K P R G

ENVIRONMENTAL CONSULTATION & REMEDIATION

KPRG and Associates, Inc.

CCR COMPLIANCE
ANNUAL GROUNDWATER MONITORING and CORRECTIVE ACTION REPORT - 2019

Midwest Generation, LLC
Joliet #29 Generating Station
1800 Channahon Road
Joliet, Illinois

Prepared By: KPRG and Associates, Inc.
14665 West Lisbon Road, Suite 1A
Brookfield, WI 53005

January 31, 2020

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1.0 INTRODUCTION

The Detection Monitoring requirements in accordance with the Federal Register, Environmental Protection Agency, 40 CFR Parts 257.94, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule dated April 17, 2015 (CCR Rule) have been completed for the ash pond monitoring wells located at the Midwest Generation, LLC (Midwest Generation) Joliet #29 Generating Station. The wells sampled were selected to meet the monitoring requirements of the CCR Rule for Ash Pond 2 which is in the process of having the ash removed and cleaned out. The monitoring well network around this pond consists of four monitoring wells (MW-3, MW-4, MW-5 and MW-10 [upgradient]) as shown on Figure 1.

This third annual report covers the work performed relative to CCR groundwater monitoring for the 2019 calendar year. It does not duplicate information or activities previously reported for 2017 or 2018. It is prepared in accordance with Section 257.90(e)(1-5) and summarizes the sampling procedures used, provides an evaluation of groundwater flow conditions, summarizes the analytical data generated and provides a discussion of the statistical evaluations completed as a basis for determining the appropriate next phase of compliance activities.

2.0 FIELD PROCEDURES AND GROUNDWATER FLOW EVALUATION

2.1 Field Procedures

As previously noted, the CCR groundwater monitoring network for Ash Pond 2 consists of four wells (MW-3, MW-4, MW-5 and MW-10) as shown on Figure 1. As part of sampling procedures, the integrity of all monitoring wells was inspected and water levels obtained using an electronic water level meter (see summary of water level discussion below). During all sampling events, the wells were in good condition with locked protector casings, and the concrete surface seals were intact.

All groundwater samples were collected using the low-flow sampling technique from dedicated pumps, with the exception bailers used 2nd Quarter for MW-1 and MW-2, and 4th Quarter for MW-5. The samples were not filtered prior to analysis to provide for total metals concentrations as opposed to dissolved metals concentrations. One duplicate sample was collected from a randomly selected monitoring well per sampling event for quality assurance purposes.

2.2 Groundwater Flow Evaluation

Water level data measurements were obtained from each well during each round of groundwater monitoring. A complete round of water levels was collected prior to initiating sampling, and the water level data are summarized in Table 1. The water levels were used to generate a groundwater flow map for each sampling event. These maps are provided as Figures 2 and 3. A review of the maps indicates a consistent generally southerly groundwater flow direction and a fairly shallow horizontal hydraulic gradient. In accordance with general groundwater sampling requirements under Section 257.93(c), Table 2 provides a summary of the flow direction and an estimated rate of groundwater flow for each sampling event. The flow rate was calculated using the following equation:

$$V_s = \frac{K dh}{n_e dl}$$, where

V_s is seepage velocity (distance/time)
K is hydraulic conductivity (distance/time)
dh/dl is hydraulic gradient (unitless)
n_e is effective porosity (unitless)

The average hydraulic conductivity of 3.896×10^{-3} ft/sec used in Table 2 was obtained from the Hydrogeologic Assessment Report dated February 2011 and prepared by Patrick Engineering. The estimated effective porosity of the aquifer materials (0.35) was obtained from literature (Applied Hydrogeology, Fetter, 1980).

3.0 ANALYTICAL DATA AND STATUS OF EVALUATIONS

3.1 Sampling Summary

The groundwater sampling summary from 2019 is provided in Table 3, in accordance with 257.90 (e)(3).

3.2 Data Summary

The analytical data from the detection monitoring groundwater samples for Appendix III parameters are provided in Table 4. Semi-annual groundwater sampling was completed for Appendix III in 2019 in accordance with detection monitoring requirements under Section 257.94. The tables include the sample dates and whether the specific well is considered upgradient or downgradient relative to groundwater flow and the regulated unit. All duplicate values were within an acceptable range. The analytical data packages from the detection monitoring events are provided in Appendix A. Groundwater sampling for Appendix IV was not performed in 2019 since this facility is in detection monitoring.

Confirmatory resampling events were limited to any potential statistically significant increases (SSI) for specific parameters at specific wells. 2nd Quarter data indicated total Dissolved Solids (TDS) and chloride above their respective calculated Prediction Limits (PLs) at wells MW-05 and MW-10, Sulfate above its PL at well MW-03, and boron, chloride and TDS above their PLs at well MW-05. Confirmatory resampling indicated that analytical results were below the PLs for each resampled well. 4th Quarter data indicated calcium above the calculated PL at down-gradient well MW-05. Confirmatory resampling was completed for well MW-10 and the result was below the PL.

3.3. Current Status

Ash Pond 2 is, and continues to be, in detection monitoring, and there has been no transition between monitoring programs in 2019 since no confirmed SSIs were recorded.

4.0 SUMMARY/CONCLUSIONS AND RECOMMENDATIONS

The detection monitoring requirements in accordance with the CCR Rule have been successfully met. While in detection monitoring, Ash Pond 2 analytical results were below the calculated PLs. Groundwater monitoring wells that had analytical results that showed parameters above the PLs were resampled to minimize potential for a false positive. All monitoring wells that were resampled showed analytical results below the PLs. Therefore, it is recommended that the site continue with routine detection monitoring at this time. The next round of CCR detection monitoring groundwater sampling is scheduled for 2nd Quarter of 2020.

5.0 REFERENCES

- Federal Register, Environmental Protection Agency, 40 CFR Parts 257 and 261, Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule. Vol. 80, No. 74, Friday April 17, 2015.

- Fetter, C.W. Jr., Applied Hydrogeology. Charles E. Merrill Publishing Co., 1980.

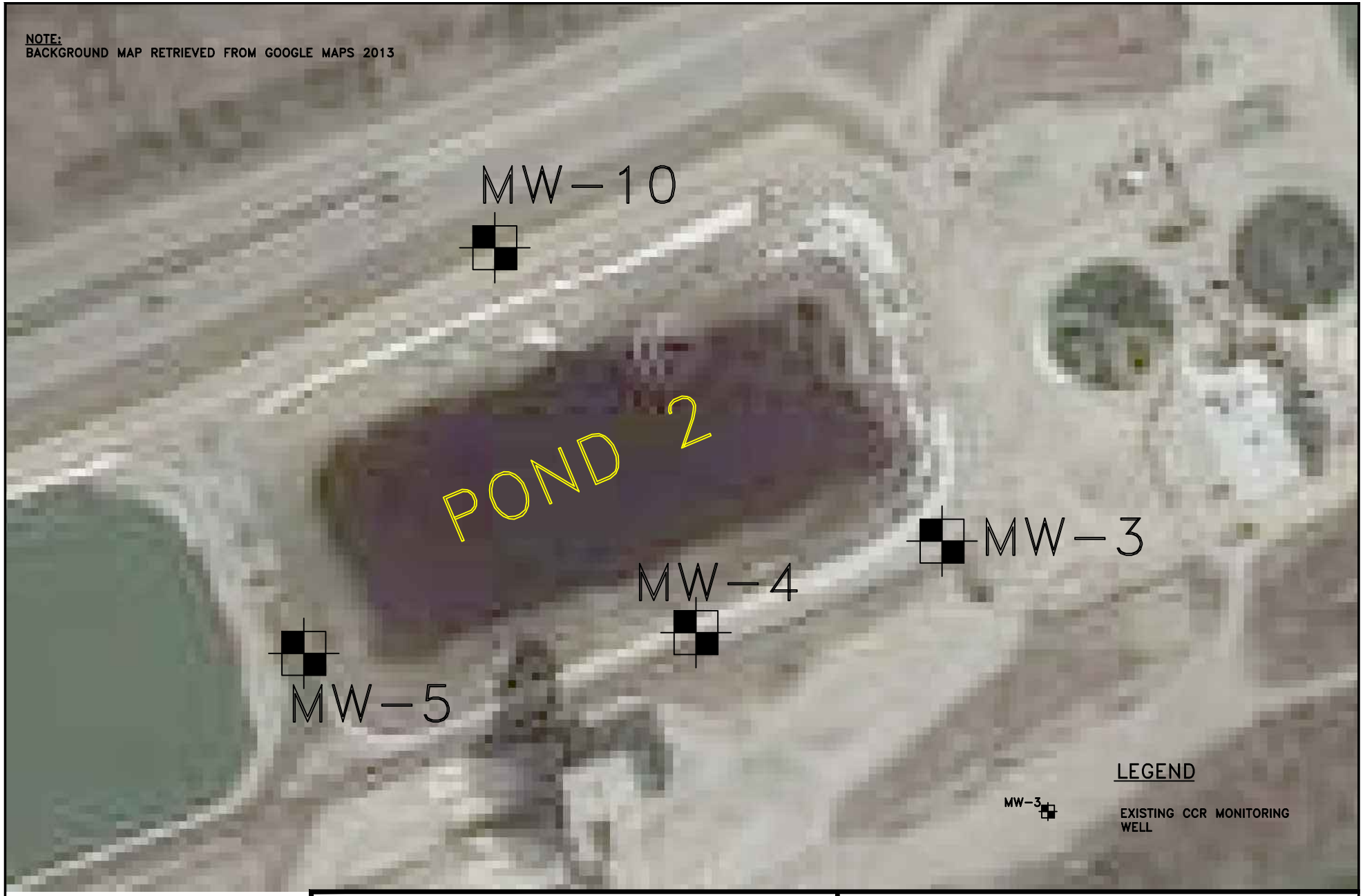
- KPRG and Associates, Inc., CCR Compliance Monitoring, Sampling and Analysis Plan, Midwest Generation, LLC Joliet #29 Generating Station. October 10, 2017.

- KPRG and Associates, Inc., CCR Compliance Statistical Approach for Groundwater Data Evaluation, Midwest Generation, LLC Joliet #29 Generating Station. October 10, 2017.

- KPRG and Associates, Inc., CCR Groundwater Monitoring Statistical Evaluation Summary - 2017, Midwest Generation, LLC Joliet #29 Generating Station. January 12, 2018.

- Patrick Engineering, Inc., Hydrogeologic Assessment Report – Joliet Generating Station No. 29, Joliet, IL. February 2011.

FIGURES



ATTORNEY-CLIENT PRIVILEGE
WORK PRODUCT

0 100'
APPROXIMATE SCALE

N

ENVIRONMENTAL CONSULTATION & REMEDIATION

K P R G

KPRG and Associates, inc.

