UNC
ENVIRONMENT,
HEALTH & SAFETY

The University of North Carolina at Chapel Hill
Department of Environment, Health & Safety
1120 Estes Drive Ext.
Chapel Hill, North Carolina 27599-1650

May 25, 2022

Ms. Dianne Thomas
NC DEQ Division of Waste Management
Inactive Hazardous Sites Branch
217 West Jones Street
Raleigh, North Carolina 27603

Subject: **2022 Project Status Report**
UNC Cogeneration Facility
Chapel Hill, Orange County, NC
Site ID No. NCR000010272

Dear Ms. Thomas:

Attached for your review is the 2022 Annual Status Report for the subject site. Geosyntec Consultants of NC, P.C., the Registered Environmental Consultant for the site, prepared the document.

Please contact me at (919) 843-5331 if you have any questions. Thank you.

Sincerely,

Catherine Brennan
Executive Director, Environment, Health and Safety & Risk Management

Attachment

Cc: William Lowery II, PE, UNC-CH
Daniel Elliott, Geosyntec
Eric Nesbit, Geosyntec

REC PROGRAM DOCUMENT CERTIFICATION FORM - PAGE 1 OF 2
IHSB SITE NAME UNC Cogeneration Facility, Site ID No. NCR000010272
DATE & NAME OF DOCUMENT 05/2022 2022 Progress Status Report
TYPE OF SUBMITTAL (Report, Plan,Work Phase Comp. Statement, Schedule Change): Report

REMEDIATING PARTY DOCUMENT CERTIFICATION STATEMENT (.0306(b)(2))

"I certify that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for willfully submitting false, inaccurate, or incomplete information."

Catherine Brennan
Name of Remediating Party

Signature of Remediating Party

5/25/22
Date

NOTARIZATION

North Carolina (Enter State)

Alamance **COUNTY**

I, Amy Butler, a Notary Public of said County and State, do hereby certify that Catherine Brennan did personally appear and sign before me this day, produced proper identification in the form of driver's license, was duly sworn or affirmed, and declared that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this 25 day of May, 2022.

Amy Butler
Notary Public (signature)

(OFFICIAL SEAL)

Amy Butler
Notary Public
Alamance County
North Carolina

My commission expires: July 23, 2022

REC PROGRAM DOCUMENT CERTIFICATION FORM - PAGE 2 OF 2
IHSB SITE NAME UNC Cogeneration Facility, Site ID No. NCR000010272
DATE & NAME OF DOCUMENT 05/2022 2022 Progress Status Report
TYPE OF SUBMITTAL (Report, Plan, Work Phase Comp. Statement, Schedule Change): Report

REGISTERED SITE MANAGER CERTIFICATION OF SIGNATURES

As the Registered Environmental Consultant for the Site for which this filing is made, I certify that the signatures included herewith are genuine and authentic original handwritten signatures and/or true, accurate, and complete copies of the genuine and authentic original handwritten signatures of the persons who purport to sign for this filing. I further certify that I have collected through reliable means the originals and/or copies of said signatures from the persons authorized to sign for this filing who, in fact, signed the originals thereof. Those persons and I understand and agree that any copies of signatures have the same legally binding effect as original handwritten signatures, and I certify that any person for whom I am submitting a copy of their signature has provided me with their express consent to submit said copy. Additionally, I certify that I am authorized to attest to the genuineness and authenticity of the signatures, both originals and any copies, being submitted herewith and that by signing below, I do in fact attest to the genuineness and authenticity of all the signatures, both originals and copies, being submitted for this filing.

Eric Nesbit
Name of Registered Site Manager

Signature of Registered Site Manager

May 26, 2022
Date

REGISTERED SITE MANAGER DOCUMENT CERTIFICATION STATEMENT (.0306(b)(1))

"I certify that I am personally familiar with the information contained in this submittal, including any and all supporting documents accompanying this certification, and that the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete and complies with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq, and the remedial action program Rules 15A NCAC 13C .0300. I am aware that there are significant penalties for willfully submitting false, inaccurate, or incomplete information."

Eric Nesbit
Name of Registered Site Manager

Signature of Registered Site Manager

May 26, 2022
Date

NOTARIZATION

North Carolina (Enter State)

Wake **COUNTY**

I, Holly Van Norman, a Notary Public of said County and State, do hereby certify that Eric Nesbit did personally appear and sign before me this day, produced proper identification in the form of NCDL, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certifications is true and accurate, and he or she then signed these Certifications in my presence.

WITNESS my hand and official seal this 26 day of May 2022

Notary Public (signature)

My commission expires: 11/15/22

HOLLY VAN NORMAN
OFFICIAL SEAL
Notary Public
Wake County
NORTH CAROLINA

Document Certification Form No. DC - II
(Revised 8/20)

Prepared for

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

The University of North Carolina at Chapel Hill
Department of Environment, Health and Safety
1120 Estes Drive Extension, CB# 1650
Chapel Hill, North Carolina 27599-1650

2022 PROJECT STATUS REPORT
(Remedial Action Progress Report)

UNC-CH COGENERATION FACILITY
CHAPEL HILL, NORTH CAROLINA
SITE ID# NCR000010272

Prepared by

Geosyntec consultants

Geosyntec Consultants of NC, P.C.

Geosyntec Consultants of NC, P.C.
2501 Blue Ridge Road, Suite 430
Raleigh, North Carolina 27607

Project Number GN6666

May 2022

Geosyntec consultants

Geosyntec Consultants of NC, P.C.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Geosyntec consultants

Geosyntec Consultants of NC, P.C.

TABLE OF CONTENTS (Continued)

LIST OF APPENDICES

Geosyntec consultants

Geosyntec Consultants of NC, P.C.

1. INTRODUCTION

On behalf of The University of North Carolina at Chapel Hill (UNC-CH), Geosyntec Consultants of NC, P.C. (Geosyntec) has prepared this Project Status Report for UNC-CH's Cogeneration Facility located at 575 West Cameron Avenue, Chapel Hill, North Carolina. On September 3, 2010, UNC-CH submitted a *Notification of an Inactive Hazardous Substance or Waste Disposal Site* to the North Carolina Department of Environmental Quality's (NCDEQ) Inactive Hazardous Waste Sites Branch (IHSB). The notification was prompted when soils suspected of containing coal combustion by-products (CCBs) were encountered during excavation activities associated with the construction of a new warehouse building for the UNC-CH Cogeneration Facility (the Facility or Site).

UNC-CH entered into an *Administrative Agreement* (AA) dated May 29, 2013, with NCDEQ to enroll the Site into the Registered Environmental Consultant (REC) program. Within the REC program, the remediating party contracts with an IHSB-approved environmental consulting firm to direct, implement, regulate, and certify that all investigation and remediation work is performed in compliance with the program regulations found under Title 15A of the North Carolina Administrative Code, Subchapter 13C .0300 (15A NCAC 13C .0300).

UNC-CH contracted with Geosyntec, an approved REC consultant, to complete a Remedial Investigation (RI). The objectives of the RI were to: (i) identify past releases of hazardous substances to the environment, (ii) identify potential exposure pathways, (iii) characterize the chemical nature of such releases and collect sufficient sampling data to support a cleanup-level determination, (iv) delineate the areal and vertical extent of contamination, and (v) characterize Site conditions sufficiently to conduct a feasibility study of remedial alternatives and to support a proposed remedy.

The RI assessed fill areas in the southern portion of the Facility, the section of McCauley Street constructed of fill material, and the creek or stream floodplain bisecting one of the two UNC-CH owned lots south of McCauley Street.

The *Remedial Investigation Report* (RIR) was submitted on May 27, 2016. The RIR concluded that concentrations of some contaminants of concern (COCs) exceeded their respective Remedial Goals (RGs) in soil (within the Facility property and in isolated

pockets south of McCauley Street) and in limited groundwater samples. The RIR recommended “No Further Action” for in-stream sediment and surface water.

A *Remedial Action Plan* (RAP) addressing groundwater remediation was submitted on March 28, 2018. The RAP concluded Monitored Natural Attenuation (MNA) with a risk-based approach for closure as the selected groundwater remedy.

This report provides a status update of soil and groundwater remedial activities.

2. GROUNDWATER

Groundwater and surface water monitoring were conducted in December 2021 in general accordance with the RAP.

Low flow or low stress purging techniques were used to purge and sample the groundwater. Pump tubing or head was placed approximately at the mid-point of the well screen and the purge rate was set to minimize drawdown. A bladder or peristaltic pump was used to collect all samples. Samples were collected after field parameters stabilized within acceptable tolerances.

MS/MSD samples were collected at MW-1 (the upgradient well).

Laboratory reports are provided in **Appendix A**. Each laboratory report was subjected to a Stage 2A data validation (**Appendix B**). Sample results are presented in **Table 1**. An associated potentiometric surface map is provided in **Figure 1**. The water level data is summarized within **Table 2**.

2.1. Management of Investigation Derived Waste

Consistent with purge water management during the RI, purge water collected during groundwater sampling was disposed of through the Facility's on-site wastewater treatment system via the drain at the tanker truck unloading apron.

Spent personal protective equipment and other solid waste generated by Geosyntec were bagged and disposed as municipal solid waste in one of the UNC-CH dumpsters.

2.2. Remedy Performance Evaluation

This section presents an evaluation of monitored attenuation in the two source-area monitoring wells **MW-2** and **MW-3**. The well locations are shown on **Figure 1** and are immediately at the downgradient end of the capped deposits. Concentration trends for four COCs (sulfate, total dissolved solids [TDS], cobalt, and manganese) in source area wells MW-2 and MW-3 are presented in **Figures 2** through **5**.

2.2.1. Source Area Wells

Since the initial monitoring event in March 2014, slight downward trends are apparent across the full-time span of collected data for sulfate (**Figure 2**) in both source area wells. For TDS (**Figure 3**), trends appear to be flat to slightly downward.

Both Cobalt and Manganese concentrations in MW-3 trend downward over time. Cobalt remains steady or flat in MW-2 (**Figure 4**). Manganese trended down at MW-3 through November 2019 but recorded its highest concentration in December 2020 (**Figure 5**). A decrease in manganese was observed in December 2021. Overall, manganese appears to be trending flat in MW-2.

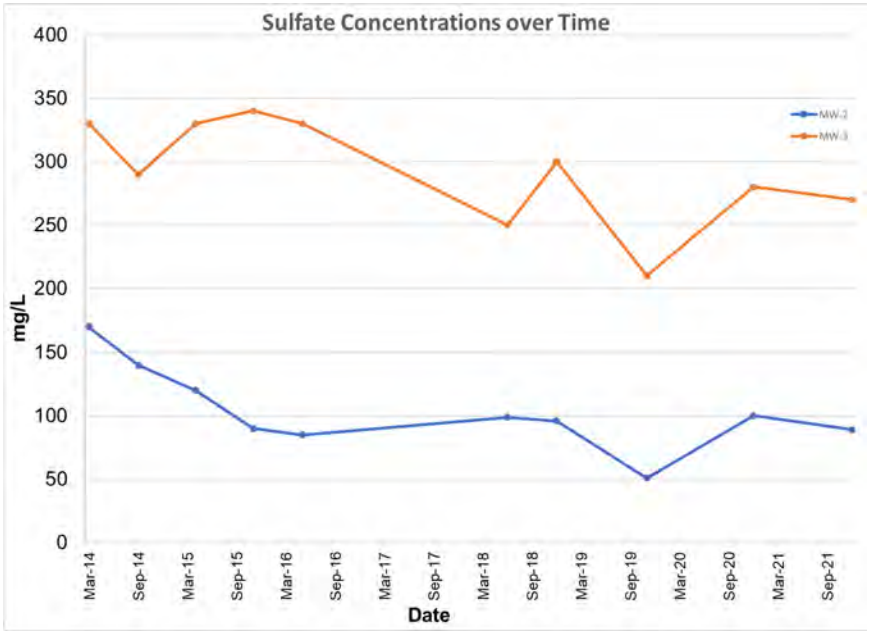

Figure 2 - Sulfate Concentrations Over Time

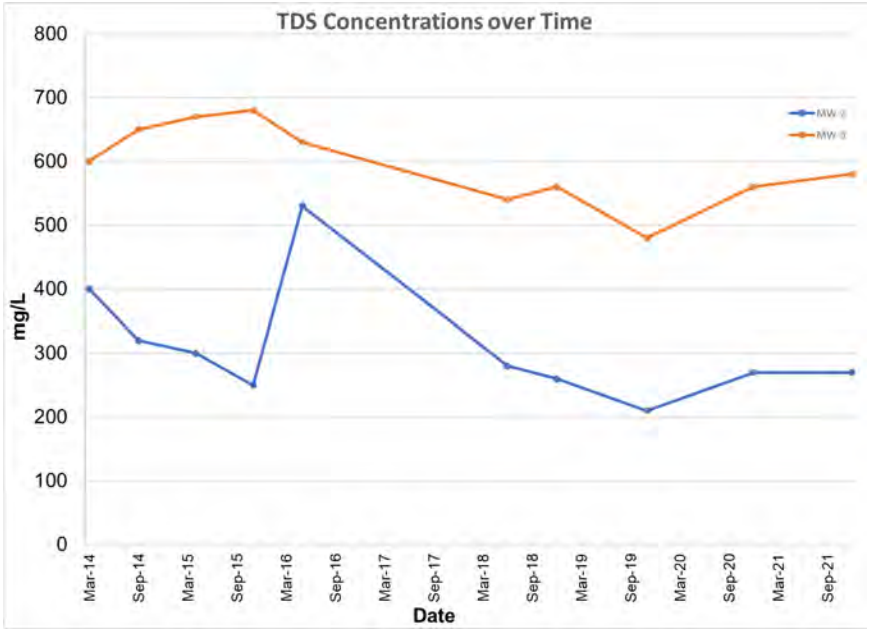

Figure 3 - TDS Concentrations Over Time

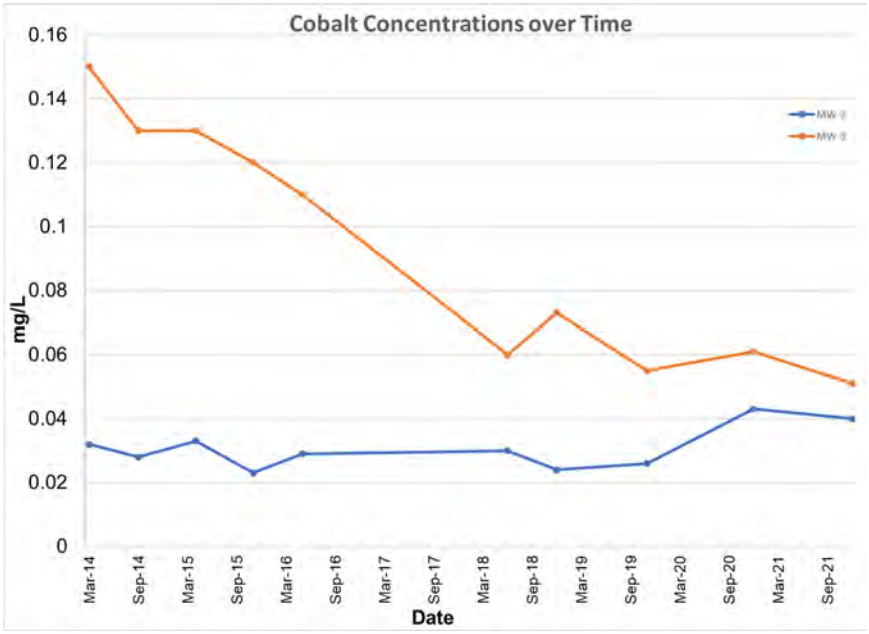

Figure 4 - Cobalt Concentrations Over Time

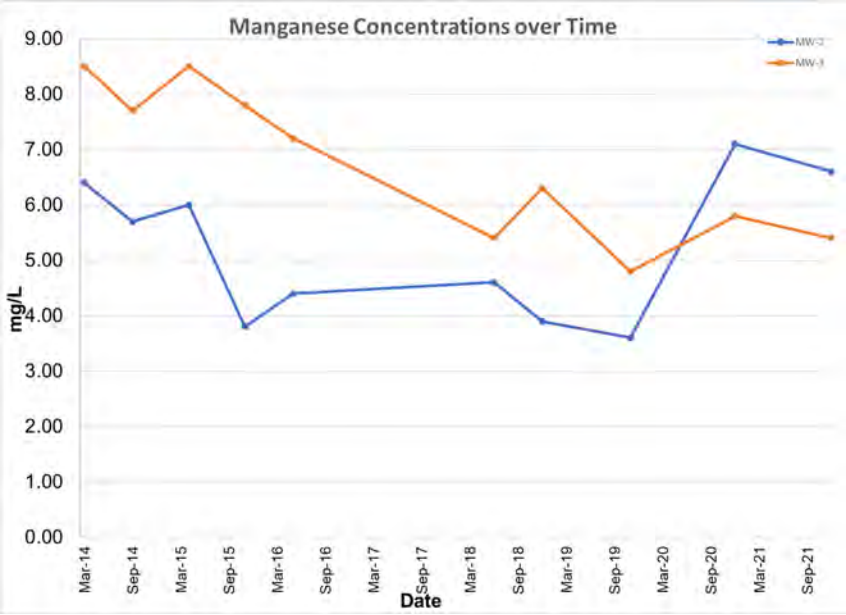

Figure 5 - Manganese Concentrations Over Time

2.2.2. Downgradient Well

Downgradient of the source area at monitoring well MW-5, sulfate and TDS remain below their RG, with one exception. Sulfate was detected equal to the Remedial Goal of 250 mg/L for the first time since monitoring began.

Both Manganese and Cobalt have been detected in every sampling event at MW-5, but at concentrations of one to two orders of magnitude below their associated concentrations at MW-2 and MW-3 (the source area wells). Cobalt concentrations appear to be flat over time while Manganese appears to be trending up since monitoring began.

Surface Water Monitoring

Because the creek bisecting the southeast corner of the Site (**Figure 1**) is presumed to receive shallow groundwater as base flow downgradient of the source area, surface water is monitored along with the groundwater. Surface water results since the first time collected are presented in **Table 3**. No benchmarks for groundwater COCs were exceeded.

2.3. Discussion

Groundwater trends are overall down or flat since monitoring began. Analytical results downgradient from the source wells are one to two orders of magnitude below the source area wells, which illustrates substantial natural attenuation and decline and, when combined with the downward or flat trends at the source wells themselves, indicates the efficacy of MNA. UNC-CH and Geosyntec anticipate applying for Risk Based Closure of Groundwater in December 2022.

3. SOIL

Since the 2016 RIR, Geosyntec conducted a Feasibility Study (FS) for impacted soils (dated December 2017). The FS defined remedial action objectives, screened candidate technologies for potential effectiveness given site-specific conditions, evaluated potential remedial alternatives, and recommended preferred alternatives. The FS qualitatively compared remedial alternatives for soil against eight evaluation criteria and identified preferred Remedial Alternatives for both exposure units.

For impacted soil within the Facility's fence line (Exposure Unit 1) the preferred remedy is containment with land use restrictions inside the fenced Cogen Facility. Exposure Unit 2 is limited to two small, isolated areas of ash-impacted soil located south of McCauley Street. An interim removal action is proposed.

