

APPENDIX K

Appendix K - Field Parameters
Troutman Sanders Plant Kraft
Port Wentworth, Georgia

Well ID	Sample Date	Field Parameters						
		Temp (°C)	pH (pH)	SpCond. (µS/cm)	Turbidity (NTU)	DTW (ft)	RDO (mg/L)	ORP (mV)
KMW-01	9/1/2016	24.76	4.94	4994.75	2.69	14.40	0.12	-21.78
	1/30/2017	21.08	4.38	5477.29	2.27	12.50	0.10	140.93
	2/7/2018	21.73	3.95	5769.12	4.43	14.16	0.08	250.51
	5/7/2018	23.34	4.07	5774.89	3.52	14.18	0.10	128.58
KMW-02	9/1/2016	26.23	5.76	563.11	3.89	11.01	0.06	-54.97
	1/30/2017	22.88	5.47	489.34	2.86	9.22	0.06	-1.02
	2/15/2017	22.63	5.31	590.23	3.25	9.86	0.05	75.95
	2/7/2018	23.53	5.34	658.13	8.25	10.44	0.04	139.91
KMW-03	2/19/2018	21.12	5.89	502.33	4.75	15.25	0.13	15.70
KMW-04	2/6/2018	22.76	5.54	1887.42	4.42	10.55	0.09	95.15
KMW-05	9/1/2016	23.79	5.66	7117.91	2.53	15.03	0.08	-61.34
	1/30/2017	21.38	5.31	6391.61	3.95	12.66	0.14	74.29
	2/6/2018	21.94	5.28	6042.00	4.43	15.35	1.83	125.75
KMW-06	9/1/2016	23.2	6.13	7242.45	2.64	16.39	0.13	-94.25
	1/30/2017	16.66	4.47	6374.04	0.88	14.20	0.14	138.91
	2/6/2018	20.95	4.89	7052.27	3.47	16.35	0.09	138.23
KMW-07	9/1/2016	23.63	5.63	3634.82	4.4	15.60	0.06	-104.04
	1/30/2017	20.18	4.86	3991.57	4.33	13.88	0.11	137.57
	2/6/2018	21.05	4.16	3340.43	4.42	15.50	0.46	119.02
KMW-08	8/4/2017	23.47	5.61	111.38	4.8	10.78	0.10	65.00
	2/8/2018	21.39	5.15	96.65	0.98	13.20	0.18	211.82
KMW-09	8/3/2017	23.82	6.20	566.17	1.25	9.14	0.11	20.98
	2/8/2018	20.89	6.39	451.99	4.35	10.44	0.05	12.03
KMW-10	8/4/2017	24.31	6.21	595.80	0.33	8.21	0.04	1.12
	2/8/2018	21.44	6.43	232.76	3.32	9.52	0.06	36.94
KMW-11	8/4/2017	25.96	6.46	1643.35	3.82	8.77	0.10	9.25
	2/8/2018	22.03	7.02	1486.00	6.54	9.97	0.07	-106.59
KMW-12	8/4/2017	25.71	6.20	4655.33	3.91	8.36	0.14	-12.38
	2/8/2018	23.05	6.04	5006.09	0.72	0.26	0.09	83.85
KMW-13	2/19/2018	22.63	6.26	1146.23	2.62	15.20	0.10	-1.20
KMW-15	1/31/2017	19.16	6.18	3970.81	2.73	6.91	0.03	-89.26
KMW-15AR	8/4/2017	24.95	6.54	1912.37	1.51	14.81	0.78	-87.58
KMW-15D	1/31/2017	20.73	6.31	6229.09	4.24	10.87	0.11	-103.66
KMW-15DR	8/4/2017	23.83	6.80	4491.77	1.44	10.26	0.03	-132.19
	2/9/2018	19.01	6.41	4360.60	4.85	11.47	0.08	-117.28

Product Name: Low-Flow System

Date: 2016-07-22 11:22:20

Project Information:

Operator Name John Hash man
Company Name Resolute
Project Name Well Development
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 449622
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoSub
Tubing Type LDPE
Tubing Diameter .375 in
Tubing Length 32 ft

Pump placement from TOC 24 ft

Well Information:

Well ID KMW-04
Well diameter 2 in
Well Total Depth 26.02 ft
Screen Length 10 ft
Depth to Water 9.23 ft

Pumping Information:

Final Pumping Rate 4300 mL/min
Total System Volume 0.7849967 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 60 in
Total Volume Pumped 86 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 1000%	+/- 1000%
Last 5	11:04:03	240.06	21.97	5.59	2535.40	7.15	14.20	0.00	-35.97
Last 5	11:08:03	480.02	21.87	5.61	2455.89	5.59	14.09	-0.00	-38.11
Last 5	11:12:03	720.02	21.84	5.59	2575.22	3.08	14.11	-0.01	-37.10
Last 5	11:16:03	960.02	21.84	5.58	2564.80	3.37	14.18	-0.01	-35.55
Last 5	11:20:03	1200.02	21.84	5.56	2543.25	2.34	14.24	-0.01	-33.93
Variance 0			-0.03	-0.02	119.33			-0.00	1.01
Variance 1			0.00	-0.01	-10.42			-0.00	1.56
Variance 2			-0.00	-0.02	-21.55			-0.00	1.62

Notes

Purged 20 gallons pre-measurements. Purged for 21 minutes.

