



"Safety as a Value"

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

June 26, 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
2nd Quarter 2019

Mr. Zuber:

Please find enclosed a copy of quarterly water analysis reports for the 2nd 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', written over a horizontal line.

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		
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	11	2	5	
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	
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	
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
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
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
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
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
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
Lab Analytical Results:																							
Hardness as CaCO3	mg/L	128			80.9			119		152				257	69.2	316	456	489	101	153	149	393	136
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
Total Dissolved Solids (Lab)	mg/L	170			75			165		180				285	65.0	390	650	700	140	215	175	535	205
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
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
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
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
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
Alkalinity, Total	mg/L	160			65			98.0		118				185	55.0	177	305	244	67	111	120	260	390
Alkalinity, Bicarbonate	mg/L	160			65			94.0		118				185	55.0	161	285	244	67	107	120	260	390
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
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	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
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
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
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
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			0.028			<0.020		<0.020				0.053	<0.020	0.045	0.088	0.105	0.026	<0.020	<0.020	0.263	0.050
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
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				0.0005	<0.0005	0.0009	0.0007	<0.0025	<0.0005	0.0009	<0.0005	0.0007	0.0006
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
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
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
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
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
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			0.0009			0.0007		0.0008				0.0006	0.0009	0.0012	0.0008	<0.0025	0.001	0.0012	0.0009	0.0011	0.0009
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
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
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
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
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
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. "<" 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)	

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		
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	11	2	5	
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	
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	
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
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
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
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	202
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
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	
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
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
Total Dissolved Solids (Lab)	mg/L	270			55			630		320				615	65.0	80.0		420	220	260	185	390	185
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
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
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
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
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
Alkalinity, Total	mg/L	220			59			220		225				320	47.0	85.0		265	112	170	140	150	340
Alkalinity, Bicarbonate	mg/L	220			59			140		155				320	47.0	85.0		259	104	170	140	150	340
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
Radium 226	pCi/L	<0.4			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

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

Well #2 Downgradient																									
Year	2016											2017						2018					2019		
Quarter	Q1	Q2				Q3				Q4			Q1			Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q4	Q1	Q2
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	8	11	2	5		
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		
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	0.5	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	
Total Purged	gal	7	6	7	7	6	6	6	6	6	6	8	8	6	8	8	6	6	11	2	6.5	7.5	13	10	
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	
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	
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	
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	
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	
Lab Analytical Results:																									
Hardness as CaCO3	mg/L	444			314			452		432				485	352	378	449	412	415	422	415	465	488	537	
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	
Total Dissolved Solids (Lab)	mg/L	685			470			525		495				635	415	525	540	515	545	545	575	550	575	695	
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	
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	
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	
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	
Alkalinity, Total	mg/L	342			280			380		380				375	285	395	375	333	350	380	328	340	395	460	
Alkalinity, Bicarbonate	mg/L	338			280			380		380				375	285	395	375	333	350	380	328	340	395	460	
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	
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	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	
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	
Sulfate as SO4	mg/L	129			70			114		117				153	75.2	98.4	94.7	104	102	112	111	137	138	196	
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	
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	
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	
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	0.0012	0.0010	0.0012	0.0011	
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	
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	
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	
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	
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	
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	0.0014			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	
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	
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	
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	
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	
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	
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	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.																				
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																							
Well #1 Upgradient																							
Year	2016										2017						2018				2019		
Quarter	Q1	Q2			Q3			Q4			Q1			Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	11	2	5	
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	
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	
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
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
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
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
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
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	1308
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
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			775		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. " < " 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																						
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)											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																							
Wiltse Well																							
Year	2016										2017						2018				2019		
Quarter	Q1	Q2			Q3			Q4			Q1			Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	11	2	5	
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	
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	
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
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
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
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
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
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
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
Lab Analytical Results:																							
Hardness as CaCO3	mg/L	990			1050			1030		963				1040	1060	1140	1150	1090	1160	1130	1180	1150	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
Total Dissolved Solids (Lab)	mg/L	1580			1480			1520		1520				1480	1510	1680	1740	1740	1740	1750	1720	1710	1670
Calcium	mg/L	197			208			206		186				205	211	219	226	211	216	221	230	226	214
Magnesium	mg/L	121			128			126		121				128	129	143	142	136	150	139	147	143	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
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
Alkalinity, Total	mg/L	460			500			470		450				410	445	510	475	445	435	463	505	515	469
Alkalinity, Bicarbonate	mg/L	440			500			470		450				410	445	510	475	445	435	463	505	515	469
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
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
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
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
Sulfate as SO4	mg/L	671			595			656		676				731	702	779	772	832	714	733	741	801	709
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
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
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
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
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
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
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
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
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
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	<0.0025			<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
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
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
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
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
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
Radium 226	pCi/L	0.7 +/- 0.1			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. "<" 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																				
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)											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
Month	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	5	8	11	2	5
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
Lab Analysis (Y/N)	Y	N	N	Y	N	N	Y	N	N	Y	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	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	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
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
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
Specific Conductance	µS/cm	1284	1257	1201	1155	1153	1113	1055	1099	1050	1124	1072	1171	1160	1141	1154	1098	1057	1167	1183
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
Lab Analytical Results:																				
Hardness as CaCO3	mg/L	724			611			616			522		595			561	555	524	625	613
pH (Lab)	SU	7.30			7.17			7.31			7.25		7.21			7.58	8.15	7.33	7.12	7.2
Total Dissolved Solids (Lab)	mg/L	855			710			715			750		775			740	730	695	770	795
Calcium	mg/L	147			118			121			102		118			110	108	102	124	122
Magnesium	mg/L	86.7			76.7			76.6			64.9		72.8			69.3	69	65.4	76.5	74.7
Sodium	mg/L	19.5			27.4			28.6			24.9		27.2			26.5	30.4	29.9	27.6	27
Potassium	mg/L	2.02			2.13			2.11			1.75		2.21			2.17	2.22	2.33	2.13	2.16
Alkalinity, Total	mg/L	545			465			415			465		475			460	425	410	460	455
Alkalinity, Bicarbonate	mg/L	545			465			415			465		475			460	425	410	460	455
Alkalinity, Carbonate	mg/L	ND			<10.0			<10			<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
Chloride	mg/L	10.9			8.75			7.95			8.96		8.74			8.43	7.57	6.47	9.40	10.5
Fluoride	mg/L	0.577			0.485			0.506			0.517		0.495			0.496	0.459	0.482	0.487	0.484
Sulfate as SO4	mg/L	240			229			192			205		204			222	190	169	201	221
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
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
Aluminum	mg/L	0.423			<0.050			<0.05			<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
Cadmium	mg/L	<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
Iron	mg/L	3.71			7.29			7.32			0.378		7.84			7.60	7.92	8.55	8.44	8.35
Lead	mg/L	<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
Mercury	mg/L	ND			<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
Selenium	mg/L	<0.001			0.0030			<0.001			<0.0010		<0.0010			<0.0010	0.002	0.0016	<0.001	0.001
Silica (SiO2)	mg/L	22.3			16.8			18			16.5		17.9			15.8	16.4	15.7	17.3	15.9
Silicon	mg/L	10.4			7.86			8.41			7.72		8.35			7.37	7.67	7.34	8.10	7.46
Uranium	mg/L	0.0010			0.0004			0.0004			0.0004		0.0004			0.0004	0.0004	0.0003	0.0005	0.0005
Zinc	mg/L	0.0039			0.0046			<0.002			<0.0040		<0.0020			<0.002	<0.002	<0.002	<0.002	<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)

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-A																			
Year		2017							2018							2019			
Quarter	Q2	Q3				Q4			Q1			Q2		Q3			Q4	Q1	Q3
Month	6	7	8	9	9	10	11	12	1	2	3	4	5	6	7	8	11	2	5
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
Lab Analysis (Y/N)	Y	N	N	N	Y	N	Y	N	N	Y	N	N	Y	N	N	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
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
Depth to Water	ft bgs	215.42	NM*	215.92	215.54	216.33	216.31	216.47	216.58	216.21	216.47	216.54	216.54		216.63	216.63	216.65	216.55	216.43
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
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
Specific Conductance	µS/cm	1362	NM*	NM*	1555	1563	1616	1650	1693	1700	1723	1735	1647	1761		1734	1815	1781	1776
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
Lab Analytical Results:																			
Hardness as CaCO3	mg/L	124				133		130			159			156			160	174	159
pH (Lab)	SU	7.74				7.35		7.33			7.22			7.45			7.17	7.27	7.13
Total Dissolved Solids (Lab)	mg/L	975				1080		1120			1100			1150			1040	1130	1160
Calcium	mg/L	24.7				25.8		24.9			30.5			29.7			30.9	34.0	31.2
Magnesium	mg/L	15.1				16.7		16.6			20.1			19.9			20.1	21.5	19.7
Sodium	mg/L	324				329		325			348			327			333	358	357
Potassium	mg/L	1.98				2.02		<5.00			<5.00			2.12			2.23	2.47	2.34
Alkalinity, Total	mg/L	375				450		380			415			353			385	395	375
Alkalinity, Bicarbonate	mg/L	375				450		380			415			353			385	395	375
Alkalinity, Carbonate	mg/L	<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	<10.0
Chloride	mg/L	2.75				2.16		<5.00			2.19			<5			2.12	2.20	2.74
Fluoride	mg/L	0.268				0.245		<0.500			0.240			<0.5			0.260	0.240	0.266
Sulfate as SO4	mg/L	427				432		511			518			522			515	511	508
Total Organic Carbon (TOC)	mg/L	5.03				1.36		1.58			1.51			1.54			1.60	1.75	1.61
Nitrate/Nitrite as N	mg/L	<0.200				<0.400		<0.100			<0.020			<0.02			<0.02	0.028	<0.020
Aluminum	mg/L	<0.050				<0.050		<0.250			<0.250			<0.05			<0.05	<0.1	<0.100
Arsenic	mg/L	<0.0005				<0.0005		<0.0025			<0.0025			<0.0005			<0.0005	<0.0005	<0.0010
Cadmium	mg/L	<0.0001				<0.0001		<0.0005			<0.0005			<0.0001			<0.0001	<0.0001	<0.0002
Copper	mg/L	0.0043				0.0057		0.0045			0.0066			0.0041			0.0048	0.0048	0.0075
Iron	mg/L	0.128				0.367		<0.250			0.590			0.614			0.644	0.647	0.581
Lead	mg/L	<0.0005				<0.0005		<0.0025			<0.0025			<0.0005			<0.0005	<0.0005	<0.0010
Manganese	mg/L	0.0260				0.0218		0.0259			0.0279			0.026			0.0242	0.0282	0.0281
Mercury	mg/L	<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
Selenium	mg/L	<0.0010				<0.0010		<0.0050			<0.0050			<0.001			<0.001	<0.001	<0.0020
Silica (SiO2)	mg/L	12.3				11.9		8.27			11.2			11.2			11.4	12.0	11.1
Silicon	mg/L	5.74				5.56		3.87			5.24			5.25			5.31	5.62	5.2
Uranium	mg/L	0.0004				0.0002		<0.0005			<0.0005			0.0003			0.0002	0.0003	0.0002
Zinc	mg/L	0.0270				0.0088		<0.0100			<0.0100			0.0051			<0.0100	<0.002	<0.0040

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 | | |
| 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 CaCO ₃ . |
| 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

MW-1-MI																			
Year		2017							2018								2019		
Quarter		Q2	Q3			Q4			Q1			Q2		Q3			Q4	Q1	Q2
Month		6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	11	2	5
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
Lab Analysis (Y/N)		Y	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	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	
Month	6	7	8	9	9	10	11	12	1	2	3	4	5	6	7	8	11	2	5	
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	
Lab Analysis (Y/N)	Y	N	N	N	Y	N	Y	N	N	Y	N	N	Y	N	N	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	
Total Purged	gal	5	NM*	NM*	NM	NM	1.00	1	1	1	1	1	1.25		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	216.38	216.38	216.37	216.35	216.41		216.41	216.05	216.04	216.41	216.20	
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	
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	
Specific Conductance	µS/cm	2446	NM*	NM*	NM	2725	2738	2739	2778	2738	2751	2700	2749		2693	2675	2751	2621	3139	
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	
Lab Analytical Results:																				
Hardness as CaCO3	mg/L	498				1290		1180		1190			1130			1120	1180	1010	1820	
pH (Lab)	SU	8.35				7.36		7.34		7.22			7.2			7.20	7.02	7.24	6.93	
Total Dissolved Solids (Lab)	mg/L	2020				2440		2360		2360			2340			2170	2200	1960	2880	
Calcium	mg/L	96.0				234		216		219			203			203	219	188	340	
Magnesium	mg/L	62.8				172		155		156			150			148	154	131	237	
Sodium	mg/L	506				242		253		260			239			239	255	265	146	
Potassium	mg/L	11.4				3.81		<5.00		<5.00			3.07			3.04	2.65	3.13	<5	
Alkalinity, Total	mg/L	530				700		540		570			580			560	410	525	530	
Alkalinity, Bicarbonate	mg/L	530				700		540		570			580			560	410	525	530	
Alkalinity, Carbonate	mg/L	<10.0				<10.0		<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10	
Alkalinity, Hydroxide	mg/L	<10.0				<10.0		<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10	
Chloride	mg/L	24.2				6.97		8.03		7.78			7.75			5.97	6.22	6.36	10.2	
Fluoride	mg/L	1.59				0.864		0.955		1.03			0.96			0.888	0.924	0.975	0.67	
Sulfate as SO4	mg/L	1090				1350		1230		1160			1210			1090	1080	1070	1630	
Total Organic Carbon (TOC)	mg/L	4.56				2.84		2.12		2.21			2.2			2.35	2.37	2.32	2.62	
Nitrate/Nitrite as N	mg/L	<2.00				<0.400		<0.100		<0.020			<0.02			0.036	<0.02	<0.020	<0.02	
Aluminum	mg/L	<0.050				<0.050		<0.250		<0.250			<0.05			<0.05	<0.10	<0.100	<0.25	
Arsenic	mg/L	0.0029				0.0016		<0.0025		<0.0025			0.0051			0.0052	0.0035	0.0038	0.0048	
Cadmium	mg/L	<0.0001				<0.0001		<0.0005		<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0001	
Copper	mg/L	0.0088				0.0085		0.0036		0.0052			0.003			0.0049	0.0033	0.0054	0.0057	
Iron	mg/L	<0.050				<0.050		<0.250		<0.250			0.643			1.01	1.12	0.988	2.3	
Lead	mg/L	<0.0005				<0.0005		<0.0025		<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	
Manganese	mg/L	0.0744				0.0853		0.0959		0.0989			0.153			0.140	0.106	0.0807	0.075	
Mercury	mg/L	<0.0002				<0.0002		<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	
Molybdenum	mg/L	0.0164				0.0049		<0.0025		<0.0025			0.0006			<0.0025	<0.0005	<0.0010	<0.0005	
Selenium	mg/L	0.0136				0.0012		<0.0050		<0.0050			<0.001			<0.0050	0.0011	<0.0020	0.0016	
Silica (SiO2)	mg/L	10.6				16.6		13.2		14.8			15.2			14.7	14.5	14	16.6	
Silicon	mg/L	4.94				7.77		6.16		6.94			7.09			6.87	6.78	6.55	7.75	
Uranium	mg/L	0.0500				0.0044		0.0028		0.0024			0.0025			0.0022	0.0021	0.0016	0.002	
Zinc	mg/L	0.0293				0.0294		<0.0100		<0.0100			0.0062			<0.0100	0.0055	<0.0040	0.0085	

Notes & Definitions:		
*** La Plata County stage 3 fire restrictions prevented sampling activity		
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)	

GCC Energy Hydrologic Monitoring Data

MW-2-A																
Year	2017							2018							2019	
Quarter	Q1	Q2	Q3		Q4			Q1			Q2		Q3	Q4	Q1	Q2
Month	3	6	7	8	10	11	12	1	2	3	4	5	8	11	2	5
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
Lab Analysis (Y/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
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	
NM	not measured (field)	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.
NA	not analyzed (lab)	

GCC Energy Hydrologic Monitoring Data

MW-2-MI																	
Year		2017							2018							2019	
Quarter		Q1	Q2	Q3		Q4			Q1			Q2		Q3	Q4	Q1	Q2
Month		3	6	7	8	10	11	12	1	2	3	4	5	8	11	2	5
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
Lab Analysis (Y/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
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. "<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)		

GCC Energy Hydrologic Monitoring Data

MW-2-C																
Year	2017							2018							2019	
Quarter	Q1	Q2	Q3		Q4			Q1			Q2		Q3	Q4	Q1	Q2
Month	3	6	7	8	10	11	12	1	2	3	4	5	8	11	2	5
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
Lab Analysis (Y/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
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)															

GCC Energy Hydrologic Monitoring Data

MW-3-A																		
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	7/18	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	
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	0.1	0.2	
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	
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	
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	
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	
Specific Conductance	µS/cm	2535	2446	2115	2524	2470	2430	2483	2494	2528	2506	2458	2415	2253	2336	2391	2355	
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	
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	
pH (Lab)	SU	8.63	8.69			8.53		8.29		8.45			8.36	8.37	8.24	8.28	8.29	
Total Dissolved Solids (Lab)	mg/L	1630	1670			1630		1690		1680			1670	1600	1540	1500	1530	
Calcium	mg/L	2.00	3.67			3.63		3.27		3.33			3.2	3.71	4.15	3.55	3.16	
Magnesium	mg/L	0.616	0.823			0.859		0.550		0.776			0.774	0.811	0.913	0.739	0.692	
Sodium	mg/L	566	585			589		551		562			542	562	605	543	525	
Potassium	mg/L	1.72	2.02			2.04		<5.00		<2.00			1.8	<2.00	2.17	<2.00	1.92	
Alkalinity, Total	mg/L	530	470			500		490		430			480	480	475	540	450	
Alkalinity, Bicarbonate	mg/L	380	470			440		460		360			480	420	385	330	430	
Alkalinity, Carbonate	mg/L	150	<10.0			60.0		30.0		70.0			<10.0	60.0	90.0	210	20	
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0		<10.0			<10.0	<10.0	<10.0	<10.0	<10	
Chloride	mg/L	16.1	17.4			18.5		16.9		16.4			16.1	15.1	16.0	15.2	15	
Fluoride	mg/L	0.464	0.488			0.535		<0.500		<0.500			<0.5	NA	0.383	0.406	0.404	
Sulfate as SO4	mg/L	729	802			840		730		812			756	706	682	716	699	
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	
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	
Aluminum	mg/L	<0.050	<0.050			<0.050		<0.250		<0.100			<0.05	<0.05	<0.10	<0.100	<0.05	
Arsenic	mg/L	0.0025	<0.0025			<0.0025		<0.0025		<0.0025			0.0006	<0.0025	<0.0010	<0.0010	<0.0025	
Cadmium	mg/L	<0.0001	<0.0005			<0.0005		<0.0005		<0.0005			<0.0001	<0.0001	<0.0002	<0.0002	<0.0005	
Copper	mg/L	0.0061	0.0081			0.0080		0.0079		0.0236			0.0063	0.0117	0.0086	0.0137	0.0078	
Iron	mg/L	<0.050	<0.050			<0.050		<0.250		<0.100			<0.05	<0.05	<0.100	<0.100	<0.05	
Lead	mg/L	<0.0005	<0.0025			<0.0025		<0.0025		<0.0025			<0.0005	<0.0005	<0.0010	<0.0010	<0.0025	
Manganese	mg/L	0.0042	0.0251			0.0194		0.0269		0.0232			0.018	0.0222	0.0187	0.0172	0.0185	
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	0.0005	0.0274			0.0091		0.0078		0.0065			0.0046	0.0043	0.0033	0.003	0.003	
Selenium	mg/L	0.0577	<0.0050			<0.0050		<0.0050		<0.0050			0.0109	<0.0050	0.0028	0.0039	<0.005	
Silica (SiO2)	mg/L	10.1	10.9			11.6		7.66		11.1			11	12.0	12.8	11.7	11	
Silicon	mg/L	4.70	5.10			5.41		3.58		5.18			5.17	5.62	5.97	5.46	5.16	
Uranium	mg/L	0.0002	0.0040			0.0051		0.0036		0.0030			0.0026	0.0026	0.0027	0.0018	0.0014	
Zinc	mg/L	0.0031	<0.0100			<0.0100		<0.0100		<0.0100			<0.002	<0.002	<0.0040	<0.0040	<0.01	