3.1. Proposal for Containment Remedy

Concurrence from NCDEQ is required for any containment remedies. A proposal was submitted to NCDEQ in February 2021 for concurrence. NCDEQ provided comments to UNC and Geosyntec in April 2021. Since the original proposal submission, UNC-CH has determined land use restrictions imposed on the lot(s) south of McCauley Street are not desirable. Because the ash-impacted areas are small and shallow, UNC-CH and Geosyntec will remove them from the UNC-CH owned lots and dispose of the spoils consistent with waste characterization sampling results. This will obviate the need for land use restrictions or engineering controls on these open lots.

3.2 Discussion

NCDEQ's April 2021 comments on the proposed RAP for soils primarily focused on the two areas of ash-impacted soil on the lot(s) south of McCauley Street, removing these isolated shallow spots will address these comments. Note, these shallow deposits were below residential screening criteria and an ecological risk assessment resulted in NCDEQ concurrence for no further action; however, some constituents exceed soil to groundwater screening levels and the cost and damage that would result to install additional wells exceeds the cost to simply exhume the shallow deposits and avoids land use restrictions or monitoring in the future on these parcels outside the facility. Accordingly, UNC prefers removal of the deposits. Geosyntec will coordinate with NCDEQ on an interim

measure to remove these pockets prior to finalizing and submitting the soil containment RAP for the Cogeneration facility parcel itself.

Tables

Table 1
Groundwater Analytical Results
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Method	Analyte	Unit	2Ls and IMACs	Final Remediation Goals for Groundwater	MW-1											
					3/2014		9/2014		4/2015		11/2015		5/2016		6/2018	
Dioxins and Furans	1,2,3,4,6,7,8-Heptachlorooxanthrene (HpCDD)	ng/L	-	-	0.	U	0.	J	0.	U	0.	J	0.	U	0.00041	
	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	0.	J	0.	U	0.	U	0.	U	0.00016	
	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	0.	J	0.	U	0.	U	0.	U	0.00019	
	1,2,3,4,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	J	0.	U	0.	U	0.	U	0.	U	0.00066	
	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	1,2,3,6,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.00078	
	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.0000056	
	1,2,3,7,8,9-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	J	0.	U	0.	U	0.	U	0.00066	
	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	J	0.	U	0.	U	0.	U	0.00054	
	2,3,7,8-Tetrachlorooxanthrene (TCDD)	ng/L	0.0002	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	1,2,3,7,8-Pentachlorooxanthrene (PeCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	J	0.00074	
	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	J	0.	U	0.	U	0.	U	0.0000056	
	2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	J	0.	J	0.00068	
	2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ng/L	-	-	0.	J	0.	U	0.	U	0.	U	0.	J	0.	F2
	1,2,3,4,6,7,8,9-Octachlorooxanthrene (OCDD)	ng/L	-	-	0.	U	0.	J	0.	J	0.	J	0.0035	U	0.00029	J
	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ng/L	-	-	0.	U	0.	J	0.	J	0.	U	0.00058	U	0.0013	U
	Calculated Dioxin/Furan TEQ	ng/L	0.0002	0.0002	0.	U	0.		0.		0.		0.		0.	
	Calculated Hexachlorodibenzo-p-dioxin, Mixture	ng/L	-	-	0.	U	0.		ND				ND		ND	
SVOCs	Methylnaphthalene	µg/L	1	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2-methylnaphthalene	µg/L	30	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	Acenaphthene	µg/L	80	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	Acenaphthylene	µg/L	200	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	Anthracene	mg/L	2	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	Benz(a)anthracene	µg/L	0.05	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	Benzo(a) pyrene	µg/L	0.005	0.005	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	Benzo(b)fluoranthene	µg/L	0.05	-	0.	U	0.	U	0.	U	0.	J	0.	U	0.	U
	Benzo(g,h,i)perylene	µg/L	200	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	Benzo(k)fluoranthene	µg/L	0.5	-	0.	U	0.	U	0.	U	0.	J	0.	U	0.	U
	Chrysene	µg/L	5	-	0.	U	0.	U	0.	U	0.	J	0.	U	0.	U
	Dibenz(a,h)anthracene	µg/L	0.005	0.005	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	Fluoranthene	µg/L	300	-	0.	U	0.	U	0.	U	0.	J	0.	U	0.	U
	Fluorene	µg/L	300	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	Indeno(1,2,3-c,d)pyrene	µg/L	0.05	0.05	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	Naphthalene	µg/L	6	-	0.	U	0.	U	0.	U	0.	U	0.	J	0.	J
	Phenanthrene	µg/L	200	-	0.	U	0.	U	0.	U	0.024	J	0.0094	U	0.014	J
	Pyrene	µg/L	200	-	0.	U	0.	U	0.	U	0.041	J	0.0078	U	0.0098	U
	PAH TEQ	µg/L	0.005	0.005	ND				ND		0.		ND		ND	
General Chemistry	Bromide	mg/L	-	-	-				-				-		0.11	U
	Bicarbonate as CaCO3	mg/L	-	-	76				-				-		-	
	Total Inorganic Carbon	mg/L	-	-	-				-				-		3.7J	J+
	Dissolved Organic Carbon	mg/L	-	-	-				-				-		0.38	J
	Chloride	mg/L	250	-	27				-				-		16	B
	Fluoride	mg/L	2	-	-				-				-		0.06	U
	Nitrate	mg/L	10	-	-				-				-		1.4	
	Nitrite	mg/L	1	-	-				-				-		049	U
	Orthophosphate	mg/L	-	-	-				-				-		0.19	F1
	Sulfate	mg/L	250	250	69				71		71B		62	B	55	B
	Sulphide	mg/L	-	-	0.	U	-		-				-		-	
	TDS	mg/L	500	500	260				180				150		140	
	TSS	mg/L	-	-			-		-				-		-	
Metals	luminium	mg/L	-	-	0.		1		0.		0.		0.	J	-	
	ntimony	mg/L	0.001	-	0.	U	0.	U	0.	U	0.	U	0.0031	U	-	
	Arsenic	ug/L	10	-	4	U	8	J	4	U	4	U	4	U	-	
	arium	ug/L	700	-	42				37		38		35		-	
	Beryllium	mg/L	0.004	-	0.	U	0.	U	0.	U	0.	U	0.	U	-	
	oron	ug/L	700	-	-				-				-		-	
	Cadmium	ug/L	2	-	0.	U	0.	U	0.	U	0.	U	0.	U	-	
	alcium	mg/L	-	-	24				13				9.2		6.2	
	Chromium (III+VI)	ug/L	10	10	0.	J	2.	J	1	J	5	J	1	J	3.5	
	Hexavalent Chromium (VI)	ug/L	-	-	-				-				-		-	
	obalt	mg/L	0.001	0.001	0.	U	0.	U	0.	U	0.	U	0.0012	U	0.049	U
	Copper	mg/L	1	-	0.	U	0.	J	0.	U	0.	U	0.	U	0.	
	Iron	ug/L	300	578	140		1,		430				100	U	22	U
	Lead	µg/L	15	-	2	U	2	U	2	U	2.6	U	2.6	U	-	
	Lithium	µg/L	-	-	-				-				-		-	
	Magnesium	mg/L	-	-	5		3		2		2		2		1.4	
	anganese	ug/L	50	70	190				22				10	U	10	U
	Mercury	ug/L	1	-	0.	U	0.	U	0.	U	0.	U	0.	U	-	
	olybdenum	ug/L	-	-	-				-				-			
	Nickel	ug/L	100	-	1	U	1	U	2	J	1	U	1	U	-	
	Potassium	mg/L	-	-	3		2.		2	J	2	J	3	U	1.5	
	Selenium	ug/L	20	-	4	U	4	U	5	J	13	J	5.6J		-	
	Silver	ug/L	20	-	0.	U	0.	U	0.	U	0.93	U	0.93	U	-	
	Sodium	mg/L	-	-	57				41			B	34	B	34	
	trontium	ug/L	-	-	-				-				-		-	
	hallium	mg/L	0.0002	-	0.	U	0.	U	0.	U	0.	J	0.	U	-	
	anadium	mg/L	0.0003	0.0003	0.	U	0.	J	0.	U	0.	J	0.	U	0.	U
	Zinc	mg/L	1	-	0.02	U	0.013	J	0.0082	J	0.011	J	0.009	J	-	

Notes:

1. ng/L indicates nanogram per liter.
2. mg/L indicates milligram per liter.
3. µg/L indicates microgram per liter.
4. TEQ indicates total equivalents.
5. U indicates result was below the method detection limit.
6. J indicates results is an estimate.
7. UJ indicates the analyte was not detected above the method detection limit.
   However, the method detection limit is an approximation.
8. B is a laboratory flag indicating compound was detected in both the method blank and sample
9. R indicates the results are rejected due to deficiencies in the ability to analyze the
   sample and meet quality control criteria. The presence of the analyte cannot be verified.
10. F1 & F2 are data qualifiers used by the laboratory.
11. TDS indicates total dissolved solids.
12. TSS indicates total suspended solids.
13. PAH indicates polyaromatic hydrocarbon.
14. ND indicates all of the input parameters in the calculated parameter equation were non-detect.
15. Groundwater Final Remediation Goals reference Geosyntec's 2016 Remedial Investigation Report.
16. NCDENRs 2L and IMAC standards from April 1, 2013.

Table 1
Groundwater Analytical Results
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Method	Analyte	Unit	2Ls and IMACs	Final Remediation Goals for Groundwater	M-1 continued							
					12/12/2018		11/14/2019		12/2020		12/14/2021	
Dioxins and Furans	1,2,3,4,6,7,8-Heptachlorooxanthrene (HpCDD)	ng/L	-	-	0.	U	-		-		-	
	2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	-		-		-	
	2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	-		-		-	
	2,3,4,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	-		-		-	
	2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	-		-		-	
	2,3,6,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	-		-		-	
	2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	-		-		-	
	2,3,7,8,9-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	-		-		-	
	2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	-		-		-	
	3,7,8-Tetrachlorooxanthrene (TCDD)	ng/L	0.0002	-	0.0006	U	-		-		-	
	2,3,7,8-Pentachlorooxanthrene (PeCDD)	ng/L	-	-	0.	U	-		-		-	
	2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	-		-		-	
	3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	-		-		-	
	3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	-		-		-	
	3,7,8-Tetrachlorodibenzofuran (TCDF)	ng/L	-	-	0.	U	-		-		-	
	2,3,4,6,7,8,9-Octachlorooxanthrene (OCDD)	ng/L	-	-	0.12	U	-		-		-	
	2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ng/L	-	-	0.12	U	-		-		-	
	alculated Dioxin/Furan TEQ	ng/L	0.0002	0.0002	ND		-		-		-	
	alculated Hexachlorodibenzo-p-dioxin, Mixture	ng/L	-	-	ND		-		-		-	
SVOCs	Methylnaphthalene	µg/L	1	-	0.0062	U	-		-		-	
	methylnaphthalene	µg/L	30	-	0.0056	U	-		-		-	
	cenaphthene	µg/L	80	-	0.012	U	-		-		-	
	cenaphthylene	µg/L	200	-	0.011	U	-		-		-	
	nthracene	mg/L	2	-	0.	U	-		-		-	
	enz(a)anthracene	µg/L	0.05	-	0.0035	U	-		-		-	
	enzo(a) pyrene	µg/L	0.005	0.005	0.0056	U	-		-		-	
	enzo(b)fluoranthene	µg/L	0.05	-	0.0038	U	-		-		-	
	enzo(g,h,i)perylene	µg/L	200	-	0.0039	U	-		-		-	
	enzo(k)fluoranthene	µg/L	0.5	-	0.0055	U	-		-		-	
	hrysene	µg/L	5	-	0.0035	U	-		-		-	
	ibenz(a,h)anthracene	µg/L	0.005	0.005	0.0053	U	-		-		-	
	luoranthene	µg/L	300	-	0.005	U	-		-		-	
	luorene	µg/L	300	-	0.021	U	-		-		-	
	ndeno(1,2,3-c,d)pyrene	µg/L	0.05	0.05	0.016	U	-		-		-	
	aphthalene	µg/L	6	-	0.012	J	-		-		-	
	henanthrene	µg/L	200	-	0.013	J	-		-		-	
	yrene	µg/L	200	-	0.0089	U	-		-		-	
	AH TEQ	µg/L	0.005	0.005	ND		-		-		-	
General Chemistry	romide	mg/L	-	-	0.11	U	0.23	U	0.23	U	0.23	U
	icarbonate as CaCO3	mg/L	-	-	-		-		-		-	
	otal Inorganic Carbon	mg/L	-	-	6.9		6		5.4	J	3.7	J+
	issolved Organic Carbon	mg/L	-	-	1	U	0.58	J	1	U	0.	J
	hloride	mg/L	250	-	16		10		10		12	
	luoride	mg/L	2	-	0.06	U	0.19		0.17	U	0.17	U
	itrate	mg/L	10	-	1.6		0.85		-		0.	
	itrite	mg/L	1	-	0.049		0.	J	-		0.049	U
	rthophosphate	mg/L	-	-	0.19	F1	0.47	UF1	-		0.47	U
	ulfate	mg/L	250	250	60	J+	62		54		63	
	ulphide	mg/L	-	-	-		-		-		-	
	DS	mg/L	500	500	150		150		150	J	140	
	SS	mg/L	-	-	-		-		-		-	
Metals	luminium	mg/L	-	-	-		-		-		-	
	ntimony	mg/L	0.001	-	-		-		-		-	
	senic	ug/L	10	-	-		-		4.4	U	4.4	U
	arium	ug/L	700	-	-		-		-		-	
	eryllium	mg/L	0.004	-	-		-		-		-	
	oron	ug/L	700	-	-		-		42	J	32	J
	admium	ug/L	2	-	-		-		-		-	
	alcium	mg/L	-	-	6.7		8.6		6.2		4.4	
	hromium (III+VI)	ug/L	10	10	10	U	10	U	1.5	J	1.7	J
	exavalent Chromium (VI)	ug/L	-	-	-		-		-		-	
	obalt	mg/L	0.001	0.001	0.0012	U	0.	U	0.	U	0.0012	U
	opper	mg/L	1	-	-		-		-		-	
	on	ug/L	300	578	180		170		22	U	37	J
	ead	µg/L	15	-	-		-		-		-	
	ithium	µg/L	-	-	-		-		9.1	U	9.1	U
	agnesium	mg/L	-	-	1.3		1.9		1.1		0.8	
	Manganese	ug/L	50	70	10	U	5	J	1.9	U	1.9	U
	ercury	ug/L	1	-	-		-		-		-	
	olybdenum	ug/L	-	-	-		-		1.0	U	1.0	U
	ickel	ug/L	100	-	-		-		-		-	
	otassium	mg/L	-	-	1.9	J	3	U	1.9	J	1.6	J
	elenium	ug/L	20	-	-		-		-		-	
	ilver	ug/L	20	-	-		-		-		-	
	odium	mg/L	-	-	42		33		34		36	
	trontium	ug/L	-	-	-		-		88		65	^6+
	hallium	mg/L	0.0002	-	-		-		0.0049	U	0.0049	U
	anadium	mg/L	0.0003	0.0003	0.0011	U	0.	U	0.0011	U	0.0011	U
	nc	mg/L	1	-	-		-		-		-	

Notes:

1. ng/L indicates nanogram per liter.
2. mg/L indicates milligram per liter.
3. µg/L indicates microgram per liter.
4. TEQ indicates total equivalents.
5. U indicates result was below the method detection limit.
6. J indicates results is an estimate.
7. UJ indicates the analyte was not detected above the method detection limit.
   However, the method detection limit is an approximation.
8. B is a laboratory flag indicating compound was detected in both the method blank and sample
9. R indicates the results are rejected due to deficiencies in the ability to analyze the
   sample and meet quality control criteria. The presence of the analyte cannot be verified.
10. F1 & F2 are data qualifiers used by the laboratory.
11. TDS indicates total dissolved solids.
12. TSS indicates total suspended solids.
13. PAH indicates polyaromatic hydrocarbon.
14. ND indicates all of the input parameters in the calculated parameter equation were non-detect.
15. Groundwater Final Remediation Goals reference Geosyntec's 2016 Remedial Investigation Report.
16. NCDENRs 2L and IMAC standards from April 1, 2013.

Table 1
Groundwater Analytical Results
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Method	Analyte	Unit	2Ls and IMACs	Final Remediation Goals for Groundwater	MW-2											
					3/2014		9/2014		4/2015		11/2015		5/2016		6/2018	
Dioxins and Furans	1,2,3,4,6,7,8-Heptachlorooxanthrene (HpCDD)	ng/L	-	-	0.	U	0.00062		0.	U	0.	U	0.	U	0.	U
	2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	J	0.00079		0.	U	0.	J	0.	U	0.	U
	2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	0.00039		0.	U	0.	U	0.	U	0.	U
	2,3,4,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.00011		0.	J	0.	U	0.	U	0.	U
	2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.00011		0.	U	0.	U	0.	U	0.	U
	2,3,6,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.00012		0.	J	0.	U	0.	U	0.	U
	2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.00011		0.	U	0.	J	0.	U	0.	U
	2,3,7,8,9-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	J	0.00011		0.	U	0.	U	0.	U	0.	U
	2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	J	0.	U	0.	U	0.	U	0.	U
	3,7,8-Tetrachlorooxanthrene (TCDD)	ng/L	0.0002	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,7,8-Pentachlorooxanthrene (PeCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	J	0.00012		0.	U	0.	U	0.	U	0.	U
	3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.00011		0.	U	0.	U	0.	U	0.	U
	3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	0.00021		0.	U	0.	U	0.	U	0.	U
	3,7,8-Tetrachlorodibenzofuran (TCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,6,7,8,9-Octachlorooxanthrene (OCDD)	ng/L	-	-	0.	J	0.	J	0.	U	0.0024	J	0.0024	U	0.00029	U
	2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ng/L	-	-	0.	U	0.	J	0.	U	0.0016	J	0.0017	U	0.00086	U
	alculated Dioxin/Furan TEQ	ng/L	0.0002	0.0002	0.		0.00012427		0.		0.		ND			
	alculated Hexachlorodibenzo-p-dioxin, Mixture	ng/L	-	-	0.		ND		0.		ND		ND			
SVOCs	Methylnaphthalene	µg/L	1	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	methylnaphthalene	µg/L	30	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	cenaphthene	µg/L	80	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	cenaphthylene	µg/L	200	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	nthracene	mg/L	2	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enz(a)anthracene	µg/L	0.05	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enzo(a) pyrene	µg/L	0.005	0.005	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enzo(b)fluoranthene	µg/L	0.05	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enzo(g,h,i)perylene	µg/L	200	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enzo(k)fluoranthene	µg/L	0.5	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	hrysene	µg/L	5	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	ibenz(a,h)anthracene	µg/L	0.005	0.005	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	luoranthene	µg/L	300	-	0.	U	0.	U	0.	U	0.	U	0.	U	0	U
	luorene	µg/L	300	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	ndeno(1,2,3-c,d)pyrene	µg/L	0.05	0.05	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	aphthalene	µg/L	6	-	0.	U	0.	J	0.	U	0.	U	0.	U	0.	J
	henanthrene	µg/L	200	-	0.	U	0.	U	0.	U	0.0094	U	0.0092	U	0.01	U
	yrene	µg/L	200	-	0.	U	0.	U	0.	U	0.0078	U	0.0077	U	0.00083	U
	AH TEQ	µg/L	0.005	0.005	ND		ND				ND		ND		ND	
General Chemistry	romide	mg/L	-	-	-		-				-		-			U
	icarbonate as CaCO3	mg/L	-	-	140		-				-		-		-	
	otal Inorganic Carbon	mg/L	-	-	-		-				-		-		1.5	
	issolved Organic Carbon	mg/L	-	-	-		-				-		-		1.5	
	hloride	mg/L	250	-	19		-				11	B	-		17	
	luoride	mg/L	2	-	-		-				-				0.4J	
	itrate	mg/L	10	-	-		-				-				0.051J	
	itrite	mg/L	1	-	-		-				-				0.049	U
	rthophosphate	mg/L	-	-	-		-				-				0.19	U
	ulfate	mg/L	250	250	170		140			B	90	B	85		99	
	ulphide	mg/L	-	-	0.	U	-				-				-	
	DS	mg/L	500	500	400		320				250		530			
	SS	mg/L	-	-	1	U	-				-		-			
Metals	luminium	mg/L	-	-	0.	U	0.	U	0.	U	0.		0.	U	-	
	ntimony	mg/L	0.001	-	0.	U	0.	U	0.	U	0.		0.0031	U	-	
	senic	ug/L	10	-	4	U	6.5		4	U	5		4	U	-	
	arium	ug/L	700	-	87		53			B	39	J	50		-	
	eryllium	mg/L	0.004	-	0.	U	0.00047		0.	U	0.		0.	U	-	
	oron	ug/L	700	-	-		-				-		-		-	
	admium	ug/L	2	-	0.	U	0.45		0.	U	0.		0.	U	-	
	alcium	mg/L	-	-	31		24				15		17		16	
	hromium (III+VI)	ug/L	10	10	0.	U	0.66		0.	U	2.7	J	0.66	U	0.66	U
	exavalent Chromium (VI)	ug/L	-	-	-		-				-		-			
	obalt	mg/L	0.001	0.001	0.		0.		0.		0.		0.029		0.03	
	opper	mg/L	1	-	0.	U	0.	J	0.	U	0.		0.	U	-	
	on	ug/L	300	578	22	U	340				140			J	630	
	ead	µg/L	15	-	2	U	2.6		2	U	2		2.6	U	-	
	ithium	µg/L	-	-	9	U	-				-				-	
	agnesium	mg/L	-	-	7		5.9		5		3		3		3.7	B
	Manganese	ug/L	50	70	6,		5,		6,		3,800	B	4,400	B	4,600	
	ercury	ug/L	1	-	0.	U	0.	U	0.	U	0.		-			
	olybdenum	ug/L	-	-	-		-				-		-			
	ickel	ug/L	100	-	5	J	4.1		5	J	2	J	3	J	-	
	otassium	mg/L	-	-	3		3		3		2	J	3	B	2.8	J
	elenium	ug/L	20	-	4	U	4.9		4	U	4		4	U	-	
	ilver	ug/L	20	-	1	J	2.3		0.	U	0.93		0.93	U	-	
	odium	mg/L	-	-	99	J	69				62	B	66		75	B
	trontium	ug/L	-	-	-		-				-		-			
	hallium	mg/L	0.0002	-	0.	U	0.	U	0.	U	0.	J	0.	U	-	
	anadium	mg/L	0.0003	0.0003	0.	U	0.	U	0.	U	0.	J	0.	U	0.0017	J
	nc	mg/L	1	-	0.02		0.0062	J	0.093		0.005	J	0.0096	J	-	