Grab Samples

Product Name: Low-Flow System

Date: 2016-07-22 12:28:15

Project Information:

Operator Name Michael Patinkin
Company Name Resolute
Project Name Well Development
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 440275
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type Whale
Tubing Type LDPE
Tubing Diameter .375 in
Tubing Length 32 ft

Pump placement from TOC 26 ft

Well Information:

Well ID KMW-5
Well diameter 2 in
Well Total Depth 28.52 ft
Screen Length 10 ft
Depth to Water 14.34 ft

Pumping Information:

Final Pumping Rate 6000 mL/min
Total System Volume 0.7849967 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 60.6 in
Total Volume Pumped 240 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C +/- 1000	pH +/- 0.1	SpCond µS/cm +/- 5%	Turb NTU +/- 1000	DTW ft	RDO mg/L +/- 1000	ORP mV +/- 1000
Stabilization									
Last 5	12:07:44	1440.02	22.41	5.21	6644.11	39.70	19.36	0.21	28.66
Last 5	12:11:43	1680.02	22.44	5.19	6638.02	15.46	19.38	0.23	29.19
Last 5	12:15:44	1920.02	22.45	5.19	6771.96	12.01	19.39	0.24	29.56
Last 5	12:19:44	2160.02	22.44	5.18	6712.37	10.13	19.39	0.27	30.28
Last 5	12:23:44	2400.02	22.43	5.17	6800.62	6.40	19.39	0.26	30.62
Variance 0			0.00	0.00	133.94			0.01	0.37
Variance 1			-0.00	-0.01	-59.59			0.03	0.73
Variance 2			-0.01	-0.01	88.25			-0.01	0.34

Notes

~14 gal pre-development purge

Grab Samples

Product Name: Low-Flow System

Date: 2016-07-22 13:33:10

Project Information:

Operator Name John Hash man
Company Name Resolute
Project Name Well Development
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 449622
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoSub
Tubing Type LDPE
Tubing Diameter .375 in
Tubing Length 44 ft

Pump placement from TOC 36 ft

Well Information:

Well ID KMW-6
Well diameter 2 in
Well Total Depth 38.21 ft
Screen Length 10 ft
Depth to Water 16.6 ft

Pumping Information:

Final Pumping Rate 4500 mL/min
Total System Volume 1.04562 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 26.6 in
Total Volume Pumped 105 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 1000%	+/- 1000%
Last 5	13:23:23	240.02	21.90	5.39	6956.92	2.25	18.82	-0.01	26.48
Last 5	13:27:23	480.02	21.69	5.38	7000.21	2.60	18.88	-0.02	26.31
Last 5	13:31:23	720.02	21.69	5.38	6995.58	1.05	18.82	-0.02	27.09
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.21	-0.01	43.29			-0.00	-0.17
Variance 2			-0.01	0.00	-4.63			-0.00	0.78

Notes

15 gallons pre-purged. Experiment had stabilized but has to be repeated due to data loss due to overheating. 105 L total is both development attempts.

Grab Samples

Product Name: Low-Flow System

Date: 2016-07-22 09:56:14

Project Information:

Operator Name John Hash man
Company Name Resolute
Project Name Well Development
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 449622
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoSub
Tubing Type LDPE
Tubing Diameter .375 in
Tubing Length 34 ft

Pump placement from TOC 27 ft

Well Information:

Well ID KMW-7
Well diameter 2 in
Well Total Depth 28.23 ft
Screen Length 10 ft
Depth to Water 15.03 ft

Pumping Information:

Final Pumping Rate 4500 mL/min
Total System Volume 0.8284339 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 19 in
Total Volume Pumped 90 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 10		+/- 1000%	+/- 1000%
Last 5	09:38:17	240.02	21.73	4.76	3142.77	1.85	16.60	0.00	-24.64
Last 5	09:42:17	480.02	21.67	4.74	3166.76	0.92	16.60	-0.00	-24.73
Last 5	09:46:17	720.02	21.68	4.73	3219.07	0.80	16.60	-0.01	-21.92
Last 5	09:50:17	960.02	21.67	4.69	3245.50	0.49	16.62	-0.01	-15.53
Last 5	09:54:17	1200.02	21.69	4.65	3283.12	0.32	16.61	-0.01	-8.04
Variance 0			0.01	-0.01	52.32			-0.00	2.81
Variance 1			-0.02	-0.05	26.42			-0.00	6.39
Variance 2			0.02	-0.04	37.63			-0.00	7.48

Notes

Pre purged 20 gal at a rate of 5000 ml/min

Grab Samples

Product Name: Low-Flow System

Date: 2016-07-22 10:20:24

Project Information:

Operator Name Michael Patinkin
Company Name Resolute
Project Name Well Development
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 440275
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type Whale
Tubing Type LDPE
Tubing Diameter .375 in
Tubing Length 33 ft

Pump placement from TOC 27 ft

Well Information:

Well ID KMW-1
Well diameter 2 in
Well Total Depth 29.02 ft
Screen Length 10 ft
Depth to Water 13.77 ft

Pumping Information:

Final Pumping Rate 6000 mL/min
Total System Volume 0.8067153 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 56.04 in
Total Volume Pumped 102 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C +/- 1000	pH +/- 0.1	SpCond µS/cm +/- 5%	Turb NTU +/- 1000	DTW ft	RDO mg/L +/- 1000	ORP mV +/- 1000
Stabilization									
Last 5	10:02:45	240.08	21.91	5.25	2818.50	52.10	18.34	0.04	40.15
Last 5	10:06:45	480.02	21.82	5.19	3046.76	18.40	18.40	0.02	35.13
Last 5	10:10:45	720.02	21.82	5.14	3145.20	12.06	18.45	0.01	34.29
Last 5	10:14:45	960.02	21.82	5.11	3130.15	6.73	18.44	0.01	32.90
Last 5									
Variance 0			-0.09	-0.05	228.26			-0.02	-5.02
Variance 1			0.00	-0.05	98.44			-0.01	-0.84
Variance 2			-0.00	-0.03	-15.05			-0.00	-1.40

Notes

~ 12 gal pre-development purge

Grab Samples

Product Name: Low-Flow System

Date: 2016-07-22 10:49:51

Project Information:

Operator Name Kevin Stephenson
Company Name Resolute
Project Name Well Development
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 365491
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type Whale 75
Tubing Type LDPE
Tubing Diameter .375 in
Tubing Length 28 ft

Pump placement from TOC 23.02 ft

Well Information:

Well ID KMW-2WD
Well diameter 2 in
Well Total Depth 28.02 ft
Screen Length 10 ft
Depth to Water 10.61 ft

