GCC Energy Hydrologic Monitoring Data

Hay Gulch Ditch Upgradient

		2016										2017						2018				2019				2020			
Year																													
Quarter		Q1	Q2			Q3			Q4			Q1			Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	11	2	5	8	11	2	5	8	12
Sample Date		3/31	4/22	5/26	6/23	7/20	8/25	9/21	10/19	11/29	12/13	1/26	2/27	3/22	6/28	9/21	11/28	2/22	5/14	8/9	11/8	2/28	5/23	8/16	11/13	2/13	5/13	8/13	12/3
Lab Analysis (Y/N)		Y	N	N	Y	N	N	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																													
Flow Rate	***cfs***	0.7	1.0	1.2	1.6	1.0	1.0	1.1	1.0	NM	1.0	NM	0.8	0.3	2.7	NM	NM	NM	0.6	0.7	0.7	0.3	3.6	1.2	NM	NM	0.9	0.1	1.0
Temperature	***deg C***	9.8	20.9	11.3	21.1	20.8	16.8	14.9	16.4	5.9	7.0	1.5	4.7	10.7	20.2	19.7	8.8	4.7	11.3	22.1	1.1	5.9	5.9	16.9	5.7	1.5	16.5	18.1	2.0
pH	***SU***	7.75	8.27	7.95	8.15	8.24	8.26	8.47	8.19	8.79	8.58	8.2	8.69	8.77	8.88	8.39	7.60	7.9	7.58	9.07	7.16	6.4	7.53	8.03	7.33	7.75	8.39	8.65	8.08
Specific Conductance	***µS/cm***	247	323	197	141	189	207	233	210	258	234	687	455	454	106	549	868	1041	304	307	307	752	306	275	682	902	314	528	434
Oxygen Reduction Potential	***mV***	76.4	114.7	97.2	51.6	53.6	82.8	72.5	105.9	92.4	116.3	66.3	-12	-10.6	23.8	86.1	95.10	-164.1	111.4	-181.3	13.9	103.7	-24.0	24.4	-22.4	-4.5	81.7	118.9	120.3
Dissolved Oxygen	***mg/L***	8.1	6.4	8.0	6.0	6.5	6.9	7.2	4.7	6.7	6.1	10.6	9.0	6.9	4.8	6.7	9.3	9.4	8.5	6.4	10.2	8.0	8.9	7.8	7.9	7.0	7.5	8.4	10.4
Lab Analytical Results:																													
Hardness as CaCO3	***mg/L***	128			80.9			119		152				257	69.2	316	456	489	101	153	149	393	136	125	372	405	150	287	213
pH (Lab)	***SU***	8.17			8.04			8.16		8.19				8.06	8.06	8.22	8.31	8.39	7.99	9.07	7.86	7.45	7.69	7.83	7.40	7.22	7.60	8.01	7.92
Total Dissolved Solids (Lab)	***mg/L***	170			75			165		180				285	65.0	390	650	700	140	215	175	535	205	225	635	587	255	340	160
Total Suspended Solids	***mg/L***	30.0			117			17.0		4.8				2.50	63.5	2.00	5.75	6.01	106	6.25	14.8	22.0	113	20.0	5.38	<4.0	140	19.5	13.2
Calcium	***mg/L***	33.5			24			33.0		38.4				53.6	20.8	64.9	86.6	87.3	26.3	39.1	40.3	79.8	34.6	32.4	79.3	81.5	36.1	63.2	49.9
Magnesium	***mg/L***	10.9			5.08			9.01		13.7				29.8	4.21	37.5	58.3	65.9	8.61	13.5	11.9	47.0	12.1	10.8	42.2	49	14.5	31.3	21.5
Sodium	***mg/L***	4.46			2.19			3.90		6				10.9	1.97	13.8	27.1	34.6	3.31	5.33	5.00	19.1	7.24	5.81	25.4	30.9	7.67	10.9	8.39
Potassium	***mg/L***	<1			<1			1.35		<1.00				<1.00	1.75	2.15	3.05	3.52	1.18	1.24	<1.00	3.89	1.57	1.07	3.25	3.65	1.86	1.85	1.53
Alkalinity, Total	***mg/L***	160			65			98.0		118				185	55.0	177	305	244	67	111	120	260	390	103	233	315	102	220	137
Alkalinity, Bicarbonate	***mg/L***	160			65			94.0		118				185	55.0	161	285	244	67	107	120	260	390	103	233	295	102	220	131
Alkalinity, Carbonate	***mg/L***	<10.0			<10.0			<10.0		<10.0				<10.0	<10.0	16.0	20.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Alkalinity, Hydroxide	***mg/L***	<10.0			<10.0			<10.0		<10.0				<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	***mg/L***	5.77			2.07			4.32		7.92				22.7	1.76	30.8	48.2	46.7	3.12	6.70	5.58	48.1	7.75	6.04	22.8	31.6	9.64	24.5	14.8
Fluoride	***mg/L***	0.213			0.208			0.223		0.208				0.215	0.195	0.265	0.283	0.285	0.224	0.272	0.224	0.252	0.208	0.214	<0.500	0.239	<0.500	0.226	0.226
Sulfate as SO4	***mg/L***	42.1			17.7			29.0		45.3				87.7	15.0	99.0	179	229	34	49.7	45.0	128	47.2	35.6	107	151	44.0	86.3	64.4
Total Organic Carbon (TOC)	***mg/L***	1.41			1.6			2.21		1.14				2.49	1.15	1.90	1.99	1.81	2.31	1.61	1.09	4.94	3.08	1.84	4.54	5.45	2.93	1.65	1.22
Oil & Grease	***mg/L***	<5			<5			<5		<5.00				<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Nitrate/Nitrite as N	***mg/L***	<0.02			0.028			<0.020		<0.020				0.053	<0.020	0.045	0.088	0.105	0.026	<0.020	<0.020	0.263	0.050	0.072	0.104	0.044	0.302	0.042	0.026
Sodium Adsorption Ratio (SAR)	***no unit***	0.17			0.1			0.16		0.21				0.30	0.10	0.34	0.55	0.68	0.14	0.18	0.16	0.42	0.26	0.22	0.55	0.65	0.26	0.29	0.25
Ammonia as N ^	***mg/L***	NA			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	NA	NA	NA
Ortho-Phosphate as P ^	***mg/L***	NA			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA
Aluminum	***mg/L***	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.05
Arsenic	***mg/L***	<0.0005			<0.0005			<0.0005		<0.0005				0.0005	<0.0005	0.0009	0.0007	<0.0025	<0.0005	0.0009	<0.0005	0.0007	0.0006	0.0007	0.0005	0.0006	<0.0005	0.0007	<0.0005
Cadmium	***mg/L***	<0.0001			<0.0001			<0.0001		<0.0001				<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	***mg/L***	0.0006			0.0011			0.0011		0.0005				0.0008	0.0013	0.0006	0.0005	0.0007	0.0011	0.0011	0.0013	0.0026	0.0013	0.0012	0.0005	0.0005	0.0010	0.0006	0.0005
Iron	***mg/L***	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050	<0.050	<0.050	<0.05	<0.05	<0.05	0.255	0.055	<0.050	0.316	0.551	<0.050	<0.050	<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	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Manganese	***mg/L***	0.0059			0.0035			0.0043		0.0047				0.0070	0.0024	0.0098	0.0049	0.0049	0.0093	0.0016	0.0043	0.127	0.0349	0.0096	0.113	0.368	0.0297	0.0087	0.0047
Mercury	***mg/L***	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	***mg/L***	<0.0005			0.0009			0.0007		0.0008				0.0006	0.0009	0.0012	0.0008	<0.0025	0.001	0.0012	0.0009	0.0011	0.0009	0.0011	0.0007	0.0005	0.0009	0.0009	0.0009
Selenium	***mg/L***	<0.001			<0.001			<0.001		<0.0010				0.0023	<0.0010	<0.0010	0.0010	<0.0050	<0.001	<0.001	<0.001	0.0017	<0.0010	<0.0010	<0.0010	<0.001	<0.0010	<0.0010	<0.001
Silica (Si02)	***mg/L***	7.78			8.23			10.5		9.71				9.04	7.71	9.45	10.1	11.0	8.4	8.64	8.31	11.3	8.55	9.17	13.4	13	7.57	7.36	9.86
Silicon	***mg/L***	3.64			3.85			4.89		4.54				4.23	3.60	4.42	4.71	5.14	3.93	4.04	3.88	5.29	3.99	4.29	6.25	6.06	3.54	3.44	4.61
Uranium	***mg/L***	0.0002			0.0001			0.0002		0.0003				0.0003	0.0001	0.0006	0.0009	0.0013	0.0001	0.0002	0.0003	0.0009	0.0003	0.0004	0.0007	<0.0005	<0.0005	0.0006	<0.0005
Zinc	***mg/L***	<0.001			<0.001			<0.001		<0.0010				0.0022	<0.0020	<0.0040	<0.0020	<0.0100	<0.002	0.0033	<0.002	0.0044	<0.0020	<0.0020	0.0033	0.0087	<0.0020	<0.0020	<0.002
Radium 226 ^	***pCi/L***	<0.4			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Radium 228 ^	***pCi/L***	<0.8			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

Hay Gulch Ditch Downgradient

		2016										2017						2018				2019				2020			
Year																													
Quarter		Q1	Q2			Q3			Q4			Q1			Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	11	2	5	8	11	2	6	8	12
Sample Date		3/31	4/22	5/26	6/23	7/20	8/25	9/21	10/19	11/29	12/13	1/26	2/27	3/22	6/28	9/21	11/28	2/22	5/7	8/9	11/7	2/28	5/23	8/16	11/13	2/6	6/1	8/13	12/3
Lab Analysis (Y/N)		Y	N	N	Y	N	N	Y	N	Y	N	N	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																													
Flow Rate	***cfs***	1.1	1.2	1.1	NM	1.1	1.1	NM	0.8	NM	NM	NM	0.8	0.3	0.3	NM	dry	NM	NM	NM	0.5	0.25	0.3	1.05	NM	NM	1.5	0.125	NM
Temperature	***deg C***	11.8	17.6	10.9	21.9	21.3	18.8	16.1	11.8	7.0	6.6	7.2	5.0	12.7	17.6	18.7		6.3	11.3	20.6	4.7	6.88	8.23	15.15	3.51	3.73	14.21	20.4	6.83
pH	***SU***	8.57	8.55	8.14	8.14	8.55	8.37	8.3	8.36	8.64	8.06	7.28	8.06	9.00	8.53	8.66		8.33	7.58	7.43	7.48	6.42	7.77	7.61	8.38	7.94	8.24	8	7.7
Specific Conductance	***µS/cm***	429	530	297	116	308	257	1183	420	421	728	678	987	17	114	164		742	304	356	309	577	202	295	554	882	137	237	478
Oxygen Reduction Potential	***mV***	57.5	105.9	33.2	32.5	68.6	38.4	18.7	88.6	117.5	155.2	147.6	-15.5	137.8	185.3	48		51.6	111.4	-10	-88.9	125.6	50.6	111.6	-108.1	124.2	104.8	103.0	127.8
Dissolved Oxygen	***mg/L***	7.9	7.7	8.7	6.0	6.7	5.6	6.8	7.1	6.5	7.2	7.6	9.8	5.6	6.4	7.1		9.8	8.5	6.3	9.1	7.6	8.8	7.2	9.6	9.5	8.0	6.4	9.6
Lab Analytical Results:																													
Hardness as CaCO3	***mg/L***	226			67.8			480		267				503	59.1	91.4		329	140	182	167	281	91.9	137	295	416	63.6	120	232
pH (Lab)	***SU***	8.42			8.13			8.25		8.24				8.15	7.98	7.98		8.17	8.05	8.09	7.95	7.84	7.68	7.73	7.73	7.80	7.49	7.59	7.85
Total Dissolved Solids (Lab)	***mg/L***	270			55			630		320				615	65.0	80.0		420	220	260	185	390	185	195	355	573	120	135	370
Total Suspended Solids	***mg/L***	27.3			18			4.20		12.4				12.7	3.00	<0.500		49.5	<2	5.67	4.40	18.4	153	22.5	<4.00	4.20	17.5	28.6	10.5
Calcium	***mg/L***	55.5			21.9			94.7		65.5				112	19.0	29.5		75.4	37.5	49.0	44.7	61.6	26.0	34.5	67.2	85.6	20.3	34.2	55.6
Magnesium	***mg/L***	21.1			3.15			59.1		25.2				54.6	2.86	4.31		34.2	11.2	14.4	13.4	31	6.54	12.3	30.8	49.0	3.15	8.38	22.7
Sodium	***mg/L***	8.69			1.57			16.8		10.7				22.5	1.49	2.37		18.1	5.42	6.49	5.15	16.5	5.03	6.62	17.0	28.5	1.90	3.68	9.03
Potassium	***mg/L***	1.49			<1			4.48		1.46				2.33	<1.00	<1.00		2.84	1.14	1.58	1.34	3.13	1.31	1.27	2.60	3.81	<1.00	1.36	1.89
Alkalinity, Total	***mg/L***	220			59			220		225				320	47.0	85.0		265	112	170	140	150	340	140	194	297	48	110	158
Alkalinity, Bicarbonate	***mg/L***	220			59			140		155				320	47.0	85.0		259	104	170	140	150	340	140	188	283	48	110	154
Alkalinity, Carbonate	***mg/L***	<10			<10			80.0		70				<10.0	<10.0	<10.0		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	14.0	<10.0	<10.0	<10.0
Alkalinity, Hydroxide	***mg/L***	<10			<10			<10		<10.0				<10.0	<10.0	<10.0		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	***mg/L***	9.40			1.26			97.9		12				31.9	<1.00	1.54		23.1	7.54	7.47	5.69	40.2	16.9	7.65	14.8	30.7	1.87	4.42	17.1
Fluoride	***mg/L***	0.244			0.195			0.244		0.227				0.224	0.290	0.227		0.308	0.228	0.295	0.228	0.232	0.205	0.218	0.252	0.272	0.185	0.224	0.244
Sulfate as SO4	***mg/L***	68.1			13.5			144		89.5				204	11.3	17.9		86.5	40.2	46.8	45.0	91.4	18.5	42.7	83.3	143	14.2	32.4	70.2
Total Organic Carbon (TOC)	***mg/L***	1.53			1.4			3.48		1.65				2.31	2.16	0.932		1.56	1.28	1.33	1.76	2.90	2.37	2.10	3.26	4.53	1.39	1.47	1.55
Oil & Grease	***mg/L***	<5			<5			<5		<5.00				<5.00	<5.00	<5.00		<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Nitrate/Nitrite as N	***mg/L***	<0.02			0.026			0.027		<0.020				<0.020	<0.020	<0.020		<0.020	<0.020	<0.020	<0.020	0.17	0.146	0.090	<0.020	0.056	0.031	0.053	<0.02
Sodium Adsorption Ratio (SAR)	***no unit***	0.25			0.03			0.33		0.28				0.44	0.08	0.11		0.43	0.2	0.20	0.17	0.43	0.22	0.24	0.41	0.61	0.10	0.14	0.26
Ammonia as N ^	***mg/L***	NA			NA			NA		NA				NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	<0.100	NA	NA	NA	NA
Ortho-Phosphate as P ^	***mg/L***	NA			NA			NA		NA				NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA
Aluminum	***mg/L***	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.05
Arsenic	***mg/L***	0.0005			<0.0005			0.0015		0.0006				0.0006	0.0005	0.0006		0.0005	0.0005	0.0008	<0.0005	0.0006	0.0006	0.0006	0.0005	0.0006	<0.0005	0.0007	<0.0005
Cadmium	***mg/L***	<0.0001			<0.0001			<0.0001		<0.0001				<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	***mg/L***	0.0004			0.0016			0.0012		0.0005				0.0004	0.0020	0.0013		0.0005	0.0008	0.0008	0.0008	<0.0010	0.0021	0.0009	0.0007	0.0006	0.0014	0.0009	0.0005
Iron	***mg/L***	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050		<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.05
Lead	***mg/L***	<0.0005			<0.0005			<0.0005		<0.0005				<0.0005	<0.0005	<0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Manganese	***mg/L***	0.0039			0.0044			0.0059		0.0063				0.0112	0.0009	0.0010		0.0962	0.0038	0.0445	0.0102	0.048	0.0125	0.0033	0.0102	0.0286	0.0012	0.0046	0.0116
Mercury	***mg/L***	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	***mg/L***	<0.0005			0.0008			0.0013		0.0007				<0.0005	0.0009	0.0011		0.0010	0.0011	0.0012	0.0010	0.001	0.0011	0.0012	0.0007	0.0006	0.0008	0.0012	0.0009
Selenium	***mg/L***	<0.001			<0.001			0.0026		<0.0010				0.0022	<0.0010	<0.0010		0.0011	<0.0010	<0.0010	<0.001	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.001
Silica (Si02)	***mg/L***	8.96			7.48			11.8		10.9				12.2	6.80	8.53		10.7	8.41	8.77	8.66	8.46	5.70	8.86	11.8	12.3	6.38	7.14	10.6
Silicon	***mg/L***	4.19			3.5			5.51		5.11				5.70	3.18	3.99		5.01	3.93	4.10	4.05	3.95	2.67	4.14	5.50	5.75	2.98	3.34	4.94
Uranium	***mg/L***	0.0004			0.0001			0.0006		0.0006				0.0009	0.0001	0.0002		0.0012	0.0004	0.0005	0.0003	0.0009	0.0002	0.0004	0.0007	0.0006	<0.0005	<0.0005	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	0.0035	0.0022	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.002
Radium 226 ^	***pCi/L***	<0.4			NA			NA		NA				NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Radium 228 ^	***pCi/L***	<0.8			NA			NA		NA				NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