Notes:

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Table 1
Groundwater Analytical Results
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Method	Analyte	Unit	2Ls and IMACs	Final Remediation Goals for Groundwater	MW-2 continued							
					12/17/2018		11/2019		12/2020		12/13/2021	
Dioxins and Furans	1,2,3,4,6,7,8-Heptachlorooxanthrene (HpCDD)	ng/L	-	-	0.	U	-		-		-	
	2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	-		-		-	
	2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	-		-		-	
	2,3,4,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	-		-		-	
	2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	-		-		-	
	2,3,6,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	-		-		-	
	2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	-		-		-	
	2,3,7,8,9-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	-		-		-	
	2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	-		-		-	
	3,7,8-Tetrachlorooxanthrene (TCDD)	ng/L	0.0002	-	0.	U	-		-		-	
	2,3,7,8-Pentachlorooxanthrene (PeCDD)	ng/L	-	-	0.	U	-		-		-	
	2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	-		-		-	
	3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	-		-		-	
	3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	-		-		-	
	3,7,8-Tetrachlorodibenzofuran (TCDF)	ng/L	-	-	0.	U	-		-		-	
	2,3,4,6,7,8,9-Octachlorooxanthrene (OCDD)	ng/L	-	-	0.11	U	-		-		-	
	2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ng/L	-	-	0.	U	-		-		-	
	alculated Dioxin/Furan TEQ	ng/L	0.0002	0.0002	ND		-		-		-	
	alculated Hexachlorodibenzo-p-dioxin, Mixture	ng/L	-	-	ND		-		-		-	
SVOCs	Methylnaphthalene	µg/L	1	-	R		-		-		-	
	methylnaphthalene	µg/L	30	-	R		-		-		-	
	cenaphthene	µg/L	80	-	R		-		-		-	
	cenaphthylene	µg/L	200	-	R		-		-		-	
	nthracene	mg/L	2	-	R		-		-		-	
	enz(a)anthracene	µg/L	0.05	-	0.11	U	-		-		-	
	enzo(a) pyrene	µg/L	0.005	0.005	0.11	U	-		-		-	
	enzo(b)fluoranthene	µg/L	0.05	-	0.11	U	-		-		-	
	enzo(g,h,i)perylene	µg/L	200	-	0.11	U	-		-		-	
	enzo(k)fluoranthene	µg/L	0.5	-	0.0057	J	-		-		-	
	hrysene	µg/L	5	-	0.11	U	-		-		-	
	ibenz(a,h)anthracene	µg/L	0.005	0.005	R		-		-		-	
	luoranthene	µg/L	300	-	0.11	U	-		-		-	
	luorene	µg/L	300	-	R		-		-		-	
	ndeno(1,2,3-c,d)pyrene	µg/L	0.05	0.05	R		-		-		-	
	aphthalene	µg/L	6	-	0.0067	J	-		-		-	
	henanthrene	µg/L	200	-	R		-		-		-	
	yrene	µg/L	200	-	0.11	U	-		-		-	
	AH TEQ	µg/L	0.005	0.005	0.		-		-		-	
General Chemistry	romide	mg/L	-	-	0.11	U	0.	U	0.23	U	0.23	U
	icarbonate as CaCO3	mg/L	-	-	-		-		-		-	
	otal Inorganic Carbon	mg/L	-	-	22		24		22	J	26	
	issolved Organic Carbon	mg/L	-	-	1.7	B	1.4		1		1.7	
	hloride	mg/L	250	-	11	B	8.4		21		18	
	luoride	mg/L	2	-	0.47	J	0.	J	0.		0.69	
	itrate	mg/L	10	-	0.12	J	0.	U	0.	J	0.19	J
	itrite	mg/L	1	-	0.049	U	0.	U	-		0.049	U
	rthophosphate	mg/L	-	-	0.19	U	0.	U	-		0.47	U
	ulfate	mg/L	250	250	96	B	51		100		89	
	ulphide	mg/L	-	-	-		-		-		-	
	DS	mg/L	500	500	260		210		270		270	
	SS	mg/L	-	-	-		-		-		-	
Metals	luminium	mg/L	-	-	-		-		-		-	
	ntimony	mg/L	0.001	-	-		-		-		-	
	senic	ug/L	10	-	-		-		4.4	U	4.4	U
	arium	ug/L	700	-	-		-		-		-	
	eryllium	mg/L	0.004	-	-		-		-		-	
	oron	ug/L	700	-	-		-		42	J	50	J
	admium	ug/L	2	-	-		-		-		-	
	alcium	mg/L	-	-	15		14		30		29	
	hromium (III+VI)	ug/L	10	10	0.74	J	10	U	0.66	U	0.66	U
	exavalent Chromium (VI)	ug/L	-	-	-		-		-		-	
	obalt	mg/L	0.001	0.001	0.024		0.		0.043		0.04	
	opper	mg/L	1	-	-		-		-		-	
	on	ug/L	300	578	100		400		130		110	
	ead	µg/L	15	-	-		-		-		-	
	ithium	µg/L	-	-	-		-		9	U	9.1	U
	agnesium	mg/L	-	-	3.7		3.7		8.6		8.9	
	Manganese	ug/L	50	70	3,900	B	3,		7,		6,600	
	ercury	ug/L	1	-	-		-		-		-	
	olybdenum	ug/L	-	-	-		-		1	U	2.3	J
	ickel	ug/L	100	-	-		-		-		-	
	otassium	mg/L	-	-	2.6	J	3	U	3.5		3.7	
	elenium	ug/L	20	-	-		-		-		-	
	ilver	ug/L	20	-	-		-		-		-	
	odium	mg/L	-	-	61		44		37		38	
	trontium	ug/L	-	-	-		-		550		550	^6+
	hallium	mg/L	0.0002	-	-		-		0.0049	U	0.0056	J
	anadium	mg/L	0.0003	0.0003	0.0011	U	0.	U	0.0011	U	0.0011	U
	nc	mg/L	1	-	-		-		-		-	

Notes:

1. ng/L indicates nanogram per liter.
2. mg/L indicates milligram per liter.
3. µg/L indicates microgram per liter.
4. TEQ indicates total equivalents.
5. U indicates result was below the method detection limit.
6. J indicates results is an estimate.
7. UJ indicates the analyte was not detected above the method detection limit.
   However, the method detection limit is an approximation.
8. B is a laboratory flag indicating compound was detected in both the method blank and sample
9. R indicates the results are rejected due to deficiencies in the ability to analyze the
   sample and meet quality control criteria. The presence of the analyte cannot be verified.
10. F1 & F2 are data qualifiers used by the laboratory.
11. TDS indicates total dissolved solids.
12. TSS indicates total suspended solids.
13. PAH indicates polyaromatic hydrocarbon.
14. ND indicates all of the input parameters in the calculated parameter equation were non-detect.
15. Groundwater Final Remediation Goals reference Geosyntec's 2016 Remedial Investigation Report.
16. NCDENRs 2L and IMAC standards from April 1, 2013.

Table 1
Groundwater Analytical Results
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Method	Analyte	Unit	2Ls and IMACs	Final Remediation Goals for Groundwater	MW-3											
					3/2014		3/10/D)		9/2014		9/10/D)		4/2015		4/24/Dup)	
Dioxins and Furans	1,2,3,4,6,7,8-Heptachlorooxanthrene (HpCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	0.	U	0.00035		0.	U	0.	U	0.	U
	2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	U	0.00012		0.	U	0.	U	0.	U
	2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.		0.	J, U	0.	U	0.	U
	2,3,6,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	U	0.00013		0.	U	0.	J	0.	J,U
	2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,7,8,9-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	U	0.00012		0.	U	0.	U	0.	U
	2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	3,7,8-Tetrachlorooxanthrene (TCDD)	ng/L	0.0002	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,7,8-Pentachlorooxanthrene (PeCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	J	0.	U
	2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	J	0.	U,J	0.	J, U	0.	J	0.	U	0.	U
	3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	J
	3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	3,7,8-Tetrachlorodibenzofuran (TCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,6,7,8,9-Octachlorooxanthrene (OCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.0025	U	0.0037	U	0.007	U
	2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.0015	U	0.0081	U	0.0062	U
	alculated Dioxin/Furan TEQ	ng/L	0.0002	0.0002	0.		ND		0.		0.		0.		0.	
	alculated Hexachlorodibenzo-p-dioxin, Mixture	ng/L	-	-	ND		ND		ND		ND		0.		ND	
SVOCs	Methylnaphthalene	µg/L	1	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	methylnaphthalene	µg/L	30	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	cenaphthene	µg/L	80	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	cenaphthylene	µg/L	200	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	nthracene	mg/L	2	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enz(a)anthracene	µg/L	0.05	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enzo(a) pyrene	µg/L	0.005	0.005	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enzo(b)fluoranthene	µg/L	0.05	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enzo(g,h,i)perylene	µg/L	200	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enzo(k)fluoranthene	µg/L	0.5	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	hrysene	µg/L	5	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	ibenz(a,h)anthracene	µg/L	0.005	0.005	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	luoranthene	µg/L	300	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	luorene	µg/L	300	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	ndeno(1,2,3-c,d)pyrene	µg/L	0.05	0.05	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	aphthalene	µg/L	6	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	henanthrene	µg/L	200	-	0.	U	0.	U	0.	U	0.0093	U	0.0094	U	0.0096	U
	yrene	µg/L	200	-	0.	U	0.	U	0.	U	0.0077	U	0.0078	U	0.008	U
	AH TEQ	µg/L	0.005	0.005	ND		ND		ND				ND		ND	
General Chemistry	romide	mg/L	-	-	-		-		-				-		-	
	icarbonate as CaCO3	mg/L	-	-	55		-		-				-		-	
	otal Inorganic Carbon	mg/L	-	-	-		-		-				-		-	
	issolved Organic Carbon	mg/L	-	-	-		-		-				-		-	
	hloride	mg/L	250	-	45		-		-				-		-	
	luoride	mg/L	2	-	-		-		-				-		-	
	itrate	mg/L	10	-	-		-		-				-		-	
	itrite	mg/L	1	-	-		-		-				-		-	
	rthophosphate	mg/L	-	-	-		-		-		-				-	
	ulfate	mg/L	250	250	330		-		290				330		350	
	ulphide	mg/L	-	-	0.79	U	-		-		-				-	
	DS	mg/L	500	500	600		-		650		640		670		670	
	SS	mg/L	-	-	.1	U	-		-		-		-		-	
Metals	luminium	mg/L	-	-	12		0.	U,J	0.	U	0.	U	0.	U	0.	U
	ntimony	mg/L	0.001	-	0.	U	0.	U	0.	U	0.0031	U	0.0031	U	0.0031	U
	senic	ug/L	10	-	4.4	U	4	U	4	U	4	U	4	UJ	5	J
	arium	ug/L	700	-	22		21		18				19		19	
	eryllium	mg/L	0.004	-	0.	J	0.		0.00051		0.	J	0.	J	0.	J
	oron	ug/L	700	-	-		-		-				-		-	
	admium	ug/L	2	-	0.67	J	0.		0.	U	0.	U	0	J	0.	J
	alcium	mg/L	-	-	61		-		65				78		77	
	hromium (III+VI)	ug/L	10	10	0.66	U	0.	U	0.	U	0.66	U	0.66	U		U
	exavalent Chromium (VI)	ug/L	-	-	-		-		-		-		-			
	obalt	mg/L	0.001	0.001	0.15		0.		0.		0.12		0.13		0.12	
	opper	mg/L	1	-	0.	J	0.	U,J	0.		0.	J	0.	U		U
	on	ug/L	300	578	200		67J		460				370		340	
	ead	µg/L	15	-	2.6	U	2	U	2	U	2.6	U	2.6	U	2.6	U
	ithium	µg/L	-	-	-		-		-				-		-	
	agnesium	mg/L	-	-	16		-		19		18		20		20	
	Manganese	ug/L	50	70	8,		8,		7,		7,600		8,500		8,200	
	ercury	ug/L	1	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	olybdenum	ug/L	-	-	-		-		-				-		-	
	ickel	ug/L	100	-	31	J	32J		27		27		26		25	J
	otassium	mg/L	-	-	9.2		-		8		8		8		8	
	elenium	ug/L	20	-	4.9	U	4	U	4	U	4.9		4.9	U	4.9	U
	ilver	ug/L	20	-	0.93	U	0.	U	2	J	1.8	J	2.1	J	2.7	J
	odium	mg/L	-	-	100		-		99		97		110		100	
	trontium	ug/L	-	-			-		-		-		-		-	
	hallium	mg/L	0.0002	-	0.	U	0.	U	0.	U	0.0049		0.0049	U	0.0049	U
	anadium	mg/L	0.0003	0.0003	0.	U	0.	U	0.	J	0.0014	J	0.0011	U	0.0011	U
	nc	mg/L	1	-	0.052		0.052		0.038		0.037		0.038		0.035	

Notes:

1. ng/L indicates nanogram per liter.
2. mg/L indicates milligram per liter.
3. µg/L indicates microgram per liter.
4. TEQ indicates total equivalents.
5. U indicates result was below the method detection limit.
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   However, the method detection limit is an approximation.
8. B is a laboratory flag indicating compound was detected in both the method blank and sample
9. R indicates the results are rejected due to deficiencies in the ability to analyze the
   sample and meet quality control criteria. The presence of the analyte cannot be verified.
10. F1 & F2 are data qualifiers used by the laboratory.
11. TDS indicates total dissolved solids.
12. TSS indicates total suspended solids.
13. PAH indicates polyaromatic hydrocarbon.
14. ND indicates all of the input parameters in the calculated parameter equation were non-detect.
15. Groundwater Final Remediation Goals reference Geosyntec's 2016 Remedial Investigation Report.
16. NCDENRs 2L and IMAC standards from April 1, 2013.