Pumping Information:

Final Pumping Rate 3500 mL/min
Total System Volume 0.6981221 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 9 in
Total Volume Pumped 56 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 1000%		+/- 1000%	+/- 1000%
Last 5	10:37:01	240.06	23.27	5.79	521.57	10.25	11.35	0.02	2.96
Last 5	10:41:01	480.02	23.22	5.74	520.61	5.67	11.36	0.01	-0.50
Last 5	10:45:01	720.02	23.25	5.72	519.27	3.22	11.36	0.01	-2.29
Last 5	10:49:01	960.02	23.20	5.70	519.56	1.90	11.36	0.01	-3.27
Last 5									
Variance 0			-0.05	-0.05	-0.96			-0.00	-3.46
Variance 1			0.03	-0.02	-1.34			-0.01	-1.79
Variance 2			-0.05	-0.02	0.29			0.00	-0.99

Notes

Pre-purged 150.5 liters.

Grab Samples

Product Name: Low-Flow System

Date: 2016-09-01 14:34:43

Project Information:

Operator Name Michael Patinkin
Company Name Resolute
Project Name Ash Pond GW Sampling
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 365491
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type GeoPump (peristaltic)
Tubing Type LDPE
Tubing Diameter .170 in
Tubing Length 29 ft

Pump placement from TOC 23 ft

Well Information:

Well ID KMW-5
Well diameter 2 in
Well Total Depth 28 ft
Screen Length 10 ft
Depth to Water 14.86 ft

Pumping Information:

Final Pumping Rate 300 mL/min
Total System Volume 0.2194393 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 2.04 in
Total Volume Pumped 10.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	14:12:23	720.02	24.21	5.69	7413.66	5.52	15.03	0.10	-50.95
Last 5	14:16:23	960.02	24.08	5.69	7282.35	4.42	15.03	0.09	-56.53
Last 5	14:20:23	1200.02	23.97	5.67	7188.65	3.53	15.03	0.08	-56.67
Last 5	14:24:23	1440.02	23.79	5.67	7138.81	2.49	15.03	0.07	-59.28
Last 5	14:28:23	1680.02	23.79	5.66	7117.91	2.53	15.03	0.08	-61.34
Variance 0			-0.12	-0.02	-93.70			-0.01	-0.13
Variance 1			-0.17	-0.01	-49.84			-0.01	-2.62
Variance 2			-0.01	-0.01	-20.90			0.01	-2.05

Notes

Start purge at 1355.
DUP-1 collected.

Grab Samples

KMW-5
Metals
KMW-5
Inorganics

KMW-5
Radium
DUP-2
Metals
DUP-1
Inorganics
DUP-1
Radium

Product Name: Low-Flow System

Date: 2016-09-01 16:23:13

Project Information:

Operator Name Michael Patinkin
Company Name Resolute
Project Name Ash Pond GW Sampling
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 365491
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type GeoPump (peristaltic)
Tubing Type LDPE
Tubing Diameter .170 in
Tubing Length 42 ft

Pump placement from TOC 33 ft

Well Information:

Well ID KMW-6
Well diameter 2 in
Well Total Depth 38 ft
Screen Length 10 ft
Depth to Water 16.02 ft

Pumping Information:

Final Pumping Rate 300 mL/min
Total System Volume 0.2774638 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 4.44 in
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	16:07:40	240.08	23.11	6.06	7294.98	4.24	16.38	0.19	-71.49
Last 5	16:11:40	480.03	23.20	6.10	7267.17	2.65	16.38	0.18	-85.02
Last 5	16:15:40	720.03	23.20	6.13	7242.45	2.64	16.39	0.13	-94.25
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.09	0.04	-27.82			-0.02	-13.52
Variance 2			-0.00	0.04	-24.71			-0.05	-9.23

Notes

Purge started at 1600

Grab Samples

KMW-6
Metals
KMW-6
Inorganics
KMW-6
Radium

Product Name: Low-Flow System

Date: 2016-09-01 14:43:46

Project Information:

Operator Name Forrest Howard
Company Name Resolute Env
Project Name Ash Pond
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 364455
Turbidity Make/Model LaMotte2020we

Pump Information:

Pump Model/Type Geopump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 30 ft

Pump placement from TOC 23.41 ft

Well Information:

Well ID KMW-7
Well diameter 2.0 in
Well Total Depth 28.41 ft
Screen Length 10 ft
Depth to Water 15.82 ft

Pumping Information:

Final Pumping Rate 250 mL/min
Total System Volume 0.2239027 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 0.96 in
Total Volume Pumped 12 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	14:29:12	180.03	23.68	5.63	3644.21	7.75	15.60	0.07	-110.71
Last 5	14:32:12	360.01	23.63	5.62	3637.96	6.20	15.60	0.07	-107.48
Last 5	14:35:12	540.01	23.63	5.62	3638.79	4.26	15.60	0.07	-104.70
Last 5	14:38:12	720.01	23.63	5.63	3634.82	4.40	15.60	0.06	-104.04
Last 5									
Variance 0			-0.05	-0.01	-6.25			-0.00	3.23
Variance 1			0.00	-0.00	0.84			-0.00	2.78
Variance 2			0.00	0.01	-3.98			-0.00	0.66

Notes

Peristaltic pump. Plant Kraft

Grab Samples

KMW-7
Metals
KMW-7
Inorganics
KMW-7
Radium

Product Name: Low-Flow System

Date: 2016-09-01 15:56:59

Project Information:

Operator Name Forrest Howard
Company Name Resolute Env
Project Name Ash Pond
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 364455
Turbidity Make/Model LaMotte2020we

Pump Information:

Pump Model/Type Geopump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 31.00 ft

Pump placement from TOC 24.21 ft

Well Information:

Well ID KMW-1
Well diameter 2.0 in
Well Total Depth 29.21 ft
Screen Length 10 ft
Depth to Water 14.30 ft

Pumping Information:

Final Pumping Rate 220 mL/min
Total System Volume 0.2283661 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 1.1 in
Total Volume Pumped 5.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	15:43:14	180.02	24.87	4.91	5109.77	3.96	14.40	0.20	-21.47
Last 5	15:46:14	360.02	24.85	4.93	5018.17	2.96	14.40	0.17	-21.43
Last 5	15:49:14	540.02	24.83	4.94	4988.13	2.70	14.40	0.13	-21.89
Last 5	15:52:14	720.02	24.76	4.94	4994.75	2.69	14.40	0.12	-21.78
Last 5									
Variance 0			-0.02	0.02	-91.60			-0.03	0.04
Variance 1			-0.03	0.01	-30.04			-0.03	-0.46
Variance 2			-0.06	0.00	6.63			-0.01	0.10

Notes

Peristaltic pump. Located by ash pond near fence corner.

