



"Safety as a Value"

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GCC Energy, LLC
6473 County Road 120
Hesperus, CO 81326

September 18, 2019

State of Colorado
Division of Reclamation, Mining & Safety
1313 Sherman Street, Room 215
Denver, Colorado 80203-2273

Attn: Rob Zuber

Re: Field Well Water Analysis; King I & King II
3rd Quarter 2019

Mr. Zuber:

Please find enclosed a copy of quarterly water analysis reports for the 3rd quarter of 2019 for the following water monitoring locations:

- Wiltse Well
- #1 Up-gradient Monitoring Well
- #2 Down-gradient Monitoring Well
- Hay Gulch Irrigation Ditch, Down-gradient
- Hay Gulch Irrigation Ditch, Up-gradient
- MW-1-A, MW-1-C
- MW-3-MI, MW-3-A, MW-3-C
- MW-4-MI, MW-4-A, MW-4-C
- MW-HGA-4
- MW-6-A, MW-6-MI, MW-6-LM
- MW-7-EAA & Blind Duplicate MW-99-A
- MW-8-EAA, MW-8-MI, MW-8-LM, MW-8-PL

Also enclosed are summary sheets for the above water monitoring locations which include field collection data.

Please call Tom Bird at (970) 385-4528 x 6503 if you have any questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read 'Tom Bird', with a large, stylized loop at the end.

Tom Bird
Manager, Coal Services
GCC Energy, LLC

GCC Energy Hydrologic Monitoring Data

Hay Gulch Ditch Upgradient																								
Year	2016												2017				2018				2019			
Quarter	Q1	Q2		Q3			Q4			Q1		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3			
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	11	2	5	8	
Sample Date	3/31	4/22	5/26	6/23	7/20	8/25	9/21	10/19	11/29	12/13	1/26	2/27	3/22	6/28	9/21	11/28	2/22	5/14	8/9	11/8	2/28	5/23	8/16	
Lab Analysis (Y/N)	Y	N	N	Y	N	N	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Field Parameters:																								
Flow Rate	cfs	0.7	1.0	1.2	1.6	1.0	1.0	1.1	1.0	NM	1.0	NM	0.8	0.3	2.7	NM	NM	NM	0.6	0.7	0.7	0.3	3.6	1.2
Temperature	deg C	9.8	20.9	11.3	21.1	20.8	16.8	14.9	16.4	5.9	7.0	1.5	4.7	10.7	20.2	19.7	8.8	4.7	11.3	22.1	1.1	5.9	5.9	16.9
pH	SU	7.75	8.27	7.95	8.15	8.24	8.26	8.47	8.19	8.79	8.58	8.2	8.69	8.77	8.88	8.39	7.60	7.9	7.58	9.07	7.16	6.4	7.53	8.03
Specific Conductance	µS/cm	247	323	197	141	189	207	233	210	258	234	687	455	454	106	549	868	1041	304	307	307	752	306	275
Oxygen Reduction Potential	mV	76.4	114.7	97.2	51.6	53.6	82.8	72.5	105.9	92.4	116.3	66.3	-12	-10.6	23.8	86.1	95.10	-164.1	111.4	-181.3	13.9	103.7	-24.0	24.4
Dissolved Oxygen	mg/L	8.1	6.4	8.0	6.0	6.5	6.9	7.2	4.7	6.7	6.1	10.6	9.0	6.9	4.8	6.7	9.3	9.4	8.5	6.4	10.2	8.0	8.9	7.8
Lab Analytical Results:																								
Hardness as CaCO3	mg/L	128			80.9			119		152				257	69.2	316	456	489	101	153	149	393	136	125
pH (Lab)	SU	8.17			8.04			8.16		8.19				8.06	8.06	8.22	8.31	8.39	7.99	9.07	7.86	7.45	7.69	7.83
Total Dissolved Solids (Lab)	mg/L	170			75			165		180				285	65.0	390	650	700	140	215	175	535	205	225
Total Suspended Solids	mg/L	30.0			117			17.0		4.8				2.50	63.5	2.00	5.75	6.01	106	6.25	14.8	22.0	113	20.0
Calcium	mg/L	33.5			24			33.0		38.4				53.6	20.8	64.9	86.6	87.3	26.3	39.1	40.3	79.8	34.6	32.4
Magnesium	mg/L	10.9			5.08			9.01		13.7				29.8	4.21	37.5	58.3	65.9	8.61	13.5	11.9	47.0	12.1	10.8
Sodium	mg/L	4.46			2.19			3.90		6				10.9	1.97	13.8	27.1	34.6	3.31	5.33	5.00	19.1	7.24	5.81
Potassium	mg/L	<1			<1			1.35		<1.00				<1.00	1.75	2.15	3.05	3.52	1.18	1.24	<1.00	3.89	1.57	1.07
Alkalinity, Total	mg/L	160			65			98.0		118				185	55.0	177	305	244	67	111	120	260	390	103
Alkalinity, Bicarbonate	mg/L	160			65			94.0		118				185	55.0	161	285	244	67	107	120	260	390	103
Alkalinity, Carbonate	mg/L	<10			<10			<10		<10.0				<10.0	<10.0	16.0	20.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Alkalinity, Hydroxide	mg/L	<10			<10			<10		<10.0				<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	mg/L	5.77			2.07			4.32		7.92				22.7	1.76	30.8	48.2	46.7	3.12	6.70	5.58	48.1	7.75	6.04
Fluoride	mg/L	0.213			0.208			0.223		0.208				0.215	0.195	0.265	0.283	0.285	0.224	0.272	0.224	0.252	0.208	0.214
Sulfate as SO4	mg/L	42.1			17.7			29.0		45.3				87.7	15.0	99.0	179	229	34	49.7	45.0	128	47.2	35.6
Total Organic Carbon (TOC)	mg/L	1.41			1.6			2.21		1.14				2.49	1.15	1.90	1.99	1.81	2.31	1.61	1.09	4.94	3.08	1.84
Oil & Grease	mg/L	<5			<5			<5		<5.00				<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Nitrate/Nitrite as N	mg/L	<0.02			0.028			<0.020		<0.020				0.053	<0.020	0.045	0.088	0.105	0.026	<0.020	<0.020	0.263	0.050	0.072
Sodium Adsorption Ratio (SAR)	no unit	0.17			0.1			0.16		0.21				0.30	0.10	0.34	0.55	0.68	0.14	0.18	0.16	0.42	0.26	0.22
Aluminum	mg/L	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Arsenic	mg/L	<0.0005			<0.0005			<0.0005		<0.0005				<0.0005	<0.0005	0.0009	<0.0007	<0.0025	<0.0005	0.0009	<0.0005	0.0007	0.0006	0.0007
Cadmium	mg/L	<0.0001			<0.0001			<0.0001		<0.0001				<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.0006			0.0011			0.0011		0.0005				0.0008	0.0013	0.0006	0.0005	0.0007	0.0011	0.0011	0.0013	0.0026	0.0013	0.0012
Iron	mg/L	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050	<0.050	<0.050	<0.05	<0.05	<0.05	0.255	0.055	<0.050
Lead	mg/L	<0.0005			<0.0005			<0.0005		<0.0005				<0.0005	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Manganese	mg/L	0.0059			0.0035			0.0043		0.0047				0.0070	0.0024	0.0098	0.0049	0.0049	0.0093	0.0016	0.0043	0.127	0.0349	0.0096
Mercury	mg/L	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	<0.0005			0.0009			0.0007		0.0008				0.0006	0.0009	0.0012	0.0008	<0.0025	0.001	0.0012	0.0009	0.0011	0.0009	0.0011
Selenium	mg/L	<0.001			<0.001			<0.001		<0.0010				0.0023	<0.0010	<0.0010	0.0010	<0.0050	<0.001	<0.001	<0.001	0.0017	<0.0010	<0.0010
Silica (SiO2)	mg/L	7.78			8.23			10.5		9.71				9.04	7.71	9.45	10.1	11.0	8.4	8.64	8.31	11.3	8.55	9.17
Silicon	mg/L	3.64			3.85			4.89		4.54				4.23	3.60	4.42	4.71	5.14	3.93	4.04	3.88	5.29	3.99	4.29
Uranium	mg/L	0.0002			0.0001			0.0002		0.0003				0.0003	0.0001	0.0006	0.0009	0.0013	0.0001	0.0002	0.0003	0.0009	0.0003	0.0004
Zinc	mg/L	<0.001			<0.001			<0.001		<0.0010				0.0022	<0.0020	<0.0040	<0.0020	<0.0100	<0.002	0.0033	<0.002	0.0044	<0.0020	<0.0020
Radium 226	pCi/L	<0.4			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Radium 228	pCi/L	<0.8			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Definitions:

Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
μS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)

1. " $<$ " values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO_3 .
3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

Hay Gulch Ditch Downgradient																								
Year	2016											2017					2018				2019			
Quarter	Q1	Q2			Q3			Q4			Q1		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3		
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	11	2	5	8	
Sample Date	3/31	4/22	5/26	6/23	7/20	8/25	9/21	10/19	11/29	12/13	1/26	2/27	3/22	6/28	9/21	11/28	2/22	5/7	8/9	11/7	2/28	5/23	8/16	
Lab Analysis (Y/N)	Y	N	N	Y	N	N	Y	N	Y	N	N	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	
Field Parameters:																								
Flow Rate	cfs	1.1	1.2	1.1	NM	1.1	1.1	NM	0.8	NM	NM	NM	0.8	0.3	0.3	NM	dry	NM	NM	NM	0.5	0.25	0.3	1.05
Temperature	deg C	11.8	17.6	10.9	21.9	21.3	18.8	16.1	11.8	7.0	6.6	7.2	5.0	12.7	17.6	18.7		6.3	11.3	20.6	4.7	6.88	8.23	15.15
pH	SU	8.57	8.55	8.14	8.14	8.55	8.37	8.3	8.36	8.64	8.06	7.28	8.06	9.00	8.53	8.66		8.33	7.58	7.43	7.48	6.42	7.77	7.61
Specific Conductance	µS/cm	429	530	297	116	308	257	1183	420	421	728	678	987	17	114	164		742	304	356	309	576.8	201.7	295.3
Oxygen Reduction Potential	mV	57.5	105.9	33.2	32.5	68.6	38.4	18.7	88.6	117.5	155.2	147.6	-15.5	137.8	185.3	48		51.6	111.4	-10	-88.9	125.6	50.6	111.6
Dissolved Oxygen	mg/L	7.9	7.7	8.7	6.0	6.7	5.6	6.8	7.1	6.5	7.2	7.6	9.8	5.6	6.4	7.1	9.8	8.5	6.3	9.1	7.6	8.8	7.2	
Lab Analytical Results:																								
Hardness as CaCO3	mg/L	226			67.8			480		267				503	59.1	91.4		329	140	182	167	281	91.9	137
pH (Lab)	SU	8.42			8.13			8.25		8.24				8.15	7.98	7.98		8.17	8.05	8.09	7.95	7.84	7.68	7.73
Total Dissolved Solids (Lab)	mg/L	270			55			630		320				615	65.0	80.0		420	220	260	185	390	185	195
Total Suspended Solids	mg/L	27.3			18			4.20		12.4				12.7	3.00	<0.500		49.5	<2	5.67	4.40	18.4	153	22.5
Calcium	mg/L	55.5			21.9			94.7		65.5				112	19.0	29.5		75.4	37.5	49.0	44.7	61.6	26.0	34.5
Magnesium	mg/L	21.1			3.15			59.1		25.2				54.6	2.86	4.31		34.2	11.2	14.4	13.4	31	6.54	12.3
Sodium	mg/L	8.69			1.57			16.8		10.7				22.5	1.49	2.37		18.1	5.42	6.49	5.15	16.5	5.03	6.62
Potassium	mg/L	1.49			<1			4.48		1.46				2.33	<1.00	<1.00		2.84	1.14	1.58	1.34	3.13	1.31	1.27
Alkalinity, Total	mg/L	220			59			220		225				320	47.0	85.0		265	112	170	140	150	340	140
Alkalinity, Bicarbonate	mg/L	220			59			140		155				320	47.0	85.0		259	104	170	140	150	340	140
Alkalinity, Carbonate	mg/L	<10			<10			80.0		70				<10.0	<10.0	<10.0		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Alkalinity, Hydroxide	mg/L	<10			<10			<10		<10.0				<10.0	<10.0	<10.0		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	mg/L	9.40			1.26			97.9		12				31.9	<1.00	1.54		23.1	7.54	7.47	5.69	40.2	16.9	7.65
Fluoride	mg/L	0.244			0.195			0.244		0.227				0.224	0.290	0.227		0.308	0.228	0.295	0.228	0.232	0.205	0.218
Sulfate as SO4	mg/L	68.1			13.5			144		89.5				204	11.3	17.9		86.5	40.2	46.8	45.0	91.4	18.5	42.7
Total Organic Carbon (TOC)	mg/L	1.53			1.4			3.48		1.65				2.31	2.16	0.932		1.56	1.28	1.33	1.76	2.9	2.37	2.10
Oil & Grease	mg/L	<5			<5			<5		<5.00				<5.00	<5.00	<5.00		<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Nitrate/Nitrite as N	mg/L	<0.02			0.026			0.027		<0.020				<0.020	<0.020	<0.020		<0.020	<0.020	<0.020	<0.020	0.17	0.146	0.090
Sodium Adsorption Ratio (SAR)	no unit	0.25			0.03			0.33		0.28				0.44	0.08	0.11		0.43	0.2	0.20	0.17	0.43	0.22	0.24
Aluminum	mg/L	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Arsenic	mg/L	0.0005			<0.0005			0.0015		0.0006				0.0006	0.0005	0.0006		0.0005	0.0005	0.0008	<0.0005	0.0006	0.0006	0.0006
Cadmium	mg/L	<0.0001			<0.0001			<0.0001		<0.0001				<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.0004			0.0016			0.0012		0.0005				0.0004	0.0020	0.0013		0.0005	0.0008	0.0008	0.0008	<0.0010	0.0021	0.0009
Iron	mg/L	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050		<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.050
Lead	mg/L	<0.0005			<0.0005			<0.0005		<0.0005				<0.0005	<0.0005	<0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Manganese	mg/L	0.0039			0.0044			0.0059		0.0063				0.0112	0.0009	0.0010		0.0962	0.0038	0.0445	0.0102	0.048	0.0125	0.0033
Mercury	mg/L	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	<0.0005			0.0008			0.0013		0.0007				<0.0005	0.0009	0.0011		0.0010	0.0011	0.0012	0.0010	0.001	0.0011	0.0012
Selenium	mg/L	<0.001			<0.001			0.0026		<0.0010				0.0022	<0.0010	<0.0010		0.0011	<0.0010	<0.0010	<0.001	0.0012	<0.0010	<0.0010
Silica (SiO2)	mg/L	8.96			7.48			11.8		10.9				12.2	6.80	8.53		10.7	8.41	8.77	8.66	8.46	5.70	8.86
Silicon	mg/L	4.19			3.5			5.51		5.11				5.70	3.18	3.99		5.01	3.93	4.10	4.05	3.95	2.67	4.14
Uranium	mg/L	0.0004			0.0001			0.0006		0.0006				0.0009	0.0001	0.0002		0.0012	0.0004	0.0005	0.0003	0.0009	0.0002	0.0004
Zinc	mg/L	<0.001			0.0021			0.0013		0.0012				<0.0020	<0.0020	<0.0040		<0.0020	0.0074	0.0048	0.0035	0.0022	<0.0020	<0.0020
Radium 226	pCi/L	<0.4			NA			NA		NA				NA	NA	NA		NA	NA	NA	NA	NA	NA	NA
Radium 228	pCi/L	<0.8			NA			NA		NA				NA	NA	NA		NA	NA	NA	NA	NA	NA	NA

Notes & Definitions:

Y/N yes or no
gpm gallons per minute
deg C degrees Celsius
SU standard pH units
µS/cm microsiemens per centimeter
mV millivolts
mg/L milligram per liter
pCi/L picocuries per liter
NM not measured (field)
NA not analyzed (lab)

- "<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
- Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
- Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

Well #2 Downgradient																									
Year	2016												2017				2018					2019			
Quarter	Q1	Q2			Q3			Q4			Q1				Q2	Q3	Q4	Q4	Q1	Q2	Q3				
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	8	11	2	5	8	
Sample Date	3/30	4/21	5/25	6/23	7/19	8/24	9/20	10/19	11/30	12/14	1/26	2/27	3/22	6/13	9/21	11/28	2/22	5/7	8/8	8/9	11/7	2/27	5/22	8/16	
Lab Analysis (Y/N)	Y	N	N	Y	N	N	Y	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Field Parameters:																									
Purge Flow Rate	gpm	0.5	0.5	0.5	0.5	0.5	0.5	NM	7.2	2	NM	NM	NM	NM	NM	NM	0.1	1	0.1	1	0.5	0.3	0.5	0.3	
Total Purged	gal	7	6	7	7	6	6	6	6	6	8	8	6	8	8	6	6	11	2	6.5	7.5	13	10	9	
Depth to Water	ft bgs	3.69	3.17	4.25	1.42	4.17	4.17	5.50	6.4	4.7	5	3.95	2.74	6.35	0.95	4.85	5.68	6.68	7.4	6.65	6.59	5.17	5.85	0.92	3.60
Temperature	deg C	6.3	10.1	13.5	18.4	19.8	14	14.1	13.3	10.4	12.4	7.0	4.4	8.4	17.1	12.1	11.7	9.8	8.9	14.0	11.1	11.9	9.14	8.14	10.54
pH	SU	7.58	7.6	7.6	7.64	7.68	7.73	7.53	7.66	7.66	7.71	7.57	7.68	7.78	7.56	7.66	7.52	7.59	7.48	7.84	7.20	7.15	7.41	7.34	7.23
Specific Conductance	µS/cm	899	867	804	600	369	815	877	881	904	872	908	1193	921	633	852	879	887	847	828	895	955	960	1091	1051
Oxygen Reduction Potential	mV	-9.4	-13.7	-35.7	-66.9	-112.1	-76.3	-88.3	-82	-72.7	-81.1	-66.8	-55.7	-67	-54.3	-53.7	-63.70	-44.9	-34	-75.6	-127	-91.9	48.4	-57.8	-30.1
Lab Analytical Results:																									
Hardness as CaCO3	mg/L	444			314			452		432			485	352	378	449	412	415	422	415	465	488	537	513	
pH (Lab)	SU	7.63			7.66			7.48		7.55			7.72	7.6	7.51	7.51	7.62	7.6	7.61	7.45	7.50	7.5	7.4	7.04	
Total Dissolved Solids (Lab)	mg/L	685			470			525		495			635	415	525	540	515	545	545	575	550	575	695	655	
Calcium	mg/L	72.2			54.9			75.9		72.7			81.0	60.9	64.8	78.0	70.1	70.2	72.7	70.4	78.7	81.3	87.1	83.3	
Magnesium	mg/L	63.9			43.1			63.8		60.8			68.7	48.5	52.6	61.8	57.4	58.2	58.4	58.2	65.2	69.2	77.6	74.0	
Sodium	mg/L	22.2			16.5			19.8		20.7			21.8	16.1	17.0	20.1	19.4	19.2	19.6	19.1	21.3	22.1	23.4	21.4	
Potassium	mg/L	2.04			2.1			2.16		2.05			1.94	2.22	1.64	2.19	1.76	1.68	2.00	1.82	2.08	1.97	1.94	2.06	
Alkalinity, Total	mg/L	342			280			380		380			375	285	395	375	333	350	380	328	340	395	460	365	
Alkalinity, Bicarbonate	mg/L	338			280			380		380			375	285	395	375	333	350	380	328	340	395	460	365	
Alkalinity, Carbonate	mg/L	<10			<10			<10		<10.0			<10.0	<10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
Alkalinity, Hydroxide	mg/L	<10			<10			<10		<10.0			<10.0	<10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
Chloride	mg/L	35.8			6.8			27.4		26.2			23.3	7.11	19.0	23.4	24.7	27.2	34.5	34.1	39.3	40.1	42.9	45.2	
Fluoride	mg/L	0.230			0.298			0.272		0.256			0.228	0.313	0.263	0.246	0.244	0.224	0.259	0.281	0.263	0.244	0.246	0.221	
Sulfate as SO4	mg/L	129			70			114		117			153	75.2	98.4	94.7	104	102	112	111	137	138	196	189	
Total Organic Carbon (TOC)	mg/L	3.34			14			2.64		3.4			3.52	3.56	2.61	2.25	2.10	2.02	2.06	1.93	2.08	1.87	2.69	2.28	
Nitrate/Nitrite as N	mg/L	0.042			<0.02			<0.02		0.089			<0.020	<0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
Aluminum	mg/L	0.156			<0.05			<0.05		<0.050			<0.050	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Arsenic	mg/L	0.0008			0.0015			0.0010		0.0013			0.0009	0.0017	0.0006	0.0011	0.0010	0.0009	0.0012	0.0010	0.0012	0.0011	0.0012	0.0012	
Cadmium	mg/L	<0.0001			<0.0001			<0.0001		<0.0001			<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Copper	mg/L	0.0004			0.0005			0.0003		0.0051			0.0007	0.0002	0.0004	0.0001	0.0056	0.0002	0.0006	0.0004	0.0003	0.001	0.0016	0.0003	
Iron	mg/L	0.081			0.085			0.118		<0.050			0.213	<0.05	<0.050	0.074	0.060	0.073	0.089	0.163	0.082	0.062	0.116	0.105	
Lead	mg/L	<0.0005			<0.0005			<0.0005		0.0078			<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Manganese	mg/L	0.497			0.54			0.354		0.359			0.384	0.259	0.307	0.309	0.304	0.306	0.349	0.375	0.320	0.423	0.504	0.404	
Mercury	mg/L	<0.0002			<0.0002			<0.0002		<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Molybdenum	mg/L	0.0014			0.0022			0.0024		0.0025			0.0021	0.0025	0.0021	0.0020	0.0024	0.0022	0.0024	0.0029	0.0024	0.0029	0.0026	0.0019	
Selenium	mg/L	<0.001			<0.001			<0.001		0.0011			0.0045	<0.001	<0.0010	<0.0010	0.0012	<0.001	0.0012	0.0015	0.0013	0.0021	0.001	0.0011	
Silica (SiO2)	mg/L	11.6			14.7			12.8		11.9			10.9	15.5	13.0	13.3	11.1	11.5	11.4	11.5	11.0	11.2	10.5	11.6	
Silicon	mg/L	5.42			6.89			5.97		5.55			5.12	7.23	6.08	6.20	5.19	5.39	5.34	5.38	5.15	5.26	4.93	5.44	
Uranium	mg/L	0.0013			0.0007			0.0015		0.0016			0.0014	0.0008	0.0013	0.0013	0.0013	0.0013	0.0013	0.0015	0.0014	0.0019	0.0016	0.0012	
Zinc	mg/L	0.0034			<0.001			0.0010		0.0311			<0.0020	<0.002	<0.0040	<0.0020	0.0053	0.0022	0.0028	<0.0020	<0.0020	0.0025	<0.002	<0.0020	
Radium 226	pCi/L	<0.4			NA			NA		NA			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Radium 228	pCi/L	<0.8			NA			NA		NA			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Notes & Definitions:

- Y/N
- yes or no
- gpm
- gallons per minute
- deg C
- degrees Celsius
- SU
- standard pH units
- µS/cm
- microsiemens per centimeter
- mV
- millivolts
- mg/L
- milligram per liter
- pCi/L
- picocuries per liter
- NM
- not measured (field)
- NA
- not analyzed (lab)

1. " <" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

Well #1 Upgradient																								
Year		2016										2017						2018				2019		
Quarter		Q1		Q2		Q3		Q4		Q1		Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3		
Month		3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	11	2	5	8
Sample Date		3/30	4/27	5/26	6/23	7/19	8/24	9/21	10/24	11/30	12/14	1/18	2/27	3/22	6/28	9/28	11/29	2/22	5/14	8/9	11/7	2/25	5/23	8/16
Lab Analysis (Y/N)		Y	N	N	Y	N	N	Y	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																								
Purge Flow Rate	gpm	1.5	7.9	7.1	5.8	7.1	7.4	6.8	7.5	9.3	7.5	7.7	7.5	8.2	7.0	7.1	7.5	7.2	7.2	10	7.2	10.0	8.3	11.0
Total Purged	gal	306	522	870	297	280	284	288	300	280	295	298	297	291	286	259	287	268	280	267	305	300	321	327
Depth to Water	ft bgs	4.40	5.07	4.60	4.95	5.55	6.30	6.03	5.73	5.69	5.08	4.30	3.80	3.82	4.50	5.51	5.50	5.40	5.77	5.65	6.50	5.98	4.50	5.68
Temperature	deg C	8.8	13.1	11.9	14.2	14.1	12.7	12.5	12.6	10.6	11.3	10.9	10.4	11.2	11.9	11.8	11.6	11.5	11.7	12.0	12.5	11.7	11.47	11.81
pH	SU	7.77	7.57	7.46	7.6	7.69	7.59	7.67	7.77	7.72	7.68	7.6	7.67	7.67	7.59	7.6	7.58	7.56	7.49	7.35	7.34	7.44	7.39	7.37
Specific Conductance	µS/cm	1224	1199	1284	1246	1226	1143	1176	1223	1280	1305	1392	1415	1351	1159	1162	1241	1278	1218	1289	1204	1234.7	1307.5	1253
Oxygen Reduction Potential	mV	-123.1	-162.2	-142.5	-185.4	-156.6	-196.8	-140.6	-148.9	-152.9	-141.0	-143.6	-125.6	-132.2	-201	-176.9	-213.20	-185.3	-219.3	-251.6	-273.0	-232.0	-194.0	-192.0
Lab Analytical Results:																								
Hardness as CaCO3	mg/L	230			306			216		271					391	277	215	280	274	275	369	287	252	350
pH (Lab)	SU	7.73			7.57			7.58		7.59					7.46	7.74	7.66	7.56	7.75	7.95	7.48	7.50	7.77	7.56
Total Dissolved Solids (Lab)	mg/L	760			745			735		725					775	725	705	790	745	770	835	730	735	860
Calcium	mg/L	44.0			59.7			42.4		51.7					75.7	54.0	41.6	55.6	53.4	53.8	71.5	56.7	49.1	67.8
Magnesium	mg/L	29.1			38.2			26.7		34.5					49.1	34.6	27.1	34.4	34.2	34.1	46.4	35.4	31.4	43.8
Sodium	mg/L	199			196			210		189					167	189	203	195	183	191	154	212	196	172
Potassium	mg/L	3.00			3.15			3.01		3.01					3.30	3.00	3.09	2.99	3.09	3.03	3.16	3.15	3.01	3.32
Alkalinity, Total	mg/L	610			660			620		615					640	585	670	625	620	595	630	640	610	615
Alkalinity, Bicarbonate	mg/L	570			660			620		615					640	585	670	625	620	595	630	640	610	615
Alkalinity, Carbonate	mg/L	40.0			<10			<10		<10.0					<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Alkalinity, Hydroxide	mg/L	<10			<10			<10		<10.0					<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	mg/L	4.33			6.12			4.30		4.44					4.53	4.32	6.21	4.39	4.30	4.35	4.34	4.23	4.35	4.59
Fluoride	mg/L	0.347			<0.5			0.353		0.337					0.337	0.362	<0.500	0.358	0.354	0.335	0.390	0.359	0.355	0.349
Sulfate as SO4	mg/L	90.1			108			83.8		117					156	97.4	74.0	101	106	97.2	147	89.9	91.4	131
Total Organic Carbon (TOC)	mg/L	2.54			3.3			2.8		3.18					3.84	5.82	2.84	3.33	3.37	3.5	3.94	3.35	3.31	3.70
Nitrate/Nitrite as N	mg/L	<0.02			<0.02			<0.02		<0.200					<0.020	<0.400	<0.400	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Aluminum	mg/L	<0.05			<0.05			<0.05		<0.050					<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Arsenic	mg/L	<0.0005			<0.0005			<0.0005		<0.0005					0.0009	<0.0005	<0.0005	<0.0005	0.0005	0.0005	<0.0005	0.0005	<0.0005	<0.0005
Cadmium	mg/L	<0.0001			<0.0001			<0.0001		<0.0001					<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.0035			0.003			0.0021		0.0041					0.0020	0.0020	0.0030	0.0027	0.0035	0.003	0.0022	0.0025	0.0042	0.0015
Iron	mg/L	1.20			1.51			0.946		1.64					2.01	1.34	0.101	1.44	1.44	1.39	1.98	1.52	1.26	1.74
Lead	mg/L	<0.0005			<0.0005			<0.0005		<0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Manganese	mg/L	0.267			0.344			0.221		0.312					0.491	0.315	0.202	0.311	0.307	0.306	0.498	0.286	0.355	0.439
Mercury	mg/L	<0.0002			<0.0002			<0.0002		<0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	<0.0005			<0.0005			<0.0005		0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	0.0005	<0.0005
Selenium	mg/L	<0.001			<0.001			<0.001		<0.0010					0.0245	<0.0010	<0.0010	<0.0010	<0.0010	0.0171	0.0120	0.0022	0.0032	0.0024
Silica (SiO2)	mg/L	13.8			15.2			14.8		12.9					14.2	14.9	14.3	14.7	13.4	14.6	13.8	13.7	13.5	13.1
Silicon	mg/L	6.45			7.12			6.94		6.05					6.64	6.94	6.68	6.86	6.27	6.81	6.45	6.41	6.3	6.13
Uranium	mg/L	<0.0001			0.0021			<0.0001		0.0002					0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002
Zinc	mg/L	<0.001			<0.001			0.0023		0.0301					<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.002	<0.002	<0.002	<0.0020	<0.0020
Radium 226	pCi/L	<0.4			NA			NA		NA					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Radium 228	pCi/L	<0.8			NA			NA		NA					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Definitions:																								
Y/N	yes or no	1. "c" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.																						
gpm	gallons per minute	2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.																						
deg C	degrees Celsius	3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.																						
SU	standard pH units																							
µS/cm	microsiemens per centimeter																							
mV	millivolts																							
mg/L	milligram per liter																							
pCi/L	picocuries per liter																							
NM	not measured (field)																							
NA	not analyzed (lab)																							