Well #1 Upgradient

Year		2016										2017						2018				2019				2020			
Quarter		Q1	Q2			Q3			Q4			Q1			Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	11	2	5	8	11	2	6	8	12
Sample Date		3/30	4/27	5/26	6/23	7/19	8/24	9/21	10/24	11/30	12/14	1/18	2/27	3/22	6/28	9/28	11/29	2/22	5/14	8/9	11/7	2/25	5/23	8/16	11/14	2/13	6/1	8/31	12/14
Lab Analysis (Y/N)		Y	N	N	Y	N	N	Y	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																													
Purge Flow Rate	*gpm*	1.5	7.9	7.1	5.8	7.1	7.4	6.8	7.5	9.3	7.5	7.7	7.5	8.2	7.0	7.1	7.5	7.2	7.2	10	7.2	10.0	8.3	11.0	6.5	8.0	10.0	8.0	8.0
Total Purged	*gal*	306	522	870	297	280	284	288	300	280	295	298	297	291	286	259	287	268	280	267	305	300	321	327	293	314	300	291	280
Depth to Water	*ft bgs*	4.40	5.07	4.60	4.95	5.55	6.30	6.03	5.73	5.69	5.08	4.30	3.80	3.82	4.50	5.51	5.50	5.40	5.77	5.65	6.50	5.98	4.50	5.68	6.08	5.55	4.17	6.25	3.72
Temperature	*deg C*	8.8	13.1	11.9	14.2	14.1	12.7	12.5	12.6	10.6	11.3	10.9	10.4	11.2	11.9	11.8	11.6	11.5	11.7	12.0	12.5	11.7	11.5	11.8	12.9	11.6	12.1	12.3	11.5
pH	*SU*	7.77	7.57	7.46	7.6	7.69	7.59	7.67	7.77	7.72	7.68	7.6	7.67	7.67	7.59	7.6	7.58	7.56	7.49	7.35	7.34	7.44	7.39	7.37	7.32	7.37	7.38	7.57	7.6
Specific Conductance	*µS/cm*	1224	1199	1284	1246	1226	1143	1176	1223	1280	1305	1392	1415	1351	1159	1162	1241	1278	1218	1289	1204	1235	1308	1253	1232	1277	1268	1067	1190
Oxygen Reduction Potential	*mV*	-123.1	-162.2	-142.5	-185.4	-156.6	-196.8	-140.6	-148.9	-152.9	-141.0	-143.6	-125.6	-132.2	-201	-176.9	-213.20	-185.3	-219.3	-251.6	-273.0	-232.0	-194.0	-192.0	-159.9	-193.0	-221.7	-187.2	-138.1
Lab Analytical Results:																													
Hardness as CaCO3	*mg/L*	230			306			216		271				391	277	215	280	274	275	369	287	252	350	303	263	290	319	255	247
pH (Lab)	*SU*	7.73			7.57			7.58		7.59				7.46	7.74	7.66	7.56	7.75	7.95	7.48	7.50	7.77	7.56	7.23	7.35	7.12	7.26	7.53	7.72
Total Dissolved Solids (Lab)	*mg/L*	760			745			735		725				775	725	705	790	745	770	835	730	735	860	780	705	700	775	710	690
Calcium	*mg/L*	44.0			59.7			42.4		51.7				75.7	54.0	41.6	55.6	53.4	53.8	71.5	56.7	49.1	67.8	58.2	51.5	56.5	61.6	49.6	47.4
Magnesium	*mg/L*	29.1			38.2			26.7		34.5				49.1	34.6	27.1	34.4	34.2	34.1	46.4	35.4	31.4	43.8	38.3	32.7	36.1	40.0	31.7	31.1
Sodium	*mg/L*	199			196			210		189				167	189	203	195	183	191	154	212	196	172	167	198	183	178	193	196
Potassium	*mg/L*	3.00			3.15			3.01		3.01				3.30	3.00	3.09	2.99	3.09	3.03	3.16	3.15	3.01	3.32	3.01	3.01	<5	3.05	3.05	3.02
Alkalinity, Total	*mg/L*	610			660			620		615				640	585	670	625	620	595	630	640	610	615	615	590	600	576	520	605
Alkalinity, Bicarbonate	*mg/L*	570			660			620		615				640	585	670	625	620	595	630	640	610	615	615	590	600	576	520	587
Alkalinity, Carbonate	*mg/L*	40.0			<10			<10		<10.0				<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10.0	<10.0	18
Alkalinity, Hydroxide	*mg/L*	<10			<10			<10		<10.0				<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10	<10.0	<10.0	<10
Chloride	*mg/L*	4.33			6.12			4.30		4.44				4.53	4.32	6.21	4.39	4.30	4.35	4.34	4.23	4.35	4.59	4.36	6.19	4.76	4.76	4.62	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	0.359	0.355	0.349	0.335	<0.500	0.348	0.366	0.356	0.342
Sulfate as SO4	*mg/L*	90.1			108			83.8		117				156	97.4	74.0	101	106	97.2	147	89.9	91.4	131	112	92.1	104	110	79.6	87.9
Total Organic Carbon (TOC)	*mg/L*	2.54			3.3			2.80		3.18				3.84	5.82	2.84	3.33	3.37	3.5	3.94	3.35	3.31	3.70	3.53	3.14	3.29	3.37	3.32	3.17
Nitrate/Nitrite as N	*mg/L*	<0.020			<0.020			<0.020		<0.200				<0.020	<0.400	<0.400	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ammonia as N ^	*mg/L*	NA			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.931	NA	NA	NA	NA
Ortho-Phosphate as P ^	*mg/L*	NA			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0590	NA	NA	NA	NA
Aluminum	*mg/L*	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.100	<0.25	<0.050	<0.150	<0.05
Arsenic	*mg/L*	<0.0005			<0.0005			<0.0005		<0.0005				0.0009	<0.0005	<0.0005	<0.0005	0.0005	0.0005	0.0005	<0.0005	0.0005	0.0005	<0.0005	<0.0010	<0.0005	<0.0005	<0.0010	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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0002	<0.0001
Copper	*mg/L*	0.0035			0.003			0.0021		0.0041				0.0020	0.0020	0.0030	0.0027	0.0035	0.003	0.0022	0.0025	0.0042	0.0015	0.0019	0.0012	0.0017	0.0017	0.0021	0.0007
Iron	*mg/L*	1.20			1.51			0.946		1.64				2.01	1.34	0.101	1.44	1.44	1.39	1.98	1.52	1.26	1.74	1.58	1.41	1.49	1.53	1.24	1.7
Lead	*mg/L*	<0.0005			<0.0005			<0.0005		<0.0005				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010	<0.0005	<0.0005	<0.0010	<0.0005
Manganese	*mg/L*	0.267			0.344			0.221		0.312				0.491	0.315	0.202	0.311	0.307	0.306	0.498	0.286	0.355	0.439	0.428	0.354	0.366	0.369	0.297	0.297
Mercury	*mg/L*	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	*mg/L*	<0.0005			<0.0005			<0.0005		0.0005				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	0.0005	<0.0005	<0.0005	<0.0010	<0.0005	<0.0005	<0.0010	0.0005
Selenium	*mg/L*	<0.001			<0.001			<0.001		<0.0010				0.0245	<0.0010	<0.0010	<0.0010	<0.0010	0.0171	0.0120	0.0022	0.0032	0.0024	<0.0010	<0.0020	<0.001	<0.0010	0.0095	0.0171
Silica (Si02)	*mg/L*	13.8			15.2			14.8		12.9				14.2	14.9	14.3	14.7	13.4	14.6	13.8	13.7	13.5	13.1	13.1	14.3	13.1	13.1	13.6	14.3
Silicon	*mg/L*	6.45			7.12			6.94		6.05				6.64	6.94	6.68	6.86	6.27	6.81	6.45	6.41	6.3	6.13	6.11	6.68	6.13	6.14	6.37	6.67
Uranium	*mg/L*	<0.0001			0.0021			<0.0001		0.0002				0.0002	0.0001	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	<0.0002	<0.0005	<0.0005	<0.0010	<0.0005
Zinc	*mg/L*	<0.001			<0.001			0.0023		0.0301				<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.002	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0040	<0.002	<0.0020	<0.0040	<0.002
Radium 226 ^	*pCi/L*	<0.4			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Radium 228 ^	*pCi/L*	<0.8			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Definitions:

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

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

GCC Energy Hydrologic Monitoring Data

Well #2 Downgradient

Year		2016										2017						2018					2019				2020			
Quarter		Q1	Q2			Q3			Q4			Q1		Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	8	11	2	5	8	11	2	6	8	12
Sample Date		3/30	4/21	5/25	6/23	7/19	8/24	9/20	10/19	11/30	12/14	1/26	2/27	3/22	6/13	9/21	11/28	2/22	5/7	8/8	8/9	11/7	2/27	5/22	8/16	11/13	2/6	6/1	8/26	12/14
Lab Analysis (Y/N)		Y	N	N	Y	N	N	Y	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																														
Purge Flow Rate	gpm	0.5	0.5	0.5	0.5	0.5	0.5	0.5	NM	7.2	2	NM	NM	NM	NM	NM	NM	0.1	1	0.1	1	0.5	0.3	0.5	0.3	0.5	0.3	0.3	0.3	0.1
Total Purged	gal	7	6	7	7	6	6	6	6	6	6	8	8	6	8	8	6	6	11	2	6.5	7.5	13	10	9	8	12	8	7	7
Depth to Water	ft bgs	3.69	3.17	4.25	1.42	4.17	4.17	5.50	6.4	4.7	5	3.95	2.74	6.35	0.95	4.85	5.68	6.68	7.4	6.65	6.59	5.17	5.85	0.92	3.60	5.20	5.60	4.00	6.29	7.48
Temperature	deg C	6.3	10.1	13.5	18.4	19.8	14.0	14.1	13.3	10.4	12.4	7.0	4.4	8.4	17.1	12.1	11.7	9.8	8.9	14.0	11.1	11.9	9.1	8.1	10.5	11.5	10.4	9.1	11.5	11.0
pH	SU	7.58	7.6	7.6	7.64	7.68	7.73	7.53	7.66	7.66	7.71	7.57	7.68	7.78	7.56	7.66	7.52	7.59	7.48	7.84	7.20	7.15	7.41	7.34	7.23	7.19	7.32	7.41	7.44	7.56
Specific Conductance	µS/cm	899	867	804	600	369	815	877	881	904	872	908	1193	921	633	852	879	887	847	828	895	955	960	1091	1051	1083	1083	1134	1017	1099
Oxygen Reduction Potential	mV	-9.4	-13.7	-35.7	-66.9	-112.1	-76.3	-88.3	-82	-72.7	-81.1	-66.8	-55.7	-67	-54.3	-53.7	-63.70	-44.9	-34	-75.6	-127	-91.9	48.4	-57.8	-30.1	-5.5	25.3	-51.3	19.9	3.2
Lab Analytical Results:																														
Hardness as CaCO3	mg/L	444			314			452		432				485	352	378	449	412	415	422	415	465	488	537	513	603	540	575	560	569
pH (Lab)	SU	7.63			7.66			7.48		7.55				7.72	7.6	7.51	7.51	7.62	7.6	7.61	7.45	7.50	7.5	7.4	7.04	7.12	7.20	7.09	7.3	7.2
Total Dissolved Solids (Lab)	mg/L	685			470			525		495				635	415	525	540	515	545	545	575	550	575	695	655	690	695	730	665	685
Calcium	mg/L	72.2			54.9			75.9		72.7				81.0	60.9	64.8	78.0	70.1	70.2	72.7	70.4	78.7	81.3	87.1	83.3	99.4	87.2	92.2	90.1	90
Magnesium	mg/L	63.9			43.1			63.8		60.8				68.7	48.5	52.6	61.8	57.4	58.2	58.4	58.2	65.2	69.2	77.6	74.0	86.3	78.2	83.7	81.3	83.7
Sodium	mg/L	22.2			16.5			19.8		20.7				21.8	16.1	17.0	20.1	19.4	19.2	19.6	19.1	21.3	22.1	23.4	21.4	25.5	23.3	24.5	23.8	24.5
Potassium	mg/L	2.04			2.1			2.16		2.05				1.94	2.22	1.64	2.19	1.76	1.68	2.00	1.82	2.08	1.97	1.94	2.06	2.40	2.04	2.00	2.06	2.22
Alkalinity, Total	mg/L	342			280			380		380				375	285	395	375	333	350	380	328	340	395	460	365	348	324	324	345	341
Alkalinity, Bicarbonate	mg/L	338			280			380		380				375	285	395	375	333	350	380	328	340	395	460	365	348	324	324	345	333
Alkalinity, Carbonate	mg/L	<10.0			<10.0			<10.0		<10.0				<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Alkalinity, Hydroxide	mg/L	<10.0			<10.0			<10.0		<10.0				<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	mg/L	35.8			6.8			27.4		26.2				23.3	7.11	19.0	23.4	24.7	27.2	34.5	34.1	39.3	40.1	42.9	45.2	47.2	48.9	50.3	44.8	44.6
Fluoride	mg/L	0.230			0.298			0.272		0.256				0.228	0.313	0.263	0.246	0.244	0.224	0.259	0.281	0.263	0.244	0.246	0.221	<0.500	<0.500	<0.500	0.254	0.248
Sulfate as SO4	mg/L	129			70			114		117				153	75.2	98.4	94.7	104	102	112	111	137	138	196	189	182	199	230	204	219
Total Organic Carbon (TOC)	mg/L	3.34			14			2.64		3.4				3.52	3.56	2.61	2.25	2.10	2.02	2.06	1.93	2.08	1.87	2.69	2.28	1.99	1.80	1.84	1.87	1.74
Nitrate/Nitrite as N	mg/L	0.042			<0.02			<0.02		0.089				<0.020	<0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ammonia as N ^	mg/L	NA			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA
Aluminum	mg/L	0.156			<0.05			<0.05		<0.050				<0.050	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.100	<0.050
Arsenic	mg/L	0.0008			0.0015			0.0010		0.0013				0.0009	0.0017	0.0006	0.0011	0.0010	0.0009	0.0012	0.0012	0.0010	0.0012	0.0011	0.0012	0.0012	0.0011	0.0009	<0.001	0.0013
Cadmium	mg/L	<0.0001			<0.0001			<0.0001		<0.0001				<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001
Copper	mg/L	0.0004			0.0005			0.0003		0.0051				0.0007	0.0002	0.0004	0.0001	0.0056	0.0002	0.0006	0.0004	0.0003	0.001	0.0016	0.0003	0.0002	<0.0005	<0.0005	<0.0010	<0.0005
Iron	mg/L	0.081			0.085			0.118		<0.050				0.213	<0.05	<0.050	0.074	0.060	0.073	0.089	0.163	0.082	0.062	0.116	0.105	0.119	0.094	0.107	0.109	0.159
Lead	mg/L	<0.0005			<0.0005			<0.0005		0.0078				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010	<0.0005
Manganese	mg/L	0.497			0.54			0.354		0.359				0.384	0.259	0.307	0.309	0.304	0.306	0.349	0.375	0.320	0.423	0.504	0.404	0.427	0.454	0.444	0.412	0.441
Mercury	mg/L	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.0014			0.0022			0.0024		0.0025				0.0021	0.0025	0.0021	0.0020	0.0024	0.0022	0.0024	0.0029	0.0024	0.0029	0.0026	0.0019	0.0024	0.0021	0.0023	0.0024	0.0027
Selenium	mg/L	<0.001			<0.001			<0.001		0.0011				0.0045	<0.001	<0.0010	<0.0010	0.0012	<0.001	0.0012	0.0015	0.0013	0.0021	0.001	0.0011	0.0011	<0.0010	0.0012	<0.002	0.0012
Silica (Si02)	mg/L	11.6			14.7			12.8		11.9				10.9	15.5	13.0	13.3	11.1	11.5	11.4	11.5	11.0	11.2	10.5	11.6	12.8	11.2	10.6	11.5	12.7
Silicon	mg/L	5.42			6.89			5.97		5.55				5.12	7.23	6.08	6.20	5.19	5.39	5.34	5.38	5.15	5.26	4.93	5.44	5.99	5.22	4.98	5.39	5.94
Uranium	mg/L	0.0013			0.0007			0.0015		0.0016				0.0014	0.0008	0.0013	0.0013	0.0013	0.0013	0.0013	0.0015	0.0014	0.0019	0.0016	0.0012	0.0015	0.0016	0.0016	0.0013	0.0017
Zinc	mg/L	0.0034			<0.001			0.0010		0.0311				<0.0020	<0.002	<0.0040	<0.0020	0.0053	0.0022	0.0028	<0.0020	<0.0020	0.0025	<0.002	<0.0020	<0.0020	<0.0020	<0.0020	<0.0040	<0.0020
Radium 226 ^	pCi/L	<0.4			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Radium 228 ^	pCi/L	<0.8			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

Wiltse Well

Year		2016										2017						2018				2019				2020			
Quarter		Q1	Q2			Q3			Q4			Q1			Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	4	5	6	7	8	9	10	11	12	1	2	3	6	9	11	2	5	8	11	2	5	8	11	2	5	8	12
Sample Date		3/31	4/27	5/25	6/23	7/19	8/24	9/20	10/24	11/29	12/13	1/18	2/27	3/21	6/13	9/28	11/28	2/22	5/16	8/9	11/8	2/28	5/23	8/19	11/11	2/17	5/13	8/12	12/15
Lab Analysis (Y/N)		Y	N	N	Y	N	N	Y	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																													
Purge Flow Rate	***gpm***	150.0	38.5	23.4	18.6	19.9	17.3	15.8	17.0	10.6	18.1	39.5	39.6	39.6	NM	18.3	23.5	11.9	12.0	18.5	12.3	28.0	38.0	18.0	17.0	35.0	24.4	16.0	18.0
Total Purged	***gal***	5850	4228	4229	3686	2844	2979	2637	2724	2992	2916	3595	3580	3560	2980	2712	2423	2700	2890	2783	2747	3017	3200	3010	3058	3825	3495	3200	3030
Depth to Water	***ft bgs***	0.35	0.00	0.85	2.15	2.99	2.60	3.32	6.85	1.90	1.95	0.30	0.00	0.00	2.05	3.40	3.40	3.35	3.93	4.13	3.78	2.40	0.05	2.47	2.68	0.43	1.60	3.18	5.65
Temperature	***deg C***	6.7	8.8	10.4	10.7	11.5	12.1	11.5	11.0	9.1	8.8	7.6	7.2	7.5	10.3	11.3	9.7	8.0	10.2	11.7	10.4	8.0	9.3	10.7	9.9	6.7	9.8	11.7	8.7
pH	***SU***	7.22	7.32	7.34	7.26	7.26	7.24	7.22	7.22	7.32	7.29	7.2	7.17	7.12	7.41	7.27	7.30	7.26	7.13	7.04	7.07	7.17	7.08	7.09	7.09	7.01	7.12	7.22	7.26
Specific Conductance	***µS/cm***	2043	1633	1805	1768	1478	1602	1941	1937	2014	2036	2262	2276	2085	1869	2074	2190	2232	2144	2072	2167	2170	2151	1964	1970	2171	2017	1450	1984
Oxygen Reduction Potential	***mV***	105.6	17.9	20.1	38.5	26.9	20.0	28.6	21.6	13.7	20.9	3.2	18.3	6.0	13.3	19.5	19.2	14.3	29.9	-52.7	-18.8	22.7	-10.6	-23.7	51.9	49.33	71.9	72.2	73.7
Lab Analytical Results:																													
Hardness as CaCO3	***mg/L***	990			1050			1030		963				1040	1060	1140	1150	1090	1160	1130	1180	1150	1080	1080	1060	982	1060	1070	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	7.42	7.38	7.35	7.11	7.09	7.12	7.09	7.29	6.86
Total Dissolved Solids (Lab)	***mg/L***	1580			1480			1520		1520				1480	1510	1680	1740	1740	1740	1750	1720	1710	1670	1520	1480	1600	1560	1580	1540
Calcium	***mg/L***	197			208			206		186				205	211	219	226	211	216	221	230	226	214	214	208	191	206	206	215
Magnesium	***mg/L***	121			128			126		121				128	129	143	142	136	150	139	147	143	132	132	132	123	132	136	144
Sodium	***mg/L***	95.9			75.2			80.7		82.4				110	87.5	80.7	83.4	80.4	82.3	79.1	81.2	83.2	89.4	72.4	67.3	68.1	69.1	64	67.5
Potassium	***mg/L***	4.64			4.56			4.90		4.42				4.61	4.79	4.62	<5.00	4.73	4.98	5.01	5.00	5.01	4.77	4.92	4.85	4.33	<5.00	4.48	4.54
Alkalinity, Total	***mg/L***	460			500			470		450				410	445	510	475	445	435	463	505	515	469	474	460	460	431	475	470
Alkalinity, Bicarbonate	***mg/L***	440			500			470		450				410	445	510	475	445	435	463	505	515	469	474	460	460	431	475	470
Alkalinity, Carbonate	***mg/L***	20.0			<10.0			<10.0		<10.0				<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Alkalinity, Hydroxide	***mg/L***	<10.0			<10.0			<10.0		<10.0				<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	***mg/L***	81.0			76.3			62.3		70.1				72.5	72.5	68.7	68.9	66.7	60	57.2	57.5	67.2	67.8	49.9	48.2	57.7	51.8	58.1	57.9
Fluoride	***mg/L***	0.285			<0.5			<0.5		0.3				<0.500	0.332	<0.500	<0.500	<0.500	<0.500	<0.500	0.298	0.324	0.306	<0.500	<0.500	<0.500	<0.500	0.304	0.292
Sulfate as SO4	***mg/L***	671			595			656		676				731	702	779	772	832	714	733	741	801	709	627	627	711	633	704	728
Total Organic Carbon (TOC)	***mg/L***	3.54			4.1			3.15		3.02				3.40	3.54	3.34	3.26	3.37	3.5	3.51	3.63	3.82	4.87	4.27	3.30	4.22	3.80	3.69	3.43
Nitrate/Nitrite as N	***mg/L***	0.456			0.891			1.08		0.965				0.492	1.07	1.80	1.94	2.26	2.48	2.26	1.99	1.95	0.651	0.896	1.31	1.05	0.865	1.25	1.48
Ammonia as N ^	***mg/L***	NA			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.100	NA	NA	NA	NA
Ortho-Phosphate as P ^	***mg/L***	NA			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA
Aluminum	***mg/L***	<0.05			<0.05			<0.05		<0.050				<0.050	<0.1	<0.050	<0.250	<0.100	<0.050	<0.050	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.250	<0.100	<0.050
Arsenic	***mg/L***	<0.0025			<0.0025			0.0005		0.0008				0.0009	0.0006	0.0005	0.0029	0.0009	0.0006	<0.0025	<0.001	<0.0010	0.0006	<0.0010	<0.0010	<0.0010	<0.0025	<0.0010	0.0005
Cadmium	***mg/L***	<0.0005			<0.0005			<0.0005		<0.0001				<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0005	<0.0002	<0.0001
Copper	***mg/L***	0.0018			0.0024			0.0020		0.0038				0.0023	0.0019	0.0025	0.0097	0.0020	0.0019	0.0018	0.0030	0.002	0.0021	0.0021	0.0012	0.0020	<0.0025	0.0013	0.0006
Iron	***mg/L***	0.100			<0.05			0.060		0.136				0.286	0.161	<0.050	<0.250	0.132	0.151	0.125	0.121	0.151	0.379	0.287	0.209	0.285	<0.250	<0.100	0.216
Lead	***mg/L***	<0.0025			<0.0025			<0.0025		<0.0005				<0.0005	<0.0005	<0.0005	<0.0025	<0.0005	<0.0005	<0.0005	<0.001	<0.0010	<0.0005	<0.0010	<0.0010	<0.0010	<0.0025	<0.001	<0.0005
Manganese	***mg/L***	0.673			0.857			0.756		0.608				0.440	0.797	0.881	4.50	0.845	0.997	1.37	1.08	0.937	0.357	0.902	0.892	0.419	0.816	1.03	0.943
Mercury	***mg/L***	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	***mg/L***	<0.0025			<0.0025			0.0017		0.0016				0.0016	0.0021	0.0021	0.0093	0.0020	0.002	0.002	0.0019	0.0017	0.0014	0.0020	0.0017	0.0013	<0.0025	0.0018	0.0017
Selenium	***mg/L***	<0.005			<0.005			0.0013		0.0023				0.0027	0.0019	0.0016	0.0087	0.0027	0.0025	0.0025	<0.002	0.0025	0.0016	<0.0020	<0.0020	<0.0020	<0.0050	<0.002	0.0022
Silica (Si02)	***mg/L***	13.9			16.1			16.4		14.3				14.7	15.5	16.1	13.4	14.1	15.9	16.2	15.9	14.1	13.2	15.4	14.9	12.2	12.9	13.8	15.7
Silicon	***mg/L***	6.51			7.53			7.67		6.69				6.85	7.22	7.54	6.29	6.58	7.42	7.58	7.44	6.6	6.19	7.20	6.96	5.72	6.05	6.43	7.33
Uranium	***mg/L***	0.0029			0.0021			0.0023		0.0026				0.0024	0.0021	0.0021	0.0110	0.0025	0.0024	0.0024	0.0032	0.0036	0.0044	0.0029	0.0023	0.0039	0.0032	0.0024	0.0032
Zinc	***mg/L***	0.0156			0.0364			0.0301		0.0269				0.0194	0.026	0.0208	0.0855	0.0216	0.0225	0.0214	0.0172	0.0175	0.0128	0.0138	0.0108	0.0122	0.0132	0.0118	0.0098
Radium 226 ^	***pCi/L***	0.7 +/- 0.1			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Radium 228 ^	***pCi/L***	<0.8			NA			NA		NA				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-HGA-4