Grab Samples

KMW-1
Metals
KMW-1
Inorganics
KMW-1
Radium

Product Name: Low-Flow System

Date: 2016-09-01 13:06:50

Project Information:

Operator Name Michael Patinkin
Company Name Resolute
Project Name Ash Pond GW Sampling
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 365491
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type GeoPump (peristaltic)
Tubing Type LDPE
Tubing Diameter .170 in
Tubing Length 30 ft

Pump placement from TOC 23 ft

Well Information:

Well ID KMW-2
Well diameter 2 in
Well Total Depth 28.03 ft
Screen Length 10 ft
Depth to Water 10.94 ft

Pumping Information:

Final Pumping Rate 250 mL/min
Total System Volume 0.2239027 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0.84 in
Total Volume Pumped 15 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	12:44:22	2160.02	25.64	5.76	563.37	5.74	11.01	0.08	-52.32
Last 5	12:48:22	2400.02	25.82	5.76	566.09	5.14	11.01	0.07	-53.81
Last 5	12:52:22	2640.02	25.98	5.76	562.56	4.58	11.01	0.07	-53.88
Last 5	12:56:22	2880.02	26.05	5.76	561.83	4.58	11.01	0.07	-54.38
Last 5	13:00:22	3120.02	26.23	5.76	563.11	3.89	11.01	0.06	-54.97
Variance 0			0.16	-0.00	-3.54			-0.00	-0.07
Variance 1			0.07	0.00	-0.73			-0.01	-0.50
Variance 2			0.18	-0.00	1.28			-0.00	-0.59

Notes

Began pumping at 1200
Reduced flow rate during last 15 minutes of test from 300 ml/min to 167 ml/min and re-calibrated turbidity meter (suspected skewed high from McManus earlier today)

Grab Samples

KMW-2

Metals

KMW-2

Cl, F, SO₄, TDS

KMW-2

Radium

Product Name: Low-Flow System

Date: 2017-01-30 15:39:20

Project Information:

Operator Name Michael Patinkin
Company Name Resolute
Project Name GW Sampling
Site Name Plant Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 463072
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type geopump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 30 ft

Pump placement from TOC 23 ft

Well Information:

Well ID KMW-02
Well diameter 2 in
Well Total Depth 28.23 ft
Screen Length 10 ft
Depth to Water 9.16 ft

Pumping Information:

Final Pumping Rate 300 mL/min
Total System Volume 0.2239027 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0.72 in
Total Volume Pumped 13.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 1000%		+/- 10%	+/- 1000%
Last 5	15:03:41	719.97	22.73	5.46	499.03	3.09	9.22	0.10	25.79
Last 5	15:07:41	959.97	22.78	5.46	497.45	3.21	9.22	0.65	16.40
Last 5	15:11:41	1199.97	22.77	5.47	494.50	3.11	9.22	0.08	8.25
Last 5	15:15:41	1439.97	22.82	5.47	492.01	2.59	9.22	0.06	3.54
Last 5	15:19:41	1679.96	22.88	5.47	489.34	2.86	9.22	0.06	-1.02
Variance 0			-0.01	0.00	-2.96			-0.57	-8.15
Variance 1			0.04	-0.00	-2.48			-0.02	-4.71
Variance 2			0.06	0.01	-2.68			-0.01	-4.55

Notes

Start purge @ 300 mL/min at 1442.
Sample time 1530. DUP-01 collected along with triplicate radium volume.

Grab Samples

KMW-02
Metals
KMW-02
Inorganics

KMW-02
Radium
DUP-01
Metals
DUP-01
Inorganics
DUP-01
Radium

Product Name: Low-Flow System

Date: 2017-01-30 16:36:11

Project Information:

Operator Name Forrest Howard
Company Name Resolute
Project Name January Ash Pond Sampling
Site Name Plant Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 364455
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoPump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 29.00 ft

Pump placement from TOC 23.42 ft

Well Information:

Well ID KMW-07
Well diameter 2.0 in
Well Total Depth 28.42 ft
Screen Length 10 ft
Depth to Water 13.88 ft

Pumping Information:

Final Pumping Rate 190 mL/min
Total System Volume 0.2194393 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0 in
Total Volume Pumped 5.7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	16:13:41	479.95	20.51	4.78	4011.26	7.33	13.90	0.16	150.73
Last 5	16:17:41	719.95	20.37	4.80	3995.71	6.66	13.90	0.14	148.68
Last 5	16:21:42	960.95	20.48	4.82	4010.58	5.41	13.88	0.13	144.52
Last 5	16:25:42	1200.94	20.09	4.82	4022.61	4.83	13.88	0.12	141.46
Last 5	16:29:42	1440.94	20.18	4.86	3991.57	4.33	13.88	0.11	137.57
Variance 0			0.11	0.02	14.87			-0.01	-4.16
Variance 1			-0.40	0.00	12.03			-0.01	-3.06
Variance 2			0.10	0.03	-31.03			-0.01	-3.89

Notes

Peristaltic pump
Drawdown was 0.