GCC Energy Hydrologic Monitoring Data

Wiltse Well																								
Year	2016											2017					2018				2019			
Quarter	Q1	Q2		Q3			Q4			Q1		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3			
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	11	2	5	8	
Sample Date	3/31	4/27	5/25	6/23	7/19	8/24	9/20	10/24	11/29	12/13	1/18	2/27	3/21	6/13	9/28	11/28	2/22	5/16	8/9	11/8	2/28	5/23	8/19	
Lab Analysis (Y/N)	Y	N	N	Y	N	N	Y	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Field Parameters:																								
Purge Flow Rate	gpm	150.0	38.5	23.4	18.6	19.9	17.3	15.8	17.0	10.6	18.1	39.5	39.6	39.6	NM	18.3	23.5	11.9	12.0	18.5	12.3	28.0	38.0	18.0
Total Purged	gal	5850	4228	4229	3686	2844	2979	2637	2724	2992	2916	3595	3580	3560	2980	2712	2423	2700	2890	2783	2747	3017	3200	3010
Depth to Water	ft bgs	0.35	0.00	0.85	2.15	2.99	2.60	3.32	6.85	1.90	1.95	0.30	0.00	0.00	2.05	3.40	3.40	3.35	3.93	4.13	3.78	2.40	0.05	2.47
Temperature	deg C	6.7	8.8	10.4	10.7	11.5	12.1	11.5	11.0	9.1	8.8	7.6	7.2	7.5	10.3	11.3	9.7	8.0	10.2	11.7	10.4	8.0	9.3	10.7
pH	SU	7.22	7.32	7.34	7.26	7.26	7.24	7.22	7.22	7.32	7.29	7.2	7.17	7.12	7.41	7.27	7.30	7.26	7.13	7.04	7.07	7.17	7.08	7.09
Specific Conductance	µS/cm	2043	1633	1805	1768	1478	1602	1941	1937	2014	2036	2262	2276	2085	1869	2074	2190	2232	2144	2072	2167	2170	2151	1964
Oxygen Reduction Potential	mV	105.6	17.9	20.1	38.5	26.9	20.0	28.6	21.6	13.7	20.9	3.2	18.3	6.0	13.3	19.5	19.2	14.3	29.9	-52.7	-18.8	22.7	-10.6	-23.7
Lab Analytical Results:																								
Hardness as CaCO3	mg/L	990			1050			1030		963				1040	1060	1140	1150	1090	1160	1130	1180	1150	1080	1080
pH (Lab)	SU	7.22			7.34			7.29		7.36				7.22	7.46	7.30	7.33	7.70	8.35	7.22	7.42	7.38	7.35	7.11
Total Dissolved Solids (Lab)	mg/L	1580			1480			1520		1520				1480	1510	1680	1740	1740	1740	1750	1720	1710	1670	1520
Calcium	mg/L	197			208			206		186				205	211	219	226	211	216	221	230	226	214	214
Magnesium	mg/L	121			128			126		121				128	129	143	142	136	150	139	147	143	132	132
Sodium	mg/L	95.9			75.2			80.7		82.4				110	87.5	80.7	83.4	80.4	82.3	79.1	81.2	83.2	89.4	72.4
Potassium	mg/L	4.64			4.56			4.90		4.42				4.61	4.79	4.62	<5.00	4.73	4.98	5.01	5.00	5.01	4.77	4.92
Alkalinity, Total	mg/L	460			500			470		450				410	445	510	475	445	435	463	505	515	469	474
Alkalinity, Bicarbonate	mg/L	440			500			470		450				410	445	510	475	445	435	463	505	515	469	474
Alkalinity, Carbonate	mg/L	20.0			<10			<10		<10.0				<10.0	<10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Alkalinity, Hydroxide	mg/L	<10			<10			<10		<10.0				<10.0	<10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	mg/L	81.0			76.3			62.3		70.1				72.5	72.5	68.7	68.9	66.7	60	57.2	57.5	67.2	67.8	49.9
Fluoride	mg/L	0.285			<0.5			<0.5		0.3				<0.500	0.332	<0.500	<0.500	<0.500	<0.500	<0.500	0.298	0.324	0.306	<0.500
Sulfate as SO4	mg/L	671			595			656		676				731	702	779	772	832	714	733	741	801	709	627
Total Organic Carbon (TOC)	mg/L	3.54			4.1			3.15		3.02				3.40	3.54	3.34	3.26	3.37	3.5	3.51	3.63	3.82	4.87	4.27
Nitrate/Nitrite as N	mg/L	0.456			0.891			1.08		0.965				0.492	1.07	1.80	1.94	2.26	2.48	2.26	1.99	1.95	0.651	0.896
Aluminum	mg/L	<0.05			<0.05			<0.05		<0.050				<0.050	<0.1	<0.050	<0.250	<0.100	<0.05	<0.05	<0.100	<0.100	<0.100	<0.100
Arsenic	mg/L	<0.0025			<0.0025			0.0005		0.0008				0.0009	0.0006	0.0005	0.0029	0.0009	0.0006	<0.0025	<0.001	<0.0010	0.0006	<0.0010
Cadmium	mg/L	<0.0005			<0.0005			<0.0005		<0.0001				<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002
Copper	mg/L	0.0018			0.0024			0.0020		0.0038				0.0023	0.0019	0.0025	0.0097	0.0020	0.0019	0.0018	0.0030	0.002	0.0021	0.0021
Iron	mg/L	0.100			<0.05			0.060		0.136				0.286	0.161	<0.050	<0.250	0.132	0.151	0.125	0.121	0.151	0.379	0.287
Lead	mg/L	<0.0025			<0.0025			<0.0025		<0.0005				<0.0005	<0.0005	<0.0005	<0.0025	<0.0005	<0.0005	<0.0005	<0.001	<0.0010	<0.0005	<0.0010
Manganese	mg/L	0.673			0.857			0.756		0.608				0.440	0.797	0.881	4.50	0.845	0.997	1.37	1.08	0.937	0.357	0.902
Mercury	mg/L	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	<0.0025			<0.0025			0.0017		0.0016				0.0016	0.0021	0.0021	0.0093	0.0020	0.002	0.002	0.0019	0.0017	0.0014	0.0020
Selenium	mg/L	<0.005			<0.005			0.0013		0.0023				0.0027	0.0019	0.0016	0.0087	0.0027	0.0025	0.0025	<0.002	0.0025	0.0016	<0.0020
Silica (SiO2)	mg/L	13.9			16.1			16.4		14.3				14.7	15.5	16.1	13.4	14.1	15.9	16.2	15.9	14.1	13.2	15.4
Silicon	mg/L	6.51			7.53			7.67		6.69				6.85	7.22	7.54	6.29	6.58	7.42	7.58	7.44	6.6	6.19	7.20
Uranium	mg/L	0.0029			0.0021			0.0023		0.0026				0.0024	0.0021	0.0021	0.0110	0.0025	0.0024	0.0024	0.0032	0.0036	0.0044	0.0029
Zinc	mg/L	0.0156			0.0364			0.0301		0.0269				0.0194	0.026	0.0208	0.0855	0.0216	0.0225	0.0214	0.0172	0.0175	0.0128	0.0138
Radium 226	pCi/L	0.7 +/- 0.1			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Radium 228	pCi/L	<0.8			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Definitions:

Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)

1. "c" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-HGA-4																					
Year	2016	2017												2018					2019		
Quarter	Q4	Q1			Q2			Q3			Q4			Q1		Q2	Q3	Q4	Q1	Q2	Q3
Month	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	5	8	11	2	5	8
Sample Date	12/12	1/26	2/28	3/22	4/27	5/31	6/13	7/27	8/16	9/21	10/27	11/28	12/12	1/3	2/22	5/15	8/9	11/8	2/28	5/23	8/16
Lab Analysis (Y/N)	Y	N	N	Y	N	N	Y	N	N	Y	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																					
Purge Flow Rate	gpm	0.5	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	9.4	NM	0.1	1.5	2.0	1.0	1.1	1.0
Total Purged	gal	21	21	21	21	21	21	19.5	20	20	21	21	21	24	19	21	21	19	21	24	22
Depth to Water	ft bgs	0.73	0.57	0.60	0.83	0.94	2.06	2.53	3.25	2.65	3.31	3.31	1.76	4.31	1.37	0.55	2.60	3.98	1.90	0.49	0.42
Temperature	deg C	7.3	4.8	6.4	8.1	7.2	9.9	8.4	8.6	8.8	9.0	9.2	9.0	9.3	8.8	7.8	8.1	8.7	8.8	7.6	7.7
pH	SU	7.29	7.36	7.40	7.41	7.33	7.36	7.40	7.36	7.35	7.33	7.31	7.27	7.27	7.33	7.30	7.18	7.27	7.05	7.15	7.18
Specific Conductance	µS/cm	1284	1257	1201	1155	1153	1113	1055	1099	1050	1124	1072	1171	1160	1141	1154	1098	1057	1167	1183	1102
Oxygen Reduction Potential	mV	-72.1	-86.6	-105.1	-104.4	-74.5	-91.3	-134.7	-137.6	-131.0	-139.5	-77.3	-157.9	-70.1	-96.6	-157.3	-130.9	-230.8	-190.9	-128.3	-140.7
Lab Analytical Results:																					
Hardness as CaCO3	mg/L	724			611			616			522		595			561	555	524	625	613	563
pH (Lab)	SU	7.30			7.17			7.31			7.25		7.21			7.58	8.15	7.33	7.12	7.2	8.17
Total Dissolved Solids (Lab)	mg/L	855			710			715			750		775			740	730	695	770	795	695
Calcium	mg/L	147			118			121			102		118			110	108	102	124	122	110
Magnesium	mg/L	86.7			76.7			76.6			64.9		72.8			69.3	69	65.4	76.5	74.7	70.3
Sodium	mg/L	19.5			27.4			28.6			24.9		27.2			26.5	30.4	29.9	27.6	27	28.6
Potassium	mg/L	2.02			2.13			2.11			1.75		2.21			2.17	2.22	2.33	2.13	2.16	2.00
Alkalinity, Total	mg/L	545			465			415			465		475			460	425	410	460	455	445
Alkalinity, Bicarbonate	mg/L	545			465			415			465		475			460	425	410	460	455	445
Alkalinity, Carbonate	mg/L	ND			<10.0			<10			<10.0		<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Alkalinity, Hydroxide	mg/L	ND			<10.0			<10			<10.0		<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	mg/L	10.9			8.75			7.95			8.96		8.74			8.43	7.57	6.47	9.40	10.5	8.06
Fluoride	mg/L	0.577			0.485			0.506			0.517		0.495			0.496	0.459	0.482	0.487	0.484	0.456
Sulfate as SO4	mg/L	240			229			192			205		204			222	190	169	201	221	186
Total Organic Carbon (TOC)	mg/L	NA			4.54			4.35			4.69		4.79			4.56	4.57	4.30	4.72	4.82	4.45
Nitrate/Nitrite as N	mg/L	<0.020			<0.020			<0.02			<0.020		<0.100			<0.020	<0.020	<0.020	<0.020	0.173	<0.020
Aluminum	mg/L	0.423			<0.050			<0.05			<0.050		<0.050			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Arsenic	mg/L	0.0030			0.0029			0.0028			<0.0005		0.0035			0.0037	0.0034	0.0036	0.0032	0.0031	0.0029
Cadmium	mg/L	<0.0001			<0.0001			<0.0001			<0.0001		<0.0001			<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.0006			0.0008			0.0002			0.0004		0.0002			0.0006	0.0008	0.0004	0.0008	<0.0010	0.0003
Iron	mg/L	3.71			7.29			7.32			0.378		7.84			7.60	7.92	8.55	8.44	8.35	7.98
Lead	mg/L	<0.0005			<0.0005			<0.0005			<0.0005		<0.0005			<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Manganese	mg/L	4.07			2.78			2.37			2.03		2.11			1.99	1.81	1.58	2.13	2.56	2.12
Mercury	mg/L	ND			<0.0002			<0.0002			<0.0002		<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.0013			0.0024			0.0027			0.0028		0.0027			0.0030	0.0031	0.0038	0.0029	0.0026	0.0027
Selenium	mg/L	<0.001			0.0030			<0.001			<0.0010		<0.0010			<0.0010	0.002	0.0016	<0.001	0.001	<0.0010
Silica (SiO2)	mg/L	22.3			16.8			18			16.5		17.9			15.8	16.4	15.7	17.3	15.9	14.9
Silicon	mg/L	10.4			7.86			8.41			7.72		8.35			7.37	7.67	7.34	8.10	7.46	6.96
Uranium	mg/L	0.0010			0.0004			0.0004			0.0004		0.0004			0.0004	0.0004	0.0003	0.0005	0.0005	0.0004
Zinc	mg/L	0.0039			0.0046			<0.002			<0.0040		<0.0020			<0.002	<0.002	<0.002	<0.002	<0.0020	<0.0020

Notes & Definitions:

Y/N yes or no
gpm gallons per minute
deg C degrees Celsius
SU standard pH units
µS/cm microsiemens per centimeter
mV millivolts
mg/L milligram per liter
pCi/L picocuries per liter
NM not measured (field)
NA not analyzed (lab)

- "<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
- Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
- Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-1-A																					
Year	2017								2018								2019				
Quarter	Q2	Q3				Q4			Q1			Q2		Q3			Q4	Q1	Q2	Q3	
Month	6	7	8	9	9	10	11	12	1	2	3	4	5	6	7	8	11	2	5	8	
Sample Date	6/7	7/18	8/23	9/7	9/26	10/26	11/16	12/5	1/2	2/9	3/22	4/11	5/10	--	7/23	8/7	11/1	2/20	5/30	8/14	
Lab Analysis (Y/N)	Y	N	N	N	Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	
Field Parameters:																					
Purge Flow Rate	gpm	NM	NM*	NM*	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	***	0.1	0.1	0.1	0.12	0.1	0.1	
Total Purged	gal	12.8	NM*	NM*	NM	NM	2	2	1	1.5	2	1.5	1	1.3		1.5	1.5	1.6	1.0	1.5	1.12
Depth to Water	ft bgs	215.42	NM*	215.92	215.54	216.33	216.31	216.47	216.58	216.21	216.47	216.47	216.54	216.54		216.63	216.63	216.65	216.55	216.43	216.33
Temperature	deg C	17.7	NM*	NM*	10.7	9.7	9.1	9.1	8.7	9.5	9.0	8.7	9.6	9.2		9.9	10.0	8.9	7.5	10.3	9.6
pH	SU	7.78	NM*	NM*	7.35	7.38	7.29	7.28	7.25	7.19	7.37	7.28	6.8	6.97		6.99	7.05	7.01	7.13	6.96	7.05
Specific Conductance	µS/cm	1362	NM*	NM*	1555	1563	1616	1650	1693	1700	1723	1735	1647	1761		1734	1815	1781	1776	1681	1757
Oxygen Reduction Potential	mV	-34.6	NM*	NM*	-54.7	-46.5	-50	-48.3	-49.6	-44.6	-52.8	-37.5	142.4	0.4		-26.4	-33.2	101.4	-11.8	25.4	-18.71
Lab Analytical Results:																					
Hardness as CaCO3	mg/L	124				133		130		159			156			160	174	159	153	148	
pH (Lab)	SU	7.74				7.35		7.33		7.22			7.45			7.17	7.27	7.13	7.03	7.14	
Total Dissolved Solids (Lab)	mg/L	975				1080		1120		1100			1150			1040	1130	1160	1150	1150	
Calcium	mg/L	24.7				25.8		24.9		30.5			29.7			30.9	34.0	31.2	29.8	27.9	
Magnesium	mg/L	15.1				16.7		16.6		20.1			19.9			20.1	21.5	19.7	19.1	18.9	
Sodium	mg/L	324				329		325		348			327			333	358	357	319	348	
Potassium	mg/L	1.98				2.02		<5.00		<5.00			2.12			2.23	2.47	2.34	2.18	2.29	
Alkalinity, Total	mg/L	375				450		380		415			353			385	395	375	355	368	
Alkalinity, Bicarbonate	mg/L	375				450		380		415			353			385	395	375	355	368	
Alkalinity, Carbonate	mg/L	<10.0				<10.0		<10.0		<10.0			<10.0			<10.0	<10	<10.0	<10	<10.0	
Alkalinity, Hydroxide	mg/L	<10.0				<10.0		<10.0		<10.0			<10.0			<10.0	<10	<10.0	<10	<10.0	
Chloride	mg/L	2.75				2.16		<5.00		2.19			<5			2.12	2.20	2.74	2.33	2.72	
Fluoride	mg/L	0.268				0.245		<0.500		0.240			<0.5			0.260	0.240	0.266	0.242	0.252	
Sulfate as SO4	mg/L	427				432		511		518			522			515	511	508	494	537	
Total Organic Carbon (TOC)	mg/L	5.03				1.36		1.58		1.51			1.54			1.60	1.75	1.61	1.67	1.59	
Nitrate/Nitrite as N	mg/L	<0.200				<0.400		<0.100		<0.020			<0.02			<0.02	0.028	<0.020	<0.02	<0.020	
Aluminum	mg/L	<0.050				<0.050		<0.250		<0.250			<0.05			<0.05	<0.1	<0.100	<0.05	<0.050	
Arsenic	mg/L	<0.0005				<0.0005		<0.0025		<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	<0.0005	
Cadmium	mg/L	<0.0001				<0.0001		<0.0005		<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	
Copper	mg/L	0.0043				0.0057		0.0045		0.0066			0.0041			0.0048	0.0048	0.0075	0.0064	0.0040	
Iron	mg/L	0.128				0.367		<0.250		0.590			0.614			0.644	0.647	0.581	0.589	0.613	
Lead	mg/L	<0.0005				<0.0005		<0.0025		<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	<0.0005	
Manganese	mg/L	0.0260				0.0218		0.0259		0.0279			0.026			0.0242	0.0282	0.0281	0.0235	0.0270	
Mercury	mg/L	<0.0002				<0.0002		<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Molybdenum	mg/L	0.0007				0.0010		<0.0025		<0.0025			0.0009			0.0008	0.0007	<0.0010	<0.0005	<0.0005	
Selenium	mg/L	<0.0010				<0.0010		<0.0050		<0.0050			<0.001			<0.001	<0.001	<0.0020	<0.001	<0.0010	
Silica (SiO2)	mg/L	12.3				11.9		8.27		11.2			11.2			11.4	12.0	11.1	11.2	11.6	
Silicon	mg/L	5.74				5.56		3.87		5.24			5.25			5.31	5.62	5.2	5.23	5.43	
Uranium	mg/L	0.0004				0.0002		<0.0005		<0.0005			0.0003			0.0002	0.0003	0.0002	0.0001	0.0001	
Zinc	mg/L	0.0270				0.0088		<0.0100		<0.0100			0.0051			<0.0100	<0.002	<0.0040	0.0022	<0.0040	

Notes & Definitions:

- *** La Plata County stage 3 fire restrictions prevented sampling activity

Y/N

yes or no

gpm

gallons per minute

deg C

degrees Celsius

SU

standard pH units

µS/cm

microsiemens per centimeter

mV

millivolts

mg/L

milligram per liter

pCi/L

picocuries per liter

NM

not measured (field)

NA

not analyzed (lab)
1.

"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
2.

Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
3.

Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-1-MI																				
Year	2017							2018								2019				
Quarter	Q2	Q3			Q4			Q1			Q2		Q3			Q4	Q1	Q2	Q3	
Month	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	11	2	5	8	
Sample Date	6/7	7/18	8/23	9/26	10/26	11/16	12/5	1/2	2/9	3/22	4/11	5/10	--	7/23	8/7	11/1	2/20	5/30	8/14	
Lab Analysis (Y/N)	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	
Field Parameters:																				
Purge Flow Rate	gpm	NM	NM*	NM	NM	dry	dry	dry	dry	dry	dry	dry	***	dry	dry	dry	dry	dry	dry	
Total Purged	gal	19.5	NM*	<0.5	NM															
Depth to Water	ft bgs	259.99	NM*	258.29	258.34															
Temperature	deg C	15.8	NM*	11.8	21.7															
pH	SU	8	NM*	7.94	7.86															
Specific Conductance	µS/cm	2032	NM*	2137	2119															
Oxygen Reduction Potential	mV	160.5	NM*	65.7	61.4	Lab Analytical Results:														
Hardness as CaCO3	mg/L	231																		
pH (Lab)	SU	8.14																		
Total Dissolved Solids (Lab)	mg/L	1520																		
Calcium	mg/L	46.7																		
Magnesium	mg/L	27.9																		
Sodium	mg/L	470																		
Potassium	mg/L	2.55																		
Alkalinity, Total	mg/L	600																		
Alkalinity, Bicarbonate	mg/L	600																		
Alkalinity, Carbonate	mg/L	<10.0																		
Alkalinity, Hydroxide	mg/L	<10.0																		
Chloride	mg/L	7.69																		
Fluoride	mg/L	1.14																		
Sulfate as SO4	mg/L	739																		
Total Organic Carbon (TOC)	mg/L	5.14																		
Nitrate/Nitrite as N	mg/L	0.103																		
Aluminum	mg/L	<0.050																		
Arsenic	mg/L	0.0029																		
Cadmium	mg/L	<0.0001																		
Copper	mg/L	0.0067																		
Iron	mg/L	<0.050																		
Lead	mg/L	0.0010																		
Manganese	mg/L	0.0445																		
Mercury	mg/L	<0.0002																		
Molybdenum	mg/L	0.0796																		
Selenium	mg/L	0.0028																		
Silica (SiO2)	mg/L	11.6																		
Silicon	mg/L	5.44																		
Uranium	mg/L	0.0505																		
Zinc	mg/L	1.52																		

Notes & Definitions:

*** La Plata County stage 3 fire restrictions prevented sampling activity

Y/N

yes or no

gpm

gallons per minute

deg C

degrees Celsius

SU

standard pH units

µS/cm

microsiemens per centimeter

mV

millivolts

mg/L

milligram per liter

pCi/L

picocuries per liter

NM

not measured (field)

NA

not analyzed (lab)

1.

"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.

2.

Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.

3.

Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data																					
MW-1-C																					
Year	2017								2018								2019				
Quarter	Q2	Q3				Q4			Q1			Q2		Q3			Q4	Q1	Q2	Q3	
Month	6	7	8	9	9	10	11	12	1	2	3	4	5	6	7	8	11	2	5	8	
Sample Date	6/7	7/18	8/23	9/7	9/26	10/26	11/16	12/5	1/2	2/9	3/22	4/11	5/10	--	7/23	8/7	11/18	2/20	5/30	8/14	
Lab Analysis (Y/N)	Y	N	N	N	Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	
Field Parameters:																					
Purge Flow Rate	gpm	NM	NM*	NM*	NM	NM	NM	NM	MM	0.1	NM	0.1	0.1	***	0.05	0.1	0.1	0.06	0.015	0.03	
Total Purged	gal	5	NM*	NM*	NM	NM	1.00	1	1	1	1	1	1.25		1	1	1.1	1	1.1	1	
Depth to Water	ft bgs	216.5	NM*	216.91	216.95	216.59	216.52	216.48	216.52	216.38	216.37	216.35	216.41		216.41	216.05	216.04	216.41	216.20	216.02	
Temperature	deg C	16.0	NM*	NM*	NM	12.9	11.7	10.6	7.0	9.7	9.6	6.7	9.2	10.5		20.0	14.1	9.7	5.4	9.8	10.4
pH	SU	7.52	NM*	NM*	NM	7.17	7.16	7.15	7.17	7.11	7.19	7.32	7.03	7.05		6.91	6.97	6.93	7.09	6.80	6.65
Specific Conductance	µS/cm	2446	NM*	NM*	NM	2725	2738	2739	2778	2778	2738	2751	2700	2749		2693	2675	2751	2621	3139	3172
Oxygen Reduction Potential	mV	74.3	NM*	NM*	NM	77.4	31.7	23.9	13.0	6.2	-4.3	-29.6	-15.3	-42.3		-41.8	-32.5	-110.0	-23.4	27.6	10.5
Lab Analytical Results:																					
Hardness as CaCO3	mg/L	498				1290		1180		1190			1130			1120	1180	1010	1820	1840	
pH (Lab)	SU	8.35				7.36		7.34		7.22			7.2			7.20	7.02	7.24	6.93	6.67	
Total Dissolved Solids (Lab)	mg/L	2020				2440		2360		2360			2340			2170	2200	1960	2880	2890	
Calcium	mg/L	96.0				234		216		219			203			203	219	188	340	342	
Magnesium	mg/L	62.8				172		155		156			150			148	154	131	237	240	
Sodium	mg/L	506				242		253		260			239	253		239	255	265	146	119	
Potassium	mg/L	11.4				3.81		<5.00		<5.00			3.07			3.04	2.65	3.13	<5	<5.00	
Alkalinity, Total	mg/L	530				700		540		570			580			560	410	525	530	518	
Alkalinity, Bicarbonate	mg/L	530				700		540		570			580			560	410	525	530	518	
Alkalinity, Carbonate	mg/L	<10.0				<10.0		<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10	<10.0	
Alkalinity, Hydroxide	mg/L	<10.0				<10.0		<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10	<10.0	
Chloride	mg/L	24.2				6.97		8.03		7.78			7.75			5.97	6.22	6.36	10.2	9.31	
Fluoride	mg/L	1.59				0.864		0.955		1.03			0.96			0.888	0.924	0.975	0.67	0.525	
Sulfate as SO4	mg/L	1090				1350		1230		1160			1210			1090	1080	1070	1630	1730	
Total Organic Carbon (TOC)	mg/L	4.56				2.84		2.12		2.21			2.2			2.35	2.37	2.32	2.62	2.52	
Nitrate/Nitrite as N	mg/L	<2.00				<0.400		<0.100		<0.020			<0.02			0.036	<0.02	<0.020	<0.02	<0.020	
Aluminum	mg/L	<0.050				<0.050		<0.250		<0.250			<0.05			<0.05	<0.10	<0.100	<0.25	<0.250	
Arsenic	mg/L	0.0029				0.0016		<0.0025		<0.0025			0.0051			0.0052	0.0035	0.0038	0.0048	0.0034	
Cadmium	mg/L	<0.0001				<0.0001		<0.0005		<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0001	<0.0002	
Copper	mg/L	0.0088				0.0085		0.0036		0.0052			0.003			0.0049	0.0033	0.0054	0.0057	0.0014	
Iron	mg/L	<0.050				<0.050		<0.250		<0.250			0.643			1.01	1.12	0.988	2.3	0.819	
Lead	mg/L	<0.0005				<0.0005		<0.0025		<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	<0.0010	
Manganese	mg/L	0.0744				0.0853		0.0959		0.0989			0.153			0.140	0.106	0.0807	0.075	0.0562	
Mercury	mg/L	<0.0002				<0.0002		<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Molybdenum	mg/L	0.0164				0.0049		<0.0025		<0.0025			0.0006			<0.0025	<0.0005	<0.0010	<0.0005	<0.0010	
Selenium	mg/L	0.0136				0.0012		<0.0050		<0.0050			<0.001			<0.0050	0.0011	<0.0020	0.0016	0.0023	
Silica (SiO2)	mg/L	10.6				16.6		13.2		14.8			15.2			14.7	14.5	14	16.6	17.3	
Silicon	mg/L	4.94				7.77		6.16		6.94			7.09			6.87	6.78	6.55	7.75	8.07	
Uranium	mg/L	0.0500				0.0044		0.0028		0.0024			0.0025			0.0022	0.0021	0.0016	0.002	0.0025	
Zinc	mg/L	0.0293				0.0294		<0.0100		<0.0100			0.0062			<0.0100	0.0055	<0.0040	0.0085	0.0077	

Notes & Definitions:		
*** La Plata County stage 3 fire restrictions prevented sampling activity		
Y/N	yes or no	1. " $<$ " values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
gpm	gallons per minute	
deg C	degrees Celsius	2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO ₃ .
SU	standard pH units	
µS/cm	microsiemens per centimeter	3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.
mV	millivolts	
mg/L	milligram per liter	
pCi/L	picocuries per liter	
NM	not measured (field)	
NA	not analyzed (lab)	

GCC Energy Hydrologic Monitoring Data

MW-2-A																		
Year		2017						2018						2019				
Quarter		Q1	Q2	Q3		Q4		Q1			Q2		Q3	Q4	Q1	Q2	Q3	
Month		3	6	7	8	10	11	12	1	2	3	4	5	8	11	2	5	8
Sample Date		3/30	6/7	7/18	8/23	10/30	11/16	12/5	1/2	2/9	3/22	4/11	5/10	8/7	11/1	2/20	5/29	8/14
Lab Analysis (Y/N)		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:																		
Purge Flow Rate	gpm	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Total Purged	gal																	
Depth to Water	ft bgs																	
Temperature	deg C																	
pH	SU																	
Specific Conductance	µS/cm																	
Oxygen Reduction Potential	mV																	
Lab Analytical Results:																		
Hardness as CaCO3	mg/L																	
pH (Lab)	SU																	
Total Dissolved Solids (Lab)	mg/L																	
Calcium	mg/L																	
Magnesium	mg/L																	
Sodium	mg/L																	
Potassium	mg/L																	
Alkalinity, Total	mg/L																	
Alkalinity, Bicarbonate	mg/L																	
Alkalinity, Carbonate	mg/L																	
Alkalinity, Hydroxide	mg/L																	
Chloride	mg/L																	
Fluoride	mg/L																	
Sulfate as SO4	mg/L																	
Total Organic Carbon (TOC)	mg/L																	
Nitrate/Nitrite as N	mg/L																	
Aluminum	mg/L																	
Arsenic	mg/L																	
Cadmium	mg/L																	
Copper	mg/L																	
Iron	mg/L																	
Lead	mg/L																	
Manganese	mg/L																	
Mercury	mg/L																	
Molybdenum	mg/L																	
Selenium	mg/L																	
Silica (SiO2)	mg/L																	
Silicon	mg/L																	
Uranium	mg/L																	
Zinc	mg/L																	

Notes & Definitions:			
Y/N	yes or no	1.	"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
gpm	gallons per minute		
deg C	degrees Celsius		
SU	standard pH units	2.	Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
µS/cm	microsiemens per centimeter		
mV	millivolts		
mg/L	milligram per liter		
pCi/L	picocuries per liter	3.	Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.
NM	not measured (field)		
NA	not analyzed (lab)		

GCC Energy Hydrologic Monitoring Data

[illegible]

Notes & Definitions:

Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
μS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)

1. "*<*" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO₃.
3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

[illegible]

Notes & Definitions:

Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
μS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)