Year		**2016**	**2017**												**2018**					**2019**				**2020**			
Quarter		Q4	Q1			Q2			Q3			Q4			Q1		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	5	8	11	2	5	8	11	2	5	8	12
Sample Date		12/12	1/26	2/28	3/22	4/27	5/31	6/13	7/27	8/16	9/21	10/27	11/28	12/12	1/3	2/22	5/15	8/9	11/8	2/28	5/23	8/16	11/13	2/13	5/13	8/26	12/14
Lab Analysis (Y/N)		Y	N	N	Y	N	N	Y	N	N	Y	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																											
Purge Flow Rate	***gpm***	0.5	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	9.4	NM	0.1	1.5	2.0	1.0	1.1	1.0	1.0	0.3	1.0	0.3	0.3	0.1
Total Purged	***gal***	21	21	21	21	21	21	19.5	20	20	21	21	21	24	19	21	21	19	21	24	22	21	21	22	21	20	21
Depth to Water	***ft bgs***	0.73	0.57	0.60	0.83	0.94	2.06	2.53	3.25	2.65	3.31	3.31	1.76	4.31	1.37	0.55	2.60	3.98	1.90	0.49	0.42	1.95	1.15	0.38	2.36	3.80	1.75
Temperature	***deg C***	7.3	4.8	6.4	8.1	7.2	9.9	8.4	8.6	8.8	9.0	9.2	9.0	9.3	8.8	7.8	8.1	8.7	8.8	7.6	7.7	8.5	8.8	7.9	7.4	9.2	8.6
pH	***SU***	7.29	7.36	7.40	7.41	7.33	7.36	7.40	7.36	7.35	7.33	7.31	7.27	7.27	7.33	7.30	7.18	7.27	7.05	7.15	7.18	7.16	7.09	7.12	7.23	7.28	7.31
Specific Conductance	***µS/cm***	1284	1257	1201	1155	1153	1113	1055	1099	1050	1124	1072	1171	1160	1141	1154	1098	1057	1167	1183	1102	1083	1127	1122	1093	1022	1158
Oxygen Reduction Potential	***mV***	-72.1	-86.6	-105.1	-104.4	-74.5	-91.3	-134.7	-137.6	-131.0	-139.5	-77.3	-157.9	-70.1	-96.6	-157.3	-130.9	-230.8	-190.9	-128.3	-140.7	-130.9	-104.9	-107.8	-86.7	-61.1	-64.7
Lab Analytical Results:																											
Hardness as CaCO3	***mg/L***	724			611			616			522		595			561	555	524	625	613	563	544	624	563	528	571	612
pH (Lab)	***SU***	7.30			7.17			7.31			7.25		7.21			7.58	8.15	7.33	7.12	7.2	8.17	6.95	6.88	6.78	6.89	7.07	6.95
Total Dissolved Solids (Lab)	***mg/L***	855			710			715			750		775			740	730	695	770	795	695	695	715	705	685	700	665
Calcium	***mg/L***	147			118			121			102		118			110	108	102	124	122	110	106	123	112	101	111	122
Magnesium	***mg/L***	86.7			76.7			76.6			64.9		72.8			69.3	69	65.4	76.5	74.7	70.3	67.9	76.8	68.9	67.0	71.7	74.9
Sodium	***mg/L***	19.5			27.4			28.6			24.9		27.2			26.5	30.4	29.9	27.6	27	28.6	28.3	31.9	27.9	30.3	30.5	26.8
Potassium	***mg/L***	2.02			2.13			2.11			1.75		2.21			2.17	2.22	2.33	2.13	2.16	2.00	2.10	2.38	2.05	2.06	2.08	2.11
Alkalinity, Total	***mg/L***	545			465			415			465		475			460	425	410	460	455	445	455	432	435	416	485	457
Alkalinity, Bicarbonate	***mg/L***	545			465			415			465		475			460	425	410	460	455	445	455	432	435	416	485	457
Alkalinity, Carbonate	***mg/L***	ND			<10.0			<10.0			<10.0		<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Alkalinity, Hydroxide	***mg/L***	ND			<10.0			<10.0			<10.0		<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	***mg/L***	10.9			8.75			7.95			8.96		8.74			8.43	7.57	6.47	9.40	10.5	8.06	8.44	9.46	8.39	7.64	8.78	10.1
Fluoride	***mg/L***	0.577			0.485			0.506			0.517		0.495			0.496	0.459	0.482	0.487	0.484	0.456	0.443	0.520	0.447	0.449	0.431	0.473
Sulfate as SO4	***mg/L***	240			229			192			205		204			222	190	169	201	221	186	212	190	193	181	179	187
Total Organic Carbon (TOC)	***mg/L***	NA			4.54			4.35			4.69		4.79			4.56	4.57	4.30	4.72	4.82	4.45	4.58	4.35	4.8	4.30	4.56	4.67
Nitrate/Nitrite as N	***mg/L***	<0.020			<0.020			<0.02			<0.020		<0.100			<0.020	<0.020	<0.020	<0.020	0.173	<0.020	<0.020	<0.020	<0.02	<0.100	<0.020	<0.020
Ammonia as N ^	***mg/L***	NA			NA			NA			NA		NA			NA	NA	NA	NA	NA	NA	NA	0.528	NA	NA	NA	NA
Ortho-Phosphate as P ^	***mg/L***	NA			NA			NA			NA		NA			NA	NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA
Aluminum	***mg/L***	0.423			<0.050			<0.05			<0.050		<0.050			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.100	<0.100	<0.100	<0.050
Arsenic	***mg/L***	0.0030			0.0029			0.0028			<0.0005		0.0035			0.0037	0.0034	0.0036	0.0032	0.0031	0.0029	0.0028	0.0033	0.0022	0.0025	0.0026	0.0038
Cadmium	***mg/L***	<0.0001			<0.0001			<0.0001			<0.0001		<0.0001			<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001
Copper	***mg/L***	0.0006			0.0008			0.0002			0.0004		0.0002			0.0006	0.0008	0.0004	0.0008	<0.0010	0.0003	0.0004	0.0002	0.0005	<0.0010	<0.0010	<0.0005
Iron	***mg/L***	3.71			7.29			7.32			0.378		7.84			7.60	7.92	8.55	8.44	8.35	7.98	8.38	9.76	8.59	8.22	8.95	9.31
Lead	***mg/L***	<0.0005			<0.0005			<0.0005			<0.0005		<0.0005			<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0005
Manganese	***mg/L***	4.07			2.78			2.37			2.03		2.11			1.99	1.81	1.58	2.13	2.56	2.12	1.84	1.78	1.77	1.49	1.66	2.36
Mercury	***mg/L***	ND			<0.0002			<0.0002			<0.0002		<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	***mg/L***	0.0013			0.0024			0.0027			0.0028		0.0027			0.0030	0.0031	0.0038	0.0029	0.0026	0.0027	0.0029	0.0031	0.0025	0.0030	0.0032	0.0029
Selenium	***mg/L***	<0.001			0.0030			<0.001			<0.0010		<0.0010			<0.0010	0.002	0.0016	<0.001	0.001	<0.0010	<0.0010	<0.0010	<0.001	<0.0020	<0.0020	<0.001
Silica (Si02)	***mg/L***	22.3			16.8			18			16.5		17.9			15.8	16.4	15.7	17.3	15.9	14.9	14.9	16.5	15.2	13.9	15.4	18.3
Silicon	***mg/L***	10.4			7.86			8.41			7.72		8.35			7.37	7.67	7.34	8.10	7.46	6.96	6.96	7.69	7.09	6.48	7.21	8.56
Uranium	***mg/L***	0.0010			0.0004			0.0004			0.0004		0.0004			0.0004	0.0004	0.0003	0.0005	0.0005	0.0004	0.0004	0.0003	<0.0005	<0.0010	<0.0010	0.0005
Zinc	***mg/L***	0.0039			0.0046			<0.002			<0.0040		<0.0020			<0.002	<0.002	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0020	<0.002	<0.0040	<0.0040	<0.002

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-1-A

Year		2017								2018									2019				2020			
Quarter		Q2	Q3				Q4			Q1			Q2		Q3			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		6	7	8	9	9	10	11	12	1	2	3	4	5	6	7	8	11	2	5	8	11	2	5	9	11
Sample Date		6/7	7/18	8/23	9/7	9/26	10/26	11/16	12/5	1/2	2/9	3/22	4/11	5/10	--	7/23	8/7	11/1	2/20	5/30	8/14	11/5	2/12	5/28	9/1	11/16
Lab Analysis (Y/N)		Y	N	N	N	Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																										
Purge Flow Rate	gpm	NM	NM*	NM*	NM	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	***	0.1	0.1	0.1	0.12	0.1	0.1	0.3	0.25	0.3	0.1	0.1
Total Purged	gal	12.8	NM*	NM*	NM	NM	2.0	2.0	1.0	1.5	2	1.5	1	1.3		1.5	1.5	1.6	1.0	1.5	1.1	1.5	1.0	1.0	1.0	1.3
Depth to Water	ft bgs	215.42	NM*	215.92	215.54	216.33	216.31	216.47	216.58	216.21	216.47	216.47	216.54	216.54		216.63	216.63	216.65	216.55	216.43	216.33	216.13	216.05	215.85	215.56	215.8
Temperature	deg C	17.7	NM*	NM*	10.7	9.7	9.1	9.1	8.7	9.5	9.0	8.7	9.6	9.2		9.9	10.0	8.9	7.5	10.3	9.6	9.7	8.1	9.1	9.6	9.4
pH	SU	7.78	NM*	NM*	7.35	7.38	7.29	7.28	7.25	7.19	7.37	7.28	6.8	6.97		6.99	7.05	7.01	7.13	6.96	7.05	7.00	7.13	7.18	7.22	7.24
Specific Conductance	µS/cm	1362	NM*	NM*	1555	1563	1616	1650	1693	1700	1723	1735	1647	1761		1734	1815	1781	1776	1681	1757	1737	1797	1855	1664	1670
Oxygen Reduction Potential	mV	-34.6	NM*	NM*	-54.7	-46.5	-50.0	-48.3	-49.6	-44.6	-52.8	-37.5	142.4	0.4		-26.4	-33.2	101.4	-11.8	25.4	-18.7	3.6	12.7	4.2	-20.1	111.4
Lab Analytical Results:																										
Hardness as CaCO3	mg/L	124				133		130			159			156			160	174	159	153	148	150	159	165	161	168
pH (Lab)	SU	7.74				7.35		7.33			7.22			7.45			7.17	7.27	7.13	7.03	7.14	6.92	7.19	6.91	7.23	7.17
Total Dissolved Solids (Lab)	mg/L	975				1080		1120			1100			1150			1040	1130	1160	1150	1150	1140	1190	1150	1150	1170
Calcium	mg/L	24.7				25.8		24.9			30.5			29.7			30.9	34.0	31.2	29.8	27.9	29.0	30.9	31.6	30.6	32.8
Magnesium	mg/L	15.1				16.7		16.6			20.1			19.9			20.1	21.5	19.7	19.1	18.9	18.8	19.9	20.8	20.6	20.9
Sodium	mg/L	324				329		325			348			327			333	358	357	319	348	333	337	349	348	353
Potassium	mg/L	1.98				2.02		<5.00			<5.00			2.12			2.23	2.47	2.34	2.18	2.29	2.12	2.13	<5.00	2.29	<3.00
Alkalinity, Total	mg/L	375				450		380			415			353			385	395	375	355	368	420	360	340	325	366
Alkalinity, Bicarbonate	mg/L	375				450		380			415			353			385	395	375	355	368	420	360	340	325	366
Alkalinity, Carbonate	mg/L	<10.0				<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Alkalinity, Hydroxide	mg/L	<10.0				<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	mg/L	2.75				2.16		<5.00			2.19			<5			2.12	2.20	2.74	2.33	2.72	2.66	2.74	2.71	2.74	2.88
Fluoride	mg/L	0.268				0.245		<0.500			0.240			<0.5			0.260	0.240	0.266	0.242	0.252	0.246	0.234	0.228	0.24	0.264
Sulfate as SO4	mg/L	427				432		511			518			522			515	511	508	494	537	495	506	532	510	508
Total Organic Carbon (TOC)	mg/L	5.03				1.36		1.58			1.51			1.54			1.60	1.75	1.61	1.67	1.59	1.50	1.55	1.55	1.49	1.57
Nitrate/Nitrite as N	mg/L	<0.200				<0.400		<0.100			<0.020			<0.02			<0.02	0.028	<0.020	<0.02	<0.020	0.020	<0.020	0.046	<0.020	<0.02
Ammonia as N ^	mg/L	NA			NA			NA			NA			NA			NA	NA	NA	NA	NA	0.387	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA			NA			NA			NA			NA			NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA
Aluminum	mg/L	<0.050				<0.050		<0.250			<0.250			<0.05			<0.05	<0.1	<0.100	<0.05	<0.050	<0.050	<0.100	<0.250	<0.050	<0.050
Arsenic	mg/L	<0.0005				<0.0005		<0.0025			<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0025	<0.0005
Cadmium	mg/L	<0.0001				<0.0001		<0.0005			<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0005	<0.0001
Copper	mg/L	0.0043				0.0057		0.0045			0.0066			0.0041			0.0048	0.0048	0.0075	0.0064	0.0040	0.0147	0.0034	0.0012	0.004	0.0024
Iron	mg/L	0.128				0.367		<0.250			0.590			0.614			0.644	0.647	0.581	0.589	0.613	0.510	0.614	0.559	0.637	0.579
Lead	mg/L	<0.0005				<0.0005		<0.0025			<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0025	<0.0015
Manganese	mg/L	0.0260				0.0218		0.0259			0.0279			0.026			0.0242	0.0282	0.0281	0.0235	0.0270	0.0248	0.0303	0.0329	0.032	0.0313
Mercury	mg/L	<0.0002				<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.0007				0.0010		<0.0025			<0.0025			0.0009			0.0008	0.0007	<0.0010	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0025	<0.0015
Selenium	mg/L	<0.0010				<0.0010		<0.0050			<0.0050			<0.001			<0.001	<0.001	<0.0020	<0.001	<0.0010	<0.0010	<0.0020	<0.0020	<0.0050	<0.0030
Silica (Si02)	mg/L	12.3				11.9		8.27			11.2			11.2			11.4	12.0	11.1	11.2	11.6	11.0	11.1	10.4	11.1	11.5
Silicon	mg/L	5.74				5.56		3.87			5.24			5.25			5.31	5.62	5.2	5.23	5.43	5.13	5.19	4.85	5.17	5.37
Uranium	mg/L	0.0004				0.0002		<0.0005			<0.0005			0.0003			0.0002	0.0003	0.0002	0.0001	0.0001	0.0001	<0.0010	<0.0010	<0.0025	<0.0025
Zinc	mg/L	0.0270				0.0088		<0.0100			<0.0100			0.0051			<0.0100	<0.002	<0.0040	0.0022	<0.0040	0.0020	<0.0040	<0.0040	<0.0100	<0.0060

Notes & Definitions:

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

^ one-time analysis

Y/N yes or no

gpm gallons per minute

deg C degrees Celsius

SU standard pH units

µS/cm microsiemens per centimeter

mV millivolts

mg/L milligram per liter

pCi/L picocuries per liter

NM not measured (field)

NA not analyzed (lab)

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-1-MI

Year		2017							2018								2019				2020			
Quarter		Q2	Q3			Q4			Q1			Q2		Q3			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		6	7	8	9	10	11	12	**1**	2	3	4	5	6	7	8	11	2	5	8	11	2	5	9	11
Sample Date		6/7	7/18	8/23	9/26	10/26	11/16	12/5	**1/2**	2/9	3/22	4/11	5/10	--	7/23	8/7	11/1	2/20	5/30	8/14	11/5	2/12	5/28	9/1	11/16
Lab Analysis (Y/N)		Y	N	N	N	N	N	N	**N**	N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N
Field Parameters:																									
Purge Flow Rate	***gpm***	NM	NM*	NM	NM																				
Total Purged	***gal***	19.5	NM*	<0.5	NM																				
Depth to Water	***ft bgs***	259.99	NM*	258.29	258.34																				
Temperature	***deg C***	15.8	NM*	11.8	21.7	dry	dry	dry	dry	dry	dry	dry	dry	***	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
pH	***SU***	8	NM*	7.94	7.86																				
Specific Conductance	***µS/cm***	2032	NM*	2137	2119																				
Oxygen Reduction Potential	***mV***	160.5	NM*	65.7	61.4																				
Lab Analytical Results:																									
Hardness as CaCO3	***mg/L***	231																							
pH (Lab)	***SU***	8.14																							
Total Dissolved Solids (Lab)	***mg/L***	1520																							
Calcium	***mg/L***	46.7																							
Magnesium	***mg/L***	27.9																							
Sodium	***mg/L***	470																							
Potassium	***mg/L***	2.55																							
Alkalinity, Total	***mg/L***	600																							
Alkalinity, Bicarbonate	***mg/L***	600																							
Alkalinity, Carbonate	***mg/L***	<10.0																							
Alkalinity, Hydroxide	***mg/L***	<10.0																							
Chloride	***mg/L***	7.69																							
Fluoride	***mg/L***	1.14																							
Sulfate as SO4	***mg/L***	739																							
Total Organic Carbon (TOC)	***mg/L***	5.14																							
Nitrate/Nitrite as N	***mg/L***	0.103																							
Aluminum	***mg/L***	<0.050																							
Arsenic	***mg/L***	0.0029																							
Cadmium	***mg/L***	<0.0001																							
Copper	***mg/L***	0.0067																							
Iron	***mg/L***	<0.050																							
Lead	***mg/L***	0.0010																							
Manganese	***mg/L***	0.0445																							
Mercury	***mg/L***	<0.0002																							
Molybdenum	***mg/L***	0.0796																							
Selenium	***mg/L***	0.0028																							
Silica (Si02)	***mg/L***	11.6																							
Silicon	***mg/L***	5.44																							
Uranium	***mg/L***	0.0505																							
Zinc	***mg/L***	1.52																							