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
Month	3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5
Sample Date	3/27	6/30	7/18	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
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	0.12	0.1
Total Purged	gal	19	2	NM	NM	NM	1	1	1	1.3	1.5	1.5	1	1.3	1	1.1	1.3
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
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	11.3
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
Specific Conductance	µS/cm	1907	1699	1402	1598	1737	1729	1745	1786	1790	1810	1771	1772	1727	1709	1746	1739
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	-84.5
Lab Analytical Results:																	
Hardness as CaCO3	mg/L	4.85	8.73			9.02		7.75			9.92			8.65	8.63	8.88	6.84
pH (Lab)	SU	8.95	8.75			8.72		8.72			8.66			8.56	8.58	8.34	8.45
Total Dissolved Solids (Lab)	mg/L	1550	1120			1140		1080			1170			1210	1110	1120	1170
Calcium	mg/L	1.32	2.32			2.34		2.06			2.22			1.91	1.95	2.03	1.7
Magnesium	mg/L	0.374	0.714			0.775		0.632			1.07			0.945	0.911	0.926	0.629
Sodium	mg/L	420	430			440		411			459			417	446	476	419
Potassium	mg/L	2.15	2.21			1.93		<5.00			<2.00			1.63	<2.00	<2.00	1.65
Alkalinity, Total	mg/L	740	675			700		660			700			680	730	720	755
Alkalinity, Bicarbonate	mg/L	510	555			600		570			600			500	630	610	605
Alkalinity, Carbonate	mg/L	230	120			100		90.0			100			180	100	110	150
Alkalinity, Hydroxide	mg/L	<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	9.25
Fluoride	mg/L	0.952	1.34			1.26		1.26			1.30			1.2	1.16	1.19	1.22
Sulfate as SO4	mg/L	165	241			247		254			245			250	226	230	229
Total Organic Carbon (TOC)	mg/L	8.34	14.8			10.9		10.3			9.24			8.67	7.83	7.28	6.56
Nitrate/Nitrite as N	mg/L	<0.020	<0.020			<0.020		<0.020			<0.020			<0.02	<0.02	<0.02	<0.020
Aluminum	mg/L	<0.050	0.102			<0.050		<0.250			<0.100			<0.05	<0.05	<0.10	<0.050
Arsenic	mg/L	0.0134	0.0167			0.0131		0.0135			0.0160			0.0152	0.0127	0.0104	0.0107
Cadmium	mg/L	<0.0001	<0.0005			<0.0005		<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0001
Copper	mg/L	0.0055	0.0058			0.0065		0.0059			0.0122			0.0048	0.0071	0.0073	0.0063
Iron	mg/L	<0.050	<0.100			<0.050		<0.250			<0.100			<0.05	<0.05	<0.1	<0.050
Lead	mg/L	0.0024	<0.0025			<0.0025		<0.0025			<0.0005			<0.0005	<0.0005	<0.001	<0.0005
Manganese	mg/L	0.0022	0.0058			0.0033		0.0045			0.0049			0.006	0.0054	0.0072	0.0078
Mercury	mg/L	<0.0002	<0.0002			<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.0061	0.0211			0.0148		0.0152			0.0170			0.016	0.0149	0.0158	0.0157
Selenium	mg/L	0.0013	<0.0050			<0.0050		<0.0050			0.0010			0.0019	<0.0050	<0.002	0.0034
Silica (SiO2)	mg/L	7.97	8.18			9.05		5.35			9.33			8.83	9.49	10.2	8.85
Silicon	mg/L	3.73	3.82			4.23		2.50			4.36			4.13	4.44	4.76	4.14
Uranium	mg/L	0.0049	0.0084			0.0140		0.0124			0.0125			0.0126	0.0111	0.0110	0.0085
Zinc	mg/L	0.0405	<0.0100			<0.0100		<0.0100			<0.0020			0.0023	0.0023	<0.0040	0.0028

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	0.0046
Zinc	mg/L	0.375	<0.0200			<0.0200		<0.0100			<0.0100			<0.01	0.0664	0.0814	0.128

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-A																	
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	3/29	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
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	NM	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	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
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
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
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
Specific Conductance	µS/cm	2163	2053	1876	2096	2180	2165	2186	2261	2259	2267	2207	2214	2183	2192	2246	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	-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
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/N

gpm

deg C

SU

µS/cm

mV

mg/L

pCi/L

NM

NA
- yes or no

gallons per minute

degrees Celsius

standard pH units

microsiemens per centimeter

millivolts

milligram per liter

picocuries per liter

not measured (field)

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-MI																	
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	3/30	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
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	NM	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	0.5	6.5	NM	NM	1	1	1	1	1.3	1.5	1.5	1	1.3	1.8	1.6	2
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
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
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
Specific Conductance	µS/cm	1581	1668	1731	1708	1784	1794	1804	1833	1848	1856	1841	1816	1739	1756	1808	1716
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
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
pH (Lab)	SU	8.83	8.59			8.63		8.51		8.47			8.48	8.31	8.47	8.35	8.3
Total Dissolved Solids (Lab)	mg/L	1160	1170			1180		1180		1220			1140	1120	1100	1130	1130
Calcium	mg/L	1.53	2.32			1.88		1.68		1.64			1.55	1.56	1.60	1.44	1.3
Magnesium	mg/L	0.392	0.707			0.579		<0.500		0.465			0.49	0.524	0.580	0.428	0.408
Sodium	mg/L	408	458			449		452		447			471	470	500	462	458
Potassium	mg/L	1.46	<2.00			1.73		<5.00		<2.00			1.39	<2.00	<2.00	1.43	1.77
Alkalinity, Total	mg/L	965	915			1100		985		965			955	968	995	510	890
Alkalinity, Bicarbonate	mg/L	775	825			880		885		875			865	896	885	420	650
Alkalinity, Carbonate	mg/L	190	90.0			220		100		90.0			90	72.0	110	90	240
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	2.18	7.50			8.78		9.11		8.74			7.99	5.68	5.38	5.98	5.98
Fluoride	mg/L	4.72	5.02			5.09		5.10		5.02			4.82	4.84	4.94	5.49	5.44
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
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
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
Aluminum	mg/L	<0.050	<0.100			<0.050		<0.250		<0.100			<0.05	<0.100	<0.100	<0.050	<0.050
Arsenic	mg/L	0.0099	0.0220			0.0131		0.0122		0.0139			0.0153	0.014	0.0119	0.0164	0.0111
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	0.0059	0.0058			0.0071		0.0070		0.0079			0.0063	0.0071	0.0078	0.0087	0.0153
Iron	mg/L	<0.050	<0.100			<0.050		<0.250		<0.100			<0.05	<0.100	<0.100	<0.050	<0.050
Lead	mg/L	0.0010	<0.0005			<0.0025		<0.0025		<0.0005			<0.0005	<0.0005	<0.0010	<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
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	0.0020	0.0160			0.0127		0.0134		0.0151			0.0119	0.0115	0.0129	0.0121	0.0119
Selenium	mg/L	<0.0010	0.0012			<0.0050		<0.0050		<0.0010			0.0022	0.0113	<0.0020	0.002	<0.001
Silica (SiO2)	mg/L	7.27	8.01			8.80		<5.35		8.30			8.9	9.29	10.3	8.86	9.06
Silicon	mg/L	3.40	3.75			4.11		2.50		3.88			4.16	4.34	4.81	4.14	4.24
Uranium	mg/L	0.0043	0.0126			0.0184		0.0169		0.0183			0.0173	0.0151	0.0191	0.0269	0.0176
Zinc	mg/L	0.113	0.0697			<0.0100		<0.0100		<0.0020			<0.002	<0.002	<0.0040	<0.0020	<0.002

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	
Month	3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5	
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	
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	NM	NM	NM	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	0.1	0.2	0.12	0.1	
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
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
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
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
Specific Conductance	µS/cm	3792	5944	5997	5885	5813	5721	5782	5604	5834	5903	5628	5792	5592	5583	5775	5710	5712
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
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
pH (Lab)	SU	7.61	7.77			7.79		7.98			7.84			7.97	7.96	8.27	7.9	7.92
Total Dissolved Solids (Lab)	mg/L	3230	4050			3750		3780			3730			3660	3650	3590	3580	3590
Calcium	mg/L	13.6	13.7			9.15		7.45			6.32			6.15	5.90	6.60	5.5	5.21
Magnesium	mg/L	2.99	5.26			3.90		2.76			2.61			2.62	2.72	2.94	2.39	2.3
Sodium	mg/L	908	1510			1490		1400			1410			1400	1410	1590	1410	1370
Potassium	mg/L	4.38	5.71			6.07		<10.0			<10.0			<5	<5	5.36	<5.00	<5.00
Alkalinity, Total	mg/L	1250	2360			2780		2680			2600			2410	2480	2450	2470	2550
Alkalinity, Bicarbonate	mg/L	1250	2360			2780		2640			2600			2330	2480	2450	2470	2350
Alkalinity, Carbonate	mg/L	<10.0	<10.0			<10.0		40.0			<10.0			80	<10.0	<10.0	<10.0	200
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	181	550			587		608			592			573	533	590	575	554
Fluoride	mg/L	1.29	2.04			2.17		2.43			2.53			2.52	2.48	2.54	2.64	2.62
Sulfate as SO4	mg/L	534	487			70.2		26.0			34.5			27	18.7	11.2	5.07	<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
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
Aluminum	mg/L	<0.050	<0.050			<0.050		<0.500			<0.500			<0.25	<0.25	<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
Cadmium	mg/L	<0.0001	<0.0010			<0.0010		<0.0010			<0.0005			<0.0005	<0.0005	<0.0005	<0.0005	<0.0001
Copper	mg/L	0.0125	0.0243			0.0221		0.0208			0.0482			0.0389	0.0280	0.0230	0.0249	0.0382
Iron	mg/L	<0.050	<0.050			<0.050		<0.500			<0.500			0.373	0.397	0.474	0.279	0.391
Lead	mg/L	<0.0005	<0.0050			<0.0050		<0.0050			<0.0025			<0.0025	<0.0025	<0.0025	<0.0025	<0.0005
Manganese	mg/L	0.0269	0.0772			0.0554		0.0571			0.0647			0.0529	0.0381	0.0283	0.0268	0.0174
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	0.0526	0.115			0.0138		0.0106			0.0086			0.0072	0.0071	0.0057	0.0074	0.007
Selenium	mg/L	0.0248	0.0231			0.0214		0.0269			0.0378			0.0317	0.0260	0.0211	0.0339	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
Silicon	mg/L	4.61	5.88			6.02		<5.00			<5.00			5.16	5.24	6.00	4.7	4.89
Uranium	mg/L	0.0297	0.121			0.0984		0.0545			0.0311			0.0311	0.0277	0.0246	0.0215	0.0154
Zinc	mg/L	0.0156	0.0265			<0.0200		<0.0200			<0.0100			<0.01	<0.01	<0.0100	<0.0100	0.0038

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																	
		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.																

GCC Energy Hydrologic Monitoring Data

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

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)							

GCC Energy Hydrologic Monitoring Data

MW-6-C								
Year	2018	2019						
Quarter	Q4	Q1			Q2			
Month	12	1	2	3	4	5	6	
Sample Date	12/24	1/30	2/21	3/21	4/23	5/20	6/19	
Lab Analysis (Y/N)	N	N	N	N	N	N	N	
Field Parameters:								
Purge Flow Rate	gpm	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
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-6-MI									
Year	2018	2019							
Quarter	Q4	Q1			Q2				
Month	12	1	2	3	4	5	5	6	
Sample Date	12/29	1/31	2/25	3/21	4/19	5/20	5/30	6/19	
Lab Analysis (Y/N)	Y	N	Y	N	N	N [#]	N	N	
Field Parameters:									
Purge Flow Rate	gpm	NM	NM	NM	0.5	0.1	0.015	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			
Month	12	1	2	3	4	5	6	
Sample Date	12/30	1/31	2/25	3/21	4/23	5/20	6/19	
Lab Analysis (Y/N)	Y	N	Y	N	N	Y	N	
Field Parameters:								
Purge Flow Rate	gpm	NM	NM	0.06	2.00	0.03	0.03	0.10
Total Purged	gal	0.5	0.5	1.5	2.0	2.0	2.3	1.3
Depth to Water	ft bgs	535.72	538.73	539.34	540.64	539.98	537.58	540.00
Temperature	deg C	7.9	14.3	7.8	8.1	9.1	9.3	11.7
pH	SU	7.64	7.38	7.51	7.54	7.49	7.54	7.67
Specific Conductance	µS/cm	6011	3784	3503	1461	1164	1296	1400
Oxygen Reduction Potential	mV	185.3	10.7	40.9	-32.8	-35.8	-111.0	-194.5
Lab Analytical Results:								
Hardness as CaCO3	mg/L	2260		1270			431	
pH (Lab)	SU	7.60		7.52			7.47	
Total Dissolved Solids (Lab)	mg/L	5100		2840			875	
Calcium	mg/L	367		216			75.9	
Magnesium	mg/L	325		177			58.7	
Sodium	mg/L	459		248			129	
Potassium	mg/L	173		64.5			14.0	
Alkalinity, Total	mg/L	205		315			371	
Alkalinity, Bicarbonate	mg/L	205		315			371	
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0	
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0	
Chloride	mg/L	256		43.7			5.73	
Fluoride	mg/L	0.530		<0.500			0.324	
Sulfate as SO4	mg/L	3050		1790			338	
Total Organic Carbon (TOC)	mg/L	3.46		2.61			1.57	
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020	
Aluminum	mg/L	<0.250		<0.250			<0.050	
Arsenic	mg/L	0.0039		0.0049			0.0036	
Cadmium	mg/L	<0.0005		<0.0005			<0.0001	
Copper	mg/L	0.0135		0.0064			0.0017	
Iron	mg/L	<0.250		<0.250			<0.050	
Lead	mg/L	<0.0025		<0.0025			<0.0005	
Manganese	mg/L	0.383		0.223			0.0692	
Mercury	mg/L	<0.0002		<0.0002			<0.0002	
Molybdenum	mg/L	0.0490		0.0169			0.0037	
Selenium	mg/L	0.0080		<0.0050			<0.0010	
Silica (SiO2)	mg/L	10.5		13.5			17.0	
Silicon	mg/L	4.91		6.29			7.96	
Uranium	mg/L	0.0230		0.0075			0.0039	
Zinc	mg/L	0.0323		<0.0100			<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	picrouries 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			
Month	12	1	2	3	4	5	6	
Sample Date	12/23	1/29	2/19	3/20	4/16	5/29	6/20	
Lab Analysis (Y/N)	Y	N	Y	N	N	Y	N	
Field Parameters:								
Purge Flow Rate	gpm	1.10	1.10	1.00	3.00	1.00	1.00	
Total Purged	gal	15.0	18.0	15.0	3.0	15.0	16.0	15.3
Depth to Water	ft bgs	36.13	36.27	36.45	36.52	36.70	36.25	36.22
Temperature	deg C	10.0	10.0	10.0	9.9	10.1	10.4	10.4
pH	SU	6.99	7.01	7.04	6.93	7.00	7.06	7.07
Specific Conductance	µS/cm	2001	1910	1910	1926	1912	1767	1836
Oxygen Reduction Potential	mV	-68.0	-36.7	-41.4	-38.1	-48.8	14.1	-13.8
Lab Analytical Results:								
Hardness as CaCO3	mg/L	936		1030			982	
pH (Lab)	SU	7.2		7.37			7.17	
Total Dissolved Solids (Lab)	mg/L	1460		1480			1490	
Calcium	mg/L	170		179			171	
Magnesium	mg/L	124		142			135	
Sodium	mg/L	75.3		81.3			75.0	
Potassium	mg/L	3.87		3.9			<5.00	
Alkalinity, Total	mg/L	380		367			405	
Alkalinity, Bicarbonate	mg/L	380		367			405	
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0	
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0	
Chloride	mg/L	11.9		10.7			10.8	
Fluoride	mg/L	<0.500		0.332			0.322	
Sulfate as SO4	mg/L	732		736			733	
Total Organic Carbon (TOC)	mg/L	3.72		3.57			3.73	
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020	
Aluminum	mg/L	<0.050		<0.100			<0.250	
Arsenic	mg/L	0.0014		0.0015			0.0013	
Cadmium	mg/L	<0.0001		<0.0002			<0.0001	
Copper	mg/L	0.0003		0.0018			0.0011	
Iron	mg/L	1.82		1.95			1.81	
Lead	mg/L	<0.0005		<0.0010			<0.0005	
Manganese	mg/L	3.72		4.49			4.01	
Mercury	mg/L	<0.0002		<0.0002			<0.0002	
Molybdenum	mg/L	0.0008		0.0011			0.0007	
Selenium	mg/L	<0.0020		<0.0020			<0.0010	
Silica (SiO2)	mg/L	16.6		16.1			16.1	
Silicon	mg/L	7.75		7.52			7.55	
Uranium	mg/L	0.0021		0.0018			0.0017	
Zinc	mg/L	<0.0050		<0.0040			0.0021	

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-EAA								
Year	2018	2019						
Quarter	Q4	Q1			Q2			
Month	12	1	2	3	4	5	6	
Sample Date	12/23	1/29	2/19	3/20	4/16	5/29	6/20	
Lab Analysis (Y/N)	Y	N	Y	N	N	Y	N	
Field Parameters:								
Purge Flow Rate	gpm	0.85	1.10	0.50	3.00	0.50	0.75	1.00
Total Purged	gal	18.0	14.0	15.0	3.0	15.0	17.0	15.3
Depth to Water	ft bgs	40.00	39.95	40.10	43.45	40.44	40.05	39.94
Temperature	deg C	10.3	10.2	10.0	9.9	10.3	10.5	10.6
pH	SU	7.12	7.09	7.13	7.17	7.09	7.02	7.17
Specific Conductance	µS/cm	1781	1696	1720	1725	1729	1628	1676
Oxygen Reduction Potential	mV	-65	-52.8	-51.8	-53.0	-59.7	11.0	-29.5
Lab Analytical Results:								
Hardness as CaCO3	mg/L	870		861			864	
pH (Lab)	SU	7.28		7.36			7.13	
Total Dissolved Solids (Lab)	mg/L	1220		1290			1240	
Calcium	mg/L	152		151			148	
Magnesium	mg/L	119		118			120	
Sodium	mg/L	81.7		82.6			77.2	
Potassium	mg/L	3.80		3.27			3.55	
Alkalinity, Total	mg/L	400		435			450	
Alkalinity, Bicarbonate	mg/L	400		435			450	
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0	
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0	
Chloride	mg/L	9.83		10.5			10.3	
Fluoride	mg/L	0.380		0.370			0.338	
Sulfate as SO4	mg/L	533		559			606	
Total Organic Carbon (TOC)	mg/L	3.77		3.59			3.77	
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020	
Aluminum	mg/L	<0.100		<0.100			<0.050	
Arsenic	mg/L	0.0020		0.0018			0.0018	
Cadmium	mg/L	<0.0001		<0.0002			<0.0001	
Copper	mg/L	0.0004		0.0024			0.0023	
Iron	mg/L	2.12		2.13			2.42	
Lead	mg/L	<0.0005		<0.0010			<0.0005	
Manganese	mg/L	3.17		3.52			3.06	
Mercury	mg/L	<0.0002		<0.0002			<0.0002	
Molybdenum	mg/L	0.0009		0.0011			0.0008	
Selenium	mg/L	<0.0020		<0.0020			0.0010	
Silica (SiO2)	mg/L	16.3		15.3			15.7	
Silicon	mg/L	7.63		7.15			7.32	
Uranium	mg/L	0.0021		0.0017			0.0016	
Zinc	mg/L	<0.0050		<0.0040			<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-MI								
Year	2018	2019						
Quarter	Q4	Q1			Q2			
Month	12	1	2	3	4	5	6	
Sample Date	12/23	1/29	2/19	3/20	4/16	5/29	6/20	
Lab Analysis (Y/N)	Y	N	Y	N	N	Y	N	
Field Parameters:								
Purge Flow Rate	gpm	1.10	1.00	0.50	3.00	0.50	0.50	0.25
Total Purged	gal	27.5	18.0	1.0	3.0	1.5	2.5	2.5
Depth to Water	ft bgs	45.75	43.48	43.50	44.30	44.47	44.10	44.24
Temperature	deg C	10.8	10.8	10.6	11.2	10.4	11.1	11.4
pH	SU	7.57	7.5	7.48	7.47	7.34	7.31	7.48
Specific Conductance	µS/cm	1786	1667	1651	1658	1643	1595	1639
Oxygen Reduction Potential	mV	-84.4	-177.1	-122.1	-113.3	-87.2	-54.4	-97.1
Lab Analytical Results:								
Hardness as CaCO3	mg/L	167		249			273	
pH (Lab)	SU	7.73		7.54			7.24	
Total Dissolved Solids (Lab)	mg/L	1050		1030			1100	
Calcium	mg/L	34.0		48.5			52.4	
Magnesium	mg/L	19.9		31.0			34.5	
Sodium	mg/L	344		312			289	
Potassium	mg/L	4.47		5.25			<5.00	
Alkalinity, Total	mg/L	500		565			560	
Alkalinity, Bicarbonate	mg/L	500		565			560	
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0	
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0	
Chloride	mg/L	12.7		10.0			9.33	
Fluoride	mg/L	<0.500		<0.200			<0.200	
Sulfate as SO4	mg/L	347		353			343	
Total Organic Carbon (TOC)	mg/L	2.73		2.83			2.81	
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020	
Aluminum	mg/L	<0.050		<0.100			<0.250	
Arsenic	mg/L	0.0008		<0.0010			0.0006	
Cadmium	mg/L	<0.0001		<0.0002			<0.0001	
Copper	mg/L	0.0031		0.0066			0.0036	
Iron	mg/L	0.137		0.162			<0.250	
Lead	mg/L	<0.0005		<0.0010			<0.0005	
Manganese	mg/L	0.0495		0.0383			0.0327	
Mercury	mg/L	<0.0002		<0.0002			<0.0002	
Molybdenum	mg/L	0.0005		<0.0010			<0.0005	
Selenium	mg/L	<0.0020		<0.0020			0.0010	
Silica (SiO2)	mg/L	12.1		12.4			12.8	
Silicon	mg/L	5.65		5.78			5.99	
Uranium	mg/L	0.0002		0.0002			0.0002	
Zinc	mg/L	<0.0050		<0.0040			<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.
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	picrouries 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			
Month	12	1	2	3	4	5	6	
Sample Date	12/28	1/29	2/19	3/21	4/16	5/29	6/18	
Lab Analysis (Y/N)	Y	N	Y	N	N	Y	N	
Field Parameters:								
Purge Flow Rate	gpm	NM	1.00	0.25	1.00	0.50	0.10	0.25
Total Purged	gal	30	4.0	1.5	1.0	2.0	1.3	6.8
Depth to Water	ft bgs	136.39	130.52	134.30	144.03	140.03	137.48	142.23
Temperature	deg C	4.1	13.9	13.2	8.7	13.6	13.9	12.8
pH	SU	8.37	8.7	8.71	8.41	8.7	8.5	8.66
Specific Conductance	µS/cm	2306	1274	1265	1310	1262	1234	1264
Oxygen Reduction Potential	mV	37.5	-114.3	112.8	77.0	-36.2	33.2	-63.9
Lab Analytical Results:								
Hardness as CaCO3	mg/L	45.0		7.29			16.9	
pH (Lab)	SU	8.57		8.63			8.02	
Total Dissolved Solids (Lab)	mg/L	1420		770			780	
Calcium	mg/L	10.8		1.93			3.84	
Magnesium	mg/L	4.39		0.600			1.77	
Sodium	mg/L	382		341			317	
Potassium	mg/L	45.7		3.49			<5.00	
Alkalinity, Total	mg/L	615		720			745	
Alkalinity, Bicarbonate	mg/L	535		610			645	
Alkalinity, Carbonate	mg/L	80.0		110			100	
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0	
Chloride	mg/L	175		5.11			6.80	
Fluoride	mg/L	2.06		3.91			3.95	
Sulfate as SO4	mg/L	190		3.79			9.58	
Total Organic Carbon (TOC)	mg/L	2.80		1.80			3.33	
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020	
Aluminum	mg/L	<0.050		<0.100			<0.250	
Arsenic	mg/L	0.0106		<0.0010			0.0006	
Cadmium	mg/L	<0.0001		<0.0002			<0.0001	
Copper	mg/L	0.0337		0.0077			0.0047	
Iron	mg/L	<0.050		<0.100			<0.250	
Lead	mg/L	<0.0005		<0.0010			<0.0005	
Manganese	mg/L	0.0258		0.0038			0.0150	
Mercury	mg/L	<0.0002		<0.0002			<0.0002	
Molybdenum	mg/L	0.0142		<0.0010			0.0009	
Selenium	mg/L	0.0020		<0.0020			<0.0010	
Silica (SiO2)	mg/L	9.09		8.45			8.68	
Silicon	mg/L	4.25		3.95			4.06	
Uranium	mg/L	0.0044		<0.0002			0.0001	
Zinc	mg/L	0.0080		<0.0040			0.0023	