1. "*<*" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO₃.
3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-3-A																				
Year		2017								2018								2019		
Quarter		Q1	Q2	Q3			Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3	
Month		3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5	8	
Sample Date		3/27	6/30	7/18	8/24	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/7	8/8	11/6	2/27	5/21	8/14	
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	
Field Parameters:																				
Purge Flow Rate	gpm	0.5	NM	NM	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	
Total Purged	gal	30	2.0	NM	NM	NM	1.0	1.0	1.0	1.3	1.5	1.5	1	1.25	1	1.1	1.5	1.3	1.3	
Depth to Water	ft bgs	297.35	298.24	297.45	298.24	298.11	298.12	298.01	298.05	298.37	298.04	297.86	297.76	298.17	298.55	298.27	297.85	296.79	297.27	
Temperature	deg C	11.7	13.2	19.5	12.6	12.3	12.5	11.7	12.0	11.8	11.7	12.2	11.9	13.5	13.5	11.9	11.8	12.1	NM	
pH	SU	8.82	8.75	8.56	8.67	8.72	8.64	8.61	8.57	8.54	8.52	8.61	8.21	8.38	8.30	8.31	8.28	8.31	8.13	
Specific Conductance	µS/cm	2535	2446	2115	2524	2470	2430	2483	2494	2528	2506	2458	2415	2253	2336	2391	2355	2309	NM	
Oxygen Reduction Potential	mV	-269.0	-101.5	-55.3	-87.4	-142.3	-124.5	-125.6	-146.8	-120.3	-125.2	-181.6	-135.8	-138.2	-155.8	-164.6	-145.9	-132.3	-138.6	
Lab Analytical Results:																				
Hardness as CaCO3	mg/L	7.53	12.6			12.6		10.4			11.5			11.2	12.6	14.1	11.9	10.7	10.4	
pH (Lab)	SU	8.63	8.69			8.53		8.29			8.45			8.36	8.37	8.24	8.28	8.29	8.27	
Total Dissolved Solids (Lab)	mg/L	1630	1670			1630		1690			1680			1670	1600	1540	1500	1530	1520	
Calcium	mg/L	2.00	3.67			3.63		3.27			3.33			3.2	3.71	4.15	3.55	3.16	3.08	
Magnesium	mg/L	0.616	0.823			0.859		0.550			0.776			0.774	0.811	0.913	0.739	0.692	0.655	
Sodium	mg/L	566	585			589		551			562			542	562	605	543	525	553	
Potassium	mg/L	1.72	2.02			2.04		<5.00			<2.00			1.8	<2.00	2.17	<2.00	1.92	<2.00	
Alkalinity, Total	mg/L	530	470			500		490			430			480	480	475	540	450	459	
Alkalinity, Bicarbonate	mg/L	380	470			440		460			360			480	420	385	330	430	423	
Alkalinity, Carbonate	mg/L	150	<10.0			60.0		30.0			70.0			<10.0	60.0	90.0	210	20	36.0	
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10	<10.0	
Chloride	mg/L	16.1	17.4			18.5		16.9			16.4			16.1	15.1	16.0	15.2	15	15.0	
Fluoride	mg/L	0.464	0.488			0.535		<0.500			<0.500			<0.5	NA	0.383	0.406	0.404	0.396	
Sulfate as SO4	mg/L	729	802			840		730			812			756	706	682	716	699	724	
Total Organic Carbon (TOC)	mg/L	3.52	10.0			7.26		6.07			5.32			4.7	4.62	4.52	4.15	4.1	3.84	
Nitrate/Nitrite as N	mg/L	<0.100	<0.100			<0.020		<0.020			<0.020			<0.02	<0.02	<0.02	0.266	<0.02	<0.020	
Aluminum	mg/L	<0.050	<0.050			<0.050		<0.250			<0.100			<0.05	<0.05	<0.10	<0.100	<0.05	<0.100	
Arsenic	mg/L	0.0025	<0.0025			<0.0025		<0.0025			<0.0025			0.0006	<0.0025	<0.0010	<0.0010	<0.0025	<0.0010	
Cadmium	mg/L	<0.0001	<0.0005			<0.0005		<0.0005			<0.0005			<0.0001	<0.0001	<0.0002	<0.0002	<0.0005	<0.0002	
Copper	mg/L	0.0061	0.0081			0.0080		0.0079			0.0236			0.0063	0.0117	0.0086	0.0137	0.0078	0.0067	
Iron	mg/L	<0.050	<0.050			<0.050		<0.250			<0.100			<0.05	<0.05	<0.100	<0.100	<0.05	<0.100	
Lead	mg/L	<0.0005	<0.0025			<0.0025		<0.0025			<0.0025			<0.0005	<0.0005	<0.0010	<0.0010	<0.0025	<0.0010	
Manganese	mg/L	0.0042	0.0251			0.0194		0.0269			0.0232			0.018	0.0222	0.0187	0.0172	0.0185	0.0166	
Mercury	mg/L	<0.0002	<0.0002			<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Molybdenum	mg/L	0.0005	0.0274			0.0091		0.0078			0.0065			0.0046	0.0043	0.0033	0.003	0.003	0.0018	
Selenium	mg/L	0.0577	<0.0050			<0.0050		<0.0050			<0.0050			0.0109	<0.0050	0.0028	0.0039	<0.005	0.0020	
Silica (SiO2)	mg/L	10.1	10.9			11.6		7.66			11.1			11	12.0	12.8	11.7	11	12.7	
Silicon	mg/L	4.70	5.10			5.41		3.58			5.18			5.17	5.62	5.97	5.46	5.16	5.95	
Uranium	mg/L	0.0002	0.0040			0.0051		0.0036			0.0030			0.0026	0.0026	0.0027	0.0018	0.0014	0.0012	
Zinc	mg/L	0.0031	<0.0100			<0.0100		<0.0100			<0.0100			<0.002	<0.002	<0.0040	<0.0040	<0.01	<0.0080	

Notes & Definitions:

- Y/Nyes or no
- gpmgallons per minute
- deg Cdegrees Celsius
- SUstandard pH units
- µS/cm microsiemens per centimeter
- mVmillivolts
- mg/Lmilligram per liter
- pCi/Lpicocuries per liter
- NMnot measured (field)
- NAnot analyzed (lab)

1. " < " values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-3-MI																				
Year		2017								2018								2019		
Quarter		Q1	Q2	Q3			Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3	
Month		3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5	8	
Sample Date		3/27	6/30	7/18	8/16	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/7	8/8	11/6	2/27	5/21	8/21	
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	
Field Parameters:																				
Purge Flow Rate	gpm	0.5	NM	NM	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	0.1	0.1	0.1	0.12	0.12	0.06	
Total Purged	gal	19	2	NM	NM	NM	1	1	1	1.3	1.5	1.5	1	1.3	1	1.1	1.5	1.25	2.0	
Depth to Water	ft bgs	304.49	241.15	240.46	240.53	240.46	240.44	240.44	240.58	240.73	240.55	240.65	240.84	241.04	241.97	242.13	242.15	242.32	246.55	
Temperature	deg C	10.0	12.6	22.0	12.9	11.0	12.1	11.7	11.7	11.9	11.3	11.9	11.8	12.6	13.0	12.4	11.6	11.3	13.2	
pH	SU	9.34	8.94	8.46	8.9	8.74	8.9	8.86	8.86	8.84	8.83	8.84	8.51	8.48	8.49	8.46	8.51	8.55	8.71	
Specific Conductance	µS/cm	1907	1699	1402	1598	1737	1729	1745	1786	1790	1810	1771	1772	1727	1709	1746	1753	1739	1691	
Oxygen Reduction Potential	mV	-87	-54.5	-26.4	-108.2	-107.3	-113.8	-124.2	-163.1	-136	-131.4	-160.7	-99.9	-103.9	-127.8	-176.5	-113	-84.5	43.87	
Lab Analytical Results:																				
Hardness as CaCO3	mg/L	4.85	8.73			9.02		7.75			9.92			8.65	8.63	8.88	7.63	6.84	7.98	
pH (Lab)	SU	8.95	8.75			8.72		8.72			8.66			8.56	8.58	8.34	8.5	8.45	8.58	
Total Dissolved Solids (Lab)	mg/L	1550	1120			1140		1080			1170			1210	1110	1120	1120	1170	1010	
Calcium	mg/L	1.32	2.32			2.34		2.06			2.22			1.91	1.95	2.03	1.87	1.7	2.04	
Magnesium	mg/L	0.374	0.714			0.775		0.632			1.07			0.945	0.911	0.926	0.715	0.629	0.703	
Sodium	mg/L	420	430			440		411			459			417	446	476	434	419	454	
Potassium	mg/L	2.15	2.21			1.93		<5.00			<2.00			1.63	<2.00	<2.00	1.39	1.65	<2.00	
Alkalinity, Total	mg/L	740	675			700		660			700			680	730	720	685	755	720	
Alkalinity, Bicarbonate	mg/L	510	555			600		570			600			500	630	610	485	605	590	
Alkalinity, Carbonate	mg/L	230	120			100		90.0			100			180	100	110	200	150	130	
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
Chloride	mg/L	8.66	10.1			10.7		10.6			10.7			10.7	8.54	8.83	9.21	9.25	10.2	
Fluoride	mg/L	0.952	1.34			1.26		1.26			1.30			1.2	1.16	1.19	1.21	1.22	1.19	
Sulfate as SO4	mg/L	165	241			247		254			245			250	226	230	232	229	236	
Total Organic Carbon (TOC)	mg/L	8.34	14.8			10.9		10.3			9.24			8.67	7.83	7.28	6.73	6.56	6.17	
Nitrate/Nitrite as N	mg/L	<0.020	<0.020			<0.020		<0.020			<0.020			<0.02	<0.02	<0.02	<0.020	<0.020	<0.020	
Aluminum	mg/L	<0.050	0.102			<0.050		<0.250			<0.100			<0.05	<0.05	<0.10	<0.050	<0.050	0.167	
Arsenic	mg/L	0.0134	0.0167			0.0131		0.0135			0.0160			0.0152	0.0127	0.0104	0.0149	0.0107	0.0142	
Cadmium	mg/L	<0.0001	<0.0005			<0.0005		<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0001	<0.0005	<0.0001	
Copper	mg/L	0.0055	0.0058			0.0065		0.0059			0.0122			0.0048	0.0071	0.0073	0.0068	0.0063	0.0049	
Iron	mg/L	<0.050	<0.100			<0.050		<0.250			<0.100			<0.05	<0.05	<0.1	<0.050	<0.050	<0.100	
Lead	mg/L	0.0024	<0.0025			<0.0025		<0.0025			<0.0005			<0.0005	<0.0005	<0.001	<0.0005	<0.0025	<0.0005	
Manganese	mg/L	0.0022	0.0058			0.0033		0.0045			0.0049			0.006	0.0054	0.0072	0.0078	0.0082	0.0079	
Mercury	mg/L	<0.0002	<0.0002			<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Molybdenum	mg/L	0.0061	0.0211			0.0148		0.0152			0.0170			0.016	0.0149	0.0158	0.0157	0.0167	0.0277	
Selenium	mg/L	0.0013	<0.0050			<0.0050		<0.0050			0.0010			0.0019	<0.0050	<0.002	0.0034	<0.005	<0.0010	
Silica (SiO2)	mg/L	7.97	8.18			9.05		5.35			9.33			8.83	9.49	10.2	8.95	8.85	9.73	
Silicon	mg/L	3.73	3.82			4.23		2.50			4.36			4.13	4.44	4.76	4.18	4.14	4.55	
Uranium	mg/L	0.0049	0.0084			0.0140		0.0124			0.0125			0.0126	0.0111	0.0110	0.011	0.0085	0.0080	
Zinc	mg/L	0.0405	<0.0100			<0.0100		<0.0100			<0.0020			0.0023	0.0023	<0.0040	0.0028	<0.01	0.0070	

Notes & Definitions:

- Y/Nyes or no
- gpmgallons per minute
- deg Cdegrees Celsius
- SUstandard pH units
- µS/cm microsiemens per centimeter
- mVmillivolts
- mg/Lmilligram per liter
- pCi/Lpicocuries per liter
- NMnot measured (field)
- NAnot analyzed (lab)

1. " < " values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-3-C																	
Year	2017								2018							2019	
Quarter	Q1	Q2	Q3			Q4			Q1			Q2		Q3	Q4	Q1	Q2
Month	3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5
Sample Date	3/27	6/30	7/27	8/24	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/7	8/8	11/6	2/27	5/21
Lab Analysis (Y/N)	Y	Y	N	N	Y	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y
Field Parameters:																	
Purge Flow Rate	gpm	0.5	NM	NM	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	0.1	0.1	0.06	0.1
Total Purged	gal	20	2	NM	NM	NM	1	1	1	1.5	1.5	1.5	1	1.3	1.3	1.1	1.25
Depth to Water	ft bgs	304.21	296.3	296.93	296.87	297.43	297.46	297.43	297.35	297.01	296.66	296.57	296.62	296.78	297.12	296.8	296.39
Temperature	deg C	10.5	12.9	13.1	12.5	11.8	12.7	11.5	11.7	11.7	11.4	11.6	12.2	13.0	13.3	11.5	11.0
pH	SU	8.61	8.57	8.51	8.46	8.44	8.48	8.41	8.48	8.43	8.43	8.45	8.25	8.28	8.26	8.17	8.28
Specific Conductance	µS/cm	3549	3588	3815	4112	4351	4412	4659	4596	4923	4864	5063	5019	4916	4953	5127	5155
Oxygen Reduction Potential	mV	-129.0	-87.2	-137.5	-128.8	-149.9	-198.3	-200.7	-222.2	-187.9	-183.5	-155.4	-154.7	-161.4	-180.5	-217.6	-185.4
Lab Analytical Results:																	
Hardness as CaCO3	mg/L	14.4	11.8			15.1		14.9			16.1			40.3	17.9	21.7	16.8
pH (Lab)	SU	8.5	8.48			8.35		8.28			8.35			8.34	8.31	8.24	8.2
Total Dissolved Solids (Lab)	mg/L	2130	2360			3070		3310			3540			3610	3520	3360	3440
Calcium	mg/L	3.60	2.87			3.50		3.58			3.81			7.28	4.01	4.70	3.74
Magnesium	mg/L	1.31	1.12			1.55		1.44			1.59			5.38	1.92	2.41	1.8
Sodium	mg/L	796	890			1100		1130			1200			1350	1220	1460	1100
Potassium	mg/L	3.47	3.24			4.01		<5.00			<10.0			<5.00	<5.00	<5.00	5.24
Alkalinity, Total	mg/L	1490	1570			1690		1880			1910			1760	1730	2050	2110
Alkalinity, Bicarbonate	mg/L	1360	1480			1650		1830			1810			1600	1670	1900	2000
Alkalinity, Carbonate	mg/L	130	90.0			40.0		50.0			100			160	60.0	150	110
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0			<10.0			<10	NA	<10.0	<10.0
Chloride	mg/L	182	330			477		506			549			544	524	561	575
Fluoride	mg/L	4.89	4.94			4.52		4.34			4.15			3.52	3.84	4.04	3.91
Sulfate as SO4	mg/L	73.4	73.5			46.4		24.5			<10.0			<5.00	<5.00	<5.00	<5.00
Total Organic Carbon (TOC)	mg/L	10.6	58.5			219		251			337			343	306	141	129
Nitrate/Nitrite as N	mg/L	<0.020	<0.400			<0.400		<0.020			<0.020			<0.02	<0.020	<0.020	<0.020
Aluminum	mg/L	<0.050	<0.100			<0.050		<0.250			<0.500			1.47	<0.500	<0.250	<0.500
Arsenic	mg/L	0.0115	0.0088			0.0098		0.0091			0.0194			0.0168	0.0148	0.0155	0.0171
Cadmium	mg/L	<0.0001	<0.0010			<0.0010		<0.0005			<0.0005			<0.0005	<0.0005	<0.0005	<0.001
Copper	mg/L	0.0109	0.0147			0.0174		0.0160			0.0409			0.0183	0.0257	0.0227	0.0168
Iron	mg/L	<0.050	<0.050			<0.050		<0.250			<0.500			0.252	<0.500	<0.250	0.344
Lead	mg/L	0.0085	<0.0050			<0.0050		<0.0025			<0.0025			<0.0025	<0.0025	<0.0025	<0.005
Manganese	mg/L	0.0091	0.0188			0.0178		0.0202			0.0307			0.0275	0.0243	0.0252	0.063
Mercury	mg/L	<0.0002	<0.0002			<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.0143	0.0291			0.0241		0.0241			0.0221			0.0189	0.0155	0.0140	0.0121
Selenium	mg/L	0.0233	0.0121			0.0149		0.0240			0.0383			0.0268	0.0232	0.0261	0.0203
Silica (SiO2)	mg/L	7.82	8.86			9.16		6.01			<10.7			9.69	8.68	10.7	8.35
Silicon	mg/L	3.66	4.14			4.28		2.81			<5.00			4.53	4.06	5.01	3.9
Uranium	mg/L	0.0091	0.0102			0.0137		0.0100			0.0091			0.0087	0.0089	0.0113	0.0077
Zinc	mg/L	0.375	<0.0200			<0.0200		<0.0100			<0.0100			<0.01	0.0664	0.0814	0.128

Notes & Definitions:

- Y/Nyes or no
- gpmgallons per minute
- deg Cdegrees Celsius
- SUstandard pH units
- µS/cm microsiemens per centimeter
- mVmillivolts
- mg/Lmilligram per liter
- pCi/Lpicocuries per liter
- NMnot measured (field)
- NAnot analyzed (lab)

1. "<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-4-A																		
Year	2017								2018							2019		
Quarter	Q1	Q2	Q3			Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3
Month	3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5	8
Sample Date	3/29	6/30	7/19	8/23	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/14	8/8	11/5	2/27	5/22	8/15
Lab Analysis (Y/N)	Y	Y	N	N	Y	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y
Field Parameters:																		
Purge Flow Rate	gpm	NM	NM	NM	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	0.1	0.1	0.06	0.06	0.06
Total Purged	gal	19	2	1.5	0.5	1	1	1	1.3	1.5	1.5	1	1.5	1.5	1.1	1.5	1.25	1.125
Depth to Water	ft bgs	338.6	334.96	335.59	334.79	334.81	334.86	332.29	334.09	334.31	334.73	334.81	335.07	335.58	336.06	336.73	335.6	335.07
Temperature	deg C	15.6	16.8	25.5	17.6	11.9	11.6	10.8	10.1	10.9	9.8	11.4	10.9	17.8	12.9	11.6	11.1	10.4
pH	SU	8.61	8.29	8.55	7.98	8.41	8.32	8.38	8.32	8.33	8.37	8.41	8.19	8.2	8.1	8.12	8.15	8.08
Specific Conductance	µS/cm	2163	2053	1876	2096	2180	2165	2186	2261	2259	2267	2207	2214	2183	2192	2246	2205	2237
Oxygen Reduction Potential	mV	28.6	54	60.2	61.7	-8.6	-27	-12.3	-51.8	-35.2	-75.9	-117.3	-77.9	-81.8	-137.5	-157.6	-92.3	-89.3
Lab Analytical Results:																		
Hardness as CaCO3	mg/L	9.16	9.85			7.77		7.11			7.73			7.84	7.69	8.81	7.76	7.31
pH (Lab)	SU	8.2	8.40			8.36		8.40			8.28			8.31	8.21	8.24	8.05	8.08
Total Dissolved Solids (Lab)	mg/L	1470	1470			1450		1500			1490			1470	1430	1350	1450	1410
Calcium	mg/L	2.23	2.43			1.76		1.87			1.81			1.75	1.71	1.92	1.77	1.68
Magnesium	mg/L	0.871	0.916			0.823		0.591			0.778			0.846	0.832	0.973	0.809	0.756
Sodium	mg/L	515	537			513		511			507			528	531	568	535	515
Potassium	mg/L	1.57	1.75			1.63		<5.00			<2.00			1.5	<2.00	<2.00	<2.00	<2.00
Alkalinity, Total	mg/L	635	560			630		590			530			560	575	575	545	565
Alkalinity, Bicarbonate	mg/L	635	560			590		560			490			560	555	575	505	544
Alkalinity, Carbonate	mg/L	<10.0	<10.0			40.0		30.0			40.0			<10.0	20.0	<10.0	40	32
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	mg/L	9.56	9.66			10.3		10.3			10.0			9.94	9.55	8.60	8.93	8.99
Fluoride	mg/L	<0.400	<0.400			<0.500		<0.500			<0.500			<0.5	<0.5	0.143	<0.200	<0.2
Sulfate as SO4	mg/L	594	588			783		594			579			561	522	450	567	584
Total Organic Carbon (TOC)	mg/L	6.63	11.7			3.52		3.27			3.46			3.59	3.60	3.59	3.47	3.4
Nitrate/Nitrite as N	mg/L	0.035	<0.020			<0.020		<0.020			<0.020			<0.02	<0.02	<0.020	<0.020	<0.020
Aluminum	mg/L	<0.050	<0.050			<0.050		<0.250			<0.100			<0.05	<0.05	<0.100	<0.100	<0.100
Arsenic	mg/L	0.0016	<0.0025			<0.0025		<0.0025			0.0019			0.0005	<0.0025	<0.0010	<0.0010	<0.0005
Cadmium	mg/L	<0.0001	<0.0005			<0.0005		<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0002	<0.0001
Copper	mg/L	0.0053	0.0093			0.0076		0.0073			0.0124			0.0077	0.0105	0.0084	0.0081	0.0061
Iron	mg/L	<0.050	<0.050			<0.050		<0.250			<0.100			<0.05	<0.05	<0.100	<0.100	<0.100
Lead	mg/L	0.0014	<0.0025			<0.0025		<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0010	<0.0005
Manganese	mg/L	0.0044	0.0063			0.0044		0.0040			0.0035			0.0033	<0.0075	0.0034	0.0032	0.0031
Mercury	mg/L	<0.0002	<0.0002			<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.0009	0.0275			<0.0025		<0.0025			0.0005			<0.0005	<0.0005	<0.0010	<0.0010	<0.0005
Selenium	mg/L	0.0016	<0.0050			<0.0050		<0.0050			0.0014			0.0025	<0.0050	<0.0020	0.0036	<0.001
Silica (SiO2)	mg/L	10.2	10.6			9.99		6.85			9.47			10	10.2	11.2	9.65	9.81
Silicon	mg/L	4.75	4.97			4.67		3.20			4.43			4.7	4.77	5.22	4.51	4.59
Uranium	mg/L	0.0016	<0.0005			<0.0005		0.0005			0.0003			<0.0001	<0.0005	<0.0002	<0.0002	<0.0001
Zinc	mg/L	0.269	0.0319			<0.0100		<0.0100			0.0022			0.0024	<0.0100	<0.0040	<0.0040	0.0033

Notes & Definitions:

- Y/Nyes or no
- gpmgallons per minute
- deg Cdegrees Celsius
- SUstandard pH units
- µS/cm microsiemens per centimeter
- mVmillivolts
- mg/Lmilligram per liter
- pCi/Lpicocuries per liter
- NMnot measured (field)
- NAnot analyzed (lab)

1. "≤" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-4-MI																				
Year		2017								2018								2019		
Quarter		Q1	Q2	Q3			Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3	
Month		3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5	8	
Sample Date		3/30	6/16	7/27	8/23	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/14	8/8	11/5	2/27	5/22	8/15	
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	
Field Parameters:																				
Purge Flow Rate	gpm	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	0.1	0.1	0.06	0.06	0.125	
Total Purged	gal	0.5	6.5	NM	NM	1	1	1	1	1.3	1.5	1.5	1	1.3	1.8	1.6	2	1.25	1.125	
Depth to Water	ft bgs	378.2	330.15	330.94	330.85	330.81	330.80	330.74	330.67	330.52	330.42	330.53	330.5	329.62	331.1	336.57	331.10	331.06	331.92	
Temperature	deg C	15.0	14.6	12.9	12.5	11.4	10.7	11.3	11.4	11.2	11.0	10.5	10.9	10.1	11.8	11.3	11.1	10.8	13.3	
pH	SU	9.08	8.91	8.78	8.79	8.76	8.76	8.73	8.67	8.62	8.48	8.53	8.01	8.5	8.14	8.25	8.38	8.23	8.14	
Specific Conductance	µS/cm	1581	1668	1731	1708	1784	1794	1804	1833	1848	1856	1841	1816	1739	1756	1808	1716	1800	1830	
Oxygen Reduction Potential	mV	155.2	64.7	9.8	35.2	-29.6	-37.3	-111.5	-89.2	-112.5	-151.3	-145.7	-117.7	-130	-178.2	-202.3	-140.4	-154.7	-127.32	
Lab Analytical Results:																				
Hardness as CaCO3	mg/L	5.43	8.71			7.07		4.20			6.01			5.88	6.06	6.39	5.35	4.93	5.65	
pH (Lab)	SU	8.83	8.59			8.63		8.51			8.47			8.48	8.31	8.47	8.35	8.3	8.44	
Total Dissolved Solids (Lab)	mg/L	1160	1170			1180		1180			1220			1140	1120	1100	1130	1130	1140	
Calcium	mg/L	1.53	2.32			1.88		1.68			1.64			1.55	1.56	1.60	1.44	1.3	1.51	
Magnesium	mg/L	0.392	0.707			0.579		<0.500			0.465			0.49	0.524	0.580	0.428	0.408	0.458	
Sodium	mg/L	408	458			449		452			447			471	470	500	462	458	496	
Potassium	mg/L	1.46	<2.00			1.73		<5.00			<2.00			1.39	<2.00	<2.00	1.43	1.77	2.03	
Alkalinity, Total	mg/L	965	915			1100		985			965			955	968	995	510	890	970	
Alkalinity, Bicarbonate	mg/L	775	825			880		885			875			865	896	885	420	650	880	
Alkalinity, Carbonate	mg/L	190	90.0			220		100			90.0			90	72.0	110	90	240	90.0	
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	
Chloride	mg/L	2.18	7.50			8.78		9.11			8.74			7.99	5.68	5.38	5.98	5.98	5.83	
Fluoride	mg/L	4.72	5.02			5.09		5.10			5.02			4.82	4.84	4.94	5.49	5.44	5.38	
Sulfate as SO4	mg/L	17.4	64.7			76.6		77.5			68.6			54.4	48.3	47.6	38.7	34.4	31.9	
Total Organic Carbon (TOC)	mg/L	2.64	6.49			8.58		9.53			9.54			9.25	8.94	8.48	8.37	8.25	7.81	
Nitrate/Nitrite as N	mg/L	<0.020	<0.020			<0.020		<0.020			<0.020			<0.02	<0.020	<0.020	<0.020	<0.020	<0.020	
Aluminum	mg/L	<0.050	<0.100			<0.050		<0.250			<0.100			<0.05	<0.100	<0.100	<0.050	<0.050	<0.100	
Arsenic	mg/L	0.0099	0.0220			0.0131		0.0122			0.0139			0.0153	0.014	0.0119	0.0164	0.0111	0.0116	
Cadmium	mg/L	<0.0001	<0.0001			<0.0005		<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	
Copper	mg/L	0.0059	0.0058			0.0071		0.0070			0.0079			0.0063	0.0071	0.0078	0.0087	0.0153	0.0051	
Iron	mg/L	<0.050	<0.100			<0.050		<0.250			<0.100			<0.05	<0.100	<0.100	<0.050	<0.050	<0.100	
Lead	mg/L	0.0010	<0.0005			<0.0025		<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	<0.0005	<0.0005	
Manganese	mg/L	0.0020	0.0066			0.0081		0.0124			0.0080			0.007	0.0068	0.0084	0.0091	0.0084	0.0084	
Mercury	mg/L	<0.0002	<0.0002			<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Molybdenum	mg/L	0.0020	0.0160			0.0127		0.0134			0.0151			0.0119	0.0115	0.0129	0.0121	0.0119	0.0108	
Selenium	mg/L	<0.0010	0.0012			<0.0050		<0.0050			<0.0010			0.0022	0.0113	<0.0020	0.002	<0.001	<0.0010	
Silica (SiO2)	mg/L	7.27	8.01			8.80		<5.35			8.30			8.9	9.29	10.3	8.86	9.06	10.2	
Silicon	mg/L	3.40	3.75			4.11		2.50			3.88			4.16	4.34	4.81	4.14	4.24	4.76	
Uranium	mg/L	0.0043	0.0126			0.0184		0.0169			0.0183			0.0173	0.0151	0.0191	0.0269	0.0176	0.0168	
Zinc	mg/L	0.113	0.0697			<0.0100		<0.0100			<0.0020			<0.002	<0.002	<0.0040	<0.0020	<0.002	<0.0100	

Notes & Definitions:

- Y/N

yes or no
- gpm

gallons per minute
- deg C

degrees Celsius
- SU

standard pH units
- µS/cm

microsiemens per centimeter
- mV

millivolts
- mg/L

milligram per liter
- pCi/L

picocuries per liter
- NM

not measured (field)
- NA

not analyzed (lab)

1.

"<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
2.

Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
3.

Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-4-C																			
Year		2017								2018							2019		
Quarter		Q1	Q2	Q3			Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3
Month		3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5	8
Sample Date		3/30	6/16	7/27	8/23	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/14	8/8	11/5	2/27	5/22	8/15
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y
Field Parameters:																			
Purge Flow Rate	gpm	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	0.1	0.2	0.12	0.06	0.125
Total Purged	gal	7	1.5	NM	NM	1	1	1	1	1.5	1.5	1.5	1	1.5	1	1.3	1.5	1.25	1.125
Depth to Water	ft bgs	328.33	314.05	309.87	306.86	303.96	303.80	302.47	304.80	282.35	281.30	303.30	304.05	NM	302.55	302.17	302.45	303.93	304.93
Temperature	deg C	13.3	17.4	12.7	12.0	13.9	11.8	11.2	11.0	11.7	10.8	12.5	11.4	12.4	12.9	11.5	11.3	11.2	12.5
pH	SU	8.33	7.62	7.68	7.7	7.69	7.75	7.72	7.79	7.8	7.88	7.94	7.75	7.79	7.76	7.79	7.87	7.86	7.81
Specific Conductance	µS/cm	3792	5944	5997	5885	5813	5721	5782	5604	5834	5903	5628	5792	5592	5583	5775	5710	5712	5930
Oxygen Reduction Potential	mV	57.3	20.3	-101.5	-111.2	-103.7	-117.4	-109.0	-120.1	-123.8	-154.3	-131.3	-134.9	-129.3	-157.6	-209.0	-160.1	-180.1	-156.8
Lab Analytical Results:																			
Hardness as CaCO3	mg/L	46.3	55.9			38.9		30.0			26.5			26.2	25.9	28.6	23.6	22.5	25.2
pH (Lab)	SU	7.61	7.77			7.79		7.98			7.84			7.97	7.96	8.27	7.9	7.92	7.95
Total Dissolved Solids (Lab)	mg/L	3230	4050			3750		3780			3730			3660	3650	3590	3580	3590	3610
Calcium	mg/L	13.6	13.7			9.15		7.45			6.32			6.15	5.90	6.60	5.5	5.21	5.83
Magnesium	mg/L	2.99	5.26			3.90		2.76			2.61			2.62	2.72	2.94	2.39	2.3	2.57
Sodium	mg/L	908	1510			1490		1400			1410			1400	1410	1590	1410	1370	1440
Potassium	mg/L	4.38	5.71			6.07		<10.0			<10.0			<5	<5	5.36	<5.00	<5.00	5.42
Alkalinity, Total	mg/L	1250	2360			2780		2680			2600			2410	2480	2450	2470	2550	2500
Alkalinity, Bicarbonate	mg/L	1250	2360			2780		2640			2600			2330	2480	2450	2470	2350	2390
Alkalinity, Carbonate	mg/L	<10.0	<10.0			<10.0		40.0			<10.0			80	<10.0	<10.0	<10.0	200	110
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	mg/L	181	550			587		608			592			573	533	590	575	554	580
Fluoride	mg/L	1.29	2.04			2.17		2.43			2.53			2.52	2.48	2.54	2.64	2.62	2.59
Sulfate as SO4	mg/L	534	487			70.2		26.0			34.5			27	18.7	11.2	5.07	<5.00	<5.00
Total Organic Carbon (TOC)	mg/L	30	6.42			5.08		3.64			3.23			3.23	2.80	3.46	3.24	2.62	2.63
Nitrate/Nitrite as N	mg/L	<2.00	<0.500			<0.400		<0.100			<0.020			<0.02	<0.02	<0.020	0.061	<0.020	<0.020
Aluminum	mg/L	<0.050	<0.050			<0.050		<0.500			<0.500			<0.25	<0.25	<0.250	<0.250	<0.250	<0.250
Arsenic	mg/L	0.0059	0.0119			0.0128		0.0152			0.0246			0.0195	0.0202	0.0164	0.0211	0.0171	0.0178
Cadmium	mg/L	<0.0001	<0.0010			<0.0010		<0.0010			<0.0005			<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0005
Copper	mg/L	0.0125	0.0243			0.0221		0.0208			0.0482			0.0389	0.0280	0.0230	0.0249	0.0382	0.0198
Iron	mg/L	<0.050	<0.050			<0.050		<0.500			<0.500			0.373	0.397	0.474	0.279	0.391	0.522
Lead	mg/L	<0.0005	<0.0050			<0.0050		<0.0050			<0.0025			<0.0025	<0.0025	<0.0025	<0.0025	<0.0005	<0.0025
Manganese	mg/L	0.0269	0.0772			0.0554		0.0571			0.0647			0.0529	0.0381	0.0283	0.0268	0.0174	0.0162
Mercury	mg/L	<0.0002	<0.0002			<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.0526	0.115			0.0138		0.0106			0.0086			0.0072	0.0071	0.0057	0.0074	0.007	0.0056
Selenium	mg/L	0.0248	0.0231			0.0214		0.0269			0.0378			0.0317	0.0260	0.0211	0.0339	0.0195	0.0195
Silica (SiO2)	mg/L	9.85	12.6			12.9		<10.7			<10.7			11	11.2	12.8	10.1	10.5	11.3
Silicon	mg/L	4.61	5.88			6.02		<5.00			<5.00			5.16	5.24	6.00	4.7	4.89	5.29
Uranium	mg/L	0.0297	0.121			0.0984		0.0545			0.0311			0.0311	0.0277	0.0246	0.0215	0.0154	0.0086
Zinc	mg/L	0.0156	0.0265			<0.0200		<0.0200			<0.0100			<0.01	<0.01	<0.0100	<0.0100	0.0038	<0.0100

Notes & Definitions:

- Y/Nyes or no
- gpmgallons per minute
- deg Cdegrees Celsius
- SUstandard pH units
- µS/cmicrosiemens per centimeter
- mVmillivolts
- mg/Lmilligram per liter
- pCi/Lpicocuries per liter
- NMnot measured (field)
- NAnot analyzed (lab)
- *Anomalous value under review

1. "≤" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-6-A										
Year	2018	2019								
Quarter	Q4	Q1			Q2			Q3		
Month	12	1	2	3	4	5	6	7	8	
Sample Date	12/28	1/31	2/21	3/21	4/23	5/20	6/19	7/23	8/15	
Lab Analysis (Y/N)	Y	N	Y	N	N	Y	N	N	Y	
Field Parameters:										
Purge Flow Rate	gpm	NM	NM	0.10	2.00	0.03	0.03	0.03	0.06	0.03
Total Purged	gal	36.3	0.5	0.5	2.0	2.0	1.3	1.0	1.3	1.1
Depth to Water	ft bgs	304.33	306.41	307.40	309.60	311.05	312.50	314.20	315.75	316.43
Temperature	deg C	7.4	10.7	8.1	7.5	9.6	7.3	12.5	12.3	11.9
pH	SU	7.32	6.64	6.66	6.74	6.65	6.73	6.76	6.751	6.76
Specific Conductance	µS/cm	6573	6053	6072	6107	6012	6057	5725	5598	5562
Oxygen Reduction Potential	mV	-22.8	19.4	24.6	12.6	11.8	34.8	86.6	25.8	6.5
Lab Analytical Results:										
Hardness as CaCO3	mg/L	4360		4190			3920			3540
pH (Lab)	SU	7.10		6.85			6.77			6.85
Total Dissolved Solids (Lab)	mg/L	6520		6520			120			6080
Calcium	mg/L	615		559			553			492
Magnesium	mg/L	687		678			617			560
Sodium	mg/L	294		283			296			304
Potassium	mg/L	15.0		14.4			12.4			12.8
Alkalinity, Total	mg/L	160		160			143			183
Alkalinity, Bicarbonate	mg/L	160		160			143			183
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0			<10.0
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0			<10.0
Chloride	mg/L	97.4		28.6			27.3			29.9
Fluoride	mg/L	2.83		<0.500			<0.500			<0.500
Sulfate as SO4	mg/L	205		4300			4280			4260
Total Organic Carbon (TOC)	mg/L	3.45		3.08			2.91			3.57
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020			<0.020
Aluminum	mg/L	<0.500		<0.250			<0.250			<0.250
Arsenic	mg/L	<0.0025		<0.0025			0.0009			<0.0025
Cadmium	mg/L	<0.0005		<0.0005			0.0001			<0.0005
Copper	mg/L	0.0116		0.0081			0.0035			0.0039
Iron	mg/L	1.37		3.75			3.93			3.22
Lead	mg/L	<0.0025		<0.0025			<0.0005			<0.0025
Manganese	mg/L	0.788		0.802			0.724			0.690
Mercury	mg/L	<0.0002		<0.0002			<0.0002			<0.0002
Molybdenum	mg/L	<0.0025		<0.0025			<0.0005			<0.0025
Selenium	mg/L	<0.0050		<0.0050			0.0028			<0.0050
Silica (SiO2)	mg/L	12.3		11.9			14.3			13.4
Silicon	mg/L	5.77		5.57			6.69			6.28
Uranium	mg/L	<0.0005		<0.0005			<0.0001			<0.0005
Zinc	mg/L	0.0689		<0.0100			0.0082			0.0108

Notes & Definitions:

Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)

- "<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
- Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
- Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-6-C										
Year	2018	2019								
Quarter	Q4	Q1			Q2			Q3		
Month	12	1	2	3	4	5	6	7	8	
Sample Date	12/24	1/30	2/21	3/21	4/23	5/20	6/19	7/23	8/15	
Lab Analysis (Y/N)	N	N	N	N	N	N	N	N	N	
Field Parameters:										
Purge Flow Rate	gpm	dry	dry	dry	dry	dry	dry	dry	dry	
Total Purged	gal									
Depth to Water	ft bgs									
Temperature	deg C									
pH	SU									
Specific Conductance	µS/cm									
Oxygen Reduction Potential	mV									
Lab Analytical Results:										
Hardness as CaCO3	mg/L									
pH (Lab)	SU									
Total Dissolved Solids (Lab)	mg/L									
Calcium	mg/L									
Magnesium	mg/L									
Sodium	mg/L									
Potassium	mg/L									
Alkalinity, Total	mg/L									
Alkalinity, Bicarbonate	mg/L									
Alkalinity, Carbonate	mg/L									
Alkalinity, Hydroxide	mg/L									
Chloride	mg/L									
Fluoride	mg/L									
Sulfate as SO4	mg/L									
Total Organic Carbon (TOC)	mg/L									
Nitrate/Nitrite as N	mg/L									
Aluminum	mg/L									
Arsenic	mg/L									
Cadmium	mg/L									
Copper	mg/L									
Iron	mg/L									
Lead	mg/L									
Manganese	mg/L									
Mercury	mg/L									
Molybdenum	mg/L									
Selenium	mg/L									
Silica (SiO2)	mg/L									
Silicon	mg/L									
Uranium	mg/L									
Zinc	mg/L									

Notes & Definitions:			
Y/N	yes or no	1. "$<$" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards. 2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3. 3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.	
gpm	gallons per minute		
deg C	degrees Celsius		
SU	standard pH units		
µS/cm	microsiemens per centimeter		
mV	millivolts		
mg/L	milligram per liter		
pCi/L	picocuries per liter		
NM	not measured (field)		
NA	not analyzed (lab)		
*	Anomalous value under review		

GCC Energy Hydrologic Monitoring Data

MW-6-MI										
Year	2018	2019								
Quarter	Q4	Q1			Q2			Q3		
Month	12	1	2	3	4	5	5	6	7	8
Sample Date	12/29	1/31	2/25	3/21	4/19	5/20	5/30	6/19	7/23	8/15
Lab Analysis (Y/N)	Y	N	Y	N	N	N*	N	N	N	N
Field Parameters:										
Purge Flow Rate	gpm	NM	NM	NM	0.5	0.1	0.015	dry	dry	dry
Total Purged	gal	11.3	0.5	1.5	0.5	1.0	0.9			
Depth to Water	ft bgs	374.49	368.09	367.92	370.49	369.50	371.00			
Temperature	deg C	14.3	13.6	10.8	9.7	16.7	3.9			
pH	SU	8.26	7.43	7.21	7.55	7.97	7.84			
Specific Conductance	µS/cm	3390	3620	3132	2619	2202	2527			
Oxygen Reduction Potential	mV	103.0	-80.2	77.6	59.8	38.3	64.9			
Lab Analytical Results:										
Hardness as CaCO3	mg/L	679		147						
pH (Lab)	SU	8.18		8.35						
Total Dissolved Solids (Lab)	mg/L	2480		1880						
Calcium	mg/L	104		23.4						
Magnesium	mg/L	102		21.6						
Sodium	mg/L	646		565						
Potassium	mg/L	12.0		5.30						
Alkalinity, Total	mg/L	395		615						
Alkalinity, Bicarbonate	mg/L	345		615						
Alkalinity, Carbonate	mg/L	50.0		<10.0						
Alkalinity, Hydroxide	mg/L	<10.0		<10.0						
Chloride	mg/L	175		178						
Fluoride	mg/L	2.06		2.46						
Sulfate as SO4	mg/L	1210		585						
Total Organic Carbon (TOC)	mg/L	3.63		4.55						
Nitrate/Nitrite as N	mg/L	0.023		<0.020						
Aluminum	mg/L	<0.100		<0.100						
Arsenic	mg/L	0.0084		0.0144						
Cadmium	mg/L	<0.0001		<0.0002						
Copper	mg/L	0.0113		0.0112						
Iron	mg/L	<0.100		<0.100						
Lead	mg/L	<0.0005		<0.0010						
Manganese	mg/L	0.0500		0.0224						
Mercury	mg/L	<0.0002		<0.0002						
Molybdenum	mg/L	0.0558		0.0690						
Selenium	mg/L	0.0098		0.0127						
Silica (SiO2)	mg/L	9.93		9.05						
Silicon	mg/L	4.64		4.23						
Uranium	mg/L	0.0200		0.0118						
Zinc	mg/L	0.0092		0.0143						

Notes & Definitions:

- # No sample collected, due to low yield, insufficient volume for lab sample after field parameters we measured

Y/N yes or no

gpm gallons per minute

deg C degrees Celsius

SU standard pH units

µS/cm microsiemens per centimeter

mV millivolts

mg/L milligram per liter

pCi/L picocuries per liter

NM not measured (field)

NA not analyzed (lab)

* Anomalous value under review
1. "<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.

2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.

3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-6-LM										
Year	2018	2019								
Quarter	Q4	Q1			Q2			Q3		
Month	12	1	2	3	4	5	6	7	8	
Sample Date	12/30	1/31	2/25	3/21	4/23	5/20	6/19	7/23	8/15	
Lab Analysis (Y/N)	Y	N	Y	N	N	Y	N	N	Y	
Field Parameters:										
Purge Flow Rate	gpm	NM	NM	0.06	2.00	0.03	0.03	0.10	0.06	0.03
Total Purged	gal	0.5	0.5	1.5	2.0	2.0	2.3	1.3	1.3	1.8
Depth to Water	ft bgs	535.72	538.73	539.34	540.64	539.98	537.58	540.00	540.35	540.24
Temperature	deg C	7.9	14.3	7.8	8.1	9.1	9.3	11.7	14.0	13.4
pH	SU	7.64	7.38	7.51	7.54	7.49	7.54	7.67	7.8	7.65
Specific Conductance	µS/cm	6011	3784	3503	1461	1164	1296	1400	1272	1532
Oxygen Reduction Potential	mV	185.3	10.7	40.9	-32.8	-35.8	-111.0	-194.5	-163.6	-67.2
Lab Analytical Results:										
Hardness as CaCO3	mg/L	2260		1270			431			621
pH (Lab)	SU	7.60		7.52			7.47			7.59
Total Dissolved Solids (Lab)	mg/L	5100		2840			875			1150
Calcium	mg/L	367		216			75.9			103
Magnesium	mg/L	325		177			58.7			88.3
Sodium	mg/L	459		248			129			153
Potassium	mg/L	173		64.5			14.0			13.7
Alkalinity, Total	mg/L	205		315			371			381
Alkalinity, Bicarbonate	mg/L	205		315			371			381
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0			<10.0
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0			<10.0
Chloride	mg/L	256		43.7			5.73			8.70
Fluoride	mg/L	0.530		<0.500			0.324			<0.500
Sulfate as SO4	mg/L	3050		1790			338			492
Total Organic Carbon (TOC)	mg/L	3.46		2.61			1.57			1.78
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020			<0.020
Aluminum	mg/L	<0.250		<0.250			<0.050			<0.050
Arsenic	mg/L	0.0039		0.0049			0.0036			0.0038
Cadmium	mg/L	<0.0005		<0.0005			<0.0001			<0.0001
Copper	mg/L	0.0135		0.0064			0.0017			0.0018
Iron	mg/L	<0.250		<0.250			<0.050			<0.050
Lead	mg/L	<0.0025		<0.0025			<0.0005			<0.0005
Manganese	mg/L	0.383		0.223			0.0692			0.148
Mercury	mg/L	<0.0002		<0.0002			<0.0002			<0.0002
Molybdenum	mg/L	0.0490		0.0169			0.0037			0.0025
Selenium	mg/L	0.0080		<0.0050			<0.0010			<0.0010
Silica (SiO2)	mg/L	10.5		13.5			17.0			17.4
Silicon	mg/L	4.91		6.29			7.96			8.12
Uranium	mg/L	0.0230		0.0075			0.0039			0.0054
Zinc	mg/L	0.0323		<0.0100			<0.0020			<0.0040

Notes & Definitions:			
Y/N	yes or no	1. "<i><</i>" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards. 2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3. 3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.	
gpm	gallons per minute		
deg C	degrees Celsius		
SU	standard pH units		
µS/cm	microsiemens per centimeter		
mV	millivolts		
mg/L	milligram per liter		
pCi/L	picocuries per liter		
NM	not measured (field)		
NA	not analyzed (lab)		
*	Anomalous value under review		

GCC Energy Hydrologic Monitoring Data

MW-7-EAA										
Year	2018	2019								
Quarter	Q4	Q1			Q2			Q3		
Month	12	1	2	3	4	5	6	7	8	
Sample Date	12/23	1/29	2/19	3/20	4/16	5/29	6/20	7/24	8/13	
Lab Analysis (Y/N)	Y	N	Y	N	N	Y	N	N	Y	
Field Parameters:										
Purge Flow Rate	gpm	1.10	1.10	1.00	3.00	1.00	1.00	1.00	1.00	1.00
Total Purged	gal	15.0	18.0	15.0	3.0	15.0	16.0	15.3	15.3	17.0
Depth to Water	ft bgs	36.13	36.27	36.45	36.52	36.70	36.25	36.22	36.48	36.49
Temperature	deg C	10.0	10.0	10.0	9.9	10.1	10.4	10.4	10.6	10.5
pH	SU	6.99	7.01	7.04	6.93	7.00	7.06	7.07	6.28	6.95
Specific Conductance	µS/cm	2001	1910	1910	1926	1912	1767	1836	1885	1890
Oxygen Reduction Potential	mV	-68.0	-36.7	-41.4	-38.1	-48.8	14.1	-13.8	-33.9	-37.8
Lab Analytical Results:										
Hardness as CaCO3	mg/L	936		1030			982			997
pH (Lab)	SU	7.2		7.37			7.17			7.09
Total Dissolved Solids (Lab)	mg/L	1460		1480			1490			1480
Calcium	mg/L	170		179			171			173
Magnesium	mg/L	124		142			135			137
Sodium	mg/L	75.3		81.3			75.0			75.2
Potassium	mg/L	3.87		3.9			<5.00			3.74
Alkalinity, Total	mg/L	380		367			405			392
Alkalinity, Bicarbonate	mg/L	380		367			405			392
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0			<10.0
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0			<10.0
Chloride	mg/L	11.9		10.7			10.8			10.9
Fluoride	mg/L	<0.500		0.332			0.322			0.322
Sulfate as SO4	mg/L	732		736			733			844
Total Organic Carbon (TOC)	mg/L	3.72		3.57			3.73			3.70
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020			<0.020
Aluminum	mg/L	<0.050		<0.100			<0.250			<0.100
Arsenic	mg/L	0.0014		0.0015			0.0013			0.0016
Cadmium	mg/L	<0.0001		<0.0002			<0.0001			<0.0001
Copper	mg/L	0.0003		0.0018			0.0011			0.0008
Iron	mg/L	1.82		1.95			1.81			2.12
Lead	mg/L	<0.0005		<0.0010			<0.0005			<0.0005
Manganese	mg/L	3.72		4.49			4.01			4.22
Mercury	mg/L	<0.0002		<0.0002			<0.0002			<0.0002
Molybdenum	mg/L	0.0008		0.0011			0.0007			0.0009
Selenium	mg/L	<0.0020		<0.0020			<0.0010			0.0011
Silica (SiO2)	mg/L	16.6		16.1			16.1			16.9
Silicon	mg/L	7.75		7.52			7.55			7.90
Uranium	mg/L	0.0021		0.0018			0.0017			0.0018
Zinc	mg/L	<0.0050		<0.0040			0.0021			0.0020

Notes & Definitions:			
Y/N	yes or no	1. "<i><</i>" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards. 2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3. 3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.	
gpm	gallons per minute		
deg C	degrees Celsius		
SU	standard pH units		
µS/cm	microsiemens per centimeter		
mV	millivolts		
mg/L	milligram per liter		
pCi/L	picocuries per liter		
NM	not measured (field)		
NA	not analyzed (lab)		
*	Anomalous value under review		

GCC Energy Hydrologic Monitoring Data

MW-8-EAA											
Year	2018	2019									
Quarter	Q4	Q1			Q2			Q3			
Month	12	1	2	3	4	5	6	7	8		
Sample Date	12/23	1/29	2/19	3/20	4/16	5/29	6/20	7/24	8/13		
Lab Analysis (Y/N)	Y	N	Y	N	N	Y	N	N	Y		
Field Parameters:											
Purge Flow Rate	gpm	0.85	1.10	0.50	3.00	0.50	0.75	1.00	1.00	0.75	
Total Purged	gal	18.0	14.0	15.0	3.0	15.0	17.0	15.3	15.3	18.0	
Depth to Water	ft bgs	40.00	39.95	40.10	43.45	40.44	40.05	39.94	40.10	40.08	
Temperature	deg C	10.3	10.2	10.0	9.9	10.3	10.5	10.6	10.5	10.6	
pH	SU	7.12	7.09	7.13	7.17	7.09	7.02	7.17	7.09	7.05	
Specific Conductance	µS/cm	1781	1696	1720	1725	1729	1628	1676	1699	172	
Oxygen Reduction Potential	mV	-65	-52.8	-51.8	-53.0	-59.7	11.0	-29.5	-46.6	-44.8	
Lab Analytical Results:											
Hardness as CaCO3	mg/L	870		861			864			883	
pH (Lab)	SU	7.28		7.36			7.13			7.05	
Total Dissolved Solids (Lab)	mg/L	1220		1290			1240			1280	
Calcium	mg/L	152		151			148			154	
Magnesium	mg/L	119		118			120			121	
Sodium	mg/L	81.7		82.6			77.2			78.6	
Potassium	mg/L	3.80		3.27			3.55			3.18	
Alkalinity, Total	mg/L	400		435			450			431	
Alkalinity, Bicarbonate	mg/L	400		435			450			431	
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0			<10.0	
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0			<10.0	
Chloride	mg/L	9.83		10.5			10.3			11.1	
Fluoride	mg/L	0.380		0.370			0.338			0.342	
Sulfate as SO4	mg/L	533		559			606			643	
Total Organic Carbon (TOC)	mg/L	3.77		3.59			3.77			3.68	
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020			<0.020	
Aluminum	mg/L	<0.100		<0.100			<0.050			<0.100	
Arsenic	mg/L	0.0020		0.0018			0.0018			0.0021	
Cadmium	mg/L	<0.0001		<0.0002			<0.0001			<0.0001	
Copper	mg/L	0.0004		0.0024			0.0023			0.0008	
Iron	mg/L	2.12		2.13			2.42			2.46	
Lead	mg/L	<0.0005		<0.0010			<0.0005			<0.0005	
Manganese	mg/L	3.17		3.52			3.06			3.37	
Mercury	mg/L	<0.0002		<0.0002			<0.0002			<0.0002	
Molybdenum	mg/L	0.0009		0.0011			0.0008			0.0011	
Selenium	mg/L	<0.0020		<0.0020			0.0010			0.0013	
Silica (SiO2)	mg/L	16.3		15.3			15.7			16.1	
Silicon	mg/L	7.63		7.15			7.32			7.52	
Uranium	mg/L	0.0021		0.0017			0.0016			0.0018	
Zinc	mg/L	<0.0050		<0.0040			<0.0020			<0.0020	

Notes & Definitions:

Y/N	yes or no
gpm	gallons per minute
deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
mV	millivolts
mg/L	milligram per liter
pCi/L	picocuries per liter
NM	not measured (field)
NA	not analyzed (lab)
*	Anomalous value under review

- "<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
- Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
- Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-8-MI										
Year	2018	2019								
Quarter	Q4	Q1			Q2			Q3		
Month	12	1	2	3	4	5	6	7	8	
Sample Date	12/23	1/29	2/19	3/20	4/16	5/29	6/20	7/24	8/13	
Lab Analysis (Y/N)	Y	N	Y	N	N	Y	N	N	Y	
Field Parameters:										
Purge Flow Rate	gpm	1.10	1.00	0.50	3.00	0.50	0.50	0.25	0.50	0.75
Total Purged	gal	27.5	18.0	1.0	3.0	1.5	2.5	2.5	2.3	3.0
Depth to Water	ft bgs	45.75	43.48	43.50	44.30	44.47	44.10	44.24	44.45	44.59
Temperature	deg C	10.8	10.8	10.6	11.2	10.4	11.1	11.4	11.0	11.4
pH	SU	7.57	7.5	7.48	7.47	7.34	7.31	7.48	7.42	7.382
Specific Conductance	µS/cm	1786	1667	1651	1658	1643	1595	1639	1645	1658
Oxygen Reduction Potential	mV	-84.4	-177.1	-122.1	-113.3	-87.2	-54.4	-97.1	-116.4	-119.4
Lab Analytical Results:										
Hardness as CaCO3	mg/L	167		249			273			253
pH (Lab)	SU	7.73		7.54			7.24			7.46
Total Dissolved Solids (Lab)	mg/L	1050		1030			1100			1110
Calcium	mg/L	34.0		48.5			52.4			49.7
Magnesium	mg/L	19.9		31.0			34.5			31.4
Sodium	mg/L	344		312			289			289
Potassium	mg/L	4.47		5.25			<5.00			4.55
Alkalinity, Total	mg/L	500		565			560			573
Alkalinity, Bicarbonate	mg/L	500		565			560			573
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0			<10.0
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0			<10.0
Chloride	mg/L	12.7		10.0			9.33			9.06
Fluoride	mg/L	<0.500		<0.200			<0.200			<0.200
Sulfate as SO4	mg/L	347		353			343			366
Total Organic Carbon (TOC)	mg/L	2.73		2.83			2.81			2.74
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020			<0.020
Aluminum	mg/L	<0.050		<0.100			<0.250			<0.100
Arsenic	mg/L	0.0008		<0.0010			0.0006			0.0005
Cadmium	mg/L	<0.0001		<0.0002			<0.0001			<0.0001
Copper	mg/L	0.0031		0.0066			0.0036			0.0035
Iron	mg/L	0.137		0.162			<0.250			0.129
Lead	mg/L	<0.0005		<0.0010			<0.0005			<0.0005
Manganese	mg/L	0.0495		0.0383			0.0327			0.0351
Mercury	mg/L	<0.0002		<0.0002			<0.0002			<0.0002
Molybdenum	mg/L	0.0005		<0.0010			<0.0005			<0.0005
Selenium	mg/L	<0.0020		<0.0020			0.0010			0.0010
Silica (SiO2)	mg/L	12.1		12.4			12.8			12.5
Silicon	mg/L	5.65		5.78			5.99			5.83
Uranium	mg/L	0.0002		0.0002			0.0002			0.0001
Zinc	mg/L	<0.0050		<0.0040			<0.0020			<0.0020

Notes & Definitions:		
Y/N	yes or no	1. "≤" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards. 2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3. 3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.
gpm	gallons per minute	
deg C	degrees Celsius	
SU	standard pH units	
µS/cm	microsiemens per centimeter	
mV	millivolts	
mg/L	milligram per liter	
pCi/L	picocuries per liter	
NM	not measured (field)	
NA	not analyzed (lab)	
*	Anomalous value under review	

GCC Energy Hydrologic Monitoring Data

MW-8-LM											
Year		2018	2019								
Quarter		Q4	Q1			Q2		Q3			
Month		12	1	2	3	4	5	6	7	8	
Sample Date		12/28	1/29	2/19	3/21	4/16	5/29	6/18	7/24	8/13	
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	
Field Parameters:											
Purge Flow Rate	gpm	NM	1.00	0.25	1.00	0.50	0.10	0.25	0.25	0.50	
Total Purged	gal	30	4.0	1.5	1.0	2.0	1.3	6.8	2.0	2.0	
Depth to Water	ft bgs	136.39	130.52	134.30	144.03	140.03	137.48	142.23	144.15	138.06	
Temperature	deg C	4.1	13.9	13.2	8.7	13.6	13.9	12.8	13.7	13.4	
pH	SU	8.37	8.7	8.71	8.41	8.7	8.5	8.66	8.64	8.58	
Specific Conductance	µS/cm	2306	1274	1265	1310	1262	1234	1264	1226	1269	
Oxygen Reduction Potential	mV	37.5	-114.3	112.8	77.0	-36.2	33.2	-63.9	-93.5	-103.0	
Lab Analytical Results:											
Hardness as CaCO3	mg/L	45.0		7.29			16.9			6.67	
pH (Lab)	SU	8.57		8.63			8.02			8.56	
Total Dissolved Solids (Lab)	mg/L	1420		770			780			785	
Calcium	mg/L	10.8		1.93			3.84			1.78	
Magnesium	mg/L	4.39		0.600			1.77			0.541	
Sodium	mg/L	382		341			317			306	
Potassium	mg/L	45.7		3.49			<5.00			2.27	
Alkalinity, Total	mg/L	615		720			745			731	
Alkalinity, Bicarbonate	mg/L	535		610			645			645	
Alkalinity, Carbonate	mg/L	80.0		110			100			86.0	
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0			<10.0	
Chloride	mg/L	175		5.11			6.80			2.63	
Fluoride	mg/L	2.06		3.91			3.95			3.97	
Sulfate as SO4	mg/L	190		3.79			9.58			1.02	
Total Organic Carbon (TOC)	mg/L	2.80		1.80			3.33			1.94	
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020			<0.020	
Aluminum	mg/L	<0.050		<0.100			<0.250			<0.050	
Arsenic	mg/L	0.0106		<0.0010			0.0006			0.0007	
Cadmium	mg/L	<0.0001		<0.0002			<0.0001			<0.0001	
Copper	mg/L	0.0337		0.0077			0.0047			0.0041	
Iron	mg/L	<0.050		<0.100			<0.250			<0.050	
Lead	mg/L	<0.0005		<0.0010			<0.0005			<0.0005	
Manganese	mg/L	0.0258		0.0038			0.0150			0.0020	
Mercury	mg/L	<0.0002		<0.0002			<0.0002			<0.0002	
Molybdenum	mg/L	0.0142		<0.0010			0.0009			<0.0005	
Selenium	mg/L	0.0020		<0.0020			<0.0010			<0.0010	
Silica (SiO2)	mg/L	9.09		8.45			8.68			8.28	
Silicon	mg/L	4.25		3.95			4.06			3.87	
Uranium	mg/L	0.0044		<0.0002			0.0001			0.0001	
Zinc	mg/L	0.0080		<0.0040			0.0023			<0.0020	

Notes & Definitions:

- Y/Nyes or no
- gpmgallons per minute
- deg Cdegrees Celsius
- SUstandard pH units
- µS/cmicrosiemens per centimeter
- mVmillivolts
- mg/Lmilligram per liter
- pCi/Lpicocuries per liter
- NMnot measured (field)
- NAnot analyzed (lab)
- *Anomalous value under review

1. "≤" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards.
2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3.
3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.

GCC Energy Hydrologic Monitoring Data

MW-8-PL										
Year	2018	2019								
Quarter	Q4	Q1			Q2			Q3		
Month	12	1	2	3	4	5	6	7	8	
Sample Date	12/27	1/29	2/19	3/20	4/16	5/29	6/20	7/24	8/13	
Lab Analysis (Y/N)	Y	N	Y	N	N	Y	N	N	Y	
Field Parameters:										
Purge Flow Rate	gpm	0.25	1.00	0.50	3.00	0.50	0.25	0.50	1.00	0.50
Total Purged	gal	20.0	5.0	2.0	3.0	2.0	3.0	2.5	2.3	2.5
Depth to Water	ft bgs	125.97	126.29	126.40	127.10	126.98	126.70	126.82	127.25	127.38
Temperature	deg C	10.3	14.2	13.4	12.9	13.2	14.2	14.8	14.7	14.9
pH	SU	7.50	7.30	7.49	7.30	7.29	7.31	7.57	7.56	7.52
Specific Conductance	µS/cm	1690	1531	1571	1558	1554	1411	1326	1165	1083
Oxygen Reduction Potential	mV	30.2	-116.5	97.9	-108.7	-110.6	34.2	-57.6	-74.0	-79.5
Lab Analytical Results:										
Hardness as CaCO3	mg/L	617		644			596			411
pH (Lab)	SU	7.28		7.40			7.26			7.22
Total Dissolved Solids (Lab)	mg/L	1150		1090			995			705
Calcium	mg/L	112		120			105			73.1
Magnesium	mg/L	82.1		83.8			81.4			55.4
Sodium	mg/L	106		124			102			91.7
Potassium	mg/L	5.14		5.62			<5.00			2.80
Alkalinity, Total	mg/L	370		415			435			393
Alkalinity, Bicarbonate	mg/L	370		415			435			393
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0			<10.0
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0			<10.0
Chloride	mg/L	18.8		18.5			9.03			5.61
Fluoride	mg/L	0.505		0.474			0.290			0.291
Sulfate as SO4	mg/L	478		471			390			232
Total Organic Carbon (TOC)	mg/L	4.17		4.02			2.92			2.21
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020			<0.020
Aluminum	mg/L	<0.050		<0.100			<0.250			<0.050
Arsenic	mg/L	0.0074		0.0124			0.0190			0.0156
Cadmium	mg/L	<0.0001		<0.0002			<0.0001			<0.0001
Copper	mg/L	0.0016		0.0025			0.0017			0.0011
Iron	mg/L	<0.050		0.352			<0.250			0.129
Lead	mg/L	<0.0005		<0.0010			<0.0005			<0.0005
Manganese	mg/L	1.31		1.22			0.697			0.505
Mercury	mg/L	<0.0002		<0.0002			<0.0002			<0.0002
Molybdenum	mg/L	0.0090		0.0068			0.0020			0.0021
Selenium	mg/L	0.0012		<0.0020			<0.0010			<0.0010
Silica (SiO2)	mg/L	14.1		16.3			17.7			18.5
Silicon	mg/L	6.58		7.64			8.28			8.67
Uranium	mg/L	0.0052		0.0040			0.0010			0.0009
Zinc	mg/L	0.0344		<0.0040			<0.0020			<0.0080

Notes & Definitions:			
Y/N	yes or no	1. "≤" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards. 2. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3. 3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table.	
gpm	gallons per minute		
deg C	degrees Celsius		
SU	standard pH units		
µS/cm	microsiemens per centimeter		
mV	millivolts		
mg/L	milligram per liter		
pCi/L	picocuries per liter		
NM	not measured (field)		
NA	not analyzed (lab)		
*	Anomalous value under review		



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04 September 2019

Tom Bird
GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326
RE: GCC GW & SW Baseline

Enclosed are the results of analyses for samples received by the laboratory on 08/16/19 15:52.
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads 'Debbie Zufelt'. The script is cursive and fluid, with the first name 'Debbie' and last name 'Zufelt' clearly legible.