Table 1
Groundwater Analytical Results
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Method	Analyte	Unit	2Ls and IMACs	Final Remediation Goals for Groundwater	MW-3 continued											
					11/21/2015		11/2015 (Dup)		5/6/2016		6/13/2018		12/17/2018		11/13/2019	
Dioxins and Furans	1,2,3,4,6,7,8-Heptachlorooxanthrene (HpCDD)	ng/L	-	-	0.00069	U	0.	U	0.	U	0.	U	0.	U	-	
	2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	J,U	0.	J	0.	U	0.	U	0.	U	-	
	2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.00041	U	0.	U	0.	U	0.	U	0.	U	-	
	2,3,4,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.00024	U	0.	U	0.	U	0.	U	0.	U	-	
	2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.0003	U	0.	U	0.	U	0.	U	0.	U	-	
	2,3,6,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.00028	U	0.	U	0.	U	0.	U	0.	U	-	
	2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.00029	U	0.	U	0.	U	0.	U	0.	U	-	
	2,3,7,8,9-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.00024	U	0.	U	0.	U	0.	U	0.	U	-	
	2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.00035	U	0.	U	0.	U	0.	U	0.	U	-	
	3,7,8-Tetrachlorooxanthrene (TCDD)	ng/L	0.0002	-	0.00011	U	0.	U	0.	U	0.	U	0.	U	-	
	2,3,7,8-Pentachlorooxanthrene (PeCDD)	ng/L	-	-	0.00013	U	0.	U	0.	U	0.	U	0.	U	-	
	2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.00021	U	0.	U	0.	U	0.	U	0.	U	-	
	3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.0003	U	0.	U	0.	U	0.	U	0.	U	-	
	3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.00018	U	0.	U	0.	U	0.	U	0.	U	-	
	3,7,8-Tetrachlorodibenzofuran (TCDF)	ng/L	-	-	0.00017	U	0.	U	0.	U	0.	U	0.	U	-	
	2,3,4,6,7,8,9-Octachlorooxanthrene (OCDD)	ng/L	-	-	0.0015	U	0.	J	0.	J	0.099	U	0.1	U	-	
	2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ng/L	-	-	0.00016	U	0.	U	0.	U	0.0016	U	0.00053	U	-	
	alculated Dioxin/Furan TEQ	ng/L	0.0002	0.0002	ND		0.		0.		ND		ND		-	
	alculated Hexachlorodibenzo-p-dioxin, Mixture	ng/L	-	-	ND		ND		ND		ND		ND		-	
SVOCs	Methylnaphthalene	µg/L	1	-	0.0055	U	0.	U	0.	U	0.	U	0.	U	-	
	methylnaphthalene	µg/L	30	-	0.005	U	0.	U	0.	U	0.	U	0.	U	-	
	cenaphthene	µg/L	80	-	0.01	U	0.01	U	0.01	U	0.01	U	0.	U	-	
	cenaphthylene	µg/L	200	-	0.0096	U	0.	U	0.	U	0.	U	0.	U	-	
	nthracene	mg/L	2	-	0.	U	0.	U	0.	U	0.	U	0.	U	-	
	enz(a)anthracene	µg/L	0.05	-	0.0031	U	0.	U	0.	U	0.	J	0.11	U	-	
	enzo(a) pyrene	µg/L	0.005	0.005	0.005	U	0.	U	0.	U	0.	U	0.11	U	-	
	enzo(b)fluoranthene	µg/L	0.05	-	0.0033	U	0.	U	0.	U	0.	U	0.11	U	-	
	enzo(g,h,i)perylene	µg/L	200	-	0.0034	U	0.	U	0.	U	0.	U	0.	J	-	
	enzo(k)fluoranthene	µg/L	0.5	-	0.0049	U	0.	U	0.	U	0.	U	0.	J	-	
	hrysene	µg/L	5	-	0.0031	U	0.	U	0.003	U	0.	J	0.11	U	-	
	ibenz(a,h)anthracene	µg/L	0.005	0.005	0.0047	U	0.	U	0.	U	0.	U	0.	U	-	
	luoranthene	µg/L	300	-	0.0044	U	0.	U	0.	U	0.	U	0.11	U	-	
	luorene	µg/L	300	-	0.018	U	0.018	U	0.018	U	0.	U	0.	U	-	
	ndeno(1,2,3-c,d)pyrene	µg/L	0.05	0.05	0.014	U	0.014	U	0.014	U	0.	U	0.	U	-	
	aphthalene	µg/L	6	-	0.0052	U	0.	U	0.095	U	0.	U	0.	J	-	
	henanthrene	µg/L	200	-	0.0094	U	0.	U	0.	U	0.015	J	0.012	J	-	
	yrene	µg/L	200	-	0.0078	U	0.	U	0.	U	0.013	J	0.11	U	-	
	AH TEQ	µg/L	0.005	0.005	ND		ND		ND		0.000839		0.000075		-	
General Chemistry	romide	mg/L	-	-	-		-		-		0.14	J	0.11	U	0.23	U
	icarbonate as CaCO3	mg/L	-	-	-		-		-		-		-		-	
	otal Inorganic Carbon	mg/L	-	-	-		-		-		Not Rported		39	J+	39	
	issolved Organic Carbon	mg/L	-	-	-		-		-		0.78	J	1.0	B	0.9	J
	hloride	mg/L	250	-	54	B	53	B	-		13	B	13	B	12	
	luoride	mg/L	2	-	-		-		-		0.16	J	0.14	J	0.17	U
	itrate	mg/L	10	-	-		-		-		0.	U	0.	U	0.09	R
	itrite	mg/L	1	-	-		-		-		0.	U	0.	U	0.049	R
	rthophosphate	mg/L	-	-	-		-		-		0.19	U	0.19	U	0.47	R
	ulfate	mg/L	250	250	340	B	340	B	330	B	250	B	300		210	
	ulphide	mg/L	-	-	-		-		-		-		-		-	
	DS	mg/L	500	500	680		680		630		540		560		480	
	SS	mg/L	-	-	-		-		-		-		-		-	
Metals	luminium	mg/L	-	-	0.018	U	0.018	U	0.31		-		-		-	
	ntimony	mg/L	0.001	-	0.0031	U	0.	U	0.	U	-		-		-	
	senic	ug/L	10	-	12	J	12	J	4.4	U	-		-		-	
	arium	ug/L	700	-	19		19		20		-		-		-	
	eryllium	mg/L	0.004	-	0.00052	J	0.	J	0.	J	-		-		-	
	oron	ug/L	700	-	-		-		-		-		-		-	
	admium	ug/L	2	-	0.45	U	0.45	U	0.88	J	-		-		-	
	alcium	mg/L	-	-	73		74		71		73		77		65	
	hromium (III+VI)	ug/L	10	10	2	J	1.8	J	0.99	J	0.66	U	0.66	U	10	U
	exavalent Chromium (VI)	ug/L	-	-	-		-		-		-		-		-	
	obalt	mg/L	0.001	0.001	0.12		0.12		0.11		0.06		0.073		0.055	
	opper	mg/L	1	-	0.0014	U	0.	U	0.	U	-		-		-	
	on	ug/L	300	578	360		330		940	J	110		170		480	
	ead	µg/L	15	-	2.6	U	2.6	U	2.6	U	-		-		-	
	ithium	µg/L	-	-	-		-		-		-		-		-	
	agnesium	mg/L	-	-	20		20		18		18		20		18	
	Manganese	ug/L	50	70	7,800	B	7,900	B	7,200		5,400		6,300	B	4,800	
	ercury	ug/L	1	-	0.027	U	0.027	U	0.027	U	-		-		-	
	olybdenum	ug/L	-	-	-		-		-		-		-		-	
	ickel	ug/L	100	-	25	J	25	J	22	J	-		-		-	
	otassium	mg/L	-	-	9.5		10		8.8	B	6.5		7.5		6.6	
	elenium	ug/L	20	-	16	J	14	J	4.9	U	-		-		-	
	ilver	ug/L	20	-	0.93	U	0.93	U	0.93	U	-		-		-	
	odium	mg/L	-	-	97B	B	97	B	88	B	56		63		44	
	trontium	ug/L	-	-	-		-		-		-		-		-	
	hallium	mg/L	0.0002	-	0.018		0.021		0.	U	-		-		-	
	anadium	mg/L	0.0003	0.0003	0.0011	UJ	0.	J	0.	J	0.	U	0.0011	U	0.0016	J
	nc	mg/L	1	-	0.088	J	0.22	J	0.078		-		-		-	

Notes:

1. ng/L indicates nanogram per liter.
2. mg/L indicates milligram per liter.
3. µg/L indicates microgram per liter.
4. TEQ indicates total equivalents.
5. U indicates result was below the method detection limit.
6. J indicates results is an estimate.
7. UJ indicates the analyte was not detected above the method detection limit.
   However, the method detection limit is an approximation.
8. B is a laboratory flag indicating compound was detected in both the method blank and sample
9. R indicates the results are rejected due to deficiencies in the ability to analyze the
   sample and meet quality control criteria. The presence of the analyte cannot be verified.
10. F1 & F2 are data qualifiers used by the laboratory.
11. TDS indicates total dissolved solids.
12. TSS indicates total suspended solids.
13. PAH indicates polyaromatic hydrocarbon.
14. ND indicates all of the input parameters in the calculated parameter equation were non-detect.
15. Groundwater Final Remediation Goals reference Geosyntec's 2016 Remedial Investigation Report.
16. NCDENRs 2L and IMAC standards from April 1, 2013.

Table 1
Groundwater Analytical Results
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Method	Analyte	Unit	2Ls and IMACs	Final Remediation Goals for Groundwater	MW-3 continued			
					12/17/2020		13/2021	
Dioxins and Furans	1,2,3,4,6,7,8-Heptachlorooxanthrene (HpCDD)	ng/L	-	-	-		-	
	2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	-		-	
	2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	-		-	
	2,3,4,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	-		-	
	2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	-		-	
	2,3,6,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	-		-	
	2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	-		-	
	2,3,7,8,9-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	-		-	
	2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	-		-	
	3,7,8-Tetrachlorooxanthrene (TCDD)	ng/L	0.0002	-	-		-	
	2,3,7,8-Pentachlorooxanthrene (PeCDD)	ng/L	-	-	-		-	
	2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	-		-	
	3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	-		-	
	3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	-		-	
	3,7,8-Tetrachlorodibenzofuran (TCDF)	ng/L	-	-	-		-	
	2,3,4,6,7,8,9-Octachlorooxanthrene (OCDD)	ng/L	-	-	-		-	
	2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ng/L	-	-	-		-	
	alculated Dioxin/Furan TEQ	ng/L	0.0002	0.0002	-		-	
	alculated Hexachlorodibenzo-p-dioxin, Mixture	ng/L	-	-	-		-	
SVOCs	Methylnaphthalene	µg/L	1	-	-		-	
	methylnaphthalene	µg/L	30	-	-		-	
	cenaphthene	µg/L	80	-	-		-	
	cenaphthylene	µg/L	200	-	-		-	
	nthracene	mg/L	2	-	-		-	
	enz(a)anthracene	µg/L	0.05	-	-		-	
	enzo(a) pyrene	µg/L	0.005	0.005	-		-	
	enzo(b)fluoranthene	µg/L	0.05	-	-		-	
	enzo(g,h,i)perylene	µg/L	200	-	-		-	
	enzo(k)fluoranthene	µg/L	0.5	-	-		-	
	hrysene	µg/L	5	-	-		-	
	ibenz(a,h)anthracene	µg/L	0.005	0.005	-		-	
	luoranthene	µg/L	300	-	-		-	
	luorene	µg/L	300	-	-		-	
	ndeno(1,2,3-c,d)pyrene	µg/L	0.05	0.05	-		-	
	aphthalene	µg/L	6	-	-		-	
	henanthrene	µg/L	200	-	-		-	
	yrene	µg/L	200	-	-		-	
	AH TEQ	µg/L	0.005	0.005	-		-	
General Chemistry	romide	mg/L	-	-	0.23	U	0.23	U
	icarbonate as CaCO3	mg/L	-	-	-		-	
	otal Inorganic Carbon	mg/L	-	-	45	J	47	
	issolved Organic Carbon	mg/L	-	-	0.78	J	1.3	
	hloride	mg/L	250	-	19		19	
	luoride	mg/L	2	-	0.17	J	0.17	U^1+
	itrate	mg/L	10	-	0.09	U	0.09	U
	itrite	mg/L	1	-	-		0.049	U
	rthophosphate	mg/L	-	-	-		0.47	U
	ulfate	mg/L	250	250	280		270	
	ulphide	mg/L	-	-	-		-	
	DS	mg/L	500	500	560		580	
	SS	mg/L	-	-	-		-	
Metals	luminium	mg/L	-	-	-		-	
	ntimony	mg/L	0.001	-	-		-	
	senic	ug/L	10	-	4.4	U	4.4	U
	arium	ug/L	700	-	-		-	
	eryllium	mg/L	0.004	-	-		-	
	oron	ug/L	700	-	78	J	77	J
	admium	ug/L	2	-	-		-	
	alcium	mg/L	-	-	83		91	
	hromium (III+VI)	ug/L	10	10	0.66	U	0.66	U
	exavalent Chromium (VI)	ug/L	-	-	-		-	
	obalt	mg/L	0.001	0.001	0.061		0.051	
	opper	mg/L	1	-	-		-	
	on	ug/L	300	578	120		270	
	ead	µg/L	15	-	-		-	
	ithium	µg/L	-	-	9.1	U	9.1	U
	agnesium	mg/L	-	-	21		22	
	Manganese	ug/L	50	70	5,800		5,	
	ercury	ug/L	1	-	-		-	
	olybdenum	ug/L	-	-	1	U	1	U
	ickel	ug/L	100	-	-		-	
	otassium	mg/L	-	-	6.7		6.1	
	elenium	ug/L	20	-	-		-	
	ilver	ug/L	20	-	-		-	
	odium	mg/L	-	-	53		44	
	trontium	ug/L	-	-	1,100		1,	^6+
	hallium	mg/L	0.0002	-	0.0049	U	0.0052	J
	anadium	mg/L	0.0003	0.0003	0.0011	U	0.0013	J
	nc	mg/L	1	-	-		-	

Notes:

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11. TDS indicates total dissolved solids.
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Table 1
Groundwater Analytical Results
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Method	Analyte	Unit	2Ls and IMACs	Final Remediation Goals for Groundwater	PZ/MW-4											
					9/2014		4/2015		11/2015		6/2016		6/2018		12/2018	
Dioxins and Furans	1,2,3,4,6,7,8-Heptachlorooxanthrene (HpCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,6,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	J	0.	U	0.	U	0.	U	0.	U
	2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,7,8,9-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	3,7,8-Tetrachlorooxanthrene (TCDD)	ng/L	0.0002	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,7,8-Pentachlorooxanthrene (PeCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	3,7,8-Tetrachlorodibenzofuran (TCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,6,7,8,9-Octachlorooxanthrene (OCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.005	j	0.00076	U	0.11	U
	2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.00092	U	0.0015	U	0.00055	U
	alculated Dioxin/Furan TEQ	ng/L	0.0002	0.0002	ND		0.		ND		0.		ND		ND	
	alculated Hexachlorodibenzo-p-dioxin, Mixture	ng/L	-	-			0.		ND				ND		ND	
SVOCs	Methylnaphthalene	µg/L	1	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	methylnaphthalene	µg/L	30	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	cenaphthene	µg/L	80	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	cenaphthylene	µg/L	200	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	nthracene	mg/L	2	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enz(a)anthracene	µg/L	0.05	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enzo(a) pyrene	µg/L	0.005	0.005	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enzo(b)fluoranthene	µg/L	0.05	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enzo(g,h,i)perylene	µg/L	200	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	J
	enzo(k)fluoranthene	µg/L	0.5	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	J
	hrysene	µg/L	5	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	ibenz(a,h)anthracene	µg/L	0.005	0.005	0.	U	0.	U	0.	U	0.	U	0.	U	0.	J
	luoranthene	µg/L	300	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	luorene	µg/L	300	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	ndeno(1,2,3-c,d)pyrene	µg/L	0.05	0.05	0.	U	0.	U	0.	U	0.	U	0.	U	0.	J
	aphthalene	µg/L	6	-	0.	U	0.	U	0.	U	0.	U	0.	J	0.	U
	henanthrene	µg/L	200	-	0.	U	0.	U	0.	U	0.0093	U	0.01	U	0.011	U
	yrene	µg/L	200	-	0.	U	0.	U	0.	U	0.0077	U	0.0084	U	0.0093	U
	AH TEQ	µg/L	0.005	0.005	ND		ND		ND				ND		0.02145	
General Chemistry	romide	mg/L	-	-	-		-		-				0.11	U	0.11	U
	icarbonate as CaCO3	mg/L	-	-	-		-		-				-		-	
	otal Inorganic Carbon	mg/L	-	-	-		-		-				6.7		13	J+
	issolved Organic Carbon	mg/L	-	-	-		-		-				0.28	J	1	U
	hloride	mg/L	250	-	-		-		-				3	U	3	U
	luoride	mg/L	2	-	-		-		-				0.06	U	0.06	U
	itrate	mg/L	10	-	-		-		-				1.3		1.1	
	itrite	mg/L	1	-	-		-		-				0.		0.049	U
	rthophosphate	mg/L	-	-	-		-		-				0.19	F1, U	0.81	J+
	ulfate	mg/L	250	250	53		62B	B	73		21		16	B	9.7	B
	ulphide	mg/L	-	-	-		-		-				-		-	
	DS	mg/L	500	500	140		140		170				62		70	
	SS	mg/L	-	-	-		-		-				-		-	
Metals	luminium	mg/L	-	-	0.	J	0.	J	0.	J	0.		-		-	
	ntimony	mg/L	0.001	-	0.	U	0.	U	0.	U	0.	U	-		-	
	senic	ug/L	10	-	4	U	4	U	7	J	4	U	-		-	
	arium	ug/L	700	-	34		32	B	41				-		-	
	eryllium	mg/L	0.004	-	0.	U	0.	U	0.	U	0.	U	-		-	
	oron	ug/L	700	-	-		-		-				-		-	
	admium	ug/L	2	-	0.	U	0.	U	0.	U	0.	U	-		-	
	alcium	mg/L	-	-	14		15		20				6.4		5.8	
	hromium (III+VI)	ug/L	10	10	19		26		29				8	J	8	J
	exavalent Chromium (VI)	ug/L	-	-	-		-		-				8	J	7.6	B
	obalt	mg/L	0.001	0.001	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	opper	mg/L	1	-	0.	J	0.	U	0.	U	0.	U	-		-	
	on	ug/L	300	578	22	U	35	J	70		680	J	22	U	22	U
	ead	µg/L	15	-	2	U	2	U	2	U	2.6	U	-		-	
	ithium	µg/L	-	-	-		-		-				-		-	
	agnesium	mg/L	-	-	4		4		5		2		1		1.5	
	Manganese	ug/L	50	70	7	J	4	J	4		22	B	1.4	J	1.1	J
	ercury	ug/L	1	-	0.	U	0.	U	0.	U	0.	U	-		-	
	olybdenum	ug/L	-	-	-		-		-				-		-	
	ickel	ug/L	100	-	1.		2	J	1	U	1	U	-		-	
	otassium	mg/L	-	-	3		3		3		3	B	2	J	2.8	J
	elenium	ug/L	20	-	4	U	5		4	U	4	U	-		-	
	ilver	ug/L	20	-	0.	U	0.	U	0.	U	0.93	U	-		-	
	odium	mg/L	-	-	15		15		14		11		6		6	
	trontium	ug/L	-	-	-		-		-				-		-	
	hallium	mg/L	0.0002	-	0.	U	0.	U	0.	J	0.	U	-		-	
	anadium	mg/L	0.0003	0.0003	0.	U	0.	U	0.	U	0.	J	0.	U	0.0011	U
	nc	mg/L	1	-	0.0088	J	0.0076	J	0.0075	J	0.0077	J	-		-	

Notes:

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11. TDS indicates total dissolved solids.
12. TSS indicates total suspended solids.
13. PAH indicates polyaromatic hydrocarbon.
14. ND indicates all of the input parameters in the calculated parameter equation were non-detect.
15. Groundwater Final Remediation Goals reference Geosyntec's 2016 Remedial Investigation Report.
16. NCDENRs 2L and IMAC standards from April 1, 2013.

