

August 20, 2019

DAVID HARRISON  
INDIANA DEPT OF ENVIRONMENTAL  
MANAGEMENT  
100 N. SENATE AVENUE RM 1101  
OFFICE OF LAND QUALITY  
Indianapolis, IN 46204

RE: Project: LA713-LA725  
Pace Project No.: 50233350

Dear DAVID HARRISON:

Enclosed are the analytical results for sample(s) received by the laboratory on August 19, 2019. 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,



Sue Brotherton  
sue.brotherton@pacelabs.com  
(317)228-3100  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: LA713-LA725

Pace Project No.: 50233350

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### Indiana Certification IDs

7726 Moller Road, Indianapolis, IN 46268

Illinois Certification #: 200074

Indiana Certification #: C-49-06

Kansas/NELAP Certification #: E-10177

Kentucky UST Certification #: 80226

Kentucky WW Certification #: 98019

Michigan Department of Environmental Quality, Laboratory  
#9050

Ohio VAP Certification #: CL0065

Oklahoma Certification #: 2018-101

Texas Certification #: T104704355

West Virginia Certification #: 330

Wisconsin Certification #: 999788130

USDA Soil Permit #: P330-16-00257

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: LA713-LA725

Pace Project No.: 50233350

Lab ID	Sample ID	Matrix	Date Collected	Date Received
50233350001	Outfall 001 LA713	Water	08/18/19 14:52	08/19/19 09:44
50233350002	Duplicate LA714	Water	08/18/19 14:53	08/19/19 09:44
50233350003	LC-01 LA715	Water	08/18/19 15:06	08/19/19 09:44
50233350004	LC-02 LA716	Water	08/18/19 15:28	08/19/19 09:44
50233350005	LC-03 LA717	Water	08/18/19 15:40	08/19/19 09:44
50233350006	SL-01 LA718	Water	08/18/19 16:58	08/19/19 09:44
50233350007	SL-02 LA719	Water	08/18/19 17:25	08/19/19 09:44
50233350008	SL-03 LA720	Water	08/18/19 17:40	08/19/19 09:44
50233350009	SL-04 LA721	Water	08/18/19 17:50	08/19/19 09:44
50233350010	SL-05 LA722	Water	08/18/19 18:00	08/19/19 09:44
50233350011	SL-06 LA723	Water	08/18/19 18:30	08/19/19 09:44
50233350012	SL-07 LA724	Water	08/18/19 18:37	08/19/19 09:44
50233350013	SL-08 LA725	Water	08/18/19 18:50	08/19/19 09:44

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### SAMPLE ANALYTE COUNT

Project: LA713-LA725

Pace Project No.: 50233350

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
50233350001	Outfall 001 LA713	EPA 335.4	GWA	1	PASI-I
		EPA 9014 Free Cyanide	GWA	1	PASI-I
50233350002	Duplicate LA714	EPA 335.4	GWA	1	PASI-I
		EPA 9014 Free Cyanide	GWA	1	PASI-I
50233350003	LC-01 LA715	EPA 335.4	GWA	1	PASI-I
		EPA 9014 Free Cyanide	GWA	1	PASI-I
50233350004	LC-02 LA716	EPA 335.4	GWA	1	PASI-I
		EPA 9014 Free Cyanide	GWA	1	PASI-I
50233350005	LC-03 LA717	EPA 335.4	GWA	1	PASI-I
		EPA 9014 Free Cyanide	GWA	1	PASI-I
50233350006	SL-01 LA718	EPA 335.4	GWA	1	PASI-I
		EPA 9014 Free Cyanide	GWA	1	PASI-I
50233350007	SL-02 LA719	EPA 335.4	GWA	1	PASI-I
		EPA 9014 Free Cyanide	GWA	1	PASI-I
50233350008	SL-03 LA720	EPA 335.4	GWA	1	PASI-I
		EPA 9014 Free Cyanide	GWA	1	PASI-I
50233350009	SL-04 LA721	EPA 335.4	GWA	1	PASI-I
		EPA 9014 Free Cyanide	GWA	1	PASI-I
50233350010	SL-05 LA722	EPA 335.4	GWA	1	PASI-I
		EPA 9014 Free Cyanide	GWA	1	PASI-I
50233350011	SL-06 LA723	EPA 335.4	GWA	1	PASI-I
		EPA 9014 Free Cyanide	GWA	1	PASI-I
50233350012	SL-07 LA724	EPA 335.4	GWA	1	PASI-I
		EPA 9014 Free Cyanide	GWA	1	PASI-I
50233350013	SL-08 LA725	EPA 335.4	GWA	1	PASI-I
		EPA 9014 Free Cyanide	GWA	1	PASI-I