Debbie Zufelt
Reports Manager

All accredited analytes contained in this report are denoted by an asterisk (*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8.



GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom Bird

Reported:
09/04/19 11:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
Well #2 Downgradient	1908180-01	Water	08/16/19 08:11	08/16/19 15:52	
Hay Gulch Ditch Downgradient	1908180-02	Water	08/16/19 09:20	08/16/19 15:52	
Well #1 Upgradient	1908180-03	Water	08/16/19 11:08	08/16/19 15:52	
MW-HGA-4	1908180-04	Water	08/16/19 12:38	08/16/19 15:52	
Hay Gulch Ditch Upgradient	1908180-05	Water	08/16/19 13:01	08/16/19 15:52	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom BirdReported:
09/04/19 11:13

Well #2 Downgradient

1908180-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	365	10.0		mg/L	5	08/20/19 15:30	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	08/20/19 15:30	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/20/19 15:30	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	365	10.0	3.06	mg/L	5	08/20/19 15:30	2320 B		VJL
Chloride*	45.2	5.00	0.513	mg/L	5	08/30/19 10:29	EPA300.0		AES
Fluoride*	0.221	0.100	0.0147	mg/L	1	08/29/19 17:31	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/23/19 16:03	EPA353.2		LLG
pH*	7.04			pH Units	1	08/16/19 15:30	EPA150.1		CAB
Total Dissolved Solids*	655	10.0		mg/L	1	08/20/19 14:30	EPA160.1		VJL
Sulfate*	189	5.00	1.07	mg/L	5	08/30/19 10:29	EPA300.0		AES
Total Organic Carbon*	2.28	0.500	0.0670	mg/L	1	08/22/19 16:09	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/19 13:11	EPA200.7		AES
Calcium*	83.3	0.100	0.013	mg/L	1	08/20/19 13:11	EPA200.7		AES
Hardness as CaCO ₃	513	0.662	0.109	mg/L	1	08/20/19 13:11	2340 B		AES
Iron*	0.105	0.050	0.028	mg/L	1	08/20/19 13:11	EPA200.7		AES
Magnesium*	74.0	0.100	0.019	mg/L	1	08/20/19 13:11	EPA200.7		AES
Potassium*	2.06	1.00	0.096	mg/L	1	08/20/19 13:11	EPA200.7		AES
Silica (SiO ₂)	11.6	1.07	0.0572	mg/L	1	08/20/19 13:11	Calculation		AES
Silicon	5.44	0.500	0.027	mg/L	1	08/20/19 13:11	EPA200.7		AES
Sodium*	21.4	1.00	0.367	mg/L	1	08/20/19 13:11	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0012	0.0005	0.0002	mg/L	1	08/23/19 15:05	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19 15:05	EPA200.8		AES
Copper*	0.0003	0.0001	0.0001	mg/L	1	08/23/19 15:05	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/23/19 15:05	EPA200.8		AES
Manganese*	0.404	0.0005	0.00009	mg/L	1	08/23/19 15:05	EPA200.8		AES
Molybdenum*	0.0019	0.0005	0.00007	mg/L	1	08/23/19 15:05	EPA200.8		AES
Selenium*	0.0011	0.0010	0.0006	mg/L	1	08/23/19 15:05	EPA200.8		AES
Uranium	0.0012	0.0001	0.00008	mg/L	1	08/23/19 15:05	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	08/23/19 15:05	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/23/19 11:27	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom BirdReported:
09/04/19 11:13

Hay Gulch Ditch Downgradient

1908180-02 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	140	10.0		mg/L	5	08/20/19 15:30	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	08/20/19 15:30	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/20/19 15:30	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	140	10.0	3.06	mg/L	5	08/20/19 15:30	2320 B		VJL
Chloride*	7.65	1.00	0.103	mg/L	1	08/29/19 17:49	EPA300.0		AES
Fluoride*	0.218	0.100	0.0147	mg/L	1	08/29/19 17:49	EPA300.0		AES
Nitrate/Nitrite as N*	0.090	0.020	0.006	mg/L	1	08/23/19 16:04	EPA353.2		LLG
Oil & Grease (HEM)	<5.00	5.00	1.16	mg/L	1	08/26/19 13:00	EPA1664 A		JDA
pH*	7.73			pH Units	1	08/16/19 15:30	EPA150.1		CAB
SAR	0.24			No Unit	1	08/28/19 16:29	Calculation		AES
Total Dissolved Solids*	195	10.0		mg/L	1	08/20/19 14:30	EPA160.1		VJL
Total Suspended Solids*	22.5	4.00		mg/L	1	08/21/19 17:15	EPA160.2		VJL
Sulfate*	42.7	1.00	0.213	mg/L	1	08/29/19 17:49	EPA300.0		AES
Total Organic Carbon*	2.10	0.500	0.0670	mg/L	1	08/22/19 17:01	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/19 13:14	EPA200.7		AES
Calcium*	34.5	0.100	0.013	mg/L	1	08/20/19 13:14	EPA200.7		AES
Hardness as CaCO ₃	137	0.662	0.109	mg/L	1	08/20/19 13:14	2340 B		AES
Iron*	<0.050	0.050	0.028	mg/L	1	08/20/19 13:14	EPA200.7		AES
Magnesium*	12.3	0.100	0.019	mg/L	1	08/20/19 13:14	EPA200.7		AES
Potassium*	1.27	1.00	0.096	mg/L	1	08/20/19 13:14	EPA200.7		AES
Silica (SiO ₂)	8.86	1.07	0.0572	mg/L	1	08/20/19 13:14	Calculation		AES
Silicon	4.14	0.500	0.027	mg/L	1	08/20/19 13:14	EPA200.7		AES
Sodium*	6.62	1.00	0.367	mg/L	1	08/20/19 13:14	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0006	0.0005	0.0002	mg/L	1	08/23/19 15:31	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19 15:31	EPA200.8		AES
Copper*	0.0009	0.0001	0.0001	mg/L	1	08/23/19 15:31	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/27/19 11:35	EPA200.8		AES
Manganese*	0.0033	0.0005	0.00009	mg/L	1	08/23/19 15:31	EPA200.8		AES
Molybdenum*	0.0012	0.0005	0.00007	mg/L	1	08/23/19 15:31	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	08/23/19 15:31	EPA200.8		AES
Uranium	0.0004	0.0001	0.00008	mg/L	1	08/27/19 11:35	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	08/23/19 15:31	EPA200.8		AES

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom Bird

Reported:
09/04/19 11:13

Hay Gulch Ditch Downgradient

1908180-02 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Total Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19 09:45	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom BirdReported:
09/04/19 11:13

Well #1 Upgradient

1908180-03 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	615	10.0		mg/L	5	08/20/19 15:30	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	08/20/19 15:30	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/20/19 15:30	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	615	10.0	3.06	mg/L	5	08/20/19 15:30	2320 B		VJL
Chloride*	4.36	1.00	0.103	mg/L	1	08/29/19 18:07	EPA300.0		AES
Fluoride*	0.335	0.100	0.0147	mg/L	1	08/29/19 18:07	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/23/19 16:05	EPA353.2		LLG
pH*	7.23			pH Units	1	08/16/19 15:30	EPA150.1		CAB
Total Dissolved Solids*	780	10.0		mg/L	1	08/20/19 14:30	EPA160.1		VJL
Sulfate*	112	5.00	1.07	mg/L	5	08/30/19 10:47	EPA300.0		AES
Total Organic Carbon*	3.53	0.500	0.0670	mg/L	1	08/22/19 17:22	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/19 13:16	EPA200.7		AES
Calcium*	58.2	0.100	0.013	mg/L	1	08/20/19 13:16	EPA200.7		AES
Hardness as CaCO ₃	303	0.662	0.109	mg/L	1	08/20/19 13:16	2340 B		AES
Iron*	1.58	0.050	0.028	mg/L	1	08/20/19 13:16	EPA200.7		AES
Magnesium*	38.3	0.100	0.019	mg/L	1	08/20/19 13:16	EPA200.7		AES
Potassium*	3.01	1.00	0.096	mg/L	1	08/20/19 13:16	EPA200.7		AES
Silica (SiO ₂)	13.1	1.07	0.0572	mg/L	1	08/20/19 13:16	Calculation		AES
Silicon	6.11	0.500	0.027	mg/L	1	08/20/19 13:16	EPA200.7		AES
Sodium*	167	1.00	0.367	mg/L	1	08/20/19 13:16	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	<0.0005	0.0005	0.0002	mg/L	1	08/23/19 15:36	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19 15:36	EPA200.8		AES
Copper*	0.0019	0.0001	0.0001	mg/L	1	08/23/19 15:36	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/27/19 11:40	EPA200.8		AES
Manganese*	0.428	0.0005	0.00009	mg/L	1	08/23/19 15:36	EPA200.8		AES
Molybdenum*	<0.0005	0.0005	0.00007	mg/L	1	08/23/19 15:36	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	08/23/19 15:36	EPA200.8		AES
Uranium	0.0002	0.0001	0.00008	mg/L	1	08/27/19 11:40	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	08/23/19 15:36	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/23/19 11:27	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom BirdReported:
09/04/19 11:13

MW-HGA-4

1908180-04 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	455	10.0		mg/L	5	08/20/19 15:30	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	08/20/19 15:30	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/20/19 15:30	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	455	10.0	3.06	mg/L	5	08/20/19 15:30	2320 B		VJL
Chloride*	8.44	1.00	0.103	mg/L	1	08/29/19 18:25	EPA300.0		AES
Fluoride*	0.443	0.100	0.0147	mg/L	1	08/29/19 18:25	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/23/19 16:07	EPA353.2		LLG
pH*	6.95			pH Units	1	08/16/19 15:30	EPA150.1		CAB
Total Dissolved Solids*	695	10.0		mg/L	1	08/20/19 14:30	EPA160.1		VJL
Sulfate*	212	5.00	1.07	mg/L	5	08/30/19 11:04	EPA300.0		AES
Total Organic Carbon*	4.58	0.500	0.0670	mg/L	1	08/22/19 17:38	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/19 13:19	EPA200.7		AES
Calcium*	106	0.100	0.013	mg/L	1	08/20/19 13:19	EPA200.7		AES
Hardness as CaCO ₃	544	0.662	0.109	mg/L	1	08/20/19 13:19	2340 B		AES
Iron*	8.38	0.050	0.028	mg/L	1	08/20/19 13:19	EPA200.7		AES
Magnesium*	67.9	0.100	0.019	mg/L	1	08/20/19 13:19	EPA200.7		AES
Potassium*	2.10	1.00	0.096	mg/L	1	08/20/19 13:19	EPA200.7		AES
Silica (SiO ₂)	14.9	1.07	0.0572	mg/L	1	08/20/19 13:19	Calculation		AES
Silicon	6.96	0.500	0.027	mg/L	1	08/20/19 13:19	EPA200.7		AES
Sodium*	28.3	1.00	0.367	mg/L	1	08/20/19 13:19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0028	0.0005	0.0002	mg/L	1	08/23/19 15:40	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19 15:40	EPA200.8		AES
Copper*	0.0004	0.0001	0.0001	mg/L	1	08/23/19 15:40	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/27/19 11:53	EPA200.8		AES
Manganese*	1.84	0.0005	0.00009	mg/L	1	08/23/19 15:40	EPA200.8		AES
Molybdenum*	0.0029	0.0005	0.00007	mg/L	1	08/23/19 15:40	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	08/23/19 15:40	EPA200.8		AES
Uranium	0.0004	0.0001	0.00008	mg/L	1	08/27/19 11:53	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	08/23/19 15:40	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/23/19 11:27	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom BirdReported:
09/04/19 11:13

Hay Gulch Ditch Upgradient

1908180-05 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	103	10.0		mg/L	1	08/20/19 15:30	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	08/20/19 15:30	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/20/19 15:30	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	103	10.0	3.06	mg/L	1	08/20/19 15:30	2320 B		VJL
Chloride*	6.04	1.00	0.103	mg/L	1	08/29/19 18:43	EPA300.0		AES
Fluoride*	0.214	0.100	0.0147	mg/L	1	08/29/19 18:43	EPA300.0		AES
Nitrate/Nitrite as N*	0.072	0.020	0.006	mg/L	1	08/23/19 16:08	EPA353.2		LLG
Oil & Grease (HEM)	<5.00	5.00	1.16	mg/L	1	08/26/19 13:00	EPA1664 A		JDA
pH*	7.83			pH Units	1	08/16/19 15:30	EPA150.1		CAB
SAR	0.22			No Unit	1	08/28/19 16:37	Calculation		AES
Total Dissolved Solids*	225	10.0		mg/L	1	08/20/19 14:30	EPA160.1		VJL
Total Suspended Solids*	20.0	4.00		mg/L	1	08/21/19 17:15	EPA160.2		VJL
Sulfate*	35.6	1.00	0.213	mg/L	1	08/29/19 18:43	EPA300.0	M5	AES
Total Organic Carbon*	1.84	0.500	0.0670	mg/L	1	08/22/19 18:26	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/19 13:22	EPA200.7		AES
Calcium*	32.4	0.100	0.013	mg/L	1	08/20/19 13:22	EPA200.7		AES
Hardness as CaCO ₃	125	0.662	0.109	mg/L	1	08/20/19 13:22	2340 B		AES
Iron*	<0.050	0.050	0.028	mg/L	1	08/20/19 13:22	EPA200.7		AES
Magnesium*	10.8	0.100	0.019	mg/L	1	08/20/19 13:22	EPA200.7		AES
Potassium*	1.07	1.00	0.096	mg/L	1	08/20/19 13:22	EPA200.7		AES
Silica (SiO ₂)	9.17	1.07	0.0572	mg/L	1	08/20/19 13:22	Calculation		AES
Silicon	4.29	0.500	0.027	mg/L	1	08/20/19 13:22	EPA200.7		AES
Sodium*	5.81	1.00	0.367	mg/L	1	08/20/19 13:22	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0007	0.0005	0.0002	mg/L	1	08/23/19 15:45	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19 15:45	EPA200.8		AES
Copper*	0.0012	0.0001	0.0001	mg/L	1	08/23/19 15:45	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/27/19 11:57	EPA200.8		AES
Manganese*	0.0096	0.0005	0.00009	mg/L	1	08/23/19 15:45	EPA200.8		AES
Molybdenum*	0.0011	0.0005	0.00007	mg/L	1	08/23/19 15:45	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	08/23/19 15:45	EPA200.8		AES
Uranium	0.0004	0.0001	0.00008	mg/L	1	08/27/19 11:57	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	08/23/19 15:45	EPA200.8		AES

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom Bird

Reported:
09/04/19 11:13

Hay Gulch Ditch Upgradient

1908180-05 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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Total Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19 09:45	EPA245.1		LLG
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Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom BirdReported:
09/04/19 11:13

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908112 - General Prep - Wet Chem

Blank (B908112-BLK1)

Prepared & Analyzed: 08/13/19

Oil & Grease (HEM) ND 5.00 mg/L

LCS (B908112-BS1)

Prepared & Analyzed: 08/13/19

Oil & Grease (HEM) 34.4 5.00 mg/L 40.0 86.0 85-115

LCS Dup (B908112-BSD1)

Prepared & Analyzed: 08/13/19

Oil & Grease (HEM) 34.3 5.00 mg/L 40.0 85.8 85-115 0.291 20

Batch B908190 - General Prep - Wet Chem

Blank (B908190-BLK1)

Prepared & Analyzed: 08/20/19

Total Dissolved Solids ND 10.0 mg/L

Duplicate (B908190-DUP1)

Source: 1908169-01 Prepared & Analyzed: 08/20/19

Total Dissolved Solids 325 10.0 mg/L 315 3.13 20

Reference (B908190-SRM1)

Prepared & Analyzed: 08/20/19

Total Dissolved Solids 600 10.0 mg/L 600 100 85-115

Batch B908192 - General Prep - Wet Chem

Blank (B908192-BLK1)

Prepared & Analyzed: 08/20/19

Alkalinity, Total as CaCO₃ ND 10.0 mg/L

LCS (B908192-BS1)

Prepared & Analyzed: 08/20/19

Alkalinity, Total as CaCO₃ 98.0 10.0 mg/L 100 98.0 85-115

LCS Dup (B908192-BSD1)

Prepared & Analyzed: 08/20/19

Alkalinity, Total as CaCO₃ 101 10.0 mg/L 100 101 85-115 3.02 20

Batch B908199 - General Prep - Wet Chem

Blank (B908199-BLK1)

Prepared: 08/20/19 Analyzed: 08/23/19

Nitrate/Nitrite as N ND 0.020 mg/L

LCS (B908199-BS1)

Prepared: 08/20/19 Analyzed: 08/23/19

Nitrate/Nitrite as N 1.03 0.020 mg/L 1.00 103 90-110

LCS Dup (B908199-BSD1)

Prepared: 08/20/19 Analyzed: 08/23/19

Nitrate/Nitrite as N 1.02 0.020 mg/L 1.00 102 90-110 0.943 20

Batch B908200 - General Prep - Wet Chem

Duplicate (B908200-DUP1)

Source: 1908171-01 Prepared & Analyzed: 08/16/19

pH 7.16 pH Units 7.08 1.12 20

Reference (B908200-SRM1)

Prepared & Analyzed: 08/16/19

pH 6.97 pH Units 7.00 99.6 98.5-101.4

Batch B908213 - General Prep - Wet Chem

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom BirdReported:
09/04/19 11:13General Chemistry - Quality Control
(Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (B908213-BLK1) Prepared & Analyzed: 08/21/19										
Total Suspended Solids	ND	4.00	mg/L							
Duplicate (B908213-DUP1) Source: 1908178-01 Prepared & Analyzed: 08/21/19										
Total Suspended Solids	15.3	4.00	mg/L		14.8			3.33	20	
Reference (B908213-SRM1) Prepared & Analyzed: 08/21/19										
Total Suspended Solids	97.0	4.00	mg/L	100		97.0	85-115			
Batch B908220 - General Prep - Wet Chem										
Blank (B908220-BLK1) Prepared & Analyzed: 08/22/19										
Total Organic Carbon	ND	0.500	mg/L							
LCS (B908220-BS1) Prepared & Analyzed: 08/22/19										
Total Organic Carbon	10.2	0.500	mg/L	10.0		102	85-115			
LCS Dup (B908220-BSD1) Prepared & Analyzed: 08/22/19										
Total Organic Carbon	10.3	0.500	mg/L	10.0		103	85-115	0.391	20	
Batch B908289 - General Prep - Wet Chem										
Blank (B908289-BLK1) Prepared & Analyzed: 08/29/19										
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B908289-BS1) Prepared & Analyzed: 08/29/19										
Chloride	24.2	1.00	mg/L	25.0		96.8	90-110			
Fluoride	2.44	0.100	mg/L	2.50		97.6	90-110			
Sulfate	24.1	1.00	mg/L	25.0		96.2	90-110			
LCS Dup (B908289-BSD1) Prepared & Analyzed: 08/29/19										
Chloride	25.8	1.00	mg/L	25.0		103	90-110	6.25	20	
Fluoride	2.63	0.100	mg/L	2.50		105	90-110	7.61	20	
Sulfate	25.5	1.00	mg/L	25.0		102	90-110	5.79	20	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom Bird

Reported:
09/04/19 11:13

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908173 - Diss. 200.7/200.8

Blank (B908173-BLK1)

Prepared: 08/19/19 Analyzed: 08/20/19

Aluminum	ND	0.050	mg/L
Calcium	ND	0.100	mg/L
Iron	ND	0.050	mg/L
Magnesium	ND	0.100	mg/L
Potassium	ND	1.00	mg/L
Silicon	ND	0.500	mg/L
Sodium	ND	1.00	mg/L

LCS (B908173-BS1)

Prepared: 08/19/19 Analyzed: 08/20/19

Aluminum	4.75	0.050	mg/L	5.00	95.1	85-115
Calcium	4.67	0.100	mg/L	5.00	93.3	85-115
Iron	4.81	0.050	mg/L	5.00	96.2	85-115
Magnesium	23.9	0.100	mg/L	25.0	95.6	85-115
Potassium	9.53	1.00	mg/L	10.0	95.3	85-115
Silicon	5.08	0.500	mg/L	5.00	102	85-115
Sodium	3.90	1.00	mg/L	4.05	96.2	85-115

LCS Dup (B908173-BSD1)

Prepared: 08/19/19 Analyzed: 08/20/19

Aluminum	4.79	0.050	mg/L	5.00	95.7	85-115	0.671	20
Calcium	4.58	0.100	mg/L	5.00	91.6	85-115	1.86	20
Iron	4.86	0.050	mg/L	5.00	97.2	85-115	1.05	20
Magnesium	23.5	0.100	mg/L	25.0	94.0	85-115	1.67	20
Potassium	9.67	1.00	mg/L	10.0	96.7	85-115	1.50	20
Silicon	5.12	0.500	mg/L	5.00	102	85-115	0.775	20
Sodium	3.95	1.00	mg/L	4.05	97.6	85-115	1.38	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom BirdReported:
09/04/19 11:13

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908174 - Diss. 200.7/200.8

Blank (B908174-BLK1)

Prepared: 08/19/19 Analyzed: 08/23/19

Arsenic	ND	0.0005	mg/L
Cadmium	ND	0.0001	mg/L
Copper	ND	0.0001	mg/L
Lead	ND	0.0005	mg/L
Manganese	ND	0.0005	mg/L
Molybdenum	ND	0.0005	mg/L
Selenium	ND	0.0010	mg/L
Uranium	ND	0.0001	mg/L
Zinc	ND	0.0020	mg/L

LCS (B908174-BS1)

Prepared: 08/19/19 Analyzed: 08/23/19

Arsenic	0.0529	0.0005	mg/L	0.0500	106	85-115
Cadmium	0.0515	0.0001	mg/L	0.0500	103	85-115
Copper	0.0536	0.0001	mg/L	0.0500	107	85-115
Lead	0.0514	0.0005	mg/L	0.0500	103	85-115
Manganese	0.0517	0.0005	mg/L	0.0500	103	85-115
Molybdenum	0.0510	0.0005	mg/L	0.0500	102	85-115
Selenium	0.272	0.0010	mg/L	0.250	109	85-115
Uranium	0.0503	0.0001	mg/L	0.0500	101	85-115
Zinc	0.0545	0.0020	mg/L	0.0500	109	85-115

LCS Dup (B908174-BSD1)

Prepared: 08/19/19 Analyzed: 08/23/19

Arsenic	0.0516	0.0005	mg/L	0.0500	103	85-115	2.47	20
Cadmium	0.0505	0.0001	mg/L	0.0500	101	85-115	1.95	20
Copper	0.0511	0.0001	mg/L	0.0500	102	85-115	4.92	20
Lead	0.0504	0.0005	mg/L	0.0500	101	85-115	2.02	20
Manganese	0.0509	0.0005	mg/L	0.0500	102	85-115	1.70	20
Molybdenum	0.0498	0.0005	mg/L	0.0500	99.7	85-115	2.24	20
Selenium	0.269	0.0010	mg/L	0.250	107	85-115	1.24	20
Uranium	0.0491	0.0001	mg/L	0.0500	98.3	85-115	2.42	20
Zinc	0.0516	0.0020	mg/L	0.0500	103	85-115	5.42	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom BirdReported:
09/04/19 11:13

Total Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908171 - EPA 245.1/7470

Blank (B908171-BLK1)

Prepared: 08/19/19 Analyzed: 08/21/19

Mercury	ND	0.0002	mg/L
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LCS (B908171-BS1)

Prepared: 08/19/19 Analyzed: 08/21/19

Mercury	0.0054	0.0002	mg/L	0.00500	107	85-115
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LCS Dup (B908171-BSD1)

Prepared: 08/19/19 Analyzed: 08/21/19

Mercury	0.0051	0.0002	mg/L	0.00500	102	85-115	5.02	20
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Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908215 - EPA 245.1/7470

Blank (B908215-BLK1)

Prepared: 08/22/19 Analyzed: 08/23/19

Mercury	ND	0.0002	mg/L
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LCS (B908215-BS1)

Prepared: 08/22/19 Analyzed: 08/23/19

Mercury	0.0051	0.0002	mg/L	0.00500	102	85-115
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LCS Dup (B908215-BSD1)

Prepared: 08/22/19 Analyzed: 08/23/19

Mercury	0.0053	0.0002	mg/L	0.00500	105	85-115	2.96	20
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW & SW Baseline
Project Name / Number: [none]
Project Manager: Tom Bird

Reported:
09/04/19 11:13

Notes and Definitions

M5	Sample was chosen for matrix spike. Spike recovery did not meet laboratory acceptance criteria, possible matrix interference in sample.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis *Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)
RL	Report Limit
MDL	Method Detection Limit

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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service@greenanalytical.com or dzufelt@greenanalytical.com
75 Suttle St Durango, CO 81303

9

[illegible]

Project Information

Printed: 08/16/2019 3:57 pm

GCC Energy, LLC

6473 CR 120

Hesperus, CO 81326

Laboratory PM: Debbie Zufelt

King Coal

Phone: (970) 385-4528

Fax: (970) 385-4638

Project Name: GCC SW Baseline
Project Number: GCC SW Baseline
Client PM: Tom Bird
Comments: All Metals Are Field Filtered. Send Out PRESERVED bottles per Landon. 11-01-18

Analysis	Comment
Alkalinity, Bicarbonate	
Alkalinity, Carbonate	
Alkalinity, Hydroxide	
Alkalinity, Total	
Aluminum Dissolved by ICP	
Arsenic Dissolved by ICPMS	
Cadmium Dissolved by ICPMS	
Chloride by IC	
Copper Dissolved by ICPMS	
Fluoride by IC	
Hardness, diss	
Iron Dissolved by ICP	
Lead Dissolved by ICPMS	
Manganese Dissolved by ICPMS	
Mercury Total by CVAA	
Molybdenum Dissolved by ICPMS	
Nitrate/Nitrite as N	
Oil & Grease	
pH	
Potassium Dissolved by ICP	
SAR	
Selenium Dissolved by ICPMS	
Silica Dissolved by ICP Package	
Sodium Dissolved by ICP	
Solids, Total Dissolved (TDS)	
Solids, Total Suspended (TSS)	
Sulfate by IC	
Total Organic Carbon	
Uranium Dissolved by ICPMS	
Zinc Dissolved by ICPMS	

Hardness, diss subanalyses:

Calcium Dissolved by ICP

Magnesium Dissolved by ICP

Silica Dissolved by ICP Package subanalyses:

Silicon Dissolved by ICP



75 Suttle Street
Durango, CO 81303
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www.greenanalytical.com

24 August 2019

Tom Bird
GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326
RE: GCC GW Baseline

Enclosed are the results of analyses for samples received by the laboratory on 08/14/19 16:34.
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads 'Debbie Zufelt'. The script is cursive and fluid, with the first name 'Debbie' and last name 'Zufelt' clearly legible.

Debbie Zufelt
Reports Manager

All accredited analytes contained in this report are denoted by an asterisk (*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8.



GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/24/19 15:02

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-1-C	1908153-01	Water	08/14/19 08:40	08/14/19 16:34	
MW-1-A	1908153-02	Water	08/14/19 09:26	08/14/19 16:34	
MW-3-A	1908153-03	Water	08/14/19 14:52	08/14/19 16:34	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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dzufelt@greenanalytical.com p: 970.247.4220 f: 970.247.4227 75 Suttle Street Durango, CO 81303

www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/24/19 15:02

MW-1-C

1908153-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	518	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	518	10.0	3.06	mg/L	1	08/19/19	2320 B		VJL
Chloride*	9.31	5.00	0.513	mg/L	5	08/22/19	EPA300.0		AES
Fluoride*	0.525	0.500	0.0733	mg/L	5	08/22/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/23/19	EPA353.2		LLG
pH*	6.67			pH Units	1	08/15/19	EPA150.1		CAB
Total Dissolved Solids*	2890	10.0		mg/L	1	08/19/19	EPA160.1		VJL
Sulfate*	1730	50.0	10.7	mg/L	50	08/22/19	EPA300.0		AES
Total Organic Carbon*	2.52	0.500	0.0670	mg/L	1	08/21/19	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.250	0.250	0.125	mg/L	5	08/20/19	EPA200.7		AES
Calcium*	342	0.500	0.064	mg/L	5	08/20/19	EPA200.7		AES
Hardness as CaCO ₃	1840	3.31	0.546	mg/L	5	08/20/19	2340 B		AES
Iron*	0.819	0.250	0.138	mg/L	5	08/20/19	EPA200.7		AES
Magnesium*	240	0.500	0.094	mg/L	5	08/20/19	EPA200.7		AES
Potassium*	<5.00	5.00	0.478	mg/L	5	08/20/19	EPA200.7		AES
Silica (SiO ₂)	17.3	5.35	0.286	mg/L	5	08/20/19	Calculation		AES
Silicon	8.07	2.50	0.134	mg/L	5	08/20/19	EPA200.7		AES
Sodium*	119	5.00	1.83	mg/L	5	08/20/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0034	0.0010	0.0004	mg/L	2	08/23/19	EPA200.8		AES
Cadmium*	<0.0002	0.0002	0.00008	mg/L	2	08/23/19	EPA200.8		AES
Copper*	0.0014	0.0002	0.0002	mg/L	2	08/23/19	EPA200.8		AES
Lead*	<0.0010	0.0010	0.0002	mg/L	2	08/23/19	EPA200.8		AES
Manganese*	0.0562	0.0010	0.0002	mg/L	2	08/23/19	EPA200.8		AES
Molybdenum*	<0.0010	0.0010	0.0001	mg/L	2	08/23/19	EPA200.8		AES
Selenium*	0.0023	0.0020	0.0013	mg/L	2	08/23/19	EPA200.8		AES
Uranium	0.0025	0.0002	0.0002	mg/L	2	08/23/19	EPA200.8		AES
Zinc*	0.0077	0.0040	0.0007	mg/L	2	08/23/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/24/19 15:02

MW-1-A

1908153-02 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	368	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	368	10.0	3.06	mg/L	1	08/19/19	2320 B		VJL
Chloride*	2.72	2.00	0.205	mg/L	2	08/22/19	EPA300.0		AES
Fluoride*	0.252	0.200	0.0293	mg/L	2	08/22/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/23/19	EPA353.2		LLG
pH*	7.14			pH Units	1	08/15/19	EPA150.1		CAB
Total Dissolved Solids*	1150	10.0		mg/L	1	08/19/19	EPA160.1		VJL
Sulfate*	537	20.0	4.26	mg/L	20	08/22/19	EPA300.0		AES
Total Organic Carbon*	1.59	0.500	0.0670	mg/L	1	08/21/19	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/19	EPA200.7		AES
Calcium*	27.9	0.100	0.013	mg/L	1	08/20/19	EPA200.7		AES
Hardness as CaCO ₃	148	0.662	0.109	mg/L	1	08/20/19	2340 B		AES
Iron*	0.613	0.050	0.028	mg/L	1	08/20/19	EPA200.7		AES
Magnesium*	18.9	0.100	0.019	mg/L	1	08/20/19	EPA200.7		AES
Potassium*	2.29	1.00	0.096	mg/L	1	08/20/19	EPA200.7		AES
Silica (SiO ₂)	11.6	1.07	0.0572	mg/L	1	08/20/19	Calculation		AES
Silicon	5.43	0.500	0.027	mg/L	1	08/20/19	EPA200.7		AES
Sodium*	348	1.00	0.367	mg/L	1	08/20/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	<0.0005	0.0005	0.0002	mg/L	1	08/23/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19	EPA200.8		AES
Copper*	0.0040	0.0002	0.0002	mg/L	2	08/23/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/23/19	EPA200.8		AES
Manganese*	0.0270	0.0010	0.0002	mg/L	2	08/23/19	EPA200.8		AES
Molybdenum*	<0.0005	0.0005	0.00007	mg/L	1	08/23/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	08/23/19	EPA200.8		AES
Uranium	0.0001	0.0001	0.00008	mg/L	1	08/23/19	EPA200.8		AES
Zinc*	<0.0040	0.0040	0.0007	mg/L	2	08/23/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/24/19 15:02

MW-3-A

1908153-03 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	423	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	36.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	459	10.0	3.06	mg/L	1	08/19/19	2320 B		VJL
Chloride*	15.0	2.00	0.205	mg/L	2	08/22/19	EPA300.0		AES
Fluoride*	0.396	0.200	0.0293	mg/L	2	08/22/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/23/19	EPA353.2		LLG
pH*	8.27			pH Units	1	08/15/19	EPA150.1		CAB
Total Dissolved Solids*	1520	10.0		mg/L	1	08/19/19	EPA160.1		VJL
Sulfate*	724	20.0	4.26	mg/L	20	08/23/19	EPA300.0		AES
Total Organic Carbon*	3.84	0.500	0.0670	mg/L	1	08/21/19	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	08/20/19	EPA200.7		AES
Calcium*	3.08	0.200	0.026	mg/L	2	08/20/19	EPA200.7		AES
Hardness as CaCO ₃	10.4	1.32	0.219	mg/L	2	08/20/19	2340 B		AES
Iron*	<0.100	0.100	0.055	mg/L	2	08/20/19	EPA200.7		AES
Magnesium*	0.655	0.200	0.038	mg/L	2	08/20/19	EPA200.7		AES
Potassium*	<2.00	2.00	0.191	mg/L	2	08/20/19	EPA200.7		AES
Silica (SiO ₂)	12.7	2.14	0.114	mg/L	2	08/20/19	Calculation		AES
Silicon	5.95	1.00	0.053	mg/L	2	08/20/19	EPA200.7		AES
Sodium*	553	2.00	0.734	mg/L	2	08/20/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	<0.0010	0.0010	0.0004	mg/L	2	08/23/19	EPA200.8		AES
Cadmium*	<0.0002	0.0002	0.00008	mg/L	2	08/23/19	EPA200.8		AES
Copper*	0.0067	0.0004	0.0004	mg/L	4	08/23/19	EPA200.8		AES
Lead*	<0.0010	0.0010	0.0002	mg/L	2	08/23/19	EPA200.8		AES
Manganese*	0.0166	0.0020	0.0004	mg/L	4	08/23/19	EPA200.8		AES
Molybdenum*	0.0018	0.0010	0.0001	mg/L	2	08/23/19	EPA200.8		AES
Selenium*	0.0020	0.0020	0.0013	mg/L	2	08/23/19	EPA200.8		AES
Uranium	0.0012	0.0002	0.0002	mg/L	2	08/23/19	EPA200.8		AES
Zinc*	<0.0080	0.0080	0.0014	mg/L	4	08/23/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/24/19 15:02

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908147 - General Prep - Wet Chem

Duplicate (B908147-DUP1)		Source: 1908147-01		Prepared & Analyzed: 08/15/19						
pH	7.25		pH Units	7.20				0.692	20	
Reference (B908147-SRM1)		Prepared & Analyzed: 08/15/19								
pH	6.97		pH Units	7.00		99.6	98.5-101.4			

Batch B908162 - General Prep - Wet Chem

Blank (B908162-BLK1)		Prepared & Analyzed: 08/19/19								
Alkalinity, Total as CaCO ₃	ND	10.0	mg/L							
LCS (B908162-BS1)		Prepared & Analyzed: 08/19/19								
Alkalinity, Total as CaCO ₃	105	10.0	mg/L	100		105	85-115			
LCS Dup (B908162-BSD1)		Prepared & Analyzed: 08/19/19								
Alkalinity, Total as CaCO ₃	107	10.0	mg/L	100		107	85-115	1.89	20	

Batch B908177 - General Prep - Wet Chem

Blank (B908177-BLK1)		Prepared & Analyzed: 08/19/19								
Total Dissolved Solids	ND	10.0	mg/L							
Duplicate (B908177-DUP1)		Source: 1908147-01		Prepared & Analyzed: 08/19/19						
Total Dissolved Solids	1670	10.0	mg/L	1690				1.20	20	
Reference (B908177-SRM1)		Prepared & Analyzed: 08/19/19								
Total Dissolved Solids	595	10.0	mg/L	600		99.2	85-115			

Batch B908198 - General Prep - Wet Chem

Blank (B908198-BLK1)		Prepared: 08/20/19 Analyzed: 08/23/19								
Nitrate/Nitrite as N	ND	0.020	mg/L							
LCS (B908198-BS1)		Prepared: 08/20/19 Analyzed: 08/23/19								
Nitrate/Nitrite as N	1.02	0.020	mg/L	1.00		102	90-110			
LCS Dup (B908198-BSD1)		Prepared: 08/20/19 Analyzed: 08/23/19								
Nitrate/Nitrite as N	1.03	0.020	mg/L	1.00		103	90-110	0.498	20	

Batch B908209 - General Prep - Wet Chem

Blank (B908209-BLK1)		Prepared & Analyzed: 08/21/19								
Total Organic Carbon	ND	0.500	mg/L							
LCS (B908209-BS1)		Prepared & Analyzed: 08/21/19								
Total Organic Carbon	9.99	0.500	mg/L	10.0		99.9	85-115			
LCS Dup (B908209-BSD1)		Prepared & Analyzed: 08/21/19								
Total Organic Carbon	10.3	0.500	mg/L	10.0		103	85-115	3.24	20	

Batch B908229 - General Prep - Wet Chem

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/24/19 15:02

General Chemistry - Quality Control
(Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (B908229-BLK1) Prepared & Analyzed: 08/22/19										
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B908229-BS1) Prepared & Analyzed: 08/22/19										
Chloride	24.5	1.00	mg/L	25.0		97.9	90-110			
Fluoride	2.46	0.100	mg/L	2.50		98.6	90-110			
Sulfate	24.6	1.00	mg/L	25.0		98.4	90-110			
LCS Dup (B908229-BSD1) Prepared & Analyzed: 08/22/19										
Chloride	25.8	1.00	mg/L	25.0		103	90-110	5.14	20	
Fluoride	2.61	0.100	mg/L	2.50		104	90-110	5.83	20	
Sulfate	25.6	1.00	mg/L	25.0		102	90-110	3.85	20	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/24/19 15:02

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908173 - Diss. 200.7/200.8

Blank (B908173-BLK1)

Prepared: 08/19/19 Analyzed: 08/20/19

Aluminum	ND	0.050	mg/L
Calcium	ND	0.100	mg/L
Iron	ND	0.050	mg/L
Magnesium	ND	0.100	mg/L
Potassium	ND	1.00	mg/L
Silicon	ND	0.500	mg/L
Sodium	ND	1.00	mg/L

LCS (B908173-BS1)

Prepared: 08/19/19 Analyzed: 08/20/19

Aluminum	4.75	0.050	mg/L	5.00	95.1	85-115
Calcium	4.67	0.100	mg/L	5.00	93.3	85-115
Iron	4.81	0.050	mg/L	5.00	96.2	85-115
Magnesium	23.9	0.100	mg/L	25.0	95.6	85-115
Potassium	9.53	1.00	mg/L	10.0	95.3	85-115
Silicon	5.08	0.500	mg/L	5.00	102	85-115
Sodium	3.90	1.00	mg/L	4.05	96.2	85-115

LCS Dup (B908173-BSD1)

Prepared: 08/19/19 Analyzed: 08/20/19

Aluminum	4.79	0.050	mg/L	5.00	95.7	85-115	0.671	20
Calcium	4.58	0.100	mg/L	5.00	91.6	85-115	1.86	20
Iron	4.86	0.050	mg/L	5.00	97.2	85-115	1.05	20
Magnesium	23.5	0.100	mg/L	25.0	94.0	85-115	1.67	20
Potassium	9.67	1.00	mg/L	10.0	96.7	85-115	1.50	20
Silicon	5.12	0.500	mg/L	5.00	102	85-115	0.775	20
Sodium	3.95	1.00	mg/L	4.05	97.6	85-115	1.38	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/24/19 15:02

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908174 - Diss. 200.7/200.8

Blank (B908174-BLK1)

Prepared: 08/19/19 Analyzed: 08/23/19

Arsenic	ND	0.0005	mg/L
Cadmium	ND	0.0001	mg/L
Copper	ND	0.0001	mg/L
Lead	ND	0.0005	mg/L
Manganese	ND	0.0005	mg/L
Molybdenum	ND	0.0005	mg/L
Selenium	ND	0.0010	mg/L
Uranium	ND	0.0001	mg/L
Zinc	ND	0.0020	mg/L

LCS (B908174-BS1)

Prepared: 08/19/19 Analyzed: 08/23/19

Arsenic	0.0529	0.0005	mg/L	0.0500	106	85-115
Cadmium	0.0515	0.0001	mg/L	0.0500	103	85-115
Copper	0.0536	0.0001	mg/L	0.0500	107	85-115
Lead	0.0514	0.0005	mg/L	0.0500	103	85-115
Manganese	0.0517	0.0005	mg/L	0.0500	103	85-115
Molybdenum	0.0510	0.0005	mg/L	0.0500	102	85-115
Selenium	0.272	0.0010	mg/L	0.250	109	85-115
Uranium	0.0503	0.0001	mg/L	0.0500	101	85-115
Zinc	0.0545	0.0020	mg/L	0.0500	109	85-115

LCS Dup (B908174-BSD1)

Prepared: 08/19/19 Analyzed: 08/23/19

Arsenic	0.0516	0.0005	mg/L	0.0500	103	85-115	2.47	20
Cadmium	0.0505	0.0001	mg/L	0.0500	101	85-115	1.95	20
Copper	0.0511	0.0001	mg/L	0.0500	102	85-115	4.92	20
Lead	0.0504	0.0005	mg/L	0.0500	101	85-115	2.02	20
Manganese	0.0509	0.0005	mg/L	0.0500	102	85-115	1.70	20
Molybdenum	0.0498	0.0005	mg/L	0.0500	99.7	85-115	2.24	20
Selenium	0.269	0.0010	mg/L	0.250	107	85-115	1.24	20
Uranium	0.0491	0.0001	mg/L	0.0500	98.3	85-115	2.42	20
Zinc	0.0516	0.0020	mg/L	0.0500	103	85-115	5.42	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/24/19 15:02

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B908170 - EPA 245.1/7470										
Blank (B908170-BLK1)				Prepared: 08/19/19 Analyzed: 08/21/19						
Mercury	ND	0.0002	mg/L							
LCS (B908170-BS1)				Prepared: 08/19/19 Analyzed: 08/21/19						
Mercury	0.0048	0.0002	mg/L	0.00500		96.3	85-115			
LCS Dup (B908170-BSD1)				Prepared: 08/19/19 Analyzed: 08/21/19						
Mercury	0.0048	0.0002	mg/L	0.00500		96.8	85-115	0.559	20	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/24/19 15:02

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis *Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)
RL	Report Limit
MDL	Method Detection Limit

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

FORM-006
COC - Revision 5.0

(970) 247-4220
Fax: (970) 247-4227

service@greenanalytical.com or dzufelt@greenanalytical.com
75 Suttle St Durango, CO 81303

Bill to (if different):

ANALYSIS REQUEST

Company or Client: GCC Energy
Address: 6443 CR 12D

P.O. #:

City: Hesperus State: CO Zip: 81326

Company:

Phone #: 970-385-4588

Attn:

Contact Person: TDM Bird

Address:

Email Report to: TDM Bird, Landon Beck

City:

Project Name (optional): GCC GW Baseline

State:

Zip:

Phone #:

Email:

Sampler Name (Print):

Collected

Matrix (check one)

of containers

For Lab Use

Sample Name or Location

GROUNDWATER
SURFACEWATER
WASTEWATER
PRODUCEDWATER
SOIL
DRINKING WATER
OTHER :

No preservation (general)
HNO₃
HCl
H₂SO₄
Other:
Other:

1908

MW-1-C

08/14/19 0840

X

1

1

1

1

1

1908

MW-1-A

08/14/19 0926

X

1

1

1

1

1

03

MW-3-A

08/14/19 1452

X

1

1

1

1

1

cancel
per M.M.
08/15/19
do not cancel per
M.M. 08/16/19

GW Baseline

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Relinquished By:

Date: 8-14-19
Time: 1631

Received By:

ADDITIONAL REMARKS:

Report to State? (Circle)

Michael A. Furland

Date: 8-14-19
Time: 1631

Received By:

ADDITIONAL REMARKS:

Report to State? (Circle)

Relinquished By:

Date:

Received By:

Relinquished By:

Date:

Received By:

Relinquished By:

Date:

Received By:

Relinquished By:

Date:

Received By:

Relinquished By:

Date:

Received By:

Relinquished By:

Date:

Received By:

Temperature at receipt:

48/46

#1 can

Relinquished By:

Date:

Received By:

Temperature at receipt:

48/46

#1 can

* Chain of Custody must be signed in "Relinquished By:" as an acceptance of services and all applicable charges.



75 Suttle Street
Durango, CO 81303
970.247.4220 Phone
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06 September 2019

Tom Bird
GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326
RE: GCC GW Baseline

Enclosed are the results of analyses for samples received by the laboratory on 08/21/19 16:13.
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Jeremy D. Allen', is written in a cursive style.

Jeremy D Allen For Debbie Zufelt
Reports Manager

All accredited analytes contained in this report are denoted by an asterisk (*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8.



GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/06/19 14:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-3-MI	1908235-01	Water	08/21/19 12:42	08/21/19 16:13	
MW-99-A	1908235-02	Water	08/21/19 09:40	08/21/19 16:13	

Green Analytical Laboratories

Jeremy D Allen For Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
09/06/19 14:03

MW-3-MI

1908235-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	590	10.0		mg/L	5	08/30/19 10:45	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	130	10.0		mg/L	5	08/30/19 10:45	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/30/19 10:45	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	720	10.0	3.06	mg/L	5	08/30/19 10:45	2320 B		VJL
Chloride*	10.2	2.00	0.205	mg/L	2	09/04/19 23:54	EPA300.0		AES
Fluoride*	1.19	0.200	0.0293	mg/L	2	09/04/19 23:54	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	09/03/19 10:32	EPA353.2		LLG
pH*	8.58			pH Units	1	08/28/19 08:30	EPA150.1	H4	VJL
Total Dissolved Solids*	1010	10.0		mg/L	1	08/28/19 12:40	EPA160.1		VJL
Sulfate*	236	10.0	2.13	mg/L	10	09/05/19 00:12	EPA300.0		AES
Total Organic Carbon*	6.17	0.500	0.0670	mg/L	1	08/30/19 18:12	5310C		LLG

Dissolved Metals by ICP

Aluminum*	0.167	0.100	0.050	mg/L	2	09/05/19 10:36	EPA200.7		AES
Calcium*	2.04	0.200	0.026	mg/L	2	09/05/19 10:36	EPA200.7		AES
Hardness as CaCO ₃	7.98	1.32	0.219	mg/L	2	09/05/19 10:36	2340 B		AES
Iron*	<0.100	0.100	0.055	mg/L	2	09/05/19 10:36	EPA200.7		AES
Magnesium*	0.703	0.200	0.038	mg/L	2	09/05/19 10:36	EPA200.7		AES
Potassium*	<2.00	2.00	0.191	mg/L	2	09/05/19 10:36	EPA200.7		AES
Silica (SiO ₂)	9.73	2.14	0.114	mg/L	2	09/05/19 10:36	Calculation		AES
Silicon	4.55	1.00	0.053	mg/L	2	09/05/19 10:36	EPA200.7		AES
Sodium*	454	2.00	0.734	mg/L	2	09/05/19 10:36	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0142	0.0005	0.0002	mg/L	1	08/28/19 13:27	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/28/19 13:27	EPA200.8		AES
Copper*	0.0049	0.0001	0.0001	mg/L	1	08/28/19 13:27	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/28/19 13:27	EPA200.8		AES
Manganese*	0.0079	0.0005	0.00009	mg/L	1	08/28/19 13:27	EPA200.8		AES
Molybdenum*	0.0277	0.0005	0.00007	mg/L	1	08/28/19 13:27	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	08/28/19 13:27	EPA200.8		AES
Uranium	0.0080	0.0001	0.00008	mg/L	1	08/28/19 13:27	EPA200.8		AES
Zinc*	0.0070	0.0020	0.0004	mg/L	1	08/28/19 13:27	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/30/19 12:05	EPA245.1		LLG
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Green Analytical Laboratories

Jeremy D Allen For Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
09/06/19 14:03

MW-99-A

1908235-02 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	605	10.0		mg/L	5	08/30/19 10:45	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	110	10.0		mg/L	5	08/30/19 10:45	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/30/19 10:45	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	715	10.0	3.06	mg/L	5	08/30/19 10:45	2320 B		VJL
Chloride*	9.91	2.00	0.205	mg/L	2	09/05/19 00:30	EPA300.0		AES
Fluoride*	1.20	0.200	0.0293	mg/L	2	09/05/19 00:30	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	09/03/19 10:33	EPA353.2		LLG
pH*	8.64			pH Units	1	08/28/19 08:30	EPA150.1	H4	VJL
Total Dissolved Solids*	1070	10.0		mg/L	1	08/28/19 12:40	EPA160.1		VJL
Sulfate*	221	20.0	4.26	mg/L	20	09/05/19 00:48	EPA300.0		AES
Total Organic Carbon*	6.17	0.500	0.0670	mg/L	1	08/30/19 18:28	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	09/05/19 10:41	EPA200.7		AES
Calcium*	1.97	0.200	0.026	mg/L	2	09/05/19 10:41	EPA200.7		AES
Hardness as CaCO ₃	7.85	1.32	0.219	mg/L	2	09/05/19 10:41	2340 B		AES
Iron*	<0.100	0.100	0.055	mg/L	2	09/05/19 10:41	EPA200.7		AES
Magnesium*	0.712	0.200	0.038	mg/L	2	09/05/19 10:41	EPA200.7		AES
Potassium*	<2.00	2.00	0.191	mg/L	2	09/05/19 10:41	EPA200.7		AES
Silica (SiO ₂)	9.56	2.14	0.114	mg/L	2	09/05/19 10:41	Calculation		AES
Silicon	4.47	1.00	0.053	mg/L	2	09/05/19 10:41	EPA200.7		AES
Sodium*	449	2.00	0.734	mg/L	2	09/05/19 10:41	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0122	0.0005	0.0002	mg/L	1	08/28/19 13:40	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/28/19 13:40	EPA200.8		AES
Copper*	0.0056	0.0001	0.0001	mg/L	1	08/28/19 13:40	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/28/19 13:40	EPA200.8		AES
Manganese*	0.0070	0.0005	0.00009	mg/L	1	08/28/19 13:40	EPA200.8		AES
Molybdenum*	0.0232	0.0005	0.00007	mg/L	1	08/28/19 13:40	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	08/28/19 13:40	EPA200.8		AES
Uranium	0.0070	0.0001	0.00008	mg/L	1	08/28/19 13:40	EPA200.8		AES
Zinc*	0.0061	0.0020	0.0004	mg/L	1	08/28/19 13:40	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/30/19 12:05	EPA245.1		LLG
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Green Analytical Laboratories

Jeremy D Allen For Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/06/19 14:03

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908271 - General Prep - Wet Chem

Blank (B908271-BLK1)

Prepared & Analyzed: 08/28/19

Total Dissolved Solids	ND	10.0	mg/L
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Reference (B908271-SRM1)

Prepared & Analyzed: 08/28/19

Total Dissolved Solids	595	10.0	mg/L	600	99.2	85-115
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Batch B908279 - General Prep - Wet Chem

Reference (B908279-SRM1)

Prepared & Analyzed: 08/28/19

pH	6.98		pH Units	7.00	99.7	98.5-101.4
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Batch B908299 - General Prep - Wet Chem

Blank (B908299-BLK1)

Prepared: 08/29/19 Analyzed: 09/03/19

Nitrate/Nitrite as N	ND	0.020	mg/L
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LCS (B908299-BS1)

Prepared: 08/29/19 Analyzed: 09/03/19

Nitrate/Nitrite as N	1.07	0.020	mg/L	1.00	107	90-110
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LCS Dup (B908299-BSD1)

Prepared: 08/29/19 Analyzed: 09/03/19

Nitrate/Nitrite as N	1.08	0.020	mg/L	1.00	108	90-110	0.773	20
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Batch B908305 - General Prep - Wet Chem

Blank (B908305-BLK1)

Prepared & Analyzed: 08/30/19

Total Organic Carbon	ND	0.500	mg/L
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LCS (B908305-BS1)

Prepared & Analyzed: 08/30/19

Total Organic Carbon	10.3	0.500	mg/L	10.0	103	85-115
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LCS Dup (B908305-BSD1)

Prepared & Analyzed: 08/30/19

Total Organic Carbon	10.1	0.500	mg/L	10.0	101	85-115	2.45	20
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Batch B908309 - General Prep - Wet Chem

Blank (B908309-BLK1)

Prepared & Analyzed: 08/30/19

Alkalinity, Total as CaCO3	ND	10.0	mg/L
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LCS (B908309-BS1)

Prepared & Analyzed: 08/30/19

Alkalinity, Total as CaCO3	98.0	10.0	mg/L	100	98.0	85-115
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LCS Dup (B908309-BSD1)

Prepared & Analyzed: 08/30/19

Alkalinity, Total as CaCO3	97.0	10.0	mg/L	100	97.0	85-115	1.03	20
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Batch B909003 - General Prep - Wet Chem

Blank (B909003-BLK1)

Prepared: 09/03/19 Analyzed: 09/05/19

Chloride	ND	1.00	mg/L
Fluoride	ND	0.100	mg/L
Sulfate	ND	1.00	mg/L

Green Analytical Laboratories

Jeremy D Allen For Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/06/19 14:03

**General Chemistry - Quality Control
(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B909003 - General Prep - Wet Chem (Continued)

LCS (B909003-BS1)

Prepared: 09/03/19 Analyzed: 09/04/19

Chloride	25.2	1.00	mg/L	25.0		101	90-110			
Fluoride	2.55	0.100	mg/L	2.50		102	90-110			
Sulfate	25.0	1.00	mg/L	25.0		99.8	90-110			

LCS Dup (B909003-BSD1)

Prepared: 09/03/19 Analyzed: 09/04/19

Chloride	25.3	1.00	mg/L	25.0		101	90-110	0.214	20	
Fluoride	2.55	0.100	mg/L	2.50		102	90-110	0.118	20	
Sulfate	25.1	1.00	mg/L	25.0		100	90-110	0.512	20	

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/06/19 14:03

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908223 - Diss. 200.7/200.8

Blank (B908223-BLK1)

Prepared: 08/22/19 Analyzed: 09/05/19

Aluminum	ND	0.050	mg/L
Calcium	ND	0.100	mg/L
Iron	ND	0.050	mg/L
Magnesium	ND	0.100	mg/L
Potassium	ND	1.00	mg/L
Silicon	ND	0.500	mg/L
Sodium	ND	1.00	mg/L

LCS (B908223-BS1)

Prepared: 08/22/19 Analyzed: 09/05/19

Aluminum	4.90	0.050	mg/L	5.00	98.1	85-115
Calcium	5.12	0.100	mg/L	5.00	102	85-115
Iron	4.92	0.050	mg/L	5.00	98.4	85-115
Magnesium	25.2	0.100	mg/L	25.0	101	85-115
Potassium	10.3	1.00	mg/L	10.0	103	85-115
Silicon	5.34	0.500	mg/L	5.00	107	85-115
Sodium	4.08	1.00	mg/L	4.05	101	85-115

LCS Dup (B908223-BSD1)

Prepared: 08/22/19 Analyzed: 09/05/19

Aluminum	4.92	0.050	mg/L	5.00	98.3	85-115	0.243	20
Calcium	4.99	0.100	mg/L	5.00	99.8	85-115	2.51	20
Iron	4.91	0.050	mg/L	5.00	98.1	85-115	0.251	20
Magnesium	24.7	0.100	mg/L	25.0	98.7	85-115	1.99	20
Potassium	10.2	1.00	mg/L	10.0	102	85-115	1.05	20
Silicon	5.32	0.500	mg/L	5.00	106	85-115	0.353	20
Sodium	4.19	1.00	mg/L	4.05	103	85-115	2.77	20

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Jeremy D Allen For Debbie Zufelt, Reports Manager

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www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/06/19 14:03

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908224 - Diss. 200.7/200.8

Blank (B908224-BLK1)

Prepared: 08/22/19 Analyzed: 08/28/19

Arsenic	ND	0.0005	mg/L
Cadmium	ND	0.0001	mg/L
Copper	ND	0.0001	mg/L
Lead	ND	0.0005	mg/L
Manganese	ND	0.0005	mg/L
Molybdenum	ND	0.0005	mg/L
Selenium	ND	0.0010	mg/L
Uranium	ND	0.0001	mg/L
Zinc	ND	0.0020	mg/L

LCS (B908224-BS1)

Prepared: 08/22/19 Analyzed: 08/28/19

Arsenic	0.0465	0.0005	mg/L	0.0500	93.1	85-115
Cadmium	0.0463	0.0001	mg/L	0.0500	92.6	85-115
Copper	0.0479	0.0001	mg/L	0.0500	95.9	85-115
Lead	0.0460	0.0005	mg/L	0.0500	92.1	85-115
Manganese	0.0467	0.0005	mg/L	0.0500	93.4	85-115
Molybdenum	0.0466	0.0005	mg/L	0.0500	93.2	85-115
Selenium	0.232	0.0010	mg/L	0.250	92.6	85-115
Uranium	0.0466	0.0001	mg/L	0.0500	93.2	85-115
Zinc	0.0469	0.0020	mg/L	0.0500	93.7	85-115

LCS Dup (B908224-BSD1)

Prepared: 08/22/19 Analyzed: 08/28/19

Arsenic	0.0469	0.0005	mg/L	0.0500	93.7	85-115	0.704	20
Cadmium	0.0471	0.0001	mg/L	0.0500	94.1	85-115	1.63	20
Copper	0.0493	0.0001	mg/L	0.0500	98.5	85-115	2.71	20
Lead	0.0468	0.0005	mg/L	0.0500	93.5	85-115	1.54	20
Manganese	0.0488	0.0005	mg/L	0.0500	97.6	85-115	4.44	20
Molybdenum	0.0472	0.0005	mg/L	0.0500	94.3	85-115	1.24	20
Selenium	0.233	0.0010	mg/L	0.250	93.3	85-115	0.669	20
Uranium	0.0471	0.0001	mg/L	0.0500	94.2	85-115	1.02	20
Zinc	0.0487	0.0020	mg/L	0.0500	97.5	85-115	3.94	20

Green Analytical Laboratories

Jeremy D Allen For Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/06/19 14:03

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908263 - EPA 245.1/7470

Blank (B908263-BLK1)

Prepared: 08/27/19 Analyzed: 08/30/19

Mercury	ND	0.0002	mg/L							
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LCS (B908263-BS1)

Prepared: 08/27/19 Analyzed: 08/30/19

Mercury	0.0053	0.0002	mg/L	0.00500	106	85-115				
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LCS Dup (B908263-BSD1)

Prepared: 08/27/19 Analyzed: 08/30/19

Mercury	0.0056	0.0002	mg/L	0.00500	112	85-115	4.95	20		
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Jeremy D Allen For Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/06/19 14:03

Notes and Definitions

H4 pH analysis performed more than 48 hours after sampling.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis
*Results reported on as received basis unless designated as dry.

RPD Relative Percent Difference

LCS Laboratory Control Sample (Blank Spike)

RL Report Limit

MDL Method Detection Limit

Green Analytical Laboratories

Jeremy D Allen For Debbie Zufelt, Reports Manager

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

Project Information

GCC Energy, LLC

6473 CR 120

Hesperus, CO 81326

Laboratory PM: Debbie Zufelt

Phone:(970) 385-4528

Fax:(970) 385-4638

King Coal

8/22/2019

Project Name: GCC GW Baseline
Project Number: GCC GW Baseline
Client PM: Tom Bird
Comments: All Metals Are Field Filtered. Send Out PRESERVED bottles per Landon. 11-01-18

Analysis	Comment
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Alkalinity, Bicarbonate

Alkalinity, Carbonate

Alkalinity, Hydroxide

Alkalinity, Total

Aluminum Dissolved by ICP

Arsenic Dissolved by ICPMS

Cadmium Dissolved by ICPMS

Chloride by IC

Copper Dissolved by ICPMS

Fluoride by IC

Hardness, diss

Iron Dissolved by ICP

Lead Dissolved by ICPMS

Manganese Dissolved by ICPMS

Mercury Dissolved by CVAA

Molybdenum Dissolved by ICPM

Nitrate/Nitrite as N

pH

Potassium Dissolved by ICP

Selenium Dissolved by ICPMS

Silica Dissolved by ICP Package

Sodium Dissolved by ICP

Solids, Total Dissolved (TDS)

Sulfate by IC

Total Organic Carbon

Uranium Dissolved by ICPMS

Zinc Dissolved by ICPMS

Hardness, diss subanalyses:

Calcium Dissolved by ICP

Magnesium Dissolved by ICP

Silica Dissolved by ICP Package subanalyses:

Silicon Dissolved by ICP



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www.greenanalytical.com

03 September 2019

Tom Bird
GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326
RE: GCC GW Baseline

Enclosed are the results of analyses for samples received by the laboratory on 08/15/19 16:30.
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads 'Debbie Zufelt'. The script is cursive and fluid, with the first name 'Debbie' and last name 'Zufelt' clearly legible.