414 Plaza Drive, Suite 106 Westmont, Illinois 60559 Telephone 630-325-1300 Facsimile 630-325-1593

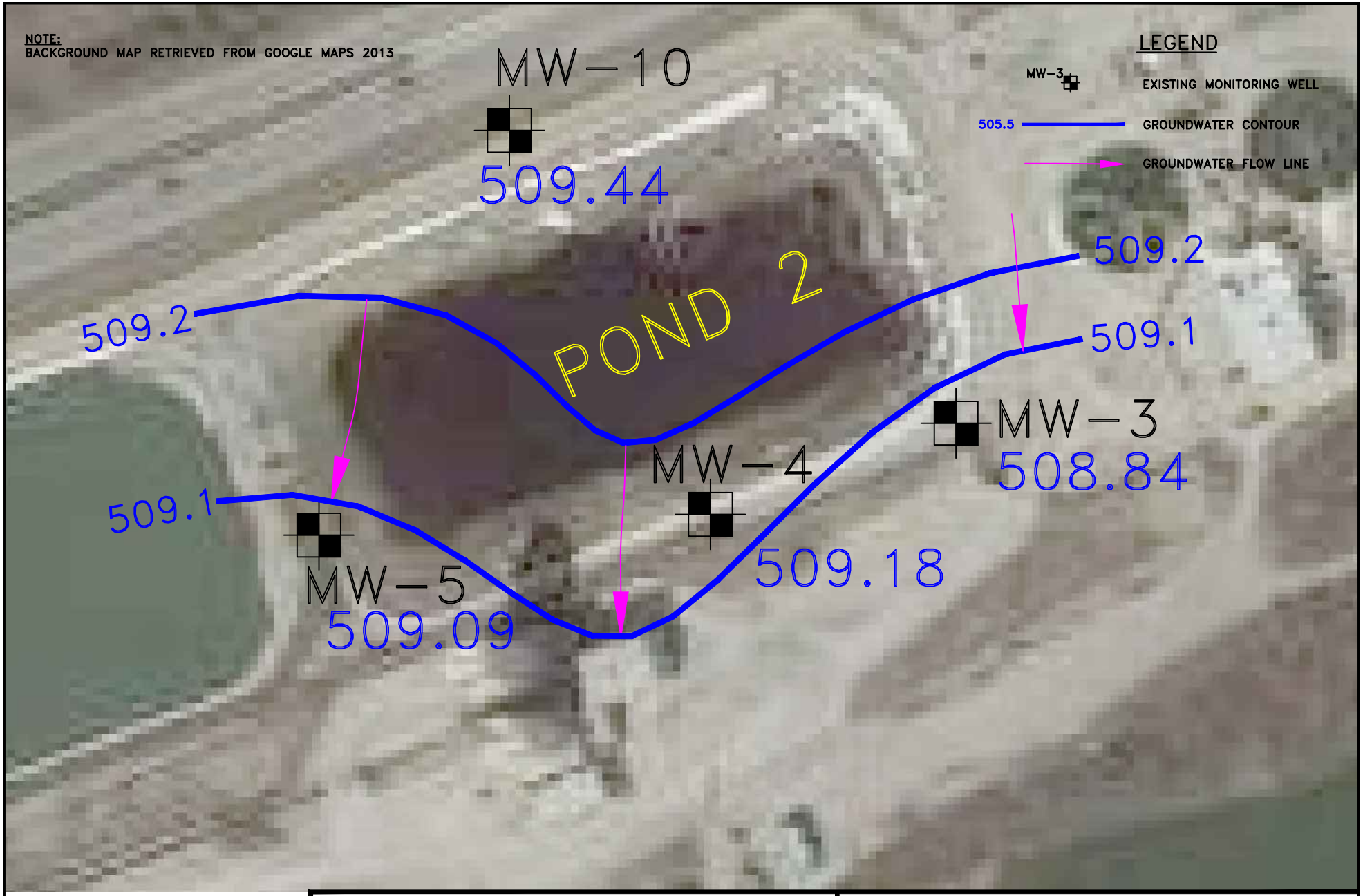
14665 West Lisbon Road, Suite 1A Brookfield, Wisconsin 53005 Telephone 262-781-0475 Facsimile 262-781-0478

CCR MONITORING WELLS SITE MAP

JOLIET #29 GENERATING STATION
JOLIET, ILLINOIS

Scale: 1" = 100' | Date: December 27, 2017

KPRG Project No. 12313.0 | FIGURE 1



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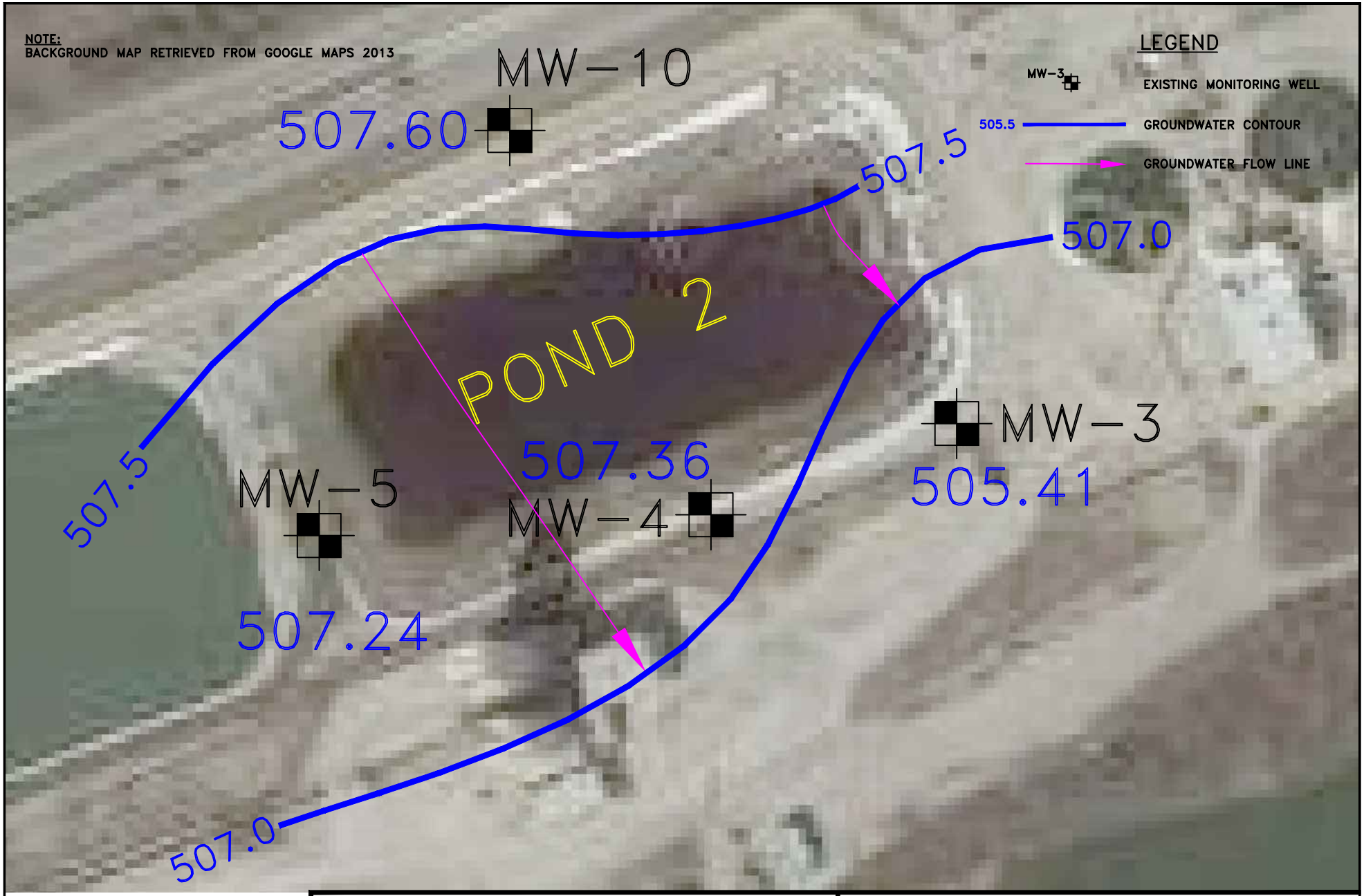
CCR GROUNDWATER CONTOUR-05/2019

JOLIET #29 GENERATING STATION
JOLIET, ILLINOIS

Scale: 1" = 100' | Date: July 1, 2019

KPRG Project No. 12313.0 | FIGURE 2



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WORK PRODUCT

0 100'
APPROXIMATE SCALE

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CCR GROUNDWATER CONTOUR-11/2019

JOLIET #29 GENERATING STATION
JOLIET, ILLINOIS

Scale: 1" = 100' | Date: December 3, 2019

KPRG Project No. 12313.0 | FIGURE 3

TABLES

Table 1. Groundwater Elevations - Midwest Generation, LLC, Joliet Station #29, Joliet, IL

Well ID	Date	Top of Casing Elevation (ft above MSL)	Depth to Groundwater (ft below TOC)	Groundwater Elevation (ft above MSL)
MW-03	10/27/15	538.78	33.87	504.91
	02/09/16	538.79	33.17	505.62
	05/10/16	538.79	32.82	505.97
	08/30/16	538.79	31.88	506.91
	11/01/16	538.79	32.88	505.91
	02/06/17	538.79	33.25	505.54
	04/25/17	538.79	33.06	505.73
	06/14/17	538.79	33.74	505.05
	08/01/17	538.79	32.36	506.43
	10/18/17	538.79	30.03	508.76
	04/24/18	538.79	32.83	505.96
	10/16/18	538.79	32.58	506.21
	05/06/19	538.79	29.59	509.20
	11/06/19	538.79	33.38	505.41
MW-04	10/27/15	539.03	34.05	504.98
	02/09/16	539.01	33.42	505.59
	05/10/16	539.01	33.07	505.94
	08/30/16	539.01	32.08	506.93
	11/01/16	539.01	33.16	505.85
	02/06/17	539.01	33.51	505.50
	04/25/17	539.01	33.29	505.72
	06/14/17	539.01	33.99	505.02
	08/01/17	539.01	32.09	506.92
	10/18/17	539.01	30.28	508.73
	04/24/18	539.01	33.10	505.91
	10/16/18	539.01	32.85	506.16
	05/06/19	539.01	29.83	509.18
	11/06/19	539.01	31.65	507.36
MW-05	10/27/15	539.69	34.91	504.78
	02/09/16	539.64	34.18	505.46
	05/10/16	539.64	33.81	505.83
	08/30/16	539.64	32.82	506.82
	11/01/16	539.64	33.90	505.74
	02/06/17	539.64	34.23	505.41
	04/25/17	539.64	34.04	505.60
	06/14/17	539.64	34.74	504.90
	08/01/17	539.64	33.12	506.52
	10/18/17	539.64	31.03	508.61
	04/24/18	539.64	33.79	505.85
	10/16/18	539.64	33.61	506.03
	05/06/19	539.64	30.55	509.09
	11/06/19	539.64	32.40	507.24
MW-10	10/27/15	540.03	35.10	504.93
	02/09/16	540.02	34.32	505.70
	05/10/16	540.02	34.02	506.00
	08/30/16	540.02	32.97	507.05
	11/01/16	540.02	34.04	505.98
	02/06/17	540.02	34.42	505.60
	04/25/17	540.02	34.22	505.80
	06/14/17	540.02	34.91	505.11
	08/01/17	540.02	33.18	506.84
	10/18/17	540.02	31.13	508.89
	04/24/18	540.02	33.97	506.05
	10/16/18	540.02	33.73	506.29
	05/06/19	540.02	30.58	509.44
	11/06/19	540.02	32.42	507.60

MSL - Mean Sea Level
TOC - Top of Casing

Table 2. Groundwater Flow Direction and Estimated Seepage Velocity/Flow Rate - Joliet #29 Generation Station.

