



"Safety as a Value"

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

September 5, 2018

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

Attn: Brock Bowles

Re: Field Well Water Analysis; King I & King II
3rd Quarter 2018

Mr. Bowles:

Please find enclosed a copy of quarterly water analysis reports for the 2nd quarter of 2018 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

This quarter MW-99-MI was a blind sample for MW-4-MI.

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

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

Sincerely,

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

Tom Bird
Manager, Coal Services
GCC Energy, LLC

GCC Energy Hydrologic Monitoring Data

Hay Gulch Ditch Upgradient																				
Year	2016												2017				2018			
Quarter	Q1		Q2		Q3			Q4			Q1		Q2	Q3	Q4	Q1	Q2	Q3		
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	
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	
Lab Analysis (Y/N)	Y	N	N	Y	N	N	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	
Field Parameters:																				
Flow Rate	cfs	0.70	0.99	1.22	1.56	0.99	0.99	1.07	0.95	NM	1.02	NM	0.82	0.28	2.69	NM	NM	NM	0.582	0.71
Temperature	deg C	9.8	20.9	11.3	21.1	20.8	16.8	14.93	16.39	5.86	6.97	1.52	4.73	10.69	20.21	19.72	8.78	4.74	11.32	22.07
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
Specific Conductance	µS/cm	247	323	197	141	189	207	233.2	210.2	257.9	233.7	686.6	455	453.5	106.2	549.4	868.30	1041	304	307.1
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
Dissolved Oxygen	mg/L	8.12	6.35	8.03	5.96	6.48	6.86	7.2	4.73	6.71	6.1	10.59	8.96	6.89	4.79	6.73	9.26	9.35	8.53	6.44
Lab Analytical Results:																				
Hardness as CaCO3	mg/L	128			80.9			119		152				257	69.2	316	456	489	101	153
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
Total Dissolved Solids (Lab)	mg/L	170			75			165		180				285	65.0	390	650	700	140	215
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
Calcium	mg/L	33.5			24			33.0		38.4				53.6	20.8	64.9	86.6	87.3	26.3	39.1
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
Sodium	mg/L	4.46			2.19			3.90		6				10.9	1.97	13.8	27.1	34.6	3.31	5.33
Potassium	mg/L	<1			<1			1.35		<1.00				<1.00	1.75	2.15	3.05	3.52	1.18	1.24
Alkalinity, Total	mg/L	160			65			98.0		118				185	55.0	177	305	244	67	111
Alkalinity, Bicarbonate	mg/L	160			65			94.0		118				185	55.0	161	285	244	67	107
Alkalinity, Carbonate	mg/L	<10			<10			<10		<10.0				<10.0	<10.0	16.0	20.0	<10.0	<10	<10
Alkalinity, Hydroxide	mg/L	<10			<10			<10		<10.0				<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10
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
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
Sulfate as SO4	mg/L	42.1			17.7			29.0		45.3				87.7	15.0	99.0	179	229	34	49.7
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
Oil & Grease	mg/L	<5			<5			<5		<5.00				<5.00	<5.00	<5.00	<5.00	<5.00	<5	<5
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
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
Aluminum	mg/L	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050	<0.050	<0.050	<0.05	<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
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
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
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
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
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
Mercury	mg/L	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	<0.0005			0.0009			0.0007		0.0008				0.0006	0.0009	0.0012	0.0008	<0.0025	0.001	0.0012
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
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
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
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
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
Radium 226	pCi/L	<0.4			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

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 | 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 |
| SU | standard pH units | | |
| µS/cm | microsiemens per centimeter | | |
| mV | millivolts | | |
| mg/L | milligram 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. |
| 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		
Quarter	Q1			Q2		Q3			Q4			Q1		Q2	Q3	Q4	Q1	Q2	Q3	
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	
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	
Lab Analysis (Y/N)	Y	N	N	Y	N	N	Y	N	Y	N	N	N	Y	Y	Y	N	Y	Y	Y	
Field Parameters:																				
Flow Rate	cfs	1.05	1.16	1.13	NM	1.06	1.14	NM	0.76	NM	NM	NM	0.79	0.25	0.341	NM	dry	NM	NM	NM
Temperature	deg C	11.8	17.6	10.9	21.9	21.3	18.8	16.11	11.79	7.02	6.59	7.17	5.01	12.7	17.63	18.72		6.26	11.32	20.6
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
Specific Conductance	µS/cm	429	530	297	116	308	257	1182.9	420.1	421.4	727.7	677.9	987.4	16.9	114.3	163.5		741.5	304	356
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
Dissolved Oxygen	mg/L	7.85	7.65	8.71	5.99	6.73	5.56	6.81	7.09	6.54	7.21	7.62	9.82	5.58	6.44	7.13	9.76	8.53	6.3	
Lab Analytical Results:																				
Hardness as CaCO3	mg/L	226			67.8			480	267					503	59.1	91.4	329	140	182	
pH (Lab)	SU	8.42			8.13			8.25	8.24					8.15	7.98	7.98	8.17	8.05	8.09	
Total Dissolved Solids (Lab)	mg/L	270			55			630	320					615	65.0	80.0	420	220	260	
Total Suspended Solids	mg/L	27.3			18			4.20	12.4					12.7	3.00	<0.500	49.5	<2	5.67	
Calcium	mg/L	55.5			21.9			94.7	65.5					112	19.0	29.5	75.4	37.5	49.0	
Magnesium	mg/L	21.1			3.15			59.1	25.2					54.6	2.86	4.31	34.2	11.2	14.4	
Sodium	mg/L	8.69			1.57			16.8	10.7					22.5	1.49	2.37	18.1	5.42	6.49	
Potassium	mg/L	1.49			<1			4.48	1.46					2.33	<1.00	<1.00	2.84	1.14	1.58	
Alkalinity, Total	mg/L	220			59			220	225					320	47.0	85.0	265	112	170	
Alkalinity, Bicarbonate	mg/L	220			59			140	155					320	47.0	85.0	259	104	170	
Alkalinity, Carbonate	mg/L	<10			<10			80.0	70					<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	
Chloride	mg/L	9.40			1.26			97.9	12					31.9	<1.00	1.54	23.1	7.54	7.47	
Fluoride	mg/L	0.244			0.195			0.244	0.227					0.224	0.290	0.227	0.308	0.228	0.295	
Sulfate as SO4	mg/L	68.1			13.5			144	89.5					204	11.3	17.9	86.5	40.2	46.8	
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	
Oil & Grease	mg/L	<5			<5			<5	<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	
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	
Aluminum	mg/L	<0.05			<0.05			<0.05	<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	
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	0.0004			0.0016			0.0012	0.0005					0.0004	0.0020	0.0013	0.0005	0.0008	0.0008	
Iron	mg/L	<0.05			<0.05			<0.05	<0.050					<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Lead	mg/L	<0.0005			<0.0005			<0.0005	<0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Manganese	mg/L	0.0039			0.0044			0.0059	0.0063					0.0112	0.0009	0.0010	0.0962	0.0038	0.0445	
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			0.0008			0.0013	0.0007					<0.0005	0.0009	0.0011	0.0010	0.0011	0.0012	
Selenium	mg/L	<0.001			<0.001			0.0026	<0.0010					0.0022	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	
Silica (SiO2)	mg/L	8.96			7.48			11.8	10.9					12.2	6.80	8.53	10.7	8.41	8.77	
Silicon	mg/L	4.19			3.5			5.51	5.11					5.70	3.18	3.99	5.01	3.93	4.10	
Uranium	mg/L	0.0004			0.0001			0.0006	0.0006					0.0009	0.0001	0.0002	0.0012	0.0004	0.0005	
Zinc	mg/L	<0.001			0.0021			0.0013	0.0012					<0.0020	<0.0020	<0.0040	<0.0020	0.0074	0.0048	
Radium 226	pCi/L	<0.4			NA			NA	NA					NA	NA	NA	NA	NA	NA	
Radium 228	pCi/L	<0.8			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 | 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 |
| SU | standard pH units | | |
| µS/cm | microsiemens per centimeter | | |
| mV | millivolts | | |
| mg/L | milligram 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. |
| 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				
Quarter	Q1	Q2			Q3			Q4			Q1		Q2	Q3	Q4	Q1	Q2	Q3		
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	
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	
Lab Analysis (Y/N)	Y	N	N	Y	N	N	Y	N	Y	N	N	N	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	6.83	7.47	9.26	7.52	7.7	7.54	8.16	6.95	7.08	7.46	7.15	7.22	10
Total Purged	gal	306	522	870	297	280	284	288	300	280	295	298	297	291	286	258.83	287.15	267.6	280.02	267
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	4.3	3.8	3.82	4.5	5.51	5.50	5.4	5.77	5.65
Temperature	deg C	8.8	13.1	11.9	14.2	14.1	12.7	12.54	12.58	10.64	11.27	10.9	10.41	11.24	11.85	11.84	11.61	11.52	11.7	11.98
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
Specific Conductance	µS/cm	1224	1199	1284	1246	1226	1143	1175.5	1223.4	1279.6	1304.9	1391.5	1415.3	1351.2	1158.6	1162.3	1241.40	1278.7	1217.5	1288.6
Oxygen Reduction Potential	mV	-123.1	-162.2	-142.5	-185.4	-156.6	-196.8	-140.6	-148.9	-152.9	-141	-143.6	-125.6	-132.2	-201	-176.9	-213.20	-185.3	-219.3	-251.6
Lab Analytical Results:																				
Hardness as CaCO3	mg/L	230			306			216		271				391	277	215	280	274	275	369
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
Total Dissolved Solids (Lab)	mg/L	760			745			735		725				775	725	705	790	745	770	835
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
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
Sodium	mg/L	199			196			210		189				167	189	203	195	183	191	154
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
Alkalinity, Total	mg/L	610			660			620		615				640	585	670	625	620	595	630
Alkalinity, Bicarbonate	mg/L	570			660			620		615				640	585	670	625	620	595	630
Alkalinity, Carbonate	mg/L	40.0			<10			<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	<10.0	<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
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
Sulfate as SO4	mg/L	90.1			108			83.8		117				156	97.4	74.0	101	106	97.2	147
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
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
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
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
Cadmium	mg/L	<0.0001			<0.0001			<0.0001		<0.0001				<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.0035			0.003			0.0021		0.0041				0.0020	0.0020	0.0030	0.0027	0.0035	0.003	0.0022
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
Lead	mg/L	<0.0005			<0.0005			<0.0005		<0.0005				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Manganese	mg/L	0.267			0.344			0.221		0.312				0.491	0.315	0.202	0.311	0.307	0.306	0.498
Mercury	mg/L	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	<0.0005			<0.0005			<0.0005		0.0005				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006
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
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
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
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
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
Radium 226	pCi/L	<0.4			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

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 | 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 |
| SU | standard pH units | | |
| µS/cm | microsiemens per centimeter | 3. | Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table. |
| mV | millivolts | | |
| mg/L | milligram per liter | | |
| pCi/L | picocuries per liter | | |
| NM | not measured (field) | | |
| NA | not analyzed (lab) | | |

GCC Energy Hydrologic Monitoring Data

Well #2 Downgradient																							
Year	2016															2017				2018			
Quarter	Q1	Q2			Q3			Q4			Q1	Q2	Q3	Q4	Q1	Q2	Q3						
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	8			
Sample Date	3/30	4/21	5/25	6/23	7/19	8/24	9/20	10/19	11/30	12/14	1/26	2/27	3/22	6/13	9/21	11/28	2/22	5/7	8/8	8/9			
Lab Analysis (Y/N)	Y	N	N	Y	N	N	Y	N	Y	N	N	N	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	0.1	1	0.1	1			
Total Purged	gal	7	6	7	7	6	6	6	6	6	8	8	6	8	8	6.00	6	11	2	6.5			
Depth to Water	ft bgs	3.69	3.17	4.25	1.42	4.17	4.17	5.5	6.4	4.7	5	3.95	2.74	6.35	0.95	4.85	5.68	6.68	7.4	6.65			
Temperature	deg C	6.3	10.1	13.5	18.4	19.8	14	14.13	13.29	10.36	12.4	6.98	4.44	8.43	17.05	12.13	11.66	9.81	8.92	13.95			
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			
Specific Conductance	µS/cm	899	867	804	600	369	815	876.5	881.1	903.8	871.9	907.5	1193.3	920.5	633.4	851.8	878.60	887	846.6	828.4			
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			
Lab Analytical Results:																							
Hardness as CaCO3	mg/L	444			314			452		432				485	352	378	449	412	415	422			
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			
Total Dissolved Solids (Lab)	mg/L	685			470			525		495				635	415	525	540	515	545	545			
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			
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			
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			
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			
Alkalinity, Total	mg/L	342			280			380		380				375	285	395	375	333	350	380			
Alkalinity, Bicarbonate	mg/L	338			280			380		380				375	285	395	375	333	350	380			
Alkalinity, Carbonate	mg/L	<10			<10			<10		<10.0				<10.0	<10	<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			
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			
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			
Sulfate as SO4	mg/L	129			70			114		117				153	75.2	98.4	94.7	104	102	112			
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			
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			
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			
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			
Cadmium	mg/L	<0.0001			<0.0001			<0.0001		<0.0001				<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Copper	mg/L	0.0004			0.0005			0.0003		0.0051				0.0007	0.0002	0.0004	0.0001	0.0056	0.0002	0.0006			
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			
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			
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			
Mercury	mg/L	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002			
Molybdenum	mg/L	0.0014			0.0022			0.0024		0.0025				0.0021	0.0025	0.0021	0.0020	0.0024	0.0022	0.0024			
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			
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			
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			
Uranium	mg/L	0.0013			0.0007			0.0015		0.0016				0.0014	0.0008	0.0013	0.0013	0.0013	0.0013	0.0015			
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			
Radium 226	pCi/L	<0.4			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			

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 | 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. |
| SU | standard pH units | | |
| µS/cm | microsiemens per centimeter | 3. | Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table. |
| mV | millivolts | | |
| mg/L | milligram per liter | | |
| pCi/L | picocuries per liter | | |
| NM | not measured (field) | | |
| NA | not analyzed (lab) | | |

GCC Energy Hydrologic Monitoring Data

Wiltse Well																				
Year	2016											2017					2018			
Quarter	Q1	Q2			Q3			Q4			Q1			Q2	Q3	Q4	Q1	Q2	Q3	
Month	3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	
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	
Lab Analysis (Y/N)	Y	N	N	Y	N	N	Y	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	
Field Parameters:																				
Purge Flow Rate	gpm	150	38.5	23.4	18.6	19.9	17.3	15.8	16.95	10.64	18.05	39.53	39.59	39.59	NM	18.32	23.48	11.92	12	18.5
Total Purged	gal	5850	4228	4229	3686	2844	2979	2637	2724	2992	2916	3595	3580	3560	2980	2712.36	2422.75	2699.54	2890.48	2783
Depth to Water	ft bgs	0.35	0.00	0.85	2.15	2.99	2.6	3.32	6.85	1.9	1.95	0.3	0	0	2.05	3.4	3.40	3.35	3.93	4.13
Temperature	deg C	6.7	8.8	10.4	10.7	11.5	12.1	11.47	10.95	9.11	8.79	7.56	7.2	7.53	10.34	11.29	9.69	8	10.17	11.74
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
Specific Conductance	µS/cm	2043	1633	1805	1768	1478	1602	1941.1	1937.3	2013.6	2035.6	2261.5	2276.3	2085.2	1869	2074.2	2189.80	2231.6	2143.8	2072.4
Oxygen Reduction Potential	mV	105.6	17.9	20.1	38.5	26.9	20	28.6	21.6	13.7	20.9	3.2	18.3	6	13.3	19.5	19.20	14.3	29.9	-52.7
Lab Analytical Results:																				
Hardness as CaCO3	mg/L	990			1050			1030		963				1040	1060	1140	1150	1090	1160	1130
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
Total Dissolved Solids (Lab)	mg/L	1580			1480			1520		1520				1480	1510	1680	1740	1740	1740	1750
Calcium	mg/L	197			208			206		186				205	211	219	226	211	216	221
Magnesium	mg/L	121			128			126		121				128	129	143	142	136	150	139
Sodium	mg/L	95.9			75.2			80.7		82.4				110	87.5	80.7	83.4	80.4	82.3	79.1
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
Alkalinity, Total	mg/L	460			500			470		450				410	445	510	475	445	435	463
Alkalinity, Bicarbonate	mg/L	440			500			470		450				410	445	510	475	445	435	463
Alkalinity, Carbonate	mg/L	20.0			<10			<10		<10.0				<10.0	<10	<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
Chloride	mg/L	81.0			76.3			62.3		70.1				72.5	72.5	68.7	68.9	66.7	60	57.2
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
Sulfate as SO4	mg/L	671			595			656		676				731	702	779	772	832	714	733
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
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
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
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
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
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
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
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
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
Mercury	mg/L	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	<0.0025			<0.0025			0.0017		0.0016				0.0016	0.0021	0.0021	0.0093	0.0020	0.002	0.002
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
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
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
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
Zinc	mg/L	0.0156			0.0364			0.0301		0.0269				0.0194	0.0026	0.0208	0.0855	0.0216	0.0225	0.0214
Radium 226	pCi/L	0.7 +/- 0.1			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

