GCC Energy

"Safety as a Value"

Telephone: 970.385.4528
Facsimile: 970.385.4638

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

February 7, 2018

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

Attn: Rob Zuber

Re: Field Well Water Analysis; King I & King II
4th Quarter 2017

Mr. Zuber:

Please find enclosed a copy of quarterly water analysis reports for the 4th quarter of 2017 for the following water monitoring locations:

- Wiltse Well
- #1 Up-gradient Monitoring Well
- #2 Down-gradient Monitoring Well
- Hay Gulch Irrigation Ditch, Down-gradient
- Hay Gulch Irrigation Ditch, Up-gradient
- MW-1-A, MW-1-C
- MW-3-MI, MW-3-A, MW-3-C
- MW-4-MI, MW-4-A, MW-4-C
- MW-HGA-4

This quarter MW-99-MI was a blind duplicate for MW-5-MI.

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

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

Sincerely,

Tom Bird
Manager, Coal Services
GCC Energy, LLC

75 Suttle Street
Durango, CO 81303
970.247.4220 Phone
970.247.4227 Fax
www.greenanalytical.com

11 December 2017

Tom Bird
GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326

RE: GCC GW Baseline

Enclosed are the results of analyses for samples received by the laboratory on 11/29/17 11:40.
If you need any further assistance, please feel free to contact me.

Sincerely,

Debbie Zufelt
Reports Manager

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

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

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

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/11/17 16:44

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Well #1 Upgradient	1711234-01	Water	11/29/17 09:38	11/29/17 11:40

Green Analytical Laboratories

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/11/17 16:44

Well #1 Upgradient

1711234-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**625**	10.0		mg/L	5	12/06/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	5	12/06/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	12/06/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**625**	10.0		mg/L	5	12/06/17	2320 B		CMS
Chloride*	**4.39**	1.00	0.143	mg/L	1	12/04/17	EPA300.0		JDA
Fluoride*	**0.358**	0.100	0.0160	mg/L	1	12/04/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	12/05/17	EPA353.2		LLG
pH*	**7.56**			pH Units	1	11/30/17	EPA150.1		CMS
Total Dissolved Solids*	**790**	10.0		mg/L	1	12/06/17	EPA160.1		LLG
Sulfate*	**101**	5.00	0.782	mg/L	5	12/05/17	EPA300.0		JDA
Total Organic Carbon*	**3.33**	0.500	0.201	mg/L	1	12/05/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.050	0.050	0.020	mg/L	1	12/06/17	EPA200.7		JDA
Calcium*	**55.6**	0.100	0.036	mg/L	1	12/06/17	EPA200.7		JDA
Hardness as CaCO3	**280**	0.662	0.195	mg/L	1	12/06/17	2340 B		JDA
Iron*	**1.44**	0.050	0.014	mg/L	1	12/06/17	EPA200.7		JDA
Magnesium*	**34.4**	0.100	0.026	mg/L	1	12/06/17	EPA200.7		JDA
Potassium*	**2.99**	1.00	0.094	mg/L	1	12/06/17	EPA200.7		JDA
Silica (Si02)	**14.7**	1.07	0.298	mg/L	1	12/06/17	Calculation		JDA
Silicon	**6.86**	0.500	0.139	mg/L	1	12/06/17	EPA200.7		JDA
Sodium*	**195**	1.00	0.087	mg/L	1	12/06/17	EPA200.7		JDA
Dissolved Metals by ICPMS									
Arsenic*	<0.0005	0.0005	0.00008	mg/L	1	12/08/17	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	12/08/17	EPA200.8		JDA
Copper*	**0.0027**	0.0001	0.00003	mg/L	1	12/08/17	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	12/08/17	EPA200.8		JDA
Manganese*	**0.311**	0.0005	0.0003	mg/L	1	12/08/17	EPA200.8		JDA
Molybdenum*	<0.0005	0.0005	0.00006	mg/L	1	12/08/17	EPA200.8		JDA
Selenium*	<0.0010	0.0010	0.0002	mg/L	1	12/08/17	EPA200.8		JDA
Uranium	**0.0001**	0.0001	0.00001	mg/L	1	12/08/17	EPA200.8		JDA
Zinc*	<0.0020	0.0020	0.0009	mg/L	1	12/08/17	EPA200.8		JDA

Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt, Reports Manager

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/11/17 16:44

Well #1 Upgradient

1711234-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00009	mg/L	1	12/11/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/11/17 16:44

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B712002 - General Prep - Wet Chem										
Duplicate (B712002-DUP2)		**Source: 1711244-01**		Prepared & Analyzed: 11/30/17						
pH	6.91		pH Units		6.96			0.721	20	
Reference (B712002-SRM1)				Prepared & Analyzed: 11/30/17						
pH	9.07		pH Units	9.05		100	97.8-102.2			
Batch B712024 - General Prep - Wet Chem										
Blank (B712024-BLK1)				Prepared & Analyzed: 12/04/17						
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B712024-BS1)				Prepared & Analyzed: 12/04/17						
Chloride	24.2	1.00	mg/L	25.0		96.7	90-110			
Fluoride	2.51	0.100	mg/L	2.50		101	90-110			
Sulfate	24.1	1.00	mg/L	25.0		96.4	90-110			
LCS Dup (B712024-BSD1)				Prepared & Analyzed: 12/04/17						
Chloride	24.2	1.00	mg/L	25.0		96.8	90-110	0.132	20	
Fluoride	2.52	0.100	mg/L	2.50		101	90-110	0.159	20	
Sulfate	24.1	1.00	mg/L	25.0		96.5	90-110	0.0663	20	
Batch B712025 - General Prep - Wet Chem										
Blank (B712025-BLK1)				Prepared & Analyzed: 12/05/17						
Total Organic Carbon	ND	0.500	mg/L							
LCS (B712025-BS1)				Prepared & Analyzed: 12/05/17						
Total Organic Carbon	9.91	0.500	mg/L	10.0		99.1	85-115			
LCS Dup (B712025-BSD1)				Prepared & Analyzed: 12/05/17						
Total Organic Carbon	9.91	0.500	mg/L	10.0		99.1	85-115	0.0101	20	
Batch B712027 - General Prep - Wet Chem										
Blank (B712027-BLK1)				Prepared & Analyzed: 12/05/17						
Nitrate/Nitrite as N	ND	0.020	mg/L							
LCS (B712027-BS1)				Prepared & Analyzed: 12/05/17						
Nitrate/Nitrite as N	0.956	0.020	mg/L	1.00		95.6	90-110			
LCS Dup (B712027-BSD1)				Prepared & Analyzed: 12/05/17						
Nitrate/Nitrite as N	0.955	0.020	mg/L	1.00		95.5	90-110	0.115	20	

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/11/17 16:44

General Chemistry - Quality Control (Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B712043 - General Prep - Wet Chem										
Blank (B712043-BLK1)				Prepared & Analyzed: 12/06/17						
Total Dissolved Solids	ND	10.0	mg/L							
Duplicate (B712043-DUP1)			**Source: 1711233-01**	Prepared & Analyzed: 12/06/17						
Total Dissolved Solids	175	10.0	mg/L		195			10.8	20	
Reference (B712043-SRM1)				Prepared & Analyzed: 12/06/17						
Total Dissolved Solids	565	10.0	mg/L	550		103	85-115			
Batch B712046 - General Prep - Wet Chem										
Blank (B712046-BLK1)				Prepared & Analyzed: 12/06/17						
Alkalinity, Total as CaCO3	ND	10.0	mg/L							
LCS (B712046-BS1)				Prepared & Analyzed: 12/06/17						
Alkalinity, Total as CaCO3	102	10.0	mg/L	100		102	85-115			
LCS Dup (B712046-BSD1)				Prepared & Analyzed: 12/06/17						
Alkalinity, Total as CaCO3	101	10.0	mg/L	100		101	85-115	0.985	20	

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/11/17 16:44

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B712034 - Diss. 200.7/200.8										
Blank (B712034-BLK1)				Prepared: 12/05/17 Analyzed: 12/06/17						
Aluminum	ND	0.050	mg/L							
Calcium	ND	0.100	mg/L							
Iron	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Potassium	ND	1.00	mg/L							
Silicon	ND	0.500	mg/L							
Sodium	ND	1.00	mg/L							
LCS (B712034-BS1)				Prepared: 12/05/17 Analyzed: 12/06/17						
Aluminum	5.05	0.050	mg/L	5.00		101	85-115			
Calcium	5.12	0.100	mg/L	5.00		102	85-115			
Iron	4.99	0.050	mg/L	5.00		99.8	85-115			
Magnesium	25.4	0.100	mg/L	25.0		102	85-115			
Potassium	10.8	1.00	mg/L	10.0		108	85-115			
Silicon	5.01	0.500	mg/L	5.00		100	85-115			
Sodium	8.35	1.00	mg/L	8.10		103	85-115			
LCS Dup (B712034-BSD1)				Prepared: 12/05/17 Analyzed: 12/06/17						
Aluminum	5.01	0.050	mg/L	5.00		100	85-115	0.728	20	
Calcium	5.08	0.100	mg/L	5.00		102	85-115	0.754	20	
Iron	4.97	0.050	mg/L	5.00		99.5	85-115	0.273	20	
Magnesium	25.3	0.100	mg/L	25.0		101	85-115	0.504	20	
Potassium	10.6	1.00	mg/L	10.0		106	85-115	1.03	20	
Silicon	5.00	0.500	mg/L	5.00		100	85-115	0.137	20	
Sodium	8.30	1.00	mg/L	8.10		102	85-115	0.668	20	

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/11/17 16:44

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B712035 - Diss. 200.7/200.8										
Blank (B712035-BLK1)				Prepared: 12/05/17 Analyzed: 12/08/17						
Arsenic	ND	0.0005	mg/L							
Cadmium	ND	0.0001	mg/L							
Copper	ND	0.0001	mg/L							
Lead	ND	0.0005	mg/L							
Manganese	ND	0.0005	mg/L							
Molybdenum	ND	0.0005	mg/L							
Selenium	ND	0.0010	mg/L							
Uranium	ND	0.0001	mg/L							
Zinc	ND	0.0020	mg/L							
LCS (B712035-BS1)				Prepared: 12/05/17 Analyzed: 12/08/17						
Arsenic	0.0530	0.0005	mg/L	0.0500		106	85-115			
Cadmium	0.0500	0.0001	mg/L	0.0500		99.9	85-115			
Copper	0.0508	0.0001	mg/L	0.0500		102	85-115			
Lead	0.0513	0.0005	mg/L	0.0500		103	85-115			
Manganese	0.0501	0.0005	mg/L	0.0500		100	85-115			
Molybdenum	0.0491	0.0005	mg/L	0.0500		98.2	85-115			
Selenium	0.259	0.0010	mg/L	0.250		104	85-115			
Uranium	0.0520	0.0001	mg/L	0.0500		104	85-115			
Zinc	0.0512	0.0020	mg/L	0.0500		102	85-115			
LCS Dup (B712035-BSD1)				Prepared: 12/05/17 Analyzed: 12/08/17						
Arsenic	0.0508	0.0005	mg/L	0.0500		102	85-115	4.34	20	
Cadmium	0.0520	0.0001	mg/L	0.0500		104	85-115	4.00	20	
Copper	0.0502	0.0001	mg/L	0.0500		100	85-115	1.16	20	
Lead	0.0507	0.0005	mg/L	0.0500		101	85-115	1.16	20	
Manganese	0.0507	0.0005	mg/L	0.0500		101	85-115	1.05	20	
Molybdenum	0.0485	0.0005	mg/L	0.0500		97.1	85-115	1.15	20	
Selenium	0.247	0.0010	mg/L	0.250		98.9	85-115	4.71	20	
Uranium	0.0517	0.0001	mg/L	0.0500		103	85-115	0.597	20	
Zinc	0.0494	0.0020	mg/L	0.0500		98.8	85-115	3.63	20	

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/11/17 16:44

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B712053 - EPA 245.1/7470										
Blank (B712053-BLK1)				Prepared: 12/07/17 Analyzed: 12/11/17						
Mercury	ND	0.0002	mg/L							
LCS (B712053-BS1)				Prepared: 12/07/17 Analyzed: 12/11/17						
Mercury	0.0019	0.0002	mg/L	0.00200		95.6	85-115			
LCS Dup (B712053-BSD1)				Prepared: 12/07/17 Analyzed: 12/11/17						
Mercury	0.0027	0.0002	mg/L	0.00200		136	85-115	35.0	20	BS1

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/11/17 16:44

Notes and Definitions

BS1	Laboratory control sample recovery above laboratory acceptance criteria. Results for analyte potentially biased high.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
	*Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)
RL	Report Limit
MDL	Method Detection Limit

Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt, Reports Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

GREEN Analytical Laboratories
(970) 247-4220
Fax: (970) 247-4227
service@greenanalytical.com or dzufelt@greenanalytical.com
75 Suttle St Durango, CO 81303

Company Name(If Applicable):	GCC Energy, LLC
Contact Person:	Tom Bird
Address:	6473 C.R. 120
City:	Hesperus **State:** CO **Zip:** 81326
Phone #:	(970) 385-4528
Email:	Hbird@gcc.com / LBlack@resourcetechnologies.com
Project Name(optional):	
Project Number(optional):	
Sampler Name (Print):	Jessica Luna

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

ANALYSIS REQUEST

GCC GW Baseline ✓

For Lab Use (JL 11-30)	Sample Name or Location	Collected Date	Collected Time	Matrix: GROUNDWATER	SURFACEWATER	WASTEWATER	PRODUCEDWATER	SOIL	DRINKING WATER	OTHER:	# of containers: No preservation (general)	HNO_3	HCl	H_2SO_4	Other:	Other:
234 1711-233-01	Well #1 upgradient	11/29/17	9:36	X							1		1	1		

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

Relinquished By: Jessica Luna	**Date:** 11/29/17 **Time:** 10:55	Received By: Michael McFarland
Relinquished By: Michael McFarland	Date: 11-29-17 Time: 1140	Received By:
Relinquished By:	Date: Time:	Received By: #1 only

ADDITIONAL REMARKS:

Report to State? (Circle) Yes No

Delivered By: (Circle One)
Sampler - UPS - FedEx - Kangaroo - Other:

Temperature at reciept: 4.8/5.0°C

CHECKED BY: JL

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

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12 December 2017

Tom Bird
GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326

RE: GCC GW & SW Baseline

Enclosed are the results of analyses for samples received by the laboratory on 11/28/17 16:04.
If you need any further assistance, please feel free to contact me.

Sincerely,

Debbie Zufelt
Reports Manager

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

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

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

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Hay Gulch Ditch Upgradient	1711227-01	Water	11/28/17 11:15	11/28/17 16:04
Well #2 Downgradient	1711227-02	Water	11/28/17 09:57	11/28/17 16:04
Wiltse Well	1711227-03	Water	11/28/17 14:10	11/28/17 16:04
MW-HGA-4	1711227-04	Water	11/28/17 10:59	11/28/17 16:04

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

Hay Gulch Ditch Upgradient

1711227-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**285**	10.0		mg/L	5	12/01/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	**20.0**	10.0		mg/L	5	12/01/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	12/01/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**305**	10.0		mg/L	5	12/01/17	2320 B		CMS
Chloride*	**48.2**	1.00	0.143	mg/L	1	12/04/17	EPA300.0		JDA
Fluoride*	**0.283**	0.100	0.0160	mg/L	1	12/04/17	EPA300.0		JDA
Nitrate/Nitrite as N*	**0.088**	0.020	0.011	mg/L	1	12/05/17	EPA353.2		LLG
Oil & Grease (HEM)	<5.00	5.00	0.763	mg/L	1	12/06/17	EPA1664 A		CMS
pH*	**8.31**			pH Units	1	11/29/17	EPA150.1		CMS
SAR	**0.55**			No Unit	1	12/07/17	Calculation		JDA
Total Dissolved Solids*	**650**	10.0		mg/L	1	12/05/17	EPA160.1		LLG
Total Suspended Solids*	**5.75**	0.500		mg/L	0.25	11/29/17	EPA160.2		LLG
Sulfate*	**179**	10.0	1.56	mg/L	10	12/05/17	EPA300.0		JDA
Total Organic Carbon*	**1.99**	0.500	0.201	mg/L	1	12/05/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.050	0.050	0.020	mg/L	1	12/06/17	EPA200.7		JDA
Calcium*	**86.6**	0.100	0.036	mg/L	1	12/06/17	EPA200.7		JDA
Hardness as CaCO3	**456**	0.662	0.195	mg/L	1	12/06/17	2340 B		JDA
Iron*	<0.050	0.050	0.014	mg/L	1	12/06/17	EPA200.7		JDA
Magnesium*	**58.3**	0.100	0.026	mg/L	1	12/06/17	EPA200.7		JDA
Potassium*	**3.05**	1.00	0.094	mg/L	1	12/06/17	EPA200.7		JDA
Silica (Si02)	**10.1**	1.07	0.298	mg/L	1	12/06/17	Calculation		JDA
Silicon	**4.71**	0.500	0.139	mg/L	1	12/06/17	EPA200.7		JDA
Sodium*	**27.1**	1.00	0.087	mg/L	1	12/06/17	EPA200.7		JDA

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

Hay Gulch Ditch Upgradient

1711227-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Metals by ICPMS									
Arsenic*	**0.0007**	0.0005	0.00008	mg/L	1	12/08/17	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	12/08/17	EPA200.8		JDA
Copper*	**0.0005**	0.0001	0.00003	mg/L	1	12/08/17	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	12/08/17	EPA200.8		JDA
Manganese*	**0.0049**	0.0005	0.0003	mg/L	1	12/08/17	EPA200.8		JDA
Molybdenum*	**0.0008**	0.0005	0.00006	mg/L	1	12/08/17	EPA200.8		JDA
Selenium*	**0.0010**	0.0010	0.0002	mg/L	1	12/08/17	EPA200.8		JDA
Uranium	**0.0009**	0.0001	0.00001	mg/L	1	12/08/17	EPA200.8		JDA
Zinc*	<0.0020	0.0020	0.0009	mg/L	1	12/08/17	EPA200.8		JDA
Total Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00005	mg/L	1	12/04/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