DATE	Groundwater Flow Direction	K_{avg} (ft/sec)*	Average Hydraulic Gradient (ft/ft)	Porosity (unitless)**	Estimated Seepage Velocity (ft/day)
10/28/2015	Southerly (SSW-SSE)	3.896E-03	0.0003	0.35	0.26
2/10/2016	Southerly (SSW-SSE)	3.896E-03	0.0007	0.35	0.63
5/12/2016	Southerly (SSW-SSE)	3.896E-03	0.0004	0.35	0.34
8/31/2016	Southerly (SSW-SSE)	3.896E-03	0.0004	0.35	0.34
11/2/2016	Southerly (SSW-SSE)	3.896E-03	0.0007	0.35	0.63
2/6/2017	Southerly (SSW-SSE)	3.896E-03	0.0005	0.35	0.43
4/26/2017	Southerly (SSW-SSE)	3.896E-03	0.0006	0.35	0.58
6/14/2017	Southerly (SSW-SSE)	3.896E-03	0.0006	0.35	0.58
8/2/2017	Southerly (SSW-SSE)	3.896E-03	0.0008	0.35	0.77
10/18/2017	Southerly (SSW-SSE)	3.896E-03	0.0004	0.35	0.38
4/24/2018	Southerly (SSW-SSE)	3.896E-03	0.0008	0.35	0.77
10/16/2018	Southerly (SSW)	3.896E-03	0.00053	0.35	0.51
5/6/2019	Southerly (SSW-SSE)	3.896E-03	0.0010	0.35	0.91
11/6/2019	Southerly (SSW-SSE)	3.896E-03	0.00200	0.35	1.92

* K_{avg} - Average hydraulic conductivity (feet/second) from Hydrogeologic Assessment Report, Patrick Engineering, February 2011.
** - Porosity estimate from Applied Hydrogeology, Fetter, 1980.
SSW - South-southwest
SSE - South-southeast

Table 3. CCR Groundwater Sample Collection Summary for 2019 - Joliet #29 Generating Station

Well ID	Number of Groundwater Sampling Events	Dates Groundwater Sampling Events	Detection Monitoring (D) versus Assessment Monitoring (A)
MW-10 (Upgradient)	2	5/7/2019	D
		11/7/2019	D
MW-3 (Downgradient)	2	5/7/2019	D
		11/7/2019	D
MW-4 (Downgradient)	2	5/7/2019	D
		11/6/2019	D
MW-5 (Downgradient)	2	5/6/2019	D
		11/7/2019	D

Table 4. Semi-Annual Detection Monitoring Statistical Comparisons - Appendix III Groundwater Analytical Results through 2019 - Midwest Generation, LLC, Joliet Station #29, Joliet, IL.

Well	Date	Boron	Calcium	Chloride	Fluoride	pH	Sulfate	Total Dissolved Solids
MW-10 up-gradient	10/28/2015	0.47	100	200	0.41	7.04	84	790
	2/10/2016	0.41	100	210	0.44	7.17	120	820
	5/12/2016	0.29	100	300	0.42	7.02	110	920
	8/31/2016	0.36	89	170	0.46	6.95	100	760
	11/2/2016	0.48	100	130	0.45	6.99	95	720
	2/6/2017	0.44	120	190	0.36	6.99	88	820
	4/26/2017	0.35	120	200	0.35	7.27	87	760
	6/14/2017	0.29	91	160	0.43	7.47	75	690
	Pred. Limit*	**0.57**	**131**	**318**	**0.51**	**7.56-6.67**	**131**	**959**
	8/2/2017	0.45	97	170	0.38	7.23	110	750
	10/18/2017	**0.61**	120	140	0.41	7.11	130	820
	4/24/2018	0.4	110	260	0.39	7.28	120	910
	10/17/2018	**0.63**	120	180	0.42	7.30	110	810
	11/24/2018 R	0.44	NA	NA	NA	NA	NA	NA
	5/7/2019	0.56	130	**410**	0.39	7.17	95	**1,000**
	7/3/2019 R	NA	NA	230	NA	NA	NA	830
	11/7/2019	0.35	90	130	0.36	7.40	59	650
MW-03 down-gradient	10/28/2015	0.34	110	230	0.41	7.11	110	920
	2/10/2016	0.49	100	220	0.44	7.31	130	790
	5/10/2016	0.48	95	240	0.44	7.07	130	800
	8/31/2016	0.49	100	250	0.45	7.18	120	920
	11/2/2016	0.34	87	190	0.44	7.45	94	780
	2/6/2017	0.40	97	140	0.39	7.35	77	720
	4/26/2017	0.54	100	210	0.36	7.03	120	820
	6/14/2017	0.45	88	190	0.44	7.48	75	760
	Pred. Limit	**0.57**	**131**	**316**	**0.51**	**7.56-6.67**	**130**	**956**
	8/2/2017	0.41	99	200	0.40	7.34	110	850
	10/18/2017	0.35	93	160	0.42	7.11	100	850
	4/24/2018	0.52	100	220	0.42	7.2	**150**	930
	7/31/2018 R	NA	NA	NA	NA	NA	110	NA
	10/17/2018	0.25	100	250	0.4	7.04	110	870
	5/7/2019	0.43	120	280	0.4	7.27	**140**	880
	7/3/2019 R	NA	NA	NA	NA	NA	65	NA
	11/7/2019	0.34	100	150	0.4	7.32	65	660
MW-04 down-gradient	10/28/2015	0.34	94	F1 200	0.45	7.07	83	740
	2/10/2016	0.32	97	210	0.47	7.22	140	810
	5/10/2016	0.47	100	260	0.46	6.71	150	900
	8/31/2016	0.42	100	210	0.45	7.07	120	890
	11/2/2016	0.32	98	160	0.43	7.25	83	750
	2/6/2017	0.40	110	200	0.37	7.19	98	790
	4/26/2017	0.33	100	220	0.37	7.46	89	770
	6/14/2017	0.37	92	190	0.47	7.43	80	770
	Pred. Limit	**0.57**	**131**	**316**	**0.51**	**7.56-6.67**	**130**	**956**
	8/2/2017	0.35	93	180	0.43	7.41	100	770
	10/18/2017	0.54	97	140	0.45	7.2	120	790
	4/24/2018	0.4	110	240	0.43	7.21	**160**	940
	7/31/2018 R	NA	NA	NA	NA	NA	120	NA
	10/17/2018	0.29	100	230	0.45	7.2	130	840
	5/7/2019	**0.76**	120	**340**	0.42	7.27	120	**1,000**
	7/3/2019 R	0.23	NA	250	NA	NA	NA	870
	11/6/2019	0.3	77	140	0.41	7.33	53	670
MW-05 down-gradient	10/28/2015	0.64	100	160	0.39	7.12	120	790
	2/10/2016	0.46	110	220	0.39	7.25	120	790
	5/10/2016	0.8	150	220	0.46	6.88	290	950
	8/31/2016	1.0	140	99	0.56	6.81	260	820
	11/2/2016	0.41	98	130	0.37	7.26	100	700
	2/6/2017	0.48	150	180	0.30	7.22	120	790
	4/26/2017	0.67	110	F1 190	0.37	7.28	170	770
	6/14/2017	0.44	75	150	0.46	7.45	110	670
	Pred. Limit	**0.57**	**131**	**316**	**0.51**	**7.56-6.67**	**130**	**956**
	8/2/2017	0.28	83	170	0.35	7.30	99	770
	10/18/2017	0.42	110	110	0.38	7.16	95	720
	4/24/2018	0.31	110	300	0.34	7.33	130	**1,000**
	7/31/2018 R	NA	NA	NA	NA	NA	NA	940
	10/17/2018	0.31	110	210	0.36	7.29	93	810
	5/6/2019	0.38	130	**500**	0.31	7.11	84	**1,300**
	7/3/2019 R	NA	NA	150	NA	NA	NA	890
	11/7/2019	0.31	**180**	130	0.3	7.44	64	590
	12/4/2019	NA	89	NA	NA	NA	NA	NA

Notes: All units are in mg/l except pH is in standard units.

* - Intrawell Prediction Limit. All others are interwell comparisons with MW-10 as background..

Bold - Potential statistically significant increase.

F1 - MS and/or MSD Recovery outside of limits.

Pred. Limit - Prediction Limit

Italics Date - First round of Detection Monitoring and resample after statistical background establishment.

NA - Not analyzed. No confirmation resample required.

R - Resample

APPENDIX A
Analytical Data Packages

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 500-162860-1
Client Project/Site: Joliet #29 CCR

For:
KPRG and Associates, Inc.
14665 West Lisbon Road,
Suite 1A
Brookfield, Wisconsin 53005

Attn: Richard Gnat

Authorized for release by:
5/22/2019 9:42:35 AM

Eric Lang, Manager of Project Management
(708)534-5200
eric.lang@testamericainc.com

Table of Contents

Job ID: 500-162860-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-162860-1

Comments
No additional comments.

Receipt
The samples were received on 5/6/2019 6:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 3.2º C, 4.3º C and 5.8º C.

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

General Chemistry
Method(s) 375.4, SM 4500 SO4 E: Due to the concentration of sulfates in the parent sample, the MS/MSD was diluted after the spike. The spike amount was adjusted by the dilution factor.