Notes & Definitions:

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

GCC Energy Hydrologic Monitoring Data

MW-HGA-4																	
Year	2016	2017												2018			
Quarter	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
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
Lab Analysis (Y/N)	Y	N	N	Y	N	N	Y	N	N	Y	N	Y	N	N	Y	Y	Y
Field Parameters:																	
Purge Flow Rate	gpm	0.5	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	9.40	NM	0.1	1.5	2
Total Purged	gal	21	21	21	21	21	19.5	20	20	21	21	21	24	19	21	21	19
Depth to Water	ft bgs	0.73	0.57	0.6	0.83	0.94	2.06	2.53	3.25	2.65	3.31	3.31	1.76	4.31	1.37	0.55	2.6
Temperature	deg C	7.31	4.76	6.44	8.14	7.21	9.86	8.37	8.61	8.81	9	9.16	9.00	9.32	8.8	7.75	8.66
pH	SU	7.29	7.36	7.4	7.41	7.33	7.36	7.4	7.36	7.35	7.33	7.31	7.27	7.27	7.33	7.3	7.18
Specific Conductance	µS/cm	1284.3	1256.5	1201	1155.3	1152.7	1112.6	1055.1	1098.7	1049.7	1124.1	1072.30	1170.50	1159.90	1140.7	1154.1	1097.9
Oxygen Reduction Potential	mV	-72.1	-86.6	-105.1	-104.4	-74.5	-91.3	-134.7	-137.6	-131	-139.5	-77.30	-157.90	-70.10	-96.6	-157.3	-130.9
Lab Analytical Results:																	
Hardness as CaCO3	mg/L	724			611			616			522		595		561	555	524
pH (Lab)	SU	7.30			7.17			7.31			7.25		7.21		7.58	8.15	7.33
Total Dissolved Solids (Lab)	mg/L	855			710			715			750		775		740	730	695
Calcium	mg/L	147			118			121			102		118		110	108	102
Magnesium	mg/L	86.7			76.7			76.6			64.9		72.8		69.3	69	65.4
Sodium	mg/L	19.5			27.4			28.6			24.9		27.2		26.5	30.4	29.9
Potassium	mg/L	2.02			2.13			2.11			1.75		2.21		2.17	2.22	2.33
Alkalinity, Total	mg/L	545			465			415			465		475		460	425	410
Alkalinity, Bicarbonate	mg/L	545			465			415			465		475		460	425	410
Alkalinity, Carbonate	mg/L	ND			<10.0			<10			<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
Chloride	mg/L	10.9			8.75			7.95			8.96		8.74		8.43	7.57	6.47
Fluoride	mg/L	0.577			0.485			0.506			0.517		0.495		0.496	0.459	0.482
Sulfate as SO4	mg/L	240			229			192			205		204		222	190	169
Total Organic Carbon (TOC)	mg/L				4.54			4.35			4.69		4.79		4.56	4.57	4.30
Nitrate/Nitrite as N	mg/L	ND			<0.020			<0.02			<0.020		<0.100		<0.020	<0.020	<0.020
Aluminum	mg/L	0.423			<0.050			<0.05			<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
Cadmium	mg/L	ND			<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
Iron	mg/L	3.71			7.29			7.32			0.378		7.84		7.60	7.92	8.55
Lead	mg/L	ND			<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
Mercury	mg/L	ND			<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
Selenium	mg/L	ND			0.0030			<0.001			<0.0010		<0.0010		<0.0010	0.002	0.0016
Silica (SiO2)	mg/L	22.3			16.8			18			16.5		17.9		15.8	16.4	15.7
Silicon	mg/L	10.4			7.86			8.41			7.72		8.35		7.37	7.67	7.34
Uranium	mg/L	0.0010			0.0004			0.0004			0.0004		0.0004		0.0004	0.0004	0.0003
Zinc	mg/L	0.0039			0.0046			<0.002			<0.0040		<0.0020		<0.002	<0.002	<0.002

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 | picocuries per liter | | |
| NM | not measured (field) | | |
| NA | not analyzed (lab) | | |

GCC Energy Hydrologic Monitoring Data

MW-1-A																
Year	2017								2018							
Quarter	Q2	Q3				Q4				Q1				Q2		
Month	6	7	8	9	9	10	11	12	1	2	3	4	5	6	7	8
Sample Date	6/7	7/18	8/23	9/7	9/26	10/26	11/16	12/5	1/2	2/9	3/22	4/11	5/10	--	7/23	8/7
Lab Analysis (Y/N)	Y	N	N	N	Y	N	Y	N	N	Y	N	N	Y	N	N	Y
Field Parameters:																
Purge Flow Rate	gpm	NM	NM*	NM*	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	***	0.12	0.1
Total Purged	gal	12.75	NM*	NM*	NM	NM	2	2	1	1.5	2	1.5	1.25		1.5	1.5
Depth to Water	ft bgs	215.42	NM*	215.92	215.54	216.33	216.31	216.47	216.58	216.21	216.47	216.47	216.54		216.63	216.63
Temperature	deg C	17.72	NM*	NM*	10.74	9.73	9.14	9.06	8.66	9.46	8.95	8.66	9.58		9.94	9.95
pH	SU	7.78	NM*	NM*	7.35	7.38	7.29	7.28	7.25	7.19	7.37	7.28	6.8		6.99	7.05
Specific Conductance	µS/cm	1362.4	NM*	NM*	1554.6	1563.2	1615.80	1650.40	1692.60	1699.6	1723	1734.7	1646.6		1733.6	1814.7
Oxygen Reduction Potential	mV	-34.6	NM*	NM*	-54.7	-46.5	-50.00	-48.30	-49.60	-44.6	-52.8	-37.5	142.4	0.4	-26.4	-33.2
Lab Analytical Results:																
Hardness as CaCO3	mg/L	124				133		130		159			156			160
pH (Lab)	SU	7.74				7.35		7.33		7.22			7.45			7.17
Total Dissolved Solids (Lab)	mg/L	975				1080		1120		1100			1150			1040
Calcium	mg/L	24.7				25.8		24.9		30.5			29.7			30.9
Magnesium	mg/L	15.1				16.7		16.6		20.1			19.9			20.1
Sodium	mg/L	324				329		325		348			327			333
Potassium	mg/L	1.98				2.02		<5.00		<5.00			2.12			2.23
Alkalinity, Total	mg/L	375				450		380		415			353			385
Alkalinity, Bicarbonate	mg/L	375				450		380		415			353			385
Alkalinity, Carbonate	mg/L	<10.0				<10.0		<10.0		<10.0			<10.0			<10.0
Alkalinity, Hydroxide	mg/L	<10.0				<10.0		<10.0		<10.0			<10.0			<10.0
Chloride	mg/L	2.75				2.16		<5.00		2.19			<5			2.12
Fluoride	mg/L	0.268				0.245		<0.500		0.240			<0.5			0.260
Sulfate as SO4	mg/L	427				432		511		518			522			515
Total Organic Carbon (TOC)	mg/L	5.03				1.36		1.58		1.51			1.54			1.60
Nitrate/Nitrite as N	mg/L	<0.200				<0.400		<0.100		<0.020			<0.02			<0.02
Aluminum	mg/L	<0.050				<0.050		<0.250		<0.250			<0.05			<0.05
Arsenic	mg/L	<0.0005				<0.0005		<0.0025		<0.0025			<0.0005			<0.0005
Cadmium	mg/L	<0.0001				<0.0001		<0.0005		<0.0005			<0.0001			<0.0001
Copper	mg/L	0.0043				0.0057		0.0045		0.0066			0.0041			0.0048
Iron	mg/L	0.128				0.367		<0.250		0.590			0.614			0.644
Lead	mg/L	<0.0005				<0.0005		<0.0025		<0.0025			<0.0005			<0.0005
Manganese	mg/L	0.0260				0.0218		0.0259		0.0279			0.026			0.0242
Mercury	mg/L	<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
Selenium	mg/L	<0.0010				<0.0010		<0.0050		<0.0050			<0.001			<0.001
Silica (SiO2)	mg/L	12.3				11.9		8.27		11.2			11.2			11.4
Silicon	mg/L	5.74				5.56		3.87		5.24			5.25			5.31
Uranium	mg/L	0.0004				0.0002		<0.0005		<0.0005			0.0003			0.0002
Zinc	mg/L	0.0270				0.0088		<0.0100		<0.0100			0.0051			<0.0100

Notes & Definitions:

- *** La Plata County stage 3 fire restrictions prevented sampling activity
- | | |
|---|--|
| <p>Y/N yes or no</p> <p>gpm gallons per minute</p> <p>deg C degrees Celsius</p> <p>SU standard pH units</p> <p>µS/cm microsiemens per centimeter</p> <p>mV millivolts</p> <p>mg/L milligram per liter</p> <p>pCi/L picocuries per liter</p> <p>NM not measured (field)</p> <p>NA not analyzed (lab)</p> | <ol style="list-style-type: none"> "<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table. |
|---|--|

GCC Energy Hydrologic Monitoring Data

MW-1-MI																
Year	2017								2018							
	Q2	Q3			Q4			Q1			Q2		Q3			
Quarter	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	
Month	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	
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	
Lab Analysis (Y/N)	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	
Field Parameters:																
Purge Flow Rate	gpm	NM	NM*	NM	NM											
Total Purged	gal	19.5	NM*	<0.5gal	NM											
Depth to Water	ft bgs	259.99	NM*	258.29	258.34											
Temperature	deg C	15.8	NM*	11.83	21.73											
pH	SU	8	NM*	7.94	7.86	dry	dry	dry	dry	dry	dry	dry	***	dry	dry	
Specific Conductance	µS/cm	2031.5	NM*	2137.1	2119.4											
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

- | | |
|---|--|
| <p>Y/N yes or no</p> <p>gpm gallons per minute</p> <p>deg C degrees Celsius</p> <p>SU standard pH units</p> <p>µS/cm microsiemens per centimeter</p> <p>mV millivolts</p> <p>mg/L milligram per liter</p> <p>pCi/L picocuries per liter</p> <p>NM not measured (field)</p> <p>NA not analyzed (lab)</p> | <ol style="list-style-type: none"> "<" values denote that the quantification of that analyte is below the reporting level for the analytical laboratory, acceptable by environmental water quality laboratory industry standards. Total alkalinity is measured by titration with hydrochloric acid to a set pH point, reporting this value as an equivalent amount of calcium carbonate. This value is then partitioned into bicarbonate, carbonate and hydroxide depending on the initial pH of the sample solution, each components reported as equivalent CaCO3. Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table. |
|---|--|

GCC Energy Hydrologic Monitoring Data

MW-1-C																
Year	2017								2018							
Quarter	Q2	Q3			Q4				Q1			Q2		Q3		
Month	6	7	8	9	9	10	11	12	1	2	3	4	5	6	7	8
Sample Date	6/7	7/18	8/23	9/7	9/26	10/26	11/16	12/5	1/2	2/9	3/22	4/11	5/10	--	7/23	8/7
Lab Analysis (Y/N)	Y	N	N	N	Y	N	Y	N	N	Y	N	N	Y	N	N	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
Total Purged	gal	5	NM*	NM*	NM	NM	1.00	1	1	1	1	1	1.25		1	1
Depth to Water	ft bgs	216.5	NM*	216.91	216.95	216.59	216.52	216.48	216.52	216.38	216.38	216.37	216.35		216.41	216.05
Temperature	deg C	15.96	NM*	NM*	NM	12.86	11.70	10.59	6.98	9.7	9.56	6.68	9.15		19.95	14.09
pH	SU	7.52	NM*	NM*	NM	7.17	7.16	7.15	7.17	7.11	7.19	7.32	7.03		6.91	6.97
Specific Conductance	uS/cm	2446.3	NM*	NM*	NM	2724.9	2737.80	2738.60	2777.60	2778.2	2737.7	2750.9	2699.9		2693.3	2674.5
Oxygen Reduction Potential	mV	74.3	NM*	NM*	NM	77.4	31.70	23.90	13.00	6.2	-4.3	-29.6	-15.3		-41.8	-32.5
Lab Analytical Results:																
Hardness as CaCO3	mg/L	498				1290		1180			1190		1130			1120
pH (Lab)	SU	8.35				7.36		7.34			7.22		7.2			7.20
Total Dissolved Solids (Lab)	mg/L	2020				2440		2360			2360		2340			2170
Calcium	mg/L	96.0				234		216			219		203			203
Magnesium	mg/L	62.8				172		155			156		150			148
Sodium	mg/L	506				242		253			260		239			239
Potassium	mg/L	11.4				3.81		<5.00			<5.00		3.07			3.04
Alkalinity, Total	mg/L	530				700		540			570		580			560
Alkalinity, Bicarbonate	mg/L	530				700		540			570		580			560
Alkalinity, Carbonate	mg/L	<10.0				<10.0		<10.0			<10.0		<10.0			<10.0
Alkalinity, Hydroxide	mg/L	<10.0				<10.0		<10.0			<10.0		<10.0			<10.0
Chloride	mg/L	24.2				6.97		8.03			7.78		7.75			5.97
Fluoride	mg/L	1.59				0.864		0.955			1.03		0.96			0.888
Sulfate as SO4	mg/L	1090				1350		1230			1160		1210			1090
Total Organic Carbon (TOC)	mg/L	4.56				2.84		2.12			2.21		2.2			2.35
Nitrate/Nitrite as N	mg/L	<2.00				<0.400		<0.100			<0.020		<0.02			0.036
Aluminum	mg/L	<0.050				<0.050		<0.250			<0.250		<0.05			<0.05
Arsenic	mg/L	0.0029				0.0016		<0.0025			<0.0025		0.0051			0.0052
Cadmium	mg/L	<0.0001				<0.0001		<0.0005			<0.0005		<0.0001			<0.0001
Copper	mg/L	0.0088				0.0085		0.0036			0.0052		0.003			0.0049
Iron	mg/L	<0.050				<0.050		<0.250			<0.250		0.643			1.01
Lead	mg/L	<0.0005				<0.0005		<0.0025			<0.0025		<0.0005			<0.0005
Manganese	mg/L	0.0744				0.0853		0.0959			0.0989		0.153			0.140
Mercury	mg/L	<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
Selenium	mg/L	0.0136				0.0012		<0.0050			<0.0050		<0.001			<0.0050
Silica (SiO2)	mg/L	10.6				16.6		13.2			14.8		15.2			14.7
Silicon	mg/L	4.94				7.77		6.16			6.94		7.09			6.87
Uranium	mg/L	0.0500				0.0044		0.0028			0.0024		0.0025			0.0022
Zinc	mg/L	0.0293				0.0294		<0.0100			<0.0100		0.0062			<0.0100

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 | 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 | | |
| uS/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					
Quarter	Q1	Q2	Q3		Q4			Q1		Q2		Q3	
Month	3	6	7	8	10	11	12	1	2	3	4	5	8
Sample Date	3/30	6/7	7/18	8/23	10/30	11/16	12/5	1/2	2/9	3/22	4/11	5/10	8/7
Lab Analysis (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:													
Purge Flow Rate	gpm												
Total Purged	gal												
Depth to Water	ft bgs												
Temperature	deg C	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
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:

- | | |
|---|--|
| <p>Y/N yes or no</p> <p>gpm gallons per minute</p> <p>deg C degrees Celsius</p> <p>SU standard pH units</p> <p>µS/cm microsiemens per centimeter</p> <p>mV millivolts</p> <p>mg/L milligram per liter</p> <p>pCi/L picocuries per liter</p> <p>NM not measured (field)</p> <p>NA not analyzed (lab)</p> | <ol style="list-style-type: none"> "<" 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. |
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GCC Energy Hydrologic Monitoring Data

MW-2-MI													
Year	2017							2018					
Quarter	Q1	Q2	Q3		Q4			Q1			Q2		Q3
Month	3	6	7	8	10	11	12	1	2	3	4	5	8
Sample Date	3/30	6/7	7/18	8/23	10/30	11/16	12/5	1/2	2/9	3/22	4/11	5/10	8/7
Lab Analysis (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:													
Purge Flow Rate	gpm												
Total Purged	gal												
Depth to Water	ft bgs												
Temperature	deg C	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
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:

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|---|--|
| <p>Y/N yes or no</p> <p>gpm gallons per minute</p> <p>deg C degrees Celsius</p> <p>SU standard pH units</p> <p>µS/cm microsiemens per centimeter</p> <p>mV millivolts</p> <p>mg/L milligram per liter</p> <p>pCi/L picocuries per liter</p> <p>NM not measured (field)</p> <p>NA not analyzed (lab)</p> | <ol style="list-style-type: none"> "<" 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. |
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GCC Energy Hydrologic Monitoring Data

MW-2-C													
Year	2017							2018					
Quarter	Q1	Q2	Q3		Q4			Q1			Q2		Q3
Month	3	6	7	8	10	11	12	1	2	3	4	5	8
Sample Date	3/30	6/7	7/18	8/23	10/30	11/16	12/5	1/2	2/9	3/22	4/11	5/10	8/7
Lab Analysis (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:													
Purge Flow Rate	gpm												
Total Purged	gal												
Depth to Water	ft bgs												
Temperature	deg C	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
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:

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|---|--|
| <p>Y/N yes or no</p> <p>gpm gallons per minute</p> <p>deg C degrees Celsius</p> <p>SU standard pH units</p> <p>µS/cm microsiemens per centimeter</p> <p>mV millivolts</p> <p>mg/L milligram per liter</p> <p>pCi/L picocuries per liter</p> <p>NM not measured (field)</p> <p>NA not analyzed (lab)</p> | <ol style="list-style-type: none"> "<" 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. |
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GCC Energy Hydrologic Monitoring Data

MW-3-A															
Year	2017								2018						
Quarter	Q1	Q2	Q3			Q4			Q1			Q2		Q3	
Month	3	6	7	8	9	10	11	12	1	2	3	4	5	8	
Sample Date	3/27	6/30	7/18	8/24	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/7	8/8	
Lab Analysis (Y/N)	Y	Y	N	N	Y	N	Y	N	N	Y	N	N	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	
Total Purged	gal	30	2	NM	NM	NM	1	1	1	1.25	1.5	1.5	1	1.25	
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	
Temperature	deg C	11.72	13.17	19.46	12.57	12.32	12.49	11.66	12.03	11.75	11.66	12.16	11.93	13.51	
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	
Specific Conductance	µS/cm	2535	2446	2115.4	2523.8	2469.5	2430.40	2482.70	2493.50	2528.4	2505.8	2458.1	2414.5	2252.5	
Oxygen Reduction Potential	mV	-269	-101.5	-55.3	-87.4	-142.3	-124.50	-125.60	-146.80	-120.3	-125.2	-181.6	-135.8	-138.2	
Lab Analytical Results:															
Hardness as CaCO3	mg/L	7.53	12.6			12.6		10.4			11.5			11.2	
pH (Lab)	SU	8.63	8.69			8.53		8.29			8.45			8.36	
Total Dissolved Solids (Lab)	mg/L	1630	1670			1630		1690			1680			1670	
Calcium	mg/L	2.00	3.67			3.63		3.27			3.33			3.2	
Magnesium	mg/L	0.616	0.823			0.859		0.550			0.776			0.774	
Sodium	mg/L	566	585			589		551			562			542	
Potassium	mg/L	1.72	2.02			2.04		<5.00			<2.00			1.8	
Alkalinity, Total	mg/L	530	470			500		490			430			480	
Alkalinity, Bicarbonate	mg/L	380	470			440		460			360			480	
Alkalinity, Carbonate	mg/L	150	<10.0			60.0		30.0			70.0			<10.0	
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0			<10.0			<10.0	
Chloride	mg/L	16.1	17.4			18.5		16.9			16.4			16.1	
Fluoride	mg/L	0.464	0.488			0.535		<0.500			<0.500			<0.5	
Sulfate as SO4	mg/L	729	802			840		730			812			756	
Total Organic Carbon (TOC)	mg/L	3.52	10.0			7.26		6.07			5.32			4.7	
Nitrate/Nitrite as N	mg/L	<0.100	<0.100			<0.020		<0.020			<0.020			<0.02	
Aluminum	mg/L	<0.050	<0.050			<0.050		<0.250			<0.100			<0.05	
Arsenic	mg/L	0.0025	<0.0025			<0.0025		<0.0025			<0.0025			0.0006	
Cadmium	mg/L	<0.0001	<0.0005			<0.0005		<0.0005			<0.0005			<0.0001	
Copper	mg/L	0.0061	0.0081			0.0080		0.0079			0.0236			0.0063	
Iron	mg/L	<0.050	<0.050			<0.050		<0.250			<0.100			<0.05	
Lead	mg/L	<0.0005	<0.0025			<0.0025		<0.0025			<0.0025			<0.0005	
Manganese	mg/L	0.0042	0.0251			0.0194		0.0269			0.0232			0.018	
Mercury	mg/L	<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	
Selenium	mg/L	0.0577	<0.0050			<0.0050		<0.0050			<0.0050			0.0109	
Silica (SiO2)	mg/L	10.1	10.9			11.6		7.66			11.1			11	
Silicon	mg/L	4.70	5.10			5.41		3.58			5.18			5.17	
Uranium	mg/L	0.0002	0.0040			0.0051		0.0036			0.0030			0.0026	
Zinc	mg/L	0.0031	<0.0100			<0.0100		<0.0100			<0.0100			<0.002	

Notes & Definitions:

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|---|--|
| <p>Y/N yes or no</p> <p>gpm gallons per minute</p> <p>deg C degrees Celsius</p> <p>SU standard pH units</p> <p>µS/cm microsiemens per centimeter</p> <p>mV millivolts</p> <p>mg/L milligram per liter</p> <p>pCi/L picocuries per liter</p> <p>NM not measured (field)</p> <p>NA not analyzed (lab)</p> | <ol style="list-style-type: none"> "<" 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. |
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GCC Energy Hydrologic Monitoring Data

MW-3-MI															
Year	2017								2018						
Quarter	Q1	Q2	Q3			Q4			Q1			Q2		Q3	
Month	3	6	7	8	9	10	11	12	1	2	3	4	5	8	
Sample Date	3/27	6/30	7/18	8/16	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/7	8/8	
Lab Analysis (Y/N)	Y	Y	N	N	Y	N	Y	N	N	Y	N	N	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	
Total Purged	gal	19	2	NM	NM	NM	1	1	1	1.25	1.5	1.5	1	1.25	1
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
Temperature	deg C	10.03	12.55	22.02	12.88	11.04	12.05	11.69	11.67	11.92	11.29	11.85	11.76	12.63	12.95
pH	SU	9.34	8.94	8.46	8.9	8.74	8.90	8.86	8.86	8.84	8.83	8.84	8.51	8.48	8.49
Specific Conductance	µS/cm	1907	1698.6	1402.3	1598	1736.6	1728.60	1745.20	1786.40	1789.7	1810.3	1771.2	1771.8	1727.3	1708.6
Oxygen Reduction Potential	mV	-87	-54.5	-26.4	-108.2	-107.3	-113.80	-124.20	-163.10	-136	-131.4	-160.7	-99.9	-103.9	-127.8
Lab Analytical Results:															
Hardness as CaCO3	mg/L	4.85	8.73			9.02		7.75			9.92			8.65	8.63
pH (Lab)	SU	8.95	8.75			8.72		8.72			8.66			8.56	8.58
Total Dissolved Solids (Lab)	mg/L	1550	1120			1140		1080			1170			1210	1110
Calcium	mg/L	1.32	2.32			2.34		2.06			2.22			1.91	1.95
Magnesium	mg/L	0.374	0.714			0.775		0.632			1.07			0.945	0.911
Sodium	mg/L	420	430			440		411			459			417	446
Potassium	mg/L	2.15	2.21			1.93		<5.00			<2.00			1.63	<2.00
Alkalinity, Total	mg/L	740	675			700		660			700			680	730
Alkalinity, Bicarbonate	mg/L	510	555			600		570			600			500	630
Alkalinity, Carbonate	mg/L	230	120			100		90.0			100			180	100
Alkalinity, Hydroxide	mg/L	<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
Fluoride	mg/L	0.952	1.34			1.26		1.26			1.30			1.2	1.16
Sulfate as SO4	mg/L	165	241			247		254			245			250	226
Total Organic Carbon (TOC)	mg/L	8.34	14.8			10.9		10.3			9.24			8.67	7.83
Nitrate/Nitrite as N	mg/L	<0.020	<0.020			<0.020		<0.020			<0.020			<0.02	<0.02
Aluminum	mg/L	<0.050	0.102			<0.050		<0.250			<0.100			<0.05	<0.05
Arsenic	mg/L	0.0134	0.0167			0.0131		0.0135			0.0160			0.0152	0.0127
Cadmium	mg/L	<0.0001	<0.0005			<0.0005		<0.0005			<0.0001			<0.0001	<0.0001
Copper	mg/L	0.0055	0.0058			0.0065		0.0059			0.0122			0.0048	0.0071
Iron	mg/L	<0.050	<0.100			<0.050		<0.250			<0.100			<0.05	<0.05
Lead	mg/L	0.0024	<0.0025			<0.0025		<0.0025			<0.0005			<0.0005	<0.0005
Manganese	mg/L	0.0022	0.0058			0.0033		0.0045			0.0049			0.006	0.0054
Mercury	mg/L	<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
Selenium	mg/L	0.0013	<0.0050			<0.0050		<0.0050			0.0010			0.0019	<0.0050
Silica (SiO2)	mg/L	7.97	8.18			9.05		5.35			9.33			8.83	9.49
Silicon	mg/L	3.73	3.82			4.23		2.50			4.36			4.13	4.44
Uranium	mg/L	0.0049	0.0084			0.0140		0.0124			0.0125			0.0126	0.0111
Zinc	mg/L	0.0405	<0.0100			<0.0100		<0.0100			<0.0020			0.0023	0.0023

Notes & Definitions:

- | | |
|---|--|
| <p>Y/N yes or no</p> <p>gpm gallons per minute</p> <p>deg C degrees Celsius</p> <p>SU standard pH units</p> <p>µS/cm microsiemens per centimeter</p> <p>mV millivolts</p> <p>mg/L milligram per liter</p> <p>pCi/L picocuries per liter</p> <p>NM not measured (field)</p> <p>NA not analyzed (lab)</p> | <ol style="list-style-type: none"> "<" 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. |
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GCC Energy Hydrologic Monitoring Data

MW-3-C														
Year	2017								2018					
Quarter	Q1	Q2	Q3			Q4			Q1			Q2		Q3
Month	3	6	7	8	9	10	11	12	1	2	3	4	5	8
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
Lab Analysis (Y/N)	Y	Y	N	N	Y	N	Y	N	N	Y	N	N	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
Total Purged	gal	20	2	NM	NM	NM	1	1	1.52	1.5	1.5	1	1.25	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	297.12
Temperature	deg C	10.45	12.85	13.13	12.51	11.8	12.72	11.52	11.72	11.7	11.43	11.61	12.21	12.99
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	8.26
Specific Conductance	µS/cm	3549	3587.5	3814.8	4112.2	4350.8	4411.50	4659.20	4595.60	4923.4	4863.6	5063.4	5018.8	4953.2
Oxygen Reduction Potential	mV	-129	-87.2	-137.5	-128.8	-149.9	-198.30	-200.70	-222.20	-187.9	-183.5	-155.4	-154.7	-180.5
Lab Analytical Results:														
Hardness as CaCO3	mg/L	14.4	11.8			15.1		14.9			16.1		40.3	17.9
pH (Lab)	SU	8.5	8.48			8.35		8.28			8.35		8.34	8.31
Total Dissolved Solids (Lab)	mg/L	2130	2360			3070		3310			3540		3610	3520
Calcium	mg/L	3.60	2.87			3.50		3.58			3.81		7.28	4.01
Magnesium	mg/L	1.31	1.12			1.55		1.44			1.59		5.38	1.92
Sodium	mg/L	796	890			1100		1130			1200		1350	1220
Potassium	mg/L	3.47	3.24			4.01		<5.00			<10.0		<5	<5
Alkalinity, Total	mg/L	1490	1570			1690		1880			1910		1760	1730
Alkalinity, Bicarbonate	mg/L	1360	1480			1650		1830			1810		1600	1670
Alkalinity, Carbonate	mg/L	130	90.0			40.0		50.0			100		160	60.0
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0			<10.0		<10	NA
Chloride	mg/L	182	330			477		506			549		544	524
Fluoride	mg/L	4.89	4.94			4.52		4.34			4.15		3.52	3.84
Sulfate as SO4	mg/L	73.4	73.5			46.4		24.5			<10.0		<5	<5
Total Organic Carbon (TOC)	mg/L	10.6	58.5			219		251			337		343	306
Nitrate/Nitrite as N	mg/L	<0.020	<0.400			<0.400		<0.020			<0.020		<0.02	<0.020
Aluminum	mg/L	<0.050	<0.100			<0.050		<0.250			<0.500		1.47	<0.500
Arsenic	mg/L	0.0115	0.0088			0.0098		0.0091			0.0194		0.0168	0.0148
Cadmium	mg/L	<0.0001	<0.0010			<0.0010		<0.0005			<0.0005		<0.0005	<0.0005
Copper	mg/L	0.0109	0.0147			0.0174		0.0160			0.0409		0.0183	0.0257
Iron	mg/L	<0.050	<0.050			<0.050		<0.250			<0.500		0.252	<0.500
Lead	mg/L	0.0085	<0.0050			<0.0050		<0.0025			<0.0025		<0.0025	<0.0025
Manganese	mg/L	0.0091	0.0188			0.0178		0.0202			0.0307		0.0275	0.0243
Mercury	mg/L	<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
Selenium	mg/L	0.0233	0.0121			0.0149		0.0240			0.0383		0.0268	0.0232
Silica (SiO2)	mg/L	7.82	8.86			9.16		6.01			<10.7		9.69	8.68
Silicon	mg/L	3.66	4.14			4.28		2.81			<5.00		4.53	4.06
Uranium	mg/L	0.0091	0.0102			0.0137		0.0100			0.0091		0.0087	0.0089
Zinc	mg/L	0.375	<0.0200			<0.0200		<0.0100			<0.0100		<0.01	0.0664

Notes & Definitions:

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| <p>Y/N yes or no</p> <p>gpm gallons per minute</p> <p>deg C degrees Celsius</p> <p>SU standard pH units</p> <p>µS/cm microsiemens per centimeter</p> <p>mV millivolts</p> <p>mg/L milligram per liter</p> <p>pCi/L picocuries per liter</p> <p>NM not measured (field)</p> <p>NA not analyzed (lab)</p> | <ol style="list-style-type: none"> "<" 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. |
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GCC Energy Hydrologic Monitoring Data

MW-4-A															
Year	2017								2018						
Quarter	Q1	Q2	Q3			Q4			Q1			Q2		Q3	
Month	3	6	7	8	9	10	11	12	1	2	3	4	5	8	
Sample Date	3/29	6/30	7/19	8/23	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/14	8/8	
Lab Analysis (Y/N)	Y	Y	N	N	Y	N	Y	N	N	Y	N	N	Y	Y	
Field Parameters:															
Purge Flow Rate	gpm	NM	NM	NM	NM	NM	NM	NM	NM	0.089	NM	NM	0.1	0.1	0.1
Total Purged	gal	19	2	1.5	0.5	1	1	1	1	1.25	1.5	1.5	1	1.5	1.5
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
Temperature	deg C	15.61	16.83	25.5	17.63	11.91	11.56	10.82	10.13	10.87	9.82	11.38	10.88	17.77	12.94
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
Specific Conductance	µS/cm	2162.6	2052.9	1876.3	2095.6	2180.1	2164.50	2186.00	2261.40	2259.3	2266.8	2207.3	2214.3	2182.6	2192.3
Oxygen Reduction Potential	mV	28.6	54	60.2	61.7	-8.6	-27.00	-12.30	-51.80	-35.2	-75.9	-117.3	-77.9	-81.8	-137.5
Lab Analytical Results:															
Hardness as CaCO3	mg/L	9.16	9.85			7.77		7.11			7.73			7.84	7.69
pH (Lab)	SU	8.2	8.40			8.36		8.40			8.28			8.31	8.21
Total Dissolved Solids (Lab)	mg/L	1470	1470			1450		1500			1490			1470	1430
Calcium	mg/L	2.23	2.43			1.76		1.87			1.81			1.75	1.71
Magnesium	mg/L	0.871	0.916			0.823		0.591			0.778			0.846	0.832
Sodium	mg/L	515	537			513		511			507			528	531
Potassium	mg/L	1.57	1.75			1.63		<5.00			<2.00			1.5	<2.00
Alkalinity, Total	mg/L	635	560			630		590			530			560	575
Alkalinity, Bicarbonate	mg/L	635	560			590		560			490			560	555
Alkalinity, Carbonate	mg/L	<10.0	<10.0			40.0		30.0			40.0			<10.0	20.0
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0			<10.0			<10.0	<10.0
Chloride	mg/L	9.56	9.66			10.3		10.3			10.0			9.94	9.55
Fluoride	mg/L	<0.400	<0.400			<0.500		<0.500			<0.500			<0.5	<0.5
Sulfate as SO4	mg/L	594	588			783		594			579			561	522
Total Organic Carbon (TOC)	mg/L	6.63	11.7			3.52		3.27			3.46			3.59	3.60
Nitrate/Nitrite as N	mg/L	0.035	<0.020			<0.020		<0.020			<0.020			<0.02	<0.02
Aluminum	mg/L	<0.050	<0.050			<0.050		<0.250			<0.100			<0.05	<0.05
Arsenic	mg/L	0.0016	<0.0025			<0.0025		<0.0025			0.0019			0.0005	<0.0025
Cadmium	mg/L	<0.0001	<0.0005			<0.0005		<0.0005			<0.0001			<0.0001	<0.0001
Copper	mg/L	0.0053	0.0093			0.0076		0.0073			0.0124			0.0077	0.0105
Iron	mg/L	<0.050	<0.050			<0.050		<0.250			<0.100			<0.05	<0.05
Lead	mg/L	0.0014	<0.0025			<0.0025		<0.0025			<0.0005			<0.0005	<0.0005
Manganese	mg/L	0.0044	0.0063			0.0044		0.0040			0.0035			0.0033	<0.0075
Mercury	mg/L	<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
Selenium	mg/L	0.0016	<0.0050			<0.0050		<0.0050			0.0014			0.0025	<0.0050
Silica (SiO2)	mg/L	10.2	10.6			9.99		6.85			9.47			10	10.2
Silicon	mg/L	4.75	4.97			4.67		3.20			4.43			4.7	4.77
Uranium	mg/L	0.0016	<0.0005			<0.0005		0.0005			0.0003			<0.0001	<0.0005
Zinc	mg/L	0.269	0.0319			<0.0100		<0.0100			0.0022			0.0024	<0.0100