Table 1
Groundwater Analytical Results
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Method	Analyte	Unit	2Ls and IMACs	Final Remediation Goals for Groundwater	PZ/M-4 continued					
					11/14/2019		12/2020		12/13/2021	
Dioxins and Furans	1,2,3,4,6,7,8-Heptachlorooxanthrene (HpCDD)	ng/L	-	-	-		-		-	
	2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	-		-		-	
	2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	-		-		-	
	2,3,4,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	-		-		-	
	2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	-		-		-	
	2,3,6,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	-		-		-	
	2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	-		-		-	
	2,3,7,8,9-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	-		-		-	
	2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	-		-		-	
	3,7,8-Tetrachlorooxanthrene (TCDD)	ng/L	0.0002	-	-		-		-	
	2,3,7,8-Pentachlorooxanthrene (PeCDD)	ng/L	-	-	-		-		-	
	2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	-		-		-	
	3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	-		-		-	
	3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	-		-		-	
	3,7,8-Tetrachlorodibenzofuran (TCDF)	ng/L	-	-	-		-		-	
	2,3,4,6,7,8,9-Octachlorooxanthrene (OCDD)	ng/L	-	-	-		-		-	
	2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ng/L	-	-	-		-		-	
	alculated Dioxin/Furan TEQ	ng/L	0.0002	0.0002	-		-		-	
	alculated Hexachlorodibenzo-p-dioxin, Mixture	ng/L	-	-	-		-		-	
SVOCs	Methylnaphthalene	µg/L	1	-	-		-		-	
	methylnaphthalene	µg/L	30	-	-		-		-	
	cenaphthene	µg/L	80	-	-		-		-	
	cenaphthylene	µg/L	200	-	-		-		-	
	nthracene	mg/L	2	-	-		-		-	
	enz(a)anthracene	µg/L	0.05	-	-		-		-	
	enzo(a) pyrene	µg/L	0.005	0.005	-		-		-	
	enzo(b)fluoranthene	µg/L	0.05	-	-		-		-	
	enzo(g,h,i)perylene	µg/L	200	-	-		-		-	
	enzo(k)fluoranthene	µg/L	0.5	-	-		-		-	
	hrysene	µg/L	5	-	-		-		-	
	ibenz(a,h)anthracene	µg/L	0.005	0.005	-		-		-	
	luoranthene	µg/L	300	-	-		-		-	
	luorene	µg/L	300	-	-		-		-	
	ndeno(1,2,3-c,d)pyrene	µg/L	0.05	0.05	-		-		-	
	aphthalene	µg/L	6	-	-		-		-	
	henanthrene	µg/L	200	-	-		-		-	
	yrene	µg/L	200	-	-		-		-	
	AH TEQ	µg/L	0.005	0.005	-		-		-	
General Chemistry	romide	mg/L	-	-	0.23	U	1.2	U	0.23	U
	icarbonate as CaCO3	mg/L	-	-	-		-		-	
	otal Inorganic Carbon	mg/L	-	-	6.7		7.7	J	5	
	issolved Organic Carbon	mg/L	-	-	0.35	U	0.35	U	0.	J
	hloride	mg/L	250	-	1.9 J	J	9.9	J	2.4	J
	luoride	mg/L	2	-	0.17	U	0.83	U	0.	J^1
	itrate	mg/L	10	-	0.88		0.74	J	0.	
	itrite	mg/L	1	-	0.049	U	-		0.049	U
	rthophosphate	mg/L	-	-	0.47	U	-		0.47	U
	ulfate	mg/L	250	250	8.9		73		10	
	ulphide	mg/L	-	-	-		-		-	
	DS	mg/L	500	500	59		64		62	
	SS	mg/L	-	-	-		-		-	
Metals	luminium	mg/L	-	-	-		-		-	
	ntimony	mg/L	0.001	-	-		-		-	
	senic	ug/L	10	-	-		4.4	U	4.4	U
	arium	ug/L	700	-	-		-		-	
	eryllium	mg/L	0.004	-	-		-		-	
	oron	ug/L	700	-	-		11	J	13	J
	admium	ug/L	2	-	-		-		-	
	alcium	mg/L	-	-	4.9		5.3		5	
	hromium (III+VI)	ug/L	10	10	10	U	3.1	J	3	J
	exavalent Chromium (VI)	ug/L	-	-	4.7		3.2	J	2.6	
	obalt	mg/L	0.001	0.001	0.0012	U	0.	U	0.0012	U
	opper	mg/L	1	-	-		-		-	
	on	ug/L	300	578	350		22	U	520	
	ead	µg/L	15	-	-		-		-	
	ithium	µg/L	-	-	-		9.1	U	9.1	U
	agnesium	mg/L	-	-	1.5		1.4		1.4	
	Manganese	ug/L	50	70	14		1.9	U	16	
	ercury	ug/L	1	-	-		-		-	
	olybdenum	ug/L	-	-	-		1	U	1	U
	ickel	ug/L	100	-	-		-		-	
	otassium	mg/L	-	-	3	B	2.6	J	2.7	J
	elenium	ug/L	20	-	-		-		-	
	ilver	ug/L	20	-	-		-		-	
	odium	mg/L	-	-	5.1		4.9		5	
	trontium	ug/L	-	-	-		79		80	^6+
	hallium	mg/L	0.0002	-	-		0.	U	0.0049	U
	anadium	mg/L	0.0003	0.0003	0.0011	U	0.	U	0.0012	J
	nc	mg/L	1	-	-		-		-	

Notes:

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13. PAH indicates polyaromatic hydrocarbon.
14. ND indicates all of the input parameters in the calculated parameter equation were non-detect.
15. Groundwater Final Remediation Goals reference Geosyntec's 2016 Remedial Investigation Report.
16. NCDENRs 2L and IMAC standards from April 1, 2013.

Table 1
Groundwater Analytical Results
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Method	Analyte	Unit	2Ls and IMACs	Final Remediation Goals for Groundwater	MW-5											
					9/2014		4/2015		11/2015		5/2016		5/5/D)		6/2018	
Dioxins and Furans	1,2,3,4,6,7,8-Heptachlorooxanthrene (HpCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	J	0.	U	0.	U	0.	U	0.	U
	2,3,6,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,7,8,9-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	3,7,8-Tetrachlorooxanthrene (TCDD)	ng/L	0.0002	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,7,8-Pentachlorooxanthrene (PeCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	3,7,8-Tetrachlorodibenzofuran (TCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	2,3,4,6,7,8,9-Octachlorooxanthrene (OCDD)	ng/L	-	-	0.	U	0.	U	0.	U	0.0015	U	0.00093	U	0.00017	U
	2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ng/L	-	-	0.	U	0.	U	0.	U	0.00076	U	0.0011	U	0.0012	U
	alculated Dioxin/Furan TEQ	ng/L	0.0002	0.0002	0.		0.		ND				ND		ND	
	alculated Hexachlorodibenzo-p-dioxin, Mixture	ng/L	-	-	0.		ND		ND				ND		ND	
SVOCs	Methylnaphthalene	µg/L	1	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	methylnaphthalene	µg/L	30	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	cenaphthene	µg/L	80	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	cenaphthylene	µg/L	200	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	nthracene	mg/L	2	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	enz(a)anthracene	µg/L	0.05	-	0.	U	0.	U	0.	J	0.	U	0.	U	0.	J,U
	enzo(a) pyrene	µg/L	0.005	0.005	0.	U	0.	U	0.	J	0.	U	0.	U	0.	U
	enzo(b)fluoranthene	µg/L	0.05	-	0.	U	0.	U	0.	J	0.	U	0.	U	0.	U
	enzo(g,h,i)perylene	µg/L	200	-	0.	U	0.	U	0.	J	0.	U	0.	U	0.	U
	enzo(k)fluoranthene	µg/L	0.5	-	0.	U	0.	U	0.	J	0.	U	0.	U	0.	U
	hrysene	µg/L	5	-	0.	U	0.	U	0.	J	0.	U	0.	U	0.	U
	ibenz(a,h)anthracene	µg/L	0.005	0.005	0.	U	0.	U	0.	J	0.	U	0.	U	0.	U
	luoranthene	µg/L	300	-	0.	U	0.	U	0.	U	0.	U	0.	U	0	U
	luorene	µg/L	300	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	ndeno(1,2,3-c,d)pyrene	µg/L	0.05	0.05	0.	U	0.	U	0.	J	0.	U	0.	U	0.	U
	aphthalene	µg/L	6	-	0.	U	0.	U	0.	U	0.	U	0.	U	0.	J
	henanthrene	µg/L	200	-	0.	U	0.	U	0.	U	0.0095	U	0.0094	U	0.0097	U
	yrene	µg/L	200	-	0.	U	0.	U	0.	J	0.0078	U	0.0078	U	0.008	U
	AH TEQ	µg/L	0.005	0.005	ND		ND		0.		ND		ND		ND	
General Chemistry	romide	mg/L	-	-	-		-		-				-		0.14	J
	icarbonate as CaCO3	mg/L	-	-	-		-		-				-		-	
	otal Inorganic Carbon	mg/L	-	-	-		-		-				-		0.71	J
	issolved Organic Carbon	mg/L	-	-	-		-		-				-		0.77	J
	hloride	mg/L	250	-	-		-		-				-		20	
	luoride	mg/L	2	-	-		-		-				-		0.08	J
	itrate	mg/L	10	-	-		-		-				-		1.1	
	itrite	mg/L	1	-	-		-		-				-		049	U
	rthophosphate	mg/L	-	-	-		-		-				-		0.26	J
	ulfate	mg/L	250	250	170		200		200		210	B	210	B	210	
	ulphide	mg/L	-	-	-		-		-				-		-	
	DS	mg/L	500	500	420		390		410				400			
	SS	mg/L	-	-	-		-		-				-		-	
Metals	luminium	mg/L	-	-	0.	U	0.	J	0.		0.	U	0.	U	-	
	ntimony	mg/L	0.001	-	0.	U	0.	U	0.	U	0.	U	0.0031	U	-	
	senic	ug/L	10	-	4	U	4	U	5	J	5.	J	4	J,U	-	
	arium	ug/L	700	-			23	B	21				21		-	
	eryllium	mg/L	0.004	-	0.	U	0.	U	0.	U	0.	U	0.	U	-	
	oron	ug/L	700	-			-		-				-		-	
	admium	ug/L	2	-	0.	U	0.	U	0.	U	0.	U	0.	U	-	
	alcium	mg/L	-	-			37		40				44		43	
	hromium (III+VI)	ug/L	10	10	0.	U	0.	J	4	J	0.	J	0.	J	0.	U
	exavalent Chromium (VI)	ug/L	-	-	-		-		-				-		-	
	obalt	mg/L	0.001	0.001	0.	J	0.	J	0.	J	0.	J	0.		0.	J
	opper	mg/L	1	-	0.	J	0.	U	0.	U	0.	U	0.	U	-	
	on	ug/L	300	578		U		J	67		22	U	100	U	110	
	ead	µg/L	15	-	2	U	2	U	2	U	2	U	2.6	U	-	
	ithium	µg/L	-	-	-		-		-				-			
	agnesium	mg/L	-	-	14		13		13				14		14	
	Manganese	ug/L	50	70	28		38		22		17B	B	16	B	75	
	ercury	ug/L	1	-	0.	U	0.	U	0.	U	0.	U	0.	U	-	
	olybdenum	ug/L	-	-			-		-				-		-	
	ickel	ug/L	100	-	5	J	7	J	3	J	5.	J	5	U	-	
	otassium	mg/L	-	-	2	J	2	J	2	J	3B	B	3		2	J
	elenium	ug/L	20	-	4	U	4	U	11		4	U	4	U	-	
	ilver	ug/L	20	-	0.	U	0.	U	0.	U	0.93	U	0.93	U	-	
	odium	mg/L	-	-	61		61		63		63B	B	64		65	
	trontium	ug/L	-	-	-		-		-				-		-	
	hallium	mg/L	0.0002	-	0.	U	0.	U	0.	J	0.	J	0.	UJ	-	
	anadium	mg/L	0.0003	0.0003	0.	U	0.	U	0.	U	0.	U	0.	U	0.	U
	nc	mg/L	1	-	0.0045	U	0.0046	J	0.0045	U	0.0045	U	0.0045	U	-	

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Table 1
Groundwater Analytical Results
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Method	Analyte	Unit	2Ls and IMACs	Final Remediation Goals for Groundwater	M-5 continued											
					6/14/Dup)		12/13/2018		12/13/D)		11/2019		12/17/2020		12/13/2021	
Dioxins and Furans	1,2,3,4,6,7,8-Heptachlorooxanthrene (HpCDD)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	2,3,4,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	J,U	0.	J	-		-		-	
	2,3,6,7,8-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	2,3,7,8,9-Hexachlorooxanthrene (HxCDD)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	3,7,8-Tetrachlorooxanthrene (TCDD)	ng/L	0.0002	-	0.	U	0.	U	0.	U	-		-		-	
	2,3,7,8-Pentachlorooxanthrene (PeCDD)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	3,7,8-Tetrachlorodibenzofuran (TCDF)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	2,3,4,6,7,8,9-Octachlorooxanthrene (OCDD)	ng/L	-	-	0.	U	0.11	U	0.	U	-		-		-	
	2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ng/L	-	-	0.	U	0.	U	0.	U	-		-		-	
	alculated Dioxin/Furan TEQ	ng/L	0.0002	0.0002	ND		ND		0.		-		-		-	
	alculated Hexachlorodibenzo-p-dioxin, Mixture	ng/L	-	-	ND		ND		ND		-		-		-	
SVOCs	Methylnaphthalene	µg/L	1	-	0.	U	0.	U	0.	U	-		-		-	
	methylnaphthalene	µg/L	30	-	0.	U	0.	J	0.	J,U	-		-		-	
	cenaphthene	µg/L	80	-	0.	U	0.012	U	0.	U	-		-		-	
	cenaphthylene	µg/L	200	-	0.01	U	0.011	U	0.	U	-		-		-	
	nthracene	mg/L	2	-	0.	U	0.	U	0.	U	-		-		-	
	enz(a)anthracene	µg/L	0.05	-	0.	J	0.11	U	0.	U	-		-		-	
	enzo(a) pyrene	µg/L	0.005	0.005	0.	U	0.	U	0.	U	-		-		-	
	enzo(b)fluoranthene	µg/L	0.05	-	0.	U	0.11	U	0.	U	-		-		-	
	enzo(g,h,i)perylene	µg/L	200	-	0.	U	0.	U	0.	U	-		-		-	
	enzo(k)fluoranthene	µg/L	0.5	-	0.	U	0.	U	0.	U	-		-		-	
	hrysene	µg/L	5	-	0.	U	0.11	U	0.	J	-		-		-	
	ibenz(a,h)anthracene	µg/L	0.005	0.005	0.	U	0.	U	0.	U	-		-		-	
	luoranthene	µg/L	300	-	0.1	U	0.11	U	0.	U	-		-		-	
	luorene	µg/L	300	-	0.	U	0.02	U	0.	U	-		-		-	
	ndeno(1,2,3-c,d)pyrene	µg/L	0.05	0.05	0.	U	0.016	U	0.	U	-		-		-	
	aphthalene	µg/L	6	-	0.	J	0.	J	0.	J,U	-		-		-	
	henanthrene	µg/L	200	-	0.01	U	0.01	U	0.	U	-		-		-	
	yrene	µg/L	200	-	0.	U	0.	U	0.	U	-		-		-	
	AH TEQ	µg/L	0.005	0.005	0.43		ND		0.		-		-		-	
General Chemistry	romide	mg/L	-	-	0.17	J	0.13	J	0.	J	0.23		0.23	U	0.23	U
	icarbonate as CaCO3	mg/L	-	-	-		-		-		-		-		-	
	otal Inorganic Carbon	mg/L	-	-	0.71	J	31		29		8		19	J	18	
	issolved Organic Carbon	mg/L	-	-	0.75	J	1		1	U	1		0.91	J	1.1	
	hloride	mg/L	250	-	20		19	B	19	J	20		25		30	
	luoride	mg/L	2	-	0.	J	0.12		0.	U	0.		0.17	U	0.17	U^1+
	itrate	mg/L	10	-	1.2		2.5	J	1.1	J	1.	J	0.92	J	1.1	
	itrite	mg/L	1	-	0.		0.049		0.	1F2,	0.	R	-		0.049	U
	rthophosphate	mg/L	-	-	0.19	J	0.98	J	0.19	J,U	0.47	R	-		0.47	U
	ulfate	mg/L	250	250	210		220		210		230		210	J	250	
	ulphide	mg/L	-	-	-		-		-		-		-		-	
	DS	mg/L	500	500	440		420		430		500		400		460	
	SS	mg/L	-	-	-		-		-		-		-		-	
Metals	luminium	mg/L	-	-	-		-		-		-		-		-	
	ntimony	mg/L	0.001	-	-		-		-		-		-		-	
	senic	ug/L	10	-	-		-		-		-		4.4	U	4.4	U
	arium	ug/L	700	-	-		-		-		-		-		-	
	eryllium	mg/L	0.004	-	-		-		-		-		-		-	
	oron	ug/L	700	-	-		-		-		-		32	J	35	J
	admium	ug/L	2	-	-		-		-		-		-		-	
	alcium	mg/L	-	-	42		41		43		41		38		46	
	hromium (III+VI)	ug/L	10	10	0.66	U	0.77	J	0.	J	10	U	0.68	J	0.66	U
	exavalent Chromium (VI)	ug/L	-	-	-		-		-		-		-		-	
	obalt	mg/L	0.001	0.001	0.	J	0.	J	0.	J	0.	J	0.002	J	0.0024	J
	opper	mg/L	1	-	-		-		-		-		-		-	
	on	ug/L	300	578	110		240	J	350	J	840		550		1,200	
	ead	µg/L	15	-	-		-		-		-		-		-	
	ithium	µg/L	-	-	-		-		-		-		9.1	U	0.0091	U
	agnesium	mg/L	-	-	14	B	13		13		14		12		14	
	Manganese	ug/L	50	70	79		73		90		480		78		76	
	ercury	ug/L	1	-	-		-		-		-		-		-	
	olybdenum	ug/L	-	-	-		-		-		-		1	U	1.0	U
	ickel	ug/L	100	-	-		-		-		-		-		-	
	otassium	mg/L	-	-	2.7	J	2.7	J	2.8	J	3.6	B	2.9	J	2.8	J
	elenium	ug/L	20	-	-		-		-		-		-		-	
	ilver	ug/L	20	-	-		-		-		-		-		-	
	odium	mg/L	-	-	66	B	68		71		77		65		68	
	trontium	ug/L	-	-	-		-		-		-		360		440	^6+
	hallium	mg/L	0.0002	-	-		-		-		-		0.0049	U	0.0049	U
	anadium	mg/L	0.0003	0.0003	0.	U	0.		0.	U	0.0011	U	0.0011	U	0.0011	U
	nc	mg/L	1	-	-		-		-		-		-		-	

Notes:

1. ng/L indicates nanogram per liter.
2. mg/L indicates milligram per liter.
3. µg/L indicates microgram per liter.
4. TEQ indicates total equivalents.
5. U indicates result was below the method detection limit.
6. J indicates results is an estimate.
7. UJ indicates the analyte was not detected above the method detection limit.
   However, the method detection limit is an approximation.
8. B is a laboratory flag indicating compound was detected in both the method blank and sample
9. R indicates the results are rejected due to deficiencies in the ability to analyze the
   sample and meet quality control criteria. The presence of the analyte cannot be verified.
10. F1 & F2 are data qualifiers used by the laboratory.
11. TDS indicates total dissolved solids.
12. TSS indicates total suspended solids.
13. PAH indicates polyaromatic hydrocarbon.
14. ND indicates all of the input parameters in the calculated parameter equation were non-detect.
15. Groundwater Final Remediation Goals reference Geosyntec's 2016 Remedial Investigation Report.
16. NCDENRs 2L and IMAC standards from April 1, 2013.

Table 2
Groundwater and Surface Water Elevations
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Groundwaer			
Locaton	**TOC Elevaton (ft NAVD8)**	**DTW (ft BTO) [5]**	**Groundwater Elevation (ft NAVD88)[5]**
MW	477.05	31.07	98
MW	447.53	16.48	05
MW	447.15	16.84	31
MW-4PZ-4	458.42	27.32	1
MW	426.07	7.65	42

Surface Wter		
Locaton	**Approx. Benchma Elevation (ft NAVD8)**	**Approx. Surface Wter Elevation (ft NAVD8) [5]**
SWP	424.81	423.00
SW-N	419.45	416.89

Notes:
1. ft indicates feet.
2. BGS indicates below ground surface.
3. NAVD88 indicates North America Vertical Datum 1988.
4. BTOC indicates below top of casing.
5. Measurements were collected on 12/17/2021.