Grab Samples

KMW-7
Inorganics
KMW-7
Metals

KMW-7
Radium



Product Name: Low-Flow System

Date: 2017-01-31 10:29:31

Project Information:

Operator Name Michael Patinkin
Company Name Resolute
Project Name GW Sampling
Site Name Plant Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 463072
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type geopump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 30 ft

Pump placement from TOC 23.5 ft

Well Information:

Well ID KMW-05
Well diameter 2 in
Well Total Depth 28.52 ft
Screen Length 10 ft
Depth to Water 12.59 ft

Pumping Information:

Final Pumping Rate 110 mL/min
Total System Volume 0.2239027 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0.84 in
Total Volume Pumped 11.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 1000%		+/- 10%	+/- 1000%
Stabilization									
Last 5	10:04:15	2879.97	21.15	5.27	6380.64	5.70	12.64	0.15	87.71
Last 5	10:08:15	3119.97	20.71	5.31	6385.14	5.35	12.64	0.16	83.57
Last 5	10:12:15	3359.97	21.01	5.32	6367.82	4.57	12.64	0.15	79.94
Last 5	10:16:15	3599.97	21.29	5.31	6392.68	4.09	12.65	0.14	76.25
Last 5	10:20:15	3839.97	21.38	5.31	6391.61	3.95	12.66	0.14	74.29
Variance 0			0.30	0.01	-17.32			-0.01	-3.63
Variance 1			0.28	-0.01	24.85			-0.01	-3.69
Variance 2			0.10	0.01	-1.07			-0.00	-1.96

Notes

Start purge @ 250 mL/min at 0910.

Flow reduced to 175 mL/min at 0925. Flow reduced to 110 mL/min at 0935. Sample time 1030.

Grab Samples

KMW-05

Metals

KMW-05

Inorganics

KMW-05
Radium



Product Name: Low-Flow System

Date: 2017-01-31 09:38:38

Project Information:

Operator Name Forrest Howard
Company Name Resolute
Project Name
Site Name Plant Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 364455
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoPump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 39.00 ft

Pump placement from TOC 33.22 ft

January Ash Pond Sampling

Well Information:

Well ID KMW-06
Well diameter 2.0 in
Well Total Depth 38.22 ft
Screen Length 10 ft
Depth to Water 14.11 ft

Pumping Information:

Final Pumping Rate 190 mL/min
Total System Volume 0.2640735 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0.96 in
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	09:13:42	240.10	15.72	4.42	6325.51	3.21	14.20	0.27	153.12
Last 5	09:17:42	480.03	16.04	4.43	6310.27	1.17	14.20	0.22	149.52
Last 5	09:21:42	720.02	16.09	4.44	6362.62	0.88	14.20	0.19	145.96
Last 5	09:25:42	960.03	16.46	4.45	6402.99	0.89	14.20	0.17	142.16
Last 5	09:29:42	1200.02	16.66	4.47	6374.04	0.88	14.20	0.14	138.91
Variance 0			0.05	0.01	52.35			-0.03	-3.57
Variance 1			0.37	0.01	40.37			-0.02	-3.80
Variance 2			0.20	0.01	-28.95			-0.02	-3.24

Notes

Peristaltic pump
Cooperative well

Grab Samples

KMW-6
Inorganics
KMW-6
Metals

KMW-6
Radium



Product Name: Low-Flow System

Date: 2017-01-30 15:03:29

Project Information:

Operator Name Forrest Howard
Company Name Resolute
Project Name January Ash Pond Sampling
Site Name Plant Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 364455
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoPump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 30.00 ft

Pump placement from TOC 24.25 ft

Well Information:

Well ID KMW-01
Well diameter 2.0 in
Well Total Depth 29.25 ft
Screen Length 10 ft
Depth to Water 12.35 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.2239027 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0.6 in
Total Volume Pumped 8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	14:45:58	240.05	20.86	4.35	5559.28	3.11	12.50	0.11	150.27
Last 5	14:49:58	479.97	20.90	4.36	5546.30	2.73	12.50	0.10	146.80
Last 5	14:53:58	719.97	21.17	4.37	5514.31	3.03	12.50	0.10	143.59
Last 5	14:57:58	959.97	21.08	4.38	5477.29	--	--	0.10	140.93
Last 5									
Variance 0			0.04	0.01	-12.98			-0.00	-3.47
Variance 1			0.27	0.02	-31.99			-0.01	-3.20
Variance 2			-0.09	0.01	-37.02			-0.00	-2.66

Notes

Peristaltic pump
Accidentally did not enter last readings. Turb: 2.27 NTU DTW: 12.50 ft. Cooperative well

Grab Samples

KMW-1
Inorganics
KMW-1
Metals

Product Name: Low-Flow System

Date: 2017-02-15 10:24:07

Project Information:

Operator Name Forrest Howard
Company Name Resolute Env
Project Name Kraft Ash Pond
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 449474
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoPump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 29.00 ft

Pump placement from TOC 23.22 ft

Well Information:

Well ID KMW-02
Well diameter 2.0 in
Well Total Depth 28.22 ft
Screen Length 10 ft
Depth to Water 9.81 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.2194393 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 0.6 in
Total Volume Pumped 11.2 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	10:03:15	1681.98	22.40	5.29	597.27	5.94	9.86	0.06	80.42
Last 5	10:07:15	1921.98	22.46	5.30	594.21	5.15	9.86	0.06	78.99
Last 5	10:11:15	2161.99	22.29	5.30	594.50	4.34	9.85	0.06	78.22
Last 5	10:15:15	2401.99	22.50	5.31	592.33	3.41	9.85	0.05	76.74
Last 5	10:19:15	2641.98	22.63	5.31	590.23	3.25	9.86	0.05	75.95
Variance 0			-0.17	0.00	0.29			-0.00	-0.77
Variance 1			0.22	0.01	-2.17			-0.00	-1.48
Variance 2			0.12	0.01	-2.10			-0.00	-0.79

Notes

Confirmation sampling request of KMW-02.