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-1-C

Year		2017								2018									2019				2020			
Quarter		Q2	Q3			Q4				Q1			Q2		Q3			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		6	7	8	9	9	10	11	12	1	2	3	4	5	6	7	8	11	2	5	8	11	2	5	9	11
Sample Date		6/7	7/18	8/23	9/7	9/26	10/26	11/16	12/5	1/2	2/9	3/22	4/11	5/10	--	7/23	8/7	11/18	2/20	5/30	8/14	11/5	2/12	5/28	9/1	11/16
Lab Analysis (Y/N)		Y	N	N	N	Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																										
Purge Flow Rate	gpm	NM	NM*	NM*	NM	NM	NM	NM	NM	MM	0.1	NM	0.1	0.1	***	0.05	0.1	0.1	0.06	0.02	0.03	0.01	0.01	0.10	0.05	0.05
Total Purged	gal	5	NM*	NM*	NM	NM	1.00	1.00	1.00	1	1	1	1	1.25		1	1	1.10	1.00	1.10	1.00	1.00	1.00	0.75	0.80	1.00
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		216.41	216.05	216.04	216.41	216.20	216.02	216.04	216.12	216.10	216.41	216.66
Temperature	deg C	16.0	NM*	NM*	NM	12.9	11.7	10.6	7.0	9.7	9.6	6.7	9.2	10.5		20.0	14.1	9.7	5.4	9.8	10.4	11.1	6.4	9.5	11.2	9.7
pH	SU	7.52	NM*	NM*	NM	7.17	7.16	7.15	7.17	7.11	7.19	7.32	7.03	7.05		6.91	6.97	6.93	7.09	6.80	6.65	6.70	6.79	6.85	6.93	6.99
Specific Conductance	µS/cm	2446	NM*	NM*	NM	2725	2738	2739	2778	2778	2738	2751	2700	2749		2693	2675	2751	2621	3139	3172	3080	3005	3002	2653	2709
Oxygen Reduction Potential	mV	74.3	NM*	NM*	NM	77.4	31.7	23.9	13.0	6.2	-4.3	-29.6	-15.3	-42.3		-41.8	-32.5	-110.0	-23.4	27.6	10.5	51.0	50.7	-57.7	21.8	49.6
Lab Analytical Results:																										
Hardness as CaCO3	mg/L	498				1290		1180			1190			1130			1120	1180	1010	1820	1840	1700	1600	1590	1400	1420
pH (Lab)	SU	8.35				7.36		7.34			7.22			7.2			7.20	7.02	7.24	6.93	6.67	6.63	6.80	6.62	6.83	7.12
Total Dissolved Solids (Lab)	mg/L	2020				2440		2360			2360			2340			2170	2200	1960	2880	2890	2750	2610	2460	2420	2450
Calcium	mg/L	96.0				234		216			219			203			203	219	188	340	342	318	301	294	248	265
Magnesium	mg/L	62.8				172		155			156			150			148	154	131	237	240	219	207	207	189	183
Sodium	mg/L	506				242		253			260			239			239	255	265	146	119	119	143	155	168	194
Potassium	mg/L	11.4				3.81		<5.00			<5.00			3.07			3.04	2.65	3.13	<5.00	<5.00	<5.00	3.05	<5.00	2.82	<5.00
Alkalinity, Total	mg/L	530				700		540			570			580			560	410	525	530	518	505	515	490	445	520
Alkalinity, Bicarbonate	mg/L	530				700		540			570			580			560	410	525	530	518	505	515	490	445	520
Alkalinity, Carbonate	mg/L	<10.0				<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Alkalinity, Hydroxide	mg/L	<10.0				<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	mg/L	24.2				6.97		8.03			7.78			7.75			5.97	6.22	6.36	10.2	9.31	8.78	8.54	8.20	8.15	7.14
Fluoride	mg/L	1.59				0.864		0.955			1.03			0.96			0.888	0.924	0.975	0.67	0.525	0.565	0.615	0.695	0.705	0.750
Sulfate as SO4	mg/L	1090				1350		1230			1160			1210			1090	1080	1070	1630	1730	1520	1400	1370	1280	1180
Total Organic Carbon (TOC)	mg/L	4.56				2.84		2.12			2.21			2.2			2.35	2.37	2.32	2.62	2.52	2.30	2.30	2.32	2.2	2.13
Nitrate/Nitrite as N	mg/L	<2.00				<0.400		<0.100			<0.020			<0.02			0.036	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ammonia as N ^	mg/L	NA				NA		NA			NA			NA			NA	NA	NA	NA	NA	0.140	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA				NA		NA			NA			NA			NA	NA	NA	NA	NA	<0.100	NA	NA	NA	NA
Aluminum	mg/L	<0.050				<0.050		<0.250			<0.250			<0.05			<0.05	<0.100	<0.100	<0.250	<0.250	<0.250	<0.150	<0.250	<0.050	<0.050
Arsenic	mg/L	0.0029				0.0016		<0.0025			<0.0025			0.0051			0.0052	0.0035	0.0038	0.0048	0.0034	<0.0025	<0.0025	0.0019	<0.0025	<0.0005
Cadmium	mg/L	<0.0001				<0.0001		<0.0005			<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0001	<0.0002	<0.0005	<0.0005	<0.0003	<0.0005	<0.0001
Copper	mg/L	0.0088				0.0085		0.0036			0.0052			0.003			0.0049	0.0033	0.0054	0.0057	0.0014	0.0096	<0.0025	<0.0015	<0.0025	<0.0005
Iron	mg/L	<0.050				<0.050		<0.250			<0.250			0.643			1.01	1.12	0.988	2.3	0.819	0.543	0.570	0.606	0.619	0.855
Lead	mg/L	<0.0005				<0.0005		<0.0025			<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	<0.0010	<0.0025	<0.0025	<0.0015	<0.0025	<0.0025
Manganese	mg/L	0.0744				0.0853		0.0959			0.0989			0.153			0.140	0.106	0.0807	0.075	0.0562	0.0512	0.0537	0.0473	0.0445	0.0496
Mercury	mg/L	<0.0002				<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.0164				0.0049		<0.0025			<0.0025			0.0006			<0.0025	<0.0005	<0.0010	<0.0005	<0.0010	<0.0025	<0.0025	<0.0015	<0.0025	<0.0025
Selenium	mg/L	0.0136				0.0012		<0.0050			<0.0050			<0.001			<0.0050	0.0011	<0.0020	0.0016	0.0023	<0.0050	<0.0050	<0.0030	<0.0050	<0.0050
Silica (Si02)	mg/L	10.6				16.6		13.2			14.8			15.2			14.7	14.5	14	16.6	17.3	16.4	15.7	13.8	14.1	14.8
Silicon	mg/L	4.94				7.77		6.16			6.94			7.09			6.87	6.78	6.55	7.75	8.07	7.65	7.35	6.47	6.6	6.93
Uranium	mg/L	0.0500				0.0044		0.0028			0.0024			0.0025			0.0022	0.0021	0.0016	0.002	0.0025	0.0023	<0.0025	0.0020	<0.0025	<0.0015
Zinc	mg/L	0.0293				0.0294		<0.0100			<0.0100			0.0062			<0.0100	0.0055	<0.0040	0.0085	0.0077	<0.0100	<0.0100	<0.0060	<0.0100	<0.0100

Notes & Definitions:

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

^ one-time analysis

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)

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GCC Energy Hydrologic Monitoring Data

MW-2-A																							
Year		2017							2018							2019				2020			
Quarter		Q1	Q2	Q3		Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	6	7	8	10	11	12	1	2	3	4	5	8	11	2	5	8	11	2	5	9	11
Sample Date		3/30	6/7	7/18	8/23	10/30	11/16	12/5	1/2	2/9	3/22	4/11	5/10	8/7	11/1	2/20	5/29	8/14	11/6	2/11	5/27	9/1	11/24
Lab Analysis (Y/N)		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:																							
Purge Flow Rate	*gpm*	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Total Purged	*gal*																						
Depth to Water	*ft bgs*																						
Temperature	*deg C*																						
pH	*SU*																						
Specific Conductance	*µS/cm*																						
Oxygen Reduction Potential	*mV*																						
Lab Analytical Results:																							
Hardness as CaCO3	*mg/L*																						
pH (Lab)	*SU*																						
Total Dissolved Solids (Lab)	*mg/L*																						
Calcium	*mg/L*																						
Magnesium	*mg/L*																						
Sodium	*mg/L*																						
Potassium	*mg/L*																						
Alkalinity, Total	*mg/L*																						
Alkalinity, Bicarbonate	*mg/L*																						
Alkalinity, Carbonate	*mg/L*																						
Alkalinity, Hydroxide	*mg/L*																						
Chloride	*mg/L*																						
Fluoride	*mg/L*																						
Sulfate as SO4	*mg/L*																						
Total Organic Carbon (TOC)	*mg/L*																						
Nitrate/Nitrite as N	*mg/L*																						
Aluminum	*mg/L*																						
Arsenic	*mg/L*																						
Cadmium	*mg/L*																						
Copper	*mg/L*																						
Iron	*mg/L*																						
Lead	*mg/L*																						
Manganese	*mg/L*																						
Mercury	*mg/L*																						
Molybdenum	*mg/L*																						
Selenium	*mg/L*																						
Silica (Si02)	*mg/L*																						
Silicon	*mg/L*																						
Uranium	*mg/L*																						
Zinc	*mg/L*																						

Notes & Definitions:

Y/N	**yes or no**
gpm	**gallons per minute**
deg C	**degrees Celsius**
SU	**standard pH units**
µS/cm	**microsiemens per centimeter**
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GCC Energy Hydrologic Monitoring Data

MW-2-MI

Year		2017							2018							2019				2020			
Quarter		Q1	Q2	Q3		Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	6	7	8	10	11	12	1	2	3	4	5	8	11	2	5	8	11	2	5	9	11
Sample Date		3/30	6/7	7/18	8/23	10/30	11/16	12/5	1/2	2/9	3/22	4/11	5/10	8/7	11/1	2/20	5/29	8/14	11/6	2/11	5/27	9/1	11/24
Lab Analysis (Y/N)		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:																							
Purge Flow Rate	*gpm*	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Total Purged	*gal*																						
Depth to Water	*ft bgs*																						
Temperature	*deg C*																						
pH	*SU*																						
Specific Conductance	*µS/cm*																						
Oxygen Reduction Potential	*mV*																						
Lab Analytical Results:																							
Hardness as CaCO3	*mg/L*																						
pH (Lab)	*SU*																						
Total Dissolved Solids (Lab)	*mg/L*																						
Calcium	*mg/L*																						
Magnesium	*mg/L*																						
Sodium	*mg/L*																						
Potassium	*mg/L*																						
Alkalinity, Total	*mg/L*																						
Alkalinity, Bicarbonate	*mg/L*																						
Alkalinity, Carbonate	*mg/L*																						
Alkalinity, Hydroxide	*mg/L*																						
Chloride	*mg/L*																						
Fluoride	*mg/L*																						
Sulfate as SO4	*mg/L*																						
Total Organic Carbon (TOC)	*mg/L*																						
Nitrate/Nitrite as N	*mg/L*																						
Aluminum	*mg/L*																						
Arsenic	*mg/L*																						
Cadmium	*mg/L*																						
Copper	*mg/L*																						
Iron	*mg/L*																						
Lead	*mg/L*																						
Manganese	*mg/L*																						
Mercury	*mg/L*																						
Molybdenum	*mg/L*																						
Selenium	*mg/L*																						
Silica (Si02)	*mg/L*																						
Silicon	*mg/L*																						
Uranium	*mg/L*																						
Zinc	*mg/L*																						

Notes & Definitions:

Y/N	**yes or no**
gpm	**gallons per minute**
deg C	**degrees Celsius**
SU	**standard pH units**
µS/cm	**microsiemens per centimeter**
mV	**millivolts**
mg/L	**milligram per liter**
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GCC Energy Hydrologic Monitoring Data

MW-2-C																							
Year		2017							2018							2019				2020			
Quarter		Q1	Q2	Q3		Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	6	7	8	10	11	12	1	2	3	4	5	8	11	2	5	8	11	2	5	9	11
Sample Date		3/30	6/7	7/18	8/23	10/30	11/16	12/5	1/2	2/9	3/22	4/11	5/10	8/7	11/1	2/20	5/29	8/14	11/6	2/11	5/27	9/1	11/24
Lab Analysis (Y/N)		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:																							
Purge Flow Rate	*gpm*	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Total Purged	*gal*																						
Depth to Water	*ft bgs*																						
Temperature	*deg C*																						
pH	*SU*																						
Specific Conductance	*µS/cm*																						
Oxygen Reduction Potential	*mV*																						
Lab Analytical Results:																							
Hardness as CaCO3	*mg/L*																						
pH (Lab)	*SU*																						
Total Dissolved Solids (Lab)	*mg/L*																						
Calcium	*mg/L*																						
Magnesium	*mg/L*																						
Sodium	*mg/L*																						
Potassium	*mg/L*																						
Alkalinity, Total	*mg/L*																						
Alkalinity, Bicarbonate	*mg/L*																						
Alkalinity, Carbonate	*mg/L*																						
Alkalinity, Hydroxide	*mg/L*																						
Chloride	*mg/L*																						
Fluoride	*mg/L*																						
Sulfate as SO4	*mg/L*																						
Total Organic Carbon (TOC)	*mg/L*																						
Nitrate/Nitrite as N	*mg/L*																						
Aluminum	*mg/L*																						
Arsenic	*mg/L*																						
Cadmium	*mg/L*																						
Copper	*mg/L*																						
Iron	*mg/L*																						
Lead	*mg/L*																						
Manganese	*mg/L*																						
Mercury	*mg/L*																						
Molybdenum	*mg/L*																						
Selenium	*mg/L*																						
Silica (Si02)	*mg/L*																						
Silicon	*mg/L*																						
Uranium	*mg/L*																						
Zinc	*mg/L*																						

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GCC Energy Hydrologic Monitoring Data

MW-3-A																								
Year		2017								2018							2019				2020			
Quarter		Q1	Q2	Q3			Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5	8	11	2	5	8	12
Sample Date		3/27	6/30	7/18	8/24	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/7	8/8	11/6	2/27	5/21	8/14	11/12	2/4	5/26	8/31	12/1
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																								
Purge Flow Rate	gpm	0.5	NM	NM	NM	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.1
Total Purged	gal	30	2.0	NM	NM	NM	1.0	1.0	1.0	1.3	1.5	1.5	1	1.25	1	1.1	1.5	1.3	1.3	1.5	1.1	1.2	1.5	1.3
Depth to Water	ft bgs	297.35	298.24	297.45	298.24	298.11	298.12	298.01	298.05	298.37	298.04	297.86	297.76	298.17	298.55	298.27	297.85	296.79	297.27	297.33	296.47	296.87	297.21	297.02
Temperature	deg C	11.7	13.2	19.5	12.6	12.3	12.5	11.7	12.0	11.8	11.7	12.2	11.9	13.5	13.5	11.9	11.8	12.1	NM	13.1	11.5	13.2	13.1	11.9
pH	SU	8.82	8.75	8.56	8.67	8.72	8.64	8.61	8.57	8.54	8.52	8.61	8.21	8.38	8.30	8.31	8.28	8.31	8.13	8.51	8.11	8.26	8.23	8.39
Specific Conductance	µS/cm	2535	2446	2115	2524	2470	2430	2483	2494	2528	2506	2458	2415	2253	2336	2391	2355	2309	NM	2204	2211	2249	2112	2192
Oxygen Reduction Potential	mV	-269.0	-101.5	-55.3	-87.4	-142.3	-124.5	-125.6	-146.8	-120.3	-125.2	-181.6	-135.8	-138.2	-155.8	-164.6	-145.9	-132.3	-138.6	-120.1	-65.7	-156.8	-98.8	-89.3
Lab Analytical Results:																								
Hardness as CaCO3	mg/L	7.53	12.6			12.6		10.4			11.5			11.2	12.6	14.1	11.9	10.7	10.4	11.1	10.8	10.3	11.1	9.41
pH (Lab)	SU	8.63	8.69			8.53		8.29			8.45			8.36	8.37	8.24	8.28	8.29	8.27	8.39	8.09	7.68	8.16	8.13
Total Dissolved Solids (Lab)	mg/L	1630	1670			1630		1690			1680			1670	1600	1540	1500	1530	1520	1510	1500	1460	1380	1460
Calcium	mg/L	2.00	3.67			3.63		3.27			3.33			3.2	3.71	4.15	3.55	3.16	3.08	3.34	3.14	3.07	3.02	2.83
Magnesium	mg/L	0.616	0.823			0.859		0.550			0.776			0.774	0.811	0.913	0.739	0.692	0.655	0.680	0.723	0.645	0.866	0.568
Sodium	mg/L	566	585			589		551			562			542	562	605	543	525	553	528	520	507	510	505
Potassium	mg/L	1.72	2.02			2.04		<5.00			<2.00			1.8	<2.00	2.17	<2.00	1.92	<2.00	<5.00	<3.00	<5.00	<5.00	<5.00
Alkalinity, Total	mg/L	530	470			500		490			430			480	480	475	540	450	459	420	460	430	440	470
Alkalinity, Bicarbonate	mg/L	380	470			440		460			360			480	420	385	330	430	423	420	460	400	440	450
Alkalinity, Carbonate	mg/L	150	<10.0			60.0		30.0			70.0			<10.0	60.0	90.0	210	20	36.0	<10.0	<10.0	30.0	<10.0	20
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10	<10.0	<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	15.1	16.0	15.2	15	15.0	14.7	13.9	13.9	13.5	14
Fluoride	mg/L	0.464	0.488			0.535		<0.500			<0.500			<0.5	NA	0.383	0.406	0.404	0.396	<0.500	0.370	0.374	0.366	0.372
Sulfate as SO4	mg/L	729	802			840		730			812			756	706	682	716	699	724	633	637	656	624	644
Total Organic Carbon (TOC)	mg/L	3.52	10.0			7.26		6.07			5.32			4.7	4.62	4.52	4.15	4.10	3.84	3.81	3.42	3.48	3.39	3.15
Nitrate/Nitrite as N	mg/L	<0.100	<0.100			<0.020		<0.020			<0.020			<0.02	<0.02	<0.02	0.266	<0.02	<0.020	<0.020	0.024	0.026	0.039	0.032
Ammonia as N ^	mg/L	NA	NA			NA		NA			NA			NA	NA	NA	NA	NA	NA	0.354	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA	NA			NA		NA			NA			NA	NA	NA	NA	NA	NA	0.0730	NA	NA	NA	NA
Aluminum	mg/L	<0.050	<0.050			<0.050		<0.250			<0.100			<0.05	<0.05	<0.10	<0.100	<0.05	<0.100	<0.250	<0.150	<0.250	<0.250	<0.250
Arsenic	mg/L	0.0025	<0.0025			<0.0025		<0.0025			<0.0025			0.0006	<0.0025	<0.0010	<0.0010	<0.0025	<0.0010	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025
Cadmium	mg/L	<0.0001	<0.0005			<0.0005		<0.0005			<0.0005			<0.0001	<0.0001	<0.0002	<0.0002	<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005
Copper	mg/L	0.0061	0.0081			0.0080		0.0079			0.0236			0.0063	0.0117	0.0086	0.0137	0.0078	0.0067	0.0039	0.0037	0.0021	0.0051	0.0055
Iron	mg/L	<0.050	<0.050			<0.050		<0.250			<0.100			<0.05	<0.05	<0.100	<0.100	<0.05	<0.100	<0.250	<0.150	<0.250	<0.250	<0.250
Lead	mg/L	<0.0005	<0.0025			<0.0025		<0.0025			<0.0025			<0.0005	<0.0005	<0.0010	<0.0010	<0.0025	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	<0.0025
Manganese	mg/L	0.0042	0.0251			0.0194		0.0269			0.0232			0.018	0.0222	0.0187	0.0172	0.0185	0.0166	0.0140	0.0162	0.0136	0.0120	0.0125
Mercury	mg/L	<0.0002	<0.0002			<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.0005	0.0274			0.0091		0.0078			0.0065			0.0046	0.0043	0.0033	0.003	0.003	0.0018	0.0027	0.0022	0.0015	<0.0025	<0.0025
Selenium	mg/L	0.0577	<0.0050			<0.0050		<0.0050			<0.0050			0.0109	<0.0050	0.0028	0.0039	<0.005	0.0020	<0.0020	<0.0020	0.0033	0.0086	<0.0050
Silica (Si02)	mg/L	10.1	10.9			11.6		7.66			11.1			11	12.0	12.8	11.7	11	12.7	11.8	11.6	10.5	11.0	11.2
Silicon	mg/L	4.70	5.10			5.41		3.58			5.18			5.17	5.62	5.97	5.46	5.16	5.95	5.53	5.43	4.92	5.14	5.22
Uranium	mg/L	0.0002	0.0040			0.0051		0.0036			0.0030			0.0026	0.0026	0.0027	0.0018	0.0014	0.0012	0.0011	0.0010	<0.0025	<0.0025	<0.0025
Zinc	mg/L	0.0031	<0.0100			<0.0100		<0.0100			<0.0100			<0.002	<0.002	<0.0040	<0.0040	<0.01	<0.0080	<0.0040	<0.0040	<0.0040	<0.0100	<0.0100