Notes & Definitions:

- | | |
|---|--|
| <p>Y/N yes or no</p> <p>gpm gallons per minute</p> <p>deg C degrees Celsius</p> <p>SU standard pH units</p> <p>µS/cm microsiemens per centimeter</p> <p>mV millivolts</p> <p>mg/L milligram per liter</p> <p>pCi/L picocuries per liter</p> <p>NM not measured (field)</p> <p>NA not analyzed (lab)</p> | <ol style="list-style-type: none"> "<" 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-4-MI																
Year	2017								2018							
Quarter	Q1	Q2	Q3			Q4			Q1			Q2		Q3		
Month	3	6	7	8	9	10	11	12	1	2	3	4	5	8		
Sample Date	3/30	6/16	7/27	8/23	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/14	8/8		
Lab Analysis (Y/N)	Y	Y	N	N	Y	N	Y	N	N	Y	N	N	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		
Total Purged	gal	0.5	6.5	NM	NM	1	1	1	1	1.28	1.5	1.5	1	1.25	1.75	
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	
Temperature	deg C	14.97	14.64	12.86	12.5	11.37	10.73	11.31	11.35	11.15	10.96	10.5	10.92	10.08	11.75	
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	
Specific Conductance	µS/cm	1581.2	1667.9	1731.3	1708.4	1784.2	1794.30	1803.90	1832.50	1847.6	1856.4	1840.6	1816.2	1739.4	1756	
Oxygen Reduction Potential	mV	155.2	64.7	9.8	35.2	-29.6	-37.30	-111.50	-89.20	-112.5	-151.3	-145.7	-117.7	-130	-178.2	
Lab Analytical Results:																
Hardness as CaCO3	mg/L	5.43	8.71			7.07		4.20			6.01			5.88	5.68	
pH (Lab)	SU	8.83	8.59			8.63		8.51			8.47			8.48	8.43	
Total Dissolved Solids (Lab)	mg/L	1160	1170			1180		1180			1220			1140	1120	
Calcium	mg/L	1.53	2.32			1.88		1.68			1.64			1.55	1.56	
Magnesium	mg/L	0.392	0.707			0.579		<0.500			0.465			0.49	0.524	
Sodium	mg/L	408	458			449		452			447			471	470	
Potassium	mg/L	1.46	<2.00			1.73		<5.00			<2.00			1.39	<2.00	
Alkalinity, Total	mg/L	965	915			1100		985			965			955	1030	
Alkalinity, Bicarbonate	mg/L	775	825			880		885			875			865	910	
Alkalinity, Carbonate	mg/L	190	90.0			220		100			90.0			90	72.0	
Alkalinity, Hydroxide	mg/L	<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	5.56	
Fluoride	mg/L	4.72	5.02			5.09		5.10			5.02			4.82	4.96	
Sulfate as SO4	mg/L	17.4	64.7			76.6		77.5			68.6			54.4	49.5	
Total Organic Carbon (TOC)	mg/L	2.64	6.49			8.58		9.53			9.54			9.25	8.89	
Nitrate/Nitrite as N	mg/L	<0.020	<0.020			<0.020		<0.020			<0.020			<0.02	<0.02	
Aluminum	mg/L	<0.050	<0.100			<0.050		<0.250			<0.100			<0.05	<0.05	
Arsenic	mg/L	0.0099	0.0220			0.0131		0.0122			0.0139			0.0153	0.0151	
Cadmium	mg/L	<0.0001	<0.0001			<0.0005		<0.0005			<0.0001			<0.0001	<0.0001	
Copper	mg/L	0.0059	0.0058			0.0071		0.0070			0.0079			0.0063	0.0077	
Iron	mg/L	<0.050	<0.100			<0.050		<0.250			<0.100			<0.05	<0.05	
Lead	mg/L	0.0010	<0.0005			<0.0025		<0.0025			<0.0005			<0.0005	<0.0005	
Manganese	mg/L	0.0020	0.0066			0.0081		0.0124			0.0080			0.007	0.0068	
Mercury	mg/L	<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	0.0118	
Selenium	mg/L	<0.0010	0.0012			<0.0050		<0.0050			<0.0010			0.0022	0.0019	
Silica (SiO2)	mg/L	7.27	8.01			8.80		<5.35			8.30			8.9	8.68	
Silicon	mg/L	3.40	3.75			4.11		2.50			3.88			4.16	4.34	
Uranium	mg/L	0.0043	0.0126			0.0184		0.0169			0.0183			0.0173	0.0166	
Zinc	mg/L	0.113	0.0697			<0.0100		<0.0100			<0.0020			<0.002	<0.002	

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 | 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. |
| SU | standard pH units | | |
| µS/cm | microsiemens per centimeter | 3. | Industry standard Quality Assurance/Quality Control (QA/QC) protocol are followed for this hydrologic monitoring program by both GCC Energy and the contracted environmental water quality analytical laboratories. QA/QC results are not shown in this table. |
| mV | millivolts | | |
| mg/L | milligram per liter | | |
| pCi/L | picocuries per liter | | |
| NM | not measured (field) | | |
| NA | not analyzed (lab) | | |

GCC Energy Hydrologic Monitoring Data

MW-4-C															
Year	2017								2018						
Quarter	Q1	Q2	Q3			Q4			Q1			Q2		Q3	
Month	3	6	7	8	9	10	11	12	1	2	3	4	5	8	
Sample Date	3/30	6/16	7/27	8/23	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/14	8/8	
Lab Analysis (Y/N)	Y	Y	N	N	Y	N	Y	N	N	Y	N	N	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	
Total Purged	gal	7	1.5	NM	NM	1	1	1	1.5	1.5	1.5	1	1.5	1	
Depth to Water	ft bgs	328.33	314.05	309.87	306.86	303.96	303.80	302.47	304.80	282.35	281.3	303.3	304.05	NM	302.55
Temperature	deg C	13.31	17.4	12.67	12.03	13.86	11.75	11.24	11.02	11.66	10.76	12.49	11.38	12.4	12.94
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
Specific Conductance	µS/cm	3791.7	5943.5	5996.7	5884.6	5813.3	5721.10	5781.70	5603.80	5834.1	5902.9	5628.3	5791.5	5592.3	5583
Oxygen Reduction Potential	mV	57.3	20.3	-101.5	-111.2	-103.7	-117.40	-109.00	-120.10	-123.8	-154.3	-131.3	-134.9	-129.3	-157.6
Lab Analytical Results:															
Hardness as CaCO3	mg/L	46.3	55.9			38.9		30.0			26.5			26.2	25.9
pH (Lab)	SU	7.61	7.77			7.79		7.98			7.84			7.97	7.96
Total Dissolved Solids (Lab)	mg/L	3230	4050			3750		3780			3730			3660	3650
Calcium	mg/L	13.6	13.7			9.15		7.45			6.32			6.15	5.90
Magnesium	mg/L	2.99	5.26			3.90		2.76			2.61			2.62	2.72
Sodium	mg/L	908	1510			1490		1400			1410			1400	1410
Potassium	mg/L	4.38	5.71			6.07		<10.0			<10.0			<5	<5
Alkalinity, Total	mg/L	1250	2360			2780		2680			2600			2410	2480
Alkalinity, Bicarbonate	mg/L	1250	2360			2780		2640			2600			2330	2480
Alkalinity, Carbonate	mg/L	<10.0	<10.0			<10.0		40.0			<10.0			80	<10.0
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0			<10.0			<10.0	<10.0
Chloride	mg/L	181	550			587		608			592			573	533
Fluoride	mg/L	1.29	2.04			2.17		2.43			2.53			2.52	2.48
Sulfate as SO4	mg/L	534	487			70.2		26.0			34.5			27	18.7
Total Organic Carbon (TOC)	mg/L	30	6.42			5.08		3.64			3.23			3.23	2.80
Nitrate/Nitrite as N	mg/L	<2.00	<0.500			<0.400		<0.100			<0.020			<0.02	<0.02
Aluminum	mg/L	<0.050	<0.050			<0.050		<0.500			<0.500			<0.25	<0.25
Arsenic	mg/L	0.0059	0.0119			0.0128		0.0152			0.0246			0.0195	0.0202
Cadmium	mg/L	<0.0001	<0.0010			<0.0010		<0.0010			<0.0005			<0.0005	<0.0005
Copper	mg/L	0.0125	0.0243			0.0221		0.0208			0.0482			0.0389	0.0280
Iron	mg/L	<0.050	<0.050			<0.050		<0.500			<0.500			0.373	0.397
Lead	mg/L	<0.0005	<0.0050			<0.0050		<0.0050			<0.0025			<0.0025	<0.0025
Manganese	mg/L	0.0269	0.0772			0.0554		0.0571			0.0647			0.0529	0.0381
Mercury	mg/L	<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
Selenium	mg/L	0.0248	0.0231			0.0214		0.0269			0.0378			0.0317	0.0260
Silica (SiO2)	mg/L	9.85	12.6			12.9		<10.7			<10.7			11	11.2
Silicon	mg/L	4.61	5.88			6.02		<5.00			<5.00			5.16	5.24
Uranium	mg/L	0.0297	0.121			0.0984		0.0545			0.0311			0.0311	0.0277
Zinc	mg/L	0.0156	0.0265			<0.0200		<0.0200			<0.0100			<0.01	<0.01

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.



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23 August 2018

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

Enclosed are the results of analyses for samples received by the laboratory on 08/09/18 16:44.
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink that reads 'Jeremy D. Allen'.

Jeremy D Allen For Debbie Zufelt
Reports Manager

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

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

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



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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/23/18 16:40

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
Well #2 Downgradient	1808124-01	Water	08/09/18 10:23	08/09/18 16:44	
Well #1 Upgradient	1808124-02	Water	08/09/18 11:44	08/09/18 16:44	
MW-HGA-4	1808124-03	Water	08/09/18 12:54	08/09/18 16:44	
Hay Gulch Ditch Downgradient	1808124-04	Water	08/09/18 10:50	08/09/18 16:44	
Hay Gulch Ditch Upgradient	1808124-05	Water	08/09/18 12:21	08/09/18 16:44	
Wiltse Well	1808124-06	Water	08/09/18 15:40	08/09/18 16:44	

Green Analytical Laboratories

Jeremy D Allen For Debbie Zufelt, Reports Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. In no event shall Green Analytical Laboratories be liable for incidental or consequential damages. GALs liability, and clients exclusive remedy for any claim arising, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever, shall be deemed waived unless made in writing and received within thirty days after completion of the applicable service.

Page 2 of 17



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www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/23/18 16:40

Well #2 Downgradient

1808124-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
---------	--------	----	-----	-------	----------	----------	--------	-------	---------

General Chemistry

Alkalinity, Bicarbonate as CaCO ₃ *	328	10.0		mg/L	2	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	2	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	2	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	328	10.0		mg/L	2	08/16/18	2320 B		JDU
Chloride*	34.1	1.00	0.193	mg/L	1	08/18/18	EPA300.0		AES
Fluoride*	0.281	0.100	0.0255	mg/L	1	08/18/18	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	7.45			pH Units	1	08/10/18	EPA150.1		JDU
Total Dissolved Solids*	575	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Sulfate*	111	5.00	1.48	mg/L	5	08/18/18	EPA300.0		AES
Total Organic Carbon*	1.93	0.500	0.0670	mg/L	1	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/18	EPA200.7		AES
Calcium*	70.4	0.100	0.013	mg/L	1	08/20/18	EPA200.7		AES
Hardness as CaCO ₃	415	0.662	0.109	mg/L	1	08/20/18	2340 B		AES
Iron*	0.163	0.050	0.028	mg/L	1	08/20/18	EPA200.7		AES
Magnesium*	58.2	0.100	0.019	mg/L	1	08/20/18	EPA200.7		AES
Potassium*	1.82	1.00	0.096	mg/L	1	08/20/18	EPA200.7		AES
Silica (SiO ₂)	11.5	1.07	0.0572	mg/L	1	08/20/18	Calculation		AES
Silicon	5.38	0.500	0.027	mg/L	1	08/20/18	EPA200.7		AES
Sodium*	19.1	1.00	0.367	mg/L	1	08/20/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0012	0.0005	0.00008	mg/L	1	08/21/18	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	08/21/18	EPA200.8		JDA
Copper*	0.0004	0.0001	0.00003	mg/L	1	08/21/18	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	08/21/18	EPA200.8		JDA
Manganese*	0.375	0.0005	0.0003	mg/L	1	08/21/18	EPA200.8		JDA
Molybdenum*	0.0029	0.0005	0.00006	mg/L	1	08/21/18	EPA200.8		JDA
Selenium*	0.0015	0.0010	0.0002	mg/L	1	08/21/18	EPA200.8		JDA
Uranium	0.0015	0.0001	0.00001	mg/L	1	08/21/18	EPA200.8		JDA
Zinc*	<0.0020	0.0020	0.0009	mg/L	1	08/21/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Green Analytical Laboratories

Jeremy D Allen For Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW & SW Baseline
Project Name / Number: GCC SW Baseline
Project Manager: Tom BirdReported:
08/23/18 16:40

Well #1 Upgradient

1808124-02 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	630	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	630	10.0		mg/L	5	08/16/18	2320 B		JDU
Chloride*	4.34	1.00	0.193	mg/L	1	08/18/18	EPA300.0		AES
Fluoride*	0.390	0.100	0.0255	mg/L	1	08/18/18	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	7.48			pH Units	1	08/10/18	EPA150.1		JDU
Total Dissolved Solids*	835	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Sulfate*	147	5.00	1.48	mg/L	5	08/18/18	EPA300.0		AES
Total Organic Carbon*	3.94	0.500	0.0670	mg/L	1	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/18	EPA200.7		AES
Calcium*	71.5	0.100	0.013	mg/L	1	08/20/18	EPA200.7		AES
Hardness as CaCO ₃	369	0.662	0.109	mg/L	1	08/20/18	2340 B		AES
Iron*	1.98	0.050	0.028	mg/L	1	08/20/18	EPA200.7		AES
Magnesium*	46.4	0.100	0.019	mg/L	1	08/20/18	EPA200.7		AES
Potassium*	3.16	1.00	0.096	mg/L	1	08/20/18	EPA200.7		AES
Silica (SiO ₂)	13.8	1.07	0.0572	mg/L	1	08/20/18	Calculation		AES
Silicon	6.45	0.500	0.027	mg/L	1	08/20/18	EPA200.7		AES
Sodium*	154	1.00	0.367	mg/L	1	08/20/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0005	0.0005	0.00008	mg/L	1	08/21/18	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	08/21/18	EPA200.8		JDA
Copper*	0.0022	0.0001	0.00003	mg/L	1	08/21/18	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	08/21/18	EPA200.8		JDA
Manganese*	0.498	0.0005	0.0003	mg/L	1	08/21/18	EPA200.8		JDA
Molybdenum*	0.0006	0.0005	0.00006	mg/L	1	08/21/18	EPA200.8		JDA
Selenium*	0.0120	0.0010	0.0002	mg/L	1	08/21/18	EPA200.8		JDA
Uranium	0.0002	0.0001	0.00001	mg/L	1	08/21/18	EPA200.8		JDA
Zinc*	<0.0020	0.0020	0.0009	mg/L	1	08/21/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Jeremy D Allen For Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW & SW Baseline
Project Name / Number: GCC SW Baseline
Project Manager: Tom BirdReported:
08/23/18 16:40