(500-162860-C-2 MS) and (500-162860-C-2 MSD)

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

Method Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-162860-1

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL CHI
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CHI
SM 4500 Cl- E	Chloride, Total	SM	TAL CHI
SM 4500 F C	Fluoride	SM	TAL CHI
SM 4500 SO4 E	Sulfate, Total	SM	TAL PEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

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

Laboratory References:

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

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Sample Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-162860-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Assest ID
500-162860-1	MW-05	Water	05/06/19 13:30	05/06/19 18:00	
500-162860-2	MW-03	Water	05/07/19 09:10	05/07/19 18:50	
500-162860-3	MW-04	Water	05/07/19 10:40	05/07/19 18:50	
500-162860-4	MW-10	Water	05/07/19 12:30	05/07/19 18:50	
500-162860-5	DUPLICATE	Water	05/07/19 00:00	05/07/19 18:50	

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-162860-1

Client Sample ID: MW-05

Date Collected: 05/06/19 13:30
Date Received: 05/06/19 18:00

Lab Sample ID: 500-162860-1

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.38		0.050		mg/L		05/08/19 07:37	05/10/19 17:26	1
Calcium	130		0.20		mg/L		05/08/19 07:37	05/08/19 19:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1300		10		mg/L			05/08/19 05:50	1
Chloride	500		50		mg/L			05/17/19 22:36	25
Fluoride	0.31		0.10		mg/L			05/17/19 23:57	1
Sulfate	84		50		mg/L			05/16/19 11:42	10

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-162860-1

Client Sample ID: MW-03

Date Collected: 05/07/19 09:10
Date Received: 05/07/19 18:50

Lab Sample ID: 500-162860-2

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.43		0.050		mg/L		05/08/19 16:05	05/10/19 17:04	1
Calcium	120		0.20		mg/L		05/08/19 16:05	05/10/19 05:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	880		10		mg/L			05/09/19 06:46	1
Chloride	280		10		mg/L			05/17/19 22:36	5
Fluoride	0.40		0.10		mg/L			05/18/19 00:10	1
Sulfate	140		50		mg/L			05/16/19 11:37	10

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-162860-1

Client Sample ID: MW-04

Date Collected: 05/07/19 10:40
Date Received: 05/07/19 18:50

Lab Sample ID: 500-162860-3

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.76		0.050		mg/L		05/08/19 16:05	05/10/19 17:08	1
Calcium	120		0.20		mg/L		05/08/19 16:05	05/10/19 06:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1000		10		mg/L			05/09/19 06:48	1
Chloride	340		10		mg/L			05/17/19 22:37	5
Fluoride	0.42		0.10		mg/L			05/18/19 00:12	1
Sulfate	120		50		mg/L			05/16/19 11:42	10

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-162860-1

Client Sample ID: MW-10
Date Collected: 05/07/19 12:30
Date Received: 05/07/19 18:50

Lab Sample ID: 500-162860-4
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.56		0.050		mg/L		05/08/19 16:05	05/10/19 17:11	1
Calcium	130		0.20		mg/L		05/08/19 16:05	05/10/19 06:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1000		10		mg/L			05/09/19 06:51	1
Chloride	410		50		mg/L			05/17/19 22:59	25
Fluoride	0.39		0.10		mg/L			05/18/19 00:15	1
Sulfate	95		50		mg/L			05/16/19 11:45	10

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-162860-1

Client Sample ID: DUPLICATE

Date Collected: 05/07/19 00:00
Date Received: 05/07/19 18:50

Lab Sample ID: 500-162860-5

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.43		0.050		mg/L		05/08/19 16:05	05/10/19 17:15	1
Calcium	120		0.20		mg/L		05/08/19 16:05	05/10/19 06:09	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	930		10		mg/L			05/09/19 06:53	1
Chloride	270		10		mg/L			05/17/19 22:38	5
Fluoride	0.40		0.10		mg/L			05/18/19 00:18	1
Sulfate	140		50		mg/L			05/16/19 11:45	10

Definitions/Glossary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-162860-1

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

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

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-162860-1

Metals

Prep Batch: 484191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-162860-1	MW-05	Total Recoverable	Water	3005A	
MB 500-484191/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 500-484191/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
500-162860-1 MS	MW-05	Total Recoverable	Water	3005A	
500-162860-1 MSD	MW-05	Total Recoverable	Water	3005A	
500-162860-1 DU	MW-05	Total Recoverable	Water	3005A	

Prep Batch: 484325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-162860-2	MW-03	Total Recoverable	Water	3005A	
500-162860-3	MW-04	Total Recoverable	Water	3005A	
500-162860-4	MW-10	Total Recoverable	Water	3005A	
500-162860-5	DUPLICATE	Total Recoverable	Water	3005A	
MB 500-484325/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 500-484325/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 484463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-162860-1	MW-05	Total Recoverable	Water	6020A	484191
MB 500-484191/1-A	Method Blank	Total Recoverable	Water	6020A	484191
LCS 500-484191/2-A	Lab Control Sample	Total Recoverable	Water	6020A	484191
500-162860-1 MS	MW-05	Total Recoverable	Water	6020A	484191
500-162860-1 MSD	MW-05	Total Recoverable	Water	6020A	484191
500-162860-1 DU	MW-05	Total Recoverable	Water	6020A	484191

Analysis Batch: 484720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-162860-2	MW-03	Total Recoverable	Water	6020A	484325
500-162860-3	MW-04	Total Recoverable	Water	6020A	484325
500-162860-4	MW-10	Total Recoverable	Water	6020A	484325
500-162860-5	DUPLICATE	Total Recoverable	Water	6020A	484325
MB 500-484325/1-A	Method Blank	Total Recoverable	Water	6020A	484325
LCS 500-484325/2-A	Lab Control Sample	Total Recoverable	Water	6020A	484325

Analysis Batch: 484965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-162860-1	MW-05	Total Recoverable	Water	6020A	484191
500-162860-2	MW-03	Total Recoverable	Water	6020A	484325
500-162860-3	MW-04	Total Recoverable	Water	6020A	484325
500-162860-4	MW-10	Total Recoverable	Water	6020A	484325
500-162860-5	DUPLICATE	Total Recoverable	Water	6020A	484325
MB 500-484191/1-A	Method Blank	Total Recoverable	Water	6020A	484191
MB 500-484325/1-A	Method Blank	Total Recoverable	Water	6020A	484325
LCS 500-484191/2-A	Lab Control Sample	Total Recoverable	Water	6020A	484191
LCS 500-484325/2-A	Lab Control Sample	Total Recoverable	Water	6020A	484325
500-162860-1 MS	MW-05	Total Recoverable	Water	6020A	484191
500-162860-1 MSD	MW-05	Total Recoverable	Water	6020A	484191
500-162860-1 DU	MW-05	Total Recoverable	Water	6020A	484191

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-162860-1

General Chemistry

Analysis Batch: 441150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-162860-1	MW-05	Total/NA	Water	SM 4500 SO4 E	
500-162860-2	MW-03	Total/NA	Water	SM 4500 SO4 E	
500-162860-3	MW-04	Total/NA	Water	SM 4500 SO4 E	
500-162860-4	MW-10	Total/NA	Water	SM 4500 SO4 E	
500-162860-5	DUPLICATE	Total/NA	Water	SM 4500 SO4 E	
MB 400-441150/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-441150/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-441150/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
500-162860-2 MS	MW-03	Total/NA	Water	SM 4500 SO4 E	
500-162860-2 MSD	MW-03	Total/NA	Water	SM 4500 SO4 E	

Analysis Batch: 484165

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-162860-1	MW-05	Total/NA	Water	SM 2540C	
MB 500-484165/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 500-484165/2	Lab Control Sample	Total/NA	Water	SM 2540C	
500-162860-1 DU	MW-05	Total/NA	Water	SM 2540C	

Analysis Batch: 484404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-162860-2	MW-03	Total/NA	Water	SM 2540C	
500-162860-3	MW-04	Total/NA	Water	SM 2540C	
500-162860-4	MW-10	Total/NA	Water	SM 2540C	
500-162860-5	DUPLICATE	Total/NA	Water	SM 2540C	
MB 500-484404/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 500-484404/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 485993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-162860-1	MW-05	Total/NA	Water	SM 4500 F C	
500-162860-2	MW-03	Total/NA	Water	SM 4500 F C	
500-162860-3	MW-04	Total/NA	Water	SM 4500 F C	
500-162860-4	MW-10	Total/NA	Water	SM 4500 F C	
500-162860-5	DUPLICATE	Total/NA	Water	SM 4500 F C	
MB 500-485993/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 500-485993/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	

Analysis Batch: 485996

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-162860-1	MW-05	Total/NA	Water	SM 4500 Cl- E	
500-162860-2	MW-03	Total/NA	Water	SM 4500 Cl- E	
500-162860-3	MW-04	Total/NA	Water	SM 4500 Cl- E	
500-162860-4	MW-10	Total/NA	Water	SM 4500 Cl- E	
500-162860-5	DUPLICATE	Total/NA	Water	SM 4500 Cl- E	
MB 500-485996/9	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 500-485996/10	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 500-484191/1-A
Matrix: Water
Analysis Batch: 484463

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 484191

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<0.20		0.20		mg/L		05/08/19 07:37	05/08/19 18:47	1

Lab Sample ID: MB 500-484191/1-A
Matrix: Water
Analysis Batch: 484965

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 484191

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.050		0.050		mg/L		05/08/19 07:37	05/10/19 17:19	1

Lab Sample ID: LCS 500-484191/2-A
Matrix: Water
Analysis Batch: 484463

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 484191

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	10.0	10.1		mg/L		101	80 - 120

Lab Sample ID: LCS 500-484191/2-A
Matrix: Water
Analysis Batch: 484965

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 484191

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	0.931		mg/L		93	80 - 120

Lab Sample ID: 500-162860-1 MS
Matrix: Water
Analysis Batch: 484463

Client Sample ID: MW-05
Prep Type: Total Recoverable
Prep Batch: 484191

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	130		10.0	132	4	mg/L		57	75 - 125

Lab Sample ID: 500-162860-1 MS
Matrix: Water
Analysis Batch: 484965

Client Sample ID: MW-05
Prep Type: Total Recoverable
Prep Batch: 484191

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.38		1.00	1.28		mg/L		90	75 - 125

Lab Sample ID: 500-162860-1 MSD
Matrix: Water
Analysis Batch: 484463

Client Sample ID: MW-05
Prep Type: Total Recoverable
Prep Batch: 484191

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	130		10.0	132	4	mg/L		53	75 - 125	0	20

Lab Sample ID: 500-162860-1 MSD
Matrix: Water
Analysis Batch: 484965

Client Sample ID: MW-05
Prep Type: Total Recoverable
Prep Batch: 484191

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.38		1.00	1.26		mg/L		88	75 - 125	2	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: 500-162860-1 DU
Matrix: Water
Analysis Batch: 484463

Client Sample ID: MW-05
Prep Type: Total Recoverable
Prep Batch: 484191

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Calcium	130		126		mg/L		0.7	20

Lab Sample ID: 500-162860-1 DU
Matrix: Water
Analysis Batch: 484965

Client Sample ID: MW-05
Prep Type: Total Recoverable
Prep Batch: 484191

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Boron	0.38		0.376		mg/L		0.7	20

