50		
Field pH	**8.10**	Std. Units	0.10	0.050	1		06/04/18 16:50		
Field Temperature	**12.2**	deg C	0.50	0.25	1		06/04/18 16:50		
Field Specific Conductance	**507**	umhos/cm	1.0	1.0	1		06/04/18 16:50		
Field Oxidation Potential	**-145.5**	mV			1		06/04/18 16:50		
Oxygen, Dissolved	**0.89**	mg/L			1		06/04/18 16:50	7782-44-7	
Turbidity	**2.72**	NTU	1.0	1.0	1		06/04/18 16:50		
Groundwater Elevation	**624.62**	feet			1		06/04/18 16:50		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**300**	mg/L	5.0	5.0	1		06/11/18 11:20		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: ALLIANT-LANSING
Pace Project No.: 60271937

Sample: MW 302 **Lab ID: 60271937002** Collected: 06/04/18 15:55 Received: 06/06/18 09:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		06/04/18 15:55		
Field pH	**6.97**	Std. Units	0.10	0.050	1		06/04/18 15:55		
Field Temperature	**10.8**	deg C	0.50	0.25	1		06/04/18 15:55		
Field Specific Conductance	**1068**	umhos/cm	1.0	1.0	1		06/04/18 15:55		
Field Oxidation Potential	**-179.3**	mV			1		06/04/18 15:55		
Oxygen, Dissolved	**0.12**	mg/L			1		06/04/18 15:55	7782-44-7	
Turbidity	**1.46**	NTU	1.0	1.0	1		06/04/18 15:55		
Groundwater Elevation	**628.27**	feet			1		06/04/18 15:55		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**535**	mg/L	5.0	5.0	1		06/11/18 11:20		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: ALLIANT-LANSING
Pace Project No.: 60271937

Sample: MW 303 **Lab ID: 60271937003** Collected: 06/04/18 15:00 Received: 06/06/18 09:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		06/04/18 15:00		
Field pH	**7.59**	Std. Units	0.10	0.050	1		06/04/18 15:00		
Field Temperature	**17.0**	deg C	0.50	0.25	1		06/04/18 15:00		
Field Specific Conductance	**431**	umhos/cm	1.0	1.0	1		06/04/18 15:00		
Field Oxidation Potential	**68.0**	mV			1		06/04/18 15:00		
Oxygen, Dissolved	**0.36**	mg/L			1		06/04/18 15:00	7782-44-7	
Turbidity	**1.08**	NTU	1.0	1.0	1		06/04/18 15:00		
Groundwater Elevation	**638.81**	feet			1		06/04/18 15:00		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**256**	mg/L	5.0	5.0	1		06/11/18 11:20		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: ALLIANT-LANSING
Pace Project No.: 60271937

Sample: FIELD BLANK **Lab ID: 60271937004** Collected: 06/04/18 16:00 Received: 06/06/18 09:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		06/11/18 11:20		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: ALLIANT-LANSING
Pace Project No.: 60271937

QC Batch: 529457 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60271937001, 60271937002, 60271937003, 60271937004

METHOD BLANK: 2169102 Matrix: Water
Associated Lab Samples: 60271937001, 60271937002, 60271937003, 60271937004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	06/11/18 11:20	

LABORATORY CONTROL SAMPLE: 2169103

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	996	100	80-120	

SAMPLE DUPLICATE: 2169104

Parameter	Units	60271937001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	300	300	0	10	

SAMPLE DUPLICATE: 2169105

Parameter	Units	60272081004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	582	573	2	10	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: ALLIANT-LANSING
Pace Project No.: 60271937

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.

TNTC - Too Numerous To Count

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 - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

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.

LABORATORIES

PASI-K Pace Analytical Services - Kansas City

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ALLIANT-LANSING
Pace Project No.: 60271937

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60271937001	**MW 301**		530032		
60271937002	**MW 302**		530032		
60271937003	**MW 303**		530032		
60271937001	**MW 301**	SM 2540C	529457		
60271937002	**MW 302**	SM 2540C	529457		
60271937003	**MW 303**	SM 2540C	529457		
60271937004	**FIELD BLANK**	SM 2540C	529457		

Pace Analytical®
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60271937

60271937

Client Name: SCS

Courier: FedEx ☒ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 4122 4942 5212 Pace Shipping Label Used? Yes ☐ No ☒

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

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

Thermometer Used: T-297 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 2.3 **Corr. Factor** +0.9 **Corrected** 3.2

Date and initials of person examining contents: AC 6/6

Temperature should be above freezing to 6°C

Chain of Custody present:	☒Yes ☐No ☐N/A	
Chain of Custody relinquished:	☒Yes ☐No ☐N/A	
Samples arrived within holding time:	☒Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☒No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☒No ☐N/A	
Sufficient volume:	☒Yes ☐No ☐N/A	
Correct containers used:	☒Yes ☐No ☐N/A	
Pace containers used:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☒N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☒N/A	
Sample labels match COC: Date / time / ID / analyses	☒Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☒No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☐Yes ☐No ☒N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☒No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☒No	
Trip Blank present:	☐Yes ☐No ☒N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☒N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☒N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☒N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: HWK Date: 6 6 2018

Pace Analytical®
www.pacelabs.com

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

Page 1 of

60271937

CHAIN OF CUSTODY

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

(Please Print Clearly)	
Company Name:	SCS
Branch/Location:	Madison
Project Contact:	Meg Blodgett
Phone:	608 216-7362
Project Number:	25216070.18
Project Name:	Alliant-Lansing
Project State:	Iowa
Sampled By (Print):	Paul A. Grover
Sampled By (Sign):	Paul A. Grover
PO #:	Regulatory Program:

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

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

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

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	FILTERED? (YES/NO) Y/N	PRESERVATION (CODE)* Pick Letter	Analyses Requested								CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
					N	A	TDS										
	MW 301	6-4-18	16:50	GW		X		BPIU									01
	MW 302		15:55			X											02
	MW 303		15:00			X											03
	Field Blank		16:00	DI		X											04

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

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

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

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

Relinquished By:	Date/Time:	Received By:	Date/Time:
Paul A. Grover	6-5-18 13:30	Lydia Cotty FedEx	6/6/18 0945

PACE Project No.

Receipt Temp = 3.2 °C

Sample Receipt pH OK / Adjusted n/a

Cooler Custody Seal
Present / Not Present
Intact / Not Intact

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

Page 33 of 113

A3 Assessment Monitoring Round 2, August 2018

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

August 23, 2018

Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, WI 53718

RE: Project: LANSING GENERATING STATION
Pace Project No.: 60277189

Dear Meghan Blodgett:
Enclosed are the analytical results for sample(s) received by the laboratory on August 09, 2018. 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,

Hank Kapka
hank.kapka@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Tom Karwaski, SCS Engineers
Nicole Kron, SCS Engineers
Jeff Maxted, Alliant Energy
Jess Valcheff, SCS Engeineers

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
WY STR Certification #: 2456.01
Arkansas Certification #: 17-016-0
Illinois Certification #: 200030
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60277189001	**MW-301**	Water	08/07/18 12:06	08/09/18 08:45
60277189002	**MW-302**	Water	08/07/18 12:56	08/09/18 08:45
60277189003	**MW-303**	Water	08/07/18 13:41	08/09/18 08:45
60277189004	**MW-6**	Water	08/07/18 14:46	08/09/18 08:45
60277189005	**FIELD BLANK**	Water	08/07/18 15:20	08/09/18 08:45

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60277189001	**MW-301**	EPA 6010	TDS	2	PASI-K
		EPA 6020	JGP	9	PASI-K
		EPA 7470	EMR	1	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 9040	HMM	1	PASI-K
		EPA 9056	OL	3	PASI-K
60277189002	**MW-302**	EPA 6010	TDS	2	PASI-K
		EPA 6020	JGP	9	PASI-K
		EPA 7470	EMR	1	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 9040	HMM	1	PASI-K
		EPA 9056	OL	3	PASI-K
60277189003	**MW-303**	EPA 6010	TDS	2	PASI-K
		EPA 6020	JGP	9	PASI-K
		EPA 7470	EMR	1	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 9040	HMM	1	PASI-K
		EPA 9056	OL	3	PASI-K
60277189004	**MW-6**	EPA 6010	TDS	2	PASI-K
		EPA 6020	JGP	9	PASI-K
		EPA 7470	EMR	1	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 9040	HMM	1	PASI-K
		EPA 9056	OL	3	PASI-K
60277189005	**FIELD BLANK**	EPA 6010	TDS	2	PASI-K
		EPA 6020	JGP	9	PASI-K
		EPA 7470	EMR	1	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 9040	HMM	1	PASI-K
		EPA 9056	OL	3	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

Sample: MW-301 **Lab ID: 60277189001** Collected: 08/07/18 12:06 Received: 08/09/18 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		08/07/18 12:06		
Collected Date	**08/07/2018**				1		08/07/18 12:06		
Collected Time	**1206**				1		08/07/18 12:06		
Field pH	**8.08**	Std. Units	0.10	0.050	1		08/07/18 12:06		
Field Temperature	**14.6**	deg C	0.50	0.25	1		08/07/18 12:06		
Field Specific Conductance	**524**	umhos/cm	1.0	1.0	1		08/07/18 12:06		
Oxygen, Dissolved	**0.2**	mg/L			1		08/07/18 12:06	7782-44-7	
REDOX	**-149**	mV			1		08/07/18 12:06		
Turbidity	**5.50**	NTU	1.0	1.0	1		08/07/18 12:06		
Groundwater Elevation	**624.51**	feet			1		08/07/18 12:06		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**279**	ug/L	100	12.5	1	08/13/18 16:31	08/16/18 12:40	7440-42-8	
Calcium	**65.1**	mg/L	0.20	0.054	1	08/13/18 16:31	08/16/18 12:40	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**0.16J**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:08	7440-36-0	B
Arsenic	**4.4**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:08	7440-38-2	
Barium	**156**	ug/L	1.0	0.34	1	08/13/18 16:31	08/16/18 14:08	7440-39-3	
Beryllium	**<0.12**	ug/L	0.50	0.12	1	08/13/18 16:31	08/16/18 14:08	7440-41-7	
Chromium	**<0.19**	ug/L	1.0	0.19	1	08/13/18 16:31	08/16/18 14:08	7440-47-3	
Cobalt	**0.16J**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:08	7440-48-4	B
Lead	**<0.12**	ug/L	1.0	0.12	1	08/13/18 16:31	08/16/18 14:08	7439-92-1	
Molybdenum	**5.6**	ug/L	1.0	0.13	1	08/13/18 16:31	08/16/18 14:08	7439-98-7	
Selenium	**0.22J**	ug/L	1.0	0.16	1	08/13/18 16:31	08/16/18 14:08	7782-49-2	B
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	08/14/18 14:42	08/15/18 09:28	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**326**	mg/L	5.0	5.0	1		08/13/18 18:17		
9040 pH	Analytical Method: EPA 9040								
pH	**8.1**	Std. Units	0.10	0.10	1		08/15/18 15:34		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**17.7**	mg/L	1.0	0.46	1		08/18/18 16:43	16887-00-6	
Fluoride	**0.23**	mg/L	0.20	0.063	1		08/18/18 16:43	16984-48-8	
Sulfate	**53.2**	mg/L	5.0	1.2	5		08/19/18 19:52	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