MW-HGA-4

1808124-03 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	410	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	410	10.0		mg/L	5	08/16/18	2320 B		JDU
Chloride*	6.47	1.00	0.193	mg/L	1	08/18/18	EPA300.0		AES
Fluoride*	0.482	0.100	0.0255	mg/L	1	08/18/18	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	7.33			pH Units	1	08/10/18	EPA150.1		JDU
Total Dissolved Solids*	695	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Sulfate*	169	10.0	2.95	mg/L	10	08/18/18	EPA300.0		AES
Total Organic Carbon*	4.30	0.500	0.0670	mg/L	1	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/18	EPA200.7		AES
Calcium*	102	0.100	0.013	mg/L	1	08/20/18	EPA200.7		AES
Hardness as CaCO ₃	524	0.662	0.109	mg/L	1	08/20/18	2340 B		AES
Iron*	8.55	0.050	0.028	mg/L	1	08/20/18	EPA200.7		AES
Magnesium*	65.4	0.100	0.019	mg/L	1	08/20/18	EPA200.7		AES
Potassium*	2.33	1.00	0.096	mg/L	1	08/20/18	EPA200.7		AES
Silica (SiO ₂)	15.7	1.07	0.0572	mg/L	1	08/20/18	Calculation		AES
Silicon	7.34	0.500	0.027	mg/L	1	08/20/18	EPA200.7		AES
Sodium*	29.9	1.00	0.367	mg/L	1	08/20/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0036	0.0005	0.00008	mg/L	1	08/21/18	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	08/21/18	EPA200.8		JDA
Copper*	0.0004	0.0001	0.00003	mg/L	1	08/21/18	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	08/21/18	EPA200.8		JDA
Manganese*	1.58	0.0005	0.0003	mg/L	1	08/21/18	EPA200.8		JDA
Molybdenum*	0.0038	0.0005	0.00006	mg/L	1	08/21/18	EPA200.8		JDA
Selenium*	0.0016	0.0010	0.0002	mg/L	1	08/21/18	EPA200.8		JDA
Uranium	0.0003	0.0001	0.00001	mg/L	1	08/21/18	EPA200.8		JDA
Zinc*	<0.0020	0.0020	0.0009	mg/L	1	08/21/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Jeremy D Allen For Debbie Zufelt, Reports Manager

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www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/23/18 16:40

Hay Gulch Ditch Downgradient

1808124-04 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	170	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	170	10.0		mg/L	5	08/16/18	2320 B		JDU
Chloride*	7.47	1.00	0.193	mg/L	1	08/18/18	EPA300.0		AES
Fluoride*	0.295	0.100	0.0255	mg/L	1	08/18/18	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
Oil & Grease (HEM)	<5.00	5.00	1.16	mg/L	1	08/21/18	EPA1664 A		JDU
pH*	8.09			pH Units	1	08/10/18	EPA150.1		JDU
SAR	0.20			No Unit	1	08/20/18	Calculation		AES
Total Dissolved Solids*	260	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Total Suspended Solids*	5.67	0.333		mg/L	0.16666 67	08/15/18	EPA160.2		LLG
Sulfate*	46.8	2.00	0.591	mg/L	2	08/18/18	EPA300.0		AES
Total Organic Carbon*	1.33	0.500	0.0670	mg/L	1	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/18	EPA200.7		AES
Calcium*	49.0	0.100	0.013	mg/L	1	08/20/18	EPA200.7		AES
Hardness as CaCO ₃	182	0.662	0.109	mg/L	1	08/20/18	2340 B		AES
Iron*	<0.050	0.050	0.028	mg/L	1	08/20/18	EPA200.7		AES
Magnesium*	14.4	0.100	0.019	mg/L	1	08/20/18	EPA200.7		AES
Potassium*	1.58	1.00	0.096	mg/L	1	08/20/18	EPA200.7		AES
Silica (SiO ₂)	8.77	1.07	0.0572	mg/L	1	08/20/18	Calculation		AES
Silicon	4.10	0.500	0.027	mg/L	1	08/20/18	EPA200.7		AES
Sodium*	6.49	1.00	0.367	mg/L	1	08/20/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0008	0.0005	0.00008	mg/L	1	08/21/18	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	08/21/18	EPA200.8		JDA
Copper*	0.0008	0.0001	0.00003	mg/L	1	08/21/18	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	08/21/18	EPA200.8		JDA
Manganese*	0.0445	0.0005	0.0003	mg/L	1	08/21/18	EPA200.8		JDA
Molybdenum*	0.0012	0.0005	0.00006	mg/L	1	08/21/18	EPA200.8		JDA
Selenium*	<0.0010	0.0010	0.0002	mg/L	1	08/21/18	EPA200.8		JDA
Uranium	0.0005	0.0001	0.00001	mg/L	1	08/21/18	EPA200.8		JDA
Zinc*	0.0048	0.0020	0.0009	mg/L	1	08/21/18	EPA200.8		JDA

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Jeremy D Allen For Debbie Zufelt, Reports Manager

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www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/23/18 16:40

Hay Gulch Ditch Downgradient

1808124-04 (Water)

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

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Jeremy D Allen For Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW & SW Baseline
Project Name / Number: GCC SW Baseline
Project Manager: Tom BirdReported:
08/23/18 16:40

Hay Gulch Ditch Upgradient

1808124-05 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	107	10.0		mg/L	1	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	111	10.0		mg/L	1	08/16/18	2320 B		JDU
Chloride*	6.70	1.00	0.193	mg/L	1	08/18/18	EPA300.0		AES
Fluoride*	0.272	0.100	0.0255	mg/L	1	08/18/18	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
Oil & Grease (HEM)	<5.00	5.00	1.16	mg/L	1	08/21/18	EPA1664 A		JDU
pH*	8.53			pH Units	1	08/10/18	EPA150.1		JDU
SAR	0.18			No Unit	1	08/20/18	Calculation		AES
Total Dissolved Solids*	215	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Total Suspended Solids*	6.25	0.500		mg/L	0.25	08/15/18	EPA160.2		LLG
Sulfate*	49.7	1.00	0.295	mg/L	1	08/18/18	EPA300.0		AES
Total Organic Carbon*	1.61	0.500	0.0670	mg/L	1	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/18	EPA200.7		AES
Calcium*	39.1	0.100	0.013	mg/L	1	08/20/18	EPA200.7		AES
Hardness as CaCO ₃	153	0.662	0.109	mg/L	1	08/20/18	2340 B		AES
Iron*	<0.050	0.050	0.028	mg/L	1	08/20/18	EPA200.7		AES
Magnesium*	13.5	0.100	0.019	mg/L	1	08/20/18	EPA200.7		AES
Potassium*	1.24	1.00	0.096	mg/L	1	08/20/18	EPA200.7		AES
Silica (SiO ₂)	8.64	1.07	0.0572	mg/L	1	08/20/18	Calculation		AES
Silicon	4.04	0.500	0.027	mg/L	1	08/20/18	EPA200.7		AES
Sodium*	5.33	1.00	0.367	mg/L	1	08/20/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0009	0.0005	0.00008	mg/L	1	08/21/18	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	08/21/18	EPA200.8		JDA
Copper*	0.0011	0.0001	0.00003	mg/L	1	08/21/18	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	08/21/18	EPA200.8		JDA
Manganese*	0.0016	0.0005	0.0003	mg/L	1	08/21/18	EPA200.8		JDA
Molybdenum*	0.0012	0.0005	0.00006	mg/L	1	08/21/18	EPA200.8		JDA
Selenium*	<0.0010	0.0010	0.0002	mg/L	1	08/21/18	EPA200.8		JDA
Uranium	0.0002	0.0001	0.00001	mg/L	1	08/21/18	EPA200.8		JDA
Zinc*	0.0033	0.0020	0.0009	mg/L	1	08/21/18	EPA200.8		JDA

Green Analytical Laboratories

Jeremy D Allen For Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/23/18 16:40

Hay Gulch Ditch Upgradient

1808124-05 (Water)

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

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Green Analytical Laboratories

Jeremy D Allen For Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/23/18 16:40

Wiltse Well

1808124-06 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	463	10.0		mg/L	1	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	1	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	1	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	463	10.0		mg/L	1	08/16/18	2320 B		JDU
Chloride*	57.2	5.00	0.964	mg/L	5	08/18/18	EPA300.0		AES
Fluoride*	<0.500	0.500	0.128	mg/L	5	08/18/18	EPA300.0		AES
Nitrate/Nitrite as N*	2.26	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	7.22			pH Units	1	08/10/18	EPA150.1		JDU
Total Dissolved Solids*	1750	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Sulfate*	733	25.0	7.38	mg/L	25	08/18/18	EPA300.0		AES
Total Organic Carbon*	3.51	0.500	0.0670	mg/L	1	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/18	EPA200.7		AES
Calcium*	221	0.100	0.013	mg/L	1	08/20/18	EPA200.7		AES
Hardness as CaCO ₃	1130	1.07	0.187	mg/L	2	08/21/18	2340 B		AES
Iron*	0.125	0.050	0.028	mg/L	1	08/20/18	EPA200.7		AES
Magnesium*	139	0.200	0.038	mg/L	2	08/21/18	EPA200.7		AES
Potassium*	5.01	1.00	0.096	mg/L	1	08/20/18	EPA200.7		AES
Silica (SiO ₂)	16.2	1.07	0.0572	mg/L	1	08/20/18	Calculation		AES
Silicon	7.58	0.500	0.027	mg/L	1	08/20/18	EPA200.7		AES
Sodium*	79.1	1.00	0.367	mg/L	1	08/20/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	<0.0025	0.0025	0.0004	mg/L	5	08/21/18	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	08/21/18	EPA200.8		JDA
Copper*	0.0018	0.0005	0.0002	mg/L	5	08/21/18	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	08/21/18	EPA200.8		JDA
Manganese*	1.37	0.0025	0.0014	mg/L	5	08/21/18	EPA200.8		JDA
Molybdenum*	<0.0025	0.0025	0.0003	mg/L	5	08/21/18	EPA200.8		JDA
Selenium*	<0.0050	0.0050	0.0008	mg/L	5	08/21/18	EPA200.8		JDA
Uranium	0.0024	0.0005	0.00007	mg/L	5	08/21/18	EPA200.8		JDA
Zinc*	0.0214	0.0100	0.0045	mg/L	5	08/21/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Green Analytical Laboratories

Jeremy D Allen For Debbie Zufelt, Reports Manager

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www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/23/18 16:40

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 B808058 - General Prep - Wet Chem

Blank (B808058-BLK1) Prepared: 08/07/18 Analyzed: 08/08/18

Oil & Grease (HEM)	ND	5.00	mg/L
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LCS (B808058-BS1) Prepared: 08/07/18 Analyzed: 08/08/18

Oil & Grease (HEM)	35.1	5.00	mg/L	40.0	87.8	85-115
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LCS Dup (B808058-BSD1) Prepared: 08/07/18 Analyzed: 08/08/18

Oil & Grease (HEM)	35.5	5.00	mg/L	40.0	88.8	85-115	1.13	20
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Batch B808095 - General Prep - Wet Chem

Reference (B808095-SRM1) Prepared & Analyzed: 08/10/18

pH	8.82		pH Units	8.91	99.0	97.8-102.2
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Batch B808101 - General Prep - Wet Chem

Blank (B808101-BLK1) Prepared & Analyzed: 08/16/18

Alkalinity, Total as CaCO ₃	ND	10.0	mg/L
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LCS (B808101-BS1) Prepared & Analyzed: 08/16/18

Alkalinity, Total as CaCO ₃	111	10.0	mg/L	100	111	85-115
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LCS Dup (B808101-BSD1) Prepared & Analyzed: 08/16/18

Alkalinity, Total as CaCO ₃	111	10.0	mg/L	100	111	85-115	0.00	20
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Batch B808125 - General Prep - Wet Chem

Blank (B808125-BLK1) Prepared & Analyzed: 08/15/18

Total Suspended Solids	ND	2.00	mg/L
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Reference (B808125-SRM1) Prepared & Analyzed: 08/15/18

Total Suspended Solids	97.0	2.00	mg/L	100	97.0	85-115
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Batch B808130 - General Prep - Wet Chem

Blank (B808130-BLK1) Prepared & Analyzed: 08/16/18

Total Organic Carbon	ND	0.500	mg/L
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LCS (B808130-BS1) Prepared & Analyzed: 08/16/18

Total Organic Carbon	10.1	0.500	mg/L	10.0	101	85-115
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LCS Dup (B808130-BSD1) Prepared & Analyzed: 08/16/18

Total Organic Carbon	10.1	0.500	mg/L	10.0	101	85-115	0.0991	20
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Batch B808141 - General Prep - Wet Chem

Blank (B808141-BLK1) Prepared & Analyzed: 08/15/18

Total Dissolved Solids	ND	10.0	mg/L
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Jeremy D Allen For Debbie Zufelt, Reports Manager

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Page 11 of 17



GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/23/18 16:40

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch B808141 - General Prep - Wet Chem (Continued)

Reference (B808141-SRM1)

Prepared & Analyzed: 08/15/18

Total Dissolved Solids	350	10.0	mg/L	380	92.1	85-115
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Batch B808155 - General Prep - Wet Chem

Blank (B808155-BLK1)

Prepared & Analyzed: 08/17/18

Nitrate/Nitrite as N	ND	0.020	mg/L
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LCS (B808155-BS1)

Prepared & Analyzed: 08/17/18

Nitrate/Nitrite as N	1.00	0.020	mg/L	1.00	100	90-110
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LCS Dup (B808155-BSD1)

Prepared & Analyzed: 08/17/18

Nitrate/Nitrite as N	0.998	0.020	mg/L	1.00	99.8	90-110	0.520	20
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Batch B808162 - Total Rec. 200.7/200.8/200.2

Blank (B808162-BLK1)

Prepared: 08/17/18 Analyzed: 08/20/18

SAR	0.00	No Unit
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Batch B808166 - General Prep - Wet Chem

Blank (B808166-BLK1)

Prepared & Analyzed: 08/17/18

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

LCS (B808166-BS1)

Prepared & Analyzed: 08/17/18

Chloride	22.7	1.00	mg/L	25.0	90.6	90-110
Fluoride	2.36	0.100	mg/L	2.50	94.4	90-110
Sulfate	23.0	1.00	mg/L	25.0	91.8	90-110

LCS Dup (B808166-BSD1)

Prepared & Analyzed: 08/17/18

Chloride	23.4	1.00	mg/L	25.0	93.6	90-110	3.26	20
Fluoride	2.41	0.100	mg/L	2.50	96.4	90-110	2.14	20
Sulfate	23.5	1.00	mg/L	25.0	93.8	90-110	2.10	20

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Jeremy D Allen For Debbie Zufelt, Reports Manager

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www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/23/18 16:40

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 B808119 - Diss. 200.7/200.8

Blank (B808119-BLK1)

Prepared: 08/14/18 Analyzed: 08/20/18

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 (B808119-BS1)

Prepared: 08/14/18 Analyzed: 08/20/18

Aluminum	4.92	0.050	mg/L	5.00	98.4	85-115
Calcium	4.77	0.100	mg/L	5.00	95.5	85-115
Iron	4.64	0.050	mg/L	5.00	92.7	85-115
Magnesium	23.2	0.100	mg/L	25.0	92.6	85-115
Potassium	9.66	1.00	mg/L	10.0	96.6	85-115
Silicon	5.06	0.500	mg/L	5.00	101	85-115
Sodium	3.79	1.00	mg/L	4.05	93.5	85-115

LCS Dup (B808119-BSD1)

Prepared: 08/14/18 Analyzed: 08/20/18

Aluminum	4.84	0.050	mg/L	5.00	96.8	85-115	1.63	20
Calcium	4.79	0.100	mg/L	5.00	95.9	85-115	0.453	20
Iron	4.56	0.050	mg/L	5.00	91.2	85-115	1.62	20
Magnesium	23.3	0.100	mg/L	25.0	93.0	85-115	0.383	20
Potassium	9.61	1.00	mg/L	10.0	96.1	85-115	0.497	20
Silicon	4.98	0.500	mg/L	5.00	99.5	85-115	1.61	20
Sodium	3.78	1.00	mg/L	4.05	93.4	85-115	0.166	20