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## PROJECT NARRATIVE

Project: LA713-LA725

Pace Project No.: 50233350

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**Method:** EPA 335.4

**Description:** 335.4 Cyanide, Total

**Client:** IDEM Senate Avenue

**Date:** August 20, 2019

**General Information:**

13 samples were analyzed for EPA 335.4. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Sample Preparation:**

The samples were prepared in accordance with EPA 335.4 with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: LA713-LA725

Pace Project No.: 50233350

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**Method:** EPA 9014 Free Cyanide

**Description:** 9014 Cyanide, Free

**Client:** IDEM Senate Avenue

**Date:** August 20, 2019

### General Information:

13 samples were analyzed for EPA 9014 Free Cyanide. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

### Additional Comments:

Analyte Comments:

QC Batch: 517157

1d: Total cyanide was non-detect at specified reporting limit. Therefore, free cyanide is also non-detect at the same reporting limit.

- BLANK (Lab ID: 2385578)
  - Cyanide, Free
- Duplicate LA714 (Lab ID: 50233350002)
  - Cyanide, Free
- LC-01 LA715 (Lab ID: 50233350003)
  - Cyanide, Free
- LC-02 LA716 (Lab ID: 50233350004)
  - Cyanide, Free
- LC-03 LA717 (Lab ID: 50233350005)
  - Cyanide, Free
- Outfall 001 LA713 (Lab ID: 50233350001)
  - Cyanide, Free
- SL-01 LA718 (Lab ID: 50233350006)
  - Cyanide, Free
- SL-02 LA719 (Lab ID: 50233350007)
  - Cyanide, Free
- SL-03 LA720 (Lab ID: 50233350008)
  - Cyanide, Free
- SL-04 LA721 (Lab ID: 50233350009)
  - Cyanide, Free
- SL-05 LA722 (Lab ID: 50233350010)
  - Cyanide, Free
- SL-06 LA723 (Lab ID: 50233350011)
  - Cyanide, Free

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## PROJECT NARRATIVE

Project: LA713-LA725

Pace Project No.: 50233350

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**Method:** EPA 9014 Free Cyanide

**Description:** 9014 Cyanide, Free

**Client:** IDEM Senate Avenue

**Date:** August 20, 2019

Analyte Comments:

QC Batch: 517157

1d: Total cyanide was non-detect at specified reporting limit. Therefore, free cyanide is also non-detect at the same reporting limit.

- SL-07 LA724 (Lab ID: 50233350012)
  - Cyanide, Free
- SL-08 LA725 (Lab ID: 50233350013)
  - Cyanide, Free

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 2385578)
  - Cyanide, Free
- Duplicate LA714 (Lab ID: 50233350002)
  - Cyanide, Free
- LC-01 LA715 (Lab ID: 50233350003)
  - Cyanide, Free
- LC-02 LA716 (Lab ID: 50233350004)
  - Cyanide, Free
- LC-03 LA717 (Lab ID: 50233350005)
  - Cyanide, Free
- Outfall 001 LA713 (Lab ID: 50233350001)
  - Cyanide, Free
- SL-01 LA718 (Lab ID: 50233350006)
  - Cyanide, Free
- SL-02 LA719 (Lab ID: 50233350007)
  - Cyanide, Free
- SL-03 LA720 (Lab ID: 50233350008)
  - Cyanide, Free
- SL-04 LA721 (Lab ID: 50233350009)
  - Cyanide, Free
- SL-05 LA722 (Lab ID: 50233350010)
  - Cyanide, Free
- SL-06 LA723 (Lab ID: 50233350011)
  - Cyanide, Free
- SL-07 LA724 (Lab ID: 50233350012)
  - Cyanide, Free
- SL-08 LA725 (Lab ID: 50233350013)
  - Cyanide, Free

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

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: LA713-LA725

Pace Project No.: 50233350

Sample: <b>Outfall 001 LA713</b>	Lab ID: <b>50233350001</b>	Collected: 08/18/19 14:52	Received: 08/19/19 09:44	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>335.4 Cyanide, Total</b>	Analytical Method: EPA 335.4 Preparation Method: EPA 335.4							
Cyanide	ND	mg/L	0.0050	1	08/19/19 13:47	08/19/19 16:50	57-12-5	
<b>9014 Cyanide, Free</b>	Analytical Method: EPA 9014 Free Cyanide							
Cyanide, Free	ND	ug/L	100	1		08/19/19 16:50		1d,N2

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## ANALYTICAL RESULTS

Project: LA713-LA725

Pace Project No.: 50233350

Sample: Duplicate LA714	Lab ID: 50233350002	Collected: 08/18/19 14:53	Received: 08/19/19 09:44	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>335.4 Cyanide, Total</b>	Analytical Method: EPA 335.4 Preparation Method: EPA 335.4							
Cyanide	ND	mg/L	0.0050	1	08/19/19 13:47	08/19/19 16:50	57-12-5	
<b>9014 Cyanide, Free</b>	Analytical Method: EPA 9014 Free Cyanide							
Cyanide, Free	ND	ug/L	100	1		08/19/19 16:50		1d,N2