Well #2 Downgradient

1711227-02 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**375**	10.0		mg/L	5	12/01/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	5	12/01/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	12/01/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**375**	10.0		mg/L	5	12/01/17	2320 B		CMS
Chloride*	**23.4**	1.00	0.143	mg/L	1	12/04/17	EPA300.0		JDA
Fluoride*	**0.246**	0.100	0.0160	mg/L	1	12/04/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	12/05/17	EPA353.2		LLG
pH*	**7.51**			pH Units	1	11/29/17	EPA150.1		CMS
Total Dissolved Solids*	**540**	10.0		mg/L	1	12/05/17	EPA160.1		LLG
Sulfate*	**94.7**	10.0	1.56	mg/L	10	12/05/17	EPA300.0		JDA
Total Organic Carbon*	**2.25**	0.500	0.201	mg/L	1	12/05/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.050	0.050	0.020	mg/L	1	12/06/17	EPA200.7		JDA
Calcium*	**78.0**	0.100	0.036	mg/L	1	12/06/17	EPA200.7		JDA
Hardness as CaCO3	**449**	0.662	0.195	mg/L	1	12/06/17	2340 B		JDA
Iron*	**0.074**	0.050	0.014	mg/L	1	12/06/17	EPA200.7		JDA
Magnesium*	**61.8**	0.100	0.026	mg/L	1	12/06/17	EPA200.7		JDA
Potassium*	**2.19**	1.00	0.094	mg/L	1	12/06/17	EPA200.7		JDA
Silica (Si02)	**13.3**	1.07	0.298	mg/L	1	12/06/17	Calculation		JDA
Silicon	**6.20**	0.500	0.139	mg/L	1	12/06/17	EPA200.7		JDA
Sodium*	**20.1**	1.00	0.087	mg/L	1	12/06/17	EPA200.7		JDA
Dissolved Metals by ICPMS									
Arsenic*	**0.0011**	0.0005	0.00008	mg/L	1	12/08/17	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	12/08/17	EPA200.8		JDA
Copper*	**0.0001**	0.0001	0.00003	mg/L	1	12/08/17	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	12/08/17	EPA200.8		JDA
Manganese*	**0.309**	0.0005	0.0003	mg/L	1	12/08/17	EPA200.8		JDA
Molybdenum*	**0.0020**	0.0005	0.00006	mg/L	1	12/08/17	EPA200.8		JDA
Selenium*	<0.0010	0.0010	0.0002	mg/L	1	12/08/17	EPA200.8		JDA
Uranium	**0.0013**	0.0001	0.00001	mg/L	1	12/08/17	EPA200.8		JDA
Zinc*	<0.0020	0.0020	0.0009	mg/L	1	12/08/17	EPA200.8		JDA

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

Well #2 Downgradient

1711227-02 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00009	mg/L	1	12/11/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

Wiltse Well

1711227-03 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**475**	10.0		mg/L	5	12/01/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	5	12/01/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	12/01/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**475**	10.0		mg/L	5	12/01/17	2320 B		CMS
Chloride*	**68.9**	5.00	0.717	mg/L	5	12/04/17	EPA300.0		JDA
Fluoride*	<0.500	0.500	0.0798	mg/L	5	12/04/17	EPA300.0		JDA
Nitrate/Nitrite as N*	**1.94**	0.020	0.011	mg/L	1	12/05/17	EPA353.2		LLG
pH*	**7.33**			pH Units	1	11/29/17	EPA150.1		CMS
Total Dissolved Solids*	**1740**	10.0		mg/L	1	12/05/17	EPA160.1		LLG
Sulfate*	**772**	50.0	7.82	mg/L	50	12/05/17	EPA300.0		JDA
Total Organic Carbon*	**3.26**	0.500	0.201	mg/L	1	12/05/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.250	0.250	0.100	mg/L	5	12/06/17	EPA200.7		JDA
Calcium*	**226**	0.500	0.179	mg/L	5	12/06/17	EPA200.7		JDA
Hardness as CaCO3	**1150**	3.31	0.976	mg/L	5	12/06/17	2340 B		JDA
Iron*	<0.250	0.250	0.070	mg/L	5	12/06/17	EPA200.7		JDA
Magnesium*	**142**	0.500	0.128	mg/L	5	12/06/17	EPA200.7		JDA
Potassium*	<5.00	5.00	0.472	mg/L	5	12/06/17	EPA200.7		JDA
Silica (Si02)	**13.4**	5.35	1.49	mg/L	5	12/06/17	Calculation		JDA
Silicon	**6.29**	2.50	0.697	mg/L	5	12/06/17	EPA200.7		JDA
Sodium*	**83.4**	5.00	0.435	mg/L	5	12/06/17	EPA200.7		JDA
Dissolved Metals by ICPMS									
Arsenic*	**0.0029**	0.0025	0.0004	mg/L	5	12/08/17	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	12/08/17	EPA200.8		JDA
Copper*	**0.0097**	0.0005	0.0002	mg/L	5	12/08/17	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	12/08/17	EPA200.8		JDA
Manganese*	**4.50**	0.0025	0.0014	mg/L	5	12/08/17	EPA200.8		JDA
Molybdenum*	**0.0093**	0.0025	0.0003	mg/L	5	12/08/17	EPA200.8		JDA
Selenium*	**0.0087**	0.0050	0.0008	mg/L	5	12/08/17	EPA200.8		JDA
Uranium	**0.0110**	0.0005	0.00007	mg/L	5	12/08/17	EPA200.8		JDA
Zinc*	**0.0855**	0.0100	0.0045	mg/L	5	12/08/17	EPA200.8		JDA

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

Wiltse Well

1711227-03 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00009	mg/L	1	12/11/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

MW-HGA-4

1711227-04 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**475**	10.0		mg/L	5	12/01/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	5	12/01/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	12/01/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**475**	10.0		mg/L	5	12/01/17	2320 B		CMS
Chloride*	**8.74**	1.00	0.143	mg/L	1	12/04/17	EPA300.0		JDA
Fluoride*	**0.495**	0.100	0.0160	mg/L	1	12/04/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.100	0.100	0.055	mg/L	5	12/11/17	EPA353.2		LLG
pH*	**7.21**			pH Units	1	11/29/17	EPA150.1		CMS
Total Dissolved Solids*	**775**	10.0		mg/L	1	12/05/17	EPA160.1		LLG
Sulfate*	**204**	10.0	1.56	mg/L	10	12/05/17	EPA300.0		JDA
Total Organic Carbon*	**4.79**	0.500	0.201	mg/L	1	12/05/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.050	0.050	0.020	mg/L	1	12/06/17	EPA200.7		JDA
Calcium*	**118**	0.100	0.036	mg/L	1	12/06/17	EPA200.7		JDA
Hardness as CaCO3	**595**	0.662	0.195	mg/L	1	12/06/17	2340 B		JDA
Iron*	**7.84**	0.050	0.014	mg/L	1	12/06/17	EPA200.7		JDA
Magnesium*	**72.8**	0.100	0.026	mg/L	1	12/06/17	EPA200.7		JDA
Potassium*	**2.21**	1.00	0.094	mg/L	1	12/06/17	EPA200.7		JDA
Silica (Si02)	**17.9**	1.07	0.298	mg/L	1	12/06/17	Calculation		JDA
Silicon	**8.35**	0.500	0.139	mg/L	1	12/06/17	EPA200.7		JDA
Sodium*	**27.2**	1.00	0.087	mg/L	1	12/06/17	EPA200.7		JDA
Dissolved Metals by ICPMS									
Arsenic*	**0.0035**	0.0005	0.00008	mg/L	1	12/08/17	EPA200.8		JDA
Cadmium*	<0.0001	0.0001	0.00009	mg/L	1	12/08/17	EPA200.8		JDA
Copper*	**0.0002**	0.0001	0.00003	mg/L	1	12/08/17	EPA200.8		JDA
Lead*	<0.0005	0.0005	0.00002	mg/L	1	12/08/17	EPA200.8		JDA
Manganese*	**2.11**	0.0005	0.0003	mg/L	1	12/08/17	EPA200.8		JDA
Molybdenum*	**0.0027**	0.0005	0.00006	mg/L	1	12/08/17	EPA200.8		JDA
Selenium*	<0.0010	0.0010	0.0002	mg/L	1	12/08/17	EPA200.8		JDA
Uranium	**0.0004**	0.0001	0.00001	mg/L	1	12/08/17	EPA200.8		JDA
Zinc*	<0.0020	0.0020	0.0009	mg/L	1	12/08/17	EPA200.8		JDA

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

MW-HGA-4

1711227-04 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00009	mg/L	1	12/11/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B711207 - General Prep - Wet Chem										
Blank (B711207-BLK1)				Prepared & Analyzed: 11/27/17						
Oil & Grease (HEM)	ND	5.00	mg/L							
LCS (B711207-BS1)				Prepared & Analyzed: 11/27/17						
Oil & Grease (HEM)	37.8	5.00	mg/L	40.0		94.5	85-115			
LCS Dup (B711207-BSD1)				Prepared & Analyzed: 11/27/17						
Oil & Grease (HEM)	35.0	5.00	mg/L	40.0		87.5	85-115	7.69	20	
Batch B711232 - General Prep - Wet Chem										
Blank (B711232-BLK1)				Prepared & Analyzed: 11/29/17						
Total Suspended Solids	ND	2.00	mg/L							
Duplicate (B711232-DUP1)			**Source: 1711213-01**	Prepared & Analyzed: 11/29/17						
Total Suspended Solids	2.50	0.500	mg/L		3.50			33.4	20	R2
Reference (B711232-SRM1)				Prepared & Analyzed: 11/29/17						
Total Suspended Solids	94.0	2.00	mg/L	100		94.0	85-115			
Batch B711237 - General Prep - Wet Chem										
Duplicate (B711237-DUP1)			**Source: 1711223-01**	Prepared & Analyzed: 11/29/17						
pH	7.99		pH Units		7.93			0.754	20	
Reference (B711237-SRM1)				Prepared & Analyzed: 11/29/17						
pH	8.95		pH Units	9.05		98.9	97.8-102.2			
Batch B712011 - General Prep - Wet Chem										
Blank (B712011-BLK1)				Prepared & Analyzed: 12/01/17						
Alkalinity, Bicarbonate as CaCO3	ND	10.0	mg/L							
Alkalinity, Carbonate as CaCO3	ND	10.0	mg/L							
Alkalinity, Hydroxide as CaCO3	ND	10.0	mg/L							
Alkalinity, Total as CaCO3	ND	10.0	mg/L							
LCS (B712011-BS1)				Prepared & Analyzed: 12/01/17						
Alkalinity, Bicarbonate as CaCO3	ND	10.0	mg/L				85-115			
Alkalinity, Carbonate as CaCO3	ND	10.0	mg/L				85-115			
Alkalinity, Hydroxide as CaCO3	ND	10.0	mg/L				85-115			
Alkalinity, Total as CaCO3	105	10.0	mg/L	100		105	85-115			
LCS Dup (B712011-BSD1)				Prepared & Analyzed: 12/01/17						
Alkalinity, Bicarbonate as CaCO3	ND	10.0	mg/L				85-115		20	
Alkalinity, Carbonate as CaCO3	ND	10.0	mg/L				85-115		20	

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

General Chemistry - Quality Control (Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B712011 - General Prep - Wet Chem (Continued)										
LCS Dup (B712011-BSD1) (Continued)				Prepared & Analyzed: 12/01/17						
Alkalinity, Hydroxide as CaCO3	ND	10.0	mg/L				85-115		20	
Alkalinity, Total as CaCO3	105	10.0	mg/L	100		105	85-115	0.00	20	
Batch B712021 - General Prep - Wet Chem										
Blank (B712021-BLK1)				Prepared: 12/04/17 Analyzed: 12/05/17						
Total Dissolved Solids	ND	10.0	mg/L							
Duplicate (B712021-DUP1)		**Source: 1711223-01**		Prepared: 12/04/17 Analyzed: 12/05/17						
Total Dissolved Solids	950	10.0	mg/L		1000			5.63	20	
Reference (B712021-SRM1)				Prepared: 12/04/17 Analyzed: 12/05/17						
Total Dissolved Solids	545	10.0	mg/L	550		99.1	85-115			
Batch B712024 - General Prep - Wet Chem										
Blank (B712024-BLK1)				Prepared & Analyzed: 12/04/17						
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B712024-BS1)				Prepared & Analyzed: 12/04/17						
Chloride	24.2	1.00	mg/L	25.0		96.7	90-110			
Fluoride	2.51	0.100	mg/L	2.50		101	90-110			
Sulfate	24.1	1.00	mg/L	25.0		96.4	90-110			
LCS Dup (B712024-BSD1)				Prepared & Analyzed: 12/04/17						
Chloride	24.2	1.00	mg/L	25.0		96.8	90-110	0.132	20	
Fluoride	2.52	0.100	mg/L	2.50		101	90-110	0.159	20	
Sulfate	24.1	1.00	mg/L	25.0		96.5	90-110	0.0663	20	
Batch B712025 - General Prep - Wet Chem										
Blank (B712025-BLK1)				Prepared & Analyzed: 12/05/17						
Total Organic Carbon	ND	0.500	mg/L							
LCS (B712025-BS1)				Prepared & Analyzed: 12/05/17						
Total Organic Carbon	9.91	0.500	mg/L	10.0		99.1	85-115			
LCS Dup (B712025-BSD1)				Prepared & Analyzed: 12/05/17						
Total Organic Carbon	9.91	0.500	mg/L	10.0		99.1	85-115	0.0101	20	
Batch B712027 - General Prep - Wet Chem										

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Debbie Zufelt, Reports Manager

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

General Chemistry - Quality Control (Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B712027 - General Prep - Wet Chem (Continued)										
Blank (B712027-BLK1)			Prepared & Analyzed: 12/05/17							
Nitrate/Nitrite as N	ND	0.020	mg/L							
LCS (B712027-BS1)			Prepared & Analyzed: 12/05/17							
Nitrate/Nitrite as N	0.956	0.020	mg/L	1.00		95.6	90-110			
LCS Dup (B712027-BSD1)			Prepared & Analyzed: 12/05/17							
Nitrate/Nitrite as N	0.955	0.020	mg/L	1.00		95.5	90-110	0.115	20	
Batch B712092 - General Prep - Wet Chem										
Blank (B712092-BLK1)			Prepared & Analyzed: 12/11/17							
Nitrate/Nitrite as N	ND	0.020	mg/L							
LCS (B712092-BS1)			Prepared & Analyzed: 12/11/17							
Nitrate/Nitrite as N	0.953	0.020	mg/L	1.00		95.3	90-110			
LCS Dup (B712092-BSD1)			Prepared & Analyzed: 12/11/17							
Nitrate/Nitrite as N	0.969	0.020	mg/L	1.00		96.9	90-110	1.75	20	

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B712034 - Diss. 200.7/200.8										
Blank (B712034-BLK1)				Prepared: 12/05/17 Analyzed: 12/06/17						
Aluminum	ND	0.050	mg/L							
Calcium	ND	0.100	mg/L							
Iron	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Potassium	ND	1.00	mg/L							
Silicon	ND	0.500	mg/L							
Sodium	ND	1.00	mg/L							
LCS (B712034-BS1)				Prepared: 12/05/17 Analyzed: 12/06/17						
Aluminum	5.05	0.050	mg/L	5.00		101	85-115			
Calcium	5.12	0.100	mg/L	5.00		102	85-115			
Iron	4.99	0.050	mg/L	5.00		99.8	85-115			
Magnesium	25.4	0.100	mg/L	25.0		102	85-115			
Potassium	10.8	1.00	mg/L	10.0		108	85-115			
Silicon	5.01	0.500	mg/L	5.00		100	85-115			
Sodium	8.35	1.00	mg/L	8.10		103	85-115			
LCS Dup (B712034-BSD1)				Prepared: 12/05/17 Analyzed: 12/06/17						
Aluminum	5.01	0.050	mg/L	5.00		100	85-115	0.728	20	
Calcium	5.08	0.100	mg/L	5.00		102	85-115	0.754	20	
Iron	4.97	0.050	mg/L	5.00		99.5	85-115	0.273	20	
Magnesium	25.3	0.100	mg/L	25.0		101	85-115	0.504	20	
Potassium	10.6	1.00	mg/L	10.0		106	85-115	1.03	20	
Silicon	5.00	0.500	mg/L	5.00		100	85-115	0.137	20	
Sodium	8.30	1.00	mg/L	8.10		102	85-115	0.668	20	

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B712035 - Diss. 200.7/200.8										
Blank (B712035-BLK1)				Prepared: 12/05/17 Analyzed: 12/08/17						
Arsenic	ND	0.0005	mg/L							
Cadmium	ND	0.0001	mg/L							
Copper	ND	0.0001	mg/L							
Lead	ND	0.0005	mg/L							
Manganese	ND	0.0005	mg/L							
Molybdenum	ND	0.0005	mg/L							
Selenium	ND	0.0010	mg/L							
Uranium	ND	0.0001	mg/L							
Zinc	ND	0.0020	mg/L							
LCS (B712035-BS1)				Prepared: 12/05/17 Analyzed: 12/08/17						
Arsenic	0.0530	0.0005	mg/L	0.0500		106	85-115			
Cadmium	0.0500	0.0001	mg/L	0.0500		99.9	85-115			
Copper	0.0508	0.0001	mg/L	0.0500		102	85-115			
Lead	0.0513	0.0005	mg/L	0.0500		103	85-115			
Manganese	0.0501	0.0005	mg/L	0.0500		100	85-115			
Molybdenum	0.0491	0.0005	mg/L	0.0500		98.2	85-115			
Selenium	0.259	0.0010	mg/L	0.250		104	85-115			
Uranium	0.0520	0.0001	mg/L	0.0500		104	85-115			
Zinc	0.0512	0.0020	mg/L	0.0500		102	85-115			
LCS Dup (B712035-BSD1)				Prepared: 12/05/17 Analyzed: 12/08/17						
Arsenic	0.0508	0.0005	mg/L	0.0500		102	85-115	4.34	20	
Cadmium	0.0520	0.0001	mg/L	0.0500		104	85-115	4.00	20	
Copper	0.0502	0.0001	mg/L	0.0500		100	85-115	1.16	20	
Lead	0.0507	0.0005	mg/L	0.0500		101	85-115	1.16	20	
Manganese	0.0507	0.0005	mg/L	0.0500		101	85-115	1.05	20	
Molybdenum	0.0485	0.0005	mg/L	0.0500		97.1	85-115	1.15	20	
Selenium	0.247	0.0010	mg/L	0.250		98.9	85-115	4.71	20	
Uranium	0.0517	0.0001	mg/L	0.0500		103	85-115	0.597	20	
Zinc	0.0494	0.0020	mg/L	0.0500		98.8	85-115	3.63	20	

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

Total Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B711242 - EPA 245.1/7470										
Blank (B711242-BLK1)				Prepared: 11/30/17 Analyzed: 12/04/17						
Mercury	ND	0.0002	mg/L							
LCS (B711242-BS1)				Prepared: 11/30/17 Analyzed: 12/04/17						
Mercury	0.0020	0.0002	mg/L	0.00200		98.9	85-115			
LCS Dup (B711242-BSD1)				Prepared: 11/30/17 Analyzed: 12/04/17						
Mercury	0.0020	0.0002	mg/L	0.00200		102	85-115	3.08	20	