Sample: MW-302 **Lab ID: 60277189002** Collected: 08/07/18 12:56 Received: 08/09/18 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		08/07/18 12:56		
Collected Date	**08/07/2018**				1		08/07/18 12:56		
Collected Time	**1256**				1		08/07/18 12:56		
Field pH	**6.92**	Std. Units	0.10	0.050	1		08/07/18 12:56		
Field Temperature	**15.3**	deg C	0.50	0.25	1		08/07/18 12:56		
Field Specific Conductance	**1095**	umhos/cm	1.0	1.0	1		08/07/18 12:56		
Oxygen, Dissolved	**0.1**	mg/L			1		08/07/18 12:56	7782-44-7	
REDOX	**-164**	mV			1		08/07/18 12:56		
Turbidity	**11.23**	NTU	1.0	1.0	1		08/07/18 12:56		
Groundwater Elevation	**627.62**	feet			1		08/07/18 12:56		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**648**	ug/L	200	25.0	2	08/13/18 16:31	08/16/18 17:40	7440-42-8	
Calcium	**116**	mg/L	0.20	0.054	1	08/13/18 16:31	08/16/18 12:47	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**<0.15**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:10	7440-36-0	
Arsenic	**47.6**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:10	7440-38-2	
Barium	**661**	ug/L	1.0	0.34	1	08/13/18 16:31	08/16/18 14:10	7440-39-3	
Beryllium	**<0.12**	ug/L	0.50	0.12	1	08/13/18 16:31	08/16/18 14:10	7440-41-7	
Chromium	**0.49J**	ug/L	1.0	0.19	1	08/13/18 16:31	08/16/18 14:10	7440-47-3	B
Cobalt	**1.1**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:10	7440-48-4	B
Lead	**0.23J**	ug/L	1.0	0.12	1	08/13/18 16:31	08/16/18 14:10	7439-92-1	B
Molybdenum	**1.2**	ug/L	1.0	0.13	1	08/13/18 16:31	08/16/18 14:10	7439-98-7	B
Selenium	**0.30J**	ug/L	1.0	0.16	1	08/13/18 16:31	08/16/18 14:10	7782-49-2	B
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	08/14/18 14:42	08/15/18 09:30	7439-97-6	M1
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**562**	mg/L	5.0	5.0	1		08/13/18 18:17		
9040 pH	Analytical Method: EPA 9040								
pH	**7.0**	Std. Units	0.10	0.10	1		08/15/18 15:35		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**13.9**	mg/L	1.0	0.46	1		08/18/18 16:57	16887-00-6	
Fluoride	**0.23**	mg/L	0.20	0.063	1		08/18/18 16:57	16984-48-8	
Sulfate	**<0.24**	mg/L	1.0	0.24	1		08/18/18 16:57	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

Sample: MW-303 **Lab ID: 60277189003** Collected: 08/07/18 13:41 Received: 08/09/18 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		08/07/18 13:41		
Collected Date	**08/07/2018**				1		08/07/18 13:41		
Collected Time	**1341**				1		08/07/18 13:41		
Field pH	**7.66**	Std. Units	0.10	0.050	1		08/07/18 13:41		
Field Temperature	**31.5**	deg C	0.50	0.25	1		08/07/18 13:41		
Field Specific Conductance	**425**	umhos/cm	1.0	1.0	1		08/07/18 13:41		
Oxygen, Dissolved	**0.4**	mg/L			1		08/07/18 13:41	7782-44-7	
REDOX	**-71**	mV			1		08/07/18 13:41		
Turbidity	**4.51**	NTU	1.0	1.0	1		08/07/18 13:41		
Groundwater Elevation	**637.85**	feet			1		08/07/18 13:41		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**675**	ug/L	200	25.0	2	08/13/18 16:31	08/16/18 17:43	7440-42-8	
Calcium	**46.0**	mg/L	0.20	0.054	1	08/13/18 16:31	08/16/18 12:49	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**0.34J**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:12	7440-36-0	B
Arsenic	**2.3**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:12	7440-38-2	
Barium	**194**	ug/L	1.0	0.34	1	08/13/18 16:31	08/16/18 14:12	7440-39-3	
Beryllium	**<0.12**	ug/L	0.50	0.12	1	08/13/18 16:31	08/16/18 14:12	7440-41-7	
Chromium	**0.44J**	ug/L	1.0	0.19	1	08/13/18 16:31	08/16/18 14:12	7440-47-3	B
Cobalt	**0.36J**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:12	7440-48-4	B
Lead	**0.24J**	ug/L	1.0	0.12	1	08/13/18 16:31	08/16/18 14:12	7439-92-1	B
Molybdenum	**21.6**	ug/L	1.0	0.13	1	08/13/18 16:31	08/16/18 14:12	7439-98-7	
Selenium	**0.38J**	ug/L	1.0	0.16	1	08/13/18 16:31	08/16/18 14:12	7782-49-2	B
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	08/14/18 14:42	08/15/18 09:36	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**262**	mg/L	5.0	5.0	1		08/13/18 18:17		
9040 pH	Analytical Method: EPA 9040								
pH	**8.0**	Std. Units	0.10	0.10	1		08/15/18 15:36		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**14.6**	mg/L	1.0	0.46	1		08/18/18 17:40	16887-00-6	
Fluoride	**0.47**	mg/L	0.20	0.063	1		08/18/18 17:40	16984-48-8	
Sulfate	**52.5**	mg/L	5.0	1.2	5		08/19/18 20:06	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

Sample: MW-6 **Lab ID: 60277189004** Collected: 08/07/18 14:46 Received: 08/09/18 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		08/07/18 14:46		
Collected Date	**08/07/2018**				1		08/07/18 14:46		
Collected Time	**1446**				1		08/07/18 14:46		
Field pH	**7.18**	Std. Units	0.10	0.050	1		08/07/18 14:46		
Field Temperature	**10.5**	deg C	0.50	0.25	1		08/07/18 14:46		
Field Specific Conductance	**609**	umhos/cm	1.0	1.0	1		08/07/18 14:46		
Oxygen, Dissolved	**7.4**	mg/L			1		08/07/18 14:46	7782-44-7	
REDOX	**233**	mV			1		08/07/18 14:46		
Turbidity	**1.77**	NTU	1.0	1.0	1		08/07/18 14:46		
Groundwater Elevation	**668.13**	feet			1		08/07/18 14:46		
6010 MET ICP	Analytical Method: EPA 6010	Preparation Method: EPA 3010							
Boron	**42.9J**	ug/L	100	12.5	1	08/13/18 16:31	08/16/18 18:03	7440-42-8	
Calcium	**66.5**	mg/L	0.20	0.054	1	08/13/18 16:31	08/16/18 12:51	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020	Preparation Method: EPA 3010							
Antimony	**<0.15**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:13	7440-36-0	
Arsenic	**0.26J**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:13	7440-38-2	B
Barium	**43.1**	ug/L	1.0	0.34	1	08/13/18 16:31	08/16/18 14:13	7440-39-3	
Beryllium	**<0.12**	ug/L	0.50	0.12	1	08/13/18 16:31	08/16/18 14:13	7440-41-7	
Chromium	**0.97J**	ug/L	1.0	0.19	1	08/13/18 16:31	08/16/18 14:13	7440-47-3	B
Cobalt	**<0.15**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:13	7440-48-4	
Lead	**<0.12**	ug/L	1.0	0.12	1	08/13/18 16:31	08/16/18 14:13	7439-92-1	
Molybdenum	**0.28J**	ug/L	1.0	0.13	1	08/13/18 16:31	08/16/18 14:13	7439-98-7	B
Selenium	**0.50J**	ug/L	1.0	0.16	1	08/13/18 16:31	08/16/18 14:13	7782-49-2	B
7470 Mercury	Analytical Method: EPA 7470	Preparation Method: EPA 7470							
Mercury	**<0.090**	ug/L	0.20	0.090	1	08/14/18 14:42	08/15/18 09:43	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**351**	mg/L	5.0	5.0	1		08/13/18 18:17		
9040 pH	Analytical Method: EPA 9040								
pH	**7.5**	Std. Units	0.10	0.10	1		08/15/18 15:39		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**7.3**	mg/L	1.0	0.46	1		08/18/18 17:54	16887-00-6	
Fluoride	**0.12J**	mg/L	0.20	0.063	1		08/18/18 17:54	16984-48-8	
Sulfate	**24.8**	mg/L	2.0	0.47	2		08/19/18 20:49	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

Sample: FIELD BLANK **Lab ID: 60277189005** Collected: 08/07/18 15:20 Received: 08/09/18 08:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**<12.5**	ug/L	100	12.5	1	08/13/18 16:31	08/16/18 18:05	7440-42-8	
Calcium	**<0.054**	mg/L	0.20	0.054	1	08/13/18 16:31	08/16/18 12:54	7440-70-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**<0.15**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:26	7440-36-0	
Arsenic	**<0.15**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:26	7440-38-2	
Barium	**<0.34**	ug/L	1.0	0.34	1	08/13/18 16:31	08/16/18 14:26	7440-39-3	
Beryllium	**<0.12**	ug/L	0.50	0.12	1	08/13/18 16:31	08/16/18 14:26	7440-41-7	
Chromium	**<0.19**	ug/L	1.0	0.19	1	08/13/18 16:31	08/16/18 14:26	7440-47-3	
Cobalt	**<0.15**	ug/L	1.0	0.15	1	08/13/18 16:31	08/16/18 14:26	7440-48-4	
Lead	**<0.12**	ug/L	1.0	0.12	1	08/13/18 16:31	08/16/18 14:26	7439-92-1	
Molybdenum	**<0.13**	ug/L	1.0	0.13	1	08/13/18 16:31	08/16/18 14:26	7439-98-7	
Selenium	**<0.16**	ug/L	1.0	0.16	1	08/13/18 16:31	08/16/18 14:26	7782-49-2	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	08/14/18 14:42	08/15/18 09:45	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**6.7**	mg/L	5.0	5.0	1		08/14/18 08:56		
9040 pH	Analytical Method: EPA 9040								
pH	**5.5**	Std. Units	0.10	0.10	1		08/15/18 15:41		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**<0.46**	mg/L	1.0	0.46	1		08/18/18 18:08	16887-00-6	
Fluoride	**<0.063**	mg/L	0.20	0.063	1		08/18/18 18:08	16984-48-8	
Sulfate	**<0.24**	mg/L	1.0	0.24	1		08/18/18 18:08	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

QC Batch: 539333 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60277189001, 60277189002, 60277189003, 60277189004, 60277189005