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## ANALYTICAL RESULTS

Project: LA713-LA725

Pace Project No.: 50233350

Sample: LC-01 LA715	Lab ID: 50233350003	Collected: 08/18/19 15:06	Received: 08/19/19 09:44	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>335.4 Cyanide, Total</b>	Analytical Method: EPA 335.4 Preparation Method: EPA 335.4							
Cyanide	ND	mg/L	0.0050	1	08/19/19 13:47	08/19/19 16:52	57-12-5	
<b>9014 Cyanide, Free</b>	Analytical Method: EPA 9014 Free Cyanide							
Cyanide, Free	ND	ug/L	100	1		08/19/19 16:52		1d,N2

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## ANALYTICAL RESULTS

Project: LA713-LA725

Pace Project No.: 50233350

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: LC-02 LA716</b>								
<b>Lab ID: 50233350004</b>								
Collected: 08/18/19 15:28    Received: 08/19/19 09:44    Matrix: Water								
<b>335.4 Cyanide, Total</b>								
Analytical Method: EPA 335.4    Preparation Method: EPA 335.4								
Cyanide	ND	mg/L	0.0050	1	08/19/19 13:47	08/19/19 16:53	57-12-5	
<b>9014 Cyanide, Free</b>								
Analytical Method: EPA 9014 Free Cyanide								
Cyanide, Free	ND	ug/L	100	1		08/19/19 16:53		1d,N2

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## ANALYTICAL RESULTS

Project: LA713-LA725

Pace Project No.: 50233350

Sample: LC-03 LA717	Lab ID: 50233350005	Collected: 08/18/19 15:40	Received: 08/19/19 09:44	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>335.4 Cyanide, Total</b>	Analytical Method: EPA 335.4 Preparation Method: EPA 335.4							
Cyanide	ND	mg/L	0.0050	1	08/19/19 13:47	08/19/19 16:55	57-12-5	
<b>9014 Cyanide, Free</b>	Analytical Method: EPA 9014 Free Cyanide							
Cyanide, Free	ND	ug/L	100	1		08/19/19 16:55		1d,N2

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## ANALYTICAL RESULTS

Project: LA713-LA725

Pace Project No.: 50233350

Sample: <b>SL-01 LA718</b>	Lab ID: <b>50233350006</b>	Collected: 08/18/19 16:58	Received: 08/19/19 09:44	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>335.4 Cyanide, Total</b>	Analytical Method: EPA 335.4 Preparation Method: EPA 335.4							
Cyanide	ND	mg/L	0.0050	1	08/19/19 13:47	08/19/19 16:55	57-12-5	
<b>9014 Cyanide, Free</b>	Analytical Method: EPA 9014 Free Cyanide							
Cyanide, Free	ND	ug/L	100	1		08/19/19 16:55		1d,N2

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### ANALYTICAL RESULTS

Project: LA713-LA725

Pace Project No.: 50233350

<b>Sample: SL-02 LA719</b>		<b>Lab ID: 50233350007</b>		Collected: 08/18/19 17:25	Received: 08/19/19 09:44	Matrix: Water		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>335.4 Cyanide, Total</b>	Analytical Method: EPA 335.4 Preparation Method: EPA 335.4							
Cyanide	ND	mg/L	0.0050	1	08/19/19 13:47	08/19/19 16:57	57-12-5	
<b>9014 Cyanide, Free</b>	Analytical Method: EPA 9014 Free Cyanide							
Cyanide, Free	ND	ug/L	100	1		08/19/19 16:57		1d,N2

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## ANALYTICAL RESULTS

Project: LA713-LA725

Pace Project No.: 50233350

Sample: <b>SL-03 LA720</b>	Lab ID: <b>50233350008</b>	Collected: 08/18/19 17:40	Received: 08/19/19 09:44	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>335.4 Cyanide, Total</b>	Analytical Method: EPA 335.4 Preparation Method: EPA 335.4							
Cyanide	ND	mg/L	0.0050	1	08/19/19 13:47	08/19/19 16:57	57-12-5	
<b>9014 Cyanide, Free</b>	Analytical Method: EPA 9014 Free Cyanide							
Cyanide, Free	ND	ug/L	100	1		08/19/19 16:57		1d,N2