Green Analytical Laboratories

Jeremy D Allen For Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/23/18 16:40

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 B808133 - Diss. 200.7/200.8

Blank (B808133-BLK1)

Prepared: 08/15/18 Analyzed: 08/21/18

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 (B808133-BS1)

Prepared: 08/15/18 Analyzed: 08/21/18

Arsenic	0.0546	0.0005	mg/L	0.0500	109	85-115
Cadmium	0.0535	0.0001	mg/L	0.0500	107	85-115
Copper	0.0532	0.0001	mg/L	0.0500	106	85-115
Lead	0.0542	0.0005	mg/L	0.0500	108	85-115
Manganese	0.0556	0.0005	mg/L	0.0500	111	85-115
Molybdenum	0.0543	0.0005	mg/L	0.0500	109	85-115
Selenium	0.273	0.0010	mg/L	0.250	109	85-115
Uranium	0.0548	0.0001	mg/L	0.0500	110	85-115
Zinc	0.0560	0.0020	mg/L	0.0500	112	85-115

LCS Dup (B808133-BSD1)

Prepared: 08/15/18 Analyzed: 08/21/18

Arsenic	0.0511	0.0005	mg/L	0.0500	102	85-115	6.59	20
Cadmium	0.0512	0.0001	mg/L	0.0500	102	85-115	4.35	20
Copper	0.0507	0.0001	mg/L	0.0500	101	85-115	4.93	20
Lead	0.0526	0.0005	mg/L	0.0500	105	85-115	3.10	20
Manganese	0.0531	0.0005	mg/L	0.0500	106	85-115	4.59	20
Molybdenum	0.0513	0.0005	mg/L	0.0500	103	85-115	5.68	20
Selenium	0.253	0.0010	mg/L	0.250	101	85-115	7.73	20
Uranium	0.0526	0.0001	mg/L	0.0500	105	85-115	4.05	20
Zinc	0.0523	0.0020	mg/L	0.0500	105	85-115	6.79	20

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Jeremy D Allen For Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/23/18 16:40

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 B808082 - EPA 245.1/7470

Blank (B808082-BLK1)

Prepared: 08/10/18 Analyzed: 08/13/18

Mercury	ND	0.0002	mg/L
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LCS (B808082-BS1)

Prepared: 08/10/18 Analyzed: 08/13/18

Mercury	0.0048	0.0002	mg/L	0.00500	95.3	85-115
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LCS Dup (B808082-BSD1)

Prepared: 08/10/18 Analyzed: 08/13/18

Mercury	0.0049	0.0002	mg/L	0.00500	97.6	85-115	2.40	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 B808083 - EPA 245.1/7470

Blank (B808083-BLK1)

Prepared: 08/10/18 Analyzed: 08/13/18

Mercury	ND	0.0002	mg/L
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LCS (B808083-BS1)

Prepared: 08/10/18 Analyzed: 08/13/18

Mercury	0.0054	0.0002	mg/L	0.00500	108	85-115
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LCS Dup (B808083-BSD1)

Prepared: 08/10/18 Analyzed: 08/13/18

Mercury	0.0052	0.0002	mg/L	0.00500	104	85-115	3.31	20
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Batch B808091 - EPA 245.1/7470

Blank (B808091-BLK1)

Prepared: 08/10/18 Analyzed: 08/13/18

Mercury	ND	0.0002	mg/L
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LCS (B808091-BS1)

Prepared: 08/10/18 Analyzed: 08/13/18

Mercury	0.0054	0.0002	mg/L	0.00500	109	85-115
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LCS Dup (B808091-BSD1)

Prepared: 08/10/18 Analyzed: 08/13/18

Mercury	0.0053	0.0002	mg/L	0.00500	107	85-115	1.80	20
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Jeremy D Allen For Debbie Zufelt, Reports Manager

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Page 15 of 17



GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/23/18 16:40

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

Jeremy D Allen For Debbie Zufelt, Reports Manager

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75 Suttle St Durango, CO 81303

ANALYSIS REQUEST

Page 17 of 17

Just Click Printing Form #12-2015



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20 August 2018

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

Enclosed are the results of analyses for samples received by the laboratory on 08/07/18 16:30.
If you need any further assistance, please feel free to contact me.

Sincerely,

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

Debbie Zufelt
Reports Manager

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

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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.



GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/20/18 14:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1-A	1808084-01	Water	08/07/18 09:13	08/07/18 16:30
MW-1-C	1808084-02	Water	08/07/18 10:01	08/07/18 16:30

Green Analytical Laboratories

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

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/20/18 14:21

MW-1-A

1808084-01 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	385	10.0		mg/L	5	08/13/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	08/13/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/13/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	385	10.0		mg/L	5	08/13/18	2320 B		JDU
Chloride*	2.12	1.00	0.193	mg/L	1	08/16/18	EPA300.0		AES
Fluoride*	0.260	0.100	0.0255	mg/L	1	08/16/18	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	7.17			pH Units	1	08/09/18	EPA150.1	H2	JDU
Total Dissolved Solids*	1040	10.0		mg/L	1	08/13/18	EPA160.1		JDU
Sulfate*	515	20.0	5.91	mg/L	20	08/16/18	EPA300.0		AES
Total Organic Carbon*	1.60	0.500	0.0670	mg/L	1	08/15/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/15/18	EPA200.7		AES
Calcium*	30.9	0.100	0.013	mg/L	1	08/15/18	EPA200.7		AES
Hardness as CaCO ₃	160	0.662	0.109	mg/L	1	08/15/18	2340 B		AES
Iron*	0.644	0.050	0.028	mg/L	1	08/15/18	EPA200.7		AES
Magnesium*	20.1	0.100	0.019	mg/L	1	08/15/18	EPA200.7		AES
Potassium*	2.23	1.00	0.096	mg/L	1	08/15/18	EPA200.7		AES
Silica (SiO ₂)	11.4	1.07	0.0572	mg/L	1	08/15/18	Calculation		AES
Silicon	5.31	0.500	0.027	mg/L	1	08/15/18	EPA200.7		AES
Sodium*	333	1.00	0.367	mg/L	1	08/15/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	<0.0005	0.0005	0.00008	mg/L	1	08/17/18	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	08/17/18	EPA200.8		JDA
Copper*	0.0048	0.0002	0.00003	mg/L	1	08/17/18	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	08/17/18	EPA200.8		JDA
Manganese*	0.0242	0.0015	0.0003	mg/L	1	08/17/18	EPA200.8		JDA
Molybdenum*	0.0008	0.0005	0.00006	mg/L	1	08/17/18	EPA200.8		JDA
Selenium*	<0.0010	0.0010	0.0002	mg/L	1	08/17/18	EPA200.8		JDA
Uranium	0.0002	0.0001	0.00001	mg/L	1	08/17/18	EPA200.8		JDA
Zinc*	<0.0020	0.0020	0.0009	mg/L	1	08/17/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Debbie Zufelt

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/20/18 14:21

MW-1-C

1808084-02 (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	08/13/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	08/13/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/13/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	560	10.0		mg/L	5	08/13/18	2320 B		JDU
Chloride*	5.97	1.00	0.193	mg/L	1	08/16/18	EPA300.0		AES
Fluoride*	0.888	0.100	0.0255	mg/L	1	08/16/18	EPA300.0		AES
Nitrate/Nitrite as N*	0.036	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	7.20			pH Units	1	08/09/18	EPA150.1	H2	JDU
Total Dissolved Solids*	2170	10.0		mg/L	1	08/13/18	EPA160.1		JDU
Sulfate*	1090	50.0	14.8	mg/L	50	08/16/18	EPA300.0		AES
Total Organic Carbon*	2.35	0.500	0.0670	mg/L	1	08/15/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	08/15/18	EPA200.7		AES
Calcium*	203	0.200	0.026	mg/L	2	08/15/18	EPA200.7		AES
Hardness as CaCO ₃	1120	1.32	0.219	mg/L	2	08/15/18	2340 B		AES
Iron*	1.01	0.100	0.055	mg/L	2	08/15/18	EPA200.7		AES
Magnesium*	148	0.200	0.038	mg/L	2	08/15/18	EPA200.7		AES
Potassium*	3.04	2.00	0.191	mg/L	2	08/15/18	EPA200.7		AES
Silica (SiO ₂)	14.7	2.14	0.114	mg/L	2	08/15/18	Calculation		AES
Silicon	6.87	1.00	0.053	mg/L	2	08/15/18	EPA200.7		AES
Sodium*	239	2.00	0.734	mg/L	2	08/15/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0052	0.0025	0.0004	mg/L	5	08/17/18	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	08/17/18	EPA200.8		JDA
Copper*	0.0049	0.0010	0.0002	mg/L	5	08/17/18	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	08/17/18	EPA200.8		JDA
Manganese*	0.140	0.0075	0.0014	mg/L	5	08/17/18	EPA200.8		JDA
Molybdenum*	<0.0025	0.0025	0.0003	mg/L	5	08/17/18	EPA200.8		JDA
Selenium*	<0.0050	0.0050	0.0008	mg/L	5	08/17/18	EPA200.8		JDA
Uranium	0.0022	0.0005	0.00007	mg/L	5	08/17/18	EPA200.8		JDA
Zinc*	<0.0100	0.0100	0.0045	mg/L	5	08/17/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/20/18 14:21

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 B808080 - General Prep - Wet Chem

Duplicate (B808080-DUP1) Source: 1808085-02 Prepared & Analyzed: 08/09/18

pH	7.66		pH Units	7.64				0.261	20	
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Reference (B808080-SRM1) Prepared & Analyzed: 08/09/18

pH	8.75		pH Units	8.91		98.2	97.8-102.2			
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Batch B808089 - General Prep - Wet Chem

Blank (B808089-BLK1) Prepared: 08/10/18 Analyzed: 08/13/18

Total Dissolved Solids	ND	10.0	mg/L							
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Duplicate (B808089-DUP1) Source: 1808055-01 Prepared: 08/10/18 Analyzed: 08/13/18

Total Dissolved Solids	100	10.0	mg/L	115				13.9	20	
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Reference (B808089-SRM1) Prepared: 08/10/18 Analyzed: 08/13/18

Total Dissolved Solids	370	10.0	mg/L	380		97.4	85-115			
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Batch B808098 - General Prep - Wet Chem

Blank (B808098-BLK1) Prepared & Analyzed: 08/13/18

Alkalinity, Total as CaCO3	ND	10.0	mg/L							
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LCS (B808098-BS1) Prepared & Analyzed: 08/13/18

Alkalinity, Total as CaCO3	100	10.0	mg/L	100		100	85-115			
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LCS Dup (B808098-BSD1) Prepared & Analyzed: 08/13/18

Alkalinity, Total as CaCO3	111	10.0	mg/L	100		111	85-115	10.4	20	
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Batch B808127 - General Prep - Wet Chem

Blank (B808127-BLK1) Prepared & Analyzed: 08/15/18

Total Organic Carbon	ND	0.500	mg/L							
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LCS (B808127-BS1) Prepared & Analyzed: 08/15/18

Total Organic Carbon	10.2	0.500	mg/L	10.0		102	85-115			
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LCS Dup (B808127-BSD1) Prepared & Analyzed: 08/15/18

Total Organic Carbon	10.2	0.500	mg/L	10.0		102	85-115	0.197	20	
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Batch B808143 - General Prep - Wet Chem

Blank (B808143-BLK1) Prepared & Analyzed: 08/15/18

Chloride	ND	1.00	mg/L							
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Fluoride	ND	0.100	mg/L							
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Sulfate	ND	1.00	mg/L							
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Page 5 of 12



GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/20/18 14:21

**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 B808143 - General Prep - Wet Chem (Continued)

LCS (B808143-BS1)

Prepared & Analyzed: 08/15/18

Chloride	22.9	1.00	mg/L	25.0		91.6	90-110			
Fluoride	2.36	0.100	mg/L	2.50		94.2	90-110			
Sulfate	23.2	1.00	mg/L	25.0		92.9	90-110			

LCS Dup (B808143-BSD1)

Prepared: 08/15/18 Analyzed: 08/16/18

Chloride	23.8	1.00	mg/L	25.0		95.1	90-110	3.75	20	
Fluoride	2.44	0.100	mg/L	2.50		97.6	90-110	3.46	20	
Sulfate	24.0	1.00	mg/L	25.0		95.8	90-110	3.16	20	

Batch B808154 - General Prep - Wet Chem

Blank (B808154-BLK1)

Prepared & Analyzed: 08/17/18

Nitrate/Nitrite as N	ND	0.020	mg/L							
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LCS (B808154-BS1)

Prepared & Analyzed: 08/17/18

Nitrate/Nitrite as N	1.05	0.020	mg/L	1.00		105	90-110			
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LCS Dup (B808154-BSD1)

Prepared & Analyzed: 08/17/18

Nitrate/Nitrite as N	1.05	0.020	mg/L	1.00		105	90-110	0.133	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:
08/20/18 14:21

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 B808081 - Diss. 200.7/200.8

Blank (B808081-BLK1)

Prepared: 08/10/18 Analyzed: 08/16/18

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 (B808081-BS1)

Prepared: 08/10/18 Analyzed: 08/15/18

Aluminum	5.04	0.050	mg/L	5.00	101	85-115
Calcium	5.02	0.100	mg/L	5.00	100	85-115
Iron	4.87	0.050	mg/L	5.00	97.4	85-115
Magnesium	24.7	0.100	mg/L	25.0	98.9	85-115
Potassium	10.1	1.00	mg/L	10.0	101	85-115
Silicon	5.16	0.500	mg/L	5.00	103	85-115
Sodium	3.79	1.00	mg/L	4.05	93.7	85-115

LCS Dup (B808081-BSD1)

Prepared: 08/10/18 Analyzed: 08/15/18

Aluminum	5.12	0.050	mg/L	5.00	102	85-115	1.61	20
Calcium	5.06	0.100	mg/L	5.00	101	85-115	0.651	20
Iron	4.93	0.050	mg/L	5.00	98.6	85-115	1.22	20
Magnesium	25.1	0.100	mg/L	25.0	100	85-115	1.31	20
Potassium	10.2	1.00	mg/L	10.0	102	85-115	0.933	20
Silicon	5.20	0.500	mg/L	5.00	104	85-115	0.741	20
Sodium	3.83	1.00	mg/L	4.05	94.4	85-115	0.789	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:
08/20/18 14:21

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 B808132 - Diss. 200.7/200.8

Blank (B808132-BLK1)

Prepared: 08/15/18 Analyzed: 08/17/18

Arsenic	ND	0.0005	mg/L							
Cadmium	ND	0.0001	mg/L							
Copper	0.0001	0.0001	mg/L							B3
Lead	ND	0.0005	mg/L							
Manganese	0.0008	0.0005	mg/L							B3
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 (B808132-BS1)

Prepared: 08/15/18 Analyzed: 08/17/18

Arsenic	0.0535	0.0005	mg/L	0.0500	107	85-115		
Cadmium	0.0506	0.0001	mg/L	0.0500	101	85-115		
Copper	0.0493	0.0001	mg/L	0.0500	98.6	85-115		
Lead	0.0499	0.0005	mg/L	0.0500	99.7	85-115		
Manganese	0.0510	0.0005	mg/L	0.0500	102	85-115		
Molybdenum	0.0512	0.0005	mg/L	0.0500	102	85-115		
Selenium	0.263	0.0010	mg/L	0.250	105	85-115		
Uranium	0.0532	0.0001	mg/L	0.0500	106	85-115		
Zinc	0.0552	0.0020	mg/L	0.0500	110	85-115		

LCS Dup (B808132-BSD1)

Prepared: 08/15/18 Analyzed: 08/17/18

Arsenic	0.0510	0.0005	mg/L	0.0500	102	85-115	4.70	20
Cadmium	0.0506	0.0001	mg/L	0.0500	101	85-115	0.0264	20
Copper	0.0509	0.0001	mg/L	0.0500	102	85-115	3.14	20
Lead	0.0524	0.0005	mg/L	0.0500	105	85-115	4.88	20
Manganese	0.0516	0.0005	mg/L	0.0500	103	85-115	1.16	20
Molybdenum	0.0505	0.0005	mg/L	0.0500	101	85-115	1.21	20
Selenium	0.250	0.0010	mg/L	0.250	99.8	85-115	5.20	20
Uranium	0.0544	0.0001	mg/L	0.0500	109	85-115	2.14	20
Zinc	0.0545	0.0020	mg/L	0.0500	109	85-115	1.23	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:
08/20/18 14:21

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch B808083 - EPA 245.1/7470									
Blank (B808083-BLK1)				Prepared: 08/10/18 Analyzed: 08/13/18					
Mercury	ND	0.0002	mg/L						
LCS (B808083-BS1)				Prepared: 08/10/18 Analyzed: 08/13/18					
Mercury	0.0054	0.0002	mg/L	0.00500	108	85-115			
LCS Dup (B808083-BSD1)				Prepared: 08/10/18 Analyzed: 08/13/18					
Mercury	0.0052	0.0002	mg/L	0.00500	104	85-115	3.31	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:
08/20/18 14:21

Notes and Definitions

H2	Sample analysis performed past hold time specified by the method.
B3	Target analyte detected in method blank or continuing calibration blank. Reporting limit elevated to account for blank result.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis *Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)
RL	Report Limit
MDL	Method Detection Limit

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Debbie Zufelt, Reports Manager

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

Project Information

GCC Energy, LLC

6473 CR 120

Hesperus, CO 81326

Laboratory PM: Debbie Zufelt

Phone:(970) 385-4528

Fax:(970) 385-4638

King Coal

8/8/2018

Project Name:	GCC GW Baseline	Invoice To:	GCC Energy, LLC
Project Number:	GCC GW Baseline	Invoice Bid:	GCC GW Baseline
Client PM:	Tom Bird	Invoice Manager:	Tom Bird
Comments:	All Metals Are Field Filtered. Send Out Unpreserved Metals Bottles Per Request.		