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B712053 - EPA 245.1/7470										
Blank (B712053-BLK1)				Prepared: 12/07/17 Analyzed: 12/11/17						
Mercury	ND	0.0002	mg/L							
LCS (B712053-BS1)				Prepared: 12/07/17 Analyzed: 12/11/17						
Mercury	0.0019	0.0002	mg/L	0.00200		95.6	85-115			
LCS Dup (B712053-BSD1)				Prepared: 12/07/17 Analyzed: 12/11/17						
Mercury	0.0027	0.0002	mg/L	0.00200		136	85-115	35.0	20	BS1

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GCC Energy, LLC	Project: GCC GW & SW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/12/17 10:13

Notes and Definitions

R2	Duplicate sample RPD exceeded the method control limit. One or more of the duplicates was less than 5X reporting limit so RPD requirements do not apply.
BS1	Laboratory control sample recovery above laboratory acceptance criteria. Results for analyte potentially biased high.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
	*Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)
RL	Report Limit
MDL	Method Detection Limit

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name(If Applicable): GCC Energy
Contact Person: Tom Bird
Address: 11473 C.R. 120
City: Hesperus **State:** CO **Zip:** 81326
Phone #: (970) 385-4528
Email: TBIRD@GCC.com / LBeck@resourcehydrogeologic.com
Project Name(optional):
Project Number(optional):
Sampler Name (Print): Jessica Luna + Michael McFarland

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

For Lab Use	Sample Name or Location	Collected Date	Collected Time	GROUNDWATER	SURFACEWATER	WASTEWATER	PRODUCEDWATER	SOIL	DRINKING WATER	OTHER :	No preservation (general)	HNO_3	HCl	H_2SO_4	Other:	Other:	GCC GW Baseline	GCC SW Baseline
1711-227-01	Hay Gulch Ditch upgradient	11/28/17	11:15		X						1	2	1	4				✓
-02	Well #2 Downgradient	11/28	9:57	X							1	1		4			✓	
-03	Wiltse Well	11/28	2:10	X							1	1		4			✓	
-04	MW-HGA-4	11/28	10:59	X							1	1		4			✓	

Matrix (check one); # of containers; ANALYSIS REQUEST

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

Relinquished By:	Date / Time	Received By:
Jessica Luna (signature)	Date: 11/28 Time: 2:51pm	Michael McFarland (signature)
Relinquished By: Michael McFarland (signature)	Date: 11-28-17 Time: 1604	Received By: (signature)
Relinquished By:	Date: Time:	Received By: #1 on ice

Delivered By: (Circle One)
Sampler - UPS - FedEx - Kangaroo - Other:

Temperature at reciept: 5.7/5.9°C
CHECKED BY: (initials)

ADDITIONAL REMARKS:

Report to State? (Circle) Yes No

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

Project Information

GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326
Laboratory PM: **Debbie Zufelt**
Phone:(970) 385-4528
Fax:(970) 385-4638

King Coal
11/29/2017

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

Analysis	Comment
Lead Dissolved by ICPMS	
Iron Dissolved by ICP	
Hardness, diss	
Fluoride by IC	
Alkalinity, Bicarbonate	
Chloride by IC	
Molybdenum Dissolved by ICPM	
Cadmium Dissolved by ICPMS	
Arsenic Dissolved by ICPMS	
Aluminum Dissolved by ICP	
Alkalinity, Total	
Alkalinity, Hydroxide	
Alkalinity, Carbonate	
Copper Dissolved by ICPMS	
Selenium Dissolved by ICPMS	
Uranium Dissolved by ICPMS	
Sulfate by IC	
Subcontract Analysis 1	TOC
Solids, Total Suspended (TSS)	
Solids, Total Dissolved (TDS)	
Sodium Dissolved by ICP	
Manganese Dissolved by ICPMS	tot + diss
Silica Dissolved by ICP Package	
Mercury Total by CVAA	
SAR	
Potassium Dissolved by ICP	
pH	
Oil & Grease	
Nitrate/Nitrite as N	
Zinc Dissolved by ICPMS	
Hardness, diss subanalyses:	
Calcium Dissolved by ICP	
Magnesium Dissolved by ICP	
Silica Dissolved by ICP Package subanalyses:	
Silicon Dissolved by ICP	

Project Information

GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326
Laboratory PM: **Debbie Zufelt**
Phone:(970) 385-4528
Fax:(970) 385-4638

King Coal
11/29/2017

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

Analysis	Comment
Manganese Dissolved by ICPMS	
Alkalinity, Carbonate	
Alkalinity, Hydroxide	
Alkalinity, Total	
Aluminum Dissolved by ICP	
Arsenic Dissolved by ICPMS	
Cadmium Dissolved by ICPMS	
Chloride by IC	
Copper Dissolved by ICPMS	
Fluoride by IC	
Hardness, diss	
Iron Dissolved by ICP	
Alkalinity, Bicarbonate	
Zinc Dissolved by ICPMS	
Mercury Dissolved by CVAA	
Molybdenum Dissolved by ICPM	
Nitrate/Nitrite as N	
pH	
Potassium Dissolved by ICP	
Selenium Dissolved by ICPMS	
Silica Dissolved by ICP Package	
Sodium Dissolved by ICP	
Solids, Total Dissolved (TDS)	
Subcontract Analysis 1	TOC
Sulfate by IC	
Uranium Dissolved by ICPMS	
Lead Dissolved by ICPMS	
Hardness, diss subanalyses:	
Calcium Dissolved by ICP	
Magnesium Dissolved by ICP	
Silica Dissolved by ICP Package subanalyses:	
Silicon Dissolved by ICP	

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14 December 2017

Tom Bird
GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326

RE: GCC GW Baseline

Enclosed are the results of analyses for samples received by the laboratory on 11/16/17 16:05.
If you need any further assistance, please feel free to contact me.

Sincerely,

Debbie Zufelt
Reports Manager

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

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

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

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/14/17 10:52

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1-C	1711175-01	Water	11/16/17 11:22	11/16/17 16:05
MW-1-A	1711175-02	Water	11/16/17 10:07	11/16/17 16:05
MW-99-MI	1711175-04	Water	11/16/17 12:18	11/16/17 16:05

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/14/17 10:52

MW-1-C

1711175-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**540**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**540**	10.0		mg/L	5	11/29/17	2320 B		CMS
Chloride*	**8.03**	5.00	0.717	mg/L	5	11/28/17	EPA300.0		JDA
Fluoride*	**0.955**	0.500	0.0798	mg/L	5	11/28/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.100	0.100	0.055	mg/L	5	11/20/17	EPA353.2		LLG
pH*	**7.34**			pH Units	1	11/27/17	EPA150.1	H4	CMS
Total Dissolved Solids*	**2360**	10.0		mg/L	1	11/21/17	EPA160.1		LLG
Sulfate*	**1230**	50.0	7.82	mg/L	50	11/29/17	EPA300.0		JDA
Total Organic Carbon*	**2.12**	0.500	0.201	mg/L	1	11/28/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.250	0.250	0.100	mg/L	5	11/27/17	EPA200.7		JDA
Calcium*	**216**	0.500	0.179	mg/L	5	11/27/17	EPA200.7		JDA
Hardness as CaCO3	**1180**	3.31	0.976	mg/L	5	11/27/17	2340 B		JDA
Iron*	<0.250	0.250	0.070	mg/L	5	11/27/17	EPA200.7		JDA
Magnesium*	**155**	0.500	0.128	mg/L	5	11/27/17	EPA200.7		JDA
Potassium*	<5.00	5.00	0.472	mg/L	5	11/27/17	EPA200.7		JDA
Silica (Si02)	**13.2**	5.35	1.49	mg/L	5	11/27/17	Calculation		JDA
Silicon	**6.16**	2.50	0.697	mg/L	5	11/27/17	EPA200.7		JDA
Sodium*	**253**	5.00	0.435	mg/L	5	11/27/17	EPA200.7		JDA
Dissolved Metals by ICPMS									
Arsenic*	<0.0025	0.0025	0.0004	mg/L	5	11/29/17	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	11/29/17	EPA200.8		JDA
Copper*	**0.0036**	0.0005	0.0002	mg/L	5	11/29/17	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	11/29/17	EPA200.8		JDA
Manganese*	**0.0959**	0.0025	0.0014	mg/L	5	11/29/17	EPA200.8		JDA
Molybdenum*	<0.0025	0.0025	0.0003	mg/L	5	11/29/17	EPA200.8		JDA
Selenium*	<0.0050	0.0050	0.0008	mg/L	5	11/29/17	EPA200.8		JDA
Uranium	**0.0028**	0.0005	0.00007	mg/L	5	11/29/17	EPA200.8		JDA
Zinc*	<0.0100	0.0100	0.0045	mg/L	5	11/29/17	EPA200.8		JDA

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/14/17 10:52

MW-1-C

1711175-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00009	mg/L	1	11/22/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/14/17 10:52

MW-1-A

1711175-02 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**380**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	<10.0	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**380**	10.0		mg/L	5	11/29/17	2320 B		CMS
Chloride*	<5.00	5.00	0.717	mg/L	5	11/28/17	EPA300.0		JDA
Fluoride*	<0.500	0.500	0.0798	mg/L	5	11/28/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.100	0.100	0.055	mg/L	5	11/20/17	EPA353.2		LLG
pH*	**7.33**			pH Units	1	11/27/17	EPA150.1	H4	CMS
Total Dissolved Solids*	**1120**	10.0		mg/L	1	11/21/17	EPA160.1		LLG
Sulfate*	**511**	20.0	3.13	mg/L	20	11/29/17	EPA300.0		JDA
Total Organic Carbon*	**1.58**	0.500	0.201	mg/L	1	11/28/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.250	0.250	0.100	mg/L	5	11/27/17	EPA200.7		JDA
Calcium*	**24.9**	0.500	0.179	mg/L	5	11/27/17	EPA200.7		JDA
Hardness as CaCO3	**130**	3.31	0.976	mg/L	5	11/27/17	2340 B		JDA
Iron*	<0.250	0.250	0.070	mg/L	5	11/27/17	EPA200.7		JDA
Magnesium*	**16.6**	0.500	0.128	mg/L	5	11/27/17	EPA200.7		JDA
Potassium*	<5.00	5.00	0.472	mg/L	5	11/27/17	EPA200.7		JDA
Silica (Si02)	**8.27**	5.35	1.49	mg/L	5	11/27/17	Calculation		JDA
Silicon	**3.87**	2.50	0.697	mg/L	5	11/27/17	EPA200.7		JDA
Sodium*	**325**	5.00	0.435	mg/L	5	11/27/17	EPA200.7		JDA
Dissolved Metals by ICPMS									
Arsenic*	<0.0025	0.0025	0.0004	mg/L	5	11/29/17	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	11/29/17	EPA200.8		JDA
Copper*	**0.0045**	0.0005	0.0002	mg/L	5	11/29/17	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	11/29/17	EPA200.8		JDA
Manganese*	**0.0259**	0.0025	0.0014	mg/L	5	11/29/17	EPA200.8		JDA
Molybdenum*	<0.0025	0.0025	0.0003	mg/L	5	11/29/17	EPA200.8		JDA
Selenium*	<0.0050	0.0050	0.0008	mg/L	5	11/29/17	EPA200.8		JDA
Uranium	<0.0005	0.0005	0.00007	mg/L	5	11/29/17	EPA200.8		JDA
Zinc*	<0.0100	0.0100	0.0045	mg/L	5	11/29/17	EPA200.8		JDA

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/14/17 10:52

MW-1-A

1711175-02 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00009	mg/L	1	11/22/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/14/17 10:52

MW-99-MI

1711175-04 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**805**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	**140**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**945**	10.0		mg/L	5	11/29/17	2320 B		CMS
Chloride*	**8.25**	5.00	0.717	mg/L	5	11/28/17	EPA300.0		JDA
Fluoride*	**0.750**	0.500	0.0798	mg/L	5	11/28/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	11/20/17	EPA353.2		LLG
pH*	**8.64**			pH Units	1	11/27/17	EPA150.1	H4	CMS
Total Dissolved Solids*	**1070**	10.0		mg/L	1	11/21/17	EPA160.1		LLG
Sulfate*	**32.3**	5.00	0.782	mg/L	5	11/28/17	EPA300.0		JDA
Total Organic Carbon*	**3.67**	0.500	0.201	mg/L	1	11/28/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.250	0.250	0.100	mg/L	5	11/27/17	EPA200.7		JDA
Calcium*	**2.95**	0.500	0.179	mg/L	5	11/27/17	EPA200.7		JDA
Hardness as CaCO3	**10.5**	3.31	0.976	mg/L	5	11/27/17	2340 B		JDA
Iron*	<0.250	0.250	0.070	mg/L	5	11/27/17	EPA200.7		JDA
Magnesium*	**0.750**	0.500	0.128	mg/L	5	11/27/17	EPA200.7		JDA
Potassium*	<5.00	5.00	0.472	mg/L	5	11/27/17	EPA200.7		JDA
Silica (Si02)	<5.35	5.35	1.49	mg/L	5	11/27/17	Calculation		JDA
Silicon	<2.50	2.50	0.697	mg/L	5	11/27/17	EPA200.7		JDA
Sodium*	**415**	5.00	0.435	mg/L	5	11/27/17	EPA200.7		JDA
Dissolved Metals by ICPMS									
Arsenic*	**0.0151**	0.0025	0.0004	mg/L	5	11/29/17	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	11/29/17	EPA200.8		JDA
Copper*	**0.0057**	0.0005	0.0002	mg/L	5	11/29/17	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	11/29/17	EPA200.8		JDA
Manganese*	**0.0066**	0.0025	0.0014	mg/L	5	11/29/17	EPA200.8		JDA
Molybdenum*	**0.0248**	0.0025	0.0003	mg/L	5	11/29/17	EPA200.8		JDA
Selenium*	<0.0050	0.0050	0.0008	mg/L	5	11/29/17	EPA200.8		JDA
Uranium	**0.0101**	0.0005	0.00007	mg/L	5	11/29/17	EPA200.8		JDA
Zinc*	**0.109**	0.0100	0.0045	mg/L	5	11/29/17	EPA200.8		JDA

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/14/17 10:52

MW-99-MI

1711175-04 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00009	mg/L	1	11/22/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/14/17 10:52

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B711175 - General Prep - Wet Chem										
Blank (B711175-BLK1)			Prepared & Analyzed: 11/20/17							
Nitrate/Nitrite as N	ND	0.020	mg/L							
LCS (B711175-BS1)			Prepared & Analyzed: 11/20/17							
Nitrate/Nitrite as N	0.951	0.020	mg/L	1.00		95.1	90-110			
LCS Dup (B711175-BSD1)			Prepared & Analyzed: 11/20/17							
Nitrate/Nitrite as N	0.950	0.020	mg/L	1.00		95.0	90-110	0.158	20	
Batch B711188 - General Prep - Wet Chem										
Blank (B711188-BLK1)			Prepared & Analyzed: 11/21/17							
Total Dissolved Solids	ND	10.0	mg/L							
Reference (B711188-SRM1)			Prepared & Analyzed: 11/21/17							
Total Dissolved Solids	565	10.0	mg/L	550		103	85-115			
Batch B711208 - General Prep - Wet Chem										
Blank (B711208-BLK1)			Prepared & Analyzed: 11/27/17							
Total Organic Carbon	ND	0.500	mg/L							
LCS (B711208-BS1)			Prepared & Analyzed: 11/27/17							
Total Organic Carbon	9.55	0.500	mg/L	10.0		95.5	85-115			
LCS Dup (B711208-BSD1)			Prepared & Analyzed: 11/27/17							
Total Organic Carbon	9.53	0.500	mg/L	10.0		95.3	85-115	0.241	20	
Batch B711217 - General Prep - Wet Chem										
Duplicate (B711217-DUP1)		**Source: 1711175-01**	Prepared & Analyzed: 11/27/17							
pH	7.34		pH Units		7.34			0.00	20	
Reference (B711217-SRM1)			Prepared & Analyzed: 11/27/17							
pH	8.96		pH Units	9.05		99.0	97.8-102.2			
Batch B711222 - General Prep - Wet Chem										
Blank (B711222-BLK1)			Prepared & Analyzed: 11/28/17							
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B711222-BS1)			Prepared & Analyzed: 11/28/17							
Chloride	24.7	1.00	mg/L	25.0		98.7	90-110			

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/14/17 10:52

General Chemistry - Quality Control (Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B711222 - General Prep - Wet Chem (Continued)										
LCS (B711222-BS1) (Continued)			Prepared & Analyzed: 11/28/17							
Fluoride	2.55	0.100	mg/L	2.50		102	90-110			
Sulfate	24.4	1.00	mg/L	25.0		97.6	90-110			
LCS Dup (B711222-BSD1)			Prepared & Analyzed: 11/28/17							
Chloride	24.8	1.00	mg/L	25.0		99.2	90-110	0.457	20	
Fluoride	2.57	0.100	mg/L	2.50		103	90-110	0.430	20	
Sulfate	24.6	1.00	mg/L	25.0		98.3	90-110	0.751	20	
Batch B711228 - General Prep - Wet Chem										
Blank (B711228-BLK1)			Prepared & Analyzed: 11/29/17							
Alkalinity, Total as CaCO3	ND	10.0	mg/L							
LCS (B711228-BS1)			Prepared & Analyzed: 11/29/17							
Alkalinity, Total as CaCO3	101	10.0	mg/L	100		101	85-115			
LCS Dup (B711228-BSD1)			Prepared & Analyzed: 11/29/17							
Alkalinity, Total as CaCO3	91.0	10.0	mg/L	100		91.0	85-115	10.4	20	

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/14/17 10:52

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B711198 - Diss. 200.7/200.8										
Blank (B711198-BLK1)				Prepared: 11/22/17 Analyzed: 11/27/17						
Aluminum	ND	0.050	mg/L							
Calcium	ND	0.100	mg/L							
Iron	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Potassium	ND	1.00	mg/L							
Silicon	ND	0.500	mg/L							
Sodium	ND	1.00	mg/L							
LCS (B711198-BS1)				Prepared: 11/22/17 Analyzed: 11/27/17						
Aluminum	4.83	0.050	mg/L	5.00		96.6	85-115			
Calcium	4.77	0.100	mg/L	5.00		95.4	85-115			
Iron	4.74	0.050	mg/L	5.00		94.7	85-115			
Magnesium	24.2	0.100	mg/L	25.0		96.7	85-115			
Potassium	9.79	1.00	mg/L	10.0		97.9	85-115			
Silicon	4.66	0.500	mg/L	5.00		93.2	85-115			
Sodium	7.96	1.00	mg/L	8.10		98.3	85-115			
LCS Dup (B711198-BSD1)				Prepared: 11/22/17 Analyzed: 11/27/17						
Aluminum	4.83	0.050	mg/L	5.00		96.5	85-115	0.0393	20	
Calcium	4.70	0.100	mg/L	5.00		94.0	85-115	1.51	20	
Iron	4.73	0.050	mg/L	5.00		94.7	85-115	0.0690	20	
Magnesium	23.9	0.100	mg/L	25.0		95.7	85-115	1.04	20	
Potassium	9.75	1.00	mg/L	10.0		97.5	85-115	0.420	20	
Silicon	4.58	0.500	mg/L	5.00		91.5	85-115	1.88	20	
Sodium	7.91	1.00	mg/L	8.10		97.7	85-115	0.667	20	