Lab Sample ID: MB 500-484325/1-A
Matrix: Water
Analysis Batch: 484720

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 484325

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<0.20		0.20		mg/L		05/08/19 16:05	05/10/19 04:25	1

Lab Sample ID: MB 500-484325/1-A
Matrix: Water
Analysis Batch: 484965

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 484325

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.050		0.050		mg/L		05/08/19 16:05	05/10/19 16:19	1

Lab Sample ID: LCS 500-484325/2-A
Matrix: Water
Analysis Batch: 484720

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 484325

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	10.0	10.4		mg/L		104	80 - 120

Lab Sample ID: LCS 500-484325/2-A
Matrix: Water
Analysis Batch: 484965

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 484325

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	0.973		mg/L		97	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 500-484165/1
Matrix: Water
Analysis Batch: 484165

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10		mg/L			05/08/19 05:35	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 500-484165/2
Matrix: Water
Analysis Batch: 484165

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	250	282		mg/L		113	80 - 120

Lab Sample ID: 500-162860-1 DU
Matrix: Water
Analysis Batch: 484165

Client Sample ID: MW-05
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	1300		1360		mg/L		1	5

Lab Sample ID: MB 500-484404/1
Matrix: Water
Analysis Batch: 484404

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10		mg/L			05/09/19 06:28	1

Lab Sample ID: LCS 500-484404/2
Matrix: Water
Analysis Batch: 484404

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	250	274		mg/L		110	80 - 120

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 500-485996/9
Matrix: Water
Analysis Batch: 485996

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<2.0		2.0		mg/L			05/17/19 21:52	1

Lab Sample ID: LCS 500-485996/10
Matrix: Water
Analysis Batch: 485996

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.5		mg/L		103	85 - 115

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 500-485993/3
Matrix: Water
Analysis Batch: 485993

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.10		0.10		mg/L			05/17/19 22:46	1

Method: SM 4500 F C - Fluoride (Continued)

Lab Sample ID: LCS 500-485993/4
Matrix: Water
Analysis Batch: 485993

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			10.0	10.7		mg/L		107	80 - 120		

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 400-441150/6
Matrix: Water
Analysis Batch: 441150

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			05/16/19 11:01	1

Lab Sample ID: LCS 400-441150/7
Matrix: Water
Analysis Batch: 441150

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			15.0	14.3		mg/L		95	90 - 110		

Lab Sample ID: MRL 400-441150/3
Matrix: Water
Analysis Batch: 441150

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

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			5.00	<5.0		mg/L		95	50 - 150		

Lab Sample ID: 500-162860-2 MS
Matrix: Water
Analysis Batch: 441150

Client Sample ID: MW-03
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	140		10.0	145	4	mg/L		30	77 - 128		

Lab Sample ID: 500-162860-2 MSD
Matrix: Water
Analysis Batch: 441150

Client Sample ID: MW-03
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	140		10.0	147	4	mg/L		50	77 - 128	1	5

TestAmerica

THE LEADER IN ENVIRONMENTAL

2417 Bond Street, University Park, IL 604
Phone: 708.534.5200 Fax: 708.534.

500-162860 COC

(optional)
Report To Contact: Richard Graf
Company: KPRG
Address: 14665 W. Lisbon Rd
Address: Ste Brookfield, WI
Phone: 262-781-0475
Fax:
E-Mail: RGraf@kprginc.com

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

Chain of Custody Record

Lab Job #: 500-162860
Chain of Custody Number:
Page 1 of 1
Temperature °C of Cooler: 5.8

Client	Client Project #	Preservative	8	3								
KPRG		Parameter	Total Cl, Fl, SO4, TDS	Total Metals B, Ca								
Project Name: Joliet #29 CCR												
Project Location/State: IL	Lab Project #: 12313.0											
Sampler: Erin Bulson	Lab PM											

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix								
1		MW-05	5/16	1330	2	W	X	X						

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Comments

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days ___ 10 Days ___ 15 Days _____ Other
Requested Due Date _____

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

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[illegible]	KPRG	5/16	6 PM	Neal Jakoski	TAINC	5/16/19	18:00
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier
Shipped
Hand Delivered X

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

Client Comments

Lab Comments:

TAL-4124-500-(1809)

5/22/2019

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 6
Phone: 708.534.5200 Fax: 708.5

500-162860 COC

Chain of Custody Record

Lab Job #: 500-162860

Chain of Custody Number:

Page 1 of 1

Temperature °C of Cooler: 4.3,3.2

Report To (optional)		Bill To (optional)	
Contact:	RICH GNAT	Contact:	
Company:	KPRG	Company:	
Address:	14665 W LISBON RD	Address:	
Address:	BROOKFIELD, WI	Address:	
Phone:	262 781 0475	Phone:	
Fax:		Fax:	
E-Mail:	Richardg@kprginc.com	PO#/Reference#	

Client	KPRG
Client Project #	12313.0
Project Name	Joliet #29 CCR
Project Location/State	IL
Lab Project #	
Sampler	Erin Bulson
Lab PM	

Preservative							8	3								
Parameter							Total Cl, F, SO4, TDS	Total metals B, Ca								
Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix										Comments
2		MW-03	5-7	0910	2	W	X	X								
3		MW-04	↓	1070	2	W	X	X								
4		MW-10	↓	1230	2	W	X	X								
5		DUPLICATE	↓	—	2	W	X	X								

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Turnaround Time Required (Business Days)

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

Requested Due Date ____

Sample Disposal

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

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
E. Bulson	KPRG	5-7-19	1630 PM	[signature]	TAINC	5-7-19	18:50

Lab Courier ☐

Shipped ☐

Hand Delivered ☐

Matrix Key

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

Client Comments

Lab Comments:

TAL-4124-500 (1208)

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone (708) 534-5200 Fax (708) 534-5211

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 500-120815.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: eric.lang@testamericainc.com	State of Origin: Illinois	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 500-162860-1
Address: 3355 McLemore Drive, ,	Due Date Requested: 5/20/2019			
City: Pensacola	TAT Requested (days):			
State, Zip: FL, 32514				
Phone: 850-474-1001(Tel) 850-478-2671(Fax)	PO #:			
Email:	WO #:			
Project Name: Joliet #29 CCR	Project #: 50011568			
Site: NRG Midwest Generation LSQ Joliet#29 CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500_SO4_E	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-05 (500-162860-1)	5/6/19	13:30 Central		Water			X	1	
MW-03 (500-162860-2)	5/7/19	09:10 Central		Water			X	1	
MW-04 (500-162860-3)	5/7/19	10:40 Central		Water			X	1	
MW-10 (500-162860-4)	5/7/19	12:30 Central		Water			X	1	
DUPLICATE (500-162860-5)	5/7/19	Central		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	5/8/19 1500	TA	Kathy R Owen	5-9-19 858	TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.1°C IR 7

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-162860-1

Login Number: 162860
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.8,4.3,3.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-162860-1

Login Number: 162860
List Number: 2
Creator: Avery, Kathy R

List Source: Eurofins TestAmerica, Pensacola
List Creation: 05/09/19 04:35 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.1°C IR 7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-162860-1

Client Sample ID: MW-05
Date Collected: 05/06/19 13:30
Date Received: 05/06/19 18:00

Lab Sample ID: 500-162860-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			484191	05/08/19 07:37	SAH	TAL CHI
Total Recoverable	Analysis	6020A		1	484965	05/10/19 17:26	FXG	TAL CHI
Total Recoverable	Prep	3005A			484191	05/08/19 07:37	SAH	TAL CHI
Total Recoverable	Analysis	6020A		1	484463	05/08/19 19:25	FXG	TAL CHI
Total/NA	Analysis	SM 2540C		1	484165	05/08/19 05:50	CLB	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		25	485996	05/17/19 22:36	EAT	TAL CHI
Total/NA	Analysis	SM 4500 F C		1	485993	05/17/19 23:57	EAT	TAL CHI
Total/NA	Analysis	SM 4500 SO4 E		10	441150	05/16/19 11:42	RRC	TAL PEN

Client Sample ID: MW-03
Date Collected: 05/07/19 09:10
Date Received: 05/07/19 18:50

Lab Sample ID: 500-162860-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			484325	05/08/19 16:05	BDE	TAL CHI
Total Recoverable	Analysis	6020A		1	484965	05/10/19 17:04	FXG	TAL CHI
Total Recoverable	Prep	3005A			484325	05/08/19 16:05	BDE	TAL CHI
Total Recoverable	Analysis	6020A		1	484720	05/10/19 05:56	FXG	TAL CHI
Total/NA	Analysis	SM 2540C		1	484404	05/09/19 06:46	CLB	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		5	485996	05/17/19 22:36	EAT	TAL CHI
Total/NA	Analysis	SM 4500 F C		1	485993	05/18/19 00:10	EAT	TAL CHI
Total/NA	Analysis	SM 4500 SO4 E		10	441150	05/16/19 11:37	RRC	TAL PEN

Client Sample ID: MW-04
Date Collected: 05/07/19 10:40
Date Received: 05/07/19 18:50

Lab Sample ID: 500-162860-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			484325	05/08/19 16:05	BDE	TAL CHI
Total Recoverable	Analysis	6020A		1	484965	05/10/19 17:08	FXG	TAL CHI
Total Recoverable	Prep	3005A			484325	05/08/19 16:05	BDE	TAL CHI
Total Recoverable	Analysis	6020A		1	484720	05/10/19 06:00	FXG	TAL CHI
Total/NA	Analysis	SM 2540C		1	484404	05/09/19 06:48	CLB	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		5	485996	05/17/19 22:37	EAT	TAL CHI
Total/NA	Analysis	SM 4500 F C		1	485993	05/18/19 00:12	EAT	TAL CHI
Total/NA	Analysis	SM 4500 SO4 E		10	441150	05/16/19 11:42	RRC	TAL PEN

Client Sample ID: MW-10
Date Collected: 05/07/19 12:30
Date Received: 05/07/19 18:50

Lab Sample ID: 500-162860-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			484325	05/08/19 16:05	BDE	TAL CHI
Total Recoverable	Analysis	6020A		1	484965	05/10/19 17:11	FXG	TAL CHI

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-162860-1

Client Sample ID: MW-10

Lab Sample ID: 500-162860-4

Date Collected: 05/07/19 12:30

Matrix: Water

Date Received: 05/07/19 18:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			484325	05/08/19 16:05	BDE	TAL CHI
Total Recoverable	Analysis	6020A		1	484720	05/10/19 06:05	FXG	TAL CHI
Total/NA	Analysis	SM 2540C		1	484404	05/09/19 06:51	CLB	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		25	485996	05/17/19 22:59	EAT	TAL CHI
Total/NA	Analysis	SM 4500 F C		1	485993	05/18/19 00:15	EAT	TAL CHI
Total/NA	Analysis	SM 4500 SO4 E		10	441150	05/16/19 11:45	RRC	TAL PEN