Debbie Zufelt
Reports Manager

All accredited analytes contained in this report are denoted by an asterisk (*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8.



GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/03/19 16:47

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-6-A	1908167-01	Water	08/15/19 09:24	08/15/19 16:30	
MW-6-LM	1908167-02	Water	08/15/19 10:32	08/15/19 16:30	
MW-4-MI	1908167-03	Water	08/15/19 13:21	08/15/19 16:30	
MW-4-A	1908167-04	Water	08/15/19 14:02	08/15/19 16:30	
MW-4-C	1908167-05	Water	08/15/19 14:36	08/15/19 16:30	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
09/03/19 16:47

MW-6-A

1908167-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	183	10.0		mg/L	1	08/19/19 09:45	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19 09:45	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19 09:45	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	183	10.0	3.06	mg/L	1	08/19/19 09:45	2320 B		VJL
Chloride*	29.9	5.00	0.513	mg/L	5	08/23/19 01:42	EPA300.0		AES
Fluoride*	<0.500	0.500	0.0733	mg/L	5	08/23/19 01:42	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/23/19 15:46	EPA353.2	M5	LLG
pH*	6.85			pH Units	1	08/16/19 15:30	EPA150.1		CAB
Total Dissolved Solids*	6080	10.0		mg/L	1	08/19/19 17:10	EPA160.1		VJL
Sulfate*	4260	100	21.3	mg/L	100	08/23/19 09:01	EPA300.0		AES
Total Organic Carbon*	3.57	0.500	0.0670	mg/L	1	08/22/19 00:09	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.250	0.250	0.125	mg/L	5	08/20/19 12:21	EPA200.7		AES
Calcium*	492	0.500	0.064	mg/L	5	08/20/19 15:20	EPA200.7		AES
Hardness as CaCO ₃	3540	5.37	0.933	mg/L	10	08/23/19 12:01	2340 B		AES
Iron*	3.22	0.250	0.138	mg/L	5	08/20/19 12:21	EPA200.7		AES
Magnesium*	560	1.00	0.188	mg/L	10	08/23/19 12:01	EPA200.7		AES
Potassium*	12.8	5.00	0.478	mg/L	5	08/20/19 12:20	EPA200.7		AES
Silica (SiO ₂)	13.4	5.35	0.286	mg/L	5	08/20/19 12:21	Calculation		AES
Silicon	6.28	2.50	0.134	mg/L	5	08/20/19 12:21	EPA200.7		AES
Sodium*	304	5.00	1.83	mg/L	5	08/20/19 12:20	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	<0.0025	0.0025	0.0011	mg/L	5	08/23/19 11:43	EPA200.8		AES
Cadmium*	<0.0005	0.0005	0.0002	mg/L	5	08/23/19 11:43	EPA200.8		AES
Copper*	0.0039	0.0005	0.0005	mg/L	5	08/23/19 11:43	EPA200.8		AES
Lead*	<0.0025	0.0025	0.0005	mg/L	5	08/23/19 11:43	EPA200.8		AES
Manganese*	0.690	0.0025	0.0004	mg/L	5	08/23/19 11:43	EPA200.8		AES
Molybdenum*	<0.0025	0.0025	0.0003	mg/L	5	08/23/19 11:43	EPA200.8		AES
Selenium*	<0.0050	0.0050	0.0032	mg/L	5	08/23/19 11:43	EPA200.8		AES
Uranium	<0.0005	0.0005	0.0004	mg/L	5	08/23/19 11:43	EPA200.8		AES
Zinc*	0.0108	0.0100	0.0018	mg/L	5	08/23/19 11:43	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19 11:40	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
09/03/19 16:47

MW-6-LM

1908167-02 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	381	10.0		mg/L	1	08/20/19 15:30	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	08/20/19 15:30	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/20/19 15:30	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	381	10.0	3.06	mg/L	1	08/20/19 15:30	2320 B		VJL
Chloride*	8.70	5.00	0.513	mg/L	5	08/23/19 02:17	EPA300.0		AES
Fluoride*	<0.500	0.500	0.0733	mg/L	5	08/23/19 02:17	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/23/19 15:46	EPA353.2		LLG
pH*	7.59			pH Units	1	08/16/19 15:30	EPA150.1		CAB
Total Dissolved Solids*	1150	10.0		mg/L	1	08/19/19 17:10	EPA160.1		VJL
Sulfate*	492	50.0	10.7	mg/L	50	08/23/19 02:35	EPA300.0		AES
Total Organic Carbon*	1.78	0.500	0.0670	mg/L	1	08/22/19 00:25	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/19 12:34	EPA200.7		AES
Calcium*	103	0.100	0.013	mg/L	1	08/20/19 12:34	EPA200.7		AES
Hardness as CaCO ₃	621	0.662	0.109	mg/L	1	08/20/19 12:34	2340 B		AES
Iron*	<0.050	0.050	0.028	mg/L	1	08/20/19 12:34	EPA200.7		AES
Magnesium*	88.3	0.100	0.019	mg/L	1	08/20/19 12:34	EPA200.7		AES
Potassium*	13.7	1.00	0.096	mg/L	1	08/20/19 12:34	EPA200.7		AES
Silica (SiO ₂)	17.4	1.07	0.0572	mg/L	1	08/20/19 12:34	Calculation		AES
Silicon	8.12	0.500	0.027	mg/L	1	08/20/19 12:34	EPA200.7		AES
Sodium*	153	1.00	0.367	mg/L	1	08/20/19 12:34	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0038	0.0005	0.0002	mg/L	1	08/23/19 14:12	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19 14:12	EPA200.8		AES
Copper*	0.0018	0.0002	0.0002	mg/L	2	08/23/19 14:30	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/23/19 14:12	EPA200.8		AES
Manganese*	0.148	0.0010	0.0002	mg/L	2	08/23/19 14:30	EPA200.8		AES
Molybdenum*	0.0025	0.0005	0.00007	mg/L	1	08/23/19 14:12	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	08/23/19 14:12	EPA200.8		AES
Uranium	0.0054	0.0001	0.00008	mg/L	1	08/23/19 14:12	EPA200.8		AES
Zinc*	<0.0040	0.0040	0.0007	mg/L	2	08/23/19 14:30	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19 11:40	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
09/03/19 16:47

MW-4-MI

1908167-03 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	880	10.0		mg/L	5	08/19/19 09:45	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	90.0	10.0		mg/L	5	08/19/19 09:45	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/19/19 09:45	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	970	10.0	3.06	mg/L	5	08/19/19 09:45	2320 B		VJL
Chloride*	5.83	2.00	0.205	mg/L	2	08/23/19 02:53	EPA300.0		AES
Fluoride*	5.38	0.200	0.0293	mg/L	2	08/23/19 02:53	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/23/19 15:46	EPA353.2		LLG
pH*	8.44			pH Units	1	08/16/19 15:30	EPA150.1		CAB
Total Dissolved Solids*	1140	10.0		mg/L	1	08/19/19 17:10	EPA160.1		VJL
Sulfate*	31.9	2.00	0.426	mg/L	2	08/23/19 02:53	EPA300.0		AES
Total Organic Carbon*	7.81	0.500	0.0670	mg/L	1	08/22/19 00:42	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	08/20/19 12:37	EPA200.7		AES
Calcium*	1.51	0.200	0.026	mg/L	2	08/20/19 12:37	EPA200.7		AES
Hardness as CaCO ₃	5.65	1.32	0.219	mg/L	2	08/20/19 12:37	2340 B		AES
Iron*	<0.100	0.100	0.055	mg/L	2	08/20/19 12:37	EPA200.7		AES
Magnesium*	0.458	0.200	0.038	mg/L	2	08/20/19 12:37	EPA200.7		AES
Potassium*	2.03	2.00	0.191	mg/L	2	08/20/19 12:37	EPA200.7		AES
Silica (SiO ₂)	10.2	2.14	0.114	mg/L	2	08/20/19 12:37	Calculation		AES
Silicon	4.76	1.00	0.053	mg/L	2	08/20/19 12:37	EPA200.7		AES
Sodium*	496	2.00	0.734	mg/L	2	08/20/19 12:37	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0116	0.0005	0.0002	mg/L	1	08/23/19 14:16	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19 14:16	EPA200.8		AES
Copper*	0.0051	0.0005	0.0005	mg/L	5	08/23/19 15:09	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/23/19 14:16	EPA200.8		AES
Manganese*	0.0084	0.0025	0.0004	mg/L	5	08/23/19 15:09	EPA200.8		AES
Molybdenum*	0.0108	0.0005	0.00007	mg/L	1	08/23/19 14:16	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	08/23/19 14:16	EPA200.8		AES
Uranium	0.0168	0.0001	0.00008	mg/L	1	08/23/19 14:16	EPA200.8		AES
Zinc*	<0.0100	0.0100	0.0018	mg/L	5	08/23/19 15:09	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19 11:40	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
09/03/19 16:47

MW-4-A

1908167-04 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	535	10.0		mg/L	5	08/19/19 09:45	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	40.0	10.0		mg/L	5	08/19/19 09:45	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/19/19 09:45	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	575	10.0	3.06	mg/L	5	08/19/19 09:45	2320 B		VJL
Chloride*	8.91	2.00	0.205	mg/L	2	08/29/19 12:08	EPA300.0		AES
Fluoride*	<0.200	0.200	0.0293	mg/L	2	08/29/19 12:08	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/23/19 15:50	EPA353.2		LLG
pH*	8.15			pH Units	1	08/16/19 15:30	EPA150.1		CAB
Total Dissolved Solids*	1540	10.0		mg/L	1	08/19/19 17:10	EPA160.1		VJL
Sulfate*	615	20.0	4.26	mg/L	20	08/30/19 08:23	EPA300.0		AES
Total Organic Carbon*	3.33	0.500	0.0670	mg/L	1	08/22/19 15:50	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	08/20/19 12:42	EPA200.7		AES
Calcium*	1.94	0.200	0.026	mg/L	2	08/20/19 12:41	EPA200.7		AES
Hardness as CaCO ₃	8.62	1.32	0.219	mg/L	2	08/20/19 12:42	2340 B		AES
Iron*	<0.100	0.100	0.055	mg/L	2	08/20/19 12:42	EPA200.7		AES
Magnesium*	0.914	0.200	0.038	mg/L	2	08/20/19 12:42	EPA200.7		AES
Potassium*	4.75	2.00	0.191	mg/L	2	08/20/19 12:41	EPA200.7		AES
Silica (SiO ₂)	11.0	2.14	0.114	mg/L	2	08/20/19 12:42	Calculation		AES
Silicon	5.14	1.00	0.053	mg/L	2	08/20/19 12:42	EPA200.7		AES
Sodium*	548	2.00	0.734	mg/L	2	08/20/19 12:41	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	<0.0005	0.0005	0.0002	mg/L	1	08/28/19 13:44	EPA200.8		AES
Cadmium*	<0.0002	0.0002	0.00008	mg/L	2	08/23/19 14:21	EPA200.8		AES
Copper*	0.0120	0.0001	0.0001	mg/L	1	08/28/19 13:44	EPA200.8		AES
Lead*	<0.0010	0.0010	0.0002	mg/L	2	08/23/19 14:21	EPA200.8		AES
Manganese*	0.0026	0.0005	0.00009	mg/L	1	08/28/19 13:44	EPA200.8		AES
Molybdenum*	<0.0005	0.0005	0.00007	mg/L	1	08/28/19 13:44	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	08/28/19 13:44	EPA200.8		AES
Uranium	<0.0002	0.0002	0.0002	mg/L	2	08/23/19 14:21	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	08/28/19 13:44	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19 11:40	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
09/03/19 16:47

MW-4-C

1908167-05 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	2390	10.0		mg/L	5	08/19/19 09:45	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	110	10.0		mg/L	5	08/19/19 09:45	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/19/19 09:45	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	2500	10.0	3.06	mg/L	5	08/19/19 09:45	2320 B		VJL
Chloride*	580	25.0	2.56	mg/L	25	08/23/19 03:29	EPA300.0		AES
Fluoride*	2.59	0.500	0.0733	mg/L	5	08/23/19 03:11	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/23/19 15:46	EPA353.2		LLG
pH*	7.95			pH Units	1	08/16/19 15:30	EPA150.1		CAB
Total Dissolved Solids*	3610	10.0		mg/L	1	08/19/19 17:10	EPA160.1		VJL
Sulfate*	<5.00	5.00	1.07	mg/L	5	08/23/19 03:11	EPA300.0		AES
Total Organic Carbon*	2.63	0.500	0.0670	mg/L	1	08/22/19 01:34	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.250	0.250	0.125	mg/L	5	08/20/19 12:46	EPA200.7		AES
Calcium*	5.83	0.500	0.064	mg/L	5	08/20/19 12:46	EPA200.7		AES
Hardness as CaCO ₃	25.2	3.31	0.546	mg/L	5	08/20/19 12:46	2340 B		AES
Iron*	0.522	0.250	0.138	mg/L	5	08/20/19 12:46	EPA200.7		AES
Magnesium*	2.57	0.500	0.094	mg/L	5	08/20/19 12:46	EPA200.7		AES
Potassium*	5.42	5.00	0.478	mg/L	5	08/20/19 12:46	EPA200.7		AES
Silica (SiO ₂)	11.3	5.35	0.286	mg/L	5	08/20/19 12:46	Calculation		AES
Silicon	5.29	2.50	0.134	mg/L	5	08/20/19 12:46	EPA200.7		AES
Sodium*	1440	5.00	1.83	mg/L	5	08/20/19 12:46	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0178	0.0025	0.0011	mg/L	5	08/23/19 14:52	EPA200.8		AES
Cadmium*	<0.0005	0.0005	0.0002	mg/L	5	08/23/19 14:52	EPA200.8		AES
Copper*	0.0198	0.0005	0.0005	mg/L	5	08/23/19 14:52	EPA200.8		AES
Lead*	<0.0025	0.0025	0.0005	mg/L	5	08/23/19 14:52	EPA200.8		AES
Manganese*	0.0162	0.0025	0.0004	mg/L	5	08/23/19 14:52	EPA200.8		AES
Molybdenum*	0.0056	0.0025	0.0003	mg/L	5	08/23/19 14:52	EPA200.8		AES
Selenium*	0.0195	0.0050	0.0032	mg/L	5	08/23/19 14:52	EPA200.8		AES
Uranium	0.0086	0.0005	0.0004	mg/L	5	08/23/19 14:52	EPA200.8		AES
Zinc*	<0.0100	0.0100	0.0018	mg/L	5	08/23/19 14:52	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19 11:40	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/03/19 16:47

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908162 - General Prep - Wet Chem

Blank (B908162-BLK1)

Prepared & Analyzed: 08/19/19

Alkalinity, Total as CaCO₃ ND 10.0 mg/L

LCS (B908162-BS1)

Prepared & Analyzed: 08/19/19

Alkalinity, Total as CaCO₃ 105 10.0 mg/L 100 105 85-115

LCS Dup (B908162-BSD1)

Prepared & Analyzed: 08/19/19

Alkalinity, Total as CaCO₃ 107 10.0 mg/L 100 107 85-115 1.89 20

Batch B908177 - General Prep - Wet Chem

Blank (B908177-BLK1)

Prepared & Analyzed: 08/19/19

Total Dissolved Solids ND 10.0 mg/L

Duplicate (B908177-DUP1)

Source: 1908147-01 Prepared & Analyzed: 08/19/19

Total Dissolved Solids 1670 10.0 mg/L 1690 1.20 20

Reference (B908177-SRM1)

Prepared & Analyzed: 08/19/19

Total Dissolved Solids 595 10.0 mg/L 600 99.2 85-115

Batch B908192 - General Prep - Wet Chem

Blank (B908192-BLK1)

Prepared & Analyzed: 08/20/19

Alkalinity, Total as CaCO₃ ND 10.0 mg/L

LCS (B908192-BS1)

Prepared & Analyzed: 08/20/19

Alkalinity, Total as CaCO₃ 98.0 10.0 mg/L 100 98.0 85-115

LCS Dup (B908192-BSD1)

Prepared & Analyzed: 08/20/19

Alkalinity, Total as CaCO₃ 101 10.0 mg/L 100 101 85-115 3.02 20

Batch B908198 - General Prep - Wet Chem

Blank (B908198-BLK1)

Prepared: 08/20/19 Analyzed: 08/23/19

Nitrate/Nitrite as N ND 0.020 mg/L

LCS (B908198-BS1)

Prepared: 08/20/19 Analyzed: 08/23/19

Nitrate/Nitrite as N 1.02 0.020 mg/L 1.00 102 90-110

LCS Dup (B908198-BSD1)

Prepared: 08/20/19 Analyzed: 08/23/19

Nitrate/Nitrite as N 1.03 0.020 mg/L 1.00 103 90-110 0.498 20

Batch B908199 - General Prep - Wet Chem

Blank (B908199-BLK1)

Prepared: 08/20/19 Analyzed: 08/23/19

Nitrate/Nitrite as N ND 0.020 mg/L

LCS (B908199-BS1)

Prepared: 08/20/19 Analyzed: 08/23/19

Nitrate/Nitrite as N 1.03 0.020 mg/L 1.00 103 90-110

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/03/19 16:47

**General Chemistry - Quality Control
(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908199 - General Prep - Wet Chem (Continued)

LCS Dup (B908199-BSD1)

Prepared: 08/20/19 Analyzed: 08/23/19

Nitrate/Nitrite as N	1.02	0.020	mg/L	1.00	102	90-110	0.943	20
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Batch B908200 - General Prep - Wet Chem

Duplicate (B908200-DUP2)

Source: 1908167-05

Prepared & Analyzed: 08/16/19

pH	7.98		pH Units	7.95			0.377	20
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Reference (B908200-SRM1)

Prepared & Analyzed: 08/16/19

pH	6.97		pH Units	7.00	99.6	98.5-101.4		
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Batch B908209 - General Prep - Wet Chem

Blank (B908209-BLK1)

Prepared & Analyzed: 08/21/19

Total Organic Carbon	ND	0.500	mg/L					
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LCS (B908209-BS1)

Prepared & Analyzed: 08/21/19

Total Organic Carbon	9.99	0.500	mg/L	10.0	99.9	85-115		
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LCS Dup (B908209-BSD1)

Prepared & Analyzed: 08/21/19

Total Organic Carbon	10.3	0.500	mg/L	10.0	103	85-115	3.24	20
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Batch B908220 - General Prep - Wet Chem

Blank (B908220-BLK1)

Prepared & Analyzed: 08/22/19

Total Organic Carbon	ND	0.500	mg/L					
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LCS (B908220-BS1)

Prepared & Analyzed: 08/22/19

Total Organic Carbon	10.2	0.500	mg/L	10.0	102	85-115		
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LCS Dup (B908220-BSD1)

Prepared & Analyzed: 08/22/19

Total Organic Carbon	10.3	0.500	mg/L	10.0	103	85-115	0.391	20
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Batch B908229 - General Prep - Wet Chem

Blank (B908229-BLK1)

Prepared & Analyzed: 08/22/19

Chloride	ND	1.00	mg/L					
Fluoride	ND	0.100	mg/L					
Sulfate	ND	1.00	mg/L					

LCS (B908229-BS1)

Prepared & Analyzed: 08/22/19

Chloride	24.5	1.00	mg/L	25.0	97.9	90-110		
Fluoride	2.46	0.100	mg/L	2.50	98.6	90-110		
Sulfate	24.6	1.00	mg/L	25.0	98.4	90-110		

LCS Dup (B908229-BSD1)

Prepared & Analyzed: 08/22/19

Chloride	25.8	1.00	mg/L	25.0	103	90-110	5.14	20
Fluoride	2.61	0.100	mg/L	2.50	104	90-110	5.83	20
Sulfate	25.6	1.00	mg/L	25.0	102	90-110	3.85	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/03/19 16:47

General Chemistry - Quality Control
(Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908289 - General Prep - Wet Chem

Blank (B908289-BLK1)

Prepared & Analyzed: 08/29/19

Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							

LCS (B908289-BS1)

Prepared & Analyzed: 08/29/19

Chloride	24.2	1.00	mg/L	25.0		96.8	90-110			
Fluoride	2.44	0.100	mg/L	2.50		97.6	90-110			
Sulfate	24.1	1.00	mg/L	25.0		96.2	90-110			

LCS Dup (B908289-BSD1)

Prepared & Analyzed: 08/29/19

Chloride	25.8	1.00	mg/L	25.0		103	90-110	6.25	20	
Fluoride	2.63	0.100	mg/L	2.50		105	90-110	7.61	20	
Sulfate	25.5	1.00	mg/L	25.0		102	90-110	5.79	20	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/03/19 16:47

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908173 - Diss. 200.7/200.8

Blank (B908173-BLK1)

Prepared: 08/19/19 Analyzed: 08/20/19

Aluminum	ND	0.050	mg/L
Calcium	ND	0.100	mg/L
Iron	ND	0.050	mg/L
Magnesium	ND	0.100	mg/L
Potassium	ND	1.00	mg/L
Silicon	ND	0.500	mg/L
Sodium	ND	1.00	mg/L

LCS (B908173-BS1)

Prepared: 08/19/19 Analyzed: 08/20/19

Aluminum	4.75	0.050	mg/L	5.00	95.1	85-115
Calcium	4.67	0.100	mg/L	5.00	93.3	85-115
Iron	4.81	0.050	mg/L	5.00	96.2	85-115
Magnesium	23.9	0.100	mg/L	25.0	95.6	85-115
Potassium	9.53	1.00	mg/L	10.0	95.3	85-115
Silicon	5.08	0.500	mg/L	5.00	102	85-115
Sodium	3.90	1.00	mg/L	4.05	96.2	85-115

LCS Dup (B908173-BSD1)

Prepared: 08/19/19 Analyzed: 08/20/19

Aluminum	4.79	0.050	mg/L	5.00	95.7	85-115	0.671	20
Calcium	4.58	0.100	mg/L	5.00	91.6	85-115	1.86	20
Iron	4.86	0.050	mg/L	5.00	97.2	85-115	1.05	20
Magnesium	23.5	0.100	mg/L	25.0	94.0	85-115	1.67	20
Potassium	9.67	1.00	mg/L	10.0	96.7	85-115	1.50	20
Silicon	5.12	0.500	mg/L	5.00	102	85-115	0.775	20
Sodium	3.95	1.00	mg/L	4.05	97.6	85-115	1.38	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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dzufelt@greenanalytical.com p: 970.247.4220 f: 970.247.4227 75 Suttle Street Durango, CO 81303

www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/03/19 16:47

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908174 - Diss. 200.7/200.8

Blank (B908174-BLK1)

Prepared: 08/19/19 Analyzed: 08/23/19

Arsenic	ND	0.0005	mg/L
Cadmium	ND	0.0001	mg/L
Copper	ND	0.0001	mg/L
Lead	ND	0.0005	mg/L
Manganese	ND	0.0005	mg/L
Molybdenum	ND	0.0005	mg/L
Selenium	ND	0.0010	mg/L
Uranium	ND	0.0001	mg/L
Zinc	ND	0.0020	mg/L

LCS (B908174-BS1)

Prepared: 08/19/19 Analyzed: 08/23/19

Arsenic	0.0529	0.0005	mg/L	0.0500	106	85-115
Cadmium	0.0515	0.0001	mg/L	0.0500	103	85-115
Copper	0.0536	0.0001	mg/L	0.0500	107	85-115
Lead	0.0514	0.0005	mg/L	0.0500	103	85-115
Manganese	0.0517	0.0005	mg/L	0.0500	103	85-115
Molybdenum	0.0510	0.0005	mg/L	0.0500	102	85-115
Selenium	0.272	0.0010	mg/L	0.250	109	85-115
Uranium	0.0503	0.0001	mg/L	0.0500	101	85-115
Zinc	0.0545	0.0020	mg/L	0.0500	109	85-115

LCS Dup (B908174-BSD1)

Prepared: 08/19/19 Analyzed: 08/23/19

Arsenic	0.0516	0.0005	mg/L	0.0500	103	85-115	2.47	20
Cadmium	0.0505	0.0001	mg/L	0.0500	101	85-115	1.95	20
Copper	0.0511	0.0001	mg/L	0.0500	102	85-115	4.92	20
Lead	0.0504	0.0005	mg/L	0.0500	101	85-115	2.02	20
Manganese	0.0509	0.0005	mg/L	0.0500	102	85-115	1.70	20
Molybdenum	0.0498	0.0005	mg/L	0.0500	99.7	85-115	2.24	20
Selenium	0.269	0.0010	mg/L	0.250	107	85-115	1.24	20
Uranium	0.0491	0.0001	mg/L	0.0500	98.3	85-115	2.42	20
Zinc	0.0516	0.0020	mg/L	0.0500	103	85-115	5.42	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/03/19 16:47

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B908170 - EPA 245.1/7470										
Blank (B908170-BLK1)				Prepared: 08/19/19 Analyzed: 08/21/19						
Mercury	ND	0.0002	mg/L							
LCS (B908170-BS1)				Prepared: 08/19/19 Analyzed: 08/21/19						
Mercury	0.0048	0.0002	mg/L	0.00500		96.3	85-115			
LCS Dup (B908170-BSD1)				Prepared: 08/19/19 Analyzed: 08/21/19						
Mercury	0.0048	0.0002	mg/L	0.00500		96.8	85-115	0.559	20	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/03/19 16:47

Notes and Definitions

M5	Sample was chosen for matrix spike. Spike recovery did not meet laboratory acceptance criteria, possible matrix interference in sample.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis *Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)
RL	Report Limit
MDL	Method Detection Limit

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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75 Suttle St Durango, CO 81303

Page 15 of 15 1908167 GAL FINAL 09 03 19 1647 09/03/19 16:48:03



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Durango, CO 81303
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23 August 2019

Tom Bird
GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326
RE: GCC GW Baseline

Enclosed are the results of analyses for samples received by the laboratory on 08/13/19 16:15.
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads 'Debbie Zufelt'. The script is cursive and fluid, with the first name 'Debbie' and last name 'Zufelt' clearly legible.

Debbie Zufelt
Reports Manager

All accredited analytes contained in this report are denoted by an asterisk (*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8.



GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/23/19 16:09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-7-EAA	1908132-01	Water	08/13/19 09:24	08/13/19 16:15	
MW-8-EAA	1908132-02	Water	08/13/19 10:59	08/13/19 16:15	
MW-8-MI	1908132-03	Water	08/13/19 11:26	08/13/19 16:15	
MW-8-LM	1908132-04	Water	08/13/19 12:52	08/13/19 16:15	
MW-8-PL	1908132-05	Water	08/13/19 11:52	08/13/19 16:15	
Seep 2	1908132-06	Water	08/13/19 13:56	08/13/19 16:15	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/23/19 16:09

MW-7-EAA

1908132-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	392	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	392	10.0	3.06	mg/L	1	08/19/19	2320 B		VJL
Chloride*	10.9	2.00	0.205	mg/L	2	08/22/19	EPA300.0		AES
Fluoride*	0.322	0.200	0.0293	mg/L	2	08/22/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/16/19	EPA353.2		LLG
pH*	7.09			pH Units	1	08/14/19	EPA150.1		CAB
Total Dissolved Solids*	1480	10.0		mg/L	1	08/15/19	EPA160.1		VJL
Sulfate*	844	20.0	4.26	mg/L	20	08/22/19	EPA300.0		AES
Total Organic Carbon*	3.70	0.500	0.0670	mg/L	1	08/21/19	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	08/15/19	EPA200.7		AES
Calcium*	173	0.200	0.026	mg/L	2	08/15/19	EPA200.7		AES
Hardness as CaCO ₃	997	1.32	0.219	mg/L	2	08/15/19	2340 B		AES
Iron*	2.12	0.100	0.055	mg/L	2	08/15/19	EPA200.7		AES
Magnesium*	137	0.200	0.038	mg/L	2	08/15/19	EPA200.7		AES
Potassium*	3.74	2.00	0.191	mg/L	2	08/15/19	EPA200.7		AES
Silica (SiO ₂)	16.9	2.14	0.114	mg/L	2	08/15/19	Calculation		AES
Silicon	7.90	1.00	0.053	mg/L	2	08/15/19	EPA200.7		AES
Sodium*	75.2	2.00	0.734	mg/L	2	08/15/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0016	0.0005	0.0002	mg/L	1	08/23/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19	EPA200.8		AES
Copper*	0.0008	0.0001	0.0001	mg/L	1	08/23/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/23/19	EPA200.8		AES
Manganese*	4.22	0.0005	0.00009	mg/L	1	08/23/19	EPA200.8		AES
Molybdenum*	0.0009	0.0005	0.00007	mg/L	1	08/23/19	EPA200.8		AES
Selenium*	0.0011	0.0010	0.0006	mg/L	1	08/23/19	EPA200.8		AES
Uranium	0.0018	0.0001	0.00008	mg/L	1	08/23/19	EPA200.8		AES
Zinc*	0.0020	0.0020	0.0004	mg/L	1	08/23/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/23/19 16:09

MW-8-EAA

1908132-02 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	431	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	431	10.0	3.06	mg/L	1	08/19/19	2320 B		VJL
Chloride*	11.1	2.00	0.205	mg/L	2	08/22/19	EPA300.0		AES
Fluoride*	0.342	0.200	0.0293	mg/L	2	08/22/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/16/19	EPA353.2		LLG
pH*	7.05			pH Units	1	08/14/19	EPA150.1		CAB
Total Dissolved Solids*	1280	10.0		mg/L	1	08/15/19	EPA160.1		VJL
Sulfate*	643	20.0	4.26	mg/L	20	08/22/19	EPA300.0		AES
Total Organic Carbon*	3.68	0.500	0.0670	mg/L	1	08/21/19	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	08/15/19	EPA200.7		AES
Calcium*	154	0.200	0.026	mg/L	2	08/15/19	EPA200.7		AES
Hardness as CaCO ₃	883	1.32	0.219	mg/L	2	08/15/19	2340 B		AES
Iron*	2.46	0.100	0.055	mg/L	2	08/15/19	EPA200.7		AES
Magnesium*	121	0.200	0.038	mg/L	2	08/15/19	EPA200.7		AES
Potassium*	3.18	2.00	0.191	mg/L	2	08/15/19	EPA200.7		AES
Silica (SiO ₂)	16.1	2.14	0.114	mg/L	2	08/15/19	Calculation		AES
Silicon	7.52	1.00	0.053	mg/L	2	08/15/19	EPA200.7		AES
Sodium*	78.6	2.00	0.734	mg/L	2	08/15/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0021	0.0005	0.0002	mg/L	1	08/23/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19	EPA200.8		AES
Copper*	0.0008	0.0001	0.0001	mg/L	1	08/23/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/23/19	EPA200.8		AES
Manganese*	3.37	0.0005	0.00009	mg/L	1	08/23/19	EPA200.8		AES
Molybdenum*	0.0011	0.0005	0.00007	mg/L	1	08/23/19	EPA200.8		AES
Selenium*	0.0013	0.0010	0.0006	mg/L	1	08/23/19	EPA200.8		AES
Uranium	0.0018	0.0001	0.00008	mg/L	1	08/23/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	08/23/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/23/19 16:09