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-3-MI																								
Year		2017								2018							2019				2020			
Quarter		Q1	Q2	Q3			Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5	8	11	2	5	8	12
Sample Date		3/27	6/30	7/18	8/16	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/7	8/8	11/6	2/27	5/21	8/21	11/12	2/4	5/26	8/31	12/1
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																								
Purge Flow Rate	***gpm***	0.5	NM	NM	NM	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.5	0.3	0.1	0.1
Total Purged	***gal***	19.0	2.0	NM	NM	NM	1.0	1.0	1.0	1.3	1.5	1.5	1.0	1.3	1.0	1.1	1.5	1.3	2.0	1.0	1.5	1.3	1.8	1.3
Depth to Water	***ft bgs***	304.49	241.15	240.46	240.53	240.46	240.44	240.44	240.58	240.73	240.55	240.65	240.84	241.04	241.97	242.13	242.15	242.32	246.55	243.07	242.85	243.05	243.6	243.9
Temperature	***deg C***	10.0	12.6	22.0	12.9	11.0	12.1	11.7	11.7	11.9	11.3	11.9	11.8	12.6	13.0	12.4	11.6	11.3	13.2	12.3	11.6	12.6	12.8	11.7
pH	***SU***	9.34	8.94	8.46	8.90	8.74	8.90	8.86	8.86	8.84	8.83	8.84	8.51	8.48	8.49	8.46	8.51	8.55	8.71	8.75	8.71	8.92	9.01	9.09
Specific Conductance	***µS/cm***	1907	1699	1402	1598	1737	1729	1745	1786	1790	1810	1771	1772	1727	1709	1746	1753	1739	1691	1739	1758	1737	1560	1555
Oxygen Reduction Potential	***mV***	-87.0	-54.5	-26.4	-108.2	-107.3	-113.8	-124.2	-163.1	-136.0	-131.4	-160.7	-99.9	-103.9	-127.8	-176.5	-113.0	-84.5	43.9	-130.8	-104.3	-174.5	-111.0	-132.4
Lab Analytical Results:																								
Hardness as CaCO3	***mg/L***	4.85	8.73			9.02		7.75			9.92			8.65	8.63	8.88	7.63	6.84	7.98	6.64	6.50	7.25	6.39	5.94
pH (Lab)	***SU***	8.95	8.75			8.72		8.72			8.66			8.56	8.58	8.34	8.5	8.45	8.58	8.62	8.61	8.59	8.87	8.77
Total Dissolved Solids (Lab)	***mg/L***	1550	1120			1140		1080			1170			1210	1110	1120	1120	1170	1010	1130	1130	1130	1060	1160
Calcium	***mg/L***	1.32	2.32			2.34		2.06			2.22			1.91	1.95	2.03	1.87	1.7	2.04	1.73	1.63	1.76	1.62	1.42
Magnesium	***mg/L***	0.374	0.714			0.775		0.632			1.07			0.945	0.911	0.926	0.715	0.629	0.703	0.561	0.591	0.694	0.570	0.579
Sodium	***mg/L***	420	430			440		411			459			417	446	476	434	419	454	437	437	427	431	431
Potassium	***mg/L***	2.15	2.21			1.93		<5.00			<2.00			1.63	<2.00	<2.00	1.39	1.65	<2.00	<5.00	<2.00	<5.00	<3.00	<4.00
Alkalinity, Total	***mg/L***	740	675			700		660			700			680	730	720	685	755	720	690	705	680	625	770
Alkalinity, Bicarbonate	***mg/L***	510	555			600		570			600			500	630	610	485	605	590	610	645	550	465	690
Alkalinity, Carbonate	***mg/L***	230	120			100		90.0			100			180	100	110	200	150	130	80.0	60.0	130	160	80
Alkalinity, Hydroxide	***mg/L***	<10.0	<10.0			<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	***mg/L***	8.66	10.1			10.7		10.6			10.7			10.7	8.54	8.83	9.21	9.25	10.2	9.13	9.21	9.61	9.45	10
Fluoride	***mg/L***	0.952	1.34			1.26		1.26			1.30			1.2	1.16	1.19	1.21	1.22	1.19	1.19	1.13	1.13	1.09	1.12
Sulfate as SO4	***mg/L***	165	241			247		254			245			250	226	230	232	229	236	224	227	231	222	110
Total Organic Carbon (TOC)	***mg/L***	8.34	14.8			10.9		10.3			9.24			8.67	7.83	7.28	6.73	6.56	6.17	5.78	5.58	6.07	5.79	5.46
Nitrate/Nitrite as N	***mg/L***	<0.020	<0.020			<0.020		<0.020			<0.020			<0.02	<0.02	<0.02	<0.020	<0.020	<0.020	<0.020	0.034	<0.020	<0.020	<0.020
Ammonia as N ^	***mg/L***	NA	NA			NA		NA			NA			NA	NA	NA	NA	NA	NA	0.317	NA	NA	NA	NA
Ortho-Phosphate as P ^	***mg/L***	NA	NA			NA		NA			NA			NA	NA	NA	NA	NA	NA	0.348	NA	NA	NA	NA
Aluminum	***mg/L***	<0.050	0.102			<0.050		<0.250			<0.100			<0.05	<0.05	<0.10	<0.050	<0.050	0.167	<0.250	<0.100	<0.250	<0.150	<0.200
Arsenic	***mg/L***	0.0134	0.0167			0.0131		0.0135			0.0160			0.0152	0.0127	0.0104	0.0149	0.0107	0.0142	0.0099	0.0093	0.0086	0.0061	0.007
Cadmium	***mg/L***	<0.0001	<0.0005			<0.0005		<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0001	<0.0005	<0.0001	<0.0002	<0.0002	<0.0005	<0.0005	<0.0004
Copper	***mg/L***	0.0055	0.0058			0.0065		0.0059			0.0122			0.0048	0.0071	0.0073	0.0068	0.0063	0.0049	0.0037	0.0024	<0.0025	0.0046	0.0045
Iron	***mg/L***	<0.050	<0.100			<0.050		<0.250			<0.100			<0.05	<0.05	<0.1	<0.050	<0.050	<0.100	<0.250	<0.100	<0.250	<0.150	<0.200
Lead	***mg/L***	0.0024	<0.0025			<0.0025		<0.0025			<0.0005			<0.0005	<0.0005	<0.001	<0.0005	<0.0025	<0.0005	<0.0010	<0.0010	<0.0025	<0.0025	<0.0020
Manganese	***mg/L***	0.0022	0.0058			0.0033		0.0045			0.0049			0.006	0.0054	0.0072	0.0078	0.0082	0.0079	0.0099	0.0095	0.0102	0.0072	0.007
Mercury	***mg/L***	<0.0002	<0.0002			<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	***mg/L***	0.0061	0.0211			0.0148		0.0152			0.0170			0.016	0.0149	0.0158	0.0157	0.0167	0.0277	0.0372	0.0204	0.0195	0.0149	0.0163
Selenium	***mg/L***	0.0013	<0.0050			<0.0050		<0.0050			0.0010			0.0019	<0.0050	<0.002	0.0034	<0.005	<0.0010	<0.0020	<0.0020	<0.0050	<0.0050	<0.004
Silica (Si02)	***mg/L***	7.97	8.18			9.05		5.35			9.33			8.83	9.49	10.2	8.95	8.85	9.73	9.46	8.80	8.24	8.84	9.11
Silicon	***mg/L***	3.73	3.82			4.23		2.50			4.36			4.13	4.44	4.76	4.18	4.14	4.55	4.42	4.11	3.85	4.13	4.26
Uranium	***mg/L***	0.0049	0.0084			0.0140		0.0124			0.0125			0.0126	0.0111	0.0110	0.011	0.0085	0.0080	0.0070	0.0063	0.0059	0.0043	0.0049
Zinc	***mg/L***	0.0405	<0.0100			<0.0100		<0.0100			<0.0020			0.0023	0.0023	<0.0040	0.0028	<0.0100	0.0070	<0.0040	<0.0040	<0.0100	<0.0100	<0.0080

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-3-C

Year		2017								2018							2019				2020			
Quarter		Q1	Q2	Q3			Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5	9	11	3	5	8	12
Sample Date		3/27	6/30	7/27	8/24	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/7	8/8	11/6	2/27	5/21	9/17	11/12	3/13	5/26	8/31	12/1
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																								
Purge Flow Rate	gpm	0.5	NM	NM	NM	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	0.1	0.10	0.06	0.06	0.13	0.13	0.10	0.03	0.08	0.13
Total Purged	gal	20	2	NM	NM	NM	1	1	1	1.5	1.5	1.5	1	1.3	1.3	1.1	1.25	1.5	10	1.5	11	1.1	1.25	1.5
Depth to Water	ft bgs	304.21	296.3	296.93	296.87	297.43	297.46	297.43	297.35	297.01	296.66	296.57	296.62	296.78	297.12	296.80	296.39	295.56	295.70	295.50	299.35	294.99	294.60	295.26
Temperature	deg C	10.5	12.9	13.1	12.5	11.8	12.7	11.5	11.7	11.7	11.4	11.6	12.2	13.0	13.3	11.5	11.0	11.4	13.5	12.5	11.3	13.4	15.0	14.0
pH	SU	8.61	8.57	8.51	8.46	8.44	8.48	8.41	8.48	8.43	8.43	8.45	8.25	8.28	8.26	8.17	8.28	8.29	8.31	8.20	7.98	8.44	8.45	8.73
Specific Conductance	µS/cm	3549	3588	3815	4112	4351	4412	4659	4596	4923	4864	5063	5019	4916	4953	5127	5155	5184	5144	5144	4921	3143	5039	4251
Oxygen Reduction Potential	mV	-129.0	-87.2	-137.5	-128.8	-149.9	-198.3	-200.7	-222.2	-187.9	-183.5	-155.4	-154.7	-161.4	-180.5	-217.6	-185.4	-188.5	-151.8	-184.4	-155.0	-240.5	-174.4	-150.0
Lab Analytical Results:																								
Hardness as CaCO3	mg/L	14.4	11.8			15.1		14.9			16.1			40.3	17.9	21.7	17.3	16.8	18.6	18.6	18.3	16.0	18.1	16.9
pH (Lab)	SU	8.5	8.48			8.35		8.28			8.35			8.34	8.31	8.24	8.2	8.23	8.31	8.12	7.98	8.41	8.36	8.36
Total Dissolved Solids (Lab)	mg/L	2130	2360			3070		3310			3540			3610	3520	3360	3300	3440	3500	3390	3220	3180	3170	3280
Calcium	mg/L	3.60	2.87			3.50		3.58			3.81			7.28	4.01	4.70	4.05	3.74	4.30	4.23	4.26	3.81	3.97	3.72
Magnesium	mg/L	1.31	1.12			1.55		1.44			1.59			5.38	1.92	2.41	1.75	1.8	1.91	1.94	1.86	1.58	1.98	1.84
Sodium	mg/L	796	890			1100		1130			1200			1350	1220	1460	1270	1100	1360	1300	1280	1240	1250	1250
Potassium	mg/L	3.47	3.24			4.01		<5.00			<10.0			<5.00	<5.00	<5.00	<5.00	5.24	<5.00	<10.0	<10.0	<10.0	<10.0	<10.0
Alkalinity, Total	mg/L	1490	1570			1690		1880			1910			1760	1730	2050	2000	2110	2190	2130	2160	2050	1820	2090
Alkalinity, Bicarbonate	mg/L	1360	1480			1650		1830			1810			1600	1670	1900	1830	2000	2020	2070	2000	1800	1690	1970
Alkalinity, Carbonate	mg/L	130	90.0			40.0		50.0			100			160	60.0	150	170	110	170	60.0	160	250	130	120
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0			<10.0			<10	NA	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	mg/L	182	330			477		506			549			544	524	561	577	575	620	542	549	555	552	578
Fluoride	mg/L	4.89	4.94			4.52		4.34			4.15			3.52	3.84	4.04	4.04	3.91	3.78	3.66	3.61	3.51	3.47	3.53
Sulfate as SO4	mg/L	73.4	73.5			46.4		24.5			<10.0			<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Total Organic Carbon (TOC)	mg/L	10.6	58.5			219		251			337			343	306	141	122	129	132	107	81.9	23.4	17.1	15.7
Nitrate/Nitrite as N	mg/L	<0.020	<0.400			<0.400		<0.020			<0.020			<0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.02
Ammonia as N ^	mg/L	NA	NA			NA		NA			NA			NA	NA	NA	NA	NA	NA	0.500	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA	NA			NA		NA			NA			NA	NA	NA	NA	NA	NA	0.212	NA	NA	NA	NA
Aluminum	mg/L	<0.050	<0.100			<0.050		<0.250			<0.500			1.47	<0.500	<0.250	<0.250	<0.500	<0.250	<0.500	<0.500	<0.500	<0.500	<0.500
Arsenic	mg/L	0.0115	0.0088			0.0098		0.0091			0.0194			0.0168	0.0148	0.0155	0.0218	0.0171	0.0192	0.0188	0.0087	0.0133	0.0106	0.0125
Cadmium	mg/L	<0.0001	<0.0010			<0.0010		<0.0005			<0.0005			<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0010	<0.001
Copper	mg/L	0.0109	0.0147			0.0174		0.0160			0.0409			0.0183	0.0257	0.0227	0.0223	0.0168	0.0102	0.0109	0.0069	0.0064	0.0136	0.0156
Iron	mg/L	<0.050	<0.050			<0.050		<0.250			<0.500			0.252	<0.500	<0.250	<0.250	0.344	0.328	<0.500	<0.500	<0.500	<0.500	<0.500
Lead	mg/L	0.0085	<0.0050			<0.0050		<0.0025			<0.0025			<0.0025	<0.0025	<0.0025	<0.0025	<0.005	<0.0025	<0.0025	<0.0025	<0.0025	<0.0050	<0.0050
Manganese	mg/L	0.0091	0.0188			0.0178		0.0202			0.0307			0.0275	0.0243	0.0252	0.0483	0.063	0.0378	0.0266	0.0245	0.0175	0.0102	0.0079
Mercury	mg/L	<0.0002	<0.0002			<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.0143	0.0291			0.0241		0.0241			0.0221			0.0189	0.0155	0.0140	0.0134	0.0121	0.0081	0.0075	0.0082	0.0085	0.0076	0.0075
Selenium	mg/L	0.0233	0.0121			0.0149		0.0240			0.0383			0.0268	0.0232	0.0261	0.0464	0.0203	0.0203	0.0173	0.0125	0.0129	0.0135	0.0191
Silica (Si02)	mg/L	7.82	8.86			9.16		6.01			<10.7			9.69	8.68	10.7	8.24	8.35	9.06	<10.7	<10.7	<10.7	<10.7	<10.7
Silicon	mg/L	3.66	4.14			4.28		2.81			<5.00			4.53	4.06	5.01	3.85	3.9	4.24	<5.00	<5.00	<5.00	<5.00	<5.00
Uranium	mg/L	0.0091	0.0102			0.0137		0.0100			0.0091			0.0087	0.0089	0.0113	0.0077	0.0046	0.0053	0.0034	0.0045	0.0033	<0.0050	<0.0050
Zinc	mg/L	0.375	<0.0200			<0.0200		<0.0100			<0.0100			<0.0100	0.0664	0.0814	0.123	0.128	0.0567	0.0886	<0.0100	<0.0100	<0.0200	0.0332

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-4-A																								
Year		2017								2018							2019				2020			
Quarter		Q1	Q2	Q3			Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5	8	11	2	5	8	11
Sample Date		3/29	6/30	7/19	8/23	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/14	8/8	11/5	2/27	5/22	8/15	11/12	2/6	5/26	8/27	11/25
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																								
Purge Flow Rate	gpm	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.10	NM	0.1	0.1	0.1	0.1	0.06	0.06	0.06	0.13	0.03	0.03	0.13	0.13
Total Purged	gal	19.0	2.0	1.5	0.5	1.0	1.0	1.0	1.0	1.3	1.5	1.5	1	1.5	1.5	1.1	1.5	1.3	1.1	1.0	1.5	1.2	1.3	1.3
Depth to Water	ft bgs	338.6	334.96	335.59	334.79	334.81	334.86	332.29	334.09	334.31	334.73	334.81	335.07	335.58	336.06	336.73	335.6	335.07	335.21	335.16	336.35	337.16	336.88	336.13
Temperature	deg C	15.6	16.8	25.5	17.6	11.9	11.6	10.8	10.1	10.9	9.8	11.4	10.9	17.8	12.9	11.6	11.1	10.4	13.6	11.6	10.3	12.5	14.0	12.3
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	8.20	8.10	8.12	8.15	8.08	8.02	8.11	8.07	8.19	8.27	8.30
Specific Conductance	µS/cm	2163	2053	1876	2096	2180	2165	2186	2261	2259	2267	2207	2214	2183	2192	2246	2205	2237	2201	2211	2271	2273	2165	2249
Oxygen Reduction Potential	mV	28.6	54.0	60.2	61.7	-8.6	-27.0	-12.3	-51.8	-35.2	-75.9	-117.3	-77.9	-81.8	-137.5	-157.6	-92.3	-89.3	-54.3	-19.8	15.3	-71.3	-11.5	-10.6
Lab Analytical Results:																								
Hardness as CaCO3	mg/L	9.16	9.85			7.77		7.11			7.73			7.84	7.69	8.81	7.76	7.31	8.62	8.00	8.19	7.46	7.87	7.77
pH (Lab)	SU	8.2	8.40			8.36		8.40			8.28			8.31	8.21	8.24	8.05	8.08	8.15	8.02	8.11	7.90	8.19	8.16
Total Dissolved Solids (Lab)	mg/L	1470	1470			1450		1500			1490			1470	1430	1350	1450	1410	1540	1490	1500	1480	1460	1560
Calcium	mg/L	2.23	2.43			1.76		1.87			1.81			1.75	1.71	1.92	1.77	1.68	1.94	1.82	1.88	1.67	1.79	1.73
Magnesium	mg/L	0.871	0.916			0.823		0.591			0.778			0.846	0.832	0.973	0.809	0.756	0.914	0.837	0.850	0.798	0.826	0.836
Sodium	mg/L	515	537			513		511			507			528	531	568	535	515	548	529	551	498	533	531
Potassium	mg/L	1.57	1.75			1.63		<5.00			<2.00			1.5	<2.00	<2.00	<2.00	<2.00	4.75	<5.00	<3.00	<5.00	<5.00	<5.00
Alkalinity, Total	mg/L	635	560			630		590			530			560	575	575	545	565	575	544	560	585	605	538
Alkalinity, Bicarbonate	mg/L	635	560			590		560			490			560	555	575	505	544	535	528	560	545	565	530
Alkalinity, Carbonate	mg/L	<10.0	<10.0			40.0		30.0			40.0			<10.0	20.0	<10.0	40	32	40.0	16.0	<10.0	40.0	40	<10.0
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	mg/L	9.56	9.66			10.3		10.3			10.0			9.94	9.55	8.60	8.93	8.99	8.91	8.76	8.83	8.89	10.1	9.15
Fluoride	mg/L	<0.400	<0.400			<0.500		<0.500			<0.500			<0.5	<0.5	0.143	<0.200	<0.2	<0.200	<0.200	<0.200	<0.200	<0.5	<0.2
Sulfate as SO4	mg/L	594	588			783		594			579			561	522	450	567	584	615	559	557	580	542	607
Total Organic Carbon (TOC)	mg/L	6.63	11.7			3.52		3.27			3.46			3.59	3.60	3.59	3.47	3.40	3.33	3.25	3.10	3.49	3.48	3.27
Nitrate/Nitrite as N	mg/L	0.035	<0.020			<0.020		<0.020			<0.020			<0.02	<0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ammonia as N ^	mg/L	NA	NA			NA		NA			NA			NA	NA	NA	NA	NA	NA	0.312	NA	NA	NA	NA
Ortho-Phosphate as P ^	mg/L	NA	NA			NA		NA			NA			NA	NA	NA	NA	NA	NA	<0.0500	NA	NA	NA	NA
Aluminum	mg/L	<0.050	<0.050			<0.050		<0.250			<0.100			<0.05	<0.05	<0.100	<0.100	<0.100	<0.100	<0.250	<0.150	<0.250	<0.250	<0.250
Arsenic	mg/L	0.0016	<0.0025			<0.0025		<0.0025			0.0019			0.0005	<0.0025	<0.0010	<0.0010	<0.0005	<0.0005	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025
Cadmium	mg/L	<0.0001	<0.0005			<0.0005		<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005
Copper	mg/L	0.0053	0.0093			0.0076		0.0073			0.0124			0.0077	0.0105	0.0084	0.0081	0.0061	0.0120	0.0037	0.0034	0.0020	0.0056	0.0053
Iron	mg/L	<0.050	<0.050			<0.050		<0.250			<0.100			<0.05	<0.05	<0.100	<0.100	<0.100	<0.100	<0.250	<0.150	<0.250	<0.250	<0.250
Lead	mg/L	0.0014	<0.0025			<0.0025		<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0010	<0.0005	<0.0010	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025
Manganese	mg/L	0.0044	0.0063			0.0044		0.0040			0.0035			0.0033	<0.0075	0.0034	0.0032	0.0031	0.0026	0.0016	0.0033	0.0031	0.0029	0.0035
Mercury	mg/L	<0.0002	<0.0002			<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	0.0009	0.0275			<0.0025		<0.0025			0.0005			<0.0005	<0.0005	<0.0010	<0.0010	<0.0005	<0.0005	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025
Selenium	mg/L	0.0016	<0.0050			<0.0050		<0.0050			0.0014			0.0025	<0.0050	<0.0020	0.0036	<0.001	<0.0010	<0.0020	<0.0020	<0.0020	<0.0050	<0.0050
Silica (Si02)	mg/L	10.2	10.6			9.99		6.85			9.47			10	10.2	11.2	9.65	9.81	11.0	10.5	10.3	8.55	9.44	9.96
Silicon	mg/L	4.75	4.97			4.67		3.20			4.43			4.7	4.77	5.22	4.51	4.59	5.14	4.89	4.79	4.00	4.42	4.65
Uranium	mg/L	0.0016	<0.0005			<0.0005		0.0005			0.0003			<0.0001	<0.0005	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0010	<0.0010	<0.0025	<0.0025
Zinc	mg/L	0.269	0.0319			<0.0100		<0.0100			0.0022			0.0024	<0.0100	<0.0040	<0.0040	0.0033	<0.0020	<0.0040	<0.0040	<0.0040	<0.0100	<0.0100