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-PL								
Year	2018	2019						
Quarter	Q4	Q1			Q2			
Month	12	1	2	3	4	5	6	
Sample Date	12/27	1/29	2/19	3/20	4/16	5/29	6/20	
Lab Analysis (Y/N)	Y	N	Y	N	N	Y	N	
Field Parameters:								
Purge Flow Rate	gpm	0.25	1.00	0.50	3.00	0.50	0.25	0.50
Total Purged	gal	20.0	5.0	2.0	3.0	2.0	3.0	2.5
Depth to Water	ft bgs	125.97	126.29	126.40	127.10	126.98	126.70	126.82
Temperature	deg C	10.3	14.2	13.4	12.9	13.2	14.2	14.8
pH	SU	7.50	7.30	7.49	7.30	7.29	7.31	7.57
Specific Conductance	µS/cm	1690	1531	1571	1558	1554	1411	1326
Oxygen Reduction Potential	mV	30.2	-116.5	97.9	-108.7	-110.6	34.2	-57.6
Lab Analytical Results:								
Hardness as CaCO3	mg/L	617		644			596	
pH (Lab)	SU	7.28		7.40			7.26	
Total Dissolved Solids (Lab)	mg/L	1150		1090			995	
Calcium	mg/L	112		120			105	
Magnesium	mg/L	82.1		83.8			81.4	
Sodium	mg/L	106		124			102	
Potassium	mg/L	5.14		5.62			<5.00	
Alkalinity, Total	mg/L	370		415			435	
Alkalinity, Bicarbonate	mg/L	370		415			435	
Alkalinity, Carbonate	mg/L	<10.0		<10.0			<10.0	
Alkalinity, Hydroxide	mg/L	<10.0		<10.0			<10.0	
Chloride	mg/L	18.8		18.5			9.03	
Fluoride	mg/L	0.505		0.474			0.290	
Sulfate as SO4	mg/L	478		471			390	
Total Organic Carbon (TOC)	mg/L	4.17		4.02			2.92	
Nitrate/Nitrite as N	mg/L	<0.020		<0.020			<0.020	
Aluminum	mg/L	<0.050		<0.100			<0.250	
Arsenic	mg/L	0.0074		0.0124			0.0190	
Cadmium	mg/L	<0.0001		<0.0002			<0.0001	
Copper	mg/L	0.0016		0.0025			0.0017	
Iron	mg/L	<0.050		0.352			<0.250	
Lead	mg/L	<0.0005		<0.0010			<0.0005	
Manganese	mg/L	1.31		1.22			0.697	
Mercury	mg/L	<0.0002		<0.0002			<0.0002	
Molybdenum	mg/L	0.0090		0.0068			0.0020	
Selenium	mg/L	0.0012		<0.0020			<0.0010	
Silica (SiO2)	mg/L	14.1		16.3			17.7	
Silicon	mg/L	6.58		7.64			8.28	
Uranium	mg/L	0.0052		0.0040			0.0010	
Zinc	mg/L	0.0344		<0.0040			<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	picrouries per liter							
NM	not measured (field)							
NA	not analyzed (lab)							
*	Anomalous value under review							



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12 June 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 05/23/19 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.



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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:
06/12/19 13:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
Hay Gulch Ditch Downgradient	1905241-01	Water	05/23/19 13:22	05/23/19 16:15	
Hay Gulch Ditch Upgradient	1905241-02	Water	05/23/19 11:52	05/23/19 16:15	
Well #1 Upgradient	1905241-03	Water	05/23/19 08:18	05/23/19 16:15	
Wiltse Well	1905241-04	Water	05/23/19 10:26	05/23/19 16:15	
MW-HGA-4	1905241-05	Water	05/23/19 11:24	05/23/19 16:15	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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Page 2 of 18



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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:
06/12/19 13:08

Hay Gulch Ditch Downgradient

1905241-01 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	340	10.0		mg/L	5	06/03/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	06/03/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	06/03/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	340	10.0	3.06	mg/L	5	06/03/19	2320 B		VJL
Chloride*	16.9	1.00	0.103	mg/L	1	06/05/19	EPA300.0		AES
Fluoride*	0.205	0.100	0.0147	mg/L	1	06/05/19	EPA300.0		AES
Nitrate/Nitrite as N*	0.146	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
Oil & Grease (HEM)	<5.00	5.00	1.16	mg/L	1	06/04/19	EPA1664 A		VJL
pH*	7.68			pH Units	1	05/24/19	EPA150.1		VJL
SAR	0.22			No Unit	1	06/05/19	Calculation		AES
Total Dissolved Solids*	185	10.0		mg/L	1	05/28/19	EPA160.1		VJL
Total Suspended Solids*	153	2.00		mg/L	1	05/29/19	EPA160.2		VJL
Sulfate*	18.5	1.00	0.213	mg/L	1	06/05/19	EPA300.0		AES
Total Organic Carbon*	2.37	0.500	0.0670	mg/L	1	05/31/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	06/05/19	EPA200.7		AES
Calcium*	26.0	0.100	0.013	mg/L	1	06/05/19	EPA200.7		AES
Hardness as CaCO ₃	91.9	0.662	0.109	mg/L	1	06/05/19	2340 B		AES
Iron*	<0.050	0.050	0.028	mg/L	1	06/05/19	EPA200.7		AES
Magnesium*	6.54	0.100	0.019	mg/L	1	06/05/19	EPA200.7		AES
Potassium*	1.31	1.00	0.096	mg/L	1	06/05/19	EPA200.7		AES
Silica (SiO ₂)	5.70	1.07	0.0572	mg/L	1	06/05/19	Calculation		AES
Silicon	2.67	0.500	0.027	mg/L	1	06/05/19	EPA200.7		AES
Sodium*	5.03	1.00	0.367	mg/L	1	06/05/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0006	0.0005	0.0002	mg/L	1	06/11/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/11/19	EPA200.8		AES
Copper*	0.0021	0.0001	0.0001	mg/L	1	06/11/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/11/19	EPA200.8		AES
Manganese*	0.0125	0.0005	0.00009	mg/L	1	06/11/19	EPA200.8		AES
Molybdenum*	0.0011	0.0005	0.00007	mg/L	1	06/11/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	06/11/19	EPA200.8		AES
Uranium	0.0002	0.0001	0.00008	mg/L	1	06/11/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	06/11/19	EPA200.8		AES

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Debbie Zufelt, Reports Manager

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www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
06/12/19 13:08

Hay Gulch Ditch Downgradient

1905241-01 (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	05/31/19	EPA245.1		LLG
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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:
06/12/19 13:08

Hay Gulch Ditch Upgradient

1905241-02 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	390	10.0		mg/L	5	06/03/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	06/03/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	06/03/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	390	10.0	3.06	mg/L	5	06/03/19	2320 B		VJL
Chloride*	7.75	1.00	0.103	mg/L	1	06/05/19	EPA300.0		AES
Fluoride*	0.208	0.100	0.0147	mg/L	1	06/05/19	EPA300.0		AES
Nitrate/Nitrite as N*	0.050	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
Oil & Grease (HEM)	<5.00	5.00	1.16	mg/L	1	06/04/19	EPA1664 A		VJL
pH*	7.69			pH Units	1	05/24/19	EPA150.1		VJL
SAR	0.26			No Unit	1	06/05/19	Calculation		AES
Total Dissolved Solids*	205	10.0		mg/L	1	05/28/19	EPA160.1		VJL
Total Suspended Solids*	113	2.00		mg/L	1	05/29/19	EPA160.2		VJL
Sulfate*	47.2	2.00	0.426	mg/L	2	06/06/19	EPA300.0		AES
Total Organic Carbon*	3.08	0.500	0.0670	mg/L	1	05/31/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	06/05/19	EPA200.7		AES
Calcium*	34.6	0.100	0.013	mg/L	1	06/05/19	EPA200.7		AES
Hardness as CaCO ₃	136	0.662	0.109	mg/L	1	06/05/19	2340 B		AES
Iron*	0.055	0.050	0.028	mg/L	1	06/05/19	EPA200.7		AES
Magnesium*	12.1	0.100	0.019	mg/L	1	06/05/19	EPA200.7		AES
Potassium*	1.57	1.00	0.096	mg/L	1	06/05/19	EPA200.7		AES
Silica (SiO ₂)	8.55	1.07	0.0572	mg/L	1	06/05/19	Calculation		AES
Silicon	3.99	0.500	0.027	mg/L	1	06/05/19	EPA200.7		AES
Sodium*	7.24	1.00	0.367	mg/L	1	06/05/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0006	0.0005	0.0002	mg/L	1	06/11/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/11/19	EPA200.8		AES
Copper*	0.0013	0.0001	0.0001	mg/L	1	06/11/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/11/19	EPA200.8		AES
Manganese*	0.0349	0.0005	0.00009	mg/L	1	06/11/19	EPA200.8		AES
Molybdenum*	0.0009	0.0005	0.00007	mg/L	1	06/11/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	06/11/19	EPA200.8		AES
Uranium	0.0003	0.0001	0.00008	mg/L	1	06/11/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	06/11/19	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:
06/12/19 13:08

Hay Gulch Ditch Upgradient

1905241-02 (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	06/10/19	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 & SW Baseline
Project Name / Number: [none]
Project Manager: Tom BirdReported:
06/12/19 13:08

Well #1 Upgradient

1905241-03 (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	1	06/03/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	06/03/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	06/03/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	615	10.0	3.06	mg/L	1	06/03/19	2320 B		VJL
Chloride*	4.59	1.00	0.103	mg/L	1	06/05/19	EPA300.0		AES
Fluoride*	0.349	0.100	0.0147	mg/L	1	06/05/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
pH*	7.56			pH Units	1	05/24/19	EPA150.1		VJL
Total Dissolved Solids*	860	10.0		mg/L	1	05/28/19	EPA160.1		VJL
Sulfate*	131	5.00	1.07	mg/L	5	06/06/19	EPA300.0		AES
Total Organic Carbon*	3.70	0.500	0.0670	mg/L	1	05/31/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	06/05/19	EPA200.7		AES
Calcium*	67.8	0.100	0.013	mg/L	1	06/05/19	EPA200.7		AES
Hardness as CaCO ₃	350	0.662	0.109	mg/L	1	06/05/19	2340 B		AES
Iron*	1.74	0.050	0.028	mg/L	1	06/05/19	EPA200.7		AES
Magnesium*	43.8	0.100	0.019	mg/L	1	06/05/19	EPA200.7		AES
Potassium*	3.32	1.00	0.096	mg/L	1	06/05/19	EPA200.7		AES
Silica (SiO ₂)	13.1	1.07	0.0572	mg/L	1	06/05/19	Calculation		AES
Silicon	6.13	0.500	0.027	mg/L	1	06/05/19	EPA200.7		AES
Sodium*	172	1.00	0.367	mg/L	1	06/05/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0005	0.0005	0.0002	mg/L	1	06/11/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/11/19	EPA200.8		AES
Copper*	0.0015	0.0001	0.0001	mg/L	1	06/11/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/11/19	EPA200.8		AES
Manganese*	0.439	0.0005	0.00009	mg/L	1	06/11/19	EPA200.8		AES
Molybdenum*	<0.0005	0.0005	0.00007	mg/L	1	06/11/19	EPA200.8		AES
Selenium*	0.0024	0.0010	0.0006	mg/L	1	06/11/19	EPA200.8		AES
Uranium	0.0002	0.0001	0.00008	mg/L	1	06/11/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	06/11/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	05/31/19	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 & SW Baseline
Project Name / Number: [none]
Project Manager: Tom BirdReported:
06/12/19 13:08

Wiltse Well

1905241-04 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	469	10.0		mg/L	1	06/03/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	06/03/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	06/03/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	469	10.0	3.06	mg/L	1	06/03/19	2320 B		VJL
Chloride*	67.8	2.00	0.205	mg/L	2	06/05/19	EPA300.0		AES
Fluoride*	0.306	0.200	0.0293	mg/L	2	06/05/19	EPA300.0		AES
Nitrate/Nitrite as N*	0.651	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
pH*	7.35			pH Units	1	05/24/19	EPA150.1		VJL
Total Dissolved Solids*	1670	10.0		mg/L	1	05/28/19	EPA160.1		VJL
Sulfate*	709	40.0	8.52	mg/L	40	06/06/19	EPA300.0		AES
Total Organic Carbon*	4.87	0.500	0.0670	mg/L	1	05/31/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	06/05/19	EPA200.7		AES
Calcium*	214	0.200	0.026	mg/L	2	06/05/19	EPA200.7		AES
Hardness as CaCO ₃	1080	1.32	0.219	mg/L	2	06/05/19	2340 B		AES
Iron*	0.379	0.100	0.055	mg/L	2	06/05/19	EPA200.7		AES
Magnesium*	132	0.200	0.038	mg/L	2	06/05/19	EPA200.7		AES
Potassium*	4.77	2.00	0.191	mg/L	2	06/05/19	EPA200.7		AES
Silica (SiO ₂)	13.2	2.14	0.114	mg/L	2	06/05/19	Calculation		AES
Silicon	6.19	1.00	0.053	mg/L	2	06/05/19	EPA200.7		AES
Sodium*	89.4	2.00	0.734	mg/L	2	06/05/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0006	0.0005	0.0002	mg/L	1	06/11/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/11/19	EPA200.8		AES
Copper*	0.0021	0.0001	0.0001	mg/L	1	06/11/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/11/19	EPA200.8		AES
Manganese*	0.357	0.0005	0.00009	mg/L	1	06/11/19	EPA200.8		AES
Molybdenum*	0.0014	0.0005	0.00007	mg/L	1	06/11/19	EPA200.8		AES
Selenium*	0.0016	0.0010	0.0006	mg/L	1	06/11/19	EPA200.8		AES
Uranium	0.0044	0.0001	0.00008	mg/L	1	06/11/19	EPA200.8		AES
Zinc*	0.0128	0.0020	0.0004	mg/L	1	06/11/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	05/31/19	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 & SW Baseline
Project Name / Number: [none]
Project Manager: Tom BirdReported:
06/12/19 13:08

MW-HGA-4

1905241-05 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	445	10.0		mg/L	5	06/03/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	06/03/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	06/03/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	445	10.0	3.06	mg/L	5	06/03/19	2320 B		VJL
Chloride*	8.06	1.00	0.103	mg/L	1	06/05/19	EPA300.0		AES
Fluoride*	0.456	0.100	0.0147	mg/L	1	06/05/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
pH*	8.17			pH Units	1	05/24/19	EPA150.1		VJL
Total Dissolved Solids*	695	10.0		mg/L	1	05/28/19	EPA160.1		VJL
Sulfate*	186	10.0	2.13	mg/L	10	06/06/19	EPA300.0		AES
Total Organic Carbon*	4.45	0.500	0.0670	mg/L	1	05/31/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	06/05/19	EPA200.7		AES
Calcium*	110	0.100	0.013	mg/L	1	06/05/19	EPA200.7		AES
Hardness as CaCO ₃	563	0.662	0.109	mg/L	1	06/05/19	2340 B		AES
Iron*	7.98	0.050	0.028	mg/L	1	06/05/19	EPA200.7		AES
Magnesium*	70.3	0.100	0.019	mg/L	1	06/05/19	EPA200.7		AES
Potassium*	2.00	1.00	0.096	mg/L	1	06/05/19	EPA200.7		AES
Silica (SiO ₂)	14.9	1.07	0.0572	mg/L	1	06/05/19	Calculation		AES
Silicon	6.96	0.500	0.027	mg/L	1	06/05/19	EPA200.7		AES
Sodium*	28.6	1.00	0.367	mg/L	1	06/05/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0029	0.0005	0.0002	mg/L	1	06/11/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/11/19	EPA200.8		AES
Copper*	0.0003	0.0001	0.0001	mg/L	1	06/11/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/11/19	EPA200.8		AES
Manganese*	2.12	0.0005	0.00009	mg/L	1	06/11/19	EPA200.8		AES
Molybdenum*	0.0027	0.0005	0.00007	mg/L	1	06/11/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	06/11/19	EPA200.8		AES
Uranium	0.0004	0.0001	0.00008	mg/L	1	06/11/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	06/11/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	06/10/19	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 & SW Baseline
Project Name / Number: [none]
Project Manager: Tom BirdReported:
06/12/19 13:08

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 B905183 - General Prep - Wet Chem

Blank (B905183-BLK1)

Prepared & Analyzed: 05/22/19

Oil & Grease (HEM) ND 5.00 mg/L

LCS (B905183-BS1)

Prepared & Analyzed: 05/22/19

Oil & Grease (HEM) 35.1 5.00 mg/L 40.0 87.8 85-115

LCS Dup (B905183-BSD1)

Prepared & Analyzed: 05/22/19

Oil & Grease (HEM) 35.8 5.00 mg/L 40.0 89.5 85-115 1.97 20

Batch B905213 - General Prep - Wet Chem

Blank (B905213-BLK1)

Prepared: 05/24/19 Analyzed: 05/30/19

Nitrate/Nitrite as N ND 0.020 mg/L

LCS (B905213-BS1)

Prepared: 05/24/19 Analyzed: 05/30/19

Nitrate/Nitrite as N 1.06 0.020 mg/L 1.00 106 90-110

LCS Dup (B905213-BSD1)