MW-8-MI

1908132-03 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	573	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	573	10.0	3.06	mg/L	1	08/19/19	2320 B		VJL
Chloride*	9.06	2.00	0.205	mg/L	2	08/22/19	EPA300.0		AES
Fluoride*	<0.200	0.200	0.0293	mg/L	2	08/22/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/16/19	EPA353.2		LLG
pH*	7.46			pH Units	1	08/14/19	EPA150.1		CAB
Total Dissolved Solids*	1110	10.0		mg/L	1	08/15/19	EPA160.1		VJL
Sulfate*	366	10.0	2.13	mg/L	10	08/22/19	EPA300.0		AES
Total Organic Carbon*	2.74	0.500	0.0670	mg/L	1	08/21/19	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	08/15/19	EPA200.7		AES
Calcium*	49.7	0.200	0.026	mg/L	2	08/15/19	EPA200.7		AES
Hardness as CaCO ₃	253	1.32	0.219	mg/L	2	08/15/19	2340 B		AES
Iron*	0.129	0.100	0.055	mg/L	2	08/15/19	EPA200.7		AES
Magnesium*	31.4	0.200	0.038	mg/L	2	08/15/19	EPA200.7		AES
Potassium*	4.55	2.00	0.191	mg/L	2	08/15/19	EPA200.7		AES
Silica (SiO ₂)	12.5	2.14	0.114	mg/L	2	08/15/19	Calculation		AES
Silicon	5.83	1.00	0.053	mg/L	2	08/15/19	EPA200.7		AES
Sodium*	289	2.00	0.734	mg/L	2	08/15/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0005	0.0005	0.0002	mg/L	1	08/23/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19	EPA200.8		AES
Copper*	0.0035	0.0001	0.0001	mg/L	1	08/23/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/23/19	EPA200.8		AES
Manganese*	0.0351	0.0005	0.00009	mg/L	1	08/23/19	EPA200.8		AES
Molybdenum*	<0.0005	0.0005	0.00007	mg/L	1	08/23/19	EPA200.8		AES
Selenium*	0.0010	0.0010	0.0006	mg/L	1	08/23/19	EPA200.8		AES
Uranium	0.0001	0.0001	0.00008	mg/L	1	08/23/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	08/23/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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dzufelt@greenanalytical.com p: 970.247.4220 f: 970.247.4227 75 Suttle Street Durango, CO 81303

www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/23/19 16:09

MW-8-LM

1908132-04 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	645	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	86.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	731	10.0	3.06	mg/L	1	08/19/19	2320 B		VJL
Chloride*	2.63	1.00	0.103	mg/L	1	08/22/19	EPA300.0		AES
Fluoride*	3.97	0.100	0.0147	mg/L	1	08/22/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/16/19	EPA353.2		LLG
pH*	8.56			pH Units	1	08/14/19	EPA150.1		CAB
Total Dissolved Solids*	785	10.0		mg/L	1	08/15/19	EPA160.1		VJL
Sulfate*	1.02	1.00	0.213	mg/L	1	08/22/19	EPA300.0		AES
Total Organic Carbon*	1.94	0.500	0.0670	mg/L	1	08/21/19	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/15/19	EPA200.7		AES
Calcium*	1.78	0.100	0.013	mg/L	1	08/15/19	EPA200.7		AES
Hardness as CaCO ₃	6.67	0.662	0.109	mg/L	1	08/15/19	2340 B		AES
Iron*	<0.050	0.050	0.028	mg/L	1	08/15/19	EPA200.7		AES
Magnesium*	0.541	0.100	0.019	mg/L	1	08/15/19	EPA200.7		AES
Potassium*	2.27	1.00	0.096	mg/L	1	08/15/19	EPA200.7		AES
Silica (SiO ₂)	8.28	1.07	0.0572	mg/L	1	08/15/19	Calculation		AES
Silicon	3.87	0.500	0.027	mg/L	1	08/15/19	EPA200.7		AES
Sodium*	306	1.00	0.367	mg/L	1	08/15/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0007	0.0005	0.0002	mg/L	1	08/23/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19	EPA200.8		AES
Copper*	0.0041	0.0001	0.0001	mg/L	1	08/23/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/23/19	EPA200.8		AES
Manganese*	0.0020	0.0005	0.00009	mg/L	1	08/23/19	EPA200.8		AES
Molybdenum*	<0.0005	0.0005	0.00007	mg/L	1	08/23/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	08/23/19	EPA200.8		AES
Uranium	0.0001	0.0001	0.00008	mg/L	1	08/23/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	08/23/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/23/19 16:09

MW-8-PL

1908132-05 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	393	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	393	10.0	3.06	mg/L	1	08/19/19	2320 B		VJL
Chloride*	5.61	1.00	0.103	mg/L	1	08/22/19	EPA300.0		AES
Fluoride*	0.291	0.100	0.0147	mg/L	1	08/22/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/16/19	EPA353.2		LLG
pH*	7.22			pH Units	1	08/14/19	EPA150.1		CAB
Total Dissolved Solids*	705	10.0		mg/L	1	08/15/19	EPA160.1		VJL
Sulfate*	232	10.0	2.13	mg/L	10	08/22/19	EPA300.0		AES
Total Organic Carbon*	2.21	0.500	0.0670	mg/L	1	08/21/19	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/15/19	EPA200.7		AES
Calcium*	73.1	0.100	0.013	mg/L	1	08/15/19	EPA200.7		AES
Hardness as CaCO ₃	411	0.662	0.109	mg/L	1	08/15/19	2340 B		AES
Iron*	0.129	0.050	0.028	mg/L	1	08/15/19	EPA200.7		AES
Magnesium*	55.4	0.100	0.019	mg/L	1	08/15/19	EPA200.7		AES
Potassium*	2.80	1.00	0.096	mg/L	1	08/15/19	EPA200.7		AES
Silica (SiO ₂)	18.5	1.07	0.0572	mg/L	1	08/15/19	Calculation		AES
Silicon	8.67	0.500	0.027	mg/L	1	08/15/19	EPA200.7		AES
Sodium*	91.7	1.00	0.367	mg/L	1	08/15/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0156	0.0005	0.0002	mg/L	1	08/23/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19	EPA200.8		AES
Copper*	0.0011	0.0004	0.0004	mg/L	4	08/23/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/23/19	EPA200.8		AES
Manganese*	0.505	0.0020	0.0004	mg/L	4	08/23/19	EPA200.8		AES
Molybdenum*	0.0021	0.0005	0.00007	mg/L	1	08/23/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	08/23/19	EPA200.8		AES
Uranium	0.0009	0.0001	0.00008	mg/L	1	08/23/19	EPA200.8		AES
Zinc*	<0.0080	0.0080	0.0014	mg/L	4	08/23/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/23/19 16:09

Seep 2

1908132-06 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	195	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/19/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	195	10.0	3.06	mg/L	1	08/19/19	2320 B		VJL
Chloride*	3.28	1.00	0.103	mg/L	1	08/22/19	EPA300.0		AES
Fluoride*	0.235	0.100	0.0147	mg/L	1	08/22/19	EPA300.0		AES
Nitrate/Nitrite as N*	0.066	0.020	0.006	mg/L	1	08/16/19	EPA353.2		LLG
pH*	7.30			pH Units	1	08/14/19	EPA150.1		CAB
Total Dissolved Solids*	470	10.0		mg/L	1	08/15/19	EPA160.1		VJL
Sulfate*	230	10.0	2.13	mg/L	10	08/22/19	EPA300.0		AES
Total Organic Carbon*	5.27	0.500	0.0670	mg/L	1	08/21/19	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/15/19	EPA200.7		AES
Calcium*	59.5	0.100	0.013	mg/L	1	08/15/19	EPA200.7		AES
Hardness as CaCO ₃	346	0.662	0.109	mg/L	1	08/15/19	2340 B		AES
Iron*	0.085	0.050	0.028	mg/L	1	08/15/19	EPA200.7		AES
Magnesium*	48.0	0.100	0.019	mg/L	1	08/15/19	EPA200.7		AES
Potassium*	2.79	1.00	0.096	mg/L	1	08/15/19	EPA200.7		AES
Silica (SiO ₂)	13.9	1.07	0.0572	mg/L	1	08/15/19	Calculation		AES
Silicon	6.50	0.500	0.027	mg/L	1	08/15/19	EPA200.7		AES
Sodium*	29.1	1.00	0.367	mg/L	1	08/15/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0006	0.0005	0.0002	mg/L	1	08/23/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	08/23/19	EPA200.8		AES
Copper*	0.0005	0.0001	0.0001	mg/L	1	08/23/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	08/23/19	EPA200.8		AES
Manganese*	0.0397	0.0005	0.00009	mg/L	1	08/23/19	EPA200.8		AES
Molybdenum*	0.0005	0.0005	0.00007	mg/L	1	08/23/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	08/23/19	EPA200.8		AES
Uranium	0.0004	0.0001	0.00008	mg/L	1	08/23/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	08/23/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/21/19	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/23/19 16:09

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908139 - General Prep - Wet Chem

Blank (B908139-BLK1) Prepared: 08/15/19 Analyzed: 08/16/19

Nitrate/Nitrite as N	ND	0.020	mg/L
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LCS (B908139-BS1) Prepared: 08/15/19 Analyzed: 08/16/19

Nitrate/Nitrite as N	0.995	0.020	mg/L	1.00	99.5	90-110
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LCS Dup (B908139-BSD1) Prepared: 08/15/19 Analyzed: 08/16/19

Nitrate/Nitrite as N	1.01	0.020	mg/L	1.00	101	90-110	1.06	20
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Batch B908146 - General Prep - Wet Chem

Duplicate (B908146-DUP1) Source: 1908132-01 Prepared & Analyzed: 08/14/19

pH	7.14	pH Units	7.09	0.703	20
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Reference (B908146-SRM1) Prepared & Analyzed: 08/14/19

pH	6.93	pH Units	7.00	99.0	98.5-101.4
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Batch B908154 - General Prep - Wet Chem

Blank (B908154-BLK1) Prepared & Analyzed: 08/15/19

Total Dissolved Solids	ND	10.0	mg/L
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Duplicate (B908154-DUP1) Source: 1908114-01 Prepared & Analyzed: 08/15/19

Total Dissolved Solids	535	10.0	mg/L	520	2.84	20
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Reference (B908154-SRM1) Prepared & Analyzed: 08/15/19

Total Dissolved Solids	615	10.0	mg/L	600	103	85-115
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Batch B908162 - General Prep - Wet Chem

Blank (B908162-BLK1) Prepared & Analyzed: 08/19/19

Alkalinity, Total as CaCO ₃	ND	10.0	mg/L
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LCS (B908162-BS1) Prepared & Analyzed: 08/19/19

Alkalinity, Total as CaCO ₃	105	10.0	mg/L	100	105	85-115
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LCS Dup (B908162-BSD1) Prepared & Analyzed: 08/19/19

Alkalinity, Total as CaCO ₃	107	10.0	mg/L	100	107	85-115	1.89	20
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Batch B908209 - General Prep - Wet Chem

Blank (B908209-BLK1) Prepared & Analyzed: 08/21/19

Total Organic Carbon	ND	0.500	mg/L
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LCS (B908209-BS1) Prepared & Analyzed: 08/21/19

Total Organic Carbon	9.99	0.500	mg/L	10.0	99.9	85-115
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LCS Dup (B908209-BSD1) Prepared & Analyzed: 08/21/19

Total Organic Carbon	10.3	0.500	mg/L	10.0	103	85-115	3.24	20
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Batch B908229 - General Prep - Wet Chem

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/23/19 16:09

General Chemistry - Quality Control
(Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (B908229-BLK1) Prepared & Analyzed: 08/22/19										
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B908229-BS1) Prepared & Analyzed: 08/22/19										
Chloride	24.5	1.00	mg/L	25.0		97.9	90-110			
Fluoride	2.46	0.100	mg/L	2.50		98.6	90-110			
Sulfate	24.6	1.00	mg/L	25.0		98.4	90-110			
LCS Dup (B908229-BSD1) Prepared & Analyzed: 08/22/19										
Chloride	25.8	1.00	mg/L	25.0		103	90-110	5.14	20	
Fluoride	2.61	0.100	mg/L	2.50		104	90-110	5.83	20	
Sulfate	25.6	1.00	mg/L	25.0		102	90-110	3.85	20	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/23/19 16:09

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908135 - Diss. 200.7/200.8

Blank (B908135-BLK1)

Prepared & Analyzed: 08/15/19

Aluminum	ND	0.050	mg/L
Calcium	ND	0.100	mg/L
Iron	ND	0.050	mg/L
Magnesium	ND	0.100	mg/L
Potassium	ND	1.00	mg/L
Silicon	ND	0.500	mg/L
Sodium	ND	1.00	mg/L

LCS (B908135-BS1)

Prepared & Analyzed: 08/15/19

Aluminum	4.71	0.050	mg/L	5.00	94.1	85-115
Calcium	4.69	0.100	mg/L	5.00	93.8	85-115
Iron	4.72	0.050	mg/L	5.00	94.4	85-115
Magnesium	23.5	0.100	mg/L	25.0	94.1	85-115
Potassium	9.42	1.00	mg/L	10.0	94.2	85-115
Silicon	4.92	0.500	mg/L	5.00	98.5	85-115
Sodium	3.81	1.00	mg/L	4.05	94.2	85-115

LCS Dup (B908135-BSD1)

Prepared & Analyzed: 08/15/19

Aluminum	4.87	0.050	mg/L	5.00	97.3	85-115	3.34	20
Calcium	4.83	0.100	mg/L	5.00	96.7	85-115	2.97	20
Iron	4.89	0.050	mg/L	5.00	97.7	85-115	3.48	20
Magnesium	24.3	0.100	mg/L	25.0	97.0	85-115	3.05	20
Potassium	9.72	1.00	mg/L	10.0	97.2	85-115	3.07	20
Silicon	5.10	0.500	mg/L	5.00	102	85-115	3.49	20
Sodium	3.93	1.00	mg/L	4.05	97.1	85-115	3.01	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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dzufelt@greenanalytical.com p: 970.247.4220 f: 970.247.4227 75 Suttle Street Durango, CO 81303

www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/23/19 16:09

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908174 - Diss. 200.7/200.8

Blank (B908174-BLK1)

Prepared: 08/19/19 Analyzed: 08/23/19

Arsenic	ND	0.0005	mg/L
Cadmium	ND	0.0001	mg/L
Copper	ND	0.0001	mg/L
Lead	ND	0.0005	mg/L
Manganese	ND	0.0005	mg/L
Molybdenum	ND	0.0005	mg/L
Selenium	ND	0.0010	mg/L
Uranium	ND	0.0001	mg/L
Zinc	ND	0.0020	mg/L

LCS (B908174-BS1)

Prepared: 08/19/19 Analyzed: 08/23/19

Arsenic	0.0529	0.0005	mg/L	0.0500	106	85-115
Cadmium	0.0515	0.0001	mg/L	0.0500	103	85-115
Copper	0.0536	0.0001	mg/L	0.0500	107	85-115
Lead	0.0514	0.0005	mg/L	0.0500	103	85-115
Manganese	0.0517	0.0005	mg/L	0.0500	103	85-115
Molybdenum	0.0510	0.0005	mg/L	0.0500	102	85-115
Selenium	0.272	0.0010	mg/L	0.250	109	85-115
Uranium	0.0503	0.0001	mg/L	0.0500	101	85-115
Zinc	0.0545	0.0020	mg/L	0.0500	109	85-115

LCS Dup (B908174-BSD1)

Prepared: 08/19/19 Analyzed: 08/23/19

Arsenic	0.0516	0.0005	mg/L	0.0500	103	85-115	2.47	20
Cadmium	0.0505	0.0001	mg/L	0.0500	101	85-115	1.95	20
Copper	0.0511	0.0001	mg/L	0.0500	102	85-115	4.92	20
Lead	0.0504	0.0005	mg/L	0.0500	101	85-115	2.02	20
Manganese	0.0509	0.0005	mg/L	0.0500	102	85-115	1.70	20
Molybdenum	0.0498	0.0005	mg/L	0.0500	99.7	85-115	2.24	20
Selenium	0.269	0.0010	mg/L	0.250	107	85-115	1.24	20
Uranium	0.0491	0.0001	mg/L	0.0500	98.3	85-115	2.42	20
Zinc	0.0516	0.0020	mg/L	0.0500	103	85-115	5.42	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/23/19 16:09

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B908170 - EPA 245.1/7470										
Blank (B908170-BLK1)										
				Prepared: 08/19/19 Analyzed: 08/21/19						
Mercury	ND	0.0002	mg/L							
LCS (B908170-BS1)										
				Prepared: 08/19/19 Analyzed: 08/21/19						
Mercury	0.0048	0.0002	mg/L	0.00500		96.3	85-115			
LCS Dup (B908170-BSD1)										
				Prepared: 08/19/19 Analyzed: 08/21/19						
Mercury	0.0048	0.0002	mg/L	0.00500		96.8	85-115	0.559	20	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
08/23/19 16:09

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis *Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)
RL	Report Limit
MDL	Method Detection Limit

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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service@greenanalytical.com or dzufelt@greenanalytical.com
75 Suttle St Durango, CO 81303

FORM-006
COC - Revision 5.0

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

Project Information

Printed: 08/14/2019 11:28 am

GCC Energy, LLC

6473 CR 120

Hesperus, CO 81326

Laboratory PM: Debbie Zufelt

King Coal

Phone: (970) 385-4528

Fax: (970) 385-4638

Project Name: GCC GW Baseline
Project Number: GCC GW Baseline
Client PM: Tom Bird
Comments: All Metals Are Field Filtered. Send Out PRESERVED bottles per Landon. 11-01-18

Analysis	Comment
Alkalinity, Bicarbonate	
Alkalinity, Carbonate	
Alkalinity, Hydroxide	
Alkalinity, Total	
Aluminum Dissolved by ICP	
Arsenic Dissolved by ICPMS	
Cadmium Dissolved by ICPMS	
Chloride by IC	
Copper Dissolved by ICPMS	
Fluoride by IC	
Hardness, diss	
Iron Dissolved by ICP	
Lead Dissolved by ICPMS	
Manganese Dissolved by ICPMS	
Mercury Dissolved by CVAA	
Molybdenum Dissolved by ICPMS	
Nitrate/Nitrite as N	
pH	
Potassium Dissolved by ICP	
Selenium Dissolved by ICPMS	
Silica Dissolved by ICP Package	
Sodium Dissolved by ICP	
Solids, Total Dissolved (TDS)	
Sulfate by IC	
Total Organic Carbon	
Uranium Dissolved by ICPMS	
Zinc Dissolved by ICPMS	

Hardness, diss subanalyses:

Calcium Dissolved by ICP

Magnesium Dissolved by ICP

Silica Dissolved by ICP Package subanalyses:

Silicon Dissolved by ICP



75 Suttle Street
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970.247.4220 Phone
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www.greenanalytical.com

09 September 2019

Tom Bird
GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326
RE: GCC GW Baseline

Enclosed are the results of analyses for samples received by the laboratory on 08/19/19 16:23.
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads 'Debbie Zufelt'. The script is cursive and fluid, with the first name 'Debbie' and last name 'Zufelt' clearly legible.

Debbie Zufelt
Reports Manager

All accredited analytes contained in this report are denoted by an asterisk (*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. All of our certifications can be viewed at <http://greenanalytical.com/certifications/>

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water through the Colorado Department of Public Health and Environment and EPA region 8.



dzufelt@greenanalytical.com p: 970.247.4220 f: 970.247.4227 75 Suttle Street Durango, CO 81303

www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/09/19 09:36

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
Wiltse Well	1908190-02	Water	08/19/19 14:47	08/19/19 16:23	

Green Analytical Laboratories

A handwritten signature in black ink that reads 'Debbie Zufelt'.

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
09/09/19 09:36

Wiltse Well

1908190-02 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
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General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	474	10.0		mg/L	1	08/20/19 15:30	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	08/20/19 15:30	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/20/19 15:30	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	474	10.0	3.06	mg/L	1	08/20/19 15:30	2320 B		VJL
Chloride*	49.9	5.00	0.513	mg/L	5	09/03/19 12:40	EPA300.0		AES
Fluoride*	<0.500	0.500	0.0733	mg/L	5	09/03/19 12:40	EPA300.0		AES
Nitrate/Nitrite as N*	0.896	0.020	0.006	mg/L	1	08/23/19 16:18	EPA353.2		LLG
pH*	7.11			pH Units	1	08/20/19 15:00	EPA150.1		CAB
Total Dissolved Solids*	1520	10.0		mg/L	1	08/23/19 15:07	EPA160.1		VJL
Sulfate*	627	25.0	5.33	mg/L	25	09/03/19 12:58	EPA300.0		AES
Total Organic Carbon*	4.27	0.500	0.0670	mg/L	1	08/22/19 19:05	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	08/26/19 14:13	EPA200.7		AES
Calcium*	214	0.200	0.026	mg/L	2	08/26/19 14:12	EPA200.7		AES
Hardness as CaCO ₃	1080	1.32	0.219	mg/L	2	08/26/19 14:12	2340 B		AES
Iron*	0.287	0.100	0.055	mg/L	2	08/26/19 14:13	EPA200.7		AES
Magnesium*	132	0.200	0.038	mg/L	2	08/26/19 14:12	EPA200.7		AES
Potassium*	4.92	2.00	0.191	mg/L	2	08/26/19 14:12	EPA200.7		AES
Silica (SiO ₂)	15.4	2.14	0.114	mg/L	2	08/26/19 14:13	Calculation		AES
Silicon	7.20	1.00	0.053	mg/L	2	08/26/19 14:13	EPA200.7		AES
Sodium*	72.4	2.00	0.734	mg/L	2	08/26/19 14:12	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	<0.0010	0.0010	0.0004	mg/L	2	08/28/19 13:18	EPA200.8		AES
Cadmium*	<0.0002	0.0002	0.00008	mg/L	2	08/28/19 13:18	EPA200.8		AES
Copper*	0.0021	0.0002	0.0002	mg/L	2	08/28/19 13:18	EPA200.8		AES
Lead*	<0.0010	0.0010	0.0002	mg/L	2	08/28/19 13:18	EPA200.8		AES
Manganese*	0.902	0.0010	0.0002	mg/L	2	08/28/19 13:18	EPA200.8		AES
Molybdenum*	0.0020	0.0010	0.0001	mg/L	2	08/28/19 13:18	EPA200.8		AES
Selenium*	<0.0020	0.0020	0.0013	mg/L	2	08/28/19 13:18	EPA200.8		AES
Uranium	0.0029	0.0002	0.0002	mg/L	2	08/28/19 13:18	EPA200.8		AES
Zinc*	0.0138	0.0040	0.0007	mg/L	2	08/28/19 13:18	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/23/19 11:27	EPA245.1		LLG
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Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
09/09/19 09:36

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908192 - General Prep - Wet Chem

Blank (B908192-BLK1)

Prepared & Analyzed: 08/20/19

Alkalinity, Total as CaCO₃ ND 10.0 mg/L

LCS (B908192-BS1)

Prepared & Analyzed: 08/20/19

Alkalinity, Total as CaCO₃ 98.0 10.0 mg/L 100 98.0 85-115

LCS Dup (B908192-BSD1)

Prepared & Analyzed: 08/20/19

Alkalinity, Total as CaCO₃ 101 10.0 mg/L 100 101 85-115 3.02 20

Batch B908199 - General Prep - Wet Chem

Blank (B908199-BLK1)

Prepared: 08/20/19 Analyzed: 08/23/19

Nitrate/Nitrite as N ND 0.020 mg/L

LCS (B908199-BS1)

Prepared: 08/20/19 Analyzed: 08/23/19

Nitrate/Nitrite as N 1.03 0.020 mg/L 1.00 103 90-110

LCS Dup (B908199-BSD1)

Prepared: 08/20/19 Analyzed: 08/23/19

Nitrate/Nitrite as N 1.02 0.020 mg/L 1.00 102 90-110 0.943 20

Batch B908201 - General Prep - Wet Chem

Duplicate (B908201-DUP1)

Source: 1908186-01

Prepared & Analyzed: 08/20/19

pH 7.44 pH Units 7.37 0.945 20

Reference (B908201-SRM1)

Prepared & Analyzed: 08/20/19

pH 6.97 pH Units 7.00 99.6 98.5-101.4

Batch B908220 - General Prep - Wet Chem

Blank (B908220-BLK1)

Prepared & Analyzed: 08/22/19

Total Organic Carbon ND 0.500 mg/L

LCS (B908220-BS1)

Prepared & Analyzed: 08/22/19

Total Organic Carbon 10.2 0.500 mg/L 10.0 102 85-115

LCS Dup (B908220-BSD1)

Prepared & Analyzed: 08/22/19

Total Organic Carbon 10.3 0.500 mg/L 10.0 103 85-115 0.391 20

Batch B908240 - General Prep - Wet Chem

Blank (B908240-BLK1)

Prepared & Analyzed: 08/23/19

Total Dissolved Solids ND 10.0 mg/L

Duplicate (B908240-DUP1)

Source: 1908182-01

Prepared & Analyzed: 08/23/19

Total Dissolved Solids 260 10.0 mg/L 240 8.01 20

Reference (B908240-SRM1)

Prepared & Analyzed: 08/23/19

Total Dissolved Solids 645 10.0 mg/L 600 108 85-115

Batch B909002 - General Prep - Wet Chem

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Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/09/19 09:36

General Chemistry - Quality Control
(Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (B909002-BLK1)										
Prepared & Analyzed: 09/03/19										
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B909002-BS1)										
Prepared & Analyzed: 09/03/19										
Chloride	24.6	1.00	mg/L	25.0		98.4	90-110			
Fluoride	2.49	0.100	mg/L	2.50		99.4	90-110			
Sulfate	24.4	1.00	mg/L	25.0		97.7	90-110			
LCS Dup (B909002-BSD1)										
Prepared & Analyzed: 09/03/19										
Chloride	24.4	1.00	mg/L	25.0		97.5	90-110	0.870	20	
Fluoride	2.46	0.100	mg/L	2.50		98.4	90-110	1.01	20	
Sulfate	24.2	1.00	mg/L	25.0		96.9	90-110	0.834	20	

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/09/19 09:36

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908221 - Diss. 200.7/200.8

Blank (B908221-BLK1)

Prepared: 08/22/19 Analyzed: 08/23/19

Aluminum	ND	0.050	mg/L
Calcium	ND	0.100	mg/L
Iron	ND	0.050	mg/L
Magnesium	ND	0.100	mg/L
Potassium	ND	1.00	mg/L
Silicon	ND	0.500	mg/L
Sodium	ND	1.00	mg/L

LCS (B908221-BS1)

Prepared: 08/22/19 Analyzed: 08/26/19

Aluminum	4.82	0.050	mg/L	5.00	96.4	85-115
Calcium	4.81	0.100	mg/L	5.00	96.3	85-115
Iron	4.87	0.050	mg/L	5.00	97.3	85-115
Magnesium	24.3	0.100	mg/L	25.0	97.3	85-115
Potassium	9.46	1.00	mg/L	10.0	94.6	85-115
Silicon	5.18	0.500	mg/L	5.00	104	85-115
Sodium	3.68	1.00	mg/L	4.05	91.0	85-115

LCS Dup (B908221-BSD1)

Prepared: 08/22/19 Analyzed: 08/23/19

Aluminum	5.08	0.050	mg/L	5.00	102	85-115	5.37	20
Calcium	5.21	0.100	mg/L	5.00	104	85-115	7.83	20
Iron	5.18	0.050	mg/L	5.00	104	85-115	6.28	20
Magnesium	26.0	0.100	mg/L	25.0	104	85-115	6.63	20
Potassium	10.1	1.00	mg/L	10.0	101	85-115	6.11	20
Silicon	5.38	0.500	mg/L	5.00	108	85-115	3.79	20
Sodium	4.21	1.00	mg/L	4.05	104	85-115	13.3	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/09/19 09:36

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B908224 - Diss. 200.7/200.8

Blank (B908224-BLK1)

Prepared: 08/22/19 Analyzed: 08/28/19

Arsenic	ND	0.0005	mg/L
Cadmium	ND	0.0001	mg/L
Copper	ND	0.0001	mg/L
Lead	ND	0.0005	mg/L
Manganese	ND	0.0005	mg/L
Molybdenum	ND	0.0005	mg/L
Selenium	ND	0.0010	mg/L
Uranium	ND	0.0001	mg/L
Zinc	ND	0.0020	mg/L

LCS (B908224-BS1)

Prepared: 08/22/19 Analyzed: 08/28/19

Arsenic	0.0465	0.0005	mg/L	0.0500	93.1	85-115
Cadmium	0.0463	0.0001	mg/L	0.0500	92.6	85-115
Copper	0.0479	0.0001	mg/L	0.0500	95.9	85-115
Lead	0.0460	0.0005	mg/L	0.0500	92.1	85-115
Manganese	0.0467	0.0005	mg/L	0.0500	93.4	85-115
Molybdenum	0.0466	0.0005	mg/L	0.0500	93.2	85-115
Selenium	0.232	0.0010	mg/L	0.250	92.6	85-115
Uranium	0.0466	0.0001	mg/L	0.0500	93.2	85-115
Zinc	0.0469	0.0020	mg/L	0.0500	93.7	85-115

LCS Dup (B908224-BSD1)

Prepared: 08/22/19 Analyzed: 08/28/19

Arsenic	0.0469	0.0005	mg/L	0.0500	93.7	85-115	0.704	20
Cadmium	0.0471	0.0001	mg/L	0.0500	94.1	85-115	1.63	20
Copper	0.0493	0.0001	mg/L	0.0500	98.5	85-115	2.71	20
Lead	0.0468	0.0005	mg/L	0.0500	93.5	85-115	1.54	20
Manganese	0.0488	0.0005	mg/L	0.0500	97.6	85-115	4.44	20
Molybdenum	0.0472	0.0005	mg/L	0.0500	94.3	85-115	1.24	20
Selenium	0.233	0.0010	mg/L	0.250	93.3	85-115	0.669	20
Uranium	0.0471	0.0001	mg/L	0.0500	94.2	85-115	1.02	20
Zinc	0.0487	0.0020	mg/L	0.0500	97.5	85-115	3.94	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/09/19 09:36

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch B908215 - EPA 245.1/7470									
Blank (B908215-BLK1)				Prepared: 08/22/19 Analyzed: 08/23/19					
Mercury	ND	0.0002	mg/L						
LCS (B908215-BS1)				Prepared: 08/22/19 Analyzed: 08/23/19					
Mercury	0.0051	0.0002	mg/L	0.00500	102	85-115			
LCS Dup (B908215-BSD1)				Prepared: 08/22/19 Analyzed: 08/23/19					
Mercury	0.0053	0.0002	mg/L	0.00500	105	85-115	2.96	20	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
09/09/19 09:36

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis *Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)
RL	Report Limit
MDL	Method Detection Limit

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