METHOD BLANK: 2209598 Matrix: Water
Associated Lab Samples: 60277189001, 60277189002, 60277189003, 60277189004, 60277189005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.090	0.20	0.090	08/15/18 09:23	

LABORATORY CONTROL SAMPLE: 2209599

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.3	87	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2209600 2209601

Parameter	Units	60277189002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.090	5	5	3.7	3.4	75	69	75-125	8	20	M1

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

QC Batch: 539154 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60277189001, 60277189002, 60277189003, 60277189004, 60277189005

METHOD BLANK: 2209025 Matrix: Water
Associated Lab Samples: 60277189001, 60277189002, 60277189003, 60277189004, 60277189005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<12.5	100	12.5	08/16/18 12:20	
Calcium	mg/L	<0.054	0.20	0.054	08/16/18 12:20	

LABORATORY CONTROL SAMPLE: 2209026

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	985	98	80-120	
Calcium	mg/L	10	9.9	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2209027 2209028

Parameter	Units	60277357001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	10700	1000	1000	12400	11300	172	60	75-125	9	20	M1
Calcium	mg/L	643000 ug/L	10	10	682	668	382	251	75-125	2	20	M1

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

QC Batch: 539144 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 60277189001, 60277189002, 60277189003, 60277189004, 60277189005

METHOD BLANK: 2208997 Matrix: Water
Associated Lab Samples: 60277189001, 60277189002, 60277189003, 60277189004, 60277189005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	0.21J	1.0	0.15	08/16/18 13:45	
Arsenic	ug/L	0.19J	1.0	0.15	08/16/18 13:45	
Barium	ug/L	<0.34	1.0	0.34	08/16/18 13:45	
Beryllium	ug/L	0.13J	0.50	0.12	08/16/18 13:45	
Chromium	ug/L	0.33J	1.0	0.19	08/16/18 13:45	
Cobalt	ug/L	0.21J	1.0	0.15	08/16/18 13:45	
Lead	ug/L	0.22J	1.0	0.12	08/16/18 13:45	
Molybdenum	ug/L	<0.13	1.0	0.13	08/17/18 10:13	
Selenium	ug/L	0.20J	1.0	0.16	08/16/18 13:45	

LABORATORY CONTROL SAMPLE: 2208998

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.8	97	80-120	
Arsenic	ug/L	40	39.6	99	80-120	
Barium	ug/L	40	38.1	95	80-120	
Beryllium	ug/L	40	38.5	96	80-120	
Chromium	ug/L	40	39.6	99	80-120	
Cobalt	ug/L	40	38.0	95	80-120	
Lead	ug/L	40	38.7	97	80-120	
Molybdenum	ug/L	40	39.4	99	80-120	
Selenium	ug/L	40	37.8	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2208999 2209000

Parameter	Units	60277188001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	<0.15	40	40	35.6	37.6	89	94	75-125	5	20	
Arsenic	ug/L	1.1	40	40	38.1	40.0	92	97	75-125	5	20	
Barium	ug/L	281	40	40	306	323	62	105	75-125	5	20	M1
Beryllium	ug/L	<0.12	40	40	36.5	37.8	91	94	75-125	3	20	
Chromium	ug/L	5.8	40	40	40.9	43.1	88	93	75-125	5	20	
Cobalt	ug/L	0.52J	40	40	34.7	36.5	85	90	75-125	5	20	
Lead	ug/L	0.66J	40	40	38.3	40.1	94	99	75-125	4	20	
Molybdenum	ug/L	0.44J	40	40	40.4	41.9	100	104	75-125	4	20	
Selenium	ug/L	1.3	40	40	36.3	37.9	87	91	75-125	4	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

QC Batch: 539223 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60277189001, 60277189002, 60277189003, 60277189004

METHOD BLANK: 2209114 Matrix: Water
Associated Lab Samples: 60277189001, 60277189002, 60277189003, 60277189004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	08/13/18 18:17	

LABORATORY CONTROL SAMPLE: 2209115

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	997	100	80-120	

SAMPLE DUPLICATE: 2209116

Parameter	Units	60277296002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	258	254	1	10	

SAMPLE DUPLICATE: 2209117

Parameter	Units	60277189001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	326	315	3	10	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

QC Batch: 539224 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60277189005

METHOD BLANK: 2209118 Matrix: Water
Associated Lab Samples: 60277189005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	08/14/18 08:56	

LABORATORY CONTROL SAMPLE: 2209119

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	998	100	80-120	

SAMPLE DUPLICATE: 2209120

Parameter	Units	60277189005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	6.7	6.7	0	10	

SAMPLE DUPLICATE: 2209121

Parameter	Units	60277296003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	420	416	1	10	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

QC Batch: 539571 Analysis Method: EPA 9040
QC Batch Method: EPA 9040 Analysis Description: 9040 pH
Associated Lab Samples: 60277189001, 60277189002, 60277189003, 60277189004, 60277189005

SAMPLE DUPLICATE: 2210605

Parameter	Units	60277189005 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	5.5	5.4	3	10	H6

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

QC Batch: 540163 Analysis Method: EPA 9056
QC Batch Method: EPA 9056 Analysis Description: 9056 IC Anions
Associated Lab Samples: 60277189001, 60277189002, 60277189003, 60277189004, 60277189005

METHOD BLANK: 2213328 Matrix: Water
Associated Lab Samples: 60277189001, 60277189002, 60277189003, 60277189004, 60277189005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.46	1.0	0.46	08/18/18 13:23	
Fluoride	mg/L	<0.063	0.20	0.063	08/18/18 13:23	
Sulfate	mg/L	<0.24	1.0	0.24	08/18/18 13:23	

LABORATORY CONTROL SAMPLE: 2213329

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	97	80-120	
Fluoride	mg/L	2.5	2.5	101	80-120	
Sulfate	mg/L	5	4.9	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2213330 2213331

Parameter	Units	60277188001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.16J	2.5	2.5	2.8	2.9	106	108	80-120	2	15	

SAMPLE DUPLICATE: 2213332

Parameter	Units	60277188002 Result	Dup Result	RPD	Max RPD	Qualifiers
Fluoride	mg/L	0.17J	0.16J		15	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

QC Batch: 540196 Analysis Method: EPA 9056
QC Batch Method: EPA 9056 Analysis Description: 9056 IC Anions
Associated Lab Samples: 60277189001, 60277189003, 60277189004

METHOD BLANK: 2213638 Matrix: Water
Associated Lab Samples: 60277189001, 60277189003, 60277189004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfate	mg/L	<0.24	1.0	0.24	08/19/18 16:05	

LABORATORY CONTROL SAMPLE: 2213639

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	mg/L	5	4.9	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2213640 2213641

Parameter	Units	60277188001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	mg/L	113	50	50	164	165	102	104	80-120	1	15	

SAMPLE DUPLICATE: 2213642

Parameter	Units	60277188002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	mg/L	72.2	72.4	0	15	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

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.

TNTC - Too Numerous To Count

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 - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

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.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LANSING GENERATING STATION
Pace Project No.: 60277189

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60277189001	**MW-301**		539789		
60277189002	**MW-302**		539789		
60277189003	**MW-303**		539789		
60277189004	**MW-6**		539789		
60277189001	**MW-301**	EPA 3010	539154	EPA 6010	539240
60277189002	**MW-302**	EPA 3010	539154	EPA 6010	539240
60277189003	**MW-303**	EPA 3010	539154	EPA 6010	539240
60277189004	**MW-6**	EPA 3010	539154	EPA 6010	539240
60277189005	**FIELD BLANK**	EPA 3010	539154	EPA 6010	539240
60277189001	**MW-301**	EPA 3010	539144	EPA 6020	539241
60277189002	**MW-302**	EPA 3010	539144	EPA 6020	539241
60277189003	**MW-303**	EPA 3010	539144	EPA 6020	539241
60277189004	**MW-6**	EPA 3010	539144	EPA 6020	539241
60277189005	**FIELD BLANK**	EPA 3010	539144	EPA 6020	539241
60277189001	**MW-301**	EPA 7470	539333	EPA 7470	539370
60277189002	**MW-302**	EPA 7470	539333	EPA 7470	539370
60277189003	**MW-303**	EPA 7470	539333	EPA 7470	539370
60277189004	**MW-6**	EPA 7470	539333	EPA 7470	539370
60277189005	**FIELD BLANK**	EPA 7470	539333	EPA 7470	539370
60277189001	**MW-301**	SM 2540C	539223		
60277189002	**MW-302**	SM 2540C	539223		
60277189003	**MW-303**	SM 2540C	539223		
60277189004	**MW-6**	SM 2540C	539223		
60277189005	**FIELD BLANK**	SM 2540C	539224		
60277189001	**MW-301**	EPA 9040	539571		
60277189002	**MW-302**	EPA 9040	539571		
60277189003	**MW-303**	EPA 9040	539571		
60277189004	**MW-6**	EPA 9040	539571		
60277189005	**FIELD BLANK**	EPA 9040	539571		
60277189001	**MW-301**	EPA 9056	540163		
60277189001	**MW-301**	EPA 9056	540196		
60277189002	**MW-302**	EPA 9056	540163		
60277189003	**MW-303**	EPA 9056	540163		
60277189003	**MW-303**	EPA 9056	540196		
60277189004	**MW-6**	EPA 9056	540163		
60277189004	**MW-6**	EPA 9056	540196		
60277189005	**FIELD BLANK**	EPA 9056	540163		

REPORT OF LABORATORY ANALYSIS

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60277189

60277189

Client Name: SCS

Courier: FedEx ☑ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 4542 2778 9555 Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑

Thermometer Used: T-298 **Type of Ice:** (Wet) Blue None

Cooler Temperature (°C): **As-read** 1.7 **Corr. Factor** +1.1 **Corrected** 2.8

AK

Date and initials of person examining contents: SPC 8-9-18

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☑Yes ☑No ☐N/A	SPC 8-9-18 pH
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: REVIEWED By Hank Kapka at 1:35 pm, 8/10/18 Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	SCS Engineers	Report To:	Meghan Blodgett	Attention:	Meghan Blodgett/Jess Valcheff
Address:	2830 Dairy Drive	Copy To:	Tom Karwaski	Company Name:	SCS Engineers
	Madison WI 53718			Address:	
Email To:	mblodgett@scsengineers.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	608-216-7362 Fax:	Project Name:	Lansing Generating Station	Pace Project Manager:	Hank Kapka 913-563-1404
Requested Due Date/TAT:		Project Number:	25216073.18	Pace Profile #:	6696 Line 2

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: IA

Requested Analysis Filtered (Y/N)