Table 3
Surface Water Analytical Results
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Method	Analyte	Unit	Humn Health Surfce Water Bchmark	Ecological Risk Surface Water Benchmark	SP		SW-DWN		SP		SW-DOWN		SW-UP	
					6/14/2018		6/14/2018		12/2018		12/12/2018		11/13/2019	
Dioxins and Furans	1,2,3,4,6,7,8-Heptachlorooxanthrene (HpCDD)	ng/L		-	0.	J	0.		0.	J	0.	U	-	-
	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ng/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ng/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	1,2,3,4,7,8-Hexachlorooxanthrene (HxCDD)	ng/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	1,2,3,6,7,8-Hexachlorooxanthrene (HxCDD)	ng/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L		-	0.	U	0.	J	0.	U	0.	U	-	-
	1,2,3,7,8,9-Hexachlorooxanthrene (HxCDD)	ng/L		-	0.	U	0.	J	0.	U	0.	U	-	-
	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ng/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	2,3,7,8-Tetrachlorooxanthrene (TCDD)	ng/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	1,2,3,7,8-Pentachlorooxanthrene (PeCDD)	ng/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ng/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	1,2,3,4,6,7,8,9-Octachlorooxanthrene (OCDD)	ng/L		-	0.	U	0.37	B	0.	U	0.	U	-	-
	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ng/L		-	0.	U	0.	U	0.	U	0.11	U	-	-
	Calculated Dioxin/Furan TEQ	ng/L	000005	0.01	0.		0.		0.		ND		-	-
	Calculated Hexachlorodibenzo-p-dioxin, Mixture	ng/L		-	ND		0.		ND		ND			-
SVOCs	1-Methylnaphthalene	µg/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	2-methylnaphthalene	µg/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	Acenaphthene	µg/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	Acenaphthylene	µg/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	Anthracene	mg/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	Benz(a)anthracene	µg/L		-	0.	J	0.	J	0.	J	0.	J	-	-
	Benzo(a) pyrene	µg/L	0311	0.014	0.	J	0.	J	0.	J	0.	U	-	-
	Benzo(b)fluoranthene	µg/L		-	0.	J	0.	J	0.	J	0.	U	-	-
	Benzo(g,h,i)perylene	µg/L		-	0.	J	0.	U	0.	U	0.	U	-	-
	Benzo(k)fluoranthene	µg/L		-	0.	J	0.	J	0.	J	0.	U	-	-
	Chrysene	µg/L		-	0.	J	0.	J	0.	J	0.	J	-	-
	Dibenz(a,h)anthracene	µg/L	0311	-	0.	U	0.	U	0.	U	0.	U	-	-
	Fluoranthene	µg/L		-	0.	U	0.	U	0.	J	0.	J	-	-
	Fluorene	µg/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	Indeno(1,2,3-c,d)pyrene	µg/L	0311	4.31	0.	U	0.	U	0.	U	0.	U	-	-
	Naphthalene	µg/L		-	0.	U	0.	U	0.	J	0.	J	-	-
	Phenanthrene	µg/L		-	0.	J	0.	J	0.	J	0.	U	-	-
	Pyrene	µg/L		-	0.	J	0.	J	0.	J	0.0091	J	-	-
	PAH TEQ	µg/L	0311	0.014	0.		0.		0.		0.		-	-
General Chemistry	Bromide	mg/L		-	0.	U	0.11	U	0.	U	0.11	U	-	-
	Total Inorganic Carbon	mg/L		-	1.		1.		-				-	-
	Dissolved Organic Carbon	mg/L		-	1.		1.		-				-	-
	Chloride	mg/L		-			14		190				-	-
	Fluoride	mg/L		-	0.	J	0.	J	0.	U	0.06	U	-	-
	Nitrate	mg/L		-	1.		1.		1.		1.		-	-
	Nitrite	mg/L		-	0.	U	0.	U	0.	U	0.	U	-	-
	Orthophosphate	mg/L		-	0.	U	0.19	U	0.	U	0.19	U	-	-
	Sulfate	mg/L		-			36				35		-	-
	TDS	mg/L		-	160		170		4.	U	260		150	
Metals	Arsenic	ug/L		50	-		-		-				-	
	Boron	ug/L		-	-		-		-				-	
	Calcium	mg/L		116			21				27		17	
	Chromium (III+VI)	ug/L		50	1	J	0.72	J	10	U		U	10	U
	Cobalt	mg/L	004	0.003	0.	U	0.	U	0.	U	0.0012	U	0.0012	U
	Iron	ug/L	000	1000	650		200		370				110	
	Lithium	µg/L		-	-		-		-		-			
	Magnesium	mg/L		82	5.	B	6	B	6		6.		5.4	
	Manganese	ug/L		80			17			B	20	B	16	
	Molybdenum	ug/L		-	-		-		-				-	
	Potassium	mg/L		53	3.		3		4.		4		5	B
	Sodium	mg/L		680		B	16	B	120				14	
	Strontium	ug/L		-	-		-		-				-	
	Thallium	mg/L	00047	0.004	-		-		-		-			
	Vanadium	mg/L	0.0172	0.019	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U

Notes:
1. ng/L indicates nanogram per liter.
2. mg/L indicates milligram per liter.
3. µg/L indicates microgram per liter.
4. TEQ indicates total equivalents.
5. U indicates result was below the method detection limit.
6. J indicates results is an estimate.
7. B is a laboratory flag indicating compound was detected in both the method blank and sample
8. TDS indicates total dissolved solids.
9. PAH indicates polyaromatic hydrocarbon.
10. ND indicates all of the input parameters in the calculated parameter equation were non-detect.
11. Benchmarks were established in the *Sediment / Surface Water Screening Report* (Geosyntec, October 2015).
12. Highlighted concentrations are exceedences of a Benchmark.

Table 3
Surface Water Analytical Results
UNC-CH Cogeneration Facility - Chapel Hill, North Carolina

Method	Analyte	Unit	Han Health Suace Water Bchmark	Ecological Risk Surface Water Benchmark	SOWN		SP		SW-DWN		SW-UP		SW-DOWN	
					11/13/2019		12/2020		12/17/		12/13/2021		12/13/2021	
Dioxins and Furans	1,2,3,4,6,7,8-Heptachlorooxanthrene (HpCDD)	ng/L		-	-		-	-	-				-	
	2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ng/L		-	-		-	-	-				-	
	2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ng/L		-	-		-	-	-				-	
	2,3,4,7,8-Hexachlorooxanthrene (HxCDD)	ng/L		-	-		-	-	-				-	
	2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L		-	-		-	-	-				-	
	2,3,6,7,8-Hexachlorooxanthrene (HxCDD)	ng/L		-	-		-	-	-				-	
	2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L		-	-		-	-	-				-	
	2,3,7,8,9-Hexachlorooxanthrene (HxCDD)	ng/L		-	-		-	-	-				-	
	2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ng/L		-	-		-	-	-				-	
	3,7,8-Tetrachlorooxanthrene (TCDD)	ng/L		-	-		-	-	-				-	
	2,3,7,8-Pentachlorooxanthrene (PeCDD)	ng/L		-	-		-	-	-				-	
	2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L		-	-		-	-	-				-	
	3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ng/L		-	-		-	-	-				-	
	3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ng/L		-	-		-	-	-				-	
	3,7,8-Tetrachlorodibenzofuran (TCDF)	ng/L		-	-		-	-	-				-	
	2,3,4,6,7,8,9-Octachlorooxanthrene (OCDD)	ng/L		-	-		-	-	-				-	
	2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ng/L		-	-		-	-	-				-	
	lculated Dioxin/Furan TEQ	ng/L	000005	0.01	-		-	-	-				-	
	lculated Hexachlorodibenzo-p-dioxin, Mixture	ng/L		-	-		-	-	-				-	
SVOCs	ethylnaphthalene	µg/L		-	-		-	-	-				-	
	ethylnaphthalene	µg/L		-	-		-	-	-				-	
	cenaphthene	µg/L		-	-		-	-	-				-	
	cenaphthylene	µg/L		-	-		-	-	-				-	
	nthracene	mg/L		-	-		-	-	-				-	
	nz(a)anthracene	µg/L		-	-		-	-	-				-	
	nzo(a) pyrene	µg/L	0311	0.014	-		-	-	-				-	
	nzo(b)fluoranthene	µg/L		-	-		-	-	-				-	
	nzo(g,h,i)perylene	µg/L		-	-		-	-	-				-	
	nzo(k)fluoranthene	µg/L		-	-		-	-	-				-	
	sene	µg/L		-	-		-	-	-				-	
	ibenz(a,h)anthracene	µg/L	0311	-	-		-	-	-				-	
	luoranthene	µg/L		-	-		-	-	-				-	
	luorene	µg/L		-	-		-	-	-				-	
	ndeno(1,2,3-c,d)pyrene	µg/L	0.0311	4.31	-		-	-	-				-	
	aphthalene	µg/L		-	-		-	-	-				-	
	henanthrene	µg/L		-	-		-	-	-				-	
	yrene	µg/L		-	-		-	-	-				-	
	AH TEQ	µg/L	0311	0.014	-		-	-	-				-	
General Chemistry	mide	mg/L		-	-		-	-	-		23	U	0.23	U
	otal Inorganic Carbon	mg/L		-	-		-	-	-				-	
	issolved Organic Carbon	mg/L		-	-		-	-	-				-	
	oride	mg/L		-	-		-	-	-				17	
	luoride	mg/L		-	-		-	-	-		17	U^1+	0.17	U^1+
	itrate	mg/L		-	-		-	-	-		3		1.2	
	itrite	mg/L		-	-		-	-	-		0.	U	0.049	U
	rthophosphate	mg/L		-	-		-	-	-		47	U	0.47	U
	ulfate	mg/L		-	-		38		56		38		42	
	S	mg/L		-	170		150		160				170	
Metals	senic	ug/L		50	-		4.	U	4.	U	4.4	U	4.	U
	oron	ug/L		-	-		18	J	17		11	J	12	J
	lcium	mg/L		116	19		20		22				20	
	mium (III+VI)	ug/L		50	10	U	0.	J	0.	U	0.66	U	0.	U
	balt	mg/L	004	0.003	0.0012	U	0.	U	0.	U	0.0012	U	0.0012	U
	on	ug/L	000	1000	58	J	270		210				130	
	ithium	µg/L		-	-		9.	U	9.	U	9.1	U	9.1	U
	gnesium	mg/L		82	6		5.		5.		5.6		6.0	
	anganese	ug/L		80	7.1	J	24		79				14	
	olybdenum	ug/L		-	-		1	U	1		1	U	1	U
	otassium	mg/L		53	3.5	B	3.		3.		3		3	
	odium	mg/L		680	15		13		16				15	
	trontium	ug/L		-	-		190		200			^6+	180	^6+
	hallium	mg/L	00047	0.004	-		0.	U	0.	U	0.	U	0.	U
	anadium	mg/L	0.0172	0.019	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U

Notes:
1. ng/L indicates nanogram per liter.
2. mg/L indicates milligram per liter.
3. µg/L indicates microgram per liter.
4. TEQ indicates total equivalents.
5. U indicates result was below the method detection limit.
6. J indicates results is an estimate.
7. B is a laboratory flag indicating compound was detected in both the method blank and sample
8. TDS indicates total dissolved solids.
9. PAH indicates polyaromatic hydrocarbon.
10. ND indicates all of the input parameters in the calculated parameter equation were non-detect.
11. Benchmarks were established in the *Sediment / Surface Water Screening Report* (Geosyntec, October 2015).
12. Highlighted concentrations are exceedences of a Benchmark.

Figures

601 W. Cameron Ave.

Cogeneration Facility Administration
(Gore Building)

575 W. Cameron Ave.

MW-1
445.98

445

440

435

430

MW-4
431.10

MW-3
430.31

MW-2
431.05

425

420

MW-5
418.42

SW-UP
423.00

SW-DOWN
416.89

McCauley Street

N

75 37.5 0 75 Feet

- Site Boundary
- Orange Parcels
- Flyash Basin
- Silt Basin
- Warehouse
- Piedmont Geologic Initial Excavation
- Groundwater Flow Direction
- Surface Water Monitoring Location
- Groundwater Monitoring Well
- GWContours202112
- Potentiometric Contours
- Drainage Feature
- Culverted Drainage Feature

Notes:
1. 2011 World Imagery - Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community.
2. Surface water elevations are approximate.
3. Elevation datum is NAVD88.

Potentiometric Surface Map
December 17, 2021

UNC-CH Cogeneration Facility
575 W. Cameron Ave., Chapel Hill, NC

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
NC License No.: C-3500 and C-295

Raleigh, NC | January 2022

Figure 1

N:\U\UNC Chapel Hill\GW6666 UNC Cogen O and M starting in 2018\GIS\MXD\Potentiometric map 12172021.mxd; EHoward; 1/27/2022

APPENDIX A

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-209718-1
Client Project/Site: UNC Cogen

For:
Geosyntec Consultants, Inc.
2501 Blue Ridge Rd.
Suite 430
Raleigh, North Carolina 27607

Attn: Mr. Michael Schott

Authorized for release by:
12/28/2021 4:33:40 AM

Patrick McEntee, Client Service Manager
(303)736-0107
Patrick.McEntee@Eurofinset.com

Table of Contents

Job ID: 500-209718-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

CASE NARRATIVE

Client: Geosyntec Consultants, Inc.

Project: UNC Cogen

Report Number: 500-209718-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The sample was received on 12/14/2021 10:30 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.9º C.

HEXAVALENT CHROMIUM

Sample MW-4-20211213 (500-209718-1) was analyzed for hexavalent chromium in accordance with EPA 218.6. The samples were analyzed on 12/17/2021.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 500-209718-1

Client Sample ID: MW-4-20211213

Lab Sample ID: 500-209718-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium, hexavalent	2.6		0.30	0.23	ug/L	1		218.6	Dissolved

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 500-209718-1

Method	Method Description	Protocol	Laboratory
218.6	Chromium, Hexavalent (Ion Chromatography)	EPA	TAL CHI
Filtration	Sample Filtration	None	TAL CHI

Protocol References:

EPA = US Environmental Protection Agency

None = None

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 500-209718-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-209718-1	MW-4-20211213	Water	12/13/21 16:05	12/14/21 10:30

Client Sample Results

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 500-209718-1

Client Sample ID: MW-4-20211213
Date Collected: 12/13/21 16:05
Date Received: 12/14/21 10:30

Lab Sample ID: 500-209718-1
Matrix: Water

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	2.6		0.30	0.23	ug/L			12/17/21 12:56	1

Definitions/Glossary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 500-209718-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 500-209718-1

General Chemistry

Filtration Batch: 634118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-209718-1	MW-4-20211213	Dissolved	Water	Filtration	

Analysis Batch: 634390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-209718-1	MW-4-20211213	Dissolved	Water	218.6	634118
MB 500-634390/3	Method Blank	Total/NA	Water	218.6	
LCS 500-634390/4	Lab Control Sample	Total/NA	Water	218.6	

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 500-209718-1

Method: 218.6 - Chromium, Hexavalent (Ion Chromatography)

Lab Sample ID: MB 500-634390/3
Matrix: Water
Analysis Batch: 634390

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.23	U	0.30	0.23	ug/L			12/17/21 11:26	1

Lab Sample ID: LCS 500-634390/4
Matrix: Water
Analysis Batch: 634390

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	25.0	25.3		ug/L		101	90 - 110

Lab Chronicle

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 500-209718-1

Client Sample ID: MW-4-20211213

Date Collected: 12/13/21 16:05
Date Received: 12/14/21 10:30

Lab Sample ID: 500-209718-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	Filtration			634118	12/14/21 11:37	EAT	TAL CHI
Dissolved	Analysis	218.6		1	634390	12/17/21 12:56	EAT	TAL CHI

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 500-209718-1

Laboratory: Eurofins TestAmerica, Chicago

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2903	04-29-22
Georgia	State	N/A	04-29-22
Georgia (DW)	State	939	04-30-21 *
Hawaii	State	NA	04-29-22
Illinois	NELAP	IL00035	04-29-22
Indiana	State	C-IL-02	04-29-22
Iowa	State	082	05-01-22
Kansas	NELAP	E-10161	10-31-22
Kentucky (UST)	State	AI # 108083	04-29-22
Kentucky (WW)	State	KY90023	12-31-21
Louisiana	NELAP	02046	06-30-22
Mississippi	State	NA	04-30-22
North Carolina (WW/SW)	State	291	12-31-21
North Dakota	State	R-194	04-29-22
Oklahoma	State	8908	08-31-22
South Carolina	State	77001003	04-29-22
USDA	US Federal Programs	P330-18-00018	02-11-24
Wisconsin	State	999580010	08-31-22
Wyoming	State	8TMS-Q	04-30-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: A Vo/A. Haddon Moore	Lab PM: McEntee Patrick J	Carrier Tracking No(s):	COC No: 280-114880-30944 1
Client Contact: Michael Schott	Phone: 919-424-1640	E-Mail: Patrick.McEntee@Eurofinset com	State of Origin:	Page:
Company: Geosyntec Consultants Inc.	PWSID:			Job #: 500-209718
Address: 2501 Blue Ridge Road	Due Date Requested:			
City: Raleigh	TAT Requested (days): standard			
State, Zip: NC 27607	Compliance Project: Δ Yes Δ No			
Phone: 919 424 1824	PO #:			
Email: MSchott@Geosyntec.com	WO #:			
Project Name: UNC cogen	Project #: GN86666			
Site: Chapel Hill	SSOW#:			

Analysis Requested

500-209718 COC

Preservation Codes

A	HCL	M	Hexane
B	NaOH	N	None
C	Zn Acetate	O	AsNaO2
D	Nitric Acid	P	Na2O4S
E	NaHSO4	Q	Na2SO3
F	MeOH	R	Na2S2O3
G	Amchlor	S	H2SO4
H	Ascorbic Acid	T	TSP Dodecahydrate
I	Ice	U	Acetone
J	DI Water	V	MCAA
K	EDTA	W	pH 4-5
L	EDA	Z	other (specify)

Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Hex chromium (218.6)	Total Number of containers	Special Instructions/Note
				Preservation Code						
1	MW-4-20211213	12/13/21	1605	G	Water	N	N	X		
					Water					
					Water					
					Water					
					Water					
					Water					
					Water					
					Water					
					Water					
					Water					
					Water					

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested I II, III IV Other (specify)

Special Instructions/QC Requirements

Empty Kit Relinquished by	Date	Time	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	Ally Haddon Moore	12/13/21 1745	GeoSyntec	FEDEX		
	Relinquished by	Date/Time	Company	Received by: Stephanie Hernandez	Date/Time 12/14/21 1030	Company ETA-CHI
	Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact. Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks. 2.9

ORIGIN ID:MXEA (919) 424-1840
GEOSYNTEC CONSULTANTS
STE 430
2501 BLUE RIDGE RD STE 430
RALEIGH, NC 27607
UNITED STATES US

SHIP DATE: 13DEC21
ACTWGT: 10.35 LB
CAD: 6572628/SSFE2220
DIMS: 11x14x10 IN

BILL THIRD PARTY

TO **ATTN: SAMPLE RECEIVING**
EUROFINS TESTAMERICA
2417 BOND STREET

UNIVERSITY PARK IL 60484
(708) 534-5200 REF:
INV:
PO: DEPT:

FedEx Express

E

TUE - 14 DEC 11:30A
PRIORITY OVERNIGHT

TRK# 0201 **2875 1962 3371**

AHS
60484
IL-US **ORD**

GC JOTA

16qt.

500-209718 Wayb

Login Sample Receipt Checklist

Client: Geosyntec Consultants, Inc.