Analysis	Comment
----------	---------

Manganese Dissolved by ICPMS ✓

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 ✓

Alkalinity, Bicarbonate ✓

Zinc Dissolved by ICPMS ✓

Mercury Dissolved by CVAA ✓

Molybdenum Dissolved by ICPM ✓

Nitrate/Nitrite as N

pH

Potassium Dissolved by ICP ✓

Selenium Dissolved by ICPMS ✓

Silica Dissolved by ICP Package ✓

Sodium Dissolved by ICP ✓

Solids, Total Dissolved (TDS) ✓

Subcontract Analysis I TOC ✓

Sulfate by IC ✓

Uranium Dissolved by ICPMS ✓

Lead 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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22 August 2018

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

Enclosed are the results of analyses for samples received by the laboratory on 08/08/18 16:23.
If you need any further assistance, please feel free to contact me.

Sincerely,

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

Debbie Zufelt
Reports Manager

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

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

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



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www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/22/18 11:47

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-4-MI	1808100-01	Water	08/08/18 08:25	08/08/18 16:23
MW-4-A	1808100-02	Water	08/08/18 09:04	08/08/18 16:23
MW-4-C	1808100-03	Water	08/08/18 09:28	08/08/18 16:23
MW-3-MI	1808100-04	Water	08/08/18 10:04	08/08/18 16:23
MW-3-A	1808100-05	Water	08/08/18 10:29	08/08/18 16:23
MW-3-C	1808100-06	Water	08/08/18 10:53	08/08/18 16:23
Well #1 Upgradient	1808100-07	Water	08/08/18 12:44	08/08/18 16:23
MW-99-MI	1808100-08	Water	08/08/18 08:28	08/08/18 16:23

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/22/18 11:47

MW-4-MI

1808100-01 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	896	10.0		mg/L	2	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	72.0	10.0		mg/L	2	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	2	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	968	10.0		mg/L	2	08/16/18	2320 B		JDU
Chloride*	5.68	1.00	0.193	mg/L	1	08/16/18	EPA300.0	M5	AES
Fluoride*	4.84	0.500	0.128	mg/L	5	08/16/18	EPA300.0	M5	AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	8.31			pH Units	1	08/10/18	EPA150.1	H1	JDU
Total Dissolved Solids*	1120	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Sulfate*	48.3	5.00	1.48	mg/L	5	08/16/18	EPA300.0	M5	AES
Total Organic Carbon*	8.94	0.500	0.0670	mg/L	1	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	08/15/18	EPA200.7		AES
Calcium*	1.56	0.200	0.026	mg/L	2	08/15/18	EPA200.7		AES
Hardness as CaCO ₃	6.06	1.32	0.219	mg/L	2	08/15/18	2340 B		AES
Iron*	<0.100	0.100	0.055	mg/L	2	08/15/18	EPA200.7		AES
Magnesium*	0.524	0.200	0.038	mg/L	2	08/15/18	EPA200.7		AES
Potassium*	<2.00	2.00	0.191	mg/L	2	08/15/18	EPA200.7		AES
Silica (SiO ₂)	9.29	2.14	0.114	mg/L	2	08/15/18	Calculation		AES
Silicon	4.34	1.00	0.053	mg/L	2	08/15/18	EPA200.7		AES
Sodium*	470	2.00	0.734	mg/L	2	08/15/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0140	0.0005	0.00008	mg/L	1	08/17/18	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	08/17/18	EPA200.8		JDA
Copper*	0.0071	0.0002	0.00003	mg/L	1	08/17/18	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	08/17/18	EPA200.8		JDA
Manganese*	0.0068	0.0015	0.0003	mg/L	1	08/17/18	EPA200.8		JDA
Molybdenum*	0.0115	0.0005	0.00006	mg/L	1	08/17/18	EPA200.8		JDA
Selenium*	0.0113	0.0010	0.0002	mg/L	1	08/17/18	EPA200.8		JDA
Uranium	0.0151	0.0001	0.00001	mg/L	1	08/17/18	EPA200.8		JDA
Zinc*	<0.0020	0.0020	0.0009	mg/L	1	08/17/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/22/18 11:47

MW-4-A

1808100-02 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	555	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	20.0	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	575	10.0		mg/L	5	08/16/18	2320 B		JDU
Chloride*	9.55	5.00	0.964	mg/L	5	08/16/18	EPA300.0	M5	AES
Fluoride*	<0.500	0.500	0.128	mg/L	5	08/16/18	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	8.21			pH Units	1	08/10/18	EPA150.1	H1	JDU
Total Dissolved Solids*	1430	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Sulfate*	522	25.0	7.38	mg/L	25	08/16/18	EPA300.0		AES
Total Organic Carbon*	3.60	0.500	0.0670	mg/L	1	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	08/15/18	EPA200.7		AES
Calcium*	1.71	0.200	0.026	mg/L	2	08/15/18	EPA200.7		AES
Hardness as CaCO ₃	7.69	1.32	0.219	mg/L	2	08/15/18	2340 B		AES
Iron*	<0.100	0.100	0.055	mg/L	2	08/15/18	EPA200.7		AES
Magnesium*	0.832	0.200	0.038	mg/L	2	08/15/18	EPA200.7		AES
Potassium*	<2.00	2.00	0.191	mg/L	2	08/15/18	EPA200.7		AES
Silica (SiO ₂)	10.2	2.14	0.114	mg/L	2	08/15/18	Calculation		AES
Silicon	4.77	1.00	0.053	mg/L	2	08/15/18	EPA200.7		AES
Sodium*	531	2.00	0.734	mg/L	2	08/15/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	<0.0025	0.0025	0.0004	mg/L	5	08/17/18	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	08/17/18	EPA200.8		JDA
Copper*	0.0105	0.0010	0.0002	mg/L	5	08/17/18	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	08/17/18	EPA200.8		JDA
Manganese*	<0.0075	0.0075	0.0014	mg/L	5	08/17/18	EPA200.8		JDA
Molybdenum*	<0.0025	0.0025	0.0003	mg/L	5	08/17/18	EPA200.8		JDA
Selenium*	<0.0050	0.0050	0.0008	mg/L	5	08/17/18	EPA200.8		JDA
Uranium	<0.0005	0.0005	0.00007	mg/L	5	08/17/18	EPA200.8		JDA
Zinc*	<0.0100	0.0100	0.0045	mg/L	5	08/17/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/22/18 11:47

MW-4-C

1808100-03 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	2480	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	2480	10.0		mg/L	5	08/16/18	2320 B		JDU
Chloride*	533	25.0	4.82	mg/L	25	08/16/18	EPA300.0		AES
Fluoride*	2.48	0.500	0.128	mg/L	5	08/16/18	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	7.96			pH Units	1	08/10/18	EPA150.1	H1	JDU
Total Dissolved Solids*	3650	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Sulfate*	18.7	5.00	1.48	mg/L	5	08/16/18	EPA300.0		AES
Total Organic Carbon*	2.80	0.500	0.0670	mg/L	1	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.250	0.250	0.125	mg/L	5	08/15/18	EPA200.7		AES
Calcium*	5.90	0.500	0.064	mg/L	5	08/15/18	EPA200.7		AES
Hardness as CaCO ₃	25.9	3.31	0.546	mg/L	5	08/15/18	2340 B		AES
Iron*	0.397	0.250	0.138	mg/L	5	08/15/18	EPA200.7		AES
Magnesium*	2.72	0.500	0.094	mg/L	5	08/15/18	EPA200.7		AES
Potassium*	<5.00	5.00	0.478	mg/L	5	08/15/18	EPA200.7		AES
Silica (SiO ₂)	11.2	5.35	0.286	mg/L	5	08/15/18	Calculation		AES
Silicon	5.24	2.50	0.134	mg/L	5	08/15/18	EPA200.7		AES
Sodium*	1410	5.00	1.83	mg/L	5	08/15/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0202	0.0025	0.0004	mg/L	5	08/17/18	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	08/17/18	EPA200.8		JDA
Copper*	0.0280	0.0010	0.0002	mg/L	5	08/17/18	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	08/17/18	EPA200.8		JDA
Manganese*	0.0381	0.0075	0.0014	mg/L	5	08/17/18	EPA200.8		JDA
Molybdenum*	0.0071	0.0025	0.0003	mg/L	5	08/17/18	EPA200.8		JDA
Selenium*	0.0260	0.0050	0.0008	mg/L	5	08/17/18	EPA200.8		JDA
Uranium	0.0277	0.0005	0.00007	mg/L	5	08/17/18	EPA200.8		JDA
Zinc*	<0.0100	0.0100	0.0045	mg/L	5	08/17/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/22/18 11:47

MW-3-MI

1808100-04 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	630	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	100	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	730	10.0		mg/L	5	08/16/18	2320 B		JDU
Chloride*	8.54	1.00	0.193	mg/L	1	08/17/18	EPA300.0		AES
Fluoride*	1.16	0.100	0.0255	mg/L	1	08/17/18	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	8.58			pH Units	1	08/10/18	EPA150.1	H1	JDU
Total Dissolved Solids*	1110	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Sulfate*	226	10.0	2.95	mg/L	10	08/17/18	EPA300.0		AES
Total Organic Carbon*	7.83	0.500	0.0670	mg/L	1	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	08/15/18	EPA200.7		AES
Calcium*	1.95	0.200	0.026	mg/L	2	08/15/18	EPA200.7		AES
Hardness as CaCO ₃	8.63	1.32	0.219	mg/L	2	08/15/18	2340 B		AES
Iron*	<0.100	0.100	0.055	mg/L	2	08/15/18	EPA200.7		AES
Magnesium*	0.911	0.200	0.038	mg/L	2	08/15/18	EPA200.7		AES
Potassium*	<2.00	2.00	0.191	mg/L	2	08/15/18	EPA200.7		AES
Silica (SiO ₂)	9.49	2.14	0.114	mg/L	2	08/15/18	Calculation		AES
Silicon	4.44	1.00	0.053	mg/L	2	08/15/18	EPA200.7		AES
Sodium*	446	2.00	0.734	mg/L	2	08/15/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0127	0.0005	0.00008	mg/L	1	08/17/18	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	08/17/18	EPA200.8		JDA
Copper*	0.0071	0.0002	0.00003	mg/L	1	08/17/18	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	08/17/18	EPA200.8		JDA
Manganese*	0.0054	0.0015	0.0003	mg/L	1	08/17/18	EPA200.8		JDA
Molybdenum*	0.0149	0.0005	0.00006	mg/L	1	08/17/18	EPA200.8		JDA
Selenium*	<0.0010	0.0010	0.0002	mg/L	1	08/17/18	EPA200.8		JDA
Uranium	0.0111	0.0001	0.00001	mg/L	1	08/17/18	EPA200.8		JDA
Zinc*	0.0023	0.0020	0.0009	mg/L	1	08/17/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/22/18 11:47

MW-3-A

1808100-05 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	420	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	60.0	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	5	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	480	10.0		mg/L	5	08/16/18	2320 B		JDU
Chloride*	15.1	5.00	0.964	mg/L	5	08/17/18	EPA300.0		AES
Fluoride*	<0.500	0.500	0.128	mg/L	5	08/17/18	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	8.37			pH Units	1	08/10/18	EPA150.1	H1	JDU
Total Dissolved Solids*	1600	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Sulfate*	706	25.0	7.38	mg/L	25	08/17/18	EPA300.0		AES
Total Organic Carbon*	4.62	0.500	0.0670	mg/L	1	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	08/15/18	EPA200.7		AES
Calcium*	3.71	0.200	0.026	mg/L	2	08/15/18	EPA200.7		AES
Hardness as CaCO ₃	12.6	1.32	0.219	mg/L	2	08/15/18	2340 B		AES
Iron*	<0.100	0.100	0.055	mg/L	2	08/15/18	EPA200.7		AES
Magnesium*	0.811	0.200	0.038	mg/L	2	08/15/18	EPA200.7		AES
Potassium*	<2.00	2.00	0.191	mg/L	2	08/15/18	EPA200.7		AES
Silica (SiO ₂)	12.0	2.14	0.114	mg/L	2	08/15/18	Calculation		AES
Silicon	5.62	1.00	0.053	mg/L	2	08/15/18	EPA200.7		AES
Sodium*	562	2.00	0.734	mg/L	2	08/15/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	<0.0025	0.0025	0.0004	mg/L	5	08/17/18	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	08/17/18	EPA200.8		JDA
Copper*	0.0117	0.0010	0.0002	mg/L	5	08/17/18	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	08/17/18	EPA200.8		JDA
Manganese*	0.0222	0.0075	0.0014	mg/L	5	08/17/18	EPA200.8		JDA
Molybdenum*	0.0043	0.0025	0.0003	mg/L	5	08/17/18	EPA200.8		JDA
Selenium*	<0.0050	0.0050	0.0008	mg/L	5	08/17/18	EPA200.8		JDA
Uranium	0.0026	0.0005	0.00007	mg/L	5	08/17/18	EPA200.8		JDA
Zinc*	<0.0100	0.0100	0.0045	mg/L	5	08/17/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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

www.GreenAnalytical.com

GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/22/18 11:47

MW-3-C

1808100-06 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	1670	10.0		mg/L	10	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	60.0	10.0		mg/L	10	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	10	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	1730	10.0		mg/L	10	08/16/18	2320 B		JDU
Chloride*	524	25.0	4.82	mg/L	25	08/17/18	EPA300.0		AES
Fluoride*	3.84	0.500	0.128	mg/L	5	08/17/18	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	8.31			pH Units	1	08/10/18	EPA150.1		JDU
Total Dissolved Solids*	3520	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Sulfate*	<5.00	5.00	1.48	mg/L	5	08/17/18	EPA300.0		AES
Total Organic Carbon*	306	25.0	3.35	mg/L	50	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.250	0.250	0.125	mg/L	5	08/20/18	EPA200.7		AES
Calcium*	4.01	0.500	0.064	mg/L	5	08/20/18	EPA200.7		AES
Hardness as CaCO ₃	17.9	3.31	0.546	mg/L	5	08/20/18	2340 B		AES
Iron*	<0.250	0.250	0.138	mg/L	5	08/20/18	EPA200.7		AES
Magnesium*	1.92	0.500	0.094	mg/L	5	08/20/18	EPA200.7		AES
Potassium*	<5.00	5.00	0.478	mg/L	5	08/20/18	EPA200.7		AES
Silica (SiO ₂)	8.68	5.35	0.286	mg/L	5	08/20/18	Calculation		AES
Silicon	4.06	2.50	0.134	mg/L	5	08/20/18	EPA200.7		AES
Sodium*	1220	5.00	1.83	mg/L	5	08/20/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0148	0.0025	0.0004	mg/L	5	08/17/18	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	08/17/18	EPA200.8		JDA
Copper*	0.0257	0.0010	0.0002	mg/L	5	08/17/18	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	08/17/18	EPA200.8		JDA
Manganese*	0.0243	0.0075	0.0014	mg/L	5	08/17/18	EPA200.8		JDA
Molybdenum*	0.0155	0.0025	0.0003	mg/L	5	08/17/18	EPA200.8		JDA
Selenium*	0.0232	0.0050	0.0008	mg/L	5	08/17/18	EPA200.8		JDA
Uranium	0.0089	0.0005	0.00007	mg/L	5	08/17/18	EPA200.8		JDA
Zinc*	0.0664	0.0100	0.0045	mg/L	5	08/17/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326Project: GCC GW Baseline
Project Name / Number: GCC GW Baseline
Project Manager: Tom BirdReported:
08/22/18 11:47