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## ANALYTICAL RESULTS

Project: LA713-LA725

Pace Project No.: 50233350

Sample: <b>SL-04 LA721</b>	Lab ID: <b>50233350009</b>	Collected: 08/18/19 17:50	Received: 08/19/19 09:44	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>335.4 Cyanide, Total</b>	Analytical Method: EPA 335.4 Preparation Method: EPA 335.4							
Cyanide	ND	mg/L	0.0050	1	08/19/19 13:47	08/19/19 17:02	57-12-5	
<b>9014 Cyanide, Free</b>	Analytical Method: EPA 9014 Free Cyanide							
Cyanide, Free	ND	ug/L	100	1		08/19/19 17:02		1d,N2

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## ANALYTICAL RESULTS

Project: LA713-LA725

Pace Project No.: 50233350

Sample: <b>SL-05 LA722</b>	Lab ID: <b>50233350010</b>	Collected: 08/18/19 18:00	Received: 08/19/19 09:44	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>335.4 Cyanide, Total</b>	Analytical Method: EPA 335.4 Preparation Method: EPA 335.4							
Cyanide	ND	mg/L	0.0050	1	08/19/19 13:47	08/19/19 17:02	57-12-5	
<b>9014 Cyanide, Free</b>	Analytical Method: EPA 9014 Free Cyanide							
Cyanide, Free	ND	ug/L	100	1		08/19/19 17:02		1d,N2

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## ANALYTICAL RESULTS

Project: LA713-LA725

Pace Project No.: 50233350

Sample: <b>SL-06 LA723</b>	Lab ID: <b>50233350011</b>	Collected: 08/18/19 18:30	Received: 08/19/19 09:44	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>335.4 Cyanide, Total</b>								
Analytical Method: EPA 335.4 Preparation Method: EPA 335.4								
Cyanide	ND	mg/L	0.0050	1	08/19/19 13:47	08/19/19 17:04	57-12-5	
<b>9014 Cyanide, Free</b>								
Analytical Method: EPA 9014 Free Cyanide								
Cyanide, Free	ND	ug/L	100	1		08/19/19 17:04		1d,N2

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## ANALYTICAL RESULTS

Project: LA713-LA725

Pace Project No.: 50233350

Sample: <b>SL-07 LA724</b>	Lab ID: <b>50233350012</b>	Collected: 08/18/19 18:37	Received: 08/19/19 09:44	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>335.4 Cyanide, Total</b>								
Analytical Method: EPA 335.4 Preparation Method: EPA 335.4								
Cyanide	ND	mg/L	0.0050	1	08/19/19 13:47	08/19/19 17:05	57-12-5	
<b>9014 Cyanide, Free</b>								
Analytical Method: EPA 9014 Free Cyanide								
Cyanide, Free	ND	ug/L	100	1		08/19/19 17:05		1d,N2

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## ANALYTICAL RESULTS

Project: LA713-LA725

Pace Project No.: 50233350

Sample: <b>SL-08 LA725</b>	Lab ID: <b>50233350013</b>	Collected: 08/18/19 18:50	Received: 08/19/19 09:44	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>335.4 Cyanide, Total</b>	Analytical Method: EPA 335.4 Preparation Method: EPA 335.4							
Cyanide	ND	mg/L	0.0050	1	08/19/19 13:47	08/19/19 17:07	57-12-5	
<b>9014 Cyanide, Free</b>	Analytical Method: EPA 9014 Free Cyanide							
Cyanide, Free	ND	ug/L	100	1		08/19/19 17:07		1d,N2

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: LA713-LA725

Pace Project No.: 50233350

QC Batch:	517006	Analysis Method:	EPA 335.4
QC Batch Method:	EPA 335.4	Analysis Description:	335.4 Cyanide, Total
Associated Lab Samples:	50233350001, 50233350002, 50233350003, 50233350004, 50233350005, 50233350006, 50233350007, 50233350008, 50233350009, 50233350010, 50233350011, 50233350012, 50233350013		

METHOD BLANK:	2385146	Matrix:	Water
Associated Lab Samples:	50233350001, 50233350002, 50233350003, 50233350004, 50233350005, 50233350006, 50233350007, 50233350008, 50233350009, 50233350010, 50233350011, 50233350012, 50233350013		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	08/19/19 16:47	

LABORATORY CONTROL SAMPLE: 2385147

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	0.1	0.10	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2385148 2385149

Parameter	Units	50233350013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cyanide	mg/L	ND	0.1	0.1	0.096	0.094	95	93	90-110	2	20	

MATRIX SPIKE SAMPLE: 2385154

Parameter	Units	50233111001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	ND	0.1	0.10	96	90-110	

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

**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: LA713-LA725

Pace Project No.: 50233350

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QC Batch:	517157	Analysis Method:	EPA 9014 Free Cyanide
QC Batch Method:	EPA 9014 Free Cyanide	Analysis Description:	9014 Free Cyanide
Associated Lab Samples:	50233350001, 50233350002, 50233350003, 50233350004, 50233350005, 50233350006, 50233350007, 50233350008, 50233350009, 50233350010, 50233350011, 50233350012, 50233350013		