Grab Samples

KMW-02
Arsenic
KMW-02
Arsenic

Product Name: Low-Flow System

Date: 2017-08-03 10:39:20

Project Information:

Operator Name Michael Patinkin
Company Name Resolute
Project Name HSRA GW Sampling
Site Name Plant Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 501336
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 40 ft

Pump placement from TOC 28 ft

Well Information:

Well ID KMW-10
Well diameter 2 in
Well Total Depth 33.07 ft
Screen Length 10 ft
Depth to Water 8.08 ft

Pumping Information:

Final Pumping Rate 420 mL/min
Total System Volume 0.2685369 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 2.16 in
Total Volume Pumped 15.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 10000	+/- 0.1	+/- 5%	+/- 10000		+/- 0.2	+/- 10000
Last 5	10:21:16	1440.03	23.38	6.10	474.39	0.50	8.25	0.07	29.00
Last 5	10:24:16	1620.03	23.38	6.12	503.94	0.81	8.26	0.06	26.22
Last 5	10:27:16	1800.02	23.34	6.10	535.22	0.78	8.26	0.06	26.13
Last 5	10:30:16	1980.02	23.33	6.14	521.45	0.68	8.26	0.06	20.20
Last 5	10:33:16	2160.02	23.35	6.15	530.44	0.70	8.26	0.07	17.48
Variance 0			-0.04	-0.02	31.28			-0.00	-0.09
Variance 1			-0.00	0.04	-13.77			0.00	-5.93
Variance 2			0.01	0.01	8.99			0.00	-2.72

Notes

Previously purged 5 well volumes (21.8 gal). Well development complete.

Grab Samples

Product Name: Low-Flow System

Date: 2017-08-03 12:02:22

Project Information:

Operator Name Michael Patinkin
Company Name Resolute
Project Name HSRA GW Sampling
Site Name Plant Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 501336
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 40 ft

Pump placement from TOC 30 ft

Well Information:

Well ID KMW-11
Well diameter 2 in
Well Total Depth 33.10 ft
Screen Length 10 ft
Depth to Water 8.61 ft

Pumping Information:

Final Pumping Rate 380 mL/min
Total System Volume 0.2685369 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 4.08 in
Total Volume Pumped 7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 10000	+/- 0.1	+/- 5%	+/- 10000		+/- 0.2	+/- 10000
Last 5	11:37:01	360.03	26.04	6.05	1605.92	2.62	8.92	0.16	72.75
Last 5	11:40:01	540.02	24.82	6.19	1655.52	1.80	8.94	0.12	57.66
Last 5	11:43:01	720.02	24.82	6.26	1673.83	2.93	8.94	0.12	45.39
Last 5	11:46:01	900.02	24.77	6.31	1674.35	7.56	8.95	0.12	34.81
Last 5	11:49:01	1080.02	24.75	6.35	1671.95	8.70	8.95	0.13	25.51
Variance 0			0.00	0.07	18.31			-0.00	-12.27
Variance 1			-0.05	0.05	0.52			0.00	-10.58
Variance 2			-0.01	0.04	-2.40			0.01	-9.30

Notes

Previously purged 5 well volumes (21.4 gal). Development complete.

Grab Samples

Product Name: Low-Flow System

Date: 2017-08-03 11:57:44

Project Information:

Operator Name Forrest Howard
Company Name Resolute Env
Project Name Plant Kraft Development
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 463072
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Geopump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 33.82 ft

Pump placement from TOC 28.82 ft

Well Information:

Well ID KMW-12
Well diameter 2.00 in
Well Total Depth 32.82 ft
Screen Length 10.00 ft
Depth to Water 8.36 ft

Pumping Information:

Final Pumping Rate 400 mL/min
Total System Volume 0.240953 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 1.05 in
Total Volume Pumped 10 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	11:42:48	240.09	25.30	6.29	3926.28	4.94	8.45	0.11	-16.84
Last 5	11:46:48	480.03	25.39	6.34	3801.80	4.79	8.45	0.10	-28.28
Last 5	11:50:48	720.03	25.33	6.39	3813.80	3.96	8.45	0.09	-37.46
Last 5	11:54:48	960.03	25.23	6.43	3810.41	3.70	8.45	0.09	-45.54
Last 5									
Variance 0			0.09	0.05	-124.48			-0.01	-11.44
Variance 1			-0.06	0.04	12.00			-0.01	-9.18
Variance 2			-0.09	0.04	-3.40			-0.01	-8.08

Notes

Pre pumped by drillers.
Minimal drawdown. Low turbidity.

Grab Samples

Product Name: Low-Flow System

Date: 2017-08-02 11:39:53

Project Information:

Operator Name Forrest Howard
Company Name Resolute Env
Project Name Plant Kraft Well Development
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 463072
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type whale
Tubing Type LDPE
Tubing Diameter 0.375 in
Tubing Length 35.00 ft

Pump placement from TOC 28.02 ft

Well Information:

Well ID KMW-09
Well diameter 2.0 in
Well Total Depth 33.02 ft
Screen Length 10 ft
Depth to Water 9.11 ft

Pumping Information:

Final Pumping Rate 5600 mL/min
Total System Volume 0.8501527 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 34.2 in
Total Volume Pumped 151 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	11:16:32	240.15	22.48	6.03	497.76	3.06	11.96	0.02	3.59
Last 5	11:20:32	480.03	22.49	6.00	488.05	2.98	11.96	0.02	1.70
Last 5	11:24:32	720.03	22.49	5.97	482.78	2.55	11.96	0.02	0.24
Last 5	11:28:32	959.93	22.51	5.95	473.24	2.64	11.96	0.02	-0.71
Last 5	11:32:32	1199.93	22.52	5.93	466.10	1.75	11.96	0.02	-1.33
Variance 0			-0.00	-0.03	-5.27			-0.00	-1.46
Variance 1			0.02	-0.02	-9.54			-0.00	-0.95
Variance 2			0.01	-0.02	-7.14			-0.00	-0.62

Notes

Pre developed by Trent Godwin
Low turbidity from initial pumping.