Well #1 Upgradient

1808100-07 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	380	10.0		mg/L	10	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	<10.0	10.0		mg/L	10	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	10	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	380	10.0		mg/L	10	08/16/18	2320 B		JDU
Chloride*	34.5	1.00	0.193	mg/L	1	08/17/18	EPA300.0		AES
Fluoride*	0.259	0.100	0.0255	mg/L	1	08/17/18	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	7.61			pH Units	1	08/10/18	EPA150.1		JDU
Total Dissolved Solids*	545	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Sulfate*	112	5.00	1.48	mg/L	5	08/17/18	EPA300.0		AES
Total Organic Carbon*	2.06	0.500	0.0670	mg/L	1	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.050	0.050	0.025	mg/L	1	08/20/18	EPA200.7		AES
Calcium*	72.7	0.100	0.013	mg/L	1	08/20/18	EPA200.7		AES
Hardness as CaCO ₃	422	0.662	0.109	mg/L	1	08/20/18	2340 B		AES
Iron*	0.089	0.050	0.028	mg/L	1	08/20/18	EPA200.7		AES
Magnesium*	58.4	0.100	0.019	mg/L	1	08/20/18	EPA200.7		AES
Potassium*	2.00	1.00	0.096	mg/L	1	08/20/18	EPA200.7		AES
Silica (SiO ₂)	11.4	1.07	0.0572	mg/L	1	08/20/18	Calculation		AES
Silicon	5.34	0.500	0.027	mg/L	1	08/20/18	EPA200.7		AES
Sodium*	19.6	1.00	0.367	mg/L	1	08/20/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0012	0.0005	0.00008	mg/L	1	08/17/18	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	08/17/18	EPA200.8		JDA
Copper*	0.0006	0.0002	0.00003	mg/L	1	08/17/18	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	08/17/18	EPA200.8		JDA
Manganese*	0.349	0.0015	0.0003	mg/L	1	08/17/18	EPA200.8		JDA
Molybdenum*	0.0024	0.0005	0.00006	mg/L	1	08/17/18	EPA200.8		JDA
Selenium*	0.0012	0.0010	0.0002	mg/L	1	08/17/18	EPA200.8		JDA
Uranium	0.0013	0.0001	0.00001	mg/L	1	08/17/18	EPA200.8		JDA
Zinc*	0.0028	0.0020	0.0009	mg/L	1	08/17/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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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:
08/22/18 11:47

MW-99-MI

1808100-08 (Water)

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

Alkalinity, Bicarbonate as CaCO ₃ *	910	10.0		mg/L	10	08/16/18	2320 B		JDU
Alkalinity, Carbonate as CaCO ₃ *	120	10.0		mg/L	10	08/16/18	2320 B		JDU
Alkalinity, Hydroxide as CaCO ₃ *	<10.0	10.0		mg/L	10	08/16/18	2320 B		JDU
Alkalinity, Total as CaCO ₃ *	1030	10.0		mg/L	10	08/16/18	2320 B		JDU
Chloride*	5.56	1.00	0.193	mg/L	1	08/17/18	EPA300.0		AES
Fluoride*	4.96	0.200	0.0510	mg/L	2	08/17/18	EPA300.0		AES
Nitrate/Nitrite as N*	<0.020	0.020	0.006	mg/L	1	08/17/18	EPA353.2		LLG
pH*	8.43			pH Units	1	08/10/18	EPA150.1	H1	JDU
Total Dissolved Solids*	1150	10.0		mg/L	1	08/15/18	EPA160.1		JDU
Sulfate*	49.5	2.00	0.591	mg/L	2	08/17/18	EPA300.0		AES
Total Organic Carbon*	8.89	0.500	0.0670	mg/L	1	08/16/18	5310C		LLG

Dissolved Metals by ICP

Aluminum*	<0.100	0.100	0.050	mg/L	2	08/20/18	EPA200.7		AES
Calcium*	1.46	0.200	0.026	mg/L	2	08/20/18	EPA200.7		AES
Hardness as CaCO ₃	5.68	1.32	0.219	mg/L	2	08/20/18	2340 B		AES
Iron*	<0.100	0.100	0.055	mg/L	2	08/20/18	EPA200.7		AES
Magnesium*	0.491	0.200	0.038	mg/L	2	08/20/18	EPA200.7		AES
Potassium*	<2.00	2.00	0.191	mg/L	2	08/20/18	EPA200.7		AES
Silica (SiO ₂)	8.68	2.14	0.114	mg/L	2	08/20/18	Calculation		AES
Silicon	4.06	1.00	0.053	mg/L	2	08/20/18	EPA200.7		AES
Sodium*	436	2.00	0.734	mg/L	2	08/20/18	EPA200.7		AES

Dissolved Metals by ICPMS

Arsenic*	0.0151	0.0005	0.00008	mg/L	1	08/17/18	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	08/17/18	EPA200.8		JDA
Copper*	0.0077	0.0002	0.00003	mg/L	1	08/17/18	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	08/17/18	EPA200.8		JDA
Manganese*	0.0080	0.0015	0.0003	mg/L	1	08/17/18	EPA200.8		JDA
Molybdenum*	0.0118	0.0005	0.00006	mg/L	1	08/17/18	EPA200.8		JDA
Selenium*	0.0019	0.0010	0.0002	mg/L	1	08/17/18	EPA200.8		JDA
Uranium	0.0166	0.0001	0.00001	mg/L	1	08/17/18	EPA200.8		JDA
Zinc*	<0.0020	0.0020	0.0009	mg/L	1	08/17/18	EPA200.8		JDA

Dissolved Mercury by CVAA

Mercury*	<0.0002	0.0002	0.00003	mg/L	1	08/13/18	EPA245.1		AES
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Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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GCC Energy, LLC
6473 CR 120
Hesperus CO, 81326

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

Reported:
08/22/18 11:47

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B808095 - General Prep - Wet Chem

Duplicate (B808095-DUP2)		Source: 1808117-01		Prepared & Analyzed: 08/10/18						
pH	7.28		pH Units	7.28				0.00	20	
Reference (B808095-SRM1)		Prepared & Analyzed: 08/10/18								
pH	8.82		pH Units	8.91		99.0	97.8-102.2			

Batch B808101 - General Prep - Wet Chem

Blank (B808101-BLK1)		Prepared & Analyzed: 08/16/18								
Alkalinity, Total as CaCO ₃	ND	10.0	mg/L							
LCS (B808101-BS1)		Prepared & Analyzed: 08/16/18								
Alkalinity, Total as CaCO ₃	111	10.0	mg/L	100		111	85-115			
LCS Dup (B808101-BSD1)		Prepared & Analyzed: 08/16/18								
Alkalinity, Total as CaCO ₃	111	10.0	mg/L	100		111	85-115	0.00	20	

Batch B808127 - General Prep - Wet Chem

Blank (B808127-BLK1)		Prepared & Analyzed: 08/15/18								
Total Organic Carbon	ND	0.500	mg/L							
LCS (B808127-BS1)		Prepared & Analyzed: 08/15/18								
Total Organic Carbon	10.2	0.500	mg/L	10.0		102	85-115			
LCS Dup (B808127-BSD1)		Prepared & Analyzed: 08/15/18								
Total Organic Carbon	10.2	0.500	mg/L	10.0		102	85-115	0.197	20	

Batch B808141 - General Prep - Wet Chem

Blank (B808141-BLK1)		Prepared & Analyzed: 08/15/18								
Total Dissolved Solids	ND	10.0	mg/L							
Duplicate (B808141-DUP1)		Source: 1808100-08		Prepared & Analyzed: 08/15/18						
Total Dissolved Solids	1130	10.0	mg/L	1150				1.75	20	
Reference (B808141-SRM1)		Prepared & Analyzed: 08/15/18								
Total Dissolved Solids	350	10.0	mg/L	380		92.1	85-115			

Batch B808151 - General Prep - Wet Chem

Blank (B808151-BLK1)		Prepared & Analyzed: 08/16/18								
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	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:
08/22/18 11:47

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch B808151 - General Prep - Wet Chem (Continued)

LCS (B808151-BS1)

Prepared & Analyzed: 08/16/18

Chloride	22.6	1.00	mg/L	25.0	90.3	90-110
Fluoride	2.35	0.100	mg/L	2.50	94.1	90-110
Sulfate	22.7	1.00	mg/L	25.0	90.9	90-110

LCS Dup (B808151-BSD1)

Prepared & Analyzed: 08/16/18

Chloride	23.3	1.00	mg/L	25.0	93.1	90-110	3.04	20
Fluoride	2.40	0.100	mg/L	2.50	96.1	90-110	2.10	20
Sulfate	23.6	1.00	mg/L	25.0	94.4	90-110	3.74	20

Batch B808154 - General Prep - Wet Chem

Blank (B808154-BLK1)

Prepared & Analyzed: 08/17/18

Nitrate/Nitrite as N	ND	0.020	mg/L
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LCS (B808154-BS1)

Prepared & Analyzed: 08/17/18

Nitrate/Nitrite as N	1.05	0.020	mg/L	1.00	105	90-110
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LCS Dup (B808154-BSD1)

Prepared & Analyzed: 08/17/18

Nitrate/Nitrite as N	1.05	0.020	mg/L	1.00	105	90-110	0.133	20
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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:
08/22/18 11:47

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B808081 - Diss. 200.7/200.8

Blank (B808081-BLK1)

Prepared: 08/10/18 Analyzed: 08/16/18

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 (B808081-BS1)

Prepared: 08/10/18 Analyzed: 08/15/18

Aluminum	5.04	0.050	mg/L	5.00	101	85-115
Calcium	5.02	0.100	mg/L	5.00	100	85-115
Iron	4.87	0.050	mg/L	5.00	97.4	85-115
Magnesium	24.7	0.100	mg/L	25.0	98.9	85-115
Potassium	10.1	1.00	mg/L	10.0	101	85-115
Silicon	5.16	0.500	mg/L	5.00	103	85-115
Sodium	3.79	1.00	mg/L	4.05	93.7	85-115

LCS Dup (B808081-BSD1)

Prepared: 08/10/18 Analyzed: 08/15/18

Aluminum	5.12	0.050	mg/L	5.00	102	85-115	1.61	20
Calcium	5.06	0.100	mg/L	5.00	101	85-115	0.651	20
Iron	4.93	0.050	mg/L	5.00	98.6	85-115	1.22	20
Magnesium	25.1	0.100	mg/L	25.0	100	85-115	1.31	20
Potassium	10.2	1.00	mg/L	10.0	102	85-115	0.933	20
Silicon	5.20	0.500	mg/L	5.00	104	85-115	0.741	20
Sodium	3.83	1.00	mg/L	4.05	94.4	85-115	0.789	20

Batch B808119 - Diss. 200.7/200.8

Blank (B808119-BLK1)

Prepared: 08/14/18 Analyzed: 08/20/18

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:
08/22/18 11:47

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch B808119 - Diss. 200.7/200.8 (Continued)

LCS (B808119-BS1)

Prepared: 08/14/18 Analyzed: 08/20/18

Aluminum	4.92	0.050	mg/L	5.00		98.4	85-115		
Calcium	4.77	0.100	mg/L	5.00		95.5	85-115		
Iron	4.64	0.050	mg/L	5.00		92.7	85-115		
Magnesium	23.2	0.100	mg/L	25.0		92.6	85-115		
Potassium	9.66	1.00	mg/L	10.0		96.6	85-115		
Silicon	5.06	0.500	mg/L	5.00		101	85-115		
Sodium	3.79	1.00	mg/L	4.05		93.5	85-115		

LCS Dup (B808119-BSD1)

Prepared: 08/14/18 Analyzed: 08/20/18

Aluminum	4.84	0.050	mg/L	5.00		96.8	85-115	1.63	20
Calcium	4.79	0.100	mg/L	5.00		95.9	85-115	0.453	20
Iron	4.56	0.050	mg/L	5.00		91.2	85-115	1.62	20
Magnesium	23.3	0.100	mg/L	25.0		93.0	85-115	0.383	20
Potassium	9.61	1.00	mg/L	10.0		96.1	85-115	0.497	20
Silicon	4.98	0.500	mg/L	5.00		99.5	85-115	1.61	20
Sodium	3.78	1.00	mg/L	4.05		93.4	85-115	0.166	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:
08/22/18 11:47

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B808132 - Diss. 200.7/200.8

Blank (B808132-BLK1)

Prepared: 08/15/18 Analyzed: 08/17/18

Arsenic	ND	0.0005	mg/L							
Cadmium	ND	0.0001	mg/L							
Copper	0.0001	0.0001	mg/L							B3
Lead	ND	0.0005	mg/L							
Manganese	0.0008	0.0005	mg/L							B3
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 (B808132-BS1)

Prepared: 08/15/18 Analyzed: 08/17/18

Arsenic	0.0535	0.0005	mg/L	0.0500		107	85-115			
Cadmium	0.0506	0.0001	mg/L	0.0500		101	85-115			
Copper	0.0493	0.0001	mg/L	0.0500		98.6	85-115			
Lead	0.0499	0.0005	mg/L	0.0500		99.7	85-115			
Manganese	0.0510	0.0005	mg/L	0.0500		102	85-115			
Molybdenum	0.0512	0.0005	mg/L	0.0500		102	85-115			
Selenium	0.263	0.0010	mg/L	0.250		105	85-115			
Uranium	0.0532	0.0001	mg/L	0.0500		106	85-115			
Zinc	0.0552	0.0020	mg/L	0.0500		110	85-115			

LCS Dup (B808132-BSD1)

Prepared: 08/15/18 Analyzed: 08/17/18

Arsenic	0.0510	0.0005	mg/L	0.0500		102	85-115	4.70	20	
Cadmium	0.0506	0.0001	mg/L	0.0500		101	85-115	0.0264	20	
Copper	0.0509	0.0001	mg/L	0.0500		102	85-115	3.14	20	
Lead	0.0524	0.0005	mg/L	0.0500		105	85-115	4.88	20	
Manganese	0.0516	0.0005	mg/L	0.0500		103	85-115	1.16	20	
Molybdenum	0.0505	0.0005	mg/L	0.0500		101	85-115	1.21	20	
Selenium	0.250	0.0010	mg/L	0.250		99.8	85-115	5.20	20	
Uranium	0.0544	0.0001	mg/L	0.0500		109	85-115	2.14	20	
Zinc	0.0545	0.0020	mg/L	0.0500		109	85-115	1.23	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:
08/22/18 11:47

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch B808083 - EPA 245.1/7470									
Blank (B808083-BLK1)				Prepared: 08/10/18 Analyzed: 08/13/18					
Mercury	ND	0.0002	mg/L						
LCS (B808083-BS1)				Prepared: 08/10/18 Analyzed: 08/13/18					
Mercury	0.0054	0.0002	mg/L	0.00500	108	85-115			
LCS Dup (B808083-BSD1)				Prepared: 08/10/18 Analyzed: 08/13/18					
Mercury	0.0052	0.0002	mg/L	0.00500	104	85-115	3.31	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:
08/22/18 11:47

Notes and Definitions

M5	Sample was chosen for matrix spike. Spike recovery did not meet laboratory acceptance criteria, possible matrix interference in sample.
H1	Sample was received several days after collected and subsequently analyzed past hold time.
B3	Target analyte detected in method blank or continuing calibration blank. Reporting limit elevated to account for blank result.
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

ANALYSIS REQUEST

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Just Click Printing Form #12-2015

Project Information

GCC Energy, LLC

6473 CR 120

Hesperus, CO 81326

Laboratory PM: Debbie Zufelt

Phone:(970) 385-4528

Fax:(970) 385-4638

King Coal

8/9/2018

Project Name:	GCC GW Baseline	Invoice To:	GCC Energy, LLC
Project Number:	GCC GW Baseline	Invoice Bid:	GCC GW Baseline
Client PM:	Tom Bird	Invoice Manager:	Tom Bird
Comments:	All Metals Are Field Filtered. Send Out Unpreserved Metals Bottles Per Request.		

~~Unpreserved~~
HNO3

Analysis	Comment
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Manganese Dissolved by ICPMS

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

Alkalinity, Bicarbonate

Zinc Dissolved by ICPMS

Mercury Dissolved by CVAA

Molybdenum Dissolved by ICPM

Nitrate/Nitrite as N

pH

Potassium Dissolved by ICP

Selenium Dissolved by ICPMS

Silica Dissolved by ICP Package

Sodium Dissolved by ICP

Solids, Total Dissolved (TDS)

Subcontract Analysis I TOC

Sulfate by IC

Uranium Dissolved by ICPMS

Lead Dissolved by ICPMS

Hardness, diss subanalyses:

Calcium Dissolved by ICP

Magnesium Dissolved by ICP

Silica Dissolved by ICP Package subanalyses:

Silicon Dissolved by ICP