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-4-MI																								
Year		2017								2018							2019				2020			
Quarter		Q1	Q2	Q3			Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5	8	11	2	5	8	11
Sample Date		3/30	6/16	7/27	8/23	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/14	8/8	11/5	2/27	5/22	8/15	11/12	2/6	5/26	8/27	11/25
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																								
Purge Flow Rate	***gpm***	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	0.1	0.10	0.06	0.06	0.13	0.25	0.13	0.13	0.13	0.13
Total Purged	***gal***	0.5	6.5	NM	NM	1.0	1.0	1.0	1.0	1.3	1.5	1.5	1	1.3	1.8	1.6	2.0	1.3	1.1	1.0	1.3	1.2	1.3	1.3
Depth to Water	***ft bgs***	378.2	330.15	330.94	330.85	330.81	330.80	330.74	330.67	330.52	330.42	330.53	330.5	329.62	331.1	336.57	331.1	331.06	331.92	332.1	332.5	332.87	332.45	333.29
Temperature	***deg C***	15.0	14.6	12.9	12.5	11.4	10.7	11.3	11.4	11.2	11.0	10.5	10.9	10.1	11.8	11.3	11.1	10.8	13.3	11.6	11.8	12.2	12.9	11.8
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	8.50	8.14	8.25	8.38	8.23	8.14	8.26	8.18	8.42	8.45	8.57
Specific Conductance	***µS/cm***	1581	1668	1731	1708	1784	1794	1804	1833	1848	1856	1841	1816	1739	1756	1808	1716	1800	1830	1776	1795	1794	1730	1777
Oxygen Reduction Potential	***mV***	155.2	64.7	9.8	35.2	-29.6	-37.3	-111.5	-89.2	-112.5	-151.3	-145.7	-117.7	-130.0	-178.2	-202.3	-140.4	-154.7	-127.3	-76.8	-50.6	-131.2	-92.0	-87.7
Lab Analytical Results:																								
Hardness as CaCO3	***mg/L***	5.43	8.71			7.07		4.20			6.01			5.88	6.06	6.39	5.35	4.93	5.65	3.31	4.70	<3.31	5.19	2.84
pH (Lab)	***SU***	8.83	8.59			8.63		8.51			8.47			8.48	8.31	8.47	8.35	8.3	8.44	8.08	8.33	8.02	8.28	8.38
Total Dissolved Solids (Lab)	***mg/L***	1160	1170			1180		1180			1220			1140	1120	1100	1130	1130	1140	1120	1110	1110	1070	1170
Calcium	***mg/L***	1.53	2.32			1.88		1.68			1.64			1.55	1.56	1.60	1.44	1.3	1.51	1.32	1.21	1.22	1.32	1.14
Magnesium	***mg/L***	0.392	0.707			0.579		<0.500			0.465			0.49	0.524	0.580	0.428	0.408	0.458	<0.500	0.406	<0.500	0.459	<0.400
Sodium	***mg/L***	408	458			449		452			447			471	470	500	462	458	496	477	441	460	459	458
Potassium	***mg/L***	1.46	<2.00			1.73		<5.00			<2.00			1.39	<2.00	<2.00	1.43	1.77	2.03	<5.00	<2.00	<5.00	<3.00	<4.00
Alkalinity, Total	***mg/L***	965	915			1100		985			965			955	968	995	510	890	970	978	985	1030	1020	1010
Alkalinity, Bicarbonate	***mg/L***	775	825			880		885			875			865	896	885	420	650	880	886	895	935	940	965
Alkalinity, Carbonate	***mg/L***	190	90.0			220		100			90.0			90	72.0	110	90	240	90.0	92.0	90.0	90.0	80	40
Alkalinity, Hydroxide	***mg/L***	<10.0	<10.0			<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	***mg/L***	2.18	7.50			8.78		9.11			8.74			7.99	5.68	5.38	5.98	5.98	5.83	5.47	5.37	5.11	5.02	4.97
Fluoride	***mg/L***	4.72	5.02			5.09		5.10			5.02			4.82	4.84	4.94	5.49	5.44	5.38	5.31	5.11	5.16	5	5.27
Sulfate as SO4	***mg/L***	17.4	64.7			76.6		77.5			68.6			54.4	48.3	47.6	38.7	34.4	31.9	28.2	24.6	21.9	20	18.7
Total Organic Carbon (TOC)	***mg/L***	2.64	6.49			8.58		9.53			9.54			9.25	8.94	8.48	8.37	8.25	7.81	6.42	6.63	6.55	5.93	5.77
Nitrate/Nitrite as N	***mg/L***	<0.020	<0.020			<0.020		<0.020			<0.020			<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.040	<0.020	<0.020	<0.020
Ammonia as N ^	***mg/L***	NA	NA			NA		NA			NA			NA	NA	NA	NA	NA	NA	0.240	NA	NA	NA	NA
Ortho-Phosphate as P ^	***mg/L***	NA	NA			NA		NA			NA			NA	NA	NA	NA	NA	NA	0.280	NA	NA	NA	NA
Aluminum	***mg/L***	<0.050	<0.100			<0.050		<0.250			<0.100			<0.05	<0.100	<0.100	<0.050	<0.050	<0.100	<0.250	<0.100	<0.250	<0.15	<0.200
Arsenic	***mg/L***	0.0099	0.0220			0.0131		0.0122			0.0139			0.0153	0.014	0.0119	0.0164	0.0111	0.0116	0.0107	0.0127	0.0139	0.0084	0.0092
Cadmium	***mg/L***	<0.0001	<0.0001			<0.0005		<0.0005			<0.0001			<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0005	<0.0004
Copper	***mg/L***	0.0059	0.0058			0.0071		0.0070			0.0079			0.0063	0.0071	0.0078	0.0087	0.0153	0.0051	0.0027	0.0028	0.0020	0.0052	0.0045
Iron	***mg/L***	<0.050	<0.100			<0.050		<0.250			<0.100			<0.05	<0.100	<0.100	<0.050	<0.050	<0.100	<0.250	<0.100	<0.250	<0.15	<0.200
Lead	***mg/L***	0.0010	<0.0005			<0.0025		<0.0025			<0.0005			<0.0005	<0.0005	<0.0010	<0.0005	<0.0005	<0.0005	<0.0010	<0.0010	<0.0005	<0.0025	<0.0020
Manganese	***mg/L***	0.0020	0.0066			0.0081		0.0124			0.0080			0.007	0.0068	0.0084	0.0091	0.0084	0.0084	0.0073	0.0085	0.0086	0.0086	0.0092
Mercury	***mg/L***	<0.0002	<0.0002			<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	***mg/L***	0.0020	0.0160			0.0127		0.0134			0.0151			0.0119	0.0115	0.0129	0.0121	0.0119	0.0108	0.0101	0.0096	0.0091	0.0081	0.0089
Selenium	***mg/L***	<0.0010	0.0012			<0.0050		<0.0050			<0.0010			0.0022	0.0113	<0.0020	0.002	<0.001	<0.0010	<0.0020	<0.0020	<0.0010	<0.005	<0.004
Silica (Si02)	***mg/L***	7.27	8.01			8.80		<5.35			8.30			8.9	9.29	10.3	8.86	9.06	10.2	9.51	8.21	7.81	8.39	8.88
Silicon	***mg/L***	3.40	3.75			4.11		2.50			3.88			4.16	4.34	4.81	4.14	4.24	4.76	4.45	3.84	3.65	3.92	4.15
Uranium	***mg/L***	0.0043	0.0126			0.0184		0.0169			0.0183			0.0173	0.0151	0.0191	0.0269	0.0176	0.0168	0.0145	0.0163	0.0195	0.0121	0.0139
Zinc	***mg/L***	0.113	0.0697			<0.0100		<0.0100			<0.0020			<0.002	<0.002	<0.0040	<0.0020	<0.002	<0.0100	<0.0040	<0.0040	<0.0040	<0.0100	<0.008

Notes & Definitions:

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

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

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

3. *Industry*

GCC Energy Hydrologic Monitoring Data

MW-4-C																								
Year		2017								2018							2019				2020			
Quarter		Q1	Q2	Q3			Q4			Q1			Q2		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Month		3	6	7	8	9	10	11	12	1	2	3	4	5	8	11	2	5	8	11	2	5	8	12
Sample Date		3/30	6/16	7/27	8/23	9/28	10/27	11/17	12/7	1/3	2/21	3/23	4/12	5/14	8/8	11/5	2/27	5/22	8/15	11/12	2/4	5/26	8/27	12/1
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Field Parameters:																								
Purge Flow Rate	***gpm***	NM	NM	NM	NM	NM	NM	NM	NM	NM	0.1	NM	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Purged	***gal***	7.0	1.5	NM	NM	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1	1.5	1	1.3	1.5	1.3	1.1	1.0	1.5	1.2	1.5	1.3
Depth to Water	***ft bgs***	328.33	314.05	309.87	306.86	303.96	303.80	302.47	304.80	282.35	281.30	303.30	304.05	NM	302.55	302.17	302.45	303.93	304.93	305.73	306.44	304.90	307.80	308.05
Temperature	***deg C***	13.3	17.4	12.7	12.0	13.9	11.8	11.2	11.0	11.7	10.8	12.5	11.4	12.4	12.9	11.5	11.3	11.2	12.5	11.7	11.2	12.7	13.0	11.4
pH	***SU***	8.33	7.62	7.68	7.70	7.69	7.75	7.72	7.79	7.80	7.88	7.94	7.75	7.79	7.76	7.79	7.87	7.86	7.81	7.85	7.87	7.97	8.00	8.05
Specific Conductance	***µS/cm***	3792	5944	5997	5885	5813	5721	5782	5604	5834	5903	5628	5792	5592	5583	5775	5710	5712	5930	5636	5729	5636	5429	5665
Oxygen Reduction Potential	***mV***	57.3	20.3	-101.5	-111.2	-103.7	-117.4	-109.0	-120.1	-123.8	-154.3	-131.3	-134.9	-129.3	-157.6	-209.0	-160.1	-180.1	-156.8	-148.7	-135.9	-147.7	-132.1	-128.7
Lab Analytical Results:																								
Hardness as CaCO3	***mg/L***	46.3	55.9			38.9		30.0			26.5			26.2	25.9	28.6	23.6	22.5	25.2	24.4	24.0	22.7	23	21.8
pH (Lab)	***SU***	7.61	7.77			7.79		7.98			7.84			7.97	7.96	8.27	7.9	7.92	7.95	7.85	7.95	7.76	7.92	7.94
Total Dissolved Solids (Lab)	***mg/L***	3230	4050			3750		3780			3730			3660	3650	3590	3580	3590	3610	3610	3580	3570	3510	3610
Calcium	***mg/L***	13.6	13.7			9.15		7.45			6.32			6.15	5.90	6.60	5.5	5.21	5.83	5.61	5.57	5.31	5.3	5.15
Magnesium	***mg/L***	2.99	5.26			3.90		2.76			2.61			2.62	2.72	2.94	2.39	2.3	2.57	2.53	2.44	2.30	2.36	2.18
Sodium	***mg/L***	908	1510			1490		1400			1410			1400	1410	1590	1410	1370	1440	1430	1440	1390	1400	1400
Potassium	***mg/L***	4.38	5.71			6.07		<10.0			<10.0			<5.00	<5.00	5.36	<5.00	<5.00	5.42	<10.0	<5.00	<10.0	<10.0	<10.0
Alkalinity, Total	***mg/L***	1250	2360			2780		2680			2600			2410	2480	2450	2470	2550	2500	2470	2480	2460	2500	2950
Alkalinity, Bicarbonate	***mg/L***	1250	2360			2780		2640			2600			2330	2480	2450	2470	2350	2390	2410	2420	2340	2390	2880
Alkalinity, Carbonate	***mg/L***	<10.0	<10.0			<10.0		40.0			<10.0			80	<10.0	<10.0	<10.0	200	110	60.0	60.0	120	110	70
Alkalinity, Hydroxide	***mg/L***	<10.0	<10.0			<10.0		<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	***mg/L***	181	550			587		608			592			573	533	590	575	554	580	525	528	555	543	565
Fluoride	***mg/L***	1.29	2.04			2.17		2.43			2.53			2.52	2.48	2.54	2.64	2.62	2.59	2.51	2.41	2.36	2.34	2.37
Sulfate as SO4	***mg/L***	534	487			70.2		26.0			34.5			27	18.7	11.2	5.07	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Total Organic Carbon (TOC)	***mg/L***	30	6.42			5.08		3.64			3.23			3.23	2.80	3.46	3.24	2.62	2.63	4.18	2.23	2.50	2.31	3.72
Nitrate/Nitrite as N	***mg/L***	<2.00	<0.500			<0.400		<0.100			<0.020			<0.02	<0.02	<0.020	0.061	<0.020	<0.020	<0.020	<0.020	<0.020	<0.02	<0.020
Ammonia as N ^	***mg/L***	NA	NA			NA		NA			NA			NA	NA	NA	NA	NA	NA	0.424	NA	NA	NA	NA
Ortho-Phosphate as P ^	***mg/L***	NA	NA			NA		NA			NA			NA	NA	NA	NA	NA	NA	0.182	NA	NA	NA	NA
Aluminum	***mg/L***	<0.050	<0.050			<0.050		<0.500			<0.500			<0.25	<0.25	<0.250	<0.250	<0.250	<0.250	<0.500	<0.250	<0.500	<0.500	<0.500
Arsenic	***mg/L***	0.0059	0.0119			0.0128		0.0152			0.0246			0.0195	0.0202	0.0164	0.0211	0.0171	0.0178	0.0179	0.0203	0.0195	0.015	0.0182
Cadmium	***mg/L***	<0.0001	<0.0010			<0.0010		<0.0010			<0.0005			<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001
Copper	***mg/L***	0.0125	0.0243			0.0221		0.0208			0.0482			0.0389	0.0280	0.0230	0.0249	0.0382	0.0198	0.0107	0.0111	0.0069	0.0151	0.0148
Iron	***mg/L***	<0.050	<0.050			<0.050		<0.500			<0.500			0.373	0.397	0.474	0.279	0.391	0.522	0.619	0.591	0.551	<0.500	0.553
Lead	***mg/L***	<0.0005	<0.0050			<0.0050		<0.0050			<0.0025			<0.0025	<0.0025	<0.0025	<0.0025	<0.0005	<0.0025	<0.0025	<0.0025	<0.0025	<0.005	<0.005
Manganese	***mg/L***	0.0269	0.0772			0.0554		0.0571			0.0647			0.0529	0.0381	0.0283	0.0268	0.0174	0.0162	0.0096	0.0209	0.0103	0.008	0.0076
Mercury	***mg/L***	<0.0002	<0.0002			<0.0002		<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0050	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	***mg/L***	0.0526	0.115			0.0138		0.0106			0.0086			0.0072	0.0071	0.0057	0.0074	0.007	0.0056	0.0047	0.0045	0.0044	<0.005	<0.005
Selenium	***mg/L***	0.0248	0.0231			0.0214		0.0269			0.0378			0.0317	0.0260	0.0211	0.0339	0.0195	0.0195	0.0156	0.0140	0.0129	0.0112	0.0182
Silica (Si02)	***mg/L***	9.85	12.6			12.9		<10.7			<10.7			11	11.2	12.8	10.1	10.5	11.3	11.0	9.88	<10.7	<10.7	<10.7
Silicon	***mg/L***	4.61	5.88			6.02		<5.00			<5.00			5.16	5.24	6.00	4.7	4.89	5.29	5.14	4.62	<5.00	<5.00	<5.00
Uranium	***mg/L***	0.0297	0.121			0.0984		0.0545			0.0311			0.0311	0.0277	0.0246	0.0215	0.0154	0.0086	0.0073	0.0063	0.0039	<0.005	<0.005
Zinc	***mg/L***	0.0156	0.0265			<0.0200		<0.0200			<0.0100			<0.0100	<0.0100	<0.0100	<0.0100	0.0038	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200	<0.0200

Notes & Definitions:

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

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

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

3. *Industry*

GCC Energy Hydrologic Monitoring Data

MW-6-A																
Year		**2018**	**2019**										**2020**			
Quarter		Q4	Q1			Q2			Q3			Q4	Q1	Q2	Q3	Q4
Month		12	1	2	3	4	5	6	7	8	9	11	2	5	8	11
Sample Date		12/28	1/31	2/21	3/21	4/23	5/20	6/19	7/23	8/15	9/24	11/7	2/5	5/14	8/11	11/25
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	Y	Y	Y	Y	Y
Field Parameters:																
Purge Flow Rate	*gpm*	NM	NM	0.10	2.00	0.03	0.03	0.03	0.06	0.03	0.02	0.01	0.05	0.13	0.05	0.05
Total Purged	*gal*	36.3	0.5	0.5	2.0	2.0	1.3	1.0	1.3	1.1	1.3	1.5	1.1	1.0	1.3	1.0
Depth to Water	*ft bgs*	304.33	306.41	307.40	309.60	311.05	312.50	314.20	315.75	316.43	NM	318.70	315.46	319.63	319.64	319.65
Temperature	*deg C*	7.4	10.7	8.1	7.5	9.6	7.3	12.5	12.3	11.9	10.4	10.4	7.8	9.8	19.5	8.0
pH	*SU*	7.32	6.64	6.66	6.74	6.65	6.73	6.76	6.75	6.76	6.80	6.79	6.89	6.95	6.97	7.10
Specific Conductance	*µS/cm*	6573	6053	6072	6107	6012	6057	5725	5598	5562	5451	5108	5043	4779	4339	4656
Oxygen Reduction Potential	*mV*	-22.8	19.4	24.6	12.6	11.8	34.8	86.6	25.8	6.5	29.2	20.5	36.7	51.7	62.3	55.2
Lab Analytical Results:																
Hardness as CaCO3	*mg/L*	4360		4190			3920			3540		3070	3200	2780	2690	2710
pH (Lab)	*SU*	7.10		6.85			6.77			6.85		6.87	6.9	6.93	6.66	7.04
Total Dissolved Solids (Lab)	*mg/L*	6520		6520			120*			6080		5210	4980	4670	4490	4570
Calcium	*mg/L*	615		559			553			492		431	467	400	398	406
Magnesium	*mg/L*	687		678			617			560		484	495	431	411	413
Sodium	*mg/L*	294		283			296			304		276	296	274	261	273
Potassium	*mg/L*	15.0		14.4			12.4			12.8		11.1	<20.0	10.6	10.3	10.5
Alkalinity, Total	*mg/L*	160		160			143			183		220	215	233	236	246
Alkalinity, Bicarbonate	*mg/L*	160		160			143			183		220	215	233	236	246
Alkalinity, Carbonate	*mg/L*	<10.0		<10.0			<10.0			<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	<10.0	<10.0	<10.0
Chloride	*mg/L*	97.4		28.6			27.3			29.9		29.6	28.4	29.0	26.0	26.6
Fluoride	*mg/L*	2.83		<0.500			<0.500			<0.500		<0.500	<0.500	<0.500	<0.500	<0.500
Sulfate as SO4	*mg/L*	205		4300			4280			4260		3460	3080	3020	3160	2890
Total Organic Carbon (TOC)	*mg/L*	3.45		3.08			2.91			3.57		3.10	3.16	3.39	3.31	3.26
Nitrate/Nitrite as N	*mg/L*	<0.020		<0.020			<0.020			<0.020		<0.020	0.049	0.154	0.117	0.093
Ammonia as N ^	*mg/L*	NA		NA			NA			NA		2.72	NA	NA	NA	NA
Ortho-Phosphate as P ^	*mg/L*	NA		NA			NA			NA		<0.0500	NA	NA	NA	NA
Aluminum	*mg/L*	<0.500		<0.250			<0.250			<0.250		<0.250	<1.00	<0.500	<0.250	<0.500
Arsenic	*mg/L*	<0.0025		<0.0025			0.0009			<0.0025		<0.0025	<0.0025	<0.0050	<0.0025	<0.0050
Cadmium	*mg/L*	<0.0005		<0.0005			0.0001			<0.0005		<0.0005	<0.0005	<0.0010	<0.0005	<0.0010
Copper	*mg/L*	0.0116		0.0081			0.0035			0.0039		0.0017	0.0028	<0.0050	<0.0025	<0.0050
Iron	*mg/L*	1.37		3.75			3.93			3.22		2.72	1.95	1.38	1.10	1.24
Lead	*mg/L*	<0.0025		<0.0025			<0.0005			<0.0025		<0.0025	<0.0025	<0.0050	<0.0025	<0.0050
Manganese	*mg/L*	0.788		0.802			0.724			0.690		0.585	0.551	0.526	0.520	0.454
Mercury	*mg/L*	<0.0002		<0.0002			<0.0002			<0.0002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	*mg/L*	<0.0025		<0.0025			<0.0005			<0.0025		<0.0025	<0.0025	<0.0050	<0.0025	<0.005
Selenium	*mg/L*	<0.0050		<0.0050			0.0028			<0.0050		<0.0050	<0.005	<0.0100	<0.0050	<0.0100
Silica (Si02)	*mg/L*	12.3		11.9			14.3			13.4		12.5	<21.4	11.0	11.4	12.3
Silicon	*mg/L*	5.77		5.57			6.69			6.28		5.83	<10	5.17	5.35	5.76
Uranium	*mg/L*	<0.0005		<0.0005			<0.0001			<0.0005		<0.0005	<0.0025	<0.0050	<0.0025	<0.0050
Zinc	*mg/L*	0.0689		<0.0100			0.0082			0.0108		0.0117	0.0107	<0.0200	0.0159	<0.0200