Grab Samples

Product Name: Low-Flow System

Date: 2017-08-03 10:35:03

Project Information:

Operator Name Forrest Howard
Company Name Resolute Env
Project Name Plant Kraft Development
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 463072
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Geopump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 27.00 ft

Pump placement from TOC 19.8 ft

Well Information:

Well ID KMW-08
Well diameter 2.0 in
Well Total Depth 24.80 ft
Screen Length 10.00 ft
Depth to Water 10.75 ft

Pumping Information:

Final Pumping Rate 400 mL/min
Total System Volume 0.2105124 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 1.2 in
Total Volume Pumped 9 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	10:16:42	240.10	22.03	5.70	117.89	6.99	10.85	0.12	58.12
Last 5	10:20:42	480.03	22.00	5.66	115.70	6.83	10.85	0.11	56.63
Last 5	10:24:42	720.03	22.01	5.66	113.56	5.77	10.85	0.10	54.92
Last 5	10:28:42	960.02	22.00	5.64	115.21	5.07	10.85	0.10	53.94
Last 5	10:32:43	1201.03	21.93	5.63	113.93	--	--	0.10	53.00
Variance 0			0.01	-0.01	-2.14			-0.01	-1.72
Variance 1			-0.01	-0.01	1.65			-0.00	-0.98
Variance 2			-0.07	-0.01	-1.28			-0.01	-0.94

Notes

Development data collection. Prepurged over 5 well volumes by Trent.
Minimal drawdown and low turbidity.

Grab Samples

Product Name: Low-Flow System

Date: 2017-08-04 11:35:19

Project Information:

Operator Name Michael Patinkin
Company Name Resolute
Project Name HSRA GW Sampling
Site Name Plant Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 501336
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 40 ft

Pump placement from TOC 28 ft

Well Information:

Well ID KMW-10
Well diameter 2 in
Well Total Depth 33.07 ft
Screen Length 10 ft
Depth to Water 8.04 ft

Pumping Information:

Final Pumping Rate 330 mL/min
Total System Volume 0.2685369 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 2.04 in
Total Volume Pumped 21 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 10000	+/- 0.1	+/- 5%	+/- 10000		+/- 0.2	+/- 10000
Last 5	11:18:23	2522.02	24.74	6.17	593.17	0.59	8.21	0.04	13.06
Last 5	11:21:23	2702.02	24.69	6.18	633.19	0.64	8.21	0.04	8.44
Last 5	11:24:23	2882.02	24.66	6.19	597.64	0.77	8.21	0.04	5.02
Last 5	11:27:24	3063.02	24.64	6.21	588.78	0.60	8.21	0.04	3.29
Last 5	11:30:24	3243.02	24.31	6.21	595.80	0.33	8.21	0.04	1.12
Variance 0			-0.04	0.01	-35.55			-0.00	-3.43
Variance 1			-0.02	0.02	-8.86			0.00	-1.72
Variance 2			-0.33	0.00	7.02			-0.00	-2.17

Notes

Start pump @ 330 mL/min at 1036. Sample time 1140.

Grab Samples

KMW-10
Arsenic
KMW-10
Radium
KMW-10
2nd Radium

DUP-01
Arsenic
DUP-01
Radium



Product Name: Low-Flow System

Date: 2017-08-04 13:13:32

Project Information:

Operator Name Michael Patinkin
Company Name Resolute
Project Name HSRA GW Sampling
Site Name Plant Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 501336
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 40 ft

Pump placement from TOC 28 ft

Well Information:

Well ID KMW-11
Well diameter 2 in
Well Total Depth 33.10 ft
Screen Length 10 ft
Depth to Water 8.59 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.2685369 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 2.16 in
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 10000	+/- 0.1	+/- 5%	+/- 10000		+/- 0.2	+/- 10000
Last 5	12:56:01	540.03	25.95	6.30	1630.32	2.89	8.84	0.13	51.51
Last 5	12:59:01	720.02	26.05	6.36	1641.55	4.52	8.84	0.13	40.47
Last 5	13:02:01	900.02	25.75	6.40	1637.00	5.30	8.84	0.11	29.85
Last 5	13:05:01	1080.02	25.77	6.44	1652.87	4.03	8.78	0.10	19.52
Last 5	13:08:02	1261.02	25.96	6.46	1643.35	3.82	8.77	0.10	9.25
Variance 0			-0.30	0.04	-4.55			-0.02	-10.61
Variance 1			0.02	0.04	15.87			-0.01	-10.33
Variance 2			0.18	0.03	-9.52			-0.00	-10.27

Notes

Start pump @ 285 mL/min at 1248. Reduce pump to 200 mL/min at 1302. Sample time 1315.

Grab Samples

KMW-11
Radium

Product Name: Low-Flow System

Date: 2017-08-04 12:45:08

Project Information:

Operator Name Forrest Howard
Company Name Resolute Env
Project Name GPC Plant Kraft
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 463072
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Geopump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 34.00 ft

Pump placement from TOC 28.82 ft

Well Information:

Well ID KMW-12
Well diameter 2.0 in
Well Total Depth 32.82 ft
Screen Length 10 ft
Depth to Water 8.35 ft

Pumping Information:

Final Pumping Rate 220 mL/min
Total System Volume 0.2417564 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 0.012 in
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	12:34:07	180.10	25.69	6.14	4694.20	6.44	8.36	0.16	8.28
Last 5	12:37:07	360.04	25.69	6.17	4677.93	6.35	8.36	0.14	-3.32
Last 5	12:40:07	540.03	25.71	6.20	4655.33	3.91	8.36	0.14	-12.38
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.00	0.04	-16.27			-0.01	-11.60
Variance 2			0.02	0.03	-22.60			-0.01	-9.06

Notes

Grab Samples
KMW-12
Radium

Product Name: Low-Flow System

Date: 2017-08-04 11:01:54

Project Information:

Operator Name Robert Mull
Company Name Resolute Env
Project Name August Sampling
Site Name Plant Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 513028
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Geopump
Tubing Type LDPE
Tubing Diameter .17 in
Tubing Length 23 ft