Client Sample ID: DUPLICATE

Lab Sample ID: 500-162860-5

Date Collected: 05/07/19 00:00

Matrix: Water

Date Received: 05/07/19 18:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			484325	05/08/19 16:05	BDE	TAL CHI
Total Recoverable	Analysis	6020A		1	484965	05/10/19 17:15	FXG	TAL CHI
Total Recoverable	Prep	3005A			484325	05/08/19 16:05	BDE	TAL CHI
Total Recoverable	Analysis	6020A		1	484720	05/10/19 06:09	FXG	TAL CHI
Total/NA	Analysis	SM 2540C		1	484404	05/09/19 06:53	CLB	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		5	485996	05/17/19 22:38	EAT	TAL CHI
Total/NA	Analysis	SM 4500 F C		1	485993	05/18/19 00:18	EAT	TAL CHI
Total/NA	Analysis	SM 4500 SO4 E		10	441150	05/16/19 11:45	RRC	TAL PEN

Laboratory References:

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

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 500-166216-1
Client Project/Site: Joliet #29 CCR
Sampling Event: Quarterly MWG Joliet #29 CCR

For:
KPRG and Associates, Inc.
14665 West Lisbon Road,
Suite 1A
Brookfield, Wisconsin 53005

Attn: Richard Gnat

Authorized for release by:
7/16/2019 5:10:53 PM

Eric Lang, Manager of Project Management
(708)534-5200
eric.lang@testamericainc.com

Table of Contents

Case Narrative

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-166216-1

Job ID: 500-166216-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-166216-1

Comments
No additional comments.

Receipt
The samples were received on 7/3/2019 3:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.5º C.

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

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

Method Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-166216-1

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL CHI
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CHI
SM 4500 Cl- E	Chloride, Total	SM	TAL CHI
SM 4500 SO4 E	Sulfate, Total	SM	TAL PEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

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

Laboratory References:

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

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Sample Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-166216-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-166216-1	MW-03	Water	07/03/19 12:07	07/03/19 15:50	
500-166216-2	MW-04	Water	07/03/19 11:20	07/03/19 15:50	
500-166216-3	MW-05	Water	07/03/19 12:55	07/03/19 15:50	
500-166216-4	MW-10	Water	07/03/19 13:26	07/03/19 15:50	

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-166216-1

Client Sample ID: MW-03
Date Collected: 07/03/19 12:07
Date Received: 07/03/19 15:50

Lab Sample ID: 500-166216-1
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	65		25		mg/L			07/16/19 11:33	5

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-166216-1

Client Sample ID: MW-04

Date Collected: 07/03/19 11:20
Date Received: 07/03/19 15:50

Lab Sample ID: 500-166216-2

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.23		0.050		mg/L		07/05/19 08:36	07/05/19 16:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	870		10		mg/L			07/04/19 20:21	1
Chloride	250		10		mg/L			07/09/19 13:26	5

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-166216-1

Client Sample ID: MW-05
Date Collected: 07/03/19 12:55
Date Received: 07/03/19 15:50

Lab Sample ID: 500-166216-3
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	890		10		mg/L			07/04/19 20:24	1
Chloride	150		10		mg/L			07/09/19 13:27	5

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-166216-1

Client Sample ID: MW-10

Date Collected: 07/03/19 13:26
Date Received: 07/03/19 15:50

Lab Sample ID: 500-166216-4

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	830		10		mg/L			07/04/19 20:27	1
Chloride	230		10		mg/L			07/09/19 13:27	5

Definitions/Glossary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-166216-1

Glossary

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

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-166216-1

Metals

Prep Batch: 493474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-166216-2	MW-04	Total Recoverable	Water	3005A	
MB 500-493474/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 500-493474/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 493751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-166216-2	MW-04	Total Recoverable	Water	6020A	493474
MB 500-493474/1-A	Method Blank	Total Recoverable	Water	6020A	493474
LCS 500-493474/2-A	Lab Control Sample	Total Recoverable	Water	6020A	493474

General Chemistry

Analysis Batch: 448225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-166216-1	MW-03	Total/NA	Water	SM 4500 SO4 E	
MB 400-448225/5	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-448225/6	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-448225/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	

Analysis Batch: 493422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-166216-2	MW-04	Total/NA	Water	SM 2540C	
500-166216-3	MW-05	Total/NA	Water	SM 2540C	
500-166216-4	MW-10	Total/NA	Water	SM 2540C	
MB 500-493422/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 500-493422/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 493994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-166216-2	MW-04	Total/NA	Water	SM 4500 Cl- E	
500-166216-3	MW-05	Total/NA	Water	SM 4500 Cl- E	
500-166216-4	MW-10	Total/NA	Water	SM 4500 Cl- E	
MB 500-493994/12	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 500-493994/13	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 500-493474/1-A
Matrix: Water
Analysis Batch: 493751

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 493474

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.050		0.050		mg/L		07/05/19 08:36	07/05/19 15:23	1

Lab Sample ID: LCS 500-493474/2-A
Matrix: Water
Analysis Batch: 493751

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 493474

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.00		mg/L		100	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 500-493422/1
Matrix: Water
Analysis Batch: 493422

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10		mg/L			07/04/19 20:10	1

Lab Sample ID: LCS 500-493422/2
Matrix: Water
Analysis Batch: 493422

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	250	296		mg/L		118	80 - 120

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 500-493994/12
Matrix: Water
Analysis Batch: 493994

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<2.0		2.0		mg/L			07/09/19 12:05	1

Lab Sample ID: LCS 500-493994/13
Matrix: Water
Analysis Batch: 493994

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	50.8		mg/L		102	85 - 115

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 400-448225/5
Matrix: Water
Analysis Batch: 448225

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			07/16/19 10:46	1

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-166216-1

Method: SM 4500 SO4 E - Sulfate, Total (Continued)

Lab Sample ID: LCS 400-448225/6
Matrix: Water
Analysis Batch: 448225

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	15.0	14.1		mg/L		94	90 - 110

Lab Sample ID: MRL 400-448225/3
Matrix: Water
Analysis Batch: 448225

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	<5.0		mg/L		92	50 - 150

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2417 Bond Street, University Park, IL 60484
Phone: 708.534.5200 Fax: 708.534.5211

Chain of Custody Record

Lab Job #: 500-166216

Chain of Custody Number:

Page 1 of 1

Temperature °C of Cooler: 3.5

30gal

(optional) Report To	(optional) Bill To
Contact: Richard Graf	Contact:
Company: KPRG	Company:
Address:	Address:
Address:	Address:
Phone: 262 781 0475	Phone:
Fax:	Fax:
E-Mail: richard@kprginc.com	PO#/Reference#

Client	Client Project #	Preservative	8	3	8							
KPRG	12313.0											
Project Name		Parameter	Sulfate	Boron	Chloride, TDS							
Joliet #29 CCR												
Project Location/State	Lab Project #											
IL	[redacted]											
Sampler	Lab PM											
Erin Bilson												

500-166216 COC

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix									Comments
1		MW-03	7/3	1207	1	W	X								
2		MW-04	7/3	1120	2	W		X	X						
3		MW-05	7/3	1255	1	W			X						
4		MW-10	7/3	1326	1	W			X						

Preservative Key
1. HCL, Cool to 4°
2. H_2SO_4, Cool to 4°
3. HNO_3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. $NaHSO_4$
7. Cool to 4°
8. None
9. Other

Turnaround Time Required (Business Days)
___ 1 Day ___ 2 Days ___ 5 Days ___ 7 Days X 10 Days ___ 15 Days _____ Other
Requested Due Date _____

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

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
[signature]	KPRG	7/3	1950	Paula Buckley	TA CHI	7/3/19	1550
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier
Shipped
Hand Delivered X

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

Client Comments

Lab Comments:

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 500-122940.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: eric.lang@testamericainc.com	State of Origin: Illinois	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 500-166216-1
Address: 3355 McLemore Drive, ,	Due Date Requested: 7/16/2019			
City: Pensacola	TAT Requested (days):			
State, Zip: FL, 32514				
Phone: 850-474-1001(Tel) 850-478-2671(Fax)	PO #:			
Email:	WO #:			
Project Name: Joliet #29 CCR	Project #: 50011568			
Site: NRG Midwest Generation LSQ Joliet#29 CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500_SO4_E	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-03 (500-166216-1)	7/3/19	12:07 Central		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Allen Scott	7/5/19 1330	TA-CHI	Reagan Hutchison	7-6-19 815	TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.0°C IR-7

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-166216-1

Login Number: 166216
List Number: 1
Creator: Buckley, Paula M

List Source: Eurofins TestAmerica, Chicago

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

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-166216-1

Login Number: 166216
List Number: 2
Creator: Hinrichsen, Megan E

List Source: Eurofins TestAmerica, Pensacola
List Creation: 07/06/19 10:44 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	760499
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.0°C IR-7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-166216-1

Client Sample ID: MW-03
Date Collected: 07/03/19 12:07
Date Received: 07/03/19 15:50

Lab Sample ID: 500-166216-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		5	448225	07/16/19 11:33	RRC	TAL PEN

Client Sample ID: MW-04
Date Collected: 07/03/19 11:20
Date Received: 07/03/19 15:50

Lab Sample ID: 500-166216-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			493474	07/05/19 08:36	SAH	TAL CHI
Total Recoverable	Analysis	6020A		1	493751	07/05/19 16:51	FXG	TAL CHI
Total/NA	Analysis	SM 2540C		1	493422	07/04/19 20:21	CLB	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		5	493994	07/09/19 13:26	EAT	TAL CHI

Client Sample ID: MW-05
Date Collected: 07/03/19 12:55
Date Received: 07/03/19 15:50

Lab Sample ID: 500-166216-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	493422	07/04/19 20:24	CLB	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		5	493994	07/09/19 13:27	EAT	TAL CHI

Client Sample ID: MW-10
Date Collected: 07/03/19 13:26
Date Received: 07/03/19 15:50

Lab Sample ID: 500-166216-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	493422	07/04/19 20:27	CLB	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		5	493994	07/09/19 13:27	EAT	TAL CHI

Laboratory References:

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

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

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ANALYTICAL REPORT

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

Laboratory Job ID: 500-173147-1
Client Project/Site: Joliet #29 CCR

For:
KPRG and Associates, Inc.
14665 West Lisbon Road,
Suite 1A
Brookfield, Wisconsin 53005

Attn: Richard Gnat

Authorized for release by:
11/21/2019 10:31:01 AM
Robin Kintz, Project Manager II
(708)534-5200
robin.kintz@testamericainc.com

Designee for

Eric Lang, Manager of Project Management
(708)534-5200
eric.lang@testamericainc.com

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

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

Table of Contents

Job ID: 500-173147-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-173147-1

Comments
No additional comments.