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	6010 Total Metals: B-Ca-Li	6020 Total Metals *	7470 Total Hg	9056 Chloride-Fluoride-Sulfate	2540C TDS	9040 pH					Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
																		Y/N	N	N	N							6012 77184
1	MW-301	WT	G	xxx	xxx	8/7/18	1206	H.G	3	1		2							X	X	X	X	X	X	BP2U/BP3N(2)				001
2	MW-302	WT	G	xxx	xxx	8/7/18	1256	15.3	3	1		2							X	X	X	X	X	X					002
3	MW-303	WT	G	xxx	xxx	8/7/18	1341	31.5	3	1		2							X	X	X	X	X	X					003
4	[redacted]	WT	G	xxx	xxx				3	1		2							X	X	X	X	X	X					~~004~~ 504
5	MW-6	WT	G	xxx	xxx	8/7/18	1446	21.5	3	1		2							X	X	X	X	X	X					~~005~~ 005
6	FIELD BLANK	WT	G	xxx	xxx	8/7/18	1520		3	1		2							X	X	X	X	X	X					~~006~~ 006
7																													
8																													
9																													
10																													
11																													
12																													

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Ship To: 9608 Loiret Boulevard, Lenexa, KS 66219	SCS Engineers	8/8/18	1700	PACE	8-9-18	0845	2.8	Y	Y	Y
* Sb-As-Ba-Be-Cd-Cr-Co-Pb-Mo-Se-Tl										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Gary Sterkel

SIGNATURE of SAMPLER: Gary Sterkel

DATE Signed (MM/DD/YY): 8/8/18

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

August 28, 2018

Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, WI 53718

RE: Project: LANSING GENERATING STATION
Pace Project No.: 60277102

Dear Meghan Blodgett:
Enclosed are the analytical results for sample(s) received by the laboratory on August 09, 2018. 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,

Hank Kapka
hank.kapka@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Tom Karwaski, SCS Engineers
Nicole Kron, SCS Engineers
Jeff Maxted, Alliant Energy
Jess Valcheff, SCS Engeineers

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: LANSING GENERATING STATION
Pace Project No.: 60277102

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: LANSING GENERATING STATION
Pace Project No.: 60277102

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60277102001	**MW-301**	Water	08/07/18 12:06	08/09/18 08:45
60277102002	**MW-302**	Water	08/07/18 12:56	08/09/18 08:45
60277102003	**MW-303**	Water	08/07/18 13:41	08/09/18 08:45
60277102004	**MW-6**	Water	08/07/18 14:46	08/09/18 08:45
60277102005	**FIELD BLANK**	Water	08/07/18 15:20	08/09/18 08:45

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: LANSING GENERATING STATION
Pace Project No.: 60277102

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60277102001	**MW-301**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60277102002	**MW-302**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60277102003	**MW-303**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60277102004	**MW-6**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
60277102005	**FIELD BLANK**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60277102

Sample: MW-301 **Lab ID: 60277102001** Collected: 08/07/18 12:06 Received: 08/09/18 08:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.692 ± 0.484 (0.584) C:NA T:80%**	pCi/L	08/23/18 20:26	13982-63-3	
Radium-228	EPA 904.0	**0.972 ± 0.520 (0.959) C:73% T:85%**	pCi/L	08/23/18 10:45	15262-20-1	
Total Radium	Total Radium Calculation	**1.66 ± 1.00 (1.54)**	pCi/L	08/27/18 13:10	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60277102

Sample: MW-302 **Lab ID: 60277102002** Collected: 08/07/18 12:56 Received: 08/09/18 08:45 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to 1 of 2 of the sample containers to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**1.23 ± 0.697 (0.868) C:NA T:83%**	pCi/L	08/23/18 20:26	13982-63-3	
Radium-228	EPA 904.0	**0.858 ± 0.432 (0.760) C:72% T:86%**	pCi/L	08/23/18 10:45	15262-20-1	
Total Radium	Total Radium Calculation	**2.09 ± 1.13 (1.63)**	pCi/L	08/27/18 13:10	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60277102

Sample: MW-303 **Lab ID: 60277102003** Collected: 08/07/18 13:41 Received: 08/09/18 08:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.929 ± 0.562 (0.616) C:NA T:76%**	pCi/L	08/23/18 20:26	13982-63-3	
Radium-228	EPA 904.0	**-0.0737 ± 0.346 (0.821) C:74% T:79%**	pCi/L	08/23/18 10:45	15262-20-1	
Total Radium	Total Radium Calculation	**0.929 ± 0.908 (1.44)**	pCi/L	08/27/18 13:10	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60277102

Sample: MW-6 **Lab ID: 60277102004** Collected: 08/07/18 14:46 Received: 08/09/18 08:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.547 ± 0.460 (0.658) C:NA T:95%**	pCi/L	08/23/18 20:40	13982-63-3	
Radium-228	EPA 904.0	**0.427 ± 0.382 (0.775) C:73% T:80%**	pCi/L	08/23/18 10:45	15262-20-1	
Total Radium	Total Radium Calculation	**0.974 ± 0.842 (1.43)**	pCi/L	08/27/18 13:10	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60277102

Sample: FIELD BLANK **Lab ID: 60277102005** Collected: 08/07/18 15:20 Received: 08/09/18 08:45 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.0538 ± 0.380 (0.759) C:NA T:92%**	pCi/L	08/23/18 20:40	13982-63-3	
Radium-228	EPA 904.0	**0.389 ± 0.352 (0.712) C:76% T:78%**	pCi/L	08/23/18 10:45	15262-20-1	
Total Radium	Total Radium Calculation	**0.443 ± 0.732 (1.47)**	pCi/L	08/27/18 13:16	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60277102

QC Batch: 309681 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60277102001, 60277102002, 60277102003, 60277102004, 60277102005

METHOD BLANK: 1513123 Matrix: Water
Associated Lab Samples: 60277102001, 60277102002, 60277102003, 60277102004, 60277102005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.474 ± 0.340 (0.658) C:77% T:88%	pCi/L	08/23/18 10:44	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60277102

QC Batch: 309471 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60277102001, 60277102002, 60277102003, 60277102004, 60277102005

METHOD BLANK: 1512362 Matrix: Water
Associated Lab Samples: 60277102001, 60277102002, 60277102003, 60277102004, 60277102005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.159 ± 0.242 (0.389) C:NA T:94%	pCi/L	08/23/18 20:03	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: LANSING GENERATING STATION
Pace Project No.: 60277102

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.

TNTC - Too Numerous To Count

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 - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

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.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LANSING GENERATING STATION
Pace Project No.: 60277102

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60277102001	**MW-301**	EPA 903.1	309471		
60277102002	**MW-302**	EPA 903.1	309471		
60277102003	**MW-303**	EPA 903.1	309471		
60277102004	**MW-6**	EPA 903.1	309471		
60277102005	**FIELD BLANK**	EPA 903.1	309471		
60277102001	**MW-301**	EPA 904.0	309681		
60277102002	**MW-302**	EPA 904.0	309681		
60277102003	**MW-303**	EPA 904.0	309681		
60277102004	**MW-6**	EPA 904.0	309681		
60277102005	**FIELD BLANK**	EPA 904.0	309681		
60277102001	**MW-301**	Total Radium Calculation	311018		
60277102002	**MW-302**	Total Radium Calculation	311018		
60277102003	**MW-303**	Total Radium Calculation	311018		
60277102004	**MW-6**	Total Radium Calculation	311018		
60277102005	**FIELD BLANK**	Total Radium Calculation	311022		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60277102

60277102

Client Name: SCS

Courier: FedEx ☑ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 4542 2778 9603 Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑

Thermometer Used: T-298 **Type of Ice** (Wet) Blue None

Cooler Temperature (°C): **As-read** 22.6 **Corr. Factor** +1.1 **Corrected** 23.7

Date and initials of person examining contents: JDE 8-9-18

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☐No ☑N/A	
Filtered volume received for dissolved tests?	☐Yes ☐No ☑N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple phases? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☐No ☑N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	SCS Engineers	Report To:	Meghan Blodgett	Attention:	Meghan Blodgett/Jess Valcheff
Address:	2830 Dairy Drive	Copy To:	Tom Karwaski	Company Name:	SCS Engineers
	Madison WI 53718			Address:	
Email To:	mblodgett@scsengineers.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	608-216-7362 Fax:	Project Name:	Lansing Generating Station	Pace Project Manager:	Hank Kapka 913-563-1404
Requested Due Date/TAT:		Project Number:	25216073.18	Pace Profile #:	6696 Line 4

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: IA

Requested Analysis Filtered (Y/N)

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	903.1 Radium-226	904.0 Radium-228	Total Radium	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-301	WT	G	xxx	xxx	8/7/18	1206	14.6	2			2						X	X	X			60277102 01
2	MW-302	WT	G	xxx	xxx	8/7/18	1256	15.3	2			2						X	X	X			02
3	MW-303	WT	G	xxx	xxx	8/7/18	1341	31.5	2			2						X	X	X			03
4	[redacted]	WT	G	xxx	xxx				2			2						X	X	X			-
5	MW-6	WT	G	xxx	xxx	8/7/18	1446	10.5	2			2						X	X	X			04
6	FIELD BLANK	WT	G	xxx	xxx	8/7/18	1520		2			2						X	X	X			05
7																							
8																							
9																							
10																							
11																							
12																							

BP1N(2)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Ship To: 9608 Loiret Boulevard, Lenexa, KS 66219	SCS Engineers	8/8/18	1700	PACE	8-9-18	0845	23.7	N	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Gary Stakel

SIGNATURE of SAMPLER: Gary Stakel

DATE Signed (MM/DD/YY): 8/8/18

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Chain of Custody

Pace Analytical®
www.pacelabs.com

☐ Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: IA

Workorder: 60277102 **Workorder Name:** LANSING GENERATING STATION **Owner Received Date:** 8/9/2018 **Results Requested By:** 8/30/2018

Report To	Subcontract To
Hank Kapka Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665	Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600

WO# : 30261969

30261969

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers HNO3	903.1 Radium-226 + Total Radium	904.0 Radium-228	LAB USE ONLY
1	MW-301	PS	8/7/2018 12:06	60277102001	Water	2	X	X	001
2	MW-302	PS	8/7/2018 12:56	60277102002	Water	2	X	X	002
3	MW-303	PS	8/7/2018 13:41	60277102003	Water	2	X	X	003
4	MW-6	PS	8/7/2018 14:46	60277102004	Water	2	X	X	004
5	FIELD BLANK	PS	8/7/2018 15:20	60277102005	Water	2	X	X	005

Transfers	Released By	Date/Time	Received By	Date/Time
1	EBrockett/Pace	8/9/18 1600	[signature]	8-10-18 1010
2				
3				

Comments

Cooler Temperature on Receipt 5.4 °C | Custody Seal (Y) or N | Received on Ice (Y) or N | Samples Intact (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

Pittsburgh Lab Sample Condition Upon Receipt

Face Analytical

Client Name: PACE KS

Project # 30261969

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

Label ET
LIMS Login [illegible]

Tracking #: Label form

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

Thermometer Used N/A T1 ET 8-10-18 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 5.5 °C Correction Factor: -0.1 °C Final Temp: 5.4 °C