Prepared: 05/24/19 Analyzed: 05/30/19

Nitrate/Nitrite as N 1.06 0.020 mg/L 1.00 106 90-110 0.170 20

Batch B905223 - General Prep - Wet Chem

Blank (B905223-BLK1)

Prepared & Analyzed: 05/28/19

Total Dissolved Solids ND 10.0 mg/L

Duplicate (B905223-DUP1)

Source: 1905217-01 Prepared & Analyzed: 05/28/19

Total Dissolved Solids 180 10.0 mg/L 135 28.6 20 R1

Reference (B905223-SRM1)

Prepared & Analyzed: 05/28/19

Total Dissolved Solids 590 10.0 mg/L 600 98.3 85-115

Batch B905225 - General Prep - Wet Chem

Blank (B905225-BLK1)

Prepared: 05/28/19 Analyzed: 05/30/19

Nitrate/Nitrite as N ND 0.020 mg/L

LCS (B905225-BS1)

Prepared: 05/28/19 Analyzed: 05/30/19

Nitrate/Nitrite as N 0.992 0.020 mg/L 1.00 99.2 90-110

LCS Dup (B905225-BSD1)

Prepared: 05/28/19 Analyzed: 05/30/19

Nitrate/Nitrite as N 0.986 0.020 mg/L 1.00 98.6 90-110 0.677 20

Batch B905227 - General Prep - Wet Chem

Duplicate (B905227-DUP1)

Source: 1905241-02 Prepared & Analyzed: 05/24/19

pH 7.71 pH Units 7.69 0.260 20

Reference (B905227-SRM1)

Prepared & Analyzed: 05/24/19

pH 7.07 pH Units 7.00 101 98.5-101.4

Batch B905233 - General Prep - Wet Chem

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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:
06/12/19 13:08General Chemistry - Quality Control
(Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (B905233-BLK1) Prepared & Analyzed: 05/29/19										
Total Suspended Solids	ND	2.00	mg/L							
Duplicate (B905233-DUP1) Source: 1905240-01 Prepared & Analyzed: 05/29/19										
Total Suspended Solids	ND	2.00	mg/L		ND				20	
Reference (B905233-SRM1) Prepared & Analyzed: 05/29/19										
Total Suspended Solids	87.0	2.00	mg/L	100		87.0	85-115			
Batch B905246 - General Prep - Wet Chem										
Blank (B905246-BLK1) Prepared & Analyzed: 05/30/19										
Total Organic Carbon	ND	0.500	mg/L							
LCS (B905246-BS1) Prepared & Analyzed: 05/30/19										
Total Organic Carbon	9.77	0.500	mg/L	10.0		97.7	85-115			
LCS Dup (B905246-BSD1) Prepared & Analyzed: 05/30/19										
Total Organic Carbon	10.2	0.500	mg/L	10.0		102	85-115	3.95	20	
Batch B906002 - General Prep - Wet Chem										
Blank (B906002-BLK1) Prepared & Analyzed: 06/03/19										
Alkalinity, Total as CaCO ₃	ND	10.0	mg/L							
LCS (B906002-BS1) Prepared & Analyzed: 06/03/19										
Alkalinity, Total as CaCO ₃	91.0	10.0	mg/L	100		91.0	85-115			
LCS Dup (B906002-BSD1) Prepared & Analyzed: 06/03/19										
Alkalinity, Total as CaCO ₃	100	10.0	mg/L	100		100	85-115	9.42	20	
Batch B906017 - General Prep - Wet Chem										
Blank (B906017-BLK1) Prepared: 06/03/19 Analyzed: 06/05/19										
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B906017-BS1) Prepared: 06/03/19 Analyzed: 06/05/19										
Chloride	24.6	1.00	mg/L	25.0		98.3	90-110			
Fluoride	2.55	0.100	mg/L	2.50		102	90-110			
Sulfate	24.3	1.00	mg/L	25.0		97.1	90-110			
LCS Dup (B906017-BSD1) Prepared: 06/03/19 Analyzed: 06/05/19										
Chloride	24.5	1.00	mg/L	25.0		97.9	90-110	0.387	20	
Fluoride	2.58	0.100	mg/L	2.50		103	90-110	0.935	20	
Sulfate	24.2	1.00	mg/L	25.0		96.9	90-110	0.190	20	

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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:
06/12/19 13:08

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 B906027 - Diss. 200.7/200.8

Blank (B906027-BLK1)

Prepared & Analyzed: 06/05/19

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 (B906027-BS1)

Prepared & Analyzed: 06/05/19

Aluminum	4.90	0.050	mg/L	5.00	98.0	85-115
Calcium	4.93	0.100	mg/L	5.00	98.7	85-115
Iron	4.88	0.050	mg/L	5.00	97.5	85-115
Magnesium	25.1	0.100	mg/L	25.0	100	85-115
Potassium	9.92	1.00	mg/L	10.0	99.2	85-115
Silicon	5.04	0.500	mg/L	5.00	101	85-115
Sodium	4.15	1.00	mg/L	4.05	102	85-115

LCS Dup (B906027-BSD1)

Prepared & Analyzed: 06/05/19

Aluminum	4.91	0.050	mg/L	5.00	98.2	85-115	0.121	20
Calcium	4.86	0.100	mg/L	5.00	97.3	85-115	1.44	20
Iron	4.88	0.050	mg/L	5.00	97.7	85-115	0.176	20
Magnesium	25.0	0.100	mg/L	25.0	100	85-115	0.231	20
Potassium	9.80	1.00	mg/L	10.0	98.0	85-115	1.21	20
Silicon	5.02	0.500	mg/L	5.00	100	85-115	0.442	20
Sodium	4.05	1.00	mg/L	4.05	99.9	85-115	2.44	20

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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:
06/12/19 13:08

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 B906035 - Diss. 200.7/200.8

Blank (B906035-BLK1)

Prepared: 06/05/19 Analyzed: 06/11/19

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 (B906035-BS1)

Prepared: 06/05/19 Analyzed: 06/11/19

Arsenic	0.0543	0.0005	mg/L	0.0500	109	85-115
Cadmium	0.0553	0.0001	mg/L	0.0500	111	85-115
Copper	0.0523	0.0001	mg/L	0.0500	105	85-115
Lead	0.0559	0.0005	mg/L	0.0500	112	85-115
Manganese	0.0540	0.0005	mg/L	0.0500	108	85-115
Molybdenum	0.0546	0.0005	mg/L	0.0500	109	85-115
Selenium	0.276	0.0010	mg/L	0.250	110	85-115
Uranium	0.0560	0.0001	mg/L	0.0500	112	85-115
Zinc	0.0539	0.0020	mg/L	0.0500	108	85-115

LCS Dup (B906035-BSD1)

Prepared: 06/05/19 Analyzed: 06/11/19

Arsenic	0.0539	0.0005	mg/L	0.0500	108	85-115	0.704	20
Cadmium	0.0554	0.0001	mg/L	0.0500	111	85-115	0.131	20
Copper	0.0522	0.0001	mg/L	0.0500	104	85-115	0.151	20
Lead	0.0556	0.0005	mg/L	0.0500	111	85-115	0.538	20
Manganese	0.0546	0.0005	mg/L	0.0500	109	85-115	1.11	20
Molybdenum	0.0545	0.0005	mg/L	0.0500	109	85-115	0.0831	20
Selenium	0.274	0.0010	mg/L	0.250	110	85-115	0.670	20
Uranium	0.0561	0.0001	mg/L	0.0500	112	85-115	0.129	20
Zinc	0.0537	0.0020	mg/L	0.0500	107	85-115	0.346	20

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www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
06/12/19 13:08

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 B905244 - EPA 245.1/7470

Blank (B905244-BLK1)

Prepared: 05/29/19 Analyzed: 05/31/19

Mercury	ND	0.0002	mg/L
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LCS (B905244-BS1)

Prepared: 05/29/19 Analyzed: 05/31/19

Mercury	0.0056	0.0002	mg/L	0.00500	112	85-115
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LCS Dup (B905244-BSD1)

Prepared: 05/29/19 Analyzed: 05/31/19

Mercury	0.0058	0.0002	mg/L	0.00500	116	85-115	3.02	20	BS1
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Batch B906047 - EPA 245.1/7470

Blank (B906047-BLK1)

Prepared: 06/05/19 Analyzed: 06/10/19

Mercury	ND	0.0002	mg/L
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LCS (B906047-BS1)

Prepared: 06/05/19 Analyzed: 06/10/19

Mercury	0.0047	0.0002	mg/L	0.00500	94.2	85-115
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LCS Dup (B906047-BSD1)

Prepared: 06/05/19 Analyzed: 06/10/19

Mercury	0.0048	0.0002	mg/L	0.00500	96.9	85-115	2.85	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 B905243 - EPA 245.1/7470

Blank (B905243-BLK1)

Prepared: 05/29/19 Analyzed: 05/31/19

Mercury	ND	0.0002	mg/L
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LCS (B905243-BS1)

Prepared: 05/29/19 Analyzed: 05/31/19

Mercury	0.0054	0.0002	mg/L	0.00500	109	85-115
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LCS Dup (B905243-BSD1)

Prepared: 05/29/19 Analyzed: 05/31/19

Mercury	0.0055	0.0002	mg/L	0.00500	110	85-115	1.48	20
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Batch B906046 - EPA 245.1/7470

Blank (B906046-BLK1)

Prepared: 06/05/19 Analyzed: 06/10/19

Mercury	ND	0.0002	mg/L
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LCS (B906046-BS1)

Prepared: 06/05/19 Analyzed: 06/10/19

Mercury	0.0048	0.0002	mg/L	0.00500	96.7	85-115
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LCS Dup (B906046-BSD1)

Prepared: 06/05/19 Analyzed: 06/10/19

Mercury	0.0049	0.0002	mg/L	0.00500	97.0	85-115	0.330	20
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Green Analytical Laboratories

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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:
06/12/19 13:08

Notes and Definitions

R1	Duplicate sample RPD exceeded laboratory acceptance criteria. Sample(s) may be difficult to homogenize.
BS1	Laboratory control sample recovery above laboratory acceptance criteria. Results for analyte potentially biased high.
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

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Fax: (970) 247-4227

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

FORM-006
COC - Revision 5.0

Company or Client: GCC Energy LLC

Bill to (if different):

ANALYSIS REQUEST

Address: 6473 CR 120

P.O. #:

City: Hesperus State: CO Zip: 81326

Company:

Phone #: 970-385-4528

Attn:

Contact Person: Tom Bird

Address:

Email Report to:

City:

Project Name (optional):

State:

Zip:

Phone #:

Sampler Name (Print): Michael McFarland

Email:

For Lab Use

Sample Name or Location

Collected

Matrix (check one)

of containers

ANALYSIS REQUEST

Report to State? (Circle)

Yes No

241

Hay Gulch Ditch - Down

Date

Time

GROUNDWATER

NO preservation (general)

HNO₃

HCl

1905-140-01

Hay Gulch Ditch - Up

Date

Time

GROUNDWATER

NO preservation (general)

HNO₃

HCl

-03

Well #1 Up gradient

Date

Time

GROUNDWATER

NO preservation (general)

HNO₃

HCl

-04

Well #2 Down gradient

Date

Time

GROUNDWATER

NO preservation (general)

HNO₃

HCl

-05

Well #3 GA-4

Date

Time

GROUNDWATER

NO preservation (general)

HNO₃

HCl

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Relinquished By:

Michael McFarland

Date: 5-23-19

Time: 10:15

Received By:

Debbie Zupke

Report to State? (Circle)

Relinquished By:

Michael McFarland

Date: 5-23-19

Time: 10:15

Received By:

Debbie Zupke

Report to State? (Circle)

Relinquished By:

Michael McFarland

Date: 5-23-19

Time: 10:15

Received By:

Debbie Zupke

Report to State? (Circle)

Relinquished By:

Michael McFarland

Date: 5-23-19

Time: 10:15

Received By:

Debbie Zupke

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Time: 10:15

Received By:

Debbie Zupke

Report to State? (Circle)

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

Project Information

Printed: 05/24/2019 9:39 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 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)	
Subcontract Analysis 1	TOC
Sulfate by IC	
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

Project Information

Printed: 05/24/2019 9:39 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



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Durango, CO 81303
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14 June 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 05/30/19 15:51.
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/>

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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.



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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:
06/14/19 13:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-1-C	1905303-01	Water	05/30/19 11:20	05/30/19 15:51	
MW-1-A	1905303-02	Water	05/30/19 10:25	05/30/19 15:51	

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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:
06/14/19 13:17

MW-1-C

1905303-01 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	530	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	530	10.0	3.06	mg/L	5	06/10/19	2320 B		VJL
Chloride*	10.2	5.00	0.513	mg/L	5	06/08/19	EPA300.0		AES
Fluoride*	0.670	0.500	0.0733	mg/L	5	06/08/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	06/07/19	EPA353.2		LLG
pH*	6.93			pH Units	1	05/31/19	EPA150.1		VJL
Total Dissolved Solids*	2880	10.0		mg/L	1	06/05/19	EPA160.1		VJL
Sulfate*	1630	50.0	10.7	mg/L	50	06/10/19	EPA300.0		AES
Total Organic Carbon*	2.62	0.500	0.0670	mg/L	1	06/07/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.250	0.250	0.125	mg/L	5	06/13/19	EPA200.7		AES
Calcium*	340	0.500	0.064	mg/L	5	06/13/19	EPA200.7		AES
Hardness as CaCO ₃	1820	3.31	0.546	mg/L	5	06/13/19	2340 B		AES
Iron*	2.30	0.250	0.138	mg/L	5	06/13/19	EPA200.7		AES
Magnesium*	237	0.500	0.094	mg/L	5	06/13/19	EPA200.7		AES
Potassium*	<5.00	5.00	0.478	mg/L	5	06/13/19	EPA200.7		AES
Silica (SiO ₂)	16.6	5.35	0.286	mg/L	5	06/13/19	Calculation		AES
Silicon	7.75	2.50	0.134	mg/L	5	06/13/19	EPA200.7		AES
Sodium*	146	5.00	1.83	mg/L	5	06/13/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0048	0.0005	0.0002	mg/L	1	06/12/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/12/19	EPA200.8		AES
Copper*	0.0057	0.0001	0.0001	mg/L	1	06/12/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Manganese*	0.0750	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Molybdenum*	<0.0005	0.0005	0.00007	mg/L	1	06/12/19	EPA200.8		AES
Selenium*	0.0016	0.0010	0.0006	mg/L	1	06/12/19	EPA200.8		AES
Uranium	0.0020	0.0001	0.00008	mg/L	1	06/12/19	EPA200.8		AES
Zinc*	0.0085	0.0020	0.0004	mg/L	1	06/12/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	06/10/19	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:
06/14/19 13:17

MW-1-A

1905303-02 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	355	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	355	10.0	3.06	mg/L	5	06/10/19	2320 B		VJL
Chloride*	2.33	1.00	0.103	mg/L	1	06/08/19	EPA300.0		AES
Fluoride*	0.242	0.100	0.0147	mg/L	1	06/08/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	06/07/19	EPA353.2		LLG
pH*	7.03			pH Units	1	05/31/19	EPA150.1		VJL
Total Dissolved Solids*	1150	10.0		mg/L	1	06/05/19	EPA160.1		VJL
Sulfate*	494	25.0	5.33	mg/L	25	06/10/19	EPA300.0		AES
Total Organic Carbon*	1.67	0.500	0.0670	mg/L	1	06/07/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	06/13/19	EPA200.7		AES
Calcium*	29.8	0.100	0.013	mg/L	1	06/13/19	EPA200.7		AES
Hardness as CaCO ₃	153	0.662	0.109	mg/L	1	06/13/19	2340 B		AES
Iron*	0.589	0.050	0.028	mg/L	1	06/13/19	EPA200.7		AES
Magnesium*	19.1	0.100	0.019	mg/L	1	06/13/19	EPA200.7		AES
Potassium*	2.18	1.00	0.096	mg/L	1	06/13/19	EPA200.7		AES
Silica (SiO ₂)	11.2	1.07	0.0572	mg/L	1	06/13/19	Calculation		AES
Silicon	5.23	0.500	0.027	mg/L	1	06/13/19	EPA200.7		AES
Sodium*	319	1.00	0.367	mg/L	1	06/13/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	<0.0005	0.0005	0.0002	mg/L	1	06/12/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/12/19	EPA200.8		AES
Copper*	0.0064	0.0001	0.0001	mg/L	1	06/12/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Manganese*	0.0235	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Molybdenum*	<0.0005	0.0005	0.00007	mg/L	1	06/12/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	06/12/19	EPA200.8		AES
Uranium	0.0001	0.0001	0.00008	mg/L	1	06/12/19	EPA200.8		AES
Zinc*	0.0022	0.0020	0.0004	mg/L	1	06/12/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	06/10/19	EPA245.1		LLG
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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:
06/14/19 13:17

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 B905274 - General Prep - Wet Chem

Duplicate (B905274-DUP1) Source: 1905300-04 Prepared & Analyzed: 05/31/19

pH	7.24		pH Units	7.28				0.551	20	
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Reference (B905274-SRM1) Prepared & Analyzed: 05/31/19

pH	6.92		pH Units	7.00		98.9	98.5-101.4			
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Batch B906050 - General Prep - Wet Chem

Blank (B906050-BLK1) Prepared: 06/05/19 Analyzed: 06/07/19

Nitrate/Nitrite as N	ND	0.020	mg/L							
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LCS (B906050-BS1) Prepared: 06/05/19 Analyzed: 06/07/19

Nitrate/Nitrite as N	1.02	0.020	mg/L	1.00		102	90-110			
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LCS Dup (B906050-BSD1) Prepared: 06/05/19 Analyzed: 06/07/19

Nitrate/Nitrite as N	1.03	0.020	mg/L	1.00		103	90-110	0.489	20	
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Batch B906053 - General Prep - Wet Chem

Blank (B906053-BLK1) Prepared & Analyzed: 06/05/19

Total Dissolved Solids	ND	10.0	mg/L							
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Duplicate (B906053-DUP1) Source: 1905296-01 Prepared & Analyzed: 06/05/19

Total Dissolved Solids	230	10.0	mg/L	215				6.73	20	
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Reference (B906053-SRM1) Prepared & Analyzed: 06/05/19

Total Dissolved Solids	590	10.0	mg/L	600		98.3	85-115			
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Batch B906058 - General Prep - Wet Chem

Blank (B906058-BLK1) Prepared & Analyzed: 06/06/19

Total Organic Carbon	ND	0.500	mg/L							
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LCS (B906058-BS1) Prepared & Analyzed: 06/06/19

Total Organic Carbon	10.3	0.500	mg/L	10.0		103	85-115			
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LCS Dup (B906058-BSD1) Prepared & Analyzed: 06/06/19

Total Organic Carbon	10.2	0.500	mg/L	10.0		102	85-115	1.37	20	
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Batch B906067 - General Prep - Wet Chem

Blank (B906067-BLK1) Prepared: 06/06/19 Analyzed: 06/07/19

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

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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:
06/14/19 13:17

**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 B906067 - General Prep - Wet Chem (Continued)

LCS (B906067-BS1)

Prepared: 06/06/19 Analyzed: 06/07/19

Chloride	24.4	1.00	mg/L	25.0		97.7	90-110			
Fluoride	2.57	0.100	mg/L	2.50		103	90-110			
Sulfate	24.2	1.00	mg/L	25.0		96.7	90-110			

LCS Dup (B906067-BSD1)

Prepared: 06/06/19 Analyzed: 06/07/19

Chloride	24.5	1.00	mg/L	25.0		97.9	90-110	0.250	20	
Fluoride	2.56	0.100	mg/L	2.50		102	90-110	0.429	20	
Sulfate	24.3	1.00	mg/L	25.0		97.0	90-110	0.310	20	

Batch B906087 - General Prep - Wet Chem

Blank (B906087-BLK1)

Prepared & Analyzed: 06/10/19

Alkalinity, Total as CaCO ₃	ND	10.0	mg/L							
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LCS (B906087-BS1)

Prepared & Analyzed: 06/10/19

Alkalinity, Total as CaCO ₃	98.0	10.0	mg/L	100		98.0	85-115			
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LCS Dup (B906087-BSD1)

Prepared & Analyzed: 06/10/19

Alkalinity, Total as CaCO ₃	87.0	10.0	mg/L	100		87.0	85-115	11.9	20	
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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:
06/14/19 13:17

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 B906033 - Diss. 200.7/200.8

Blank (B906033-BLK1)

Prepared: 06/05/19 Analyzed: 06/13/19

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 (B906033-BS1)

Prepared: 06/05/19 Analyzed: 06/13/19

Aluminum	4.81	0.050	mg/L	5.00	96.1	85-115
Calcium	4.81	0.100	mg/L	5.00	96.2	85-115
Iron	4.78	0.050	mg/L	5.00	95.5	85-115
Magnesium	24.1	0.100	mg/L	25.0	96.3	85-115
Potassium	9.42	1.00	mg/L	10.0	94.2	85-115
Silicon	5.02	0.500	mg/L	5.00	100	85-115
Sodium	4.12	1.00	mg/L	4.05	102	85-115