Receipt
The samples were received on 11/7/2019 6:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6º C.

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

General Chemistry
Method SM 4500 SO4 E: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 400-466564 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Sulfate in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

Method SM 4500 SO4 E: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 400-466564 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method SM 4500 SO4 E: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-03 (500-173147-1), MW-04 (500-173147-2), MW-05 (500-173147-3), MW-10 (500-173147-4), Duplicate (500-173147-5), (500-173147-C-1 MS) and (500-173147-C-1 MSD). Elevated reporting limits (RLs) are provided.

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

Method Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-173147-1

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL CHI
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL CHI
SM 4500 Cl- E	Chloride, Total	SM	TAL CHI
SM 4500 F C	Fluoride	SM	TAL CHI
SM 4500 SO4 E	Sulfate, Total	SM	TAL PEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

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

Laboratory References:

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

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Sample Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-173147-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-173147-1	MW-03	Water	11/07/19 08:30	11/07/19 18:10	
500-173147-2	MW-04	Water	11/06/19 13:30	11/07/19 18:10	
500-173147-3	MW-05	Water	11/07/19 09:55	11/07/19 18:10	
500-173147-4	MW-10	Water	11/07/19 09:18	11/07/19 18:10	
500-173147-5	Duplicate	Water	11/06/19 00:00	11/07/19 18:10	

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-173147-1

Client Sample ID: MW-03

Date Collected: 11/07/19 08:30
Date Received: 11/07/19 18:10

Lab Sample ID: 500-173147-1

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.34		0.050		mg/L		11/14/19 07:58	11/19/19 03:04	1
Calcium	100		0.20		mg/L		11/14/19 07:58	11/19/19 03:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	660		10		mg/L			11/13/19 02:10	1
Chloride	150		10		mg/L			11/16/19 13:45	5
Fluoride	0.40		0.10		mg/L			11/15/19 22:10	1
Sulfate	65		10		mg/L			11/18/19 17:46	2

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-173147-1

Client Sample ID: MW-04

Date Collected: 11/06/19 13:30
Date Received: 11/07/19 18:10

Lab Sample ID: 500-173147-2

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.30		0.050		mg/L		11/14/19 07:58	11/19/19 03:22	1
Calcium	77		0.20		mg/L		11/14/19 07:58	11/19/19 03:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	670		10		mg/L			11/11/19 23:43	1
Chloride	140		10		mg/L			11/16/19 13:45	5
Fluoride	0.41		0.10		mg/L			11/15/19 22:13	1
Sulfate	53		10		mg/L			11/18/19 17:50	2

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-173147-1

Client Sample ID: MW-05

Date Collected: 11/07/19 09:55
Date Received: 11/07/19 18:10

Lab Sample ID: 500-173147-3

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.31		0.050		mg/L		11/14/19 07:58	11/19/19 03:26	1
Calcium	180		0.20		mg/L		11/14/19 07:58	11/19/19 03:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	590		10		mg/L			11/13/19 02:12	1
Chloride	130		10		mg/L			11/16/19 13:46	5
Fluoride	0.30		0.10		mg/L			11/15/19 22:17	1
Sulfate	64		10		mg/L			11/18/19 17:50	2

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-173147-1

Client Sample ID: MW-10

Date Collected: 11/07/19 09:18
Date Received: 11/07/19 18:10

Lab Sample ID: 500-173147-4

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.35		0.050		mg/L		11/14/19 07:58	11/19/19 03:30	1
Calcium	90		0.20		mg/L		11/14/19 07:58	11/19/19 03:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	650		10		mg/L			11/13/19 02:15	1
Chloride	130		10		mg/L			11/16/19 13:46	5
Fluoride	0.36		0.10		mg/L			11/15/19 22:21	1
Sulfate	59		10		mg/L			11/18/19 17:50	2

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-173147-1

Client Sample ID: Duplicate

Date Collected: 11/06/19 00:00
Date Received: 11/07/19 18:10

Lab Sample ID: 500-173147-5

Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.29		0.050		mg/L		11/14/19 07:58	11/19/19 03:45	1
Calcium	79		0.20		mg/L		11/14/19 07:58	11/19/19 03:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	660		10		mg/L			11/13/19 02:17	1
Chloride	140		10		mg/L			11/16/19 13:47	5
Fluoride	0.41		0.10		mg/L			11/15/19 22:34	1
Sulfate	51		10		mg/L			11/18/19 17:50	2

Definitions/Glossary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-173147-1

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

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

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-173147-1

Metals

Prep Batch: 515291

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-173147-1	MW-03	Total Recoverable	Water	3005A	
500-173147-2	MW-04	Total Recoverable	Water	3005A	
500-173147-3	MW-05	Total Recoverable	Water	3005A	
500-173147-4	MW-10	Total Recoverable	Water	3005A	
500-173147-5	Duplicate	Total Recoverable	Water	3005A	
MB 500-515291/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 500-515291/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
500-173147-1 MS	MW-03	Total Recoverable	Water	3005A	
500-173147-1 MSD	MW-03	Total Recoverable	Water	3005A	
500-173147-1 DU	MW-03	Total Recoverable	Water	3005A	

Analysis Batch: 516177

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-173147-1	MW-03	Total Recoverable	Water	6020A	515291
500-173147-2	MW-04	Total Recoverable	Water	6020A	515291
500-173147-3	MW-05	Total Recoverable	Water	6020A	515291
500-173147-4	MW-10	Total Recoverable	Water	6020A	515291
500-173147-5	Duplicate	Total Recoverable	Water	6020A	515291
MB 500-515291/1-A	Method Blank	Total Recoverable	Water	6020A	515291
LCS 500-515291/2-A	Lab Control Sample	Total Recoverable	Water	6020A	515291
500-173147-1 MS	MW-03	Total Recoverable	Water	6020A	515291
500-173147-1 MSD	MW-03	Total Recoverable	Water	6020A	515291
500-173147-1 DU	MW-03	Total Recoverable	Water	6020A	515291

General Chemistry

Analysis Batch: 466564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-173147-1	MW-03	Total/NA	Water	SM 4500 SO4 E	
500-173147-2	MW-04	Total/NA	Water	SM 4500 SO4 E	
500-173147-3	MW-05	Total/NA	Water	SM 4500 SO4 E	
500-173147-4	MW-10	Total/NA	Water	SM 4500 SO4 E	
500-173147-5	Duplicate	Total/NA	Water	SM 4500 SO4 E	
MB 400-466564/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-466564/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-466564/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
500-173147-1 MS	MW-03	Total/NA	Water	SM 4500 SO4 E	
500-173147-1 MSD	MW-03	Total/NA	Water	SM 4500 SO4 E	

Analysis Batch: 514785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-173147-2	MW-04	Total/NA	Water	SM 2540C	
MB 500-514785/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 500-514785/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 515001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-173147-1	MW-03	Total/NA	Water	SM 2540C	
500-173147-3	MW-05	Total/NA	Water	SM 2540C	
500-173147-4	MW-10	Total/NA	Water	SM 2540C	
500-173147-5	Duplicate	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 515001 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-515001/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 500-515001/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 515692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-173147-1	MW-03	Total/NA	Water	SM 4500 F C	
500-173147-2	MW-04	Total/NA	Water	SM 4500 F C	
500-173147-3	MW-05	Total/NA	Water	SM 4500 F C	
500-173147-4	MW-10	Total/NA	Water	SM 4500 F C	
500-173147-5	Duplicate	Total/NA	Water	SM 4500 F C	
MB 500-515692/3	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 500-515692/4	Lab Control Sample	Total/NA	Water	SM 4500 F C	

Analysis Batch: 515737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-173147-1	MW-03	Total/NA	Water	SM 4500 Cl- E	
500-173147-2	MW-04	Total/NA	Water	SM 4500 Cl- E	
500-173147-3	MW-05	Total/NA	Water	SM 4500 Cl- E	
500-173147-4	MW-10	Total/NA	Water	SM 4500 Cl- E	
500-173147-5	Duplicate	Total/NA	Water	SM 4500 Cl- E	
MB 500-515737/96	Method Blank	Total/NA	Water	SM 4500 Cl- E	
LCS 500-515737/97	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 500-515291/1-A
Matrix: Water
Analysis Batch: 516177

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 515291

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.050		0.050		mg/L		11/14/19 07:58	11/19/19 02:56	1
Calcium	<0.20		0.20		mg/L		11/14/19 07:58	11/19/19 02:56	1

Lab Sample ID: LCS 500-515291/2-A
Matrix: Water
Analysis Batch: 516177

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 515291

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.00	1.05		mg/L		105	80 - 120
Calcium	10.0	9.06		mg/L		91	80 - 120

Lab Sample ID: 500-173147-1 MS
Matrix: Water
Analysis Batch: 516177

Client Sample ID: MW-03
Prep Type: Total Recoverable
Prep Batch: 515291

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.34		1.00	1.30		mg/L		97	75 - 125
Calcium	100		10.0	109	4	mg/L		38	75 - 125

Lab Sample ID: 500-173147-1 MSD
Matrix: Water
Analysis Batch: 516177

Client Sample ID: MW-03
Prep Type: Total Recoverable
Prep Batch: 515291

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	0.34		1.00	1.18		mg/L		85	75 - 125	10	20
Calcium	100		10.0	101	4	mg/L		-41	75 - 125	8	20

Lab Sample ID: 500-173147-1 DU
Matrix: Water
Analysis Batch: 516177

Client Sample ID: MW-03
Prep Type: Total Recoverable
Prep Batch: 515291

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Boron	0.34		0.335		mg/L		0.2	20
Calcium	100		101		mg/L		3	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 500-514785/1
Matrix: Water
Analysis Batch: 514785

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10		mg/L			11/11/19 22:47	1

Lab Sample ID: LCS 500-514785/2
Matrix: Water
Analysis Batch: 514785

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	250	272		mg/L		109	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: MB 500-515001/1
Matrix: Water
Analysis Batch: 515001

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10		mg/L			11/13/19 01:21	1

Lab Sample ID: LCS 500-515001/2
Matrix: Water
Analysis Batch: 515001

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	250	294		mg/L		118	80 - 120

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 500-515737/96
Matrix: Water
Analysis Batch: 515737

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<2.0		2.0		mg/L			11/16/19 13:26	1

Lab Sample ID: LCS 500-515737/97
Matrix: Water
Analysis Batch: 515737

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	57.0		mg/L		114	85 - 115

Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 500-515692/3
Matrix: Water
Analysis Batch: 515692

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.10		0.10		mg/L			11/15/19 20:46	1

Lab Sample ID: LCS 500-515692/4
Matrix: Water
Analysis Batch: 515692

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.4		mg/L		104	80 - 120

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 400-466564/6
Matrix: Water
Analysis Batch: 466564