Job Number: 500-209718-1

Login Number: 209718
List Number: 1
Creator: Hernandez, Stephanie

List Source: Eurofins TestAmerica, Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-156786-1
Client Project/Site: UNC Cogen

For:
Geosyntec Consultants, Inc.
2501 Blue Ridge Rd.
Suite 430
Raleigh, North Carolina 27607

Attn: Mr. Michael Schott

Authorized for release by:
1/6/2022 11:18:42 AM

Patrick McEntee, Client Service Manager
(303)736-0107
Patrick.McEntee@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156786-1

Qualifiers

Metals

Qualifier	Qualifier Description
^6+	Interference Check Standard (ICSA and/or ICSAB) is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 280-156786-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Geosyntec Consultants, Inc.

Project: UNC Cogen

Report Number: 280-156786-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/14/2021 10:40 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.2º C and 4.2º C.

TOTAL METALS (ICP)

Samples MW-2-20211213 (280-156786-1), MW-3-20211213 (280-156786-2), MW-5-20211213 (280-156786-3), SW-DOWN-20211213 (280-156786-4), SW-UP-20211213 (280-156786-5) and MW-4-20211213 (280-156786-6) were analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 12/21/2021 and analyzed on 12/22/2021.

The interference check standard solution (ICSA) associated with batch 280-561487 had results for one or more elements at a level greater than the limit of detection (LOD). The initial ICSA result(s) was 24.9ppb which is greater than the LOD of 0.3ppb for Sr. This element has been shown to be a trace impurity by MS. These results are not indicative of a matrix interference.

The interference check standard solution (ICSA) associated with batch 280-561533 had results for one or more elements at a level greater than the limit of detection (LOD). The initial ICSA result(s) was 24.9ppb which is greater than the LOD of 0.3ppb for Sr.This element has been shown to be a trace impurity by MS. These results are not indicative of a matrix interference.

The interference check standard solution (ICSA) associated with the following samples showed results for strontium (24.9 ppb) at a level greater than 2 times the reporting limit (10 ppb). It is believed that the solution contains trace impurities of this element / these elements and the results are not due to matrix interference. These results are consistent with those found by the manufacturer of the ICSA solution. MW-2-20211213 (280-156786-1), MW-3-20211213 (280-156786-2), MW-5-20211213 (280-156786-3), SW-DOWN-20211213 (280-156786-4), SW-UP-20211213 (280-156786-5), MW-4-20211213 (280-156786-6), (ICSA 280-561533/13), (LCS 280-561285/2-A), (LCSD 280-561285/3-A), (MB 280-561285/1-A).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL DISSOLVED SOLIDS

Samples MW-2-20211213 (280-156786-1), MW-3-20211213 (280-156786-2), MW-5-20211213 (280-156786-3), SW-DOWN-20211213 (280-156786-4), SW-UP-20211213 (280-156786-5) and MW-4-20211213 (280-156786-6) were analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 12/17/2021.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 280-156786-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

ANIONS (28 DAYS)

Samples MW-2-20211213 (280-156786-1), MW-3-20211213 (280-156786-2), MW-5-20211213 (280-156786-3), SW-DOWN-20211213 (280-156786-4), SW-UP-20211213 (280-156786-5) and MW-4-20211213 (280-156786-6) were analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days). The samples were analyzed on 01/05/2022 and 12/15/2021.

Samples MW-3-20211213 (280-156786-2)[5X] and MW-5-20211213 (280-156786-3)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The initial calibration verification (ICV) result for batch 280-560575 was above the upper control limit. Sample results were non-detects, and have been reported as qualified data.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS (48 HOURS)

Samples MW-2-20211213 (280-156786-1), MW-3-20211213 (280-156786-2), MW-5-20211213 (280-156786-3), SW-DOWN-20211213 (280-156786-4), SW-UP-20211213 (280-156786-5) and MW-4-20211213 (280-156786-6) were analyzed for anions (48 hours) in accordance with EPA SW-846 Method 9056A (48 Hours). The samples were analyzed on 12/15/2021.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DISSOLVED ORGANIC CARBON

Samples MW-2-20211213 (280-156786-1), MW-3-20211213 (280-156786-2), MW-5-20211213 (280-156786-3) and MW-4-20211213 (280-156786-6) were analyzed for dissolved organic carbon in accordance with SM20 5310B. The samples were analyzed on 12/30/2021.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL ORGANIC CARBON

Samples MW-2-20211213 (280-156786-1), MW-3-20211213 (280-156786-2), MW-5-20211213 (280-156786-3) and MW-4-20211213 (280-156786-6) were analyzed for total organic carbon in accordance with SM20 5310B. The samples were analyzed on 12/21/2021 and 12/23/2021.

Sample MW-3-20211213 (280-156786-2)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Batch QC Matrix Spike/Matrix Spike Duplicate (MS/MSD) is over calibration range of 40 mg/L with a 2X dilution. The samples were not rerun as the parent sample result was within range with a 2X dilution. MW-3-20211213 (280-156786-2), (280-156786-A-2 MS) and (280-156786-A-2 MSD)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156786-1

Client Sample ID: MW-2-20211213 — Lab Sample ID: 280-156786-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	29000		200	78	ug/L	1		6010C	Total/NA
Cobalt	40		10	1.2	ug/L	1		6010C	Total/NA
Iron	110		100	22	ug/L	1		6010C	Total/NA
Magnesium	8900		200	26	ug/L	1		6010C	Total/NA
Manganese	6600		10	1.9	ug/L	1		6010C	Total/NA
Potassium	3700		3000	240	ug/L	1		6010C	Total/NA
Sodium	38000		1000	370	ug/L	1		6010C	Total/NA
Thallium	5.6	J	15	4.9	ug/L	1		6010C	Total/NA
Molybdenum	2.3	J	20	1.0	ug/L	1		6010C	Total/NA
Strontium	550	^6+	10	0.30	ug/L	1		6010C	Total/NA
Boron	50	J	100	4.4	ug/L	1		6010C	Total/NA
Nitrate as N	0.19	J	0.50	0.090	mg/L	1		9056A	Total/NA
Chloride	18		3.0	1.0	mg/L	1		9056A	Total/NA
Fluoride	0.69		0.50	0.17	mg/L	1		9056A	Total/NA
Sulfate	89		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids	270		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Inorganic Carbon - Quad	26		1.0	0.35	mg/L	1		SM 5310B	Total/NA
Dissolved Organic Carbon - Quad	1.7		1.0	0.35	mg/L	1		SM 5310B	Dissolved

Client Sample ID: MW-3-20211213 — Lab Sample ID: 280-156786-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	91000		200	78	ug/L	1		6010C	Total/NA
Cobalt	51		10	1.2	ug/L	1		6010C	Total/NA
Iron	270		100	22	ug/L	1		6010C	Total/NA
Magnesium	22000		200	26	ug/L	1		6010C	Total/NA
Manganese	5400		10	1.9	ug/L	1		6010C	Total/NA
Potassium	6100		3000	240	ug/L	1		6010C	Total/NA
Sodium	44000		1000	370	ug/L	1		6010C	Total/NA
Vanadium	1.3	J	10	1.1	ug/L	1		6010C	Total/NA
Thallium	5.2	J	15	4.9	ug/L	1		6010C	Total/NA
Strontium	1300	^6+	10	0.30	ug/L	1		6010C	Total/NA
Boron	77	J	100	4.4	ug/L	1		6010C	Total/NA
Chloride	19		3.0	1.0	mg/L	1		9056A	Total/NA
Sulfate	270		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids	580		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Inorganic Carbon - Quad	47		2.0	0.69	mg/L	2		SM 5310B	Total/NA
Dissolved Organic Carbon - Quad	1.3		1.0	0.35	mg/L	1		SM 5310B	Dissolved

Client Sample ID: MW-5-20211213 — Lab Sample ID: 280-156786-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	46000		200	78	ug/L	1		6010C	Total/NA
Cobalt	2.4	J	10	1.2	ug/L	1		6010C	Total/NA
Iron	1200		100	22	ug/L	1		6010C	Total/NA
Magnesium	14000		200	26	ug/L	1		6010C	Total/NA
Manganese	76		10	1.9	ug/L	1		6010C	Total/NA
Potassium	2800	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	68000		1000	370	ug/L	1		6010C	Total/NA
Strontium	440	^6+	10	0.30	ug/L	1		6010C	Total/NA
Boron	35	J	100	4.4	ug/L	1		6010C	Total/NA
Nitrate as N	1.1		0.50	0.090	mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Denver

Client Sample ID: MW-5-20211213 (Continued) — Lab Sample ID: 280-156786-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	30		3.0	1.0	mg/L	1		9056A	Total/NA
Sulfate	250		25	5.2	mg/L	5		9056A	Total/NA
Total Dissolved Solids	460		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Inorganic Carbon - Quad	18		1.0	0.35	mg/L	1		SM 5310B	Total/NA
Dissolved Organic Carbon - Quad	1.1		1.0	0.35	mg/L	1		SM 5310B	Dissolved

Client Sample ID: SW-DOWN-20211213 — Lab Sample ID: 280-156786-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	20000		200	78	ug/L	1		6010C	Total/NA
Iron	130		100	22	ug/L	1		6010C	Total/NA
Magnesium	6000		200	26	ug/L	1		6010C	Total/NA
Manganese	14		10	1.9	ug/L	1		6010C	Total/NA
Potassium	3000		3000	240	ug/L	1		6010C	Total/NA
Sodium	15000		1000	370	ug/L	1		6010C	Total/NA
Strontium	180	^6+	10	0.30	ug/L	1		6010C	Total/NA
Boron	12	J	100	4.4	ug/L	1		6010C	Total/NA
Nitrate as N	1.2		0.50	0.090	mg/L	1		9056A	Total/NA
Chloride	17		3.0	1.0	mg/L	1		9056A	Total/NA
Sulfate	42		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids	170		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: SW-UP-20211213 — Lab Sample ID: 280-156786-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	19000		200	78	ug/L	1		6010C	Total/NA
Iron	130		100	22	ug/L	1		6010C	Total/NA
Magnesium	5600		200	26	ug/L	1		6010C	Total/NA
Manganese	13		10	1.9	ug/L	1		6010C	Total/NA
Potassium	3000		3000	240	ug/L	1		6010C	Total/NA
Sodium	15000		1000	370	ug/L	1		6010C	Total/NA
Strontium	170	^6+	10	0.30	ug/L	1		6010C	Total/NA
Boron	11	J	100	4.4	ug/L	1		6010C	Total/NA
Nitrate as N	1.3		0.50	0.090	mg/L	1		9056A	Total/NA
Chloride	16		3.0	1.0	mg/L	1		9056A	Total/NA
Sulfate	38		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids	160		10	4.7	mg/L	1		SM 2540C	Total/NA

Client Sample ID: MW-4-20211213 — Lab Sample ID: 280-156786-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	5000		200	78	ug/L	1		6010C	Total/NA
Chromium	3.5	J	10	0.66	ug/L	1		6010C	Total/NA
Iron	520		100	22	ug/L	1		6010C	Total/NA
Magnesium	1400		200	26	ug/L	1		6010C	Total/NA
Manganese	16		10	1.9	ug/L	1		6010C	Total/NA
Potassium	2700	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	5100		1000	370	ug/L	1		6010C	Total/NA
Vanadium	1.2	J	10	1.1	ug/L	1		6010C	Total/NA
Strontium	80	^6+	10	0.30	ug/L	1		6010C	Total/NA
Boron	13	J	100	4.4	ug/L	1		6010C	Total/NA
Nitrate as N	0.85		0.50	0.090	mg/L	1		9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156786-1

Client Sample ID: MW-4-20211213 (Continued)

Lab Sample ID: 280-156786-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2.4	J	3.0	1.0	mg/L	1		9056A	Total/NA
Sulfate	10		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids	62		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Inorganic Carbon - Quad	5.3		1.0	0.35	mg/L	1		SM 5310B	Total/NA
Dissolved Organic Carbon - Quad	0.69	J	1.0	0.35	mg/L	1		SM 5310B	Dissolved

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156786-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 5310B	Organic Carbon, Dissolved (DOC)	SM	TAL DEN
SM 5310B	Organic Carbon, Total (TOC)	SM	TAL DEN
3010A	Preparation, Total Metals	SW846	TAL DEN

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156786-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-156786-1	MW-2-20211213	Water	12/13/21 10:55	12/14/21 10:40
280-156786-2	MW-3-20211213	Water	12/13/21 12:15	12/14/21 10:40
280-156786-3	MW-5-20211213	Water	12/13/21 14:00	12/14/21 10:40
280-156786-4	SW-DOWN-20211213	Water	12/13/21 14:10	12/14/21 10:40
280-156786-5	SW-UP-20211213	Water	12/13/21 14:15	12/14/21 10:40
280-156786-6	MW-4-20211213	Water	12/13/21 16:05	12/14/21 10:40

Method: 6010C - Metals (ICP)

Client Sample ID: MW-2-20211213
Date Collected: 12/13/21 10:55
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**29000**		200	78	ug/L		12/21/21 15:02	12/22/21 02:57	1
Chromium	0.66	U	10	0.66	ug/L		12/21/21 15:02	12/22/21 02:57	1
Cobalt	**40**		10	1.2	ug/L		12/21/21 15:02	12/22/21 02:57	1
Iron	**110**		100	22	ug/L		12/21/21 15:02	12/22/21 02:57	1
Magnesium	**8900**		200	26	ug/L		12/21/21 15:02	12/22/21 02:57	1
Manganese	**6600**		10	1.9	ug/L		12/21/21 15:02	12/22/21 02:57	1
Potassium	**3700**		3000	240	ug/L		12/21/21 15:02	12/22/21 02:57	1
Sodium	**38000**		1000	370	ug/L		12/21/21 15:02	12/22/21 02:57	1
Vanadium	1.1	U	10	1.1	ug/L		12/21/21 15:02	12/22/21 02:57	1
Lithium	9.1	U	20	9.1	ug/L		12/21/21 15:02	12/22/21 14:48	1
Thallium	**5.6**	**J**	15	4.9	ug/L		12/21/21 15:02	12/22/21 02:57	1
Molybdenum	**2.3**	**J**	20	1.0	ug/L		12/21/21 15:02	12/22/21 02:57	1
Strontium	**550**	**^6+**	10	0.30	ug/L		12/21/21 15:02	12/22/21 02:57	1
Arsenic	4.4	U	15	4.4	ug/L		12/21/21 15:02	12/22/21 02:57	1
Boron	**50**	**J**	100	4.4	ug/L		12/21/21 15:02	12/22/21 02:57	1

Client Sample ID: MW-3-20211213
Date Collected: 12/13/21 12:15
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**91000**		200	78	ug/L		12/21/21 15:02	12/22/21 03:01	1
Chromium	0.66	U	10	0.66	ug/L		12/21/21 15:02	12/22/21 03:01	1
Cobalt	**51**		10	1.2	ug/L		12/21/21 15:02	12/22/21 03:01	1
Iron	**270**		100	22	ug/L		12/21/21 15:02	12/22/21 03:01	1
Magnesium	**22000**		200	26	ug/L		12/21/21 15:02	12/22/21 03:01	1
Manganese	**5400**		10	1.9	ug/L		12/21/21 15:02	12/22/21 03:01	1
Potassium	**6100**		3000	240	ug/L		12/21/21 15:02	12/22/21 03:01	1
Sodium	**44000**		1000	370	ug/L		12/21/21 15:02	12/22/21 03:01	1
Vanadium	**1.3**	**J**	10	1.1	ug/L		12/21/21 15:02	12/22/21 03:01	1
Lithium	9.1	U	20	9.1	ug/L		12/21/21 15:02	12/22/21 14:52	1
Thallium	**5.2**	**J**	15	4.9	ug/L		12/21/21 15:02	12/22/21 03:01	1
Molybdenum	1.0	U	20	1.0	ug/L		12/21/21 15:02	12/22/21 03:01	1
Strontium	**1300**	**^6+**	10	0.30	ug/L		12/21/21 15:02	12/22/21 03:01	1
Arsenic	4.4	U	15	4.4	ug/L		12/21/21 15:02	12/22/21 03:01	1
Boron	**77**	**J**	100	4.4	ug/L		12/21/21 15:02	12/22/21 03:01	1

Client Sample ID: MW-5-20211213
Date Collected: 12/13/21 14:00
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**46000**		200	78	ug/L		12/21/21 15:02	12/22/21 03:05	1
Chromium	0.66	U	10	0.66	ug/L		12/21/21 15:02	12/22/21 03:05	1
Cobalt	**2.4**	**J**	10	1.2	ug/L		12/21/21 15:02	12/22/21 03:05	1
Iron	**1200**		100	22	ug/L		12/21/21 15:02	12/22/21 03:05	1
Magnesium	**14000**		200	26	ug/L		12/21/21 15:02	12/22/21 03:05	1
Manganese	**76**		10	1.9	ug/L		12/21/21 15:02	12/22/21 03:05	1
Potassium	**2800**	**J**	3000	240	ug/L		12/21/21 15:02	12/22/21 03:05	1
Sodium	**68000**		1000	370	ug/L		12/21/21 15:02	12/22/21 03:05	1
Vanadium	1.1	U	10	1.1	ug/L		12/21/21 15:02	12/22/21 03:05	1
Lithium	9.1	U	20	9.1	ug/L		12/21/21 15:02	12/22/21 15:13	1

Method: 6010C - Metals (ICP) (Continued)

Client Sample ID: MW-5-20211213
Date Collected: 12/13/21 14:00
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	4.9	U	15	4.9	ug/L		12/21/21 15:02	12/22/21 03:05	1
Molybdenum	1.0	U	20	1.0	ug/L		12/21/21 15:02	12/22/21 03:05	1
Strontium	**440**	**^6+**	10	0.30	ug/L		12/21/21 15:02	12/22/21 03:05	1
Arsenic	4.4	U	15	4.4	ug/L		12/21/21 15:02	12/22/21 03:05	1
Boron	**35**	**J**	100	4.4	ug/L		12/21/21 15:02	12/22/21 03:05	1

Client Sample ID: SW-DOWN-20211213
Date Collected: 12/13/21 14:10
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**20000**		200	78	ug/L		12/21/21 15:02	12/22/21 03:09	1
Chromium	0.66	U	10	0.66	ug/L		12/21/21 15:02	12/22/21 03:09	1
Cobalt	1.2	U	10	1.2	ug/L		12/21/21 15:02	12/22/21 03:09	1
Iron	**130**		100	22	ug/L		12/21/21 15:02	12/22/21 03:09	1
Magnesium	**6000**		200	26	ug/L		12/21/21 15:02	12/22/21 03:09	1
Manganese	**14**		10	1.9	ug/L		12/21/21 15:02	12/22/21 03:09	1
Potassium	**3000**		3000	240	ug/L		12/21/21 15:02	12/22/21 03:09	1
Sodium	**15000**		1000	370	ug/L		12/21/21 15:02	12/22/21 03:09	1
Vanadium	1.1	U	10	1.1	ug/L		12/21/21 15:02	12/22/21 03:09	1
Lithium	9.1	U	20	9.1	ug/L		12/21/21 15:02	12/22/21 15:17	1
Thallium	4.9	U	15	4.9	ug/L		12/21/21 15:02	12/22/21 03:09	1
Molybdenum	1.0	U	20	1.0	ug/L		12/21/21 15:02	12/22/21 03:09	1
Strontium	**180**	**^6+**	10	0.30	ug/L		12/21/21 15:02	12/22/21 03:09	1
Arsenic	4.4	U	15	4.4	ug/L		12/21/21 15:02	12/22/21 03:09	1
Boron	**12**	**J**	100	4.4	ug/L		12/21/21 15:02	12/22/21 03:09	1