Temp should be above freezing to 6°C

pH paper Lot# 10036711

Date and Initials of person examining contents: ET 8-10-18

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. All containers needing preservation are found to be in compliance with EPA recommendation. exceptions: VOA, coliform, TOC, O&G, Phenolics	✓			16. added 2.5mL of HNO3 to Sample 002 second bottle
		✓		
Initial when completed ET	Date/time of preservation 8-10-18 19:00			
Lot # of added preservative DL18-0749				
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present:		✓		18.
Trip Blank Custody Seals Present			✓	
Rad Aqueous Samples Screened > 0.5 mrem/hr		✓		Initial when completed: ET Date: 8-10-18

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

A4 Assessment Monitoring Semiannual, October 2018

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

November 07, 2018

Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, WI 53718

RE: Project: LANSING GENERATING STATION
Pace Project No.: 60283254

Dear Meghan Blodgett:
Enclosed are the analytical results for sample(s) received by the laboratory on October 10, 2018. 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,

Hank Kapka
hank.kapka@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Tom Karwaski, SCS Engineers
Nicole Kron, SCS Engineers
Jeff Maxted, Alliant Energy
Jess Valcheff, SCS Engeineers

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
Missouri Certification Number: 10090
Arkansas Drinking Water
WY STR Certification #: 2456.01
Arkansas Certification #: 18-016-0
Arkansas Drinking Water
Illinois Certification #: 004455
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212018-1
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-18-11
Utah Certification #: KS000212018-8
Kansas Field Laboratory Accreditation: # E-92587
Missouri Certification: 10070
Missouri Certification Number: 10090

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60283254001	**MW-301**	Water	10/08/18 12:56	10/10/18 08:55
60283254002	**MW-302**	Water	10/08/18 13:08	10/10/18 08:55
60283254003	**MW-303**	Water	10/08/18 11:56	10/10/18 08:55
60283254004	**MW-6**	Water	10/08/18 14:41	10/10/18 08:55
60283254005	**FIELD BLANK**	Water	10/08/18 15:00	10/10/18 08:55

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60283254001	**MW-301**	EPA 6010	CTR	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	SMW	1	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 9040	ZMH	1	PASI-K
		EPA 9056	WNM	3	PASI-K
60283254002	**MW-302**	EPA 6010	CTR	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	SMW	1	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 9040	ZMH	1	PASI-K
		EPA 9056	WNM	3	PASI-K
60283254003	**MW-303**	EPA 6010	CTR	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	SMW	1	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 9040	ZMH	1	PASI-K
		EPA 9056	WNM	3	PASI-K
60283254004	**MW-6**	EPA 6010	CTR	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	SMW	1	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 9040	ZMH	1	PASI-K
		EPA 9056	WNM	3	PASI-K
60283254005	**FIELD BLANK**	EPA 6010	CTR	3	PASI-K
		EPA 6020	JGP	11	PASI-K
		EPA 7470	SMW	1	PASI-K
		SM 2540C	JDA	1	PASI-K
		EPA 9040	ZMH	1	PASI-K
		EPA 9056	WNM	3	PASI-K

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

Sample: MW-301 **Lab ID: 60283254001** Collected: 10/08/18 12:56 Received: 10/10/18 08:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		10/08/18 12:56		
Collected Date	**10/08/2018**				1		10/08/18 12:56		
Collected Time	**12:56**				1		10/08/18 12:56		
Field pH	**8.16**	Std. Units	0.10	0.050	1		10/08/18 12:56		
Field Temperature	**17.4**	deg C	0.50	0.25	1		10/08/18 12:56		
Field Specific Conductance	**545**	umhos/cm	1.0	1.0	1		10/08/18 12:56		
Oxygen, Dissolved	**0.3**	mg/L			1		10/08/18 12:56	7782-44-7	
REDOX	**-180**	mV			1		10/08/18 12:56		
Turbidity	**9.19**	NTU	1.0	1.0	1		10/08/18 12:56		
Groundwater Elevation	**625.73**	feet			1		10/08/18 12:56		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**357**	ug/L	100	12.5	1	10/16/18 15:00	10/17/18 13:33	7440-42-8	
Calcium	**72.5**	mg/L	0.20	0.054	1	10/16/18 15:00	10/17/18 13:33	7440-70-2	
Lithium	**9.1J**	ug/L	10.0	4.6	1	10/16/18 15:00	10/17/18 13:33	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**0.085J**	ug/L	1.0	0.078	1	11/01/18 12:50	11/02/18 17:20	7440-36-0	
Arsenic	**5.4**	ug/L	1.0	0.065	1	11/01/18 12:50	11/02/18 17:20	7440-38-2	
Barium	**155**	ug/L	1.0	0.28	1	11/01/18 12:50	11/02/18 17:20	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	11/01/18 12:50	11/02/18 17:20	7440-41-7	
Cadmium	**<0.033**	ug/L	0.50	0.033	1	11/01/18 12:50	11/02/18 17:20	7440-43-9	
Chromium	**0.090J**	ug/L	1.0	0.079	1	11/01/18 12:50	11/02/18 17:20	7440-47-3	
Cobalt	**0.11J**	ug/L	1.0	0.062	1	11/01/18 12:50	11/02/18 17:20	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	11/01/18 12:50	11/02/18 17:20	7439-92-1	
Molybdenum	**10.3**	ug/L	1.0	0.57	1	11/01/18 12:50	11/02/18 17:20	7439-98-7	
Selenium	**0.18J**	ug/L	1.0	0.085	1	11/01/18 12:50	11/02/18 17:20	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	11/01/18 12:50	11/02/18 17:20	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	10/15/18 17:35	10/16/18 11:39	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**320**	mg/L	5.0	5.0	1		10/12/18 12:37		
9040 pH	Analytical Method: EPA 9040								
pH	**8.0**	Std. Units	0.10	0.10	1		10/11/18 16:01		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**15.9**	mg/L	1.0	0.29	1		10/19/18 01:39	16887-00-6	
Fluoride	**0.27**	mg/L	0.20	0.19	1		10/19/18 01:39	16984-48-8	
Sulfate	**64.4**	mg/L	5.0	1.2	5		10/19/18 01:53	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

Sample: MW-302 **Lab ID: 60283254002** Collected: 10/08/18 13:08 Received: 10/10/18 08:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		10/08/18 13:08		
Collected Date	**10/08/2018**				1		10/08/18 13:08		
Collected Time	**13:08**				1		10/08/18 13:08		
Field pH	**6.93**	Std. Units	0.10	0.050	1		10/08/18 13:08		
Field Temperature	**16.99**	deg C	0.50	0.25	1		10/08/18 13:08		
Field Specific Conductance	**1039**	umhos/cm	1.0	1.0	1		10/08/18 13:08		
Oxygen, Dissolved	**0.48**	mg/L			1		10/08/18 13:08	7782-44-7	
REDOX	**-43.9**	mV			1		10/08/18 13:08		
Turbidity	**5.92**	NTU	1.0	1.0	1		10/08/18 13:08		
Groundwater Elevation	**628.59**	feet			1		10/08/18 13:08		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**694**	ug/L	100	12.5	1	10/16/18 15:00	10/17/18 13:35	7440-42-8	
Calcium	**122**	mg/L	0.20	0.054	1	10/16/18 15:00	10/17/18 13:35	7440-70-2	
Lithium	**<4.6**	ug/L	10.0	4.6	1	10/16/18 15:00	10/17/18 13:35	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**<0.078**	ug/L	1.0	0.078	1	11/01/18 12:50	11/02/18 17:22	7440-36-0	
Arsenic	**50.4**	ug/L	1.0	0.065	1	11/01/18 12:50	11/02/18 17:22	7440-38-2	
Barium	**603**	ug/L	1.0	0.28	1	11/01/18 12:50	11/02/18 17:22	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	11/01/18 12:50	11/02/18 17:22	7440-41-7	
Cadmium	**<0.033**	ug/L	0.50	0.033	1	11/01/18 12:50	11/02/18 17:22	7440-43-9	
Chromium	**0.39J**	ug/L	1.0	0.079	1	11/01/18 12:50	11/02/18 17:22	7440-47-3	
Cobalt	**1.1**	ug/L	1.0	0.062	1	11/01/18 12:50	11/02/18 17:22	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	11/01/18 12:50	11/02/18 17:22	7439-92-1	
Molybdenum	**1.5**	ug/L	1.0	0.57	1	11/01/18 12:50	11/02/18 17:22	7439-98-7	
Selenium	**0.26J**	ug/L	1.0	0.085	1	11/01/18 12:50	11/02/18 17:22	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	11/01/18 12:50	11/02/18 17:22	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	10/15/18 17:35	10/16/18 11:42	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**518**	mg/L	5.0	5.0	1		10/12/18 12:37		
9040 pH	Analytical Method: EPA 9040								
pH	**6.9**	Std. Units	0.10	0.10	1		10/11/18 16:02		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**13.5**	mg/L	1.0	0.29	1		10/19/18 02:22	16887-00-6	
Fluoride	**0.27**	mg/L	0.20	0.19	1		10/19/18 02:22	16984-48-8	
Sulfate	**<0.24**	mg/L	1.0	0.24	1		10/19/18 02:22	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

Sample: MW-303 **Lab ID: 60283254003** Collected: 10/08/18 11:56 Received: 10/10/18 08:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		10/08/18 11:56		
Collected Date	**10/08/2018**				1		10/08/18 11:56		
Collected Time	**11:56**				1		10/08/18 11:56		
Field pH	**7.91**	Std. Units	0.10	0.050	1		10/08/18 11:56		
Field Temperature	**28.5**	deg C	0.50	0.25	1		10/08/18 11:56		
Field Specific Conductance	**328**	umhos/cm	1.0	1.0	1		10/08/18 11:56		
Oxygen, Dissolved	**0.4**	mg/L			1		10/08/18 11:56	7782-44-7	
REDOX	**139**	mV			1		10/08/18 11:56		
Turbidity	**2.62**	NTU	1.0	1.0	1		10/08/18 11:56		
Groundwater Elevation	**637.32**	feet			1		10/08/18 11:56		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**474**	ug/L	100	12.5	1	10/16/18 15:00	10/17/18 13:38	7440-42-8	
Calcium	**35.3**	mg/L	0.20	0.054	1	10/16/18 15:00	10/17/18 13:38	7440-70-2	
Lithium	**8.1J**	ug/L	10.0	4.6	1	10/16/18 15:00	10/17/18 13:38	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**0.19J**	ug/L	1.0	0.078	1	11/01/18 12:50	11/02/18 17:24	7440-36-0	
Arsenic	**2.3**	ug/L	1.0	0.065	1	11/01/18 12:50	11/02/18 17:24	7440-38-2	
Barium	**121**	ug/L	1.0	0.28	1	11/01/18 12:50	11/02/18 17:24	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	11/01/18 12:50	11/02/18 17:24	7440-41-7	
Cadmium	**<0.033**	ug/L	0.50	0.033	1	11/01/18 12:50	11/02/18 17:24	7440-43-9	
Chromium	**0.089J**	ug/L	1.0	0.079	1	11/01/18 12:50	11/02/18 17:24	7440-47-3	
Cobalt	**0.21J**	ug/L	1.0	0.062	1	11/01/18 12:50	11/02/18 17:24	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	11/01/18 12:50	11/02/18 17:24	7439-92-1	
Molybdenum	**12.0**	ug/L	1.0	0.57	1	11/01/18 12:50	11/02/18 17:24	7439-98-7	
Selenium	**0.39J**	ug/L	1.0	0.085	1	11/01/18 12:50	11/02/18 17:24	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	11/01/18 12:50	11/02/18 17:24	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	10/15/18 17:35	10/16/18 11:51	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**181**	mg/L	5.0	5.0	1		10/12/18 12:37		
9040 pH	Analytical Method: EPA 9040								
pH	**7.9**	Std. Units	0.10	0.10	1		10/11/18 15:58		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**16.3**	mg/L	1.0	0.29	1		10/19/18 03:33	16887-00-6	
Fluoride	**0.72**	mg/L	0.20	0.19	1		10/19/18 03:33	16984-48-8	
Sulfate	**29.1**	mg/L	5.0	1.2	5		10/19/18 03:47	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