LCS Dup (B906033-BSD1)

Prepared: 06/05/19 Analyzed: 06/13/19

Aluminum	4.87	0.050	mg/L	5.00	97.4	85-115	1.37	20
Calcium	4.79	0.100	mg/L	5.00	95.8	85-115	0.420	20
Iron	4.81	0.050	mg/L	5.00	96.2	85-115	0.689	20
Magnesium	24.1	0.100	mg/L	25.0	96.3	85-115	0.0152	20
Potassium	9.45	1.00	mg/L	10.0	94.5	85-115	0.319	20
Silicon	5.06	0.500	mg/L	5.00	101	85-115	0.736	20
Sodium	4.10	1.00	mg/L	4.05	101	85-115	0.500	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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Page 7 of 11



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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:
06/14/19 13:17

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 B906039 - Diss. 200.7/200.8

Blank (B906039-BLK1)

Prepared: 06/05/19 Analyzed: 06/12/19

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 (B906039-BS1)

Prepared: 06/05/19 Analyzed: 06/12/19

Arsenic	0.0484	0.0005	mg/L	0.0500	96.9	85-115
Cadmium	0.0491	0.0001	mg/L	0.0500	98.1	85-115
Copper	0.0508	0.0001	mg/L	0.0500	102	85-115
Lead	0.0479	0.0005	mg/L	0.0500	95.8	85-115
Manganese	0.0475	0.0005	mg/L	0.0500	95.0	85-115
Molybdenum	0.0482	0.0005	mg/L	0.0500	96.4	85-115
Selenium	0.245	0.0010	mg/L	0.250	98.1	85-115
Uranium	0.0463	0.0001	mg/L	0.0500	92.5	85-115
Zinc	0.0501	0.0020	mg/L	0.0500	100	85-115

LCS Dup (B906039-BSD1)

Prepared: 06/05/19 Analyzed: 06/12/19

Arsenic	0.0485	0.0005	mg/L	0.0500	97.1	85-115	0.219	20
Cadmium	0.0486	0.0001	mg/L	0.0500	97.2	85-115	0.947	20
Copper	0.0494	0.0001	mg/L	0.0500	98.7	85-115	2.97	20
Lead	0.0477	0.0005	mg/L	0.0500	95.4	85-115	0.456	20
Manganese	0.0466	0.0005	mg/L	0.0500	93.1	85-115	1.94	20
Molybdenum	0.0483	0.0005	mg/L	0.0500	96.7	85-115	0.247	20
Selenium	0.248	0.0010	mg/L	0.250	99.0	85-115	0.910	20
Uranium	0.0458	0.0001	mg/L	0.0500	91.6	85-115	0.994	20
Zinc	0.0487	0.0020	mg/L	0.0500	97.5	85-115	2.67	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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Page 8 of 11



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:
06/14/19 13:17

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B906046 - EPA 245.1/7470										
Blank (B906046-BLK1)				Prepared: 06/05/19 Analyzed: 06/10/19						
Mercury	ND	0.0002	mg/L							
LCS (B906046-BS1)				Prepared: 06/05/19 Analyzed: 06/10/19						
Mercury	0.0048	0.0002	mg/L	0.00500		96.7	85-115			
LCS Dup (B906046-BSD1)				Prepared: 06/05/19 Analyzed: 06/10/19						
Mercury	0.0049	0.0002	mg/L	0.00500		97.0	85-115	0.330	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:
06/14/19 13:17

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

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

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

Company Name (if Applicable): GCC ENVIRONMENTAL LLC

P.O. #:
Bill to (if different):

ANALYSIS REQUEST

Contact Person: TOM BIRD
Address: 14743 COUNTRY ROAD 120
City: HEPNER

State: CO Zip: 81324

Phone #: (970) 385-4528

Company:

Email: TBIRD@GCC.ENVIRONMENTAL.COM; LBIRD@ENVIRONMENTAL.COM

Address:

Project Name (optional):
Project Number (optional):

City:

Sampler Name (Print):

State: Zip:

Phone #:

Email:

For Lab Use

Sample Name or Location

1905-303-01

MW-1-C

Date

Time

GROUNDWATER
SURFACEWATER
WASTEWATER
PRODUCEDWATER
SOIL
DRINKING WATER
OTHER:

No preservation (general)
HNO₃
HCl
H₂SO₄
Other:

GCC GW BASELINE

-02

MW-1-A

5-3019

1120

✓

✓

✓

MW-6-1-A

5-3019

1025

✓

✓

✓

PLEASE NOTE: GAL's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analysis. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by GAL, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:

Date:

Received By:

ADDITIONAL REMARKS:

Report to State? (Circle)

Relinquished By:

Date:

Received By:

Yes No

Relinquished By:

Date:

Received By:

Delivered By: (Circle One)

Temperature at receipt:

CHECKED BY:

Sampler - UPS - FedEx - Kangaroo - Other:

1,711.5°C

OK

#1 On Ice

* 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
970.247.4227 Fax
www.greenanalytical.com

10 June 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 05/21/19 16:26.
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:
06/10/19 15:43

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-3-C	1905210-01	Water	05/21/19 13:45	05/21/19 16:26	
MW-3-MI	1905210-02	Water	05/21/19 12:30	05/21/19 16:26	
MW-3-A	1905210-03	Water	05/21/19 13:06	05/21/19 16:26	

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:
06/10/19 15:43

MW-3-C

1905210-01 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	2000	10.0		mg/L	5	05/28/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	110	10.0		mg/L	5	05/28/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	05/28/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	2110	10.0	3.06	mg/L	5	05/28/19	2320 B		VJL
Chloride*	575	25.0	2.56	mg/L	25	05/31/19	EPA300.0		AES
Fluoride*	3.91	0.500	0.0733	mg/L	5	05/30/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
pH*	8.23			pH Units	1	05/23/19	EPA150.1		VJL
Total Dissolved Solids*	3440	10.0		mg/L	1	05/23/19	EPA160.1		VJL
Sulfate*	<5.00	5.00	1.07	mg/L	5	05/30/19	EPA300.0		AES
Total Organic Carbon*	129	25.0	3.35	mg/L	50	05/24/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	06/05/19	EPA200.7		AES
Calcium*	3.74	0.100	0.013	mg/L	1	06/05/19	EPA200.7		AES
Hardness as CaCO ₃	16.8	0.662	0.109	mg/L	1	06/05/19	2340 B		AES
Iron*	0.344	0.050	0.028	mg/L	1	06/05/19	EPA200.7		AES
Magnesium*	1.80	0.100	0.019	mg/L	1	06/05/19	EPA200.7		AES
Potassium*	5.24	1.00	0.096	mg/L	1	06/05/19	EPA200.7		AES
Silica (SiO ₂)	8.35	1.07	0.0572	mg/L	1	06/05/19	Calculation		AES
Silicon	3.90	0.500	0.027	mg/L	1	06/05/19	EPA200.7		AES
Sodium*	1100	10.0	3.67	mg/L	10	06/05/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0171	0.0050	0.0021	mg/L	10	06/10/19	EPA200.8		AES
Cadmium*	<0.0010	0.0010	0.0004	mg/L	10	06/10/19	EPA200.8		AES
Copper*	0.0168	0.0010	0.0010	mg/L	10	06/10/19	EPA200.8		AES
Lead*	<0.0050	0.0050	0.0009	mg/L	10	06/10/19	EPA200.8		AES
Manganese*	0.0630	0.0050	0.0009	mg/L	10	06/10/19	EPA200.8		AES
Molybdenum*	0.0121	0.0050	0.0007	mg/L	10	06/10/19	EPA200.8		AES
Selenium*	0.0203	0.0100	0.0064	mg/L	10	06/10/19	EPA200.8		AES
Uranium	0.0046	0.0010	0.0008	mg/L	10	06/10/19	EPA200.8		AES
Zinc*	0.128	0.0200	0.0036	mg/L	10	06/10/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	05/24/19	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:
06/10/19 15:43

MW-3-MI

1905210-02 (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	05/28/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	150	10.0		mg/L	5	05/28/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	05/28/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	755	10.0	3.06	mg/L	5	05/28/19	2320 B		VJL
Chloride*	9.25	1.00	0.103	mg/L	1	05/30/19	EPA300.0		AES
Fluoride*	1.22	0.100	0.0147	mg/L	1	05/30/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
pH*	8.45			pH Units	1	05/23/19	EPA150.1		VJL
Total Dissolved Solids*	1170	10.0		mg/L	1	05/23/19	EPA160.1		VJL
Sulfate*	229	10.0	2.13	mg/L	10	05/31/19	EPA300.0		AES
Total Organic Carbon*	6.56	0.500	0.0670	mg/L	1	05/24/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	06/05/19	EPA200.7		AES
Calcium*	1.70	0.100	0.013	mg/L	1	06/05/19	EPA200.7		AES
Hardness as CaCO ₃	6.84	0.662	0.109	mg/L	1	06/05/19	2340 B		AES
Iron*	<0.050	0.050	0.028	mg/L	1	06/05/19	EPA200.7		AES
Magnesium*	0.629	0.100	0.019	mg/L	1	06/05/19	EPA200.7		AES
Potassium*	1.65	1.00	0.096	mg/L	1	06/05/19	EPA200.7		AES
Silica (SiO ₂)	8.85	1.07	0.0572	mg/L	1	06/05/19	Calculation		AES
Silicon	4.14	0.500	0.027	mg/L	1	06/05/19	EPA200.7		AES
Sodium*	419	5.00	1.83	mg/L	5	06/05/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0107	0.0025	0.0011	mg/L	5	06/10/19	EPA200.8		AES
Cadmium*	<0.0005	0.0005	0.0002	mg/L	5	06/10/19	EPA200.8		AES
Copper*	0.0063	0.0005	0.0005	mg/L	5	06/10/19	EPA200.8		AES
Lead*	<0.0025	0.0025	0.0005	mg/L	5	06/10/19	EPA200.8		AES
Manganese*	0.0082	0.0025	0.0004	mg/L	5	06/10/19	EPA200.8		AES
Molybdenum*	0.0167	0.0025	0.0003	mg/L	5	06/10/19	EPA200.8		AES
Selenium*	<0.0050	0.0050	0.0032	mg/L	5	06/10/19	EPA200.8		AES
Uranium	0.0085	0.0005	0.0004	mg/L	5	06/10/19	EPA200.8		AES
Zinc*	<0.0100	0.0100	0.0018	mg/L	5	06/10/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	05/31/19	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:
06/10/19 15:43

MW-3-A

1905210-03 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	430	10.0		mg/L	5	05/28/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	20.0	10.0		mg/L	5	05/28/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	05/28/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	450	10.0	3.06	mg/L	5	05/28/19	2320 B		VJL
Chloride*	15.0	2.00	0.205	mg/L	2	05/30/19	EPA300.0		AES
Fluoride*	0.404	0.200	0.0293	mg/L	2	05/30/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
pH*	8.29			pH Units	1	05/23/19	EPA150.1		VJL
Total Dissolved Solids*	1530	10.0		mg/L	1	05/23/19	EPA160.1		VJL
Sulfate*	699	20.0	4.26	mg/L	20	05/31/19	EPA300.0		AES
Total Organic Carbon*	4.10	0.500	0.0670	mg/L	1	05/24/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	06/05/19	EPA200.7		AES
Calcium*	3.16	0.100	0.013	mg/L	1	06/05/19	EPA200.7		AES
Hardness as CaCO ₃	10.7	0.662	0.109	mg/L	1	06/05/19	2340 B		AES
Iron*	<0.050	0.050	0.028	mg/L	1	06/05/19	EPA200.7		AES
Magnesium*	0.692	0.100	0.019	mg/L	1	06/05/19	EPA200.7		AES
Potassium*	1.92	1.00	0.096	mg/L	1	06/05/19	EPA200.7		AES
Silica (SiO ₂)	11.0	1.07	0.0572	mg/L	1	06/05/19	Calculation		AES
Silicon	5.16	0.500	0.027	mg/L	1	06/05/19	EPA200.7		AES
Sodium*	525	5.00	1.83	mg/L	5	06/05/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	<0.0025	0.0025	0.0011	mg/L	5	06/10/19	EPA200.8		AES
Cadmium*	<0.0005	0.0005	0.0002	mg/L	5	06/10/19	EPA200.8		AES
Copper*	0.0078	0.0005	0.0005	mg/L	5	06/10/19	EPA200.8		AES
Lead*	<0.0025	0.0025	0.0005	mg/L	5	06/10/19	EPA200.8		AES
Manganese*	0.0185	0.0025	0.0004	mg/L	5	06/10/19	EPA200.8		AES
Molybdenum*	0.0030	0.0025	0.0003	mg/L	5	06/10/19	EPA200.8		AES
Selenium*	<0.0050	0.0050	0.0032	mg/L	5	06/10/19	EPA200.8		AES
Uranium	0.0014	0.0005	0.0004	mg/L	5	06/10/19	EPA200.8		AES
Zinc*	<0.0100	0.0100	0.0018	mg/L	5	06/10/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	05/24/19	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:
06/10/19 15:43

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 B905181 - General Prep - Wet Chem

Blank (B905181-BLK1)

Prepared & Analyzed: 05/23/19

Total Organic Carbon	ND	0.500	mg/L
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LCS (B905181-BS1)

Prepared & Analyzed: 05/23/19

Total Organic Carbon	9.83	0.500	mg/L	10.0	98.3	85-115
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LCS Dup (B905181-BSD1)

Prepared & Analyzed: 05/23/19

Total Organic Carbon	9.76	0.500	mg/L	10.0	97.6	85-115	0.745	20
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Batch B905197 - General Prep - Wet Chem

Blank (B905197-BLK1)

Prepared & Analyzed: 05/23/19

Total Dissolved Solids	ND	10.0	mg/L
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Duplicate (B905197-DUP1)

Source: 1905165-01 Prepared & Analyzed: 05/23/19

Total Dissolved Solids	645	10.0	mg/L	575	11.5	20
------------------------	-----	------	------	-----	------	----

Reference (B905197-SRM1)

Prepared & Analyzed: 05/23/19

Total Dissolved Solids	610	10.0	mg/L	600	102	85-115
------------------------	-----	------	------	-----	-----	--------

Batch B905200 - General Prep - Wet Chem

Duplicate (B905200-DUP2)

Source: 1905224-01 Prepared & Analyzed: 05/23/19

pH	7.31	pH Units	7.27	0.549	20
----	------	----------	------	-------	----

Reference (B905200-SRM1)

Prepared & Analyzed: 05/23/19

pH	6.95	pH Units	7.00	99.3	98.5-101.4
----	------	----------	------	------	------------

Batch B905213 - General Prep - Wet Chem

Blank (B905213-BLK1)

Prepared: 05/24/19 Analyzed: 05/30/19

Nitrate/Nitrite as N	ND	0.020	mg/L
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LCS (B905213-BS1)

Prepared: 05/24/19 Analyzed: 05/30/19

Nitrate/Nitrite as N	1.06	0.020	mg/L	1.00	106	90-110
----------------------	------	-------	------	------	-----	--------

LCS Dup (B905213-BSD1)

Prepared: 05/24/19 Analyzed: 05/30/19

Nitrate/Nitrite as N	1.06	0.020	mg/L	1.00	106	90-110	0.170	20
----------------------	------	-------	------	------	-----	--------	-------	----

Batch B905224 - General Prep - Wet Chem

Blank (B905224-BLK1)

Prepared: 05/28/19 Analyzed: 05/30/19

Nitrate/Nitrite as N	ND	0.020	mg/L
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LCS (B905224-BS1)

Prepared: 05/28/19 Analyzed: 05/30/19

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

LCS Dup (B905224-BSD1)

Prepared: 05/28/19 Analyzed: 05/30/19

Nitrate/Nitrite as N	1.03	0.020	mg/L	1.00	103	90-110	0.712	20
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Batch B905228 - 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:
06/10/19 15:43

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (B905228-BLK1)										
Prepared & Analyzed: 05/28/19										
Alkalinity, Total as CaCO ₃	ND	10.0	mg/L							
LCS (B905228-BS1)										
Prepared & Analyzed: 05/28/19										
Alkalinity, Total as CaCO ₃	102	10.0	mg/L	100		102	85-115			
LCS Dup (B905228-BSD1)										
Prepared & Analyzed: 05/28/19										
Alkalinity, Total as CaCO ₃	94.0	10.0	mg/L	100		94.0	85-115	8.16	20	
Batch B905248 - General Prep - Wet Chem										
Blank (B905248-BLK1)										
Prepared: 05/29/19 Analyzed: 05/30/19										
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B905248-BS1)										
Prepared: 05/29/19 Analyzed: 05/30/19										
Chloride	24.7	1.00	mg/L	25.0		98.6	90-110			
Fluoride	2.60	0.100	mg/L	2.50		104	90-110			
Sulfate	24.4	1.00	mg/L	25.0		97.7	90-110			
LCS Dup (B905248-BSD1)										
Prepared: 05/29/19 Analyzed: 05/30/19										
Chloride	24.8	1.00	mg/L	25.0		99.0	90-110	0.417	20	
Fluoride	2.60	0.100	mg/L	2.50		104	90-110	0.0385	20	
Sulfate	24.6	1.00	mg/L	25.0		98.3	90-110	0.580	20	

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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:
06/10/19 15:43

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 B905242 - Diss. 200.7/200.8

Blank (B905242-BLK1)

Prepared: 05/29/19 Analyzed: 06/05/19

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 (B905242-BS1)

Prepared: 05/29/19 Analyzed: 06/05/19

Aluminum	5.15	0.050	mg/L	5.00	103	85-115
Calcium	5.26	0.100	mg/L	5.00	105	85-115
Iron	5.15	0.050	mg/L	5.00	103	85-115
Magnesium	26.4	0.100	mg/L	25.0	105	85-115
Potassium	10.4	1.00	mg/L	10.0	104	85-115
Silicon	5.29	0.500	mg/L	5.00	106	85-115
Sodium	4.24	1.00	mg/L	4.05	105	85-115

LCS Dup (B905242-BSD1)

Prepared: 05/29/19 Analyzed: 06/05/19

Aluminum	4.83	0.050	mg/L	5.00	96.6	85-115	6.30	20
Calcium	4.88	0.100	mg/L	5.00	97.6	85-115	7.55	20
Iron	4.83	0.050	mg/L	5.00	96.6	85-115	6.41	20
Magnesium	24.8	0.100	mg/L	25.0	99.1	85-115	6.25	20
Potassium	9.76	1.00	mg/L	10.0	97.6	85-115	6.75	20
Silicon	4.98	0.500	mg/L	5.00	99.5	85-115	6.16	20
Sodium	3.96	1.00	mg/L	4.05	97.9	85-115	6.63	20

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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:
06/10/19 15:43

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 B905237 - Diss. 200.7/200.8

Blank (B905237-BLK1)

Prepared: 05/29/19 Analyzed: 06/06/19

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 (B905237-BS1)

Prepared: 05/29/19 Analyzed: 06/06/19

Arsenic	0.0495	0.0005	mg/L	0.0500	99.1	85-115
Cadmium	0.0495	0.0001	mg/L	0.0500	99.0	85-115
Copper	0.0492	0.0001	mg/L	0.0500	98.3	85-115
Lead	0.0490	0.0005	mg/L	0.0500	98.1	85-115
Manganese	0.0477	0.0005	mg/L	0.0500	95.5	85-115
Molybdenum	0.0491	0.0005	mg/L	0.0500	98.2	85-115
Selenium	0.244	0.0010	mg/L	0.250	97.6	85-115
Uranium	0.0492	0.0001	mg/L	0.0500	98.4	85-115
Zinc	0.0486	0.0020	mg/L	0.0500	97.2	85-115

LCS Dup (B905237-BSD1)

Prepared: 05/29/19 Analyzed: 06/06/19

Arsenic	0.0499	0.0005	mg/L	0.0500	99.8	85-115	0.757	20
Cadmium	0.0494	0.0001	mg/L	0.0500	98.8	85-115	0.148	20
Copper	0.0499	0.0001	mg/L	0.0500	99.8	85-115	1.53	20
Lead	0.0493	0.0005	mg/L	0.0500	98.6	85-115	0.570	20
Manganese	0.0481	0.0005	mg/L	0.0500	96.2	85-115	0.762	20
Molybdenum	0.0495	0.0005	mg/L	0.0500	99.0	85-115	0.885	20
Selenium	0.247	0.0010	mg/L	0.250	98.8	85-115	1.25	20
Uranium	0.0463	0.0001	mg/L	0.0500	92.7	85-115	5.94	20
Zinc	0.0490	0.0020	mg/L	0.0500	98.0	85-115	0.763	20

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Debbie Zufelt, Reports Manager

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Page 9 of 13



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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:
06/10/19 15:43