Pump placement from TOC 0 ft

Well Information:

Well ID MW-15AR
Well diameter 2 in
Well Total Depth 24.31 ft
Screen Length 10 ft
Depth to Water 13.69 ft

Pumping Information:

Final Pumping Rate 220 mL/min
Total System Volume 0.1926587 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 13.44 in
Total Volume Pumped 11 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Stabilization									
Last 5	10:44:33	1680.02	24.53	6.51	1865.35	9.53	14.89	0.72	-77.26
Last 5	10:48:33	1920.02	24.15	6.52	1906.17	5.92	14.85	0.93	-80.24
Last 5	10:52:33	2160.02	24.57	6.53	1909.74	4.34	14.82	0.85	-82.80
Last 5	10:56:33	2400.02	24.69	6.53	1906.40	2.71	14.80	0.79	-84.84
Last 5	11:00:33	2640.02	24.95	6.54	1912.37	1.51	14.81	0.78	-87.58
Variance 0			0.43	0.01	3.57			-0.07	-2.56
Variance 1			0.12	0.00	-3.34			-0.06	-2.04
Variance 2			0.26	0.01	5.97			-0.01	-2.74

Notes

Grab Samples
MW-15AR
Radium

Product Name: Low-Flow System

Date: 2017-08-03 15:49:38

Project Information:

Operator Name Michael Patinkin
Company Name Resolute
Project Name HSRA GW Sampling
Site Name Plant Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 501336
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 40 ft

Pump placement from TOC 28 ft

Well Information:

Well ID KMW-09
Well diameter 2 in
Well Total Depth 32.99 ft
Screen Length 10 ft
Depth to Water 9.00 ft

Pumping Information:

Final Pumping Rate 315 mL/min
Total System Volume 0.2685369 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 1.68 in
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 10000	+/- 0.1	+/- 5%	+/- 10000		+/- 0.2	+/- 10000
Last 5	15:31:59	360.02	24.90	6.00	565.84	1.73	9.15	0.19	46.55
Last 5	15:34:59	540.02	24.32	6.08	569.18	1.79	9.14	0.16	38.36
Last 5	15:37:59	720.02	24.08	6.15	567.91	1.11	9.14	0.13	31.13
Last 5	15:40:59	900.02	23.98	6.19	566.65	0.96	9.14	0.12	25.24
Last 5	15:43:59	1080.02	23.82	6.20	566.17	1.25	9.14	0.11	20.98
Variance 0			-0.24	0.06	-1.26			-0.03	-7.22
Variance 1			-0.10	0.04	-1.26			-0.02	-5.89
Variance 2			-0.16	0.02	-0.48			-0.01	-4.26

Notes

Start pump @ 315 mL/min at 1526. Sample time 1555.

Grab Samples

KMW-09
Arsenic

Product Name: Low-Flow System

Date: 2017-08-04 10:54:15

Project Information:

Operator Name Forrest Howard
Company Name Resolute Env
Project Name GPC Plant Kraft
Site Name Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 463072
Turbidity Make/Model LaMaotte 2020we

Pump Information:

Pump Model/Type Geopump
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 26.00 ft

Pump placement from TOC 19.80 ft

Well Information:

Well ID KMW-08
Well diameter 2.0 in
Well Total Depth 24.80 ft
Screen Length 10 ft
Depth to Water 10.72 ft

Pumping Information:

Final Pumping Rate 220 mL/min
Total System Volume 0.206049 L
Calculated Sample Rate 180 sec
Stabilization Drawdown 1 in
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1000%	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 1000%
Last 5	10:45:33	180.09	23.23	5.66	115.32	9.00	10.78	0.11	66.03
Last 5	10:48:33	360.03	22.94	5.61	111.02	8.98	10.78	0.10	65.02
Last 5	10:51:33	539.34	23.47	5.61	111.38	4.80	10.78	0.10	65.00
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.29	-0.04	-4.30			-0.01	-1.02
Variance 2			0.53	-0.01	0.36			-0.00	-0.01

Notes

Developed yesterday.

Grab Samples

KMW-08
Radium
KMW-08
Arsenic

Product Name: Low-Flow System

Date: 2018-02-07 10:00:54

Project Information:

Operator Name Michael Patinkin
Company Name Resolute
Project Name Well Sampling
Site Name Plant Kraft
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 364455
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoPump Peristaltic
Tubing Type LDPE
Tubing Diameter 0.17 in
Tubing Length 35 ft

Pump placement from TOC 24 ft

Well Information:

Well ID KMW-01
Well diameter 2 in
Well Total Depth 29.25 ft
Screen Length 10 ft
Depth to Water 13.89 ft

Pumping Information:

Final Pumping Rate 170 mL/min
Total System Volume 0.2462198 L
Calculated Sample Rate 240 sec
Stabilization Drawdown 3.2 in
Total Volume Pumped 11 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 10000	+/- 0.1	+/- 5%	+/- 10000		+/- 0.2	+/- 10000
Last 5	09:40:48	1680.01	21.77	3.92	5790.73	5.66	14.14	0.09	230.03
Last 5	09:44:48	1920.01	21.79	3.92	5789.13	5.42	14.15	0.09	237.24
Last 5	09:48:48	2160.01	21.74	3.93	5793.68	6.53	14.15	0.08	242.84
Last 5	09:52:48	2400.01	21.74	3.94	5769.36	4.44	14.15	0.08	246.94
Last 5	09:56:48	2640.01	21.73	3.95	5769.12	4.43	14.16	0.08	250.51
Variance 0			-0.06	0.00	4.55			-0.01	5.60
Variance 1			-0.00	0.02	-24.32			-0.00	4.10
Variance 2			-0.00	0.00	-0.24			-0.00	3.57

Notes

Start pump @ 170 mL/min at 0855. Sample time 1000.

Grab Samples

KMW-06
Arsenic
KMW-01
Major Ions
KMW-01
Radium