Sample: MW-6 **Lab ID: 60283254004** Collected: 10/08/18 14:41 Received: 10/10/18 08:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Field Data	Analytical Method:								
Collected By	**Client**				1		10/08/18 14:41		
Collected Date	**10/08/2018**				1		10/08/18 14:41		
Collected Time	**14:41**				1		10/08/18 14:41		
Field pH	**7.06**	Std. Units	0.10	0.050	1		10/08/18 14:41		
Field Temperature	**11.5**	deg C	0.50	0.25	1		10/08/18 14:41		
Field Specific Conductance	**587**	umhos/cm	1.0	1.0	1		10/08/18 14:41		
Oxygen, Dissolved	**9.1**	mg/L			1		10/08/18 14:41	7782-44-7	
REDOX	**119**	mV			1		10/08/18 14:41		
Turbidity	**0.01**	NTU	1.0	1.0	1		10/08/18 14:41		
Groundwater Elevation	**664.71**	feet			1		10/08/18 14:41		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**40.2J**	ug/L	100	12.5	1	10/16/18 15:00	10/17/18 13:40	7440-42-8	
Calcium	**69.6**	mg/L	0.20	0.054	1	10/16/18 15:00	10/17/18 13:40	7440-70-2	
Lithium	**<4.6**	ug/L	10.0	4.6	1	10/16/18 15:00	10/17/18 13:40	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**<0.078**	ug/L	1.0	0.078	1	11/01/18 12:50	11/02/18 17:25	7440-36-0	
Arsenic	**0.24J**	ug/L	1.0	0.065	1	11/01/18 12:50	11/02/18 17:25	7440-38-2	
Barium	**43.0**	ug/L	1.0	0.28	1	11/01/18 12:50	11/02/18 17:25	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	11/01/18 12:50	11/02/18 17:25	7440-41-7	
Cadmium	**<0.033**	ug/L	0.50	0.033	1	11/01/18 12:50	11/02/18 17:25	7440-43-9	
Chromium	**0.73J**	ug/L	1.0	0.079	1	11/01/18 12:50	11/02/18 17:25	7440-47-3	
Cobalt	**<0.062**	ug/L	1.0	0.062	1	11/01/18 12:50	11/02/18 17:25	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	11/01/18 12:50	11/02/18 17:25	7439-92-1	
Molybdenum	**<0.57**	ug/L	1.0	0.57	1	11/01/18 12:50	11/02/18 17:25	7439-98-7	
Selenium	**0.46J**	ug/L	1.0	0.085	1	11/01/18 12:50	11/02/18 17:25	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	11/01/18 12:50	11/02/18 17:25	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	10/15/18 17:35	10/16/18 11:53	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**319**	mg/L	5.0	5.0	1		10/12/18 12:37		
9040 pH	Analytical Method: EPA 9040								
pH	**7.4**	Std. Units	0.10	0.10	1		10/11/18 16:04		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**6.6**	mg/L	1.0	0.29	1		10/19/18 00:53	16887-00-6	
Fluoride	**<0.19**	mg/L	0.20	0.19	1		10/19/18 00:53	16984-48-8	
Sulfate	**25.5**	mg/L	5.0	1.2	5		10/19/18 01:09	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

Sample: FIELD BLANK **Lab ID: 60283254005** Collected: 10/08/18 15:00 Received: 10/10/18 08:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Boron	**<12.5**	ug/L	100	12.5	1	10/16/18 15:00	10/17/18 13:42	7440-42-8	
Calcium	**<0.054**	mg/L	0.20	0.054	1	10/16/18 15:00	10/17/18 13:42	7440-70-2	
Lithium	**<4.6**	ug/L	10.0	4.6	1	10/16/18 15:00	10/17/18 13:42	7439-93-2	
6020 MET ICPMS	Analytical Method: EPA 6020 Preparation Method: EPA 3010								
Antimony	**<0.078**	ug/L	1.0	0.078	1	11/01/18 12:50	11/02/18 17:44	7440-36-0	
Arsenic	**<0.065**	ug/L	1.0	0.065	1	11/01/18 12:50	11/02/18 17:44	7440-38-2	
Barium	**<0.28**	ug/L	1.0	0.28	1	11/01/18 12:50	11/02/18 17:44	7440-39-3	
Beryllium	**<0.089**	ug/L	0.50	0.089	1	11/01/18 12:50	11/02/18 17:44	7440-41-7	
Cadmium	**<0.033**	ug/L	0.50	0.033	1	11/01/18 12:50	11/02/18 17:44	7440-43-9	
Chromium	**<0.079**	ug/L	1.0	0.079	1	11/01/18 12:50	11/02/18 17:44	7440-47-3	
Cobalt	**<0.062**	ug/L	1.0	0.062	1	11/01/18 12:50	11/02/18 17:44	7440-48-4	
Lead	**<0.13**	ug/L	1.0	0.13	1	11/01/18 12:50	11/02/18 17:44	7439-92-1	
Molybdenum	**<0.57**	ug/L	1.0	0.57	1	11/01/18 12:50	11/02/18 17:44	7439-98-7	
Selenium	**<0.085**	ug/L	1.0	0.085	1	11/01/18 12:50	11/02/18 17:44	7782-49-2	
Thallium	**<0.099**	ug/L	1.0	0.099	1	11/01/18 12:50	11/02/18 17:44	7440-28-0	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.090**	ug/L	0.20	0.090	1	10/15/18 17:35	10/16/18 11:55	7439-97-6	
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**<5.0**	mg/L	5.0	5.0	1		10/12/18 12:37		
9040 pH	Analytical Method: EPA 9040								
pH	**5.5**	Std. Units	0.10	0.10	1		10/11/18 16:06		H6
9056 IC Anions	Analytical Method: EPA 9056								
Chloride	**<0.29**	mg/L	1.0	0.29	1		10/19/18 01:25	16887-00-6	
Fluoride	**<0.19**	mg/L	0.20	0.19	1		10/19/18 01:25	16984-48-8	
Sulfate	**<0.24**	mg/L	1.0	0.24	1		10/19/18 01:25	14808-79-8	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

QC Batch: 549650 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 60283254001, 60283254002, 60283254003, 60283254004, 60283254005

METHOD BLANK: 2253963 Matrix: Water
Associated Lab Samples: 60283254001, 60283254002, 60283254003, 60283254004, 60283254005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	ug/L	<0.090	0.20	0.090	10/16/18 10:56	

LABORATORY CONTROL SAMPLE: 2253964

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.0	80	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2253965 2253966

Parameter	Units	60282607003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	5	5	4.3	4.0	85	79	75-125	7	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

QC Batch: 549876 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 60283254001, 60283254002, 60283254003, 60283254004, 60283254005

METHOD BLANK: 2254710 Matrix: Water
Associated Lab Samples: 60283254001, 60283254002, 60283254003, 60283254004, 60283254005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	ug/L	<12.5	100	12.5	10/17/18 13:07	
Calcium	mg/L	<0.054	0.20	0.054	10/17/18 13:07	
Lithium	ug/L	<4.6	10.0	4.6	10/17/18 13:07	

LABORATORY CONTROL SAMPLE: 2254711

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	ug/L	1000	972	97	80-120	
Calcium	mg/L	10	10.2	102	80-120	
Lithium	ug/L	1000	959	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2254712 2254713

Parameter	Units	60282950001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	ug/L	3620	1000	1000	4610	4580	100	97	75-125	1	20	
Calcium	mg/L	114	10	10	125	125	109	105	75-125	0	20	
Lithium	ug/L	5.8J	1000	1000	991	995	98	99	75-125	0	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

QC Batch: 550090 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 60283254001, 60283254002, 60283254003, 60283254004, 60283254005

METHOD BLANK: 2255522 Matrix: Water
Associated Lab Samples: 60283254001, 60283254002, 60283254003, 60283254004, 60283254005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	ug/L	<0.078	1.0	0.078	11/02/18 16:57	
Arsenic	ug/L	<0.065	1.0	0.065	11/02/18 16:57	
Barium	ug/L	<0.28	1.0	0.28	11/02/18 16:57	
Beryllium	ug/L	<0.089	0.50	0.089	11/02/18 16:57	
Cadmium	ug/L	<0.033	0.50	0.033	11/02/18 16:57	
Chromium	ug/L	<0.078	1.0	0.078	11/02/18 16:57	
Cobalt	ug/L	<0.062	1.0	0.062	11/02/18 16:57	
Lead	ug/L	<0.13	1.0	0.13	11/02/18 16:57	
Molybdenum	ug/L	<0.57	1.0	0.57	11/02/18 16:57	
Selenium	ug/L	<0.085	1.0	0.085	11/02/18 16:57	
Thallium	ug/L	<0.099	1.0	0.099	11/02/18 16:57	

LABORATORY CONTROL SAMPLE: 2255523

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	40	38.8	97	80-120	
Arsenic	ug/L	40	38.9	97	80-120	
Barium	ug/L	40	37.9	95	80-120	
Beryllium	ug/L	40	37.6	94	80-120	
Cadmium	ug/L	40	38.6	96	80-120	
Chromium	ug/L	40	39.8	99	80-120	
Cobalt	ug/L	40	39.1	98	80-120	
Lead	ug/L	40	37.6	94	80-120	
Molybdenum	ug/L	40	39.6	99	80-120	
Selenium	ug/L	40	38.6	97	80-120	
Thallium	ug/L	40	36.2	91	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2255524 2255525