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B905189 - EPA 245.1/7470										
Blank (B905189-BLK1)				Prepared: 05/22/19 Analyzed: 05/24/19						
Mercury	ND	0.0002	mg/L							
LCS (B905189-BS1)				Prepared: 05/22/19 Analyzed: 05/24/19						
Mercury	0.0051	0.0002	mg/L	0.00500		103	85-115			
LCS Dup (B905189-BSD1)				Prepared: 05/22/19 Analyzed: 05/24/19						
Mercury	0.0055	0.0002	mg/L	0.00500		109	85-115	5.70	20	
Batch B905243 - EPA 245.1/7470										
Blank (B905243-BLK1)				Prepared: 05/29/19 Analyzed: 05/31/19						
Mercury	ND	0.0002	mg/L							
LCS (B905243-BS1)				Prepared: 05/29/19 Analyzed: 05/31/19						
Mercury	0.0054	0.0002	mg/L	0.00500		109	85-115			
LCS Dup (B905243-BSD1)				Prepared: 05/29/19 Analyzed: 05/31/19						
Mercury	0.0055	0.0002	mg/L	0.00500		110	85-115	1.48	20	

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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:
06/10/19 15:43

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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FORM-006
COC - Revision 5.0

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

Project Information

Printed: 05/22/2019 8:40 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



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Durango, CO 81303
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10 June 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 05/22/19 15:50.
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:
06/10/19 16:07

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-4 - A	1905226-01	Water	05/22/19 12:07	05/22/19 15:50	
MW-4 -C	1905226-02	Water	05/22/19 12:57	05/22/19 15:50	
MW-4-MI	1905226-03	Water	05/22/19 11:14	05/22/19 15:50	
Well #2 Downgradient	1905226-04	Water	05/22/19 14:15	05/22/19 15:50	

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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:
06/10/19 16:07

MW-4 - A

1905226-01 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	544	10.0		mg/L	1	06/03/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	32.0	10.0		mg/L	1	05/28/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	05/28/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	565	10.0	3.06	mg/L	1	05/28/19	2320 B		VJL
Chloride*	8.99	2.00	0.205	mg/L	2	05/31/19	EPA300.0		AES
Fluoride*	<0.200	0.200	0.0293	mg/L	2	05/31/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
pH*	8.08			pH Units	1	05/23/19	EPA150.1		VJL
Total Dissolved Solids*	1410	10.0		mg/L	1	05/28/19	EPA160.1		VJL
Sulfate*	584	20.0	4.26	mg/L	20	05/31/19	EPA300.0		AES
Total Organic Carbon*	3.40	0.500	0.0670	mg/L	1	05/31/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	06/05/19	EPA200.7		AES
Calcium*	1.68	0.200	0.026	mg/L	2	06/05/19	EPA200.7		AES
Hardness as CaCO ₃	7.31	1.32	0.219	mg/L	2	06/05/19	2340 B		AES
Iron*	<0.100	0.100	0.055	mg/L	2	06/05/19	EPA200.7		AES
Magnesium*	0.756	0.200	0.038	mg/L	2	06/05/19	EPA200.7		AES
Potassium*	<2.00	2.00	0.191	mg/L	2	06/05/19	EPA200.7		AES
Silica (SiO ₂)	9.81	2.14	0.114	mg/L	2	06/05/19	Calculation		AES
Silicon	4.59	1.00	0.053	mg/L	2	06/05/19	EPA200.7		AES
Sodium*	515	2.00	0.734	mg/L	2	06/05/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	<0.0005	0.0005	0.0002	mg/L	1	06/10/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/10/19	EPA200.8		AES
Copper*	0.0061	0.0001	0.0001	mg/L	1	06/10/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/10/19	EPA200.8		AES
Manganese*	0.0031	0.0005	0.00009	mg/L	1	06/10/19	EPA200.8		AES
Molybdenum*	<0.0005	0.0005	0.00007	mg/L	1	06/10/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	06/10/19	EPA200.8		AES
Uranium	<0.0001	0.0001	0.00008	mg/L	1	06/10/19	EPA200.8		AES
Zinc*	0.0033	0.0020	0.0004	mg/L	1	06/10/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	05/31/19	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:
06/10/19 16:07

MW-4 -C

1905226-02 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	2350	10.0		mg/L	10	06/03/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	200	10.0		mg/L	10	06/03/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	10	06/03/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	2550	10.0	3.06	mg/L	10	06/03/19	2320 B		VJL
Chloride*	554	25.0	2.56	mg/L	25	05/31/19	EPA300.0		AES
Fluoride*	2.62	0.500	0.0733	mg/L	5	05/31/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
pH*	7.92			pH Units	1	05/23/19	EPA150.1		VJL
Total Dissolved Solids*	3590	10.0		mg/L	1	05/28/19	EPA160.1		VJL
Sulfate*	<5.00	5.00	1.07	mg/L	5	05/31/19	EPA300.0		AES
Total Organic Carbon*	2.62	0.500	0.0670	mg/L	1	05/31/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.250	0.250	0.125	mg/L	5	06/05/19	EPA200.7		AES
Calcium*	5.21	0.500	0.064	mg/L	5	06/05/19	EPA200.7		AES
Hardness as CaCO ₃	22.5	3.31	0.546	mg/L	5	06/05/19	2340 B		AES
Iron*	0.391	0.250	0.138	mg/L	5	06/05/19	EPA200.7		AES
Magnesium*	2.30	0.500	0.094	mg/L	5	06/05/19	EPA200.7		AES
Potassium*	<5.00	5.00	0.478	mg/L	5	06/05/19	EPA200.7		AES
Silica (SiO ₂)	10.5	5.35	0.286	mg/L	5	06/05/19	Calculation		AES
Silicon	4.89	2.50	0.134	mg/L	5	06/05/19	EPA200.7		AES
Sodium*	1370	5.00	1.83	mg/L	5	06/05/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0171	0.0005	0.0002	mg/L	1	06/10/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/10/19	EPA200.8		AES
Copper*	0.0382	0.0001	0.0001	mg/L	1	06/10/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/10/19	EPA200.8		AES
Manganese*	0.0174	0.0005	0.00009	mg/L	1	06/10/19	EPA200.8		AES
Molybdenum*	0.0070	0.0005	0.00007	mg/L	1	06/10/19	EPA200.8		AES
Selenium*	0.0195	0.0010	0.0006	mg/L	1	06/10/19	EPA200.8		AES
Uranium	0.0154	0.0001	0.00008	mg/L	1	06/10/19	EPA200.8		AES
Zinc*	0.0038	0.0020	0.0004	mg/L	1	06/10/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	05/31/19	EPA245.1		LLG
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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:
06/10/19 16:07

MW-4-MI

1905226-03 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	650	10.0		mg/L	10	06/03/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	240	10.0		mg/L	10	06/03/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	10	06/03/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	890	10.0	3.06	mg/L	10	06/03/19	2320 B		VJL
Chloride*	5.98	2.00	0.205	mg/L	2	05/31/19	EPA300.0		AES
Fluoride*	5.44	0.200	0.0293	mg/L	2	05/31/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
pH*	8.30			pH Units	1	05/23/19	EPA150.1		VJL
Total Dissolved Solids*	1130	10.0		mg/L	1	05/28/19	EPA160.1		VJL
Sulfate*	34.4	2.00	0.426	mg/L	2	05/31/19	EPA300.0		AES
Total Organic Carbon*	8.25	0.500	0.0670	mg/L	1	05/31/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	06/05/19	EPA200.7		AES
Calcium*	1.30	0.100	0.013	mg/L	1	06/05/19	EPA200.7		AES
Hardness as CaCO ₃	4.93	0.662	0.109	mg/L	1	06/05/19	2340 B		AES
Iron*	<0.050	0.050	0.028	mg/L	1	06/05/19	EPA200.7		AES
Magnesium*	0.408	0.100	0.019	mg/L	1	06/05/19	EPA200.7		AES
Potassium*	1.77	1.00	0.096	mg/L	1	06/05/19	EPA200.7		AES
Silica (SiO ₂)	9.06	1.07	0.0572	mg/L	1	06/05/19	Calculation		AES
Silicon	4.24	0.500	0.027	mg/L	1	06/05/19	EPA200.7		AES
Sodium*	458	5.00	1.83	mg/L	5	06/05/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0111	0.0005	0.0002	mg/L	1	06/10/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/10/19	EPA200.8		AES
Copper*	0.0153	0.0001	0.0001	mg/L	1	06/10/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/10/19	EPA200.8		AES
Manganese*	0.0084	0.0005	0.00009	mg/L	1	06/10/19	EPA200.8		AES
Molybdenum*	0.0119	0.0005	0.00007	mg/L	1	06/10/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	06/10/19	EPA200.8		AES
Uranium	0.0176	0.0001	0.00008	mg/L	1	06/10/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	06/10/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	05/31/19	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt

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:
06/10/19 16:07

Well #2 Downgradient

1905226-04 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	460	10.0		mg/L	10	06/03/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	10	06/03/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	10	06/03/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	460	10.0	3.06	mg/L	10	06/03/19	2320 B		VJL
Chloride*	42.9	10.0	1.03	mg/L	10	05/31/19	EPA300.0		AES
Fluoride*	0.246	0.100	0.0147	mg/L	1	05/31/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
pH*	7.40			pH Units	1	05/23/19	EPA150.1		VJL
Total Dissolved Solids*	695	10.0		mg/L	1	05/28/19	EPA160.1		VJL
Sulfate*	196	10.0	2.13	mg/L	10	05/31/19	EPA300.0		AES
Total Organic Carbon*	2.69	0.500	0.0670	mg/L	1	05/31/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	06/05/19	EPA200.7		AES
Calcium*	87.1	0.100	0.013	mg/L	1	06/05/19	EPA200.7		AES
Hardness as CaCO ₃	537	0.662	0.109	mg/L	1	06/05/19	2340 B		AES
Iron*	0.116	0.050	0.028	mg/L	1	06/05/19	EPA200.7		AES
Magnesium*	77.6	0.100	0.019	mg/L	1	06/05/19	EPA200.7		AES
Potassium*	1.94	1.00	0.096	mg/L	1	06/05/19	EPA200.7		AES
Silica (SiO ₂)	10.5	1.07	0.0572	mg/L	1	06/05/19	Calculation		AES
Silicon	4.93	0.500	0.027	mg/L	1	06/05/19	EPA200.7		AES
Sodium*	23.4	1.00	0.367	mg/L	1	06/05/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0011	0.0005	0.0002	mg/L	1	06/10/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/10/19	EPA200.8		AES
Copper*	0.0016	0.0001	0.0001	mg/L	1	06/10/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/10/19	EPA200.8		AES
Manganese*	0.504	0.0005	0.00009	mg/L	1	06/10/19	EPA200.8		AES
Molybdenum*	0.0026	0.0005	0.00007	mg/L	1	06/10/19	EPA200.8		AES
Selenium*	0.0010	0.0010	0.0006	mg/L	1	06/10/19	EPA200.8		AES
Uranium	0.0016	0.0001	0.00008	mg/L	1	06/10/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	06/10/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	05/31/19	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:
06/10/19 16:07

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 B905200 - General Prep - Wet Chem

Duplicate (B905200-DUP2)		Source: 1905224-01		Prepared & Analyzed: 05/23/19						
pH	7.31		pH Units		7.27			0.549	20	
Reference (B905200-SRM1)		Prepared & Analyzed: 05/23/19								
pH	6.95		pH Units	7.00		99.3	98.5-101.4			

Batch B905223 - General Prep - Wet Chem

Blank (B905223-BLK1)		Prepared & Analyzed: 05/28/19								
Total Dissolved Solids	ND	10.0	mg/L							
Duplicate (B905223-DUP1)		Source: 1905217-01		Prepared & Analyzed: 05/28/19						
Total Dissolved Solids	180	10.0	mg/L		135			28.6	20	R1
Reference (B905223-SRM1)		Prepared & Analyzed: 05/28/19								
Total Dissolved Solids	590	10.0	mg/L	600		98.3	85-115			

Batch B905224 - General Prep - Wet Chem

Blank (B905224-BLK1)		Prepared: 05/28/19 Analyzed: 05/30/19								
Nitrate/Nitrite as N	ND	0.020	mg/L							
LCS (B905224-BS1)		Prepared: 05/28/19 Analyzed: 05/30/19								
Nitrate/Nitrite as N	1.02	0.020	mg/L	1.00		102	90-110			
LCS Dup (B905224-BSD1)		Prepared: 05/28/19 Analyzed: 05/30/19								
Nitrate/Nitrite as N	1.03	0.020	mg/L	1.00		103	90-110	0.712	20	

Batch B905228 - General Prep - Wet Chem

Blank (B905228-BLK1)		Prepared & Analyzed: 05/28/19								
Alkalinity, Total as CaCO ₃	ND	10.0	mg/L							
LCS (B905228-BS1)		Prepared & Analyzed: 05/28/19								
Alkalinity, Total as CaCO ₃	102	10.0	mg/L	100		102	85-115			
LCS Dup (B905228-BSD1)		Prepared & Analyzed: 05/28/19								
Alkalinity, Total as CaCO ₃	94.0	10.0	mg/L	100		94.0	85-115	8.16	20	

Batch B905246 - General Prep - Wet Chem

Blank (B905246-BLK1)		Prepared & Analyzed: 05/30/19								
Total Organic Carbon	ND	0.500	mg/L							
LCS (B905246-BS1)		Prepared & Analyzed: 05/30/19								
Total Organic Carbon	9.77	0.500	mg/L	10.0		97.7	85-115			
LCS Dup (B905246-BSD1)		Prepared & Analyzed: 05/30/19								
Total Organic Carbon	10.2	0.500	mg/L	10.0		102	85-115	3.95	20	

Batch B905248 - General Prep - Wet Chem

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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:
06/10/19 16:07

General Chemistry - Quality Control
(Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (B905248-BLK1) Prepared: 05/29/19 Analyzed: 05/30/19										
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B905248-BS1) Prepared: 05/29/19 Analyzed: 05/30/19										
Chloride	24.7	1.00	mg/L	25.0		98.6	90-110			
Fluoride	2.60	0.100	mg/L	2.50		104	90-110			
Sulfate	24.4	1.00	mg/L	25.0		97.7	90-110			
LCS Dup (B905248-BSD1) Prepared: 05/29/19 Analyzed: 05/30/19										
Chloride	24.8	1.00	mg/L	25.0		99.0	90-110	0.417	20	
Fluoride	2.60	0.100	mg/L	2.50		104	90-110	0.0385	20	
Sulfate	24.6	1.00	mg/L	25.0		98.3	90-110	0.580	20	
Batch B906002 - General Prep - Wet Chem										
Blank (B906002-BLK1) Prepared & Analyzed: 06/03/19										
Alkalinity, Total as CaCO ₃	ND	10.0	mg/L							
LCS (B906002-BS1) Prepared & Analyzed: 06/03/19										
Alkalinity, Total as CaCO ₃	91.0	10.0	mg/L	100		91.0	85-115			
LCS Dup (B906002-BSD1) Prepared & Analyzed: 06/03/19										
Alkalinity, Total as CaCO ₃	100	10.0	mg/L	100		100	85-115	9.42	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:
06/10/19 16:07

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 B906027 - Diss. 200.7/200.8

Blank (B906027-BLK1)

Prepared & Analyzed: 06/05/19

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 (B906027-BS1)

Prepared & Analyzed: 06/05/19

Aluminum	4.90	0.050	mg/L	5.00	98.0	85-115
Calcium	4.93	0.100	mg/L	5.00	98.7	85-115
Iron	4.88	0.050	mg/L	5.00	97.5	85-115
Magnesium	25.1	0.100	mg/L	25.0	100	85-115
Potassium	9.92	1.00	mg/L	10.0	99.2	85-115
Silicon	5.04	0.500	mg/L	5.00	101	85-115
Sodium	4.15	1.00	mg/L	4.05	102	85-115

LCS Dup (B906027-BSD1)

Prepared & Analyzed: 06/05/19

Aluminum	4.91	0.050	mg/L	5.00	98.2	85-115	0.121	20
Calcium	4.86	0.100	mg/L	5.00	97.3	85-115	1.44	20
Iron	4.88	0.050	mg/L	5.00	97.7	85-115	0.176	20
Magnesium	25.0	0.100	mg/L	25.0	100	85-115	0.231	20
Potassium	9.80	1.00	mg/L	10.0	98.0	85-115	1.21	20
Silicon	5.02	0.500	mg/L	5.00	100	85-115	0.442	20
Sodium	4.05	1.00	mg/L	4.05	99.9	85-115	2.44	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:
06/10/19 16:07

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 B905237 - Diss. 200.7/200.8

Blank (B905237-BLK1)

Prepared: 05/29/19 Analyzed: 06/06/19

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 (B905237-BS1)

Prepared: 05/29/19 Analyzed: 06/06/19

Arsenic	0.0495	0.0005	mg/L	0.0500	99.1	85-115
Cadmium	0.0495	0.0001	mg/L	0.0500	99.0	85-115
Copper	0.0492	0.0001	mg/L	0.0500	98.3	85-115
Lead	0.0490	0.0005	mg/L	0.0500	98.1	85-115
Manganese	0.0477	0.0005	mg/L	0.0500	95.5	85-115
Molybdenum	0.0491	0.0005	mg/L	0.0500	98.2	85-115
Selenium	0.244	0.0010	mg/L	0.250	97.6	85-115
Uranium	0.0492	0.0001	mg/L	0.0500	98.4	85-115
Zinc	0.0486	0.0020	mg/L	0.0500	97.2	85-115

LCS Dup (B905237-BSD1)

Prepared: 05/29/19 Analyzed: 06/06/19

Arsenic	0.0499	0.0005	mg/L	0.0500	99.8	85-115	0.757	20
Cadmium	0.0494	0.0001	mg/L	0.0500	98.8	85-115	0.148	20
Copper	0.0499	0.0001	mg/L	0.0500	99.8	85-115	1.53	20
Lead	0.0493	0.0005	mg/L	0.0500	98.6	85-115	0.570	20
Manganese	0.0481	0.0005	mg/L	0.0500	96.2	85-115	0.762	20
Molybdenum	0.0495	0.0005	mg/L	0.0500	99.0	85-115	0.885	20
Selenium	0.247	0.0010	mg/L	0.250	98.8	85-115	1.25	20
Uranium	0.0463	0.0001	mg/L	0.0500	92.7	85-115	5.94	20
Zinc	0.0490	0.0020	mg/L	0.0500	98.0	85-115	0.763	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:
06/10/19 16:07

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 B905243 - EPA 245.1/7470

Blank (B905243-BLK1)

Prepared: 05/29/19 Analyzed: 05/31/19

Mercury	ND	0.0002	mg/L							
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LCS (B905243-BS1)

Prepared: 05/29/19 Analyzed: 05/31/19

Mercury	0.0054	0.0002	mg/L	0.00500	109	85-115				
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LCS Dup (B905243-BSD1)

Prepared: 05/29/19 Analyzed: 05/31/19

Mercury	0.0055	0.0002	mg/L	0.00500	110	85-115	1.48	20		
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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Page 11 of 13



GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
06/10/19 16:07

Notes and Definitions

R1	Duplicate sample RPD exceeded laboratory acceptance criteria. Sample(s) may be difficult to homogenize.
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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

FORM-006
COC - Revision 5.0

Company or Client: GCE Energy
Address: 6473 CR 120
City: Aesperus State: CO Zip: 81326
Phone #: 970-385-4528
Contact Person: Tom Bird, Landon Beck
Email Report to:
Project Name(optional):
Sampler Name (Print):

P.O. #: Bill to (if different):
Company: Attn:
Address: City:
State: Zip:
Phone #: Email:

ANALYSIS REQUEST

For Lab Use	Sample Name or Location	Collected		Matrix (check one)						# of containers						
		Date	Time	GROUNDWATER	SURFACEWATER	WASTEWATER	PRODUCEDWATER	SOIL	DRINKING WATER	OTHER :	No preservation (general)	HNO ₃	HCl	H ₂ SO ₄	Other:	Other:
1905-226-01	MW-4 - A	05-22-19	1207	X							1	1	1	1	1	1
-02	MW-4 - C		1257	X							1	1	1	1	1	1
-03	MW-4 - MI		1114	X							1	1	1	1	1	1
-04	Well #2 - Down gradient		1415	X							1	1	1	1	1	1

PLEASE NOTE: GAL's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by GAL within 30 days after completion. In no event shall GAL be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by GAL, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:

Date: 5-22-19
Time: 1550

Received By:

ADDITIONAL REMARKS:

Report to State? (Circle)

Relinquished By: Michael S. Farland

Date: 5-22-19
Time: 1550

Received By: D. Julie Zupfel

ADDITIONAL REMARKS:

Report to State? (Circle)

Relinquished By:

Date:

Received By:

ADDITIONAL REMARKS:

Report to State? (Circle)

Relinquished By:

Date:

Received By:

ADDITIONAL REMARKS:

Report to State? (Circle)