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METHOD BLANK:	2385578	Matrix:	Water
Associated Lab Samples:	50233350001, 50233350002, 50233350003, 50233350004, 50233350005, 50233350006, 50233350007, 50233350008, 50233350009, 50233350010, 50233350011, 50233350012, 50233350013		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide, Free	ug/L	ND	100	08/19/19 16:47	1d,N2

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: LA713-LA725

Pace Project No.: 50233350

---

### 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-I Pace Analytical Services - Indianapolis

### ANALYTE QUALIFIERS

1d Total cyanide was non-detect at specified reporting limit. Therefore, free cyanide is also non-detect at the same reporting limit.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LA713-LA725

Pace Project No.: 50233350

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
50233350001	Outfall 001 LA713	EPA 335.4	517006	EPA 335.4	517076
50233350002	Duplicate LA714	EPA 335.4	517006	EPA 335.4	517076
50233350003	LC-01 LA715	EPA 335.4	517006	EPA 335.4	517076
50233350004	LC-02 LA716	EPA 335.4	517006	EPA 335.4	517076
50233350005	LC-03 LA717	EPA 335.4	517006	EPA 335.4	517076
50233350006	SL-01 LA718	EPA 335.4	517006	EPA 335.4	517076
50233350007	SL-02 LA719	EPA 335.4	517006	EPA 335.4	517076
50233350008	SL-03 LA720	EPA 335.4	517006	EPA 335.4	517076
50233350009	SL-04 LA721	EPA 335.4	517006	EPA 335.4	517076
50233350010	SL-05 LA722	EPA 335.4	517006	EPA 335.4	517076
50233350011	SL-06 LA723	EPA 335.4	517006	EPA 335.4	517076
50233350012	SL-07 LA724	EPA 335.4	517006	EPA 335.4	517076
50233350013	SL-08 LA725	EPA 335.4	517006	EPA 335.4	517076
50233350001	Outfall 001 LA713	EPA 9014 Free Cyanide	517157		
50233350002	Duplicate LA714	EPA 9014 Free Cyanide	517157		
50233350003	LC-01 LA715	EPA 9014 Free Cyanide	517157		
50233350004	LC-02 LA716	EPA 9014 Free Cyanide	517157		
50233350005	LC-03 LA717	EPA 9014 Free Cyanide	517157		
50233350006	SL-01 LA718	EPA 9014 Free Cyanide	517157		
50233350007	SL-02 LA719	EPA 9014 Free Cyanide	517157		
50233350008	SL-03 LA720	EPA 9014 Free Cyanide	517157		
50233350009	SL-04 LA721	EPA 9014 Free Cyanide	517157		
50233350010	SL-05 LA722	EPA 9014 Free Cyanide	517157		
50233350011	SL-06 LA723	EPA 9014 Free Cyanide	517157		
50233350012	SL-07 LA724	EPA 9014 Free Cyanide	517157		
50233350013	SL-08 LA725	EPA 9014 Free Cyanide	517157		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

50233350

ALL SHADED AREAS are for LAB USE ONLY

Company: **IDEM**

Address: **100 N. Senate, Indianapolis, IN**

Report To: **agreen2@idem.in.gov**

Copy To:

Customer Project Name/Number: **RM #88243**

State: / County/City: / Time Zone Collected: [ ] PT [ ] MT [ ] CT [ ] ET

Phone: / Site/Facility ID #: / Compliance Monitoring? [ ] Yes [ ] No

Collected By (print): **NICHOLAS K. REYNOLDS** Purchase Order #: / Quote #: / DW PWS ID #: / DW Location Code:

Collected By (signature): *[Signature]* Turnaround Date Required: / Immediately Packed on Ice: [ ] Yes [ ] No

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold: / Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) / Field Filtered (if applicable): [ ] Yes [ ] No / Analysis:

Container Preservative Type \*\*

Lab Project Manager:

\*\* Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses										Lab Profile/Line:	
<b>IN WAD Cyanide</b> <b>IN Cyanide, Total + Free</b>										Lab Sample Receipt Checklist:	
										Custody Seals Present/Intact	Y N NA
										Custody Signatures Present	Y N NA
										Collector Signature Present	Y N NA
										Bottles Intact	Y N NA
										Correct Bottles	Y N NA
										Sufficient Volume	Y N NA
										Samples Received on Ice	Y N NA
										VOA - Headspace Acceptable	Y N NA
										USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA										
Residual Chlorine Present	Y N NA										
Cl Strips:											
Sample pH Acceptable	Y N NA										
pH Strips:											
Sulfide Present	Y N NA										
Lead Acetate Strips:											

\* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
Outfall 001-LA713	OT	G	8/18/19	2:52	8/18/19		2	X X
Duplicate LA714	OT	G	8/18/19	2:53			2	X X
LC-01 LA715	OT	G	8/18/19	3:06			2	X X
LC-02 LA716	OT	G	8/18/19	2:28			2	X X
LC-03 LA717	OT	G	8/18/19	3:42			2	X X
SL-01 LA718	OT	G	8/18/19	4:58			2	X X
SL-02 LA719	OT	G	8/18/19	5:25			2	X X
SL-03 LA720	OT	G	8/18/19	5:40			2	X X
SL-04 LA721	OT	G	8/18/19	5:50			2	X X
SL-05 LA722	OT	G	8/18/19	6:00			2	X X

LAB USE ONLY:

Lab Sample # / Comments:

**SEE SCUP**

001

002

003

004

005

006

007

008

009

010

Customer Remarks / Special Conditions / Possible Hazards: **OT = Surface Water Turnaround ASAP**

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: **2447435**

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:

Temp Blank Received:  N NA

Therm ID#: **F**

Cooler 1 Temp Upon Receipt: **1.7** oC

Cooler 1 Therm Corr. Factor: **0.6** oC

Cooler 1 Corrected Temp: **1.7** oC

Comments:

Relinquished by/Company: (Signature) **Nicholas K. Reynolds** Date/Time: **8/18/19 7:02pm**

Relinquished by/Company: (Signature) **Caron Theron** Date/Time: **8/19/19 8:40am EST**

Relinquished by/Company: (Signature) **[Signature]** Date/Time: **8/19 8:44**

Received by/Company: (Signature) **Caron Theron (IDEM)** Date/Time: **8/18/19 7:02pm**

Received by/Company: (Signature) **[Signature]** Date/Time: **8/19/19**

Received by/Company: (Signature) **[Signature]** Date/Time: **8/19/19 8:40am**

Received by/Company: (Signature) **[Signature]** Date/Time: **8/19/19 8:44**

MTJL LAB USE ONLY

Table #:

Acctnum:

Template:

Prelogin:

PM:

PB:

Trip Blank Received: Y N NA

HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: **25** of **29**

of: \_\_\_\_\_

**CHAIN-OF-CUSTODY Analytical Request Document**

Pace Analytical<sup>®</sup>

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

50233350

**ALL SHADED AREAS are for LAB USE ONLY**

Company: **IDEM** Billing Information:

Address: **100 N. Senate, Indianapolis**

Report To: **agreen2@idem.in.gov** Email To:

Copy To: Site Collection Info/Address:

Container Preservative Type \*\* **4 4** Lab Project Manager:

\*\* Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Customer Project Name/Number: **RM#88243** State: / County/City: / Time Zone Collected: [ ] PT [ ] MT [ ] CT [ ] ET

Phone: **317-691-6417** Site/Facility ID #: Compliance Monitoring? [ ] Yes [ ] No  
Email: **call**

Collected By (print): **NICHOLAS K. ROMAN** Purchase Order #: DW PWS ID #:  
Quote #: DW Location Code:

Collected By (signature): **[Signature]** Turnaround Date Required: Immediately Packed on Ice: [ ] Yes [ ] No

Sample Disposal: Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)  
Field Filtered (if applicable): [ ] Yes [ ] No  
Analysis: \_\_\_\_\_

Analyses										Lab Profile/Line:
Lab Sample Receipt Checklist:										
Custody Seals Present/Intact Y N NA										
Custody Signatures Present Y N NA										
Collector Signature Present Y N NA										
Bottles Intact Y N NA										
Correct Bottles Y N NA										
Sufficient Volume Y N NA										
Samples Received on Ice Y N NA										
VOA - Headspace Acceptable Y N NA										
USDA Regulated Soils Y N NA										
Samples in Holding Time Y N NA										
Residual Chlorine Present Y N NA										
Cl Strips: _____										
Sample pH Acceptable Y N NA										
pH Strips: _____										
Sulfide Present Y N NA										
Lead Acetate Strips: _____										

\* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End		Res Cl	# of Ctns
			Date	Time	Date	Time		
SL-06 LA723	OT		8/18/19	6:30			X	X
SL-07 LA724	OT		8/18/19	6:37			X	X
SL-08 LA725	OT		8/19/19	6:50			X	X

IN WAB CYANIDE  
IN Cyanide, TSP + F&S

LAB USE ONLY:  
Lab Sample # / Comments:  
**SEE SCUR**  
**011**  
**012**  
**Includes MS/MSD 013**

Customer Remarks / Special Conditions / Possible Hazards: **OT - SURFACE WATER Turnaround ASAP**

Type of Ice Used: Wet Blue Dry None SHORT HOLDS PRESENT (<72 hours): Y N N/A

Packing Material Used: Lab Tracking #: **2447439**

Radchem sample(s) screened (<500 cpm): Y N NA Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:

Temp Blank Received:  N NA

Therm ID#: **F**

Cooler 1 Temp Upon Receipt: **17** oC

Cooler 1 Therm Corr. Factor: **0.0** oC

Cooler 1 Corrected Temp: **1.7** oC

Comments:

Trip Blank Received: Y N NA

HCL MeOH TSP Other

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	MTJL LAB USE ONLY
<b>NICHOLAS K. ROMAN</b>	8/18/19 7:02 PM	<b>[Signature]</b> (IDEM)	8/18/19 7:02 PM	Table #:
<b>[Signature]</b>	8/19/19 8:40 AM EST	<b>[Signature]</b>	8/19/19 8:40 AM	Acctnum:
<b>[Signature]</b>	8/19/19 9:44 AM	<b>[Signature]</b>	8/19/19 09:44	Template:
				Prelogin:
				PM:
				PB:

# SAMPLE CONDITION UPON RECEIPT FORM

Face Analytical

Project #: 50233390

Date/Time and Initials of person examining contents: KS1011 8-19-19

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other \_\_\_\_\_

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  Yes  No      Seals Intact:  Yes  No

Packing Material:  Bubble Wrap  Bubble Bags  None  Other bags

Thermometer: 1 2 3 4 5 6 A B C D E F      Ice Type:  Wet  Blue  None | Samples collected today and on ice:  Yes  No  N/A

Cooler Temperature: 1.7 | 1.7      Ice Visible in Sample Containers?:  Yes  No  N/A

(Initial/Corrected) Temp should be above freezing to 6°C      If temp. is Over 6°C or under 0°C, was the PM Notified?:  Yes  No  N/A

**All discrepancies will be written out in the comments section below.**

	Yes	No		Yes	No	N/A
<b>Are samples from West Virginia?</b> Document any containers out of temp.		/	All containers needing acid/base pres. Have been checked?: <b>exceptions: VOA, coliform, LLHg, O&amp;G, and any container with a septum cap or preserved with HCl.</b>			
<b>JSDA Regulated Soils?</b> (ID, NY, WA, OR, CA, NM, TX, OK, AR, LA, TN, AL, MS, NC, SC, GA, FL, or Puerto Rico)		/	All containers needing preservation are found to be in compliance with EPA recommendation (<2, >9, >12) unless otherwise noted.	/		
Chain of Custody Present:	/		Circle: HNO3 H2SO4 <u>NaOH</u> NaOH/ZnAc			
Chain of Custody Filled Out:	/		Dissolved Metals field filtered?:			/
<b>Short Hold Time Analysis (&lt;72hr)?</b> Analysis:		/	Headspace Wisconsin Sulfide			/
<b>Time 5035A TC placed in Freezer or Short Holds To Lab:</b>			Residual Chlorine Check (SVOC 625 Pest/PCB 608)	Present	Absent	N/A
			Residual Chlorine Check (Total/Amenable/Free Cyanide)		/	
<b>Push TAT Requested:</b> <u>Next day</u>	/		Headspace in VOA Vials (>6mm):			/
Containers Intact?:	/		Trip Blank Present?:		/	
Sample Labels (IDs/Dates/Times) Match COC?:	/		Trip Blank Custody Seals?:		/	
Except TCs, which only require sample ID	/					
Extra labels on Terracore Vials (soils only)?		/				

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# Sample Container Count

CLIENT: IDEM

COC PAGE 1 of 2  
 COC ID# 2447435

Project # 50233350

Sample Line Item	DG9H VG9H	AG0U	AG1H	AG1U	AG2U	AG3S	WGFU	SP5T	BP1U	BP2N	BP2S	BP2U	BP3B	BP3N	BP3S	BP3U	SBS Bulk DI Kit R	Matrix SI/MW/NAL (Soil/Water/Non- Aqueous Liquid)	pH <2	pH >9	pH >12
1													2					W			✓
2													↓					↓			↓
3													↓					↓			↓
4													↓					↓			↓
5													↓					↓			↓
6													↓					↓			↓
7													↓					↓			↓
8													↓					↓			↓
9													↓					↓			↓
10													↓					↓			↓
11													↓					↓			↓
12													↓					↓			↓