Parameter	Units	60282950002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	0.25J	40	40	39.4	39.6	98	98	75-125	1	20	
Arsenic	ug/L	8.7	40	40	49.6	49.2	102	101	75-125	1	20	
Barium	ug/L	42.3	40	40	81.5	81.5	98	98	75-125	0	20	
Beryllium	ug/L	<0.089	40	40	38.5	38.7	96	97	75-125	1	20	
Cadmium	ug/L	0.087J	40	40	38.0	37.9	95	95	75-125	0	20	
Chromium	ug/L	0.29J	40	40	41.7	42.7	104	106	75-125	2	20	
Cobalt	ug/L	0.12J	40	40	40.0	39.9	100	100	75-125	0	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2255524 2255525

Parameter	Units	60282950002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead	ug/L	<0.13	40	40	35.1	35.3	88	88	75-125	1	20	
Molybdenum	ug/L	212	40	40	264	263	129	127	75-125	0	20	M1
Selenium	ug/L	0.40J	40	40	38.2	38.0	94	94	75-125	0	20	
Thallium	ug/L	<0.099	40	40	34.2	34.2	86	86	75-125	0	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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

QC Batch: 549244 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 60283254001, 60283254002, 60283254003, 60283254004, 60283254005

METHOD BLANK: 2252128 Matrix: Water
Associated Lab Samples: 60283254001, 60283254002, 60283254003, 60283254004, 60283254005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<5.0	5.0	5.0	10/12/18 12:37	

LABORATORY CONTROL SAMPLE: 2252129

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	1000	983	98	80-120	

SAMPLE DUPLICATE: 2252130

Parameter	Units	60283254001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	320	320	0	10	

SAMPLE DUPLICATE: 2252131

Parameter	Units	60283107009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	20400	21000	3	10	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

QC Batch: 549090 Analysis Method: EPA 9040
QC Batch Method: EPA 9040 Analysis Description: 9040 pH
Associated Lab Samples: 60283254001, 60283254002, 60283254003, 60283254004, 60283254005

SAMPLE DUPLICATE: 2251376

Parameter	Units	60283204002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	8.0	8.0	1	10	H6

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

QC Batch: 550231 Analysis Method: EPA 9056
QC Batch Method: EPA 9056 Analysis Description: 9056 IC Anions
Associated Lab Samples: 60283254001, 60283254002, 60283254003

METHOD BLANK: 2256103 Matrix: Water
Associated Lab Samples: 60283254001, 60283254002, 60283254003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.29	1.0	0.29	10/18/18 19:29	
Fluoride	mg/L	<0.19	0.20	0.19	10/18/18 19:29	
Sulfate	mg/L	<0.24	1.0	0.24	10/18/18 19:29	

LABORATORY CONTROL SAMPLE: 2256104

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	80-120	
Fluoride	mg/L	2.5	2.5	101	80-120	
Sulfate	mg/L	5	5.1	101	80-120	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

QC Batch: 550461 Analysis Method: EPA 9056
QC Batch Method: EPA 9056 Analysis Description: 9056 IC Anions
Associated Lab Samples: 60283254004, 60283254005

METHOD BLANK: 2257049 Matrix: Water
Associated Lab Samples: 60283254004, 60283254005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	<0.29	1.0	0.29	10/18/18 19:17	
Fluoride	mg/L	<0.19	0.20	0.19	10/18/18 19:17	
Sulfate	mg/L	<0.24	1.0	0.24	10/18/18 19:17	

LABORATORY CONTROL SAMPLE: 2257050

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	95	80-120	
Fluoride	mg/L	2.5	2.5	101	80-120	
Sulfate	mg/L	5	5.0	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2257051 2257052

Parameter	Units	40176962002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.51	5	5	6.5	5.0	119	90	80-120	25	15	R1
Sulfate	mg/L	32.9	10	10	46.2	43.1	133	102	80-120	7	15	E,M1

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

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.

TNTC - Too Numerous To Count

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 - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

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.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City

WORKORDER QUALIFIERS

WO: 60283254

[1]	Rev. 1 11/7/2018
[2]	Removed comma from conductance result, added client provided ORP result.

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LANSING GENERATING STATION
Pace Project No.: 60283254

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60283254001	**MW-301**		550112		
60283254002	**MW-302**		550112		
60283254003	**MW-303**		550112		
60283254004	**MW-6**		550112		
60283254001	**MW-301**	EPA 3010	549876	EPA 6010	550031
60283254002	**MW-302**	EPA 3010	549876	EPA 6010	550031
60283254003	**MW-303**	EPA 3010	549876	EPA 6010	550031
60283254004	**MW-6**	EPA 3010	549876	EPA 6010	550031
60283254005	**FIELD BLANK**	EPA 3010	549876	EPA 6010	550031
60283254001	**MW-301**	EPA 3010	550090	EPA 6020	550198
60283254002	**MW-302**	EPA 3010	550090	EPA 6020	550198
60283254003	**MW-303**	EPA 3010	550090	EPA 6020	550198
60283254004	**MW-6**	EPA 3010	550090	EPA 6020	550198
60283254005	**FIELD BLANK**	EPA 3010	550090	EPA 6020	550198
60283254001	**MW-301**	EPA 7470	549650	EPA 7470	549753
60283254002	**MW-302**	EPA 7470	549650	EPA 7470	549753
60283254003	**MW-303**	EPA 7470	549650	EPA 7470	549753
60283254004	**MW-6**	EPA 7470	549650	EPA 7470	549753
60283254005	**FIELD BLANK**	EPA 7470	549650	EPA 7470	549753
60283254001	**MW-301**	SM 2540C	549244		
60283254002	**MW-302**	SM 2540C	549244		
60283254003	**MW-303**	SM 2540C	549244		
60283254004	**MW-6**	SM 2540C	549244		
60283254005	**FIELD BLANK**	SM 2540C	549244		
60283254001	**MW-301**	EPA 9040	549090		
60283254002	**MW-302**	EPA 9040	549090		
60283254003	**MW-303**	EPA 9040	549090		
60283254004	**MW-6**	EPA 9040	549090		
60283254005	**FIELD BLANK**	EPA 9040	549090		
60283254001	**MW-301**	EPA 9056	550231		
60283254002	**MW-302**	EPA 9056	550231		
60283254003	**MW-303**	EPA 9056	550231		
60283254004	**MW-6**	EPA 9056	550461		
60283254005	**FIELD BLANK**	EPA 9056	550461		

Pace Analytical
www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60283254

60283254

Client Name: SCS

Courier: FedEx ☑ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 4542 2779 1430 Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑ ZPIC

Thermometer Used: T-299 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 0.7 **Corr. Factor** +0.1 **Corrected** 0.8

Date and initials of person examining contents: 10/10/18 HK

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☑No ☐N/A	
Filtered volume received for dissolved tests?	☐Yes ☑No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples contain multiple ~~phases~~? ~~Matrix:~~ WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (~~Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO~~)	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: ~~Lead acetate strip turns dark?~~ (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☑No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Hank
04:55 pm,Oct 10,2018
Kapka

Project Manager Review: _____ Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:

Company:	SCS Engineers
Address:	2830 Dairy Drive, Madison WI 53718
Email To:	mblodgett@scsengineers.com
Phone:	608-216-7362
Fax:	
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Meghan Blodgett
Copy To:	Tom Karwaski
Purchase Order No.:	
Project Name:	Lansing Generating Station
Project Number:	25216073.18

Section C Invoice Information:

Attention:	Meghan Blodgett/Jess Valcheff
Company Name:	SCS Engineers
Address:	
Pace Quote Reference:	
Pace Project Manager:	Trudy Gipson 913-563-1405
Pace Profile #:	6696 Line 2

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: IA

Section D Required Client Information

Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW, WATER WT, WASTE WATER WW, PRODUCT P, SOIL/SOLID SL, OIL OL, WIPE WP, AIR AR, OTHER OT, TISSUE TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): N N N

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	6010 Total Metals: B-Ca-Li	6020 Total Metals *	7470 Total Hg	9056 Chloride-Fluoride-Sulfate	2540C TDS	9040 pH		Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60283254
1	MW-301	WT	G	xxx	xxx	10/8/18	1256	17.4	3	1		2						X	X	X	X	X	X	BP2U 2BP3N	N	001
2	MW-302	WT	G	xxx	xxx	10/8/18	1308	16.9	3	1		2						X	X	X	X	X	X	↓		002
3	MW-303	WT	G	xxx	xxx	10/8/18	1156	26.5	3	1		2						X	X	X	X	X	X	↓		003
4	[redacted]	WT	G	xxx	xxx	10/8/18			3	1		2						X	X	X	X	X	X			
5	MW-6	WT	G	xxx	xxx	10/8/18	1441	11.5	3	1		2						X	X	X	X	X	X	BP2U, 2BP3N		004
6	FIELD BLANK	WT	G	xxx	xxx	10/8/18	1500		3	1		2						X	X	X	X	X	X	↓		005
7																										
8																										
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Ship To: 9608 Loiret Boulevard, Lenexa, KS 66219	[signature]	10/9/18	0800	Holly Fowler PASI	10.10.18	0855	0.8	Y	Y	Y
* Sb-As-Ba-Be-Cd-Cr-Co-Pb-Mo-Se-Tl										

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY):

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-Feb-2007

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

October 31, 2018

Meghan Blodgett
SCS Engineers
2830 Dairy Drive
Madison, WI 53718

RE: Project: LANSING GENERATING STATION
Pace Project No.: 60283285

Dear Meghan Blodgett:
Enclosed are the analytical results for sample(s) received by the laboratory on October 10, 2018. 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,

Hank Kapka
hank.kapka@pacelabs.com
(913)599-5665
PM Lab Management

Enclosures

cc: Tom Karwaski, SCS Engineers
Nicole Kron, SCS Engineers
Jeff Maxted, Alliant Energy
Jess Valcheff, SCS Engeineers

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: LANSING GENERATING STATION
Pace Project No.: 60283285

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: LANSING GENERATING STATION
Pace Project No.: 60283285

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60283285001	**MW-301**	Water	10/08/18 12:56	10/10/18 08:55
60283285002	**MW-302**	Water	10/08/18 13:08	10/10/18 08:55
60283285003	**MW-303**	Water	10/08/18 11:56	10/10/18 08:55
60283285004	**MW-6**	Water	10/08/18 14:41	10/10/18 08:55
60283285005	**FIELD BLANK**	Water	10/08/18 15:00	10/10/18 08:55

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: LANSING GENERATING STATION
Pace Project No.: 60283285

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60283285001	**MW-301**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
60283285002	**MW-302**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
60283285003	**MW-303**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
60283285004	**MW-6**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA
60283285005	**FIELD BLANK**	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
		Total Radium Calculation	RMK	1	PASI-PA

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60283285

Sample: MW-301 **Lab ID: 60283285001** Collected: 10/08/18 12:56 Received: 10/10/18 08:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.115 ± 0.357 (0.691) C:NA T:92%**	pCi/L	10/25/18 11:30	13982-63-3	
Radium-228	EPA 904.0	**0.441 ± 0.497 (1.05) C:73% T:88%**	pCi/L	10/24/18 12:44	15262-20-1	
Total Radium	Total Radium Calculation	**0.556 ± 0.854 (1.74)**	pCi/L	10/31/18 11:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60283285