Relinquished By:

Date:

Received By:

ADDITIONAL REMARKS:

Report to State? (Circle)

Relinquished By:

Date:

Received By:

ADDITIONAL REMARKS:

Report to State? (Circle)

Relinquished By:

ADDITIONAL REMARKS:

Temperature at receipt: 2.4/2.2°C
Checked by: DZ

* 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
970.247.4227 Fax
www.greenanalytical.com

07 June 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 05/20/19 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:
06/07/19 16:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-6-A	1905197-01	Water	05/20/19 09:45	05/20/19 16:15	
MW-6-LM	1905197-02	Water	05/20/19 14:31	05/20/19 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:
06/07/19 16:24

MW-6-A

1905197-01 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	143	10.0		mg/L	1	05/21/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	05/21/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	05/21/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	143	10.0	3.06	mg/L	1	05/21/19	2320 B		VJL
Chloride*	27.3	5.00	0.513	mg/L	5	05/21/19	EPA300.0		AES
Fluoride*	<0.500	0.500	0.0733	mg/L	5	05/21/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
pH*	6.77			pH Units	1	05/21/19	EPA150.1		VJL
Total Dissolved Solids*	120	10.0		mg/L	1	05/23/19	EPA160.1		VJL
Sulfate*	4280	125	26.6	mg/L	125	05/22/19	EPA300.0		AES
Total Organic Carbon*	2.91	0.500	0.0670	mg/L	1	05/23/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.250	0.250	0.125	mg/L	5	05/22/19	EPA200.7		AES
Calcium*	553	0.500	0.064	mg/L	5	05/22/19	EPA200.7		AES
Hardness as CaCO ₃	3920	11.5	2.09	mg/L	25	05/23/19	2340 B		AES
Iron*	3.93	0.250	0.138	mg/L	5	05/22/19	EPA200.7		AES
Magnesium*	617	2.50	0.469	mg/L	25	05/23/19	EPA200.7		AES
Potassium*	12.4	5.00	0.478	mg/L	5	05/22/19	EPA200.7		AES
Silica (SiO ₂)	14.3	5.35	0.286	mg/L	5	05/22/19	Calculation		AES
Silicon	6.69	2.50	0.134	mg/L	5	05/22/19	EPA200.7		AES
Sodium*	296	5.00	1.83	mg/L	5	05/22/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0009	0.0005	0.0002	mg/L	1	06/06/19	EPA200.8		AES
Cadmium*	0.0001	0.0001	0.00004	mg/L	1	06/06/19	EPA200.8		AES
Copper*	0.0035	0.0001	0.0001	mg/L	1	06/06/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/06/19	EPA200.8		AES
Manganese*	0.724	0.0005	0.00009	mg/L	1	06/06/19	EPA200.8		AES
Molybdenum*	<0.0005	0.0005	0.00007	mg/L	1	06/06/19	EPA200.8		AES
Selenium*	0.0028	0.0010	0.0006	mg/L	1	06/06/19	EPA200.8		AES
Uranium	<0.0001	0.0001	0.00008	mg/L	1	06/06/19	EPA200.8		AES
Zinc*	0.0082	0.0020	0.0004	mg/L	1	06/06/19	EPA200.8	M5	AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	05/24/19	EPA245.1		LLG
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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:
06/07/19 16:24

MW-6-LM

1905197-02 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	371	10.0		mg/L	1	05/21/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	05/21/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	05/21/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	371	10.0	3.06	mg/L	1	05/21/19	2320 B		VJL
Chloride*	5.73	1.00	0.103	mg/L	1	05/21/19	EPA300.0		AES
Fluoride*	0.324	0.100	0.0147	mg/L	1	05/21/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	05/30/19	EPA353.2		LLG
pH*	7.47			pH Units	1	05/21/19	EPA150.1		VJL
Total Dissolved Solids*	875	10.0		mg/L	1	05/23/19	EPA160.1		VJL
Sulfate*	338	10.0	2.13	mg/L	10	05/22/19	EPA300.0		AES
Total Organic Carbon*	1.57	0.500	0.0670	mg/L	1	05/23/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	05/22/19	EPA200.7		AES
Calcium*	75.9	0.100	0.013	mg/L	1	05/22/19	EPA200.7		AES
Hardness as CaCO ₃	431	0.662	0.109	mg/L	1	05/22/19	2340 B		AES
Iron*	<0.050	0.050	0.028	mg/L	1	05/22/19	EPA200.7		AES
Magnesium*	58.7	0.100	0.019	mg/L	1	05/22/19	EPA200.7		AES
Potassium*	14.0	1.00	0.096	mg/L	1	05/22/19	EPA200.7		AES
Silica (SiO ₂)	17.0	1.07	0.0572	mg/L	1	05/22/19	Calculation		AES
Silicon	7.96	0.500	0.027	mg/L	1	05/22/19	EPA200.7		AES
Sodium*	129	1.00	0.367	mg/L	1	05/22/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0036	0.0005	0.0002	mg/L	1	06/06/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/06/19	EPA200.8		AES
Copper*	0.0017	0.0001	0.0001	mg/L	1	06/06/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/06/19	EPA200.8		AES
Manganese*	0.0692	0.0005	0.00009	mg/L	1	06/06/19	EPA200.8		AES
Molybdenum*	0.0037	0.0005	0.00007	mg/L	1	06/06/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	06/06/19	EPA200.8		AES
Uranium	0.0039	0.0001	0.00008	mg/L	1	06/06/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	06/06/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	05/24/19	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:
06/07/19 16:24

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 B905169 - General Prep - Wet Chem

Blank (B905169-BLK1)

Prepared & Analyzed: 05/21/19

Alkalinity, Total as CaCO₃ ND 10.0 mg/L

LCS (B905169-BS1)

Prepared & Analyzed: 05/21/19

Alkalinity, Total as CaCO₃ 94.0 10.0 mg/L 100 94.0 85-115

LCS Dup (B905169-BSD1)

Prepared & Analyzed: 05/21/19

Alkalinity, Total as CaCO₃ 101 10.0 mg/L 100 101 85-115 7.18 20

Batch B905176 - General Prep - Wet Chem

Duplicate (B905176-DUP1)

Source: 1905193-01

Prepared & Analyzed: 05/21/19

pH 7.81 pH Units 7.80 0.128 20

Reference (B905176-SRM1)

Prepared & Analyzed: 05/21/19

pH 6.90 pH Units 7.00 98.6 98.5-101.4

Batch B905178 - General Prep - Wet Chem

Blank (B905178-BLK1)

Prepared & Analyzed: 05/21/19

Chloride ND 1.00 mg/L

Fluoride ND 0.100 mg/L

Sulfate ND 1.00 mg/L

LCS (B905178-BS1)

Prepared & Analyzed: 05/21/19

Chloride 24.8 1.00 mg/L 25.0 99.1 90-110

Fluoride 2.57 0.100 mg/L 2.50 103 90-110

Sulfate 24.3 1.00 mg/L 25.0 97.3 90-110

LCS Dup (B905178-BSD1)

Prepared & Analyzed: 05/21/19

Chloride 24.8 1.00 mg/L 25.0 99.1 90-110 0.0484 20

Fluoride 2.56 0.100 mg/L 2.50 102 90-110 0.467 20

Sulfate 24.4 1.00 mg/L 25.0 97.7 90-110 0.386 20

Batch B905181 - General Prep - Wet Chem

Blank (B905181-BLK1)

Prepared & Analyzed: 05/23/19

Total Organic Carbon ND 0.500 mg/L

LCS (B905181-BS1)

Prepared & Analyzed: 05/23/19

Total Organic Carbon 9.83 0.500 mg/L 10.0 98.3 85-115

LCS Dup (B905181-BSD1)

Prepared & Analyzed: 05/23/19

Total Organic Carbon 9.76 0.500 mg/L 10.0 97.6 85-115 0.745 20

Batch B905197 - General Prep - Wet Chem

Blank (B905197-BLK1)

Prepared & Analyzed: 05/23/19

Total Dissolved Solids ND 10.0 mg/L

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:
06/07/19 16:24

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 B905197 - General Prep - Wet Chem (Continued)

Duplicate (B905197-DUP1)

Source: 1905165-01

Prepared & Analyzed: 05/23/19

Total Dissolved Solids	645	10.0	mg/L		575			11.5	20	
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Reference (B905197-SRM1)

Prepared & Analyzed: 05/23/19

Total Dissolved Solids	610	10.0	mg/L	600		102	85-115			
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Batch B905213 - General Prep - Wet Chem

Blank (B905213-BLK1)

Prepared: 05/24/19 Analyzed: 05/30/19

Nitrate/Nitrite as N	ND	0.020	mg/L							
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LCS (B905213-BS1)

Prepared: 05/24/19 Analyzed: 05/30/19

Nitrate/Nitrite as N	1.06	0.020	mg/L	1.00		106	90-110			
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LCS Dup (B905213-BSD1)

Prepared: 05/24/19 Analyzed: 05/30/19

Nitrate/Nitrite as N	1.06	0.020	mg/L	1.00		106	90-110	0.170	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 Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom Bird

Reported:
06/07/19 16:24

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 B905185 - Diss. 200.7/200.8

Blank (B905185-BLK1)

Prepared & Analyzed: 05/22/19

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 (B905185-BS1)

Prepared & Analyzed: 05/22/19

Aluminum	5.28	0.050	mg/L	5.00	106	85-115
Calcium	5.36	0.100	mg/L	5.00	107	85-115
Iron	5.32	0.050	mg/L	5.00	106	85-115
Magnesium	26.5	0.100	mg/L	25.0	106	85-115
Potassium	10.8	1.00	mg/L	10.0	108	85-115
Silicon	5.44	0.500	mg/L	5.00	109	85-115
Sodium	4.34	1.00	mg/L	4.05	107	85-115

LCS Dup (B905185-BSD1)

Prepared & Analyzed: 05/22/19

Aluminum	4.94	0.050	mg/L	5.00	98.8	85-115	6.69	20
Calcium	4.91	0.100	mg/L	5.00	98.2	85-115	8.79	20
Iron	4.94	0.050	mg/L	5.00	98.9	85-115	7.29	20
Magnesium	24.5	0.100	mg/L	25.0	98.0	85-115	7.76	20
Potassium	9.99	1.00	mg/L	10.0	99.9	85-115	7.54	20
Silicon	5.13	0.500	mg/L	5.00	103	85-115	5.90	20
Sodium	4.05	1.00	mg/L	4.05	100	85-115	7.02	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:
06/07/19 16:24

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 B905237 - Diss. 200.7/200.8

Blank (B905237-BLK1)

Prepared: 05/29/19 Analyzed: 06/06/19

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 (B905237-BS1)

Prepared: 05/29/19 Analyzed: 06/06/19

Arsenic	0.0495	0.0005	mg/L	0.0500	99.1	85-115
Cadmium	0.0495	0.0001	mg/L	0.0500	99.0	85-115
Copper	0.0492	0.0001	mg/L	0.0500	98.3	85-115
Lead	0.0490	0.0005	mg/L	0.0500	98.1	85-115
Manganese	0.0477	0.0005	mg/L	0.0500	95.5	85-115
Molybdenum	0.0491	0.0005	mg/L	0.0500	98.2	85-115
Selenium	0.244	0.0010	mg/L	0.250	97.6	85-115
Uranium	0.0492	0.0001	mg/L	0.0500	98.4	85-115
Zinc	0.0486	0.0020	mg/L	0.0500	97.2	85-115

LCS Dup (B905237-BSD1)

Prepared: 05/29/19 Analyzed: 06/06/19

Arsenic	0.0499	0.0005	mg/L	0.0500	99.8	85-115	0.757	20
Cadmium	0.0494	0.0001	mg/L	0.0500	98.8	85-115	0.148	20
Copper	0.0499	0.0001	mg/L	0.0500	99.8	85-115	1.53	20
Lead	0.0493	0.0005	mg/L	0.0500	98.6	85-115	0.570	20
Manganese	0.0481	0.0005	mg/L	0.0500	96.2	85-115	0.762	20
Molybdenum	0.0495	0.0005	mg/L	0.0500	99.0	85-115	0.885	20
Selenium	0.247	0.0010	mg/L	0.250	98.8	85-115	1.25	20
Uranium	0.0463	0.0001	mg/L	0.0500	92.7	85-115	5.94	20
Zinc	0.0490	0.0020	mg/L	0.0500	98.0	85-115	0.763	20

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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Page 8 of 12



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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:
06/07/19 16:24

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B905189 - EPA 245.1/7470										
Blank (B905189-BLK1)				Prepared: 05/22/19 Analyzed: 05/24/19						
Mercury	ND	0.0002	mg/L							
LCS (B905189-BS1)				Prepared: 05/22/19 Analyzed: 05/24/19						
Mercury	0.0051	0.0002	mg/L	0.00500		103	85-115			
LCS Dup (B905189-BSD1)				Prepared: 05/22/19 Analyzed: 05/24/19						
Mercury	0.0055	0.0002	mg/L	0.00500		109	85-115	5.70	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:
06/07/19 16:24

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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GAL
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75 Suttle St Durango, CO 81303

FORM-006
COC - Revision 5.0

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Bill to (if different):

ANALYSIS REQUEST

Company or Client: GCC-Baseline Energy 2205.20

P.O. #:

Address: 6443 County Rd 120 State: Zip:

Company:

City: Hesperus State: Zip:

Attn:

Phone #: 970-385-4528

Address:

Contact Person: TDM Bird

City:

Email Report to: TDM Bird, Landon Beck

State: Zip:

Project Name (optional):

Phone #:

Sampler Name (Print): Michael McFarland

Email:

Collected

Matrix (check one)

of containers

For Lab Use

Sample Name or Location

Date Time

GROUNDWATER
SURFACEWATER
WASTEWATER
PRODUCEDWATER
SOIL
DRINKING WATER
OTHER :

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

1905-197-01
02 MW-6-A
MW-6-LM

05/20/19 0945
1431

X
X

1
1
4

XX

Gw Baseline

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Relinquished By: Michael McFarland

Date: 5-20-19
Time: 1615

Report to State? (Circle)
Yes No

Relinquished By: Jenna C.

Received By:

Relinquished By:

Received By:

Relinquished By:

Received By:

#1 only

49/4.9°C

Temperature at receipt:

CHECKED BY: mc

† GAL cannot always accept verbal changes. Please fax or email written change requests.
* Chain of Custody must be signed in "Relinquished By:" as an acceptance of services and all applicable charges.

Project Information

Printed: 05/20/2019 4:16 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 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, dis	
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
Durango, CO 81303
970.247.4220 Phone
970.247.4227 Fax
www.greenanalytical.com

17 June 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 05/30/19 15:51.
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/>

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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.



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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:
06/17/19 16:42

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
MW-8-EAA	1905304-01	Water	05/29/19 12:26	05/30/19 15:51	
MW-8-MI	1905304-02	Water	05/29/19 12:44	05/30/19 15:51	
MW-8-LM	1905304-03	Water	05/29/19 15:08	05/30/19 15:51	
MW-8-PL	1905304-04	Water	05/29/19 13:45	05/30/19 15:51	
MW-7-EAA	1905304-05	Water	05/29/19 16:08	05/30/19 15:51	
MW-99-A	1905304-06	Water	05/29/19 16:28	05/30/19 15:51	

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:
06/17/19 16:42

MW-8-EAA

1905304-01 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	450	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	450	10.0	3.06	mg/L	5	06/10/19	2320 B		VJL
Chloride*	10.3	2.00	0.205	mg/L	2	06/11/19	EPA300.0		AES
Fluoride*	0.338	0.200	0.0293	mg/L	2	06/11/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	06/07/19	EPA353.2		LLG
pH*	7.13			pH Units	1	05/31/19	EPA150.1		VJL
Total Dissolved Solids*	1240	10.0		mg/L	1	06/04/19	EPA160.1		VJL
Sulfate*	606	20.0	4.26	mg/L	20	06/12/19	EPA300.0		AES
Total Organic Carbon*	3.77	0.500	0.0670	mg/L	1	06/07/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	06/13/19	EPA200.7		AES
Calcium*	148	0.100	0.013	mg/L	1	06/13/19	EPA200.7		AES
Hardness as CaCO ₃	864	2.31	0.418	mg/L	5	06/14/19	2340 B		AES
Iron*	2.42	0.050	0.028	mg/L	1	06/13/19	EPA200.7		AES
Magnesium*	120	0.500	0.094	mg/L	5	06/14/19	EPA200.7		AES
Potassium*	3.55	1.00	0.096	mg/L	1	06/13/19	EPA200.7		AES
Silica (SiO ₂)	15.7	1.07	0.0572	mg/L	1	06/13/19	Calculation		AES
Silicon	7.32	0.500	0.027	mg/L	1	06/13/19	EPA200.7		AES
Sodium*	77.2	1.00	0.367	mg/L	1	06/13/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0018	0.0005	0.0002	mg/L	1	06/12/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/12/19	EPA200.8		AES
Copper*	0.0023	0.0001	0.0001	mg/L	1	06/12/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Manganese*	3.06	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Molybdenum*	0.0008	0.0005	0.00007	mg/L	1	06/12/19	EPA200.8		AES
Selenium*	0.0010	0.0010	0.0006	mg/L	1	06/12/19	EPA200.8		AES
Uranium	0.0016	0.0001	0.00008	mg/L	1	06/12/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	06/12/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	06/10/19	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:
06/17/19 16:42

MW-8-MI

1905304-02 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	560	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	560	10.0	3.06	mg/L	5	06/10/19	2320 B		VJL
Chloride*	9.33	2.00	0.205	mg/L	2	06/11/19	EPA300.0		AES
Fluoride*	<0.200	0.200	0.0293	mg/L	2	06/11/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	06/07/19	EPA353.2		LLG
pH*	7.24			pH Units	1	05/31/19	EPA150.1		VJL
Total Dissolved Solids*	1100	10.0		mg/L	1	06/04/19	EPA160.1		VJL
Sulfate*	343	20.0	4.26	mg/L	20	06/12/19	EPA300.0		AES
Total Organic Carbon*	2.81	0.500	0.0670	mg/L	1	06/07/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.250	0.250	0.125	mg/L	5	06/14/19	EPA200.7		AES
Calcium*	52.4	0.500	0.064	mg/L	5	06/14/19	EPA200.7		AES
Hardness as CaCO ₃	273	3.31	0.546	mg/L	5	06/14/19	2340 B		AES
Iron*	<0.250	0.250	0.138	mg/L	5	06/14/19	EPA200.7		AES
Magnesium*	34.5	0.500	0.094	mg/L	5	06/14/19	EPA200.7		AES
Potassium*	<5.00	5.00	0.478	mg/L	5	06/14/19	EPA200.7		AES
Silica (SiO ₂)	12.8	5.35	0.286	mg/L	5	06/14/19	Calculation		AES
Silicon	5.99	2.50	0.134	mg/L	5	06/14/19	EPA200.7		AES
Sodium*	289	5.00	1.83	mg/L	5	06/14/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0006	0.0005	0.0002	mg/L	1	06/12/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/12/19	EPA200.8		AES
Copper*	0.0036	0.0001	0.0001	mg/L	1	06/12/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Manganese*	0.0327	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Molybdenum*	<0.0005	0.0005	0.00007	mg/L	1	06/12/19	EPA200.8		AES
Selenium*	0.0010	0.0010	0.0006	mg/L	1	06/12/19	EPA200.8		AES
Uranium	0.0002	0.0001	0.00008	mg/L	1	06/12/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	06/12/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	06/10/19	EPA245.1		LLG
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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:
06/17/19 16:42

MW-8-LM

1905304-03 (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	5	06/10/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	100	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	745	10.0	3.06	mg/L	5	06/10/19	2320 B		VJL
Chloride*	6.80	1.00	0.103	mg/L	1	06/11/19	EPA300.0		AES
Fluoride*	3.95	0.100	0.0147	mg/L	1	06/11/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	06/07/19	EPA353.2		LLG
pH*	8.02			pH Units	1	05/31/19	EPA150.1		VJL
Total Dissolved Solids*	780	10.0		mg/L	1	06/04/19	EPA160.1		VJL
Sulfate*	9.58	1.00	0.213	mg/L	1	06/11/19	EPA300.0		AES
Total Organic Carbon*	3.33	0.500	0.0670	mg/L	1	06/07/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.250	0.250	0.125	mg/L	5	06/14/19	EPA200.7		AES
Calcium*	3.84	0.500	0.064	mg/L	5	06/14/19	EPA200.7		AES
Hardness as CaCO ₃	16.9	3.31	0.546	mg/L	5	06/14/19	2340 B		AES
Iron*	<0.250	0.250	0.138	mg/L	5	06/14/19	EPA200.7		AES
Magnesium*	1.77	0.500	0.094	mg/L	5	06/14/19	EPA200.7		AES
Potassium*	<5.00	5.00	0.478	mg/L	5	06/14/19	EPA200.7		AES
Silica (SiO ₂)	8.68	5.35	0.286	mg/L	5	06/14/19	Calculation		AES
Silicon	4.06	2.50	0.134	mg/L	5	06/14/19	EPA200.7		AES
Sodium*	317	5.00	1.83	mg/L	5	06/14/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0006	0.0005	0.0002	mg/L	1	06/12/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/12/19	EPA200.8		AES
Copper*	0.0047	0.0001	0.0001	mg/L	1	06/12/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Manganese*	0.0150	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Molybdenum*	0.0009	0.0005	0.00007	mg/L	1	06/12/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	06/12/19	EPA200.8		AES
Uranium	0.0001	0.0001	0.00008	mg/L	1	06/12/19	EPA200.8		AES
Zinc*	0.0023	0.0020	0.0004	mg/L	1	06/12/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	06/10/19	EPA245.1		LLG
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Green Analytical Laboratories