Container Codes

Glass				Plastic / Misc.			
DG9B	40mL Na Bisulfate amber vial	AG0U	100mL unpreserved amber glass	BP1A	1 liter NaOH, Asc Acid plastic	BP3U	250mL unpreserved plastic
DG9H	40mL HCL amber vial	AG1H	1 liter HCL amber glass	BP1N	1 liter HNO3 plastic	BP3Z	250mL NaOH, Zn Ac plastic
DG9M	40mL MeOH clear vial	AG1S	1 liter H2SO4 amber glass	BP1S	1 liter H2SO4 plastic		
DG9P	40mL TSP amber vial	AG1T	1 liter Na Thiosulfate amber glass	BP1U	1 liter unpreserved plastic	AF	Air Filter
DG9S	40mL H2SO4 amber vial	AG1U	1 liter unpreserved amber glass	BP1Z	1 liter NaOH, Zn, Ac	C	Air Cassettes
DG9T	40mL Na Thio amber vial	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	R	Terra core kit
DG9U	40mL unpreserved amber vial	AG2S	500mL H2SO4 amber glass	BP2N	500mL HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate
VG9H	40mL HCL clear vial	AG2U	500mL unpreserved amber glass	BP2O	500mL NaOH plastic	U	Summa Can
VG9T	40mL Na Thio clear vial	AG3S	250mL H2SO4 glass amber	BP2S	500mL H2SO4 plastic	ZPLC	Ziploc Bag
VG9U	40mL unpreserved clear vial	AG3U	250mL unpreserved amber glass	BP2U	500mL unpreserved plastic		
VGFX	40mL w/hexane wipe vial	BG1H	1 liter HCL clear glass	BP2Z	500mL NaOH, Zn Ac		
VSG	Headspace septa vial & HCL	BG1S	1 liter H2SO4 clear glass	BP3B	250mL NaOH plastic		
WGKU	8oz unpreserved clear jar	BG1T	1 liter Na Thiosulfate clear glass	BP3N	250mL HNO3 plastic		
WGFU	4oz clear soil jar	BG1U	1 liter unpreserved glass	BP3S	250mL H2SO4 plastic		
JGFU	4oz unpreserved amber wide	BG3H	250mL HCl Clear Glass				
		BG3U	250mL Unpreserved Clear Glass				

Sample Container Count

WO#: 50233350



CLIENT: IDEM

COC PAGE 2 of 2

COC ID# 2447439

Project # 50233350

Sample Line Item	DG9H VG9H	AG0U	AG1H	AG1U	AG2U	AG3S	WGFU	SP5T	BP1U	BP2N	BP2S	BP2U	BP3B	BP3N	BP3S	BP3U	Bulk Kit R	Matrix S/A (Soil/Water Aqueous)	pH <2	pH >9	pH >12
1													2					WT			-
2													2					↓			-
3													8					↓			-
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Container Codes

Glass				Plastic / Misc.			
DG9B	40mL Na Bisulfate amber vial	AG0U	100mL unpreserved amber glass	BP1A	1 liter NaOH, Asc Acid plastic	BP3U	250mL unpreserved plastic
DG9H	40mL HCL amber vial	AG1H	1 liter HCL amber glass	BP1N	1 liter HNO3 plastic	BP3Z	250mL NaOH, Zn Ac plastic
DG9M	40mL MeOH clear vial	AG1S	1 liter H2SO4 amber glass	BP1S	1 liter H2SO4 plastic		
DG9P	40mL TSP amber vial	AG1T	1 liter Na Thiosulfate amber glass	BP1U	1 liter unpreserved plastic	AF	Air Filter
DG9S	40mL H2SO4 amber vial	AG1U	1 liter unpreserved amber glass	BP1Z	1 liter NaOH, Zn, Ac	C	Air Cassettes
DG9T	40mL Na Thio amber vial	AG2N	500mL HNO3 amber glass	BP2A	500mL NaOH, Asc Acid plastic	R	Terra core kit
DG9U	40mL unpreserved amber vial	AG2S	500mL H2SO4 amber glass	BP2N	500mL HNO3 plastic	SP5T	120mL Coliform Na Thiosulfate
VG9H	40mL HCL clear vial	AG2U	500mL unpreserved amber glass	BP2O	500mL NaOH plastic	U	Summa Can
VG9T	40mL Na Thio. clear vial	AG3S	250mL H2SO4 glass amber	BP2S	500mL H2SO4 plastic	ZPLC	Ziploc Bag
VG9U	40mL unpreserved clear vial	AG3U	250mL unpreserved amber glass	BP2U	500mL unpreserved plastic		
VGFX	40mL w/hexane wipe vial	BG1H	1 liter HCL clear glass	BP2Z	500mL NaOH, Zn Ac		
VSG	Headspace septa vial & HCL	BG1S	1 liter H2SO4 clear glass	BP3B	250mL NaOH plastic		
WGKU	8oz unpreserved clear jar	BG1T	1 liter Na Thiosulfate clear glass	BP3N	250mL HNO3 plastic		
WGFU	4oz clear soil jar	BG1U	1 liter unpreserved glass	BP3S	250mL H2SO4 plastic		
JGFU	4oz unpreserved amber wide	BG3H	250mL HCl Clear Glass				
		BG3U	250mL Unpreserved Clear Glass				