Sample: MW-302 **Lab ID: 60283285002** Collected: 10/08/18 13:08 Received: 10/10/18 08:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**1.67 ± 0.669 (0.174) C:NA T:83%**	pCi/L	10/25/18 11:30	13982-63-3	
Radium-228	EPA 904.0	**1.85 ± 0.614 (0.880) C:71% T:87%**	pCi/L	10/24/18 12:44	15262-20-1	
Total Radium	Total Radium Calculation	**3.52 ± 1.28 (1.05)**	pCi/L	10/31/18 11:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60283285

Sample: MW-303 **Lab ID: 60283285003** Collected: 10/08/18 11:56 Received: 10/10/18 08:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.664 ± 0.433 (0.444) C:NA T:93%**	pCi/L	10/25/18 11:30	13982-63-3	
Radium-228	EPA 904.0	**1.21 ± 0.517 (0.895) C:72% T:100%**	pCi/L	10/24/18 12:44	15262-20-1	
Total Radium	Total Radium Calculation	**1.87 ± 0.950 (1.34)**	pCi/L	10/31/18 11:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60283285

Sample: MW-6 **Lab ID: 60283285004** Collected: 10/08/18 14:41 Received: 10/10/18 08:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.705 ± 0.485 (0.519) C:NA T:74%**	pCi/L	10/25/18 11:30	13982-63-3	
Radium-228	EPA 904.0	**0.668 ± 0.485 (0.966) C:74% T:85%**	pCi/L	10/24/18 12:44	15262-20-1	
Total Radium	Total Radium Calculation	**1.37 ± 0.970 (1.49)**	pCi/L	10/31/18 11:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60283285

Sample: FIELD BLANK **Lab ID: 60283285005** Collected: 10/08/18 15:00 Received: 10/10/18 08:55 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**0.114 ± 0.419 (0.806) C:NA T:95%**	pCi/L	10/25/18 11:30	13982-63-3	
Radium-228	EPA 904.0	**0.221 ± 0.516 (1.14) C:71% T:87%**	pCi/L	10/24/18 12:44	15262-20-1	
Total Radium	Total Radium Calculation	**0.335 ± 0.935 (1.95)**	pCi/L	10/31/18 11:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60283285

QC Batch: 316706 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 60283285001, 60283285002, 60283285003, 60283285004, 60283285005

METHOD BLANK: 1545545 Matrix: Water
Associated Lab Samples: 60283285001, 60283285002, 60283285003, 60283285004, 60283285005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.368 ± 0.452 (0.737) C:NA T:84%	pCi/L	10/25/18 10:29	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL - RADIOCHEMISTRY

Project: LANSING GENERATING STATION
Pace Project No.: 60283285

QC Batch: 316705 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 60283285001, 60283285002, 60283285003, 60283285004, 60283285005

METHOD BLANK: 1545544 Matrix: Water
Associated Lab Samples: 60283285001, 60283285002, 60283285003, 60283285004, 60283285005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.448 ± 0.315 (0.602) C:81% T:82%	pCi/L	10/24/18 12:45	

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

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: LANSING GENERATING STATION
Pace Project No.: 60283285

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.

TNTC - Too Numerous To Count

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 - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

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.

Act - Activity

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

Pace Analytical Services, LLC
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LANSING GENERATING STATION
Pace Project No.: 60283285

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60283285001	**MW-301**	EPA 903.1	316706		
60283285002	**MW-302**	EPA 903.1	316706		
60283285003	**MW-303**	EPA 903.1	316706		
60283285004	**MW-6**	EPA 903.1	316706		
60283285005	**FIELD BLANK**	EPA 903.1	316706		
60283285001	**MW-301**	EPA 904.0	316705		
60283285002	**MW-302**	EPA 904.0	316705		
60283285003	**MW-303**	EPA 904.0	316705		
60283285004	**MW-6**	EPA 904.0	316705		
60283285005	**FIELD BLANK**	EPA 904.0	316705		
60283285001	**MW-301**	Total Radium Calculation	318622		
60283285002	**MW-302**	Total Radium Calculation	318622		
60283285003	**MW-303**	Total Radium Calculation	318622		
60283285004	**MW-6**	Total Radium Calculation	318622		
60283285005	**FIELD BLANK**	Total Radium Calculation	318622		

HWK

Pace Analytical® www.pacelabs.com

Sample Condition Upon Receipt

WO# : 60283285

60283285

Client Name: SCS

Courier: FedEx ☑ UPS ☐ VIA ☐ Clay ☐ PEX ☐ ECI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: 4542 2783 2916 Pace Shipping Label Used? Yes ☐ No ☑

Custody Seal on Cooler/Box Present: Yes ☑ No ☐ Seals intact: Yes ☑ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ☑ KPIC

Thermometer Used: T-299 **Type of Ice:** Wet Blue None

Cooler Temperature (°C): **As-read** 18.5 **Corr. Factor** +0.1 **Corrected** 18.6

Date and initials of person examining contents: 10.10.18 HF

Temperature should be above freezing to 6°C

Chain of Custody present:	☑Yes ☐No ☐N/A	
Chain of Custody relinquished:	☑Yes ☐No ☐N/A	
Samples arrived within holding time:	☑Yes ☐No ☐N/A	
Short Hold Time analyses (<72hr):	☐Yes ☑No ☐N/A	
Rush Turn Around Time requested:	☐Yes ☑No ☐N/A	
Sufficient volume:	☑Yes ☐No ☐N/A	
Correct containers used:	☑Yes ☐No ☐N/A	
Pace containers used:	☑Yes ☐No ☐N/A	
Containers intact:	☑Yes ☐No ☐N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	☐Yes ☑No ☐N/A	
Filtered volume received for dissolved tests?	☐Yes ☑No ☐N/A	
Sample labels match COC: Date / time / ID / analyses	☑Yes ☐No ☐N/A	
Samples ~~contain multiple phases~~? Matrix: WT	☐Yes ☑No ☐N/A	
Containers requiring pH preservation in compliance? (HNO_3, H_2SO_4, HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	☑Yes ☐No ☐N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks: Lead acetate strip turns dark? (Record only)	☐Yes ☐No	
Potassium iodide test strip turns blue/purple? (Preserve)	☐Yes ☐No	
Trip Blank present:	☐Yes ☑No ☐N/A	
Headspace in VOA vials (>6mm):	☐Yes ☐No ☑N/A	
Samples from USDA Regulated Area: State:	☐Yes ☐No ☑N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	☐Yes ☐No ☑N/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Hank 09:39 am,Oct 11,2018 Kapka Date: _____

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	SCS Engineers	Report To:	Meghan Blodgett	Attention:	Meghan Blodgett/Jess Valcheff
Address:	2830 Dairy Drive	Copy To:	Tom Karwaski	Company Name:	SCS Engineers
	Madison WI 53718			Address:	
Email To:	mblodgett@scsengineers.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	608-216-7362 Fax:	Project Name:	Lansing Generating Station	Pace Project Manager:	Trudy Gipson 913-563-1405
Requested Due Date/TAT:		Project Number:	25216073.18	Pace Profile #:	6696 Line 2

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER ______

Site Location STATE: IA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	903.1 Radium-226	904.0 Radium-228	Total Radium		Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 60283285
1	MW-301	WT	G	xxx	xxx	10/8/18	1356	[illegible]	2			2	2BPIN						X	X	X	~~BP2U, 2BP3N~~ 10.10.18		001
2	MW-302	WT	G	xxx	xxx	10/8/18	1308	16.9	2			2	↓						X	X	X	↓ ↓ 10.10 HF		002
3	MW-303	WT	G	xxx	xxx	10/8/18	1156	28.5	2			2	↓						X	X	X	↓ ↓		003
4	[redacted]	WT	G	xxx	xxx	10/9/18			~~2~~			~~2~~							~~X~~	~~X~~	~~X~~			
5	MW-6	WT	G	xxx	xxx	10/8/18	1441	11.5	2			2	2BPIN						X	X	X	~~BP2U 2BP3N~~ 10.10.18		004
6	FIELD BLANK	WT	G	xxx	xxx	10/8/18	1500		2			2	↓						X	X	X	↓ ↓ 10 HF		005
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Ship To: 9608 Loiret Boulevard, Lenexa, KS 66219	Gary Steckel	10/9/18	0800	Harry Fowler PASI	10.10.18	0855	~~0.8~~ 18.6	Y	Y 10.10.18 HF	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-Feb-2007

Chain of Custody

Pace Analytical® www.pacelabs.com

☐ Samples were sent directly to the Subcontracting Laboratory.

State Of Origin: IA
Cert. Needed: ☐ Yes ☐ No
Workorder: 60283285 **Workorder Name:** LANSING GENERATING STATION **Owner Received Date:** 10/10/2018 **Results Requested By:** 10/31/2018

Report To	Subcontract To
Hank Kapka Pace Analytical Kansas 9608 Loiret Blvd. Lenexa, KS 66219 Phone (913)599-5665	Pace Analytical Pittsburgh 1638 Roseytown Road Suites 2,3, & 4 Greensburg, PA 15601 Phone (724)850-5600

WO#: 30268166

30268166

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HNO3	Combined Ra	Radium 226/228	LAB USE ONLY
1	MW-301	PS	10/8/2018 12:56	60283285001	Water	2	X	X	001
2	MW-302	PS	10/8/2018 13:08	60283285002	Water	2	X	X	002
3	MW-303	PS	10/8/2018 11:56	60283285003	Water	2	X	X	003
4	MW-6	PS	10/8/2018 14:41	60283285004	Water	2	X	X	004
5	FIELD BLANK	PS	10/8/2018 15:00	60283285005	Water	2	X	X	005

Transfers	Released By	Date/Time	Received By	Date/Time
1	EBrockett/Pace	10/4/18 1800	[illegible]	10-12-18 0950
2				
3				

Comments

Cooler Temperature on Receipt N/A °C   Custody Seal Y or (N)   Received on Ice Y or (N)   Samples Intact (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

Pittsburgh Lab Sample Condition Upon Receipt

Face Analytical

Client Name: Pace KS

Project # 30268166

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

Label ET
LIMS Login ET

Tracking #: 454227841185

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

Thermometer Used NA Type of Ice: Wet Blue (None)

Cooler Temperature Observed Temp — °C Correction Factor: — °C Final Temp: — °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot# 10D4671 / Date and Initials of person examining contents: MDS 10/12/18
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. All containers needing preservation are found to be in compliance with EPA recommendation. exceptions: VOA, coliform, TOC, O&G, Phenolics	✓ ✓			16. pH<2 Initial when completed MDS Date/time of preservation Lot # of added preservative
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present: Trip Blank Custody Seals Present			✓ ✓	18.
Rad Aqueous Samples Screened > 0.5 mrem/hr		✓		Initial when completed: MDS Date: 10-12-18

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.