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/14/17 10:52

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B711200 - Diss. 200.7/200.8										
Blank (B711200-BLK1)				Prepared: 11/22/17 Analyzed: 11/29/17						
Arsenic	ND	0.0005	mg/L							
Cadmium	ND	0.0001	mg/L							
Copper	ND	0.0001	mg/L							
Lead	ND	0.0005	mg/L							
Manganese	ND	0.0005	mg/L							
Molybdenum	ND	0.0005	mg/L							
Selenium	ND	0.0010	mg/L							
Uranium	ND	0.0001	mg/L							
Zinc	ND	0.0020	mg/L							
LCS (B711200-BS1)				Prepared: 11/22/17 Analyzed: 11/29/17						
Arsenic	0.0499	0.0005	mg/L	0.0500		99.7	85-115			
Cadmium	0.0510	0.0001	mg/L	0.0500		102	85-115			
Copper	0.0506	0.0001	mg/L	0.0500		101	85-115			
Lead	0.0500	0.0005	mg/L	0.0500		100	85-115			
Manganese	0.0507	0.0005	mg/L	0.0500		101	85-115			
Molybdenum	0.0495	0.0005	mg/L	0.0500		98.9	85-115			
Selenium	0.249	0.0010	mg/L	0.250		99.5	85-115			
Uranium	0.0495	0.0001	mg/L	0.0500		99.0	85-115			
Zinc	0.0504	0.0020	mg/L	0.0500		101	85-115			
LCS Dup (B711200-BSD1)				Prepared: 11/22/17 Analyzed: 11/29/17						
Arsenic	0.0528	0.0005	mg/L	0.0500		106	85-115	5.79	20	
Cadmium	0.0495	0.0001	mg/L	0.0500		98.9	85-115	2.96	20	
Copper	0.0497	0.0001	mg/L	0.0500		99.3	85-115	1.88	20	
Lead	0.0507	0.0005	mg/L	0.0500		101	85-115	1.41	20	
Manganese	0.0499	0.0005	mg/L	0.0500		99.7	85-115	1.72	20	
Molybdenum	0.0499	0.0005	mg/L	0.0500		99.8	85-115	0.920	20	
Selenium	0.254	0.0010	mg/L	0.250		102	85-115	2.08	20	
Uranium	0.0504	0.0001	mg/L	0.0500		101	85-115	1.81	20	
Zinc	0.0504	0.0020	mg/L	0.0500		101	85-115	0.101	20	

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/14/17 10:52

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B711186 - EPA 245.1/7470										
Blank (B711186-BLK1)				Prepared: 11/21/17 Analyzed: 11/22/17						
Mercury	ND	0.0002	mg/L							
LCS (B711186-BS1)				Prepared: 11/21/17 Analyzed: 11/22/17						
Mercury	0.0022	0.0002	mg/L	0.00200		108	85-115			
LCS Dup (B711186-BSD1)				Prepared: 11/21/17 Analyzed: 11/22/17						
Mercury	0.0021	0.0002	mg/L	0.00200		107	85-115	0.372	20	

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/14/17 10:52

Notes and Definitions

H4	pH analysis perfomed more than 48 hours after sampling.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
	*Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)
RL	Report Limit
MDL	Method Detection Limit

Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt, Reports Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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75 Suttle St Durango, CO 81303

Company Name:	GCC Energy, LLC
Project Manager:	Tom Bird
Address:	6473 CR 120
City:	Hesperus State: CO Zip: 81326
Phone #:	(970) 385-4528 Email: TBIRD@GCC.com
Additional Report To:	LBECK@resourcehydrogeologic.com
Project Name:	
Project Number:	
Sampler Name (Print):	Jessica Luna / Michael McFarland

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

ANALYSIS REQUEST: GCC GW BASELINE

FOR LAB USE ONLY Lab I.D.	Sample Name or Location	Collected Date	Collected Time	Matrix: GROUNDWATER	SURFACEWATER	WASTEWATER	PRODUCEDWATER	SOIL	OTHER :	# of containers: No preservation (general)	HNO_3	HCl	H_2SO_4	Other:	Other:	Other:	GCC GW BASELINE
1711-175-01	MW-1-C	11/6/17	11:22	X						1			4				X
-02	MW-1-A	11/6/17	10:07	X						1			4				X
-03	MW-5-MI	11/6/17	12:15	X						1			4				X
-04	MW-99-MI	11/6/17	12:18	X						1			4				X
-05	MW-5-C	11/6/17	12:47	X						1			4				X

Relinquished By: Jessica Luna	Date: 11/14/17 Time: 2:59	Received By: Michael McFarland	
Relinquished By: Michael McFarland	Date: 11-16-17 Time: 1605	Received By: Debbie Zufelt	
Relinquished By:	Date: Time:	Received By:	#1 on ice

Delivered By: (Circle One)
Sampler - UPS - FedEx - Kangaroo - Other:

Temperature at reciept: 4.0/4.2°C CHECKED BY: DZ

ADDITIONAL REMARKS: Report to State? (Circle) Yes No

RUSH TOC to 5-day TAT → check w/ Landon
DO not test for (Radium 226/228)

JE 11-16
↓ do not rush TOC per Landon
JE 11-16

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

Project Information

GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326
Laboratory PM: **Debbie Zufelt**
Phone:(970) 385-4528
Fax:(970) 385-4638

King Coal
11/17/2017

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

Analysis	Comment
Manganese Dissolved by ICPMS	
Alkalinity, Carbonate	
Alkalinity, Hydroxide	
Alkalinity, Total	
Aluminum Dissolved by ICP	
Arsenic Dissolved by ICPMS	
Cadmium Dissolved by ICPMS	
Chloride by IC	
Copper Dissolved by ICPMS	
Fluoride by IC	
Hardness, diss	
Iron Dissolved by ICP	
Alkalinity, Bicarbonate	
Zinc Dissolved by ICPMS	
Mercury Dissolved by CVAA	
Molybdenum Dissolved by ICPM	
Nitrate/Nitrite as N	
pH	
Potassium Dissolved by ICP	
Selenium Dissolved by ICPMS	
Silica Dissolved by ICP Package	
Sodium Dissolved by ICP	
Solids, Total Dissolved (TDS)	
Subcontract Analysis 1	TOC
Sulfate by IC	
Uranium Dissolved by ICPMS	
Lead Dissolved by ICPMS	
Hardness, diss subanalyses:	
Calcium Dissolved by ICP	
Magnesium Dissolved by ICP	
Silica Dissolved by ICP Package subanalyses:	
Silicon Dissolved by ICP	

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06 December 2017

Tom Bird
GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326

RE: GCC GW Baseline

Enclosed are the results of analyses for samples received by the laboratory on 11/17/17 15:03.
If you need any further assistance, please feel free to contact me.

Sincerely,

Debbie Zufelt
Reports Manager

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

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

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

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-3-C	1711183-01	Water	11/17/17 11:12	11/17/17 15:03
MW-3-A	1711183-02	Water	11/17/17 10:46	11/17/17 15:03
MW-3-MI	1711183-03	Water	11/17/17 10:26	11/17/17 15:03
MW-4-MI	1711183-04	Water	11/17/17 08:13	11/17/17 15:03
MW-4-A	1711183-05	Water	11/17/17 09:27	11/17/17 15:03
MW-4-C	1711183-06	Water	11/17/17 09:53	11/17/17 15:03

Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt, Reports Manager

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

MW-3-C

1711183-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**1830**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	**50.0**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**1880**	10.0		mg/L	5	11/29/17	2320 B		CMS
Chloride*	**506**	20.0	2.87	mg/L	20	12/01/17	EPA300.0		JDA
Fluoride*	**4.34**	1.00	0.160	mg/L	10	11/30/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	12/01/17	EPA353.2		LLG
pH*	**8.28**			pH Units	1	11/27/17	EPA150.1	H4	CMS
Total Dissolved Solids*	**3310**	10.0		mg/L	1	11/21/17	EPA160.1		LLG
Sulfate*	**24.5**	10.0	1.56	mg/L	10	11/30/17	EPA300.0		JDA
Total Organic Carbon*	**251**	10.0	4.02	mg/L	20	12/06/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.250	0.250	0.100	mg/L	5	11/27/17	EPA200.7		JDA
Calcium*	**3.58**	0.500	0.179	mg/L	5	11/27/17	EPA200.7		JDA
Hardness as CaCO3	**14.9**	3.31	0.976	mg/L	5	11/27/17	2340 B		JDA
Iron*	<0.250	0.250	0.070	mg/L	5	11/27/17	EPA200.7		JDA
Magnesium*	**1.44**	0.500	0.128	mg/L	5	11/27/17	EPA200.7		JDA
Potassium*	<5.00	5.00	0.472	mg/L	5	11/27/17	EPA200.7		JDA
Silica (Si02)	**6.01**	5.35	1.49	mg/L	5	11/27/17	Calculation		JDA
Silicon	**2.81**	2.50	0.697	mg/L	5	11/27/17	EPA200.7		JDA
Sodium*	**1130**	5.00	0.435	mg/L	5	11/27/17	EPA200.7		JDA
Dissolved Metals by ICPMS									
Arsenic*	**0.0091**	0.0025	0.0004	mg/L	5	11/29/17	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	11/29/17	EPA200.8		JDA
Copper*	**0.0160**	0.0005	0.0002	mg/L	5	11/29/17	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	11/29/17	EPA200.8		JDA
Manganese*	**0.0202**	0.0025	0.0014	mg/L	5	11/29/17	EPA200.8		JDA
Molybdenum*	**0.0241**	0.0025	0.0003	mg/L	5	11/29/17	EPA200.8		JDA
Selenium*	**0.0240**	0.0050	0.0008	mg/L	5	11/29/17	EPA200.8		JDA
Uranium	**0.0100**	0.0005	0.00007	mg/L	5	11/29/17	EPA200.8		JDA
Zinc*	<0.0100	0.0100	0.0045	mg/L	5	11/29/17	EPA200.8		JDA

Green Analytical Laboratories

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Debbie Zufelt, Reports Manager

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

MW-3-C

1711183-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00009	mg/L	1	11/22/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

MW-3-A

1711183-02 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**460**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	**30.0**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**490**	10.0		mg/L	5	11/29/17	2320 B		CMS
Chloride*	**16.9**	5.00	0.717	mg/L	5	11/30/17	EPA300.0		JDA
Fluoride*	<0.500	0.500	0.0798	mg/L	5	11/30/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	12/01/17	EPA353.2		LLG
pH*	**8.29**			pH Units	1	11/27/17	EPA150.1	H4	CMS
Total Dissolved Solids*	**1690**	10.0		mg/L	1	11/21/17	EPA160.1		LLG
Sulfate*	**730**	50.0	7.82	mg/L	50	12/01/17	EPA300.0		JDA
Total Organic Carbon*	**6.07**	0.500	0.201	mg/L	1	12/05/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.250	0.250	0.100	mg/L	5	11/27/17	EPA200.7		JDA
Calcium*	**3.27**	0.500	0.179	mg/L	5	11/27/17	EPA200.7		JDA
Hardness as CaCO3	**10.4**	3.31	0.976	mg/L	5	11/27/17	2340 B		JDA
Iron*	<0.250	0.250	0.070	mg/L	5	11/27/17	EPA200.7		JDA
Magnesium*	**0.550**	0.500	0.128	mg/L	5	11/27/17	EPA200.7		JDA
Potassium*	<5.00	5.00	0.472	mg/L	5	11/27/17	EPA200.7		JDA
Silica (Si02)	**7.66**	5.35	1.49	mg/L	5	11/27/17	Calculation		JDA
Silicon	**3.58**	2.50	0.697	mg/L	5	11/27/17	EPA200.7		JDA
Sodium*	**551**	5.00	0.435	mg/L	5	11/27/17	EPA200.7		JDA
Dissolved Metals by ICPMS									
Arsenic*	<0.0025	0.0025	0.0004	mg/L	5	11/29/17	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	11/29/17	EPA200.8		JDA
Copper*	**0.0079**	0.0005	0.0002	mg/L	5	11/29/17	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	11/29/17	EPA200.8		JDA
Manganese*	**0.0269**	0.0025	0.0014	mg/L	5	11/29/17	EPA200.8		JDA
Molybdenum*	**0.0078**	0.0025	0.0003	mg/L	5	11/29/17	EPA200.8		JDA
Selenium*	<0.0050	0.0050	0.0008	mg/L	5	11/29/17	EPA200.8		JDA
Uranium	**0.0036**	0.0005	0.00007	mg/L	5	11/29/17	EPA200.8		JDA
Zinc*	<0.0100	0.0100	0.0045	mg/L	5	11/29/17	EPA200.8		JDA

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

MW-3-A

1711183-02 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00009	mg/L	1	11/22/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

MW-3-MI

1711183-03 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**570**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	**90.0**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**660**	10.0		mg/L	5	11/29/17	2320 B		CMS
Chloride*	**10.6**	5.00	0.717	mg/L	5	11/30/17	EPA300.0		JDA
Fluoride*	**1.26**	0.500	0.0798	mg/L	5	11/30/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	12/01/17	EPA353.2		LLG
pH*	**8.72**			pH Units	1	11/27/17	EPA150.1	H4	CMS
Total Dissolved Solids*	**1080**	10.0		mg/L	1	11/21/17	EPA160.1		LLG
Sulfate*	**254**	10.0	1.56	mg/L	10	12/01/17	EPA300.0		JDA
Total Organic Carbon*	**10.3**	0.500	0.201	mg/L	1	12/05/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.250	0.250	0.100	mg/L	5	11/27/17	EPA200.7		JDA
Calcium*	**2.06**	0.500	0.179	mg/L	5	11/27/17	EPA200.7		JDA
Hardness as CaCO3	**7.75**	3.31	0.976	mg/L	5	11/27/17	2340 B		JDA
Iron*	<0.250	0.250	0.070	mg/L	5	11/27/17	EPA200.7		JDA
Magnesium*	**0.632**	0.500	0.128	mg/L	5	11/27/17	EPA200.7		JDA
Potassium*	<5.00	5.00	0.472	mg/L	5	11/27/17	EPA200.7		JDA
Silica (Si02)	**5.35**	5.35	1.49	mg/L	5	11/27/17	Calculation		JDA
Silicon	**2.50**	2.50	0.697	mg/L	5	11/27/17	EPA200.7		JDA
Sodium*	**411**	5.00	0.435	mg/L	5	11/27/17	EPA200.7		JDA
Dissolved Metals by ICPMS									
Arsenic*	**0.0135**	0.0025	0.0004	mg/L	5	11/29/17	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	11/29/17	EPA200.8		JDA
Copper*	**0.0059**	0.0005	0.0002	mg/L	5	11/29/17	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	11/29/17	EPA200.8		JDA
Manganese*	**0.0045**	0.0025	0.0014	mg/L	5	11/29/17	EPA200.8		JDA
Molybdenum*	**0.0152**	0.0025	0.0003	mg/L	5	11/29/17	EPA200.8		JDA
Selenium*	<0.0050	0.0050	0.0008	mg/L	5	11/29/17	EPA200.8		JDA
Uranium	**0.0124**	0.0005	0.00007	mg/L	5	11/29/17	EPA200.8		JDA
Zinc*	<0.0100	0.0100	0.0045	mg/L	5	11/29/17	EPA200.8		JDA

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

MW-3-MI

1711183-03 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00009	mg/L	1	11/22/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

MW-4-MI

1711183-04 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**885**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	**100**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**985**	10.0		mg/L	5	11/29/17	2320 B		CMS
Chloride*	**9.11**	5.00	0.717	mg/L	5	11/30/17	EPA300.0		JDA
Fluoride*	**5.10**	0.500	0.0798	mg/L	5	11/30/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	12/01/17	EPA353.2		LLG
pH*	**8.51**			pH Units	1	11/27/17	EPA150.1	H4	CMS
Total Dissolved Solids*	**1180**	10.0		mg/L	1	11/21/17	EPA160.1		LLG
Sulfate*	**77.5**	5.00	0.782	mg/L	5	11/30/17	EPA300.0		JDA
Total Organic Carbon*	**9.53**	0.500	0.201	mg/L	1	12/05/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.250	0.250	0.100	mg/L	5	11/27/17	EPA200.7		JDA
Calcium*	**1.68**	0.500	0.179	mg/L	5	11/27/17	EPA200.7		JDA
Hardness as CaCO3	**4.20**	3.31	0.976	mg/L	5	11/27/17	2340 B		JDA
Iron*	<0.250	0.250	0.070	mg/L	5	11/27/17	EPA200.7		JDA
Magnesium*	<0.500	0.500	0.128	mg/L	5	11/27/17	EPA200.7		JDA
Potassium*	<5.00	5.00	0.472	mg/L	5	11/27/17	EPA200.7		JDA
Silica (Si02)	<5.35	5.35	1.49	mg/L	5	11/27/17	Calculation		JDA
Silicon	**2.50**	2.50	0.697	mg/L	5	11/27/17	EPA200.7		JDA
Sodium*	**452**	5.00	0.435	mg/L	5	11/27/17	EPA200.7		JDA
Dissolved Metals by ICPMS									
Arsenic*	**0.0122**	0.0025	0.0004	mg/L	5	11/29/17	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	11/29/17	EPA200.8		JDA
Copper*	**0.0070**	0.0005	0.0002	mg/L	5	11/29/17	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	11/29/17	EPA200.8		JDA
Manganese*	**0.0124**	0.0025	0.0014	mg/L	5	11/29/17	EPA200.8		JDA
Molybdenum*	**0.0134**	0.0025	0.0003	mg/L	5	11/29/17	EPA200.8		JDA
Selenium*	<0.0050	0.0050	0.0008	mg/L	5	11/29/17	EPA200.8		JDA
Uranium	**0.0169**	0.0005	0.00007	mg/L	5	11/29/17	EPA200.8		JDA
Zinc*	<0.0100	0.0100	0.0045	mg/L	5	11/29/17	EPA200.8		JDA

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

MW-4-MI

1711183-04 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00009	mg/L	1	11/22/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