Debbie Zufelt

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:
06/17/19 16:42

MW-8-PL

1905304-04 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	435	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	435	10.0	3.06	mg/L	5	06/10/19	2320 B		VJL
Chloride*	9.03	1.00	0.103	mg/L	1	06/11/19	EPA300.0		AES
Fluoride*	0.290	0.100	0.0147	mg/L	1	06/11/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	06/07/19	EPA353.2		LLG
pH*	7.26			pH Units	1	05/31/19	EPA150.1		VJL
Total Dissolved Solids*	995	10.0		mg/L	1	06/04/19	EPA160.1		VJL
Sulfate*	390	20.0	4.26	mg/L	20	06/12/19	EPA300.0		AES
Total Organic Carbon*	2.92	0.500	0.0670	mg/L	1	06/07/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.250	0.250	0.125	mg/L	5	06/14/19	EPA200.7		AES
Calcium*	105	0.500	0.064	mg/L	5	06/14/19	EPA200.7		AES
Hardness as CaCO ₃	596	3.31	0.546	mg/L	5	06/14/19	2340 B		AES
Iron*	<0.250	0.250	0.138	mg/L	5	06/14/19	EPA200.7		AES
Magnesium*	81.4	0.500	0.094	mg/L	5	06/14/19	EPA200.7		AES
Potassium*	<5.00	5.00	0.478	mg/L	5	06/14/19	EPA200.7		AES
Silica (SiO ₂)	17.7	5.35	0.286	mg/L	5	06/14/19	Calculation		AES
Silicon	8.28	2.50	0.134	mg/L	5	06/14/19	EPA200.7		AES
Sodium*	102	5.00	1.83	mg/L	5	06/14/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0190	0.0005	0.0002	mg/L	1	06/12/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/12/19	EPA200.8		AES
Copper*	0.0017	0.0001	0.0001	mg/L	1	06/12/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Manganese*	0.697	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Molybdenum*	0.0020	0.0005	0.00007	mg/L	1	06/12/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	06/12/19	EPA200.8		AES
Uranium	0.0010	0.0001	0.00008	mg/L	1	06/12/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	06/12/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	06/10/19	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, 81326

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

Reported:
06/17/19 16:42

MW-7-EAA**1905304-05 (Water)**

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

Alkalinity, Bicarbonate as CaCO ₃ *	405	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	405	10.0	3.06	mg/L	5	06/10/19	2320 B		VJL
Chloride*	10.8	2.00	0.205	mg/L	2	06/11/19	EPA300.0		AES
Fluoride*	0.322	0.200	0.0293	mg/L	2	06/11/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	06/10/19	EPA353.2		LLG
pH*	7.17			pH Units	1	05/31/19	EPA150.1		VJL
Total Dissolved Solids*	1490	10.0		mg/L	1	06/04/19	EPA160.1		VJL
Sulfate*	733	50.0	10.7	mg/L	50	06/12/19	EPA300.0		AES
Total Organic Carbon*	3.73	0.500	0.0670	mg/L	1	06/07/19	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.250	0.250	0.125	mg/L	5	06/14/19	EPA200.7		AES
Calcium*	171	0.500	0.064	mg/L	5	06/14/19	EPA200.7		AES
Hardness as CaCO ₃	982	3.31	0.546	mg/L	5	06/14/19	2340 B		AES
Iron*	1.81	0.250	0.138	mg/L	5	06/14/19	EPA200.7		AES
Magnesium*	135	0.500	0.094	mg/L	5	06/14/19	EPA200.7		AES
Potassium*	<5.00	5.00	0.478	mg/L	5	06/14/19	EPA200.7		AES
Silica (SiO ₂)	16.1	5.35	0.286	mg/L	5	06/14/19	Calculation		AES
Silicon	7.55	2.50	0.134	mg/L	5	06/14/19	EPA200.7		AES
Sodium*	75.0	5.00	1.83	mg/L	5	06/14/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0013	0.0005	0.0002	mg/L	1	06/12/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/12/19	EPA200.8		AES
Copper*	0.0011	0.0001	0.0001	mg/L	1	06/12/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Manganese*	4.01	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Molybdenum*	0.0007	0.0005	0.00007	mg/L	1	06/12/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	06/12/19	EPA200.8		AES
Uranium	0.0017	0.0001	0.00008	mg/L	1	06/12/19	EPA200.8		AES
Zinc*	0.0021	0.0020	0.0004	mg/L	1	06/12/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	06/10/19	EPA245.1	M5	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:
06/17/19 16:42

MW-99-A

1905304-06 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	415	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	06/10/19	2320 B		VJL
Alkalinity, Total as CaCO ₃ *	415	10.0	3.06	mg/L	5	06/10/19	2320 B		VJL
Chloride*	10.8	2.00	0.205	mg/L	2	06/11/19	EPA300.0		AES
Fluoride*	0.334	0.200	0.0293	mg/L	2	06/11/19	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	06/10/19	EPA353.2		LLG
pH*	7.08			pH Units	1	05/31/19	EPA150.1		VJL
Total Dissolved Solids*	1540	10.0		mg/L	1	06/04/19	EPA160.1		VJL
Sulfate*	737	50.0	10.7	mg/L	50	06/12/19	EPA300.0		AES
Total Organic Carbon*	3.65	0.500	0.0670	mg/L	1	06/12/19	5310C		JDA

Dissolved Metals by ICP

Aluminum*	<0.250	0.250	0.125	mg/L	5	06/14/19	EPA200.7		AES
Calcium*	172	0.500	0.064	mg/L	5	06/14/19	EPA200.7		AES
Hardness as CaCO ₃	989	3.31	0.546	mg/L	5	06/14/19	2340 B		AES
Iron*	1.74	0.250	0.138	mg/L	5	06/14/19	EPA200.7		AES
Magnesium*	136	0.500	0.094	mg/L	5	06/14/19	EPA200.7		AES
Potassium*	<5.00	5.00	0.478	mg/L	5	06/14/19	EPA200.7		AES
Silica (SiO ₂)	16.2	5.35	0.286	mg/L	5	06/14/19	Calculation		AES
Silicon	7.57	2.50	0.134	mg/L	5	06/14/19	EPA200.7		AES
Sodium*	75.1	5.00	1.83	mg/L	5	06/14/19	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0013	0.0005	0.0002	mg/L	1	06/12/19	EPA200.8		AES
Cadmium*	<0.0001	0.0001	0.00004	mg/L	1	06/12/19	EPA200.8		AES
Copper*	0.0011	0.0001	0.0001	mg/L	1	06/12/19	EPA200.8		AES
Lead*	<0.0005	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Manganese*	4.06	0.0005	0.00009	mg/L	1	06/12/19	EPA200.8		AES
Molybdenum*	0.0007	0.0005	0.00007	mg/L	1	06/12/19	EPA200.8		AES
Selenium*	<0.0010	0.0010	0.0006	mg/L	1	06/12/19	EPA200.8		AES
Uranium	0.0016	0.0001	0.00008	mg/L	1	06/12/19	EPA200.8		AES
Zinc*	<0.0020	0.0020	0.0004	mg/L	1	06/12/19	EPA200.8		AES

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	06/10/19	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:
06/17/19 16:42

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 B905274 - General Prep - Wet Chem

Duplicate (B905274-DUP1) Source: 1905300-04 Prepared & Analyzed: 05/31/19

pH	7.24		pH Units	7.28				0.551	20	
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Reference (B905274-SRM1) Prepared & Analyzed: 05/31/19

pH	6.92		pH Units	7.00		98.9	98.5-101.4			
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Batch B906024 - General Prep - Wet Chem

Blank (B906024-BLK1) Prepared & Analyzed: 06/04/19

Total Dissolved Solids	ND	10.0	mg/L							
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Duplicate (B906024-DUP1) Source: 1905247-01 Prepared & Analyzed: 06/04/19

Total Dissolved Solids	135	10.0	mg/L	165				20.0	20	
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Reference (B906024-SRM1) Prepared & Analyzed: 06/04/19

Total Dissolved Solids	605	10.0	mg/L	600		101	85-115			
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Batch B906050 - General Prep - Wet Chem

Blank (B906050-BLK1) Prepared: 06/05/19 Analyzed: 06/07/19

Nitrate/Nitrite as N	ND	0.020	mg/L							
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LCS (B906050-BS1) Prepared: 06/05/19 Analyzed: 06/07/19

Nitrate/Nitrite as N	1.02	0.020	mg/L	1.00		102	90-110			
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LCS Dup (B906050-BSD1) Prepared: 06/05/19 Analyzed: 06/07/19

Nitrate/Nitrite as N	1.03	0.020	mg/L	1.00		103	90-110	0.489	20	
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Batch B906058 - General Prep - Wet Chem

Blank (B906058-BLK1) Prepared & Analyzed: 06/06/19

Total Organic Carbon	ND	0.500	mg/L							
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LCS (B906058-BS1) Prepared & Analyzed: 06/06/19

Total Organic Carbon	10.3	0.500	mg/L	10.0		103	85-115			
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LCS Dup (B906058-BSD1) Prepared & Analyzed: 06/06/19

Total Organic Carbon	10.2	0.500	mg/L	10.0		102	85-115	1.37	20	
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Batch B906080 - General Prep - Wet Chem

Blank (B906080-BLK1) Prepared & Analyzed: 06/10/19

Nitrate/Nitrite as N	ND	0.020	mg/L							
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LCS (B906080-BS1) Prepared & Analyzed: 06/10/19

Nitrate/Nitrite as N	1.03	0.020	mg/L	1.00		103	90-110			
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LCS Dup (B906080-BSD1) Prepared & Analyzed: 06/10/19

Nitrate/Nitrite as N	1.03	0.020	mg/L	1.00		103	90-110	0.243	20	
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Batch B906087 - 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:
06/17/19 16:42

General Chemistry - Quality Control
(Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (B906087-BLK1)				Prepared & Analyzed: 06/10/19						
Alkalinity, Total as CaCO ₃	ND	10.0	mg/L							
LCS (B906087-BS1)				Prepared & Analyzed: 06/10/19						
Alkalinity, Total as CaCO ₃	98.0	10.0	mg/L	100		98.0	85-115			
LCS Dup (B906087-BSD1)				Prepared & Analyzed: 06/10/19						
Alkalinity, Total as CaCO ₃	87.0	10.0	mg/L	100		87.0	85-115	11.9	20	
Batch B906094 - General Prep - Wet Chem										
Blank (B906094-BLK1)				Prepared: 06/10/19 Analyzed: 06/11/19						
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B906094-BS1)				Prepared: 06/10/19 Analyzed: 06/11/19						
Chloride	24.6	1.00	mg/L	25.0		98.3	90-110			
Fluoride	2.57	0.100	mg/L	2.50		103	90-110			
Sulfate	24.3	1.00	mg/L	25.0		97.4	90-110			
LCS Dup (B906094-BSD1)				Prepared: 06/10/19 Analyzed: 06/11/19						
Chloride	24.5	1.00	mg/L	25.0		98.1	90-110	0.232	20	
Fluoride	2.57	0.100	mg/L	2.50		103	90-110	0.156	20	
Sulfate	24.3	1.00	mg/L	25.0		97.2	90-110	0.152	20	
Batch B906111 - General Prep - Wet Chem										
Blank (B906111-BLK1)				Prepared & Analyzed: 06/12/19						
Total Organic Carbon	ND	0.500	mg/L							
LCS (B906111-BS1)				Prepared & Analyzed: 06/12/19						
Total Organic Carbon	9.97	0.500	mg/L	10.0		99.7	85-115			
LCS Dup (B906111-BSD1)				Prepared & Analyzed: 06/12/19						
Total Organic Carbon	9.93	0.500	mg/L	10.0		99.3	85-115	0.362	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:
06/17/19 16:42

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 B906033 - Diss. 200.7/200.8

Blank (B906033-BLK1)

Prepared: 06/05/19 Analyzed: 06/13/19

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 (B906033-BS1)

Prepared: 06/05/19 Analyzed: 06/13/19

Aluminum	4.81	0.050	mg/L	5.00	96.1	85-115
Calcium	4.81	0.100	mg/L	5.00	96.2	85-115
Iron	4.78	0.050	mg/L	5.00	95.5	85-115
Magnesium	24.1	0.100	mg/L	25.0	96.3	85-115
Potassium	9.42	1.00	mg/L	10.0	94.2	85-115
Silicon	5.02	0.500	mg/L	5.00	100	85-115
Sodium	4.12	1.00	mg/L	4.05	102	85-115

LCS Dup (B906033-BSD1)

Prepared: 06/05/19 Analyzed: 06/13/19

Aluminum	4.87	0.050	mg/L	5.00	97.4	85-115	1.37	20
Calcium	4.79	0.100	mg/L	5.00	95.8	85-115	0.420	20
Iron	4.81	0.050	mg/L	5.00	96.2	85-115	0.689	20
Magnesium	24.1	0.100	mg/L	25.0	96.3	85-115	0.0152	20
Potassium	9.45	1.00	mg/L	10.0	94.5	85-115	0.319	20
Silicon	5.06	0.500	mg/L	5.00	101	85-115	0.736	20
Sodium	4.10	1.00	mg/L	4.05	101	85-115	0.500	20

Batch B906034 - Diss. 200.7/200.8

Blank (B906034-BLK1)

Prepared: 06/05/19 Analyzed: 06/14/19

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

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:
06/17/19 16:42

**Dissolved Metals by ICP - Quality Control
(Continued)**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B906034 - Diss. 200.7/200.8 (Continued)

LCS (B906034-BS1)

Prepared: 06/05/19 Analyzed: 06/14/19

Aluminum	5.17	0.050	mg/L	5.00		103	85-115			
Calcium	5.11	0.100	mg/L	5.00		102	85-115			
Iron	5.05	0.050	mg/L	5.00		101	85-115			
Magnesium	25.3	0.100	mg/L	25.0		101	85-115			
Potassium	10.3	1.00	mg/L	10.0		103	85-115			
Silicon	5.31	0.500	mg/L	5.00		106	85-115			
Sodium	4.18	1.00	mg/L	4.05		103	85-115			

LCS Dup (B906034-BSD1)

Prepared: 06/05/19 Analyzed: 06/14/19

Aluminum	5.00	0.050	mg/L	5.00		100	85-115	3.41	20	
Calcium	4.95	0.100	mg/L	5.00		99.0	85-115	3.29	20	
Iron	4.92	0.050	mg/L	5.00		98.4	85-115	2.54	20	
Magnesium	24.5	0.100	mg/L	25.0		98.2	85-115	3.15	20	
Potassium	9.96	1.00	mg/L	10.0		99.6	85-115	3.65	20	
Silicon	5.15	0.500	mg/L	5.00		103	85-115	3.16	20	
Sodium	4.02	1.00	mg/L	4.05		99.2	85-115	3.91	20	

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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:
06/17/19 16:42

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 B906039 - Diss. 200.7/200.8

Blank (B906039-BLK1)

Prepared: 06/05/19 Analyzed: 06/12/19

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 (B906039-BS1)

Prepared: 06/05/19 Analyzed: 06/12/19

Arsenic	0.0484	0.0005	mg/L	0.0500	96.9	85-115
Cadmium	0.0491	0.0001	mg/L	0.0500	98.1	85-115
Copper	0.0508	0.0001	mg/L	0.0500	102	85-115
Lead	0.0479	0.0005	mg/L	0.0500	95.8	85-115
Manganese	0.0475	0.0005	mg/L	0.0500	95.0	85-115
Molybdenum	0.0482	0.0005	mg/L	0.0500	96.4	85-115
Selenium	0.245	0.0010	mg/L	0.250	98.1	85-115
Uranium	0.0463	0.0001	mg/L	0.0500	92.5	85-115
Zinc	0.0501	0.0020	mg/L	0.0500	100	85-115

LCS Dup (B906039-BSD1)

Prepared: 06/05/19 Analyzed: 06/12/19

Arsenic	0.0485	0.0005	mg/L	0.0500	97.1	85-115	0.219	20
Cadmium	0.0486	0.0001	mg/L	0.0500	97.2	85-115	0.947	20
Copper	0.0494	0.0001	mg/L	0.0500	98.7	85-115	2.97	20
Lead	0.0477	0.0005	mg/L	0.0500	95.4	85-115	0.456	20
Manganese	0.0466	0.0005	mg/L	0.0500	93.1	85-115	1.94	20
Molybdenum	0.0483	0.0005	mg/L	0.0500	96.7	85-115	0.247	20
Selenium	0.248	0.0010	mg/L	0.250	99.0	85-115	0.910	20
Uranium	0.0458	0.0001	mg/L	0.0500	91.6	85-115	0.994	20
Zinc	0.0487	0.0020	mg/L	0.0500	97.5	85-115	2.67	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:
06/17/19 16:42

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 B906046 - EPA 245.1/7470

Blank (B906046-BLK1)

Prepared: 06/05/19 Analyzed: 06/10/19

Mercury	ND	0.0002	mg/L							
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LCS (B906046-BS1)

Prepared: 06/05/19 Analyzed: 06/10/19

Mercury	0.0048	0.0002	mg/L	0.00500		96.7	85-115			
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LCS Dup (B906046-BSD1)

Prepared: 06/05/19 Analyzed: 06/10/19

Mercury	0.0049	0.0002	mg/L	0.00500		97.0	85-115	0.330	20	
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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:
06/17/19 16:42

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

FORM-006
COC - Revision 5.0

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Bill to (if different):

ANALYSIS REQUEST

Company or Client: **GCC ENERGY LLC**
Address: **6473 C.R. 126**
City: **Hesperus** State: **CO** Zip: **81326**

P.O. #:

Phone #: **970-385-4528**

Contact Person: **Tom Bird**

Company:

Email Report to: **Tbird@gcc.com; lbeck@resourceshydrog**

Address: **resourceshydrog**

Project Name (optional):

State: Zip:

Sampler Name (Print): **Nicholas G. McGarland**

Email:

Collected

Matrix (check one)

of containers

For Lab Use

Sample Name or Location

Date Time

GROUNDWATER
SURFACEWATER
WASTEWATER
PRODUCEDWATER
SOIL
DRINKING WATER
OTHER :

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

GCC GW BASELINE
GCC S&S BASELINE

1905-30401 MW-8-BA
-02 MW-8-M1
-03 MW-8-LM
-04 MW-8-PL
-05 MW-7-EKA
-06 MW-9A
-07 Seep 2

5-29-19 1226
5-29-19 1244
5-29-19 1508
5-29-19 1345
5-29-19 1608
5-29-19 1628
5-29-19 1845

✓
✓
✓
✓
✓
✓
✓

PLEASE NOTE: GAL's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by GAL within 30 days after completion. In no event shall GAL be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by GAL, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:

Date: **5-30-19**

Received By:

ADDITIONAL REMARKS:

Report to State? (Circle)

Nicholas McGarland

Time: **1551**

Received By:

Daniel Zupit

Yes No

Relinquished By:

Date:

Received By:

Relinquished By:

Date:

Received By:

Relinquished By:

Date:

Received By:

#1 On Ice

Temperature at receipt: **1.7/1.5°C**

CHECKED BY: **DZ**

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

Project Information

Printed: 05/31/2019 11:56 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	
Magnesium Dissolved by ICP	
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	
Silica Dissolved by ICP Package subanalyses:	
Silicon Dissolved by ICP	

Project Information

Printed: 05/31/2019 11:57 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 S&S Baseline
Project Number: GCC S&S 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	
Calcium Dissolved by ICP	
Chloride by IC	
Copper Dissolved by ICPMS	
Fluoride by IC	
Hardness, diss	
Iron Dissolved by ICP	
Lead Dissolved by ICPMS	
Magnesium Dissolved by ICP	
Manganese Dissolved by ICPMS	
Mercury Dissolved by CVAA	
Molybdenum Dissolved by ICPMS	
Nitrate/Nitrite as N	
pH	
Potassium Dissolved by ICP	
SAR Suite	
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	
SAR Suite subanalyses:	
Calcium Saturated Paste by ICP	
Magnesium Saturated Paste by ICP	
SAR	
Sodium Saturated Paste by ICP	
Silica Dissolved by ICP Package subanalyses:	
Silicon Dissolved by ICP	