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-6-C																
Year		**2018**	**2019**										**2020**			
Quarter		Q4	Q1			Q2			Q3			Q4	Q1	Q2	Q3	Q4
Month		12	1	2	3	4	5	6	7	8	9	11	2	5	8	11
Sample Date		12/24	1/30	2/21	3/21	4/23	5/20	6/19	7/23	8/15	9/24	11/7	2/5	5/12	8/11	11/24
Lab Analysis (Y/N)		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Field Parameters:																
Purge Flow Rate	*gpm*	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Total Purged	*gal*															
Depth to Water	*ft bgs*															
Temperature	*deg C*															
pH	*SU*															
Specific Conductance	*µS/cm*															
Oxygen Reduction Potential	*mV*															
Lab Analytical Results:																
Hardness as CaCO3	*mg/L*															
pH (Lab)	*SU*															
Total Dissolved Solids (Lab)	*mg/L*															
Calcium	*mg/L*															
Magnesium	*mg/L*															
Sodium	*mg/L*															
Potassium	*mg/L*															
Alkalinity, Total	*mg/L*															
Alkalinity, Bicarbonate	*mg/L*															
Alkalinity, Carbonate	*mg/L*															
Alkalinity, Hydroxide	*mg/L*															
Chloride	*mg/L*															
Fluoride	*mg/L*															
Sulfate as SO4	*mg/L*															
Total Organic Carbon (TOC)	*mg/L*															
Nitrate/Nitrite as N	*mg/L*															
Aluminum	*mg/L*															
Arsenic	*mg/L*															
Cadmium	*mg/L*															
Copper	*mg/L*															
Iron	*mg/L*															
Lead	*mg/L*															
Manganese	*mg/L*															
Mercury	*mg/L*															
Molybdenum	*mg/L*															
Selenium	*mg/L*															
Silica (Si02)	*mg/L*															
Silicon	*mg/L*															
Uranium	*mg/L*															
Zinc	*mg/L*															

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-6-MI																
Year		2018	2019										2020			
Quarter		Q4	Q1			Q2			Q3			Q4	Q1	Q2	Q3	Q4
Month		12	1	2	3	4	5	5	6	7	8	9	11	2	5	8	11
Sample Date		12/29	1/31	2/25	3/21	4/19	5/20	5/30	6/19	7/23	8/15	9/24	11/7	2/5	5/14	8/11	11/24
Lab Analysis (Y/N)		Y	N	Y	N	N	N#	N	N	N	N	N	N	N	N	N	N
Field Parameters:																	
Purge Flow Rate	gpm	NM	NM	NM	0.5	0.1	0.015	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Total Purged	gal	11.3	0.5	1.5	0.5	1.0	0.9										
Depth to Water	ft bgs	374.49	368.09	367.92	370.49	369.50	371.00										
Temperature	deg C	14.3	13.6	10.8	9.7	16.7	3.9										
pH	SU	8.26	7.43	7.21	7.55	7.97	7.84										
Specific Conductance	µS/cm	3390	3620	3132	2619	2202	2527										
Oxygen Reduction Potential	mV	103.0	-80.2	77.6	59.8	38.3	64.9										
Lab Analytical Results:																	
Hardness as CaCO3	mg/L	679		147													
pH (Lab)	SU	8.18		8.35													
Total Dissolved Solids (Lab)	mg/L	2480		1880													
Calcium	mg/L	104		23.4													
Magnesium	mg/L	102		21.6													
Sodium	mg/L	646		565													
Potassium	mg/L	12.0		5.30													
Alkalinity, Total	mg/L	395		615													
Alkalinity, Bicarbonate	mg/L	345		615													
Alkalinity, Carbonate	mg/L	50.0		<10.0													
Alkalinity, Hydroxide	mg/L	<10.0		<10.0													
Chloride	mg/L	175		178													
Fluoride	mg/L	2.06		2.46													
Sulfate as SO4	mg/L	1210		585													
Total Organic Carbon (TOC)	mg/L	3.63		4.55													
Nitrate/Nitrite as N	mg/L	0.023		<0.020													
Aluminum	mg/L	<0.100		<0.100													
Arsenic	mg/L	0.0084		0.0144													
Cadmium	mg/L	<0.0001		<0.0002													
Copper	mg/L	0.0113		0.0112													
Iron	mg/L	<0.100		<0.100													
Lead	mg/L	<0.0005		<0.0010													
Manganese	mg/L	0.0500		0.0224													
Mercury	mg/L	<0.0002		<0.0002													
Molybdenum	mg/L	0.0558		0.0690													
Selenium	mg/L	0.0098		0.0127													
Silica (Si02)	mg/L	9.93		9.05													
Silicon	mg/L	4.64		4.23													
Uranium	mg/L	0.0200		0.0118													
Zinc	mg/L	0.0092		0.0143													

Notes & Definitions:

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

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-6-LM																	
Year		**2018**	**2019**										**2020**				
Quarter		Q4	Q1			Q2			Q3			Q4	Q1	Q2	Q3	Q4	
Month		12	1	2	3	4	5	6	7	8	9	10	11	2	5	8	11	
Sample Date		12/30	1/31	2/25	3/21	4/23	5/20	6/19	7/23	8/15	9/24	10/28	11/7	2/5	5/14	8/11	11/25	
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	
Field Parameters:																		
Purge Flow Rate	*gpm*	NM	NM	0.06	2.00	0.03	0.03	0.10	0.06	0.03	0.02	0.01	0.03	0.01	0.13	0.01	0.13	
Total Purged	*gal*	0.5	0.5	1.5	2.0	2.0	2.3	1.3	1.3	1.8	2.0	1.5	2.0	2.0	2.0	2.0	2.0	
Depth to Water	*ft bgs*	535.72	538.73	539.34	540.64	539.98	537.58	540.00	540.35	540.24	540.17	539.80	540.18	539.70	539.45	539.98	540.30	
Temperature	*deg C*	7.9	14.3	7.8	8.1	9.1	9.3	11.7	14.0	13.4	11.6	10.1	12.4	10.5	11.3	14.8	11.4	
pH	*SU*	7.64	7.38	7.51	7.54	7.49	7.54	7.67	7.80	7.65	7.43	7.45	7.37	7.39	7.54	7.44	7.47	
Specific Conductance	*µS/cm*	6011	3784	3503	1461	1164	1296	1400	1272	1532	2104	2267	2113	2283	2287	2442	2495	
Oxygen Reduction Potential	*mV*	185.3	10.7	40.9	-32.8	-35.8	-111.0	-194.5	-163.6	-67.2	6.4	-48.0	19.9	-128.9	-222.9	32.1	21.8	
Lab Analytical Results:																		
Hardness as CaCO3	*mg/L*	2260		1270			431			621			843	1060	965	1130	1160	
pH (Lab)	*SU*	7.60		7.52			7.47			7.59			7.32	7.43	7.18	6.95	7.45	
Total Dissolved Solids (Lab)	*mg/L*	5100		2840			875			1150			1630	1840	1840	2040	2020	
Calcium	*mg/L*	367		216			75.9			103			136	173	150	179	184	
Magnesium	*mg/L*	325		177			58.7			88.3			122	153	143	165	171	
Sodium	*mg/L*	459		248			129			153			172	203	188	194	194	
Potassium	*mg/L*	173		64.5			14.0			13.7			11.3	11	7.82	7.20	6.04	
Alkalinity, Total	*mg/L*	205		315			371			381			355	320	353	335	329	
Alkalinity, Bicarbonate	*mg/L*	205		315			371			381			355	320	353	335	329	
Alkalinity, Carbonate	*mg/L*	<10.0		<10.0			<10.0			<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	<10.0	<10.0	<10.0	
Chloride	*mg/L*	256		43.7			5.73			8.70			11.4	11	11.7	12.2	12.4	
Fluoride	*mg/L*	0.530		<0.500			0.324			<0.500			<0.500	0.352	<0.500	0.346	0.356	
Sulfate as SO4	*mg/L*	3050		1790			338			492			830	951	904	1260	1170	
Total Organic Carbon (TOC)	*mg/L*	3.46		2.61			1.57			1.78			1.85	1.76	1.84	1.87	1.93	
Nitrate/Nitrite as N	*mg/L*	<0.020		<0.020			<0.020			<0.020			<0.020	<0.020	<0.020	<0.020	<0.020	
Ammonia as N ^	*mg/L*	NA		NA			NA			NA			1.99	NA	NA	NA	NA	
Ortho-Phosphate as P ^	*mg/L*	NA		NA			NA			NA			<0.0500	NA	NA	NA	NA	
Aluminum	*mg/L*	<0.250		<0.250			<0.050			<0.050			<0.100	<0.250	<0.250	<0.150	<0.250	
Arsenic	*mg/L*	0.0039		0.0049			0.0036			0.0038			0.0035	0.0044	0.0034	0.0038	0.0036	
Cadmium	*mg/L*	<0.0005		<0.0005			<0.0001			<0.0001			<0.0002	<0.0002	<0.0005	<0.0003	<0.0005	
Copper	*mg/L*	0.0135		0.0064			0.0017			0.0018			0.0069	0.0014	<0.0025	<0.0015	<0.0025	
Iron	*mg/L*	<0.250		<0.250			<0.050			<0.050			<0.100	<0.250	<0.250	<0.150	<0.250	
Lead	*mg/L*	<0.0025		<0.0025			<0.0005			<0.0005			<0.0010	<0.001	<0.0025	<0.0015	<0.0025	
Manganese	*mg/L*	0.383		0.223			0.0692			0.148			0.166	0.184	0.171	0.267	0.292	
Mercury	*mg/L*	<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Molybdenum	*mg/L*	0.0490		0.0169			0.0037			0.0025			0.0022	0.002	<0.0025	0.0023	<0.0025	
Selenium	*mg/L*	0.0080		<0.0050			<0.0010			<0.0010			<0.0020	<0.002	<0.0050	<0.0030	<0.0050	
Silica (Si02)	*mg/L*	10.5		13.5			17.0			17.4			15.9	17.1	15.1	14.7	16.0	
Silicon	*mg/L*	4.91		6.29			7.96			8.12			7.43	7.97	7.07	6.88	7.47	
Uranium	*mg/L*	0.0230		0.0075			0.0039			0.0054			0.0047	0.0055	0.0043	0.0046	0.0042	
Zinc	*mg/L*	0.0323		<0.0100			<0.0020			<0.0040			<0.0040	<0.004	<0.0100	0.0069	<0.0100	

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-7-EAA

Year		2018	2019										2020			
Quarter		Q4	Q1			Q2			Q3			Q4	Q1	Q2	Q3	Q4
Month		12	1	2	3	4	5	6	7	8	9	10	11	2	5	8	11
Sample Date		12/23	1/29	2/19	3/20	4/16	5/29	6/20	7/24	8/13	9/27	10/24	11/6	2/11	5/27	8/25	11/11
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y
Field Parameters:																	
Purge Flow Rate	*gpm*	1.10	1.10	1.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.25	0.13	0.25
Total Purged	*gal*	15.0	18.0	15.0	3.0	15.0	16.0	15.3	15.3	17.0	15.0	15.0	15.0	36.5	15.0	16.0	17.0
Depth to Water	*ft bgs*	36.13	36.27	36.45	36.52	36.70	36.25	36.22	36.48	36.49	36.88	36.85	36.85	36.72	35.40	36.35	37.10
Temperature	*deg C*	10.0	10.0	10.0	9.9	10.1	10.4	10.4	10.6	10.5	10.3	10.4	10.6	10.4	12.1	10.3	10.3
pH	*SU*	6.99	7.01	7.04	6.93	7.00	7.06	7.07	6.28	6.95	7.06	7.03	7.06	6.91	7.17	7.09	7.12
Specific Conductance	*µS/cm*	2001	1910	1910	1926	1912	1767	1836	1885	1890	1913	1936	1922	1993	1890	1772	1628
Oxygen Reduction Potential	*mV*	-68.0	-36.7	-41.4	-38.1	-48.8	14.1	-13.8	-33.9	-37.8	-29.5	-25.6	-21.3	0.9	-49.2	17.6	-8.6
Lab Analytical Results:																	
Hardness as CaCO3	*mg/L*	936		1030			982			997			1020	963	1020	1080	939
pH (Lab)	*SU*	7.2		7.37			7.17			7.09			6.99	6.92	6.89	7.23	7.06
Total Dissolved Solids (Lab)	*mg/L*	1460		1480			1490			1480			1530	1520	1430	1480	1450
Calcium	*mg/L*	170		179			171			173			162	165	175	183	157
Magnesium	*mg/L*	124		142			135			137			144	134	142	150	133
Sodium	*mg/L*	75.3		81.3			75.0			75.2			74.9	73.7	76.0	80.9	73.4
Potassium	*mg/L*	3.87		3.9			<5.00			3.74			3.74	3.82	<5.00	<5.00	<5.00
Alkalinity, Total	*mg/L*	380		367			405			392			350	357	355	268	430
Alkalinity, Bicarbonate	*mg/L*	380		367			405			392			425	357	355	268	430
Alkalinity, Carbonate	*mg/L*	<10.0		<10.0			<10.0			<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	<10.0	<10.0	<10.0
Chloride	*mg/L*	11.9		10.7			10.8			10.9			11.6	10.3	10.7	10.2	10.1
Fluoride	*mg/L*	<0.500		0.332			0.322			0.322			<0.500	0.354	0.330	0.322	0.322
Sulfate as SO4	*mg/L*	732		736			733			844			746	774	803	767	742
Total Organic Carbon (TOC)	*mg/L*	3.72		3.57			3.73			3.70			3.45	3.42	3.63	4.01	3.39
Nitrate/Nitrite as N	*mg/L*	<0.020		<0.020			<0.020			<0.020			<0.020	<0.020	<0.020	<0.020	<0.020
Ammonia as N ^	*mg/L*	NA		NA			NA			NA			0.178	NA	NA	NA	NA
Ortho-Phosphate as P ^	*mg/L*	NA		NA			NA			NA			<0.0500	NA	NA	NA	NA
Aluminum	*mg/L*	<0.050		<0.100			<0.250			<0.100			<0.050	<0.100	<0.250	<0.250	<0.250
Arsenic	*mg/L*	0.0014		0.0015			0.0013			0.0016			0.0013	0.0013	0.0011	<0.0015	<0.0025
Cadmium	*mg/L*	<0.0001		<0.0002			<0.0001			<0.0001			<0.0002	<0.0002	<0.0002	<0.0003	<0.0005
Copper	*mg/L*	0.0003		0.0018			0.0011			0.0008			0.0006	<0.0010	<0.0010	<0.0015	<0.0025
Iron	*mg/L*	1.82		1.95			1.81			2.12			2.00	1.84	1.71	2.16	2.15
Lead	*mg/L*	<0.0005		<0.0010			<0.0005			<0.0005			<0.0010	<0.001	<0.0010	<0.0015	<0.0025
Manganese	*mg/L*	3.72		4.49			4.01			4.22			4.76	4.86	3.63	4.49	4.42
Mercury	*mg/L*	<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	*mg/L*	0.0008		0.0011			0.0007			0.0009			<0.0010	0.001	<0.0010	<0.0015	<0.0025
Selenium	*mg/L*	<0.0020		<0.0020			<0.0010			0.0011			<0.0020	<0.002	<0.0020	<0.0030	<0.0050
Silica (Si02)	*mg/L*	16.6		16.1			16.1			16.9			16.8	16.4	15.8	16.9	14.9
Silicon	*mg/L*	7.75		7.52			7.55			7.90			7.83	7.67	7.37	7.91	6.96
Uranium	*mg/L*	0.0021		0.0018			0.0017			0.0018			0.0020	0.0019	0.0016	0.0018	<0.0025
Zinc	*mg/L*	<0.0050		<0.0040			0.0021			0.0020			<0.0040	<0.004	<0.0040	<0.0060.	<0.0100