MW-4-A

1711183-05 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**560**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	**30.0**	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	5	11/29/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**590**	10.0		mg/L	5	11/29/17	2320 B		CMS
Chloride*	**10.3**	5.00	0.717	mg/L	5	11/30/17	EPA300.0		JDA
Fluoride*	<0.500	0.500	0.0798	mg/L	5	11/30/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.020	0.020	0.011	mg/L	1	12/01/17	EPA353.2		LLG
pH*	**8.40**			pH Units	1	11/27/17	EPA150.1	H4	CMS
Total Dissolved Solids*	**1500**	10.0		mg/L	1	11/21/17	EPA160.1		LLG
Sulfate*	**594**	25.0	3.91	mg/L	25	12/01/17	EPA300.0		JDA
Total Organic Carbon*	**3.27**	0.500	0.201	mg/L	1	12/05/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.250	0.250	0.100	mg/L	5	11/27/17	EPA200.7		JDA
Calcium*	**1.87**	0.500	0.179	mg/L	5	11/27/17	EPA200.7		JDA
Hardness as CaCO3	**7.11**	3.31	0.976	mg/L	5	11/27/17	2340 B		JDA
Iron*	<0.250	0.250	0.070	mg/L	5	11/27/17	EPA200.7		JDA
Magnesium*	**0.591**	0.500	0.128	mg/L	5	11/27/17	EPA200.7		JDA
Potassium*	<5.00	5.00	0.472	mg/L	5	11/27/17	EPA200.7		JDA
Silica (Si02)	**6.85**	5.35	1.49	mg/L	5	11/27/17	Calculation		JDA
Silicon	**3.20**	2.50	0.697	mg/L	5	11/27/17	EPA200.7		JDA
Sodium*	**511**	5.00	0.435	mg/L	5	11/27/17	EPA200.7		JDA
Dissolved Metals by ICPMS									
Arsenic*	<0.0025	0.0025	0.0004	mg/L	5	11/29/17	EPA200.8		JDA
Cadmium*	<0.0005	0.0005	0.0005	mg/L	5	11/29/17	EPA200.8		JDA
Copper*	**0.0073**	0.0005	0.0002	mg/L	5	11/29/17	EPA200.8		JDA
Lead*	<0.0025	0.0025	0.0001	mg/L	5	11/29/17	EPA200.8		JDA
Manganese*	**0.0040**	0.0025	0.0014	mg/L	5	11/29/17	EPA200.8		JDA
Molybdenum*	<0.0025	0.0025	0.0003	mg/L	5	11/29/17	EPA200.8		JDA
Selenium*	<0.0050	0.0050	0.0008	mg/L	5	11/29/17	EPA200.8		JDA
Uranium	**0.0005**	0.0005	0.00007	mg/L	5	11/29/17	EPA200.8		JDA
Zinc*	<0.0100	0.0100	0.0045	mg/L	5	11/29/17	EPA200.8		JDA

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

MW-4-A

1711183-05 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00009	mg/L	1	11/22/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

MW-4-C

1711183-06 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate as CaCO3*	**2640**	10.0		mg/L	10	11/29/17	2320 B		CMS
Alkalinity, Carbonate as CaCO3*	**40.0**	10.0		mg/L	10	11/29/17	2320 B		CMS
Alkalinity, Hydroxide as CaCO3*	<10.0	10.0		mg/L	10	11/29/17	2320 B		CMS
Alkalinity, Total as CaCO3*	**2680**	10.0		mg/L	10	11/29/17	2320 B		CMS
Chloride*	**608**	20.0	2.87	mg/L	20	12/01/17	EPA300.0		JDA
Fluoride*	**2.43**	1.00	0.160	mg/L	10	11/30/17	EPA300.0		JDA
Nitrate/Nitrite as N*	<0.100	0.100	0.055	mg/L	5	12/01/17	EPA353.2		LLG
pH*	**7.98**			pH Units	1	11/27/17	EPA150.1	H4	CMS
Total Dissolved Solids*	**3780**	10.0		mg/L	1	11/21/17	EPA160.1		LLG
Sulfate*	**26.0**	10.0	1.56	mg/L	10	11/30/17	EPA300.0		JDA
Total Organic Carbon*	**3.64**	0.500	0.201	mg/L	1	12/05/17	5310C		JDA
Dissolved Metals by ICP									
Aluminum*	<0.500	0.500	0.201	mg/L	10	11/27/17	EPA200.7		JDA
Calcium*	**7.45**	1.00	0.359	mg/L	10	11/27/17	EPA200.7		JDA
Hardness as CaCO3	**30.0**	6.62	1.95	mg/L	10	11/27/17	2340 B		JDA
Iron*	<0.500	0.500	0.140	mg/L	10	11/27/17	EPA200.7		JDA
Magnesium*	**2.76**	1.00	0.256	mg/L	10	11/27/17	EPA200.7		JDA
Potassium*	<10.0	10.0	0.944	mg/L	10	11/27/17	EPA200.7		JDA
Silica (Si02)	<10.7	10.7	2.98	mg/L	10	11/27/17	Calculation		JDA
Silicon	<5.00	5.00	1.39	mg/L	10	11/27/17	EPA200.7		JDA
Sodium*	**1400**	10.0	0.870	mg/L	10	11/27/17	EPA200.7		JDA
Dissolved Metals by ICPMS									
Arsenic*	**0.0152**	0.0050	0.0008	mg/L	10	11/29/17	EPA200.8		JDA
Cadmium*	<0.0010	0.0010	0.0009	mg/L	10	11/29/17	EPA200.8		JDA
Copper*	**0.0208**	0.0010	0.0003	mg/L	10	11/29/17	EPA200.8		JDA
Lead*	<0.0050	0.0050	0.0002	mg/L	10	11/29/17	EPA200.8		JDA
Manganese*	**0.0571**	0.0050	0.0027	mg/L	10	11/29/17	EPA200.8		JDA
Molybdenum*	**0.0106**	0.0050	0.0006	mg/L	10	11/29/17	EPA200.8		JDA
Selenium*	**0.0269**	0.0100	0.0015	mg/L	10	11/29/17	EPA200.8		JDA
Uranium	**0.0545**	0.0010	0.0001	mg/L	10	11/29/17	EPA200.8		JDA
Zinc*	<0.0200	0.0200	0.0090	mg/L	10	11/29/17	EPA200.8		JDA

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

MW-4-C

1711183-06 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Dissolved Mercury by CVAA									
Mercury*	<0.0002	0.0002	0.00009	mg/L	1	11/22/17	EPA245.1		LLG

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B711188 - General Prep - Wet Chem										
Blank (B711188-BLK1)			Prepared & Analyzed: 11/21/17							
Total Dissolved Solids	ND	10.0	mg/L							
Reference (B711188-SRM1)			Prepared & Analyzed: 11/21/17							
Total Dissolved Solids	565	10.0	mg/L	550		103	85-115			
Batch B711217 - General Prep - Wet Chem										
Duplicate (B711217-DUP2)			**Source: 1711183-05** Prepared & Analyzed: 11/27/17							
pH	8.40		pH Units		8.40			0.00	20	
Reference (B711217-SRM1)			Prepared & Analyzed: 11/27/17							
pH	8.96		pH Units	9.05		99.0	97.8-102.2			
Reference (B711217-SRM2)			Prepared & Analyzed: 11/27/17							
pH	8.86		pH Units	9.05		97.9	97.8-102.2			
Batch B711228 - General Prep - Wet Chem										
Blank (B711228-BLK1)			Prepared & Analyzed: 11/29/17							
Alkalinity, Total as CaCO3	ND	10.0	mg/L							
LCS (B711228-BS1)			Prepared & Analyzed: 11/29/17							
Alkalinity, Total as CaCO3	101	10.0	mg/L	100		101	85-115			
LCS Dup (B711228-BSD1)			Prepared & Analyzed: 11/29/17							
Alkalinity, Total as CaCO3	91.0	10.0	mg/L	100		91.0	85-115	10.4	20	
Batch B711236 - General Prep - Wet Chem										
Blank (B711236-BLK1)			Prepared & Analyzed: 11/30/17							
Chloride	ND	1.00	mg/L							
Fluoride	ND	0.100	mg/L							
Sulfate	ND	1.00	mg/L							
LCS (B711236-BS1)			Prepared & Analyzed: 11/30/17							
Chloride	24.1	1.00	mg/L	25.0		96.5	90-110			
Fluoride	2.49	0.100	mg/L	2.50		99.8	90-110			
Sulfate	24.0	1.00	mg/L	25.0		96.0	90-110			
LCS Dup (B711236-BSD1)			Prepared & Analyzed: 11/30/17							
Chloride	24.3	1.00	mg/L	25.0		97.3	90-110	0.776	20	
Fluoride	2.52	0.100	mg/L	2.50		101	90-110	0.997	20	
Sulfate	24.2	1.00	mg/L	25.0		96.8	90-110	0.834	20	

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

General Chemistry - Quality Control (Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B712016 - General Prep - Wet Chem										
Blank (B712016-BLK1)			Prepared & Analyzed: 12/01/17							
Nitrate/Nitrite as N	ND	0.020	mg/L							
LCS (B712016-BS1)			Prepared & Analyzed: 12/01/17							
Nitrate/Nitrite as N	0.957	0.020	mg/L	1.00		95.7	90-110			
LCS Dup (B712016-BSD1)			Prepared & Analyzed: 12/01/17							
Nitrate/Nitrite as N	0.955	0.020	mg/L	1.00		95.5	90-110	0.188	20	
Batch B712025 - General Prep - Wet Chem										
Blank (B712025-BLK1)			Prepared & Analyzed: 12/05/17							
Total Organic Carbon	ND	0.500	mg/L							
LCS (B712025-BS1)			Prepared & Analyzed: 12/05/17							
Total Organic Carbon	9.91	0.500	mg/L	10.0		99.1	85-115			
LCS Dup (B712025-BSD1)			Prepared & Analyzed: 12/05/17							
Total Organic Carbon	9.91	0.500	mg/L	10.0		99.1	85-115	0.0101	20	

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

Dissolved Metals by ICP - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B711198 - Diss. 200.7/200.8										
Blank (B711198-BLK1)				Prepared: 11/22/17 Analyzed: 11/27/17						
Aluminum	ND	0.050	mg/L							
Calcium	ND	0.100	mg/L							
Iron	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Potassium	ND	1.00	mg/L							
Silicon	ND	0.500	mg/L							
Sodium	ND	1.00	mg/L							
LCS (B711198-BS1)				Prepared: 11/22/17 Analyzed: 11/27/17						
Aluminum	4.83	0.050	mg/L	5.00		96.6	85-115			
Calcium	4.77	0.100	mg/L	5.00		95.4	85-115			
Iron	4.74	0.050	mg/L	5.00		94.7	85-115			
Magnesium	24.2	0.100	mg/L	25.0		96.7	85-115			
Potassium	9.79	1.00	mg/L	10.0		97.9	85-115			
Silicon	4.66	0.500	mg/L	5.00		93.2	85-115			
Sodium	7.96	1.00	mg/L	8.10		98.3	85-115			
LCS Dup (B711198-BSD1)				Prepared: 11/22/17 Analyzed: 11/27/17						
Aluminum	4.83	0.050	mg/L	5.00		96.5	85-115	0.0393	20	
Calcium	4.70	0.100	mg/L	5.00		94.0	85-115	1.51	20	
Iron	4.73	0.050	mg/L	5.00		94.7	85-115	0.0690	20	
Magnesium	23.9	0.100	mg/L	25.0		95.7	85-115	1.04	20	
Potassium	9.75	1.00	mg/L	10.0		97.5	85-115	0.420	20	
Silicon	4.58	0.500	mg/L	5.00		91.5	85-115	1.88	20	
Sodium	7.91	1.00	mg/L	8.10		97.7	85-115	0.667	20	

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

Dissolved Metals by ICPMS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B711200 - Diss. 200.7/200.8										
Blank (B711200-BLK1)				Prepared: 11/22/17 Analyzed: 11/29/17						
Arsenic	ND	0.0005	mg/L							
Cadmium	ND	0.0001	mg/L							
Copper	ND	0.0001	mg/L							
Lead	ND	0.0005	mg/L							
Manganese	ND	0.0005	mg/L							
Molybdenum	ND	0.0005	mg/L							
Selenium	ND	0.0010	mg/L							
Uranium	ND	0.0001	mg/L							
Zinc	ND	0.0020	mg/L							
LCS (B711200-BS1)				Prepared: 11/22/17 Analyzed: 11/29/17						
Arsenic	0.0499	0.0005	mg/L	0.0500		99.7	85-115			
Cadmium	0.0510	0.0001	mg/L	0.0500		102	85-115			
Copper	0.0506	0.0001	mg/L	0.0500		101	85-115			
Lead	0.0500	0.0005	mg/L	0.0500		100	85-115			
Manganese	0.0507	0.0005	mg/L	0.0500		101	85-115			
Molybdenum	0.0495	0.0005	mg/L	0.0500		98.9	85-115			
Selenium	0.249	0.0010	mg/L	0.250		99.5	85-115			
Uranium	0.0495	0.0001	mg/L	0.0500		99.0	85-115			
Zinc	0.0504	0.0020	mg/L	0.0500		101	85-115			
LCS Dup (B711200-BSD1)				Prepared: 11/22/17 Analyzed: 11/29/17						
Arsenic	0.0528	0.0005	mg/L	0.0500		106	85-115	5.79	20	
Cadmium	0.0495	0.0001	mg/L	0.0500		98.9	85-115	2.96	20	
Copper	0.0497	0.0001	mg/L	0.0500		99.3	85-115	1.88	20	
Lead	0.0507	0.0005	mg/L	0.0500		101	85-115	1.41	20	
Manganese	0.0499	0.0005	mg/L	0.0500		99.7	85-115	1.72	20	
Molybdenum	0.0499	0.0005	mg/L	0.0500		99.8	85-115	0.920	20	
Selenium	0.254	0.0010	mg/L	0.250		102	85-115	2.08	20	
Uranium	0.0504	0.0001	mg/L	0.0500		101	85-115	1.81	20	
Zinc	0.0504	0.0020	mg/L	0.0500		101	85-115	0.101	20	

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GCC Energy, LLC	Project: GCC GW Baseline	
6473 CR 120	Project Name / Number: [none]	**Reported:**
Hesperus CO, 81326	Project Manager: Tom Bird	12/06/17 14:15

Dissolved Mercury by CVAA - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B711186 - EPA 245.1/7470										
Blank (B711186-BLK1)				Prepared: 11/21/17 Analyzed: 11/22/17						
Mercury	ND	0.0002	mg/L							
LCS (B711186-BS1)				Prepared: 11/21/17 Analyzed: 11/22/17						
Mercury	0.0022	0.0002	mg/L	0.00200		108	85-115			
LCS Dup (B711186-BSD1)				Prepared: 11/21/17 Analyzed: 11/22/17						
Mercury	0.0021	0.0002	mg/L	0.00200		107	85-115	0.372	20	

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GCC Energy, LLC	Project:	GCC GW Baseline	
6473 CR 120	Project Name / Number:	[none]	**Reported:**
Hesperus CO, 81326	Project Manager:	Tom Bird	12/06/17 14:15

Notes and Definitions

H4	pH analysis perfomed more than 48 hours after sampling.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
	*Results reported on as received basis unless designated as dry.
RPD	Relative Percent Difference
LCS	Laboratory Control Sample (Blank Spike)
RL	Report Limit
MDL	Method Detection Limit

Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt, Reports Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: GCC Energy, LLC
Project Manager: Tom Bird
Address: 4473 C.R. 120
City: Hesperus State: CO Zip: 81326
Phone #: (970) 385-4528 Email: TBird@gcc.com
Additional Report To: LBeek@resourcehydrogeologic.com
Project Name:
Project Number:
Sampler Name (Print): Jessica Luna / Michael McFarland

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

ANALYSIS REQUEST: GCC GW Baseline

FOR LAB USE ONLY Lab I.D.	Sample Name or Location	Collected Date	Collected Time	Matrix (check one): GROUNDWATER	SURFACEWATER	WASTEWATER	PRODUCEDWATER	SOIL	OTHER :	# of containers: No preservation (general)	HNO_3	HCl	H_2SO_4	Other:	Other:	Other:	ANALYSIS REQUEST
1711-1B3-01	MW-3-C	11/17	11:12	X						1	1		4				X
-02	MW-3-A	11/17	10:46	X						1	1		4				X
-03	MW-3-MI	11/17	10:26	X						1	1		4				X
-04	MW-4-MI	11/17	8:13	X						1	1		4				X
-05	MW-4-A	11/17	9:27	X						1	1		4				X
-06	MW-4-C	11/17	9:53	X						1	1		4				X

Relinquished By:	Date: 11/17	Time: 12:40pm	Received By: Michael McFarland
Jessica Luna			
Relinquished By: Michael McFarland	Date: 11-17-17	Time: 1503 PM	Received By:
Relinquished By: Michael G. McFarland	Date:	Time:	Received By: #1 onice

Delivered By: (Circle One)
Sampler - UPS - FedEx - Kangaroo - Other:

Temperature at reciept: 2.7 | 2.9°C
CHECKED BY: JL

ADDITIONAL REMARKS:

Report to State? (Circle)
Yes No

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

Project Information

GCC Energy, LLC
6473 CR 120
Hesperus, CO 81326
Laboratory PM: **Debbie Zufelt**
Phone:(970) 385-4528
Fax:(970) 385-4638

King Coal
11/20/2017

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

Analysis	Comment
Manganese Dissolved by ICPMS	
Alkalinity, Carbonate	
Alkalinity, Hydroxide	
Alkalinity, Total	
Aluminum Dissolved by ICP	
Arsenic Dissolved by ICPMS	
Cadmium Dissolved by ICPMS	
Chloride by IC	
Copper Dissolved by ICPMS	
Fluoride by IC	
Hardness, diss	
Iron Dissolved by ICP	
Alkalinity, Bicarbonate	
Zinc Dissolved by ICPMS	
Mercury Dissolved by CVAA	
Molybdenum Dissolved by ICPM	
Nitrate/Nitrite as N	
pH	
Potassium Dissolved by ICP	
Selenium Dissolved by ICPMS	
Silica Dissolved by ICP Package	
Sodium Dissolved by ICP	
Solids, Total Dissolved (TDS)	
Subcontract Analysis 1	TOC
Sulfate by IC	
Uranium Dissolved by ICPMS	
Lead Dissolved by ICPMS	
Hardness, diss subanalyses:	
Calcium Dissolved by ICP	
Magnesium Dissolved by ICP	
Silica Dissolved by ICP Package subanalyses:	
Silicon Dissolved by ICP	