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			11/18/19 15:20	1

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-173147-1

Method: SM 4500 SO4 E - Sulfate, Total (Continued)

Lab Sample ID: LCS 400-466564/7
Matrix: Water
Analysis Batch: 466564

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			15.0	16.2		mg/L		108	90 - 110		

Lab Sample ID: MRL 400-466564/3
Matrix: Water
Analysis Batch: 466564

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

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			5.00	5.69		mg/L		114	50 - 150		

Lab Sample ID: 500-173147-1 MS
Matrix: Water
Analysis Batch: 466564

Client Sample ID: MW-03
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	65		10.0	69.9	4	mg/L		45	77 - 128		

Lab Sample ID: 500-173147-1 MSD
Matrix: Water
Analysis Batch: 466564

Client Sample ID: MW-03
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	65		10.0	70.7	4	mg/L		53	77 - 128	1	5

Chain of Custody Record

375540

eurofins | Environment Testing TestAmerica

Address: _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager:	Site Contact:	Date:	COC No:
Company Name: KPCO	Tel/Email:	Lab Contact:	Carrier:	_____ of _____ COCs
Address: 11165 W LISBON Rd	Analysis Turnaround Time			Sampler:
City/State/Zip: BROOKFIELD WI 53005	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 262 781 0475	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Joliet #29 CCR	☐ 1 week			Job / SDG No.:
Site: APP III	☐ 2 days			500-173147
PO #	☐ 1 day			

500-173147 COC

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Total Metals-B, Ca	Total Cl, F, SO4, TDS	Sample Specific Notes:
MW-03	11/7	0830		W	2	N		X	X	
MW-04	11/6	1330		W	2	N		X	X	
MW-05	11/7	0955		W	2	N		X	X	
MW-10	11/7	0918		W	2	N		X	X	
Duplicate	11/6	—		W	2	N		X	X	

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 2.6 Corr'd:_____ Therm ID No.:_____

	Company	Date/Time		Company	Date/Time
Relinquished by:	KPCO	11/7/1610	Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received in Laboratory by: Pamela Buchely	TA	11/7/19 1810

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Lang, Eric A.	Carrier Tracking No(s):	COC No: 500-128480.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: eric.lang@testamericainc.com	State of Origin: Illinois	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - Illinois		Job #: 500-173147-1
Address: 3355 McLemore Drive, ,	Due Date Requested: 11/20/2019			
City: Pensacola	TAT Requested (days):			
State, Zip: FL, 32514				
Phone: 850-474-1001(Tel) 850-478-2671(Fax)	PO #:			
Email:	WO #:			
Project Name: Joliet #29 CCR	Project #: 50011568			
Site: NRG Midwest Generation LSQ Joliet#29 CCR	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM4500_SO4_E	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-03 (500-173147-1)	11/7/19	08:30 Central		Water			X	1	
MW-04 (500-173147-2)	11/6/19	13:30 Central		Water			X	1	
MW-05 (500-173147-3)	11/7/19	09:55 Central		Water			X	1	
MW-10 (500-173147-4)	11/7/19	09:18 Central		Water			X	1	
Duplicate (500-173147-5)	11/6/19	Central		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	11/11/19 1500	TA			
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 11-12-19 11:48	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.1° IR7

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-173147-1

Login Number: 173147
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-173147-1

Login Number: 173147
List Number: 2
Creator: Treadaway, Kristen N

List Source: Eurofins TestAmerica, Pensacola
List Creation: 11/12/19 03:10 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.1°C IR-7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-173147-1

Client Sample ID: MW-03

Lab Sample ID: 500-173147-1
Date Collected: 11/07/19 08:30
Matrix: Water
Date Received: 11/07/19 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			515291	11/14/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020A		1	516177	11/19/19 03:04	FXG	TAL CHI
Total/NA	Analysis	SM 2540C		1	515001	11/13/19 02:10	CLB	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		5	515737	11/16/19 13:45	EAT	TAL CHI
Total/NA	Analysis	SM 4500 F C		1	515692	11/15/19 22:10	MS	TAL CHI
Total/NA	Analysis	SM 4500 SO4 E		2	466564	11/18/19 17:46	RRC	TAL PEN

Client Sample ID: MW-04

Lab Sample ID: 500-173147-2
Date Collected: 11/06/19 13:30
Matrix: Water
Date Received: 11/07/19 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			515291	11/14/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020A		1	516177	11/19/19 03:22	FXG	TAL CHI
Total/NA	Analysis	SM 2540C		1	514785	11/11/19 23:43	CLB	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		5	515737	11/16/19 13:45	EAT	TAL CHI
Total/NA	Analysis	SM 4500 F C		1	515692	11/15/19 22:13	MS	TAL CHI
Total/NA	Analysis	SM 4500 SO4 E		2	466564	11/18/19 17:50	RRC	TAL PEN

Client Sample ID: MW-05

Lab Sample ID: 500-173147-3
Date Collected: 11/07/19 09:55
Matrix: Water
Date Received: 11/07/19 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			515291	11/14/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020A		1	516177	11/19/19 03:26	FXG	TAL CHI
Total/NA	Analysis	SM 2540C		1	515001	11/13/19 02:12	CLB	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		5	515737	11/16/19 13:46	EAT	TAL CHI
Total/NA	Analysis	SM 4500 F C		1	515692	11/15/19 22:17	MS	TAL CHI
Total/NA	Analysis	SM 4500 SO4 E		2	466564	11/18/19 17:50	RRC	TAL PEN

Client Sample ID: MW-10

Lab Sample ID: 500-173147-4
Date Collected: 11/07/19 09:18
Matrix: Water
Date Received: 11/07/19 18:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			515291	11/14/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020A		1	516177	11/19/19 03:30	FXG	TAL CHI
Total/NA	Analysis	SM 2540C		1	515001	11/13/19 02:15	CLB	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		5	515737	11/16/19 13:46	EAT	TAL CHI
Total/NA	Analysis	SM 4500 F C		1	515692	11/15/19 22:21	MS	TAL CHI
Total/NA	Analysis	SM 4500 SO4 E		2	466564	11/18/19 17:50	RRC	TAL PEN

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-173147-1

Client Sample ID: Duplicate

Date Collected: 11/06/19 00:00
Date Received: 11/07/19 18:10

Lab Sample ID: 500-173147-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			515291	11/14/19 07:58	LMN	TAL CHI
Total Recoverable	Analysis	6020A		1	516177	11/19/19 03:45	FXG	TAL CHI
Total/NA	Analysis	SM 2540C		1	515001	11/13/19 02:17	CLB	TAL CHI
Total/NA	Analysis	SM 4500 Cl- E		5	515737	11/16/19 13:47	EAT	TAL CHI
Total/NA	Analysis	SM 4500 F C		1	515692	11/15/19 22:34	MS	TAL CHI
Total/NA	Analysis	SM 4500 SO4 E		2	466564	11/18/19 17:50	RRC	TAL PEN

Laboratory References:

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

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 500-174754-1
Client Project/Site: Joliet #29 CCR

For:
KPRG and Associates, Inc.
14665 West Lisbon Road,
Suite 1A
Brookfield, Wisconsin 53005

Attn: Richard Gnat

Authorized for release by:
12/12/2019 11:11:53 AM

Eric Lang, Manager of Project Management
(708)534-5200
eric.lang@testamericainc.com

Table of Contents

Case Narrative

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-174754-1

Job ID: 500-174754-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-174754-1

Comments
No additional comments.

Receipt
The sample was received on 12/9/2019 10:00 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.8° C.

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

Method Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-174754-1

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL CHI
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CHI

Protocol References:

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

Laboratory References:

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

Sample Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-174754-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-174754-1	MW-05	Water	12/04/19 16:13	12/09/19 10:00	

Client Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-174754-1

Client Sample ID: MW-05
Date Collected: 12/04/19 16:13
Date Received: 12/09/19 10:00

Lab Sample ID: 500-174754-1
Matrix: Water

Method: 6020A - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	89		0.20		mg/L		12/10/19 18:42	12/11/19 14:02	1

Definitions/Glossary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-174754-1

Glossary

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

QC Association Summary

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-174754-1

Metals

Prep Batch: 519863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-174754-1	MW-05	Total Recoverable	Water	3005A	
MB 500-519863/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 500-519863/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 520200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-174754-1	MW-05	Total Recoverable	Water	6020A	519863
MB 500-519863/1-A	Method Blank	Total Recoverable	Water	6020A	519863
LCS 500-519863/2-A	Lab Control Sample	Total Recoverable	Water	6020A	519863

QC Sample Results

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-174754-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 500-519863/1-A
Matrix: Water
Analysis Batch: 520200

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 519863

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<0.20		0.20		mg/L		12/10/19 18:42	12/11/19 12:30	1

Lab Sample ID: LCS 500-519863/2-A
Matrix: Water
Analysis Batch: 520200

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 519863

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Calcium			10.0	9.41		mg/L		94	80 - 120		

TestAmerica

THE LEADER IN ENVIRONMENTAL

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

500-174754 COC

Report To (optional)	Bill To (optional)
Contact:	Contact:
Company:	Company:
Address:	Address:
Address:	Address:
Phone:	Phone:
Fax:	Fax:
E-Mail:	PO#/Reference#

Chain of Custody Record

Lab Job #: 500-174754

Chain of Custody Number:

Page ____ of ____

Temperature °C of Cooler: 5.8

Client: KPRG and Assoc.

Client Project #:

Project Name: NRG Joliet #29 4Q19

Project Location/State: Joliet, IL

Lab Project #:

Sampler: Mark Wilson

Lab PM: Eric Lang

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Lab ID	MS/MSD	Sample ID	Sampling Date	Sampling Time	# of Containers	Matrix	6020A Calcium	Comments
1		MW-05	12/4/19	1613	1	W	X	

Turnaround Time Required (Business Days)
__ 1 Day __ 2 Days __ 5 Days __ 7 Days __ 10 Days __ 15 Days __ Other
Requested Due Date ____

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

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Mark Wilson	KPRG	12/6/19	2000	[signature]	TA-Chi	12/9/19	1000

Lab Courier:
Shipped: FedEx
Hand Delivered:

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

Client Comments: Seal# 1191205

Lab Comments:

TAL-4124-500 (1208)

Login Sample Receipt Checklist

Client: KPRG and Associates, Inc.

Job Number: 500-174754-1

Login Number: 174754
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Lab Chronicle

Client: KPRG and Associates, Inc.
Project/Site: Joliet #29 CCR

Job ID: 500-174754-1

Client Sample ID: MW-05

Date Collected: 12/04/19 16:13
Date Received: 12/09/19 10:00

Lab Sample ID: 500-174754-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			519863	12/10/19 18:42	BDE	TAL CHI
Total Recoverable	Analysis	6020A		1	520200	12/11/19 14:02	FXG	TAL CHI

Laboratory References:

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