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-8-EAA																	
Year		2018	2019											2020			
Quarter		Q4	Q1			Q2			Q3			Q4		Q1	Q2	Q3	Q4
Month		12	1	2	3	4	5	6	7	8	9	10	11	2	5	8	11
Sample Date		12/23	1/29	2/19	3/20	4/16	5/29	6/20	7/24	8/13	9/27	10/24	11/6	2/11	5/27	8/25	11/11
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y
Field Parameters:																	
Purge Flow Rate	*gpm*	0.85	1.10	0.50	3.00	0.50	0.75	1.00	1.00	0.75	0.50	1.00	0.25	1.00	0.25	0.13	0.13
Total Purged	*gal*	18.0	14.0	15.0	3.0	15.0	17.0	15.3	15.3	18.0	15.3	15.5	15.0	15.2	15.0	16.0	15.0
Depth to Water	*ft bgs*	40.00	39.95	40.10	43.45	40.44	40.05	39.94	40.10	40.08	40.25	40.31	40.22	40.40	40.45	34.50	40.83
Temperature	*deg C*	10.3	10.2	10.0	9.9	10.3	10.5	10.6	10.5	10.6	10.3	10.2	11.2	10.5	11.0	11.1	11.0
pH	*SU*	7.12	7.09	7.13	7.17	7.09	7.02	7.17	7.09	7.05	7.03	6.99	6.99	6.99	7.14	7.19	7.19
Specific Conductance	*µS/cm*	1781	1696	1720	1725	1729	1628	1676	1699	172	1739	1774	1739	1758	1760	1675	1716
Oxygen Reduction Potential	*mV*	-65	-52.8	-51.8	-53.0	-59.7	11.0	-29.5	-46.6	-44.8	-33.5	-38.8	-39.2	-18.2	-72.4	1.4	-14.7
Lab Analytical Results:																	
Hardness as CaCO3	*mg/L*	870		861			864			883			867	861	907	937	810
pH (Lab)	*SU*	7.28		7.36			7.13			7.05			7.01	7.11	6.96	7.18	7.1
Total Dissolved Solids (Lab)	*mg/L*	1220		1290			1240			1280			1380	1290	1260	1280	1310
Calcium	*mg/L*	152		151			148			154			143	149	153	160	134
Magnesium	*mg/L*	119		118			120			121			124	119	127	130	115
Sodium	*mg/L*	81.7		82.6			77.2			78.6			77.1	77.2	77.7	82.9	74.3
Potassium	*mg/L*	3.80		3.27			3.55			3.18			3.52	3.8	<5.00	<5.00	<5.00
Alkalinity, Total	*mg/L*	400		435			450			431			445	404	385	288	480
Alkalinity, Bicarbonate	*mg/L*	400		435			450			431			445	404	385	288	480
Alkalinity, Carbonate	*mg/L*	<10.0		<10.0			<10.0			<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	<10.0	<10.0	<10.0
Chloride	*mg/L*	9.83		10.5			10.3			11.1			11.0	10.2	10.3	10.1	11.3
Fluoride	*mg/L*	0.380		0.370			0.338			0.342			<0.500	0.33	0.346	0.336	0.334
Sulfate as SO4	*mg/L*	533		559			606			643			577	602	625	605	582
Total Organic Carbon (TOC)	*mg/L*	3.77		3.59			3.77			3.68			3.52	3.49	3.56	3.82	3.54
Nitrate/Nitrite as N	*mg/L*	<0.020		<0.020			<0.020			<0.020			<0.020	<0.020	<0.020	<0.020	<0.020
Ammonia as N ^	*mg/L*	NA		NA			NA			NA			NA	NA	NA	NA	NA
Ortho-Phosphate as P ^	*mg/L*	NA		NA			NA			NA			NA	NA	NA	NA	NA
Aluminum	*mg/L*	<0.100		<0.100			<0.050			<0.100			<0.050	<0.100	<0.250	<0.250	<0.250
Arsenic	*mg/L*	0.0020		0.0018			0.0018			0.0021			0.0018	0.0017	0.0017	0.0018	<0.0025
Cadmium	*mg/L*	<0.0001		<0.0002			<0.0001			<0.0001			<0.0001	<0.0002	<0.0002	<0.0003	<0.0005
Copper	*mg/L*	0.0004		0.0024			0.0023			0.0008			0.0010	0.001	<0.0010	<0.0015	<0.0025
Iron	*mg/L*	2.12		2.13			2.42			2.46			2.30	2.28	2.29	2.31	0.762
Lead	*mg/L*	<0.0005		<0.0010			<0.0005			<0.0005			<0.0005	<0.001	<0.0010	<0.0015	<0.0025
Manganese	*mg/L*	3.17		3.52			3.06			3.37			3.39	3.7	3.36	3.54	3.81
Mercury	*mg/L*	<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	*mg/L*	0.0009		0.0011			0.0008			0.0011			0.0008	<0.0010	<0.0010	<0.0015	<0.0025
Selenium	*mg/L*	<0.0020		<0.0020			0.0010			0.0013			<0.0010	<0.0020	<0.0020	<0.0030	<0.0050
Silica (Si02)	*mg/L*	16.3		15.3			15.7			16.1			15.9	15.7	15.0	16.1	14.2
Silicon	*mg/L*	7.63		7.15			7.32			7.52			7.42	7.32	7.02	7.53	6.63
Uranium	*mg/L*	0.0021		0.0017			0.0016			0.0018			0.0019	0.0019	0.0017	0.0017	<0.0025
Zinc	*mg/L*	<0.0050		<0.0040			<0.0020			<0.0020			<0.0020	<0.0040	<0.0040	<0.0060	<0.0100

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-8-MI																	
Year		2018	2019											2020			
Quarter		Q4	Q1			Q2			Q3			Q4		Q1	Q2	Q3	Q4
Month		12	1	2	3	4	5	6	7	8	9	10	11	2	5	8	11
Sample Date		12/23	1/29	2/19	3/20	4/16	5/29	6/20	7/24	8/13	9/27	10/24	11/6	2/11	5/27	8/25	11/11
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y
Field Parameters:																	
Purge Flow Rate	*gpm*	1.10	1.00	0.50	3.00	0.50	0.50	0.25	0.50	0.75	0.50	1.00	0.25	0.25	0.13	0.10	0.25
Total Purged	*gal*	27.5	18.0	1.0	3.0	1.5	2.5	2.5	2.3	3.0	2.0	2.5	1.0	1.0	1.0	2.0	1.0
Depth to Water	*ft bgs*	45.75	43.48	43.50	44.30	44.47	44.10	44.24	44.45	44.59	44.90	45.12	45.10	45.20	45.42	45.84	46.24
Temperature	*deg C*	10.8	10.8	10.6	11.2	10.4	11.1	11.4	11.0	11.4	10.9	10.3	11.4	10.2	11.3	13.1	11.3
pH	*SU*	7.57	7.50	7.48	7.47	7.34	7.31	7.48	7.42	7.38	7.30	7.23	7.15	7.08	7.44	7.44	7.43
Specific Conductance	*µS/cm*	1786	1667	1651	1658	1643	1595	1639	1645	1658	1637	1689	1642	1651	1659	1598	1628
Oxygen Reduction Potential	*mV*	-84.4	-177.1	-122.1	-113.3	-87.2	-54.4	-97.1	-116.4	-119.4	-88.4	-82.0	-59.3	-136.6	-184.9	-107.0	-112.2
Lab Analytical Results:																	
Hardness as CaCO3	*mg/L*	167		249			273			253			267	254	309	355	339
pH (Lab)	*SU*	7.73		7.54			7.24			7.46			7.44	7.53	7.25	7.34	7.27
Total Dissolved Solids (Lab)	*mg/L*	1050		1030			1100			1110			1050	1060	1040	1010	1040
Calcium	*mg/L*	34.0		48.5			52.4			49.7			51.3	48.7	58.5	65.9	62.6
Magnesium	*mg/L*	19.9		31.0			34.5			31.4			33.8	32.1	39.6	46.2	44.4
Sodium	*mg/L*	344		312			289			289			275	269	272	260	232
Potassium	*mg/L*	4.47		5.25			<5.00			4.55			5.07	4.71	5.00	5.56	5.22
Alkalinity, Total	*mg/L*	500		565			560			573			585	543	545	448	590
Alkalinity, Bicarbonate	*mg/L*	500		565			560			573			585	543	545	448	590
Alkalinity, Carbonate	*mg/L*	<10.0		<10.0			<10.0			<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	<10.0	<10.0	<10.0
Chloride	*mg/L*	12.7		10.0			9.33			9.06			9.66	8.19	8.23	8.12	7.91
Fluoride	*mg/L*	<0.500		<0.200			<0.200			<0.200			<0.500	<0.200	<0.200	<0.200	<0.200
Sulfate as SO4	*mg/L*	347		353			343			366			317	314	316	335	319
Total Organic Carbon (TOC)	*mg/L*	2.73		2.83			2.81			2.74			2.65	2.6	2.94	2.87	2.76
Nitrate/Nitrite as N	*mg/L*	<0.020		<0.020			<0.020			<0.020			<0.020	<0.020	<0.020	<0.020	<0.020
Ammonia as N ^	*mg/L*	NA		NA			NA			NA			1.31	NA	NA	NA	NA
Ortho-Phosphate as P ^	*mg/L*	NA		NA			NA			NA			<0.0500	NA	NA	NA	NA
Aluminum	*mg/L*	<0.050		<0.100			<0.250			<0.100			<0.050	<0.100	<0.250	<0.250	<0.250
Arsenic	*mg/L*	0.0008		<0.0010			0.0006			0.0005			0.0005	<0.0010	<0.0010	<0.0015	<0.0025
Cadmium	*mg/L*	<0.0001		<0.0002			<0.0001			<0.0001			<0.0001	<0.0002	<0.0002	<0.0003	<0.0005
Copper	*mg/L*	0.0031		0.0066			0.0036			0.0035			0.0037	0.0027	<0.0010	<0.0015	<0.0025
Iron	*mg/L*	0.137		0.162			<0.250			0.129			0.130	0.108	<0.250	<0.250	<0.250
Lead	*mg/L*	<0.0005		<0.0010			<0.0005			<0.0005			<0.0005	<0.001	<0.0025	<0.0015	<0.0025
Manganese	*mg/L*	0.0495		0.0383			0.0327			0.0351			0.0377	0.0391	0.0393	0.0551	0.0546
Mercury	*mg/L*	<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	*mg/L*	0.0005		<0.0010			<0.0005			<0.0005			<0.0005	<0.001	<0.0010	<0.0015	<0.0025
Selenium	*mg/L*	<0.0020		<0.0020			0.0010			0.0010			<0.0010	<0.0020	0.0020	<0.0030	<0.0050
Silica (Si02)	*mg/L*	12.1		12.4			12.8			12.5			12.6	12.2	11.9	12.9	12.1
Silicon	*mg/L*	5.65		5.78			5.99			5.83			5.88	5.71	5.55	6.05	5.67
Uranium	*mg/L*	0.0002		0.0002			0.0002			0.0001			0.0001	<0.0010	<0.0025	<0.0015	<0.0025
Zinc	*mg/L*	<0.0050		<0.0040			<0.0020			<0.0020			<0.0020	<0.0040	<0.0040	<0.0060	<0.0100

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-8-LM																	
Year		2018	2019											2020			
Quarter		Q4	Q1			Q2			Q3			Q4		Q1	Q2	Q3	Q4
Month		12	1	2	3	4	5	6	7	8	9	10	11	2	5	8	11
Sample Date		12/28	1/29	2/19	3/21	4/16	5/29	6/18	7/24	8/13	9/27	10/24	11/6	2/11	5/27	8/25	11/11
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y
Field Parameters:																	
Purge Flow Rate	*gpm*	NM	1.00	0.25	1.00	0.50	0.10	0.25	0.25	0.50	0.25	0.12	0.25	0.25	0.25	0.13	0.13
Total Purged	*gal*	30	4.0	1.5	1.0	2.0	1.3	6.8	2.0	2.0	1.0	1.0	1.5	1.0	1.0	2.0	1.0
Depth to Water	*ft bgs*	136.39	130.52	134.30	144.03	140.03	137.48	142.23	144.15	138.06	137.50	137.60	137.34	139.15	129.70	127.90	125.75
Temperature	*deg C*	4.1	13.9	13.2	8.7	13.6	13.9	12.8	13.7	13.4	13.0	11.7	13.3	11.4	13.4	13.6	8.8
pH	*SU*	8.37	8.70	8.71	8.41	8.70	8.50	8.66	8.64	8.58	8.44	8.44	8.47	7.98	8.76	8.83	8.81
Specific Conductance	*µS/cm*	2306	1274	1265	1310	1262	1234	1264	1226	1269	1252	1299	1255	1294	1282	1055	1117
Oxygen Reduction Potential	*mV*	37.5	-114.3	112.8	77.0	-36.2	33.2	-63.9	-93.5	-103.0	-115.9	-94.4	-47.4	-106.6	-204.5	-106.9	-93.6
Lab Analytical Results:																	
Hardness as CaCO3	*mg/L*	45.0		7.29			16.9			6.67			6.38	6.79	7.76	7.53	6.35
pH (Lab)	*SU*	8.57		8.63			8.02			8.56			8.52	8.55	8.41	8.45	8.48
Total Dissolved Solids (Lab)	*mg/L*	1420		770			780			785			780	840	730	740	700
Calcium	*mg/L*	10.8		1.93			3.84			1.78			1.68	1.77	2.09	2.05	1.71
Magnesium	*mg/L*	4.39		0.600			1.77			0.541			0.528	0.574	0.620	0.587	0.502
Sodium	*mg/L*	382		341			317			306			305	309	315	337	304
Potassium	*mg/L*	45.7		3.49			<5.00			2.27			2.18	2.06	<5.00	<5.00	<5.00
Alkalinity, Total	*mg/L*	615		720			745			731			745	685	630	675	780
Alkalinity, Bicarbonate	*mg/L*	535		610			645			645			685	595	530	585	680
Alkalinity, Carbonate	*mg/L*	80.0		110			100			86.0			60.0	90	100	90	100
Alkalinity, Hydroxide	*mg/L*	<10.0		<10.0			<10.0			<10.0			<10.0	<10.0	<10.0	<10.0	<10.0
Chloride	*mg/L*	175		5.11			6.80			2.63			2.48	3.04	3.01	2.98	2.47
Fluoride	*mg/L*	2.06		3.91			3.95			3.97			3.88	3.61	3.63	3.53	3.66
Sulfate as SO4	*mg/L*	190		3.79			9.58			1.02			<1.00	<2.00	<2.00	<2.00	<1.00
Total Organic Carbon (TOC)	*mg/L*	2.80		1.80			3.33			1.94			1.69	1.69	1.92	1.82	1.66
Nitrate/Nitrite as N	*mg/L*	<0.020		<0.020			<0.020			<0.020			<0.020	<0.020	<0.020	<0.020	<0.020
Ammonia as N ^	*mg/L*	NA		NA			NA			NA			0.282	NA	NA	NA	NA
Ortho-Phosphate as P ^	*mg/L*	NA		NA			NA			NA			<0.0500	NA	NA	NA	NA
Aluminum	*mg/L*	<0.050		<0.100			<0.250			<0.050			<0.050	<0.100	<0.250	<0.250	<0.250
Arsenic	*mg/L*	0.0106		<0.0010			0.0006			0.0007			0.0006	<0.0005	<0.0010	<0.0015	<0.0025
Cadmium	*mg/L*	<0.0001		<0.0002			<0.0001			<0.0001			<0.0001	<0.0001	<0.0002	<0.0003	<0.0005
Copper	*mg/L*	0.0337		0.0077			0.0047			0.0041			0.0051	0.0033	0.0012	0.0017	<0.0025
Iron	*mg/L*	<0.050		<0.100			<0.250			<0.050			<0.050	<0.100	<0.250	<0.250	<0.250
Lead	*mg/L*	<0.0005		<0.0010			<0.0005			<0.0005			<0.0010	<0.0005	<0.0010	<0.0015	<0.0025
Manganese	*mg/L*	0.0258		0.0038			0.0150			0.0020			0.0026	0.0025	0.0029	0.0026	0.0028
Mercury	*mg/L*	<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	*mg/L*	0.0142		<0.0010			0.0009			<0.0005			<0.0005	<0.0005	<0.0010	<0.0015	<0.0025
Selenium	*mg/L*	0.0020		<0.0020			<0.0010			<0.0010			<0.0010	<0.0010	<0.0020	<0.0030	<0.0050
Silica (Si02)	*mg/L*	9.09		8.45			8.68			8.28			7.77	7.62	7.40	7.84	7.4
Silicon	*mg/L*	4.25		3.95			4.06			3.87			3.63	3.56	3.46	3.67	3.46
Uranium	*mg/L*	0.0044		<0.0002			0.0001			0.0001			<0.0002	<0.0005	<0.0010	<0.0015	<0.0025
Zinc	*mg/L*	0.0080		<0.0040			0.0023			<0.0020			<0.0020	<0.002	<0.0040	<0.0060	<0.0100

Notes & Definitions:

^	one-time analysis
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GCC Energy Hydrologic Monitoring Data

MW-8-PL																	
Year		2018	2019											2020			
Quarter		Q4	Q1			Q2			Q3			Q4		Q1	Q2	Q3	Q4
Month		12	1	2	3	4	5	6	7	8	9	10	11	2	5	8	11
Sample Date		12/27	1/29	2/19	3/20	4/16	5/29	6/20	7/24	8/13	9/27	10/24	11/6	2/11	5/27	8/25	11/11
Lab Analysis (Y/N)		Y	N	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y	Y	Y
Field Parameters:																	
Purge Flow Rate	*gpm*	0.25	1.00	0.50	3.00	0.50	0.25	0.50	1.00	0.50	0.50	0.75	0.25	0.25	0.25	0.25	0.25
Total Purged	*gal*	20.0	5.0	2.0	3.0	2.0	3.0	2.5	2.3	2.5	2.0	2.5	1.3	2.0	2.0	2.3	2.0
Depth to Water	*ft bgs*	125.97	126.29	126.40	127.10	126.98	126.70	126.82	127.25	127.38	127.42	127.48	127.59	127.32	127.34	128.00	127.31
Temperature	*deg C*	10.3	14.2	13.4	12.9	13.2	14.2	14.8	14.7	14.9	14.0	13.2	14.9	13.8	14.8	14.9	14.1
pH	*SU*	7.50	7.30	7.49	7.30	7.29	7.31	7.57	7.56	7.52	7.45	7.47	7.52	7.55	7.47	7.52	7.52
Specific Conductance	*µS/cm*	1690	1531	1571	1558	1554	1411	1326	1165	1083	947	940	900	862	844	792	827
Oxygen Reduction Potential	*mV*	30.2	-116.5	97.9	-108.7	-110.6	34.2	-57.6	-74.0	-79.5	-51.3	-52.5	-30.8	-59.9	-101.9	-38.0	-37.3
Lab Analytical Results:																	
Hardness as CaCO3	*mg/L*	617		644			596			411			294	278	298	292	268
pH (Lab)	*SU*	7.28		7.40			7.26			7.22			7.39	7.47	7.19	7.16	7.41
Total Dissolved Solids (Lab)	*mg/L*	1150		1090			995			705			620	500	490	525	465
Calcium	*mg/L*	112		120			105			73.1			52.1	49.3	53.8	53.3	49.1
Magnesium	*mg/L*	82.1		83.8			81.4			55.4			39.7	37.6	39.7	38.5	35.4
Sodium	*mg/L*	106		124			102			91.7			83.3	78.5	80.4	81.6	77.2
Potassium	*mg/L*	5.14		5.62			<5.00			2.80			2.35	2.32	2.11	<2.00	<2.00
Alkalinity, Total	*mg/L*	370		415			435			393			390	339	340	315	410
Alkalinity, Bicarbonate	*mg/L*	370		415			435			393			390	339	340	315	410
Alkalinity, Carbonate	*mg/L*	<10.0		<10.0			<10.0			<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	<10.0	<10.0	<10.0
Chloride	*mg/L*	18.8		18.5			9.03			5.61			5.66	3.51	3.38	3.33	3.32
Fluoride	*mg/L*	0.505		0.474			0.290			0.291			<0.500	0.258	0.240	0.233	0.224
Sulfate as SO4	*mg/L*	478		471			390			232			127	109	103	99.2	99
Total Organic Carbon (TOC)	*mg/L*	4.17		4.02			2.92			2.21			1.75	1.63	1.63	1.61	1.44
Nitrate/Nitrite as N	*mg/L*	<0.020		<0.020			<0.020			<0.020			<0.020	<0.020	<0.020	<0.020	<0.020
Ammonia as N ^	*mg/L*	NA		NA			NA			NA			0.199	NA	NA	NA	NA
Ortho-Phosphate as P ^	*mg/L*	NA		NA			NA			NA			<0.0500	NA	NA	NA	NA
Aluminum	*mg/L*	<0.050		<0.100			<0.250			<0.050			<0.050	<0.05	<0.100	<0.100	<0.100
Arsenic	*mg/L*	0.0074		0.0124			0.0190			0.0156			0.0104	0.0073	0.0075	0.0064	0.0058
Cadmium	*mg/L*	<0.0001		<0.0002			<0.0001			<0.0001			<0.0001	<0.0002	<0.0001	<0.0002	<0.0002
Copper	*mg/L*	0.0016		0.0025			0.0017			0.0011			0.0004	0.001	<0.0025	<0.001	0.0014
Iron	*mg/L*	<0.050		0.352			<0.250			0.129			0.075	0.054	<0.100	<0.100	<0.100
Lead	*mg/L*	<0.0005		<0.0010			<0.0005			<0.0005			<0.0005	<0.0005	<0.0005	<0.0010	<0.0010
Manganese	*mg/L*	1.31		1.22			0.697			0.505			0.313	0.303	0.307	0.259	0.219
Mercury	*mg/L*	<0.0002		<0.0002			<0.0002			<0.0002			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	*mg/L*	0.0090		0.0068			0.0020			0.0021			0.0017	0.0008	<0.0005	<0.0010	<0.0010
Selenium	*mg/L*	0.0012		<0.0020			<0.0010			<0.0010			<0.0010	<0.001	<0.0010	<0.0020	<0.0020
Silica (Si02)	*mg/L*	14.1		16.3			17.7			18.5			18.0	18.9	18.7	19.9	18.5
Silicon	*mg/L*	6.58		7.64			8.28			8.67			8.42	8.82	8.75	9.28	8.66
Uranium	*mg/L*	0.0052		0.0040			0.0010			0.0009			0.0004	<0.0005	<0.0005	<0.0010	<0.0010
Zinc	*mg/L*	0.0344		<0.0040			<0.0020			<0.0080			<0.0020	<0.0020	<0.0100	<0.0040	<0.0040

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