GCC Energy Hydrologic Monitoring Data

Hay Gulch Ditch Upgradient																	
Year		2016										2017					
Quarter		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
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
Lab Analysis (Y/N)		Y	N	N	Y	N	N	Y	Y	Y	N	N	N	Y	Y	Y	Y
Field Parameters:																	
Flow Rate	**cfs**	0.70	0.99	1.22	1.56	0.99	0.99	1.07	0.95	NM	1.02	NM	0.82	0.28	2.69	NM	NM
Temperature	**deg C**	9.8	20.9	11.3	21.1	20.8	16.8	14.93	16.39	5.86	6.97	1.52	4.73	10.69	20.21	19.72	8.78
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
Specific Conductance	**µS/cm**	247	323	197	141	189	207	233.2	210.2	257.9	233.7	686.6	455	453.5	106.2	549.4	868.30
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
Dissolved Oxygen	**mg/L**	8.12	6.35	8.03	5.96	6.48	6.86	7.2	4.73	6.71	6.1	10.59	8.96	6.89	4.79	6.73	9.26
Lab Analytical Results:																	
Hardness as CaCO3	**mg/L**	128			80.9			119		152				257	69.2	316	456
pH (Lab)	**SU**	8.17			8.04			8.16		8.19				8.06	8.06	8.22	8.31
Total Dissolved Solids (Lab)	**mg/L**	170			75			165		180				285	65.0	390	650
Total Suspended Solids	**mg/L**	30.0			117			17.0		4.8				2.50	63.5	2.00	5.75
Calcium	**mg/L**	33.5			24			33.0		38.4				53.6	20.8	64.9	86.6
Magnesium	**mg/L**	10.9			5.08			9.01		13.7				29.8	4.21	37.5	58.3
Sodium	**mg/L**	4.46			2.19			3.90		6				10.9	1.97	13.8	27.1
Potassium	**mg/L**	<1			<1			1.35		<1.00				<1.00	1.75	2.15	3.05
Alkalinity, Total	**mg/L**	160			65			98.0		118				185	55.0	177	305
Alkalinity, Bicarbonate	**mg/L**	160			65			94.0		118				185	55.0	161	285
Alkalinity, Carbonate	**mg/L**	<10			<10			<10		<10.0				<10.0	<10.0	16.0	20.0
Alkalinity, Hydroxide	**mg/L**	<10			<10			<10		<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
Fluoride	**mg/L**	0.213			0.208			0.223		0.208				0.215	0.195	0.265	0.283
Sulfate as SO4	**mg/L**	42.1			17.7			29.0		45.3				87.7	15.0	99.0	179
Total Organic Carbon (TOC)	**mg/L**	1.41			1.6			2.21		1.14				2.49	1.15	1.90	1.99
Oil & Grease	**mg/L**	<5			<5			<5		<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
Sodium Adsorption Ratio (SAR)	**no unit**	0.17			0.1			0.16		0.21				0.30	0.10	0.34	0.55
Aluminum	**mg/L**	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050	<0.050
Arsenic	**mg/L**	<0.0005			<0.0005			<0.0005		<0.0005				0.0005	<0.0005	0.0009	0.0007
Cadmium	**mg/L**	<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
Iron	**mg/L**	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050	<0.050
Lead	**mg/L**	<0.0005			<0.0005			<0.0005		<0.0005				<0.0005	<0.0005	<0.0005	<0.0005
Manganese	**mg/L**	0.0059			0.0035			0.0043		0.0047				0.0070	0.0024	0.0098	0.0049
Mercury	**mg/L**	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	**mg/L**	<0.0005			0.0009			0.0007		0.0008				0.0006	0.0009	0.0012	0.0008
Selenium	**mg/L**	<0.001			<0.001			<0.001		<0.0010				0.0023	<0.0010	<0.0010	0.0010
Silica (SiO2)	**mg/L**	7.78			8.23			10.5		9.71				9.04	7.71	9.45	10.1
Silicon	**mg/L**	3.64			3.85			4.89		4.54				4.23	3.60	4.42	4.71
Uranium	**mg/L**	0.0002			0.0001			0.0002		0.0003				0.0003	0.0001	0.0006	0.0009
Zinc	**mg/L**	<0.001			<0.001			<0.001		<0.0010				0.0022	<0.0020	<0.0040	<0.0020
Radium 226	**pCi/L**	<0.4			NA			NA		NA				NA	NA	NA	NA
Radium 228	**pCi/L**	<0.8			NA			NA		NA				NA	NA	NA	NA

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

Hay Gulch Ditch Downgradient

Year		2016										2017					
Quarter		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
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
Lab Analysis (Y/N)		Y	N	N	Y	N	N	Y	N	Y	N	N	N	Y	Y	Y	N
Field Parameters:																	
Flow Rate	cfs	1.05	1.16	1.13	NM	1.06	1.14	NM	0.76	NM	NM	NM	0.79	0.25	0.341	NM	
Temperature	deg C	11.8	17.6	10.9	21.9	21.3	18.8	16.11	11.79	7.02	6.59	7.17	5.01	12.7	17.63	18.72	
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	
Specific Conductance	µS/cm	429	530	297	116	308	257	1182.9	420.1	421.4	727.7	677.9	987.4	16.9	114.3	163.5	dry
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	
Dissolved Oxygen	mg/L	7.85	7.65	8.71	5.99	6.73	5.56	6.81	7.09	6.54	7.21	7.62	9.82	5.58	6.44	7.13	
Lab Analytical Results:																	
Hardness as CaCO3	mg/L	226			67.8			480		267				503	59.1	91.4	
pH (Lab)	SU	8.42			8.13			8.25		8.24				8.15	7.98	7.98	
Total Dissolved Solids (Lab)	mg/L	270			55			630		320				615	65.0	80.0	
Total Suspended Solids	mg/L	27.3			18			4.20		12.4				12.7	3.00	<0.500	
Calcium	mg/L	55.5			21.9			94.7		65.5				112	19.0	29.5	
Magnesium	mg/L	21.1			3.15			59.1		25.2				54.6	2.86	4.31	
Sodium	mg/L	8.69			1.57			16.8		10.7				22.5	1.49	2.37	
Potassium	mg/L	1.49			<1			4.48		1.46				2.33	<1.00	<1.00	
Alkalinity, Total	mg/L	220			59			220		225				320	47.0	85.0	
Alkalinity, Bicarbonate	mg/L	220			59			140		155				320	47.0	85.0	
Alkalinity, Carbonate	mg/L	<10			<10			80.0		70				<10.0	<10.0	<10.0	
Alkalinity, Hydroxide	mg/L	<10			<10			<10		<10.0				<10.0	<10.0	<10.0	
Chloride	mg/L	9.40			1.26			97.9		12				31.9	<1.00	1.54	
Fluoride	mg/L	0.244			0.195			0.244		0.227				0.224	0.290	0.227	
Sulfate as SO4	mg/L	68.1			13.5			144		89.5				204	11.3	17.9	
Total Organic Carbon (TOC)	mg/L	1.53			1.4			3.48		1.65				2.31	2.16	0.932	
Oil & Grease	mg/L	<5			<5			<5		<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	
Sodium Adsorption Ratio (SAR)	no unit	0.25			0.03			0.33		0.28				0.44	0.08	0.11	
Aluminum	mg/L	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050	
Arsenic	mg/L	0.0005			<0.0005			0.0015		0.0006				0.0006	0.0005	0.0006	
Cadmium	mg/L	<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	
Iron	mg/L	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050	
Lead	mg/L	<0.0005			<0.0005			<0.0005		<0.0005				<0.0005	<0.0005	<0.0005	
Manganese	mg/L	0.0039			0.0044			0.0059		0.0063				0.0112	0.0009	0.0010	
Mercury	mg/L	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	
Molybdenum	mg/L	<0.0005			0.0008			0.0013		0.0007				<0.0005	0.0009	0.0011	
Selenium	mg/L	<0.001			<0.001			0.0026		<0.0010				0.0022	<0.0010	<0.0010	
Silica (Si02)	mg/L	8.96			7.48			11.8		10.9				12.2	6.80	8.53	
Silicon	mg/L	4.19			3.5			5.51		5.11				5.70	3.18	3.99	
Uranium	mg/L	0.0004			0.0001			0.0006		0.0006				0.0009	0.0001	0.0002	
Zinc	mg/L	<0.001			0.0021			0.0013		0.0012				<0.0020	<0.0020	<0.0040	
Radium 226	pCi/L	<0.4			NA			NA		NA				NA	NA	NA	
Radium 228	pCi/L	<0.8			NA			NA		NA				NA	NA	NA	

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

Well #1 Upgradient

		2016										2017					
Year																	
Quarter		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
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
Lab Analysis (Y/N)		Y	N	N	Y	N	N	Y	N	Y	N	N	N	Y	Y	Y	Y
Field Parameters:																	
Purge Flow Rate	gpm	1.5	7.9	7.1	5.8	7.1	7.4	6.83	7.47	9.26	7.52	7.7	7.54	8.16	6.95	7.08	7.46
Total Purged	gal	306	522	870	297	280	284	288	300	280	295	298	297	291	286	258.83	287.15
Depth to Water	ft bgs	4.40	5.07	4.60	4.95	5.55	6.30	6.03	5.73	5.69	5.08	4.3	3.8	3.82	4.5	5.51	5.50
Temperature	deg C	8.8	13.1	11.9	14.2	14.1	12.7	12.54	12.58	10.64	11.27	10.9	10.41	11.24	11.85	11.84	11.61
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
Specific Conductance	µS/cm	1224	1199	1284	1246	1226	1143	1175.5	1223.4	1279.6	1304.9	1391.5	1415.3	1351.2	1158.6	1162.3	1241.40
Oxygen Reduction Potential	mV	-123.1	-162.2	-142.5	-185.4	-156.6	-196.8	-140.6	-148.9	-152.9	-141	-143.6	-125.6	-132.2	-201	-176.9	-213.20
Lab Analytical Results:																	
Hardness as CaCO3	mg/L	230			306			216		271				391	277	215	280
pH (Lab)	SU	7.73			7.57			7.58		7.59				7.46	7.74	7.66	7.56
Total Dissolved Solids (Lab)	mg/L	760			745			735		725				775	725	705	790
Calcium	mg/L	44.0			59.7			42.4		51.7				75.7	54.0	41.6	55.6
Magnesium	mg/L	29.1			38.2			26.7		34.5				49.1	34.6	27.1	34.4
Sodium	mg/L	199			196			210		189				167	189	203	195
Potassium	mg/L	3.00			3.15			3.01		3.01				3.30	3.00	3.09	2.99
Alkalinity, Total	mg/L	610			660			620		615				640	585	670	625
Alkalinity, Bicarbonate	mg/L	570			660			620		615				640	585	670	625
Alkalinity, Carbonate	mg/L	40.0			<10			<10		<10.0				<10.0	<10.0	<10.0	<10.0
Alkalinity, Hydroxide	mg/L	<10			<10			<10		<10.0				<10.0	<10.0	<10.0	<10.0
Chloride	mg/L	4.33			6.12			4.30		4.44				4.53	4.32	6.21	4.39
Fluoride	mg/L	0.347			<0.5			0.353		0.337				0.337	0.362	<0.500	0.358
Sulfate as SO4	mg/L	90.1			108			83.8		117				156	97.4	74.0	101
Total Organic Carbon (TOC)	mg/L	2.54			3.3			2.8		3.18				3.84	5.82	2.84	3.33
Nitrate/Nitrite as N	mg/L	<0.02			<0.02			<0.02		<0.200				<0.020	<0.400	<0.400	<0.020
Aluminum	mg/L	<0.05			<0.05			<0.05		<0.050				<0.050	<0.050	<0.050	<0.050
Arsenic	mg/L	<0.0005			<0.0005			<0.0005		<0.0005				0.0009	<0.0005	<0.0005	<0.0005
Cadmium	mg/L	<0.0001			<0.0001			<0.0001		<0.0001				<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.0035			0.003			0.0021		0.0041				0.0020	0.0020	0.0030	0.0027
Iron	mg/L	1.20			1.51			0.946		1.64				2.01	1.34	0.101	1.44
Lead	mg/L	<0.0005			<0.0005			<0.0005		<0.0005				<0.0005	<0.0005	<0.0005	<0.0005
Manganese	mg/L	0.267			0.344			0.221		0.312				0.491	0.315	0.202	0.311
Mercury	mg/L	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	mg/L	<0.0005			<0.0005			<0.0005		0.0005				<0.0005	<0.0005	<0.0005	<0.0005
Selenium	mg/L	<0.001			<0.001			<0.001		<0.0010				0.0245	<0.0010	<0.0010	<0.0010
Silica (Si02)	mg/L	13.8			15.2			14.8		12.9				14.2	14.9	14.3	14.7
Silicon	mg/L	6.45			7.12			6.94		6.05				6.64	6.94	6.68	6.86
Uranium	mg/L	<0.0001			0.0021			<0.0001		0.0002				0.0002	0.0001	0.0001	0.0001
Zinc	mg/L	<0.001			<0.001			0.0023		0.0301				<0.0020	<0.0020	<0.0020	<0.0020
Radium 226	pCi/L	<0.4			NA			NA		NA				NA	NA	NA	NA
Radium 228	pCi/L	<0.8			NA			NA		NA				NA	NA	NA	NA

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

Well #2 Downgradient																		
Year		2016										2017						
Quarter		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	
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	
Lab Analysis (Y/N)		Y	N	N	Y	N	N	Y	N	Y	N	N	N	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	
Total Purged	gal	7	6	7	7	6	6	6	6	6	6	8	8	6	8	8	6.00	
Depth to Water	ft bgs	3.69	3.17	4.25	1.42	4.17	4.17	5.5	6.4	4.7	5	3.95	2.74	6.35	0.95	4.85	5.68	
Temperature	deg C	6.3	10.1	13.5	18.4	19.8	14	14.13	13.29	10.36	12.4	6.98	4.44	8.43	17.05	12.13	11.66	
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	
Specific Conductance	µS/cm	899	867	804	600	369	815	876.5	881.1	903.8	871.9	907.5	1193.3	920.5	633.4	851.8	878.60	
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	
Lab Analytical Results:																		
Hardness as CaCO3	mg/L	444			314			452		432				485	352	378	449	
pH (Lab)	SU	7.63			7.66			7.48		7.55				7.72	7.6	7.51	7.51	
Total Dissolved Solids (Lab)	mg/L	685			470			525		495				635	415	525	540	
Calcium	mg/L	72.2			54.9			75.9		72.7				81.0	60.9	64.8	78.0	
Magnesium	mg/L	63.9			43.1			63.8		60.8				68.7	48.5	52.6	61.8	
Sodium	mg/L	22.2			16.5			19.8		20.7				21.8	16.1	17.0	20.1	
Potassium	mg/L	2.04			2.1			2.16		2.05				1.94	2.22	1.64	2.19	
Alkalinity, Total	mg/L	342			280			380		380				375	285	395	375	
Alkalinity, Bicarbonate	mg/L	338			280			380		380				375	285	395	375	
Alkalinity, Carbonate	mg/L	<10			<10			<10		<10.0				<10.0	<10	<10.0	<10.0	
Alkalinity, Hydroxide	mg/L	<10			<10			<10		<10.0				<10.0	<10	<10.0	<10.0	
Chloride	mg/L	35.8			6.8			27.4		26.2				23.3	7.11	19.0	23.4	
Fluoride	mg/L	0.230			0.298			0.272		0.256				0.228	0.313	0.263	0.246	
Sulfate as SO4	mg/L	129			70			114		117				153	75.2	98.4	94.7	
Total Organic Carbon (TOC)	mg/L	3.34			14			2.64		3.4				3.52	3.56	2.61	2.25	
Nitrate/Nitrite as N	mg/L	0.042			<0.02			<0.02		0.089				<0.020	<0.02	<0.020	<0.020	
Aluminum	mg/L	0.156			<0.05			<0.05		<0.050				<0.050	<0.05	<0.050	<0.050	
Arsenic	mg/L	0.0008			0.0015			0.0010		0.0013				0.0009	0.0017	0.0006	0.0011	
Cadmium	mg/L	<0.0001			<0.0001			<0.0001		<0.0001				<0.0001	<0.0001	<0.0001	<0.0001	
Copper	mg/L	0.0004			0.0005			0.0003		0.0051				0.0007	0.0002	0.0004	0.0001	
Iron	mg/L	0.081			0.085			0.118		<0.050				0.213	<0.05	<0.050	0.074	
Lead	mg/L	<0.0005			<0.0005			<0.0005		0.0078				<0.0005	<0.0005	<0.0005	<0.0005	
Manganese	mg/L	0.497			0.54			0.354		0.359				0.384	0.259	0.307	0.309	
Mercury	mg/L	<0.0002			<0.0002			<0.0002		<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	
Molybdenum	mg/L	0.0014			0.0022			0.0024		0.0025				0.0021	0.0025	0.0021	0.0020	
Selenium	mg/L	<0.001			<0.001			<0.001		0.0011				0.0045	<0.001	<0.0010	<0.0010	
Silica (Si02)	mg/L	11.6			14.7			12.8		11.9				10.9	15.5	13.0	13.3	
Silicon	mg/L	5.42			6.89			5.97		5.55				5.12	7.23	6.08	6.20	
Uranium	mg/L	0.0013			0.0007			0.0015		0.0016				0.0014	0.0008	0.0013	0.0013	
Zinc	mg/L	0.0034			<0.001			0.0010		0.0311				<0.0020	<0.002	<0.0040	<0.0020	
Radium 226	pCi/L	<0.4			NA			NA		NA				NA	NA	NA	NA	
Radium 228	pCi/L	<0.8			NA			NA		NA				NA	NA	NA	NA	

Notes & Definitions:

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

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

GCC Energy Hydrologic Monitoring Data

Wiltse Well

Year		2016										2017					
Quarter		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
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
Lab Analysis (Y/N)		Y	N	N	Y	N	N	Y	N	Y	N	N	N	Y	Y	Y	Y
Field Parameters:																	
Purge Flow Rate	**gpm**	150	38.5	23.4	18.6	19.9	17.3	15.8	16.95	10.64	18.05	39.53	39.59	39.59	NM	18.32	23.48
Total Purged	**gal**	5850	4228	4229	3686	2844	2979	2637	2724	2992	2916	3595	3580	3560	2980	2712.36	2422.75
Depth to Water	**ft bgs**	0.35	0.00	0.85	2.15	2.99	2.6	3.32	6.85	1.9	1.95	0.3	0	0	2.05	3.4	3.40
Temperature	**deg C**	6.7	8.8	10.4	10.7	11.5	12.1	11.47	10.95	9.11	8.79	7.56	7.2	7.53	10.34	11.29	9.69
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
Specific Conductance	**µS/cm**	2043	1633	1805	1768	1478	1602	1941.1	1937.3	2013.6	2035.6	2261.5	2276.3	2085.2	1869	2074.2	2189.80
Oxygen Reduction Potential	**mV**	105.6	17.9	20.1	38.5	26.9	20	28.6	21.6	13.7	20.9	3.2	18.3	6	13.3	19.5	19.20
Lab Analytical Results:																	
Hardness as CaCO3	**mg/L**	990			1050			1030		963				1040	1060	1140	1150
pH (Lab)	**SU**	7.22			7.34			7.29		7.36				7.22	7.46	7.30	7.33
Total Dissolved Solids (Lab)	**mg/L**	1580			1480			1520		1520				1480	1510	1680	1740
Calcium	**mg/L**	197			208			206		186				205	211	219	226
Magnesium	**mg/L**	121			128			126		121				128	129	143	142
Sodium	**mg/L**	95.9			75.2			80.7		82.4				110	87.5	80.7	83.4
Potassium	**mg/L**	4.64			4.56			4.90		4.42				4.61	4.79	4.62	<5.00
Alkalinity, Total	**mg/L**	460			500			470		450				410	445	510	475
Alkalinity, Bicarbonate	**mg/L**	440			500			470		450				410	445	510	475
Alkalinity, Carbonate	**mg/L**	20.0			<10			<10		<10.0				<10.0	<10	<10.0	<10.0
Alkalinity, Hydroxide	**mg/L**	<10			<10			<10		<10.0				<10.0	<10	<10.0	<10.0
Chloride	**mg/L**	81.0			76.3			62.3		70.1				72.5	72.5	68.7	68.9
Fluoride	**mg/L**	0.285			<0.5			<0.5		0.3				<0.500	0.332	<0.500	<0.500
Sulfate as SO4	**mg/L**	671			595			656		676				731	702	779	772
Total Organic Carbon (TOC)	**mg/L**	3.54			4.1			3.15		3.02				3.40	3.54	3.34	3.26
Nitrate/Nitrite as N	**mg/L**	0.456			0.891			1.08		0.965				0.492	1.07	1.80	1.94
Aluminum	**mg/L**	<0.05			<0.05			<0.05		<0.050				<0.050	<0.1	<0.050	<0.250
Arsenic	**mg/L**	<0.0025			<0.0025			0.0005		0.0008				0.0009	0.0006	0.0005	0.0029
Cadmium	**mg/L**	<0.0005			<0.0005			<0.0005		<0.0001				<0.0001	<0.0001	<0.0001	<0.0005
Copper	**mg/L**	0.0018			0.0024			0.0020		0.0038				0.0023	0.0019	0.0025	0.0097
Iron	**mg/L**	0.100			<0.05			0.060		0.136				0.286	0.161	<0.050	<0.250
Lead	**mg/L**	<0.0025			<0.0025			<0.0025		<0.0005				<0.0005	<0.0005	<0.0005	<0.0025
Manganese	**mg/L**	0.673			0.857			0.756		0.608				0.440	0.797	0.881	4.50
Mercury	**mg/L**	<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
Selenium	**mg/L**	<0.005			<0.005			0.0013		0.0023				0.0027	0.0019	0.0016	0.0087
Silica (Si02)	**mg/L**	13.9			16.1			16.4		14.3				14.7	15.5	16.1	13.4
Silicon	**mg/L**	6.51			7.53			7.67		6.69				6.85	7.22	7.54	6.29
Uranium	**mg/L**	0.0029			0.0021			0.0023		0.0026				0.0024	0.0021	0.0021	0.0110
Zinc	**mg/L**	0.0156			0.0364			0.0301		0.0269				0.0194	0.026	0.0208	0.0855
Radium 226	**pCi/L**	0.7 +/- 0.1			NA			NA		NA				NA	NA	NA	NA
Radium 228	**pCi/L**	<0.8			NA			NA		NA				NA	NA	NA	NA

Notes & Definitions:

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

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GCC Energy Hydrologic Monitoring Data

MW-HGA-4														
Year		2016	2017											
Quarter		Q4	Q1			Q2			Q3			Q4		
Month		12	1	2	3	4	5	6	7	8	9	10	11	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
Lab Analysis (Y/N)		Y	N	N	Y	N	N	Y	N	N	Y	N	Y	N
Field Parameters:														
Purge Flow Rate	gpm	0.5	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	9.40
Total Purged	gal	21	21	21	21	21	21	19.5	20	20	21	21	21	24
Depth to Water	ft bgs	0.73	0.57	0.6	0.83	0.94	2.06	2.53	3.25	2.65	3.31	3.31	1.76	4.31
Temperature	deg C	7.31	4.76	6.44	8.14	7.21	9.86	8.37	8.61	8.81	9	9.16	9.00	9.32
pH	SU	7.29	7.36	7.4	7.41	7.33	7.36	7.4	7.36	7.35	7.33	7.31	7.27	7.27
Specific Conductance	µS/cm	1284.3	1256.5	1201	1155.3	1152.7	1112.6	1055.1	1098.7	1049.7	1124.1	1072.30	1170.50	1159.90
Oxygen Reduction Potential	mV	-72.1	-86.6	-105.1	-104.4	-74.5	-91.3	-134.7	-137.6	-131	-139.5	-77.30	-157.90	-70.10
Lab Analytical Results:														
Hardness as CaCO3	mg/L	724			611			616			522		595	
pH (Lab)	SU	7.30			7.17			7.31			7.25		7.21	
Total Dissolved Solids (Lab)	mg/L	855			710			715			750		775	
Calcium	mg/L	147			118			121			102		118	
Magnesium	mg/L	86.7			76.7			76.6			64.9		72.8	
Sodium	mg/L	19.5			27.4			28.6			24.9		27.2	
Potassium	mg/L	2.02			2.13			2.11			1.75		2.21	
Alkalinity, Total	mg/L	545			465			415			465		475	
Alkalinity, Bicarbonate	mg/L	545			465			415			465		475	
Alkalinity, Carbonate	mg/L	ND			<10.0			<10			<10.0		<10.0	
Alkalinity, Hydroxide	mg/L	ND			<10.0			<10			<10.0		<10.0	
Chloride	mg/L	10.9			8.75			7.95			8.96		8.74	
Fluoride	mg/L	0.577			0.485			0.506			0.517		0.495	
Sulfate as SO4	mg/L	240			229			192			205		204	
Total Organic Carbon (TOC)	mg/L				4.54			4.35			4.69		4.79	
Nitrate/Nitrite as N	mg/L	ND			<0.020			<0.02			<0.020		<0.100	
Aluminum	mg/L	0.423			<0.050			<0.05			<0.050		<0.050	
Arsenic	mg/L	0.0030			0.0029			0.0028			<0.0005		0.0035	
Cadmium	mg/L	ND			<0.0001			<0.0001			<0.0001		<0.0001	
Copper	mg/L	0.0006			0.0008			0.0002			0.0004		0.0002	
Iron	mg/L	3.71			7.29			7.32			0.378		7.84	
Lead	mg/L	ND			<0.0005			<0.0005			<0.0005		<0.0005	
Manganese	mg/L	4.07			2.78			2.37			2.03		2.11	
Mercury	mg/L	ND			<0.0002			<0.0002			<0.0002		<0.0002	
Molybdenum	mg/L	0.0013			0.0024			0.0027			0.0028		0.0027	
Selenium	mg/L	ND			0.0030			<0.001			<0.0010		<0.0010	
Silica (Si02)	mg/L	22.3			16.8			18			16.5		17.9	
Silicon	mg/L	10.4			7.86			8.41			7.72		8.35	
Uranium	mg/L	0.0010			0.0004			0.0004			0.0004		0.0004	
Zinc	mg/L	0.0039			0.0046			<0.002			<0.0040		<0.0020	

Notes & Definitions:

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

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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.*
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GCC Energy Hydrologic Monitoring Data

MW-1-A									
Year		2017							
Quarter		Q2	Q3				Q4		
Month		6	7	8	9	9	10	11	12
Sample Date		6/7	7/18	8/23	9/7	9/26	10/26	11/16	12/5
Lab Analysis (Y/N)		Y	N	N	N	Y	N	Y	N
Field Parameters:									
Purge Flow Rate	gpm	NM	NM*	NM*	NM	NM	NM	NM	NM
Total Purged	gal	12.75	NM*	NM*	NM	NM	2	2	1
Depth to Water	ft bgs	215.42	NM*	215.92	215.54	216.33	216.31	216.47	216.58
Temperature	deg C	17.72	NM*	NM*	10.74	9.73	9.14	9.06	8.66
pH	SU	7.78	NM*	NM*	7.35	7.38	7.29	7.28	7.25
Specific Conductance	µS/cm	1362.4	NM*	NM*	1554.6	1563.2	1615.80	1650.40	1692.60
Oxygen Reduction Potential	mV	-34.6	NM*	NM*	-54.7	-46.5	-50.00	-48.30	-49.60
Lab Analytical Results:									
Hardness as CaCO3	mg/L	124				133		130	
pH (Lab)	SU	7.74				7.35		7.33	
Total Dissolved Solids (Lab)	mg/L	975				1080		1120	
Calcium	mg/L	24.7				25.8		24.9	
Magnesium	mg/L	15.1				16.7		16.6	
Sodium	mg/L	324				329		325	
Potassium	mg/L	1.98				2.02		<5.00	
Alkalinity, Total	mg/L	375				450		380	
Alkalinity, Bicarbonate	mg/L	375				450		380	
Alkalinity, Carbonate	mg/L	<10.0				<10.0		<10.0	
Alkalinity, Hydroxide	mg/L	<10.0				<10.0		<10.0	
Chloride	mg/L	2.75				2.16		<5.00	
Fluoride	mg/L	0.268				0.245		<0.500	
Sulfate as SO4	mg/L	427				432		511	
Total Organic Carbon (TOC)	mg/L	5.03				1.36		1.58	
Nitrate/Nitrite as N	mg/L	<0.200				<0.400		<0.100	
Aluminum	mg/L	<0.050				<0.050		<0.250	
Arsenic	mg/L	<0.0005				<0.0005		<0.0025	
Cadmium	mg/L	<0.0001				<0.0001		<0.0005	
Copper	mg/L	0.0043				0.0057		0.0045	
Iron	mg/L	0.128				0.367		<0.250	
Lead	mg/L	<0.0005				<0.0005		<0.0025	
Manganese	mg/L	0.0260				0.0218		0.0259	
Mercury	mg/L	<0.0002				<0.0002		<0.0002	
Molybdenum	mg/L	0.0007				0.0010		<0.0025	
Selenium	mg/L	<0.0010				<0.0010		<0.0050	
Silica (Si02)	mg/L	12.3				11.9		8.27	
Silicon	mg/L	5.74				5.56		3.87	
Uranium	mg/L	0.0004				0.0002		<0.0005	
Zinc	mg/L	0.0270				0.0088		<0.0100	

Notes & Definitions:

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

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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						
Quarter		Q2	Q3			Q4		
Month		6	7	8	9	10	11	12
Sample Date		6/7	7/18	8/23	9/26	10/26	11/16	12/5
Lab Analysis (Y/N)		Y	N	N	N	N	N	N
Field Parameters:								
Purge Flow Rate	gpm	NM	NM*	NM	NM	dry	dry	dry
Total Purged	gal	19.5	NM*	<0.5gal	NM			
Depth to Water	ft bgs	259.99	NM*	258.29	258.34			
Temperature	deg C	15.8	NM*	11.83	21.73			
pH	SU	8	NM*	7.94	7.86			
Specific Conductance	µS/cm	2031.5	NM*	2137.1	2119.4			
Oxygen Reduction Potential	mV	160.5	NM*	65.7	61.4			
Lab Analytical Results:								
Hardness as CaCO3	mg/L	231						
pH (Lab)	SU	8.14						
Total Dissolved Solids (Lab)	mg/L	1520						
Calcium	mg/L	46.7						
Magnesium	mg/L	27.9						
Sodium	mg/L	470						
Potassium	mg/L	2.55						
Alkalinity, Total	mg/L	600						
Alkalinity, Bicarbonate	mg/L	600						
Alkalinity, Carbonate	mg/L	<10.0						
Alkalinity, Hydroxide	mg/L	<10.0						
Chloride	mg/L	7.69						
Fluoride	mg/L	1.14						
Sulfate as SO4	mg/L	739						
Total Organic Carbon (TOC)	mg/L	5.14						
Nitrate/Nitrite as N	mg/L	0.103						
Aluminum	mg/L	<0.050						
Arsenic	mg/L	0.0029						
Cadmium	mg/L	<0.0001						
Copper	mg/L	0.0067						
Iron	mg/L	<0.050						
Lead	mg/L	0.0010						
Manganese	mg/L	0.0445						
Mercury	mg/L	<0.0002						
Molybdenum	mg/L	0.0796						
Selenium	mg/L	0.0028						
Silica (Si02)	mg/L	11.6						
Silicon	mg/L	5.44						
Uranium	mg/L	0.0505						
Zinc	mg/L	1.52						

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)
NM *	not measured (field) - wait on new pump

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

GCC Energy Hydrologic Monitoring Data

MW-1-C										
Year		2017								
Quarter		Q2	Q3				Q4			
Month		6	7	8	9	9	10	11	12	
Sample Date		6/7	7/18	8/23	9/7	9/26	10/26	11/16	12/5	
Lab Analysis (Y/N)		Y	N	N	N	Y	N	Y		
Field Parameters:										
Purge Flow Rate	*gpm*	NM	NM*	NM*	NM	NM	NM	NM	NM	
Total Purged	*gal*	5	NM*	NM*	NM	NM	1.00	1	1	
Depth to Water	*ft bgs*	216.5	NM*	216.91	216.95	216.59	216.52	216.48	216.52	
Temperature	*deg C*	15.96	NM*	NM*	NM	12.86	11.70	10.59	6.98	
pH	*SU*	7.52	NM*	NM*	NM	7.17	7.16	7.15	7.17	
Specific Conductance	*µS/cm*	2446.3	NM*	NM*	NM	2724.9	2737.80	2738.60	2777.60	
Oxygen Reduction Potential	*mV*	74.3	NM*	NM*	NM	77.4	31.70	23.90	13.00	
Lab Analytical Results:										
Hardness as CaCO3	*mg/L*	498				1290		1180		
pH (Lab)	*SU*	8.35				7.36		7.34		
Total Dissolved Solids (Lab)	*mg/L*	2020				2440		2360		
Calcium	*mg/L*	96.0				234		216		
Magnesium	*mg/L*	62.8				172		155		
Sodium	*mg/L*	506				242		253		
Potassium	*mg/L*	11.4				3.81		<5.00		
Alkalinity, Total	*mg/L*	530				700		540		
Alkalinity, Bicarbonate	*mg/L*	530				700		540		
Alkalinity, Carbonate	*mg/L*	<10.0				<10.0		<10.0		
Alkalinity, Hydroxide	*mg/L*	<10.0				<10.0		<10.0		
Chloride	*mg/L*	24.2				6.97		8.03		
Fluoride	*mg/L*	1.59				0.864		0.955		
Sulfate as SO4	*mg/L*	1090				1350		1230		
Total Organic Carbon (TOC)	*mg/L*	4.56				2.84		2.12		
Nitrate/Nitrite as N	*mg/L*	<2.00				<0.400		<0.100		
Aluminum	*mg/L*	<0.050				<0.050		<0.250		
Arsenic	*mg/L*	0.0029				0.0016		<0.0025		
Cadmium	*mg/L*	<0.0001				<0.0001		<0.0005		
Copper	*mg/L*	0.0088				0.0085		0.0036		
Iron	*mg/L*	<0.050				<0.050		<0.250		
Lead	*mg/L*	<0.0005				<0.0005		<0.0025		
Manganese	*mg/L*	0.0744				0.0853		0.0959		
Mercury	*mg/L*	<0.0002				<0.0002		<0.0002		
Molybdenum	*mg/L*	0.0164				0.0049		<0.0025		
Selenium	*mg/L*	0.0136				0.0012		<0.0050		
Silica (Si02)	*mg/L*	10.6				16.6		13.2		
Silicon	*mg/L*	4.94				7.77		6.16		
Uranium	*mg/L*	0.0500				0.0044		0.0028		
Zinc	*mg/L*	0.0293				0.0294		<0.0100		

Notes & Definitions:

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

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.*

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GCC Energy Hydrologic Monitoring Data

MW-2-A								
Year		2017						
Quarter		Q1	Q2	Q3		Q4		
Month		3	6	7	8	10	11	12
Sample Date		3/30	6/7	7/18	8/23	10/30	11/16	12/5
Lab Analysis (Y/N)		N	N	N	N	N	N	N
Field Parameters:								
Purge Flow Rate	gpm	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)
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GCC Energy Hydrologic Monitoring Data

MW-2-MI								
Year		2017						
Quarter		Q1	Q2	Q3		Q4		
Month		3	6	7	8	10	11	12
Sample Date		3/30	6/7	7/18	8/23	10/30	11/16	12/5
Lab Analysis (Y/N)		N	N	N	N	N	N	N
Field Parameters:								
Purge Flow Rate	gpm	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)

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-2-C								
Year		2017						
Quarter		Q1	Q2	Q3		Q4		
Month		3	6	7	8	10	11	12
Sample Date		3/30	6/7	7/18	8/23	10/30	11/16	12/5
Lab Analysis (Y/N)		N	N	N	N	N	N	N
Field Parameters:								
Purge Flow Rate	gpm	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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NM	not measured (field)
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GCC Energy Hydrologic Monitoring Data

MW-3-A										
Year		2017								
Quarter		Q1	Q2	Q3			Q4			
Month		3	6	7	8	9	10	11	12	
Sample Date		3/27	6/30	7/18	8/24	9/28	10/27	11/17	12/7	
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	
Field Parameters:										
Purge Flow Rate	gpm	0.5	NM	NM	NM	NM	NM	NM	NM	
Total Purged	gal	30	2	NM	NM	NM	1	1	1	
Depth to Water	ft bgs	297.35	298.24	297.45	298.24	298.11	298.12	298.01	298.05	
Temperature	deg C	11.72	13.17	19.46	12.57	12.32	12.49	11.66	12.03	
pH	SU	8.82	8.75	8.56	8.67	8.72	8.64	8.61	8.57	
Specific Conductance	µS/cm	2535	2446	2115.4	2523.8	2469.5	2430.40	2482.70	2493.50	
Oxygen Reduction Potential	mV	-269	-101.5	-55.3	-87.4	-142.3	-124.50	-125.60	-146.80	
Lab Analytical Results:										
Hardness as CaCO3	mg/L	7.53	12.6			12.6		10.4		
pH (Lab)	SU	8.63	8.69			8.53		8.29		
Total Dissolved Solids (Lab)	mg/L	1630	1670			1630		1690		
Calcium	mg/L	2.00	3.67			3.63		3.27		
Magnesium	mg/L	0.616	0.823			0.859		0.550		
Sodium	mg/L	566	585			589		551		
Potassium	mg/L	1.72	2.02			2.04		<5.00		
Alkalinity, Total	mg/L	530	470			500		490		
Alkalinity, Bicarbonate	mg/L	380	470			440		460		
Alkalinity, Carbonate	mg/L	150	<10.0			60.0		30.0		
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0		
Chloride	mg/L	16.1	17.4			18.5		16.9		
Fluoride	mg/L	0.464	0.488			0.535		<0.500		
Sulfate as SO4	mg/L	729	802			840		730		
Total Organic Carbon (TOC)	mg/L	3.52	10.0			7.26		6.07		
Nitrate/Nitrite as N	mg/L	<0.100	<0.100			<0.020		<0.020		
Aluminum	mg/L	<0.050	<0.050			<0.050		<0.250		
Arsenic	mg/L	0.0025	<0.0025			<0.0025		<0.0025		
Cadmium	mg/L	<0.0001	<0.0005			<0.0005		<0.0005		
Copper	mg/L	0.0061	0.0081			0.0080		0.0079		
Iron	mg/L	<0.050	<0.050			<0.050		<0.250		
Lead	mg/L	<0.0005	<0.0025			<0.0025		<0.0025		
Manganese	mg/L	0.0042	0.0251			0.0194		0.0269		
Mercury	mg/L	<0.0002	<0.0002			<0.0002		<0.0002		
Molybdenum	mg/L	0.0005	0.0274			0.0091		0.0078		
Selenium	mg/L	0.0577	<0.0050			<0.0050		<0.0050		
Silica (Si02)	mg/L	10.1	10.9			11.6		7.66		
Silicon	mg/L	4.70	5.10			5.41		3.58		
Uranium	mg/L	0.0002	0.0040			0.0051		0.0036		
Zinc	mg/L	0.0031	<0.0100			<0.0100		<0.0100		

Notes & Definitions:

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

MW-3-MI										
Year		2017								
Quarter		Q1	Q2	Q3			Q4			
Month		3	6	7	8	9	10	11	12	
Sample Date		3/27	6/30	7/18	8/16	9/28	10/27	11/17	12/7	
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	
Field Parameters:										
Purge Flow Rate	*gpm*	0.5	NM	NM	NM	NM	NM	NM	NM	
Total Purged	*gal*	19	2	NM	NM	NM	1	1	1	
Depth to Water	*ft bgs*	304.49	241.15	240.46	240.53	240.46	240.44	240.44	240.58	
Temperature	*deg C*	10.03	12.55	22.02	12.88	11.04	12.05	11.69	11.67	
pH	*SU*	9.34	8.94	8.46	8.9	8.74	8.90	8.86	8.86	
Specific Conductance	*µS/cm*	1907	1698.6	1402.3	1598	1736.6	1728.60	1745.20	1786.40	
Oxygen Reduction Potential	*mV*	-87	-54.5	-26.4	-108.2	-107.3	-113.80	-124.20	-163.10	
Lab Analytical Results:										
Hardness as CaCO3	*mg/L*	4.85	8.73			9.02		7.75		
pH (Lab)	*SU*	8.95	8.75			8.72		8.72		
Total Dissolved Solids (Lab)	*mg/L*	1550	1120			1140		1080		
Calcium	*mg/L*	1.32	2.32			2.34		2.06		
Magnesium	*mg/L*	0.374	0.714			0.775		0.632		
Sodium	*mg/L*	420	430			440		411		
Potassium	*mg/L*	2.15	2.21			1.93		<5.00		
Alkalinity, Total	*mg/L*	740	675			700		660		
Alkalinity, Bicarbonate	*mg/L*	510	555			600		570		
Alkalinity, Carbonate	*mg/L*	230	120			100		90.0		
Alkalinity, Hydroxide	*mg/L*	<10.0	<10.0			<10.0		<10.0		
Chloride	*mg/L*	8.66	10.1			10.7		10.6		
Fluoride	*mg/L*	0.952	1.34			1.26		1.26		
Sulfate as SO4	*mg/L*	165	241			247		254		
Total Organic Carbon (TOC)	*mg/L*	8.34	14.8			10.9		10.3		
Nitrate/Nitrite as N	*mg/L*	<0.020	<0.020			<0.020		<0.020		
Aluminum	*mg/L*	<0.050	0.102			<0.050		<0.250		
Arsenic	*mg/L*	0.0134	0.0167			0.0131		0.0135		
Cadmium	*mg/L*	<0.0001	<0.0005			<0.0005		<0.0005		
Copper	*mg/L*	0.0055	0.0058			0.0065		0.0059		
Iron	*mg/L*	<0.050	<0.100			<0.050		<0.250		
Lead	*mg/L*	0.0024	<0.0025			<0.0025		<0.0025		
Manganese	*mg/L*	0.0022	0.0058			0.0033		0.0045		
Mercury	*mg/L*	<0.0002	<0.0002			<0.0002		<0.0002		
Molybdenum	*mg/L*	0.0061	0.0211			0.0148		0.0152		
Selenium	*mg/L*	0.0013	<0.0050			<0.0050		<0.0050		
Silica (Si02)	*mg/L*	7.97	8.18			9.05		5.35		
Silicon	*mg/L*	3.73	3.82			4.23		2.50		
Uranium	*mg/L*	0.0049	0.0084			0.0140		0.0124		
Zinc	*mg/L*	0.0405	<0.0100			<0.0100		<0.0100		

Notes & Definitions:

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

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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.

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GCC Energy Hydrologic Monitoring Data

MW-3-C										
Year		2017								
Quarter		Q1	Q2	Q3			Q4			
Month		3	6	7	8	9	10	11	12	
Sample Date		3/27	6/30	7/27	8/24	9/28	10/27	11/17	12/7	
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	
Field Parameters:										
Purge Flow Rate	*gpm*	0.5	NM	NM	NM	NM	NM	NM	NM	
Total Purged	*gal*	20	2	NM	NM	NM	1	1	1	
Depth to Water	*ft bgs*	304.21	296.3	296.93	296.87	297.43	297.46	297.43	297.35	
Temperature	*deg C*	10.45	12.85	13.13	12.51	11.8	12.72	11.52	11.72	
pH	*SU*	8.61	8.57	8.51	8.46	8.44	8.48	8.41	8.48	
Specific Conductance	*µS/cm*	3549	3587.5	3814.8	4112.2	4350.8	4411.50	4659.20	4595.60	
Oxygen Reduction Potential	*mV*	-129	-87.2	-137.5	-128.8	-149.9	-198.30	-200.70	-222.20	
Lab Analytical Results:										
Hardness as CaCO3	*mg/L*	14.4	11.8			15.1		14.9		
pH (Lab)	*SU*	8.5	8.48			8.35		8.28		
Total Dissolved Solids (Lab)	*mg/L*	2130	2360			3070		3310		
Calcium	*mg/L*	3.60	2.87			3.50		3.58		
Magnesium	*mg/L*	1.31	1.12			1.55		1.44		
Sodium	*mg/L*	796	890			1100		1130		
Potassium	*mg/L*	3.47	3.24			4.01		<5.00		
Alkalinity, Total	*mg/L*	1490	1570			1690		1880		
Alkalinity, Bicarbonate	*mg/L*	1360	1480			1650		1830		
Alkalinity, Carbonate	*mg/L*	130	90.0			40.0		50.0		
Alkalinity, Hydroxide	*mg/L*	<10.0	<10.0			<10.0		<10.0		
Chloride	*mg/L*	182	330			477		506		
Fluoride	*mg/L*	4.89	4.94			4.52		4.34		
Sulfate as SO4	*mg/L*	73.4	73.5			46.4		24.5		
Total Organic Carbon (TOC)	*mg/L*	10.6	58.5			219		251		
Nitrate/Nitrite as N	*mg/L*	<0.020	<0.400			<0.400		<0.020		
Aluminum	*mg/L*	<0.050	<0.100			<0.050		<0.250		
Arsenic	*mg/L*	0.0115	0.0088			0.0098		0.0091		
Cadmium	*mg/L*	<0.0001	<0.0010			<0.0010		<0.0005		
Copper	*mg/L*	0.0109	0.0147			0.0174		0.0160		
Iron	*mg/L*	<0.050	<0.050			<0.050		<0.250		
Lead	*mg/L*	0.0085	<0.0050			<0.0050		<0.0025		
Manganese	*mg/L*	0.0091	0.0188			0.0178		0.0202		
Mercury	*mg/L*	<0.0002	<0.0002			<0.0002		<0.0002		
Molybdenum	*mg/L*	0.0143	0.0291			0.0241		0.0241		
Selenium	*mg/L*	0.0233	0.0121			0.0149		0.0240		
Silica (Si02)	*mg/L*	7.82	8.86			9.16		6.01		
Silicon	*mg/L*	3.66	4.14			4.28		2.81		
Uranium	*mg/L*	0.0091	0.0102			0.0137		0.0100		
Zinc	*mg/L*	0.375	<0.0200			<0.0200		<0.0100		

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-4-A

Year		2017							
Quarter		Q1	Q2	Q3			Q4		
Month		3	6	7	8	9	10	11	12
Sample Date		3/29	6/30	7/19	8/23	9/28	10/27	11/17	12/7
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N
Field Parameters:									
Purge Flow Rate	*gpm*	NM	NM	NM	NM	NM	NM	NM	NM
Total Purged	*gal*	19	2	1.5	0.5	1	1	1	1
Depth to Water	*ft bgs*	338.6	334.96	335.59	334.79	334.81	334.86	332.29	334.09
Temperature	*deg C*	15.61	16.83	25.5	17.63	11.91	11.56	10.82	10.13
pH	*SU*	8.61	8.29	8.55	7.98	8.41	8.32	8.38	8.32
Specific Conductance	*µS/cm*	2162.6	2052.9	1876.3	2095.6	2180.1	2164.50	2186.00	2261.40
Oxygen Reduction Potential	*mV*	28.6	54	60.2	61.7	-8.6	-27.00	-12.30	-51.80
Lab Analytical Results:									
Hardness as CaCO3	*mg/L*	9.16	9.85			7.77		7.11	
pH (Lab)	*SU*	8.2	8.40			8.36		8.40	
Total Dissolved Solids (Lab)	*mg/L*	1470	1470			1450		1500	
Calcium	*mg/L*	2.23	2.43			1.76		1.87	
Magnesium	*mg/L*	0.871	0.916			0.823		0.591	
Sodium	*mg/L*	515	537			513		511	
Potassium	*mg/L*	1.57	1.75			1.63		<5.00	
Alkalinity, Total	*mg/L*	635	560			630		590	
Alkalinity, Bicarbonate	*mg/L*	635	560			590		560	
Alkalinity, Carbonate	*mg/L*	<10.0	<10.0			40.0		30.0	
Alkalinity, Hydroxide	*mg/L*	<10.0	<10.0			<10.0		<10.0	
Chloride	*mg/L*	9.56	9.66			10.3		10.3	
Fluoride	*mg/L*	<0.400	<0.400			<0.500		<0.500	
Sulfate as SO4	*mg/L*	594	588			783		594	
Total Organic Carbon (TOC)	*mg/L*	6.63	11.7			3.52		3.27	
Nitrate/Nitrite as N	*mg/L*	0.035	<0.020			<0.020		<0.020	
Aluminum	*mg/L*	<0.050	<0.050			<0.050		<0.250	
Arsenic	*mg/L*	0.0016	<0.0025			<0.0025		<0.0025	
Cadmium	*mg/L*	<0.0001	<0.0005			<0.0005		<0.0005	
Copper	*mg/L*	0.0053	0.0093			0.0076		0.0073	
Iron	*mg/L*	<0.050	<0.050			<0.050		<0.250	
Lead	*mg/L*	0.0014	<0.0025			<0.0025		<0.0025	
Manganese	*mg/L*	0.0044	0.0063			0.0044		0.0040	
Mercury	*mg/L*	<0.0002	<0.0002			<0.0002		<0.0002	
Molybdenum	*mg/L*	0.0009	0.0275			<0.0025		<0.0025	
Selenium	*mg/L*	0.0016	<0.0050			<0.0050		<0.0050	
Silica (Si02)	*mg/L*	10.2	10.6			9.99		6.85	
Silicon	*mg/L*	4.75	4.97			4.67		3.20	
Uranium	*mg/L*	0.0016	<0.0005			<0.0005		0.0005	
Zinc	*mg/L*	0.269	0.0319			<0.0100		<0.0100	

Notes & Definitions:

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

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-4-MI										
Year		2017								
Quarter		Q1	Q2	Q3			Q4			
Month		3	6	7	8	9	10	11	12	
Sample Date		3/30	6/16	7/27	8/23	9/28	10/27	11/17	12/7	
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	
Field Parameters:										
Purge Flow Rate	gpm	NM	NM	NM	NM	NM	NM	NM	NM	
Total Purged	gal	0.5	6.5	NM	NM	1	1	1	1	
Depth to Water	ft bgs	378.2	330.15	330.94	330.85	330.81	330.80	330.74	330.67	
Temperature	deg C	14.97	14.64	12.86	12.5	11.37	10.73	11.31	11.35	
pH	SU	9.08	8.91	8.78	8.79	8.76	8.76	8.73	8.67	
Specific Conductance	µS/cm	1581.2	1667.9	1731.3	1708.4	1784.2	1794.30	1803.90	1832.50	
Oxygen Reduction Potential	mV	155.2	64.7	9.8	35.2	-29.6	-37.30	-111.50	-89.20	
Lab Analytical Results:										
Hardness as CaCO3	mg/L	5.43	8.71			7.07		4.20		
pH (Lab)	SU	8.83	8.59			8.63		8.51		
Total Dissolved Solids (Lab)	mg/L	1160	1170			1180		1180		
Calcium	mg/L	1.53	2.32			1.88		1.68		
Magnesium	mg/L	0.392	0.707			0.579		<0.500		
Sodium	mg/L	408	458			449		452		
Potassium	mg/L	1.46	<2.00			1.73		<5.00		
Alkalinity, Total	mg/L	965	915			1100		985		
Alkalinity, Bicarbonate	mg/L	775	825			880		885		
Alkalinity, Carbonate	mg/L	190	90.0			220		100		
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0		
Chloride	mg/L	2.18	7.50			8.78		9.11		
Fluoride	mg/L	4.72	5.02			5.09		5.10		
Sulfate as SO4	mg/L	17.4	64.7			76.6		77.5		
Total Organic Carbon (TOC)	mg/L	2.64	6.49			8.58		9.53		
Nitrate/Nitrite as N	mg/L	<0.020	<0.020			<0.020		<0.020		
Aluminum	mg/L	<0.050	<0.100			<0.050		<0.250		
Arsenic	mg/L	0.0099	0.0220			0.0131		0.0122		
Cadmium	mg/L	<0.0001	<0.0001			<0.0005		<0.0005		
Copper	mg/L	0.0059	0.0058			0.0071		0.0070		
Iron	mg/L	<0.050	<0.100			<0.050		<0.250		
Lead	mg/L	0.0010	<0.0005			<0.0025		<0.0025		
Manganese	mg/L	0.0020	0.0066			0.0081		0.0124		
Mercury	mg/L	<0.0002	<0.0002			<0.0002		<0.0002		
Molybdenum	mg/L	0.0020	0.0160			0.0127		0.0134		
Selenium	mg/L	<0.0010	0.0012			<0.0050		<0.0050		
Silica (SiO2)	mg/L	7.27	8.01			8.80		<5.35		
Silicon	mg/L	3.40	3.75			4.11		2.50		
Uranium	mg/L	0.0043	0.0126			0.0184		0.0169		
Zinc	mg/L	0.113	0.0697			<0.0100		<0.0100		

Notes & Definitions:

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

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

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

GCC Energy Hydrologic Monitoring Data

MW-4-C										
Year		2017								
Quarter		Q1	Q2	Q3			Q4			
Month		3	6	7	8	9	10	11	12	
Sample Date		3/30	6/16	7/27	8/23	9/28	10/27	11/17	12/7	
Lab Analysis (Y/N)		Y	Y	N	N	Y	N	Y	N	
Field Parameters:										
Purge Flow Rate	gpm	NM	NM	NM	NM	NM	NM	NM	NM	
Total Purged	gal	7	1.5	NM	NM	1	1	1	1	
Depth to Water	ft bgs	328.33	314.05	309.87	306.86	303.96	303.80	302.47	304.80	
Temperature	deg C	13.31	17.4	12.67	12.03	13.86	11.75	11.24	11.02	
pH	SU	8.33	7.62	7.68	7.7	7.69	7.75	7.72	7.79	
Specific Conductance	µS/cm	3791.7	5943.5	5996.7	5884.6	5813.3	5721.10	5781.70	5603.80	
Oxygen Reduction Potential	mV	57.3	20.3	-101.5	-111.2	-103.7	-117.40	-109.00	-120.10	
Lab Analytical Results:										
Hardness as CaCO3	mg/L	46.3	55.9			38.9		30.0		
pH (Lab)	SU	7.61	7.77			7.79		7.98		
Total Dissolved Solids (Lab)	mg/L	3230	4050			3750		3780		
Calcium	mg/L	13.6	13.7			9.15		7.45		
Magnesium	mg/L	2.99	5.26			3.90		2.76		
Sodium	mg/L	908	1510			1490		1400		
Potassium	mg/L	4.38	5.71			6.07		<10.0		
Alkalinity, Total	mg/L	1250	2360			2780		2680		
Alkalinity, Bicarbonate	mg/L	1250	2360			2780		2640		
Alkalinity, Carbonate	mg/L	<10.0	<10.0			<10.0		40.0		
Alkalinity, Hydroxide	mg/L	<10.0	<10.0			<10.0		<10.0		
Chloride	mg/L	181	550			587		608		
Fluoride	mg/L	1.29	2.04			2.17		2.43		
Sulfate as SO4	mg/L	534	487			70.2		26.0		
Total Organic Carbon (TOC)	mg/L	30	6.42			5.08		3.64		
Nitrate/Nitrite as N	mg/L	<2.00	<0.500			<0.400		<0.100		
Aluminum	mg/L	<0.050	<0.050			<0.050		<0.500		
Arsenic	mg/L	0.0059	0.0119			0.0128		0.0152		
Cadmium	mg/L	<0.0001	<0.0010			<0.0010		<0.0010		
Copper	mg/L	0.0125	0.0243			0.0221		0.0208		
Iron	mg/L	<0.050	<0.050			<0.050		<0.500		
Lead	mg/L	<0.0005	<0.0050			<0.0050		<0.0050		
Manganese	mg/L	0.0269	0.0772			0.0554		0.0571		
Mercury	mg/L	<0.0002	<0.0002			<0.0002		<0.0002		
Molybdenum	mg/L	0.0526	0.115			0.0138		0.0106		
Selenium	mg/L	0.0248	0.0231			0.0214		0.0269		
Silica (Si02)	mg/L	9.85	12.6			12.9		<10.7		
Silicon	mg/L	4.61	5.88			6.02		<5.00		
Uranium	mg/L	0.0297	0.121			0.0984		0.0545		
Zinc	mg/L	0.0156	0.0265			<0.0200		<0.0200		

Notes & Definitions:

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deg C	degrees Celsius
SU	standard pH units
µS/cm	microsiemens per centimeter
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