Client Sample ID: SW-UP-20211213
Date Collected: 12/13/21 14:15
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**19000**		200	78	ug/L		12/21/21 15:02	12/22/21 03:13	1
Chromium	0.66	U	10	0.66	ug/L		12/21/21 15:02	12/22/21 03:13	1
Cobalt	1.2	U	10	1.2	ug/L		12/21/21 15:02	12/22/21 03:13	1
Iron	**130**		100	22	ug/L		12/21/21 15:02	12/22/21 03:13	1
Magnesium	**5600**		200	26	ug/L		12/21/21 15:02	12/22/21 03:13	1
Manganese	**13**		10	1.9	ug/L		12/21/21 15:02	12/22/21 03:13	1
Potassium	**3000**		3000	240	ug/L		12/21/21 15:02	12/22/21 03:13	1
Sodium	**15000**		1000	370	ug/L		12/21/21 15:02	12/22/21 03:13	1
Vanadium	1.1	U	10	1.1	ug/L		12/21/21 15:02	12/22/21 03:13	1
Lithium	9.1	U	20	9.1	ug/L		12/21/21 15:02	12/22/21 15:21	1
Thallium	4.9	U	15	4.9	ug/L		12/21/21 15:02	12/22/21 03:13	1
Molybdenum	1.0	U	20	1.0	ug/L		12/21/21 15:02	12/22/21 03:13	1
Strontium	**170**	**^6+**	10	0.30	ug/L		12/21/21 15:02	12/22/21 03:13	1
Arsenic	4.4	U	15	4.4	ug/L		12/21/21 15:02	12/22/21 03:13	1
Boron	**11**	**J**	100	4.4	ug/L		12/21/21 15:02	12/22/21 03:13	1

Method: 6010C - Metals (ICP)

Client Sample ID: MW-4-20211213
Date Collected: 12/13/21 16:05
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**5000**		200	78	ug/L		12/21/21 15:02	12/22/21 03:17	1
Chromium	**3.5**	**J**	10	0.66	ug/L		12/21/21 15:02	12/22/21 03:17	1
Cobalt	1.2	U	10	1.2	ug/L		12/21/21 15:02	12/22/21 03:17	1
Iron	**520**		100	22	ug/L		12/21/21 15:02	12/22/21 03:17	1
Magnesium	**1400**		200	26	ug/L		12/21/21 15:02	12/22/21 03:17	1
Manganese	**16**		10	1.9	ug/L		12/21/21 15:02	12/22/21 03:17	1
Potassium	**2700**	**J**	3000	240	ug/L		12/21/21 15:02	12/22/21 03:17	1
Sodium	**5100**		1000	370	ug/L		12/21/21 15:02	12/22/21 03:17	1
Vanadium	**1.2**	**J**	10	1.1	ug/L		12/21/21 15:02	12/22/21 03:17	1
Lithium	9.1	U	20	9.1	ug/L		12/21/21 15:02	12/22/21 15:25	1
Thallium	4.9	U	15	4.9	ug/L		12/21/21 15:02	12/22/21 03:17	1
Molybdenum	1.0	U	20	1.0	ug/L		12/21/21 15:02	12/22/21 03:17	1
Strontium	**80**	**^6+**	10	0.30	ug/L		12/21/21 15:02	12/22/21 03:17	1
Arsenic	4.4	U	15	4.4	ug/L		12/21/21 15:02	12/22/21 03:17	1
Boron	**13**	**J**	100	4.4	ug/L		12/21/21 15:02	12/22/21 03:17	1

General Chemistry

Client Sample ID: MW-2-20211213
Date Collected: 12/13/21 10:55
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	0.23	U	0.50	0.23	mg/L			12/15/21 02:02	1
Nitrate as N	**0.19**	**J**	0.50	0.090	mg/L			12/15/21 02:02	1
Chloride	**18**		3.0	1.0	mg/L			12/15/21 02:02	1
Nitrite as N	0.049	U	0.50	0.049	mg/L			12/15/21 02:02	1
Fluoride	**0.69**		0.50	0.17	mg/L			01/05/22 17:40	1
Orthophosphate as P	0.47	U	1.0	0.47	mg/L			12/15/21 02:02	1
Sulfate	**89**		5.0	1.0	mg/L			12/15/21 02:02	1
Total Dissolved Solids	**270**		10	4.7	mg/L			12/17/21 09:58	1
Total Inorganic Carbon - Quad	**26**		1.0	0.35	mg/L			12/21/21 20:56	1

Client Sample ID: MW-3-20211213
Date Collected: 12/13/21 12:15
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	0.23	U	0.50	0.23	mg/L			12/15/21 02:16	1
Nitrate as N	0.090	U	0.50	0.090	mg/L			12/15/21 02:16	1
Chloride	**19**		3.0	1.0	mg/L			12/15/21 02:16	1
Nitrite as N	0.049	U	0.50	0.049	mg/L			12/15/21 02:16	1
Fluoride	0.17	U ^1+	0.50	0.17	mg/L			12/15/21 02:16	1
Orthophosphate as P	0.47	U	1.0	0.47	mg/L			12/15/21 02:16	1
Sulfate	**270**		25	5.2	mg/L			12/15/21 02:30	5
Total Dissolved Solids	**580**		10	4.7	mg/L			12/17/21 09:58	1
Total Inorganic Carbon - Quad	**47**		2.0	0.69	mg/L			12/23/21 12:19	2

General Chemistry

Client Sample ID: MW-5-20211213
Date Collected: 12/13/21 14:00
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	0.23	U	0.50	0.23	mg/L			12/15/21 02:44	1
Nitrate as N	**1.1**		0.50	0.090	mg/L			12/15/21 02:44	1
Chloride	**30**		3.0	1.0	mg/L			12/15/21 02:44	1
Nitrite as N	0.049	U	0.50	0.049	mg/L			12/15/21 02:44	1
Fluoride	0.17	U ^1+	0.50	0.17	mg/L			12/15/21 02:44	1
Orthophosphate as P	0.47	U	1.0	0.47	mg/L			12/15/21 02:44	1
Sulfate	**250**		25	5.2	mg/L			12/15/21 02:58	5
Total Dissolved Solids	**460**		10	4.7	mg/L			12/17/21 09:58	1
Total Inorganic Carbon - Quad	**18**		1.0	0.35	mg/L			12/21/21 21:22	1

Client Sample ID: SW-DOWN-20211213
Date Collected: 12/13/21 14:10
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	0.23	U	0.50	0.23	mg/L			12/15/21 03:12	1
Nitrate as N	**1.2**		0.50	0.090	mg/L			12/15/21 03:12	1
Chloride	**17**		3.0	1.0	mg/L			12/15/21 03:12	1
Nitrite as N	0.049	U	0.50	0.049	mg/L			12/15/21 03:12	1
Fluoride	0.17	U ^1+	0.50	0.17	mg/L			12/15/21 03:12	1
Orthophosphate as P	0.47	U	1.0	0.47	mg/L			12/15/21 03:12	1
Sulfate	**42**		5.0	1.0	mg/L			12/15/21 03:12	1
Total Dissolved Solids	**170**		10	4.7	mg/L			12/17/21 09:58	1

Client Sample ID: SW-UP-20211213
Date Collected: 12/13/21 14:15
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	0.23	U	0.50	0.23	mg/L			12/15/21 03:26	1
Nitrate as N	**1.3**		0.50	0.090	mg/L			12/15/21 03:26	1
Chloride	**16**		3.0	1.0	mg/L			12/15/21 03:26	1
Nitrite as N	0.049	U	0.50	0.049	mg/L			12/15/21 03:26	1
Fluoride	0.17	U ^1+	0.50	0.17	mg/L			12/15/21 03:26	1
Orthophosphate as P	0.47	U	1.0	0.47	mg/L			12/15/21 03:26	1
Sulfate	**38**		5.0	1.0	mg/L			12/15/21 03:26	1
Total Dissolved Solids	**160**		10	4.7	mg/L			12/17/21 09:58	1

Client Sample ID: MW-4-20211213
Date Collected: 12/13/21 16:05
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	0.23	U	0.50	0.23	mg/L			12/15/21 03:40	1
Nitrate as N	**0.85**		0.50	0.090	mg/L			12/15/21 03:40	1
Chloride	**2.4**	**J**	3.0	1.0	mg/L			12/15/21 03:40	1
Nitrite as N	0.049	U	0.50	0.049	mg/L			12/15/21 03:40	1
Fluoride	0.17	U ^1+	0.50	0.17	mg/L			12/15/21 03:40	1
Orthophosphate as P	0.47	U	1.0	0.47	mg/L			12/15/21 03:40	1
Sulfate	**10**		5.0	1.0	mg/L			12/15/21 03:40	1
Total Dissolved Solids	**62**		10	4.7	mg/L			12/17/21 09:58	1
Total Inorganic Carbon - Quad	**5.3**		1.0	0.35	mg/L			12/21/21 22:09	1

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156786-1

General Chemistry - Dissolved

Client Sample ID: MW-2-20211213
Date Collected: 12/13/21 10:55
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon - Quad	1.7		1.0	0.35	mg/L			12/30/21 03:14	1

Client Sample ID: MW-3-20211213
Date Collected: 12/13/21 12:15
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon - Quad	1.3		1.0	0.35	mg/L			12/30/21 04:00	1

Client Sample ID: MW-5-20211213
Date Collected: 12/13/21 14:00
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon - Quad	1.1		1.0	0.35	mg/L			12/30/21 04:19	1

Client Sample ID: MW-4-20211213
Date Collected: 12/13/21 16:05
Date Received: 12/14/21 10:40

Lab Sample ID: 280-156786-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon - Quad	0.69	J	1.0	0.35	mg/L			12/30/21 04:38	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-561285/1-A
Matrix: Water
Analysis Batch: 561533

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 561285

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	78	U	200	78	ug/L		12/21/21 15:02	12/22/21 02:45	1
Chromium	0.66	U	10	0.66	ug/L		12/21/21 15:02	12/22/21 02:45	1
Cobalt	1.2	U	10	1.2	ug/L		12/21/21 15:02	12/22/21 02:45	1
Iron	22	U	100	22	ug/L		12/21/21 15:02	12/22/21 02:45	1
Magnesium	26	U	200	26	ug/L		12/21/21 15:02	12/22/21 02:45	1
Manganese	1.9	U	10	1.9	ug/L		12/21/21 15:02	12/22/21 02:45	1
Potassium	240	U	3000	240	ug/L		12/21/21 15:02	12/22/21 02:45	1
Sodium	370	U	1000	370	ug/L		12/21/21 15:02	12/22/21 02:45	1
Vanadium	1.1	U	10	1.1	ug/L		12/21/21 15:02	12/22/21 02:45	1
Thallium	4.9	U	15	4.9	ug/L		12/21/21 15:02	12/22/21 02:45	1
Molybdenum	1.0	U	20	1.0	ug/L		12/21/21 15:02	12/22/21 02:45	1
Strontium	0.30	U ^6+	10	0.30	ug/L		12/21/21 15:02	12/22/21 02:45	1
Arsenic	4.4	U	15	4.4	ug/L		12/21/21 15:02	12/22/21 02:45	1
Boron	4.4	U	100	4.4	ug/L		12/21/21 15:02	12/22/21 02:45	1

Lab Sample ID: MB 280-561285/1-A
Matrix: Water
Analysis Batch: 561601

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 561285

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	9.1	U	20	9.1	ug/L		12/21/21 15:02	12/22/21 14:28	1

Lab Sample ID: LCS 280-561285/2-A
Matrix: Water
Analysis Batch: 561533

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 561285

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	50000	50400		ug/L		101	90 - 111
Chromium	1000	985		ug/L		99	90 - 113
Cobalt	1000	1000		ug/L		100	89 - 111
Iron	10000	10100		ug/L		101	89 - 115
Magnesium	50000	48900		ug/L		98	90 - 113
Manganese	1000	1010		ug/L		101	90 - 110
Potassium	50000	50300		ug/L		101	89 - 114
Sodium	50000	51800		ug/L		104	90 - 115
Vanadium	1000	1000		ug/L		100	90 - 111
Thallium	2000	1940		ug/L		97	88 - 110
Molybdenum	1000	1010		ug/L		101	90 - 110
Strontium	1000	1030	^6+	ug/L		103	90 - 111
Arsenic	2000	2070		ug/L		104	88 - 110
Boron	1000	1030		ug/L		103	86 - 110

Lab Sample ID: LCS 280-561285/2-A
Matrix: Water
Analysis Batch: 561601

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 561285

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	1000	1020		ug/L		102	90 - 112

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 280-561285/3-A
Matrix: Water
Analysis Batch: 561533

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 561285

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium			50000	49900		ug/L		100	90 - 111	1	20
Chromium			1000	981		ug/L		98	90 - 113	0	20
Cobalt			1000	993		ug/L		99	89 - 111	1	20
Iron			10000	10000		ug/L		100	89 - 115	1	20
Magnesium			50000	48700		ug/L		97	90 - 113	0	20
Manganese			1000	1000		ug/L		100	90 - 110	1	20
Potassium			50000	49800		ug/L		100	89 - 114	1	20
Sodium			50000	51500		ug/L		103	90 - 115	1	20
Vanadium			1000	995		ug/L		99	90 - 111	1	20
Thallium			2000	1930		ug/L		96	88 - 110	1	20
Molybdenum			1000	1000		ug/L		100	90 - 110	1	20
Strontium			1000	1020	^6+	ug/L		102	90 - 111	1	20
Arsenic			2000	2050		ug/L		103	88 - 110	1	20
Boron			1000	1040		ug/L		104	86 - 110	0	20

Lab Sample ID: LCSD 280-561285/3-A
Matrix: Water
Analysis Batch: 561601

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 561285

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium			1000	1000		ug/L		100	90 - 112	1	20

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-560574/39
Matrix: Water
Analysis Batch: 560574

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.090	U	0.50	0.090	mg/L			12/14/21 23:56	1
Nitrite as N	0.049	U	0.50	0.049	mg/L			12/14/21 23:56	1
Orthophosphate as P	0.47	U	1.0	0.47	mg/L			12/14/21 23:56	1

Lab Sample ID: LCS 280-560574/37
Matrix: Water
Analysis Batch: 560574

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N			5.00	4.80		mg/L		96	90 - 110
Nitrite as N			5.00	4.94		mg/L		99	90 - 110
Orthophosphate as P			5.00	4.61		mg/L		92	90 - 110

Lab Sample ID: LCSD 280-560574/38
Matrix: Water
Analysis Batch: 560574

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N			5.00	4.76		mg/L		95	90 - 110	1	10
Nitrite as N			5.00	4.96		mg/L		99	90 - 110	0	10
Orthophosphate as P			5.00	4.55		mg/L		91	90 - 110	1	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MRL 280-560574/3
Matrix: Water
Analysis Batch: 560574

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.470	J	mg/L		94	50 - 150
Nitrite as N	0.500	0.481	J	mg/L		96	50 - 150
Orthophosphate as P	0.500	0.47	U	mg/L		93	50 - 150

Lab Sample ID: MB 280-560575/39
Matrix: Water
Analysis Batch: 560575

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	0.23	U	0.50	0.23	mg/L			12/14/21 23:56	1
Chloride	1.0	U	3.0	1.0	mg/L			12/14/21 23:56	1
Fluoride	0.17	U ^1+	0.50	0.17	mg/L			12/14/21 23:56	1
Sulfate	1.0	U	5.0	1.0	mg/L			12/14/21 23:56	1

Lab Sample ID: LCS 280-560575/37
Matrix: Water
Analysis Batch: 560575

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	5.00	4.61		mg/L		92	90 - 110
Chloride	100	101		mg/L		101	90 - 110
Fluoride	5.00	4.56	^1+	mg/L		91	90 - 110
Sulfate	100	101		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-560575/38
Matrix: Water
Analysis Batch: 560575

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromide	5.00	4.54		mg/L		91	90 - 110	2	10
Chloride	100	100		mg/L		100	90 - 110	0	10
Fluoride	5.00	4.67	^1+	mg/L		93	90 - 110	2	10
Sulfate	100	101		mg/L		101	90 - 110	0	10

Lab Sample ID: MRL 280-560575/3
Matrix: Water
Analysis Batch: 560575

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	0.500	0.461	J	mg/L		92	50 - 150
Chloride	5.00	5.08		mg/L		102	50 - 150
Fluoride	0.500	0.508	^1+	mg/L		102	50 - 150
Sulfate	5.00	4.99	J	mg/L		100	50 - 150

Lab Sample ID: MB 280-562555/6
Matrix: Water
Analysis Batch: 562555

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.17	U	0.50	0.17	mg/L			01/05/22 12:22	1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: LCS 280-562555/4
Matrix: Water
Analysis Batch: 562555

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			5.00	4.84		mg/L		97	90 - 110		

Lab Sample ID: LCSD 280-562555/5
Matrix: Water
Analysis Batch: 562555

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride			5.00	4.83		mg/L		97	90 - 110	0	10

Lab Sample ID: MRL 280-562555/3
Matrix: Water
Analysis Batch: 562555

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			0.500	0.481	J	mg/L		96	50 - 150		

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 280-561048/1
Matrix: Water
Analysis Batch: 561048

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	4.7	U	10	4.7	mg/L			12/17/21 08:58	1

Lab Sample ID: LCS 280-561048/2
Matrix: Water
Analysis Batch: 561048

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			502	504		mg/L		100	88 - 114		

Lab Sample ID: LCSD 280-561048/3
Matrix: Water
Analysis Batch: 561048

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids			502	504		mg/L		100	88 - 114	0	20

Lab Sample ID: 280-156786-1 DU
Matrix: Water
Analysis Batch: 561048

Client Sample ID: MW-2-20211213
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	270			262		mg/L				3	10

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-561526/11
Matrix: Water
Analysis Batch: 561526

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Inorganic Carbon - Quad	0.35	U	1.0	0.35	mg/L			12/21/21 20:07	1

Lab Sample ID: MB 280-561526/7
Matrix: Water
Analysis Batch: 561526

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Inorganic Carbon - Quad	0.35	U	1.0	0.35	mg/L			12/21/21 19:17	1

Lab Sample ID: LCS 280-561526/9
Matrix: Water
Analysis Batch: 561526

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Inorganic Carbon - Quad	25.0	25.0		mg/L		100	88 - 112

Lab Sample ID: LCSD 280-561526/10
Matrix: Water
Analysis Batch: 561526

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Inorganic Carbon - Quad	25.0	24.4		mg/L		97	88 - 112	3	15

Lab Sample ID: MB 280-561673/5
Matrix: Water
Analysis Batch: 561673

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Inorganic Carbon - Quad	0.35	U	1.0	0.35	mg/L			12/23/21 12:07	1

Lab Sample ID: LCS 280-561673/3
Matrix: Water
Analysis Batch: 561673

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Inorganic Carbon - Quad	25.0	24.5		mg/L		98	88 - 112

Lab Sample ID: LCSD 280-561673/4
Matrix: Water
Analysis Batch: 561673

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Inorganic Carbon - Quad	25.0	24.0		mg/L		96	88 - 112	2	15

Lab Sample ID: 280-156786-2 MS
Matrix: Water
Analysis Batch: 561673

Client Sample ID: MW-3-20211213
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Inorganic Carbon - Quad	47		50.1	99.3		mg/L		104	88 - 112

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: 280-156786-2 MSD
Matrix: Water
Analysis Batch: 561673

Client Sample ID: MW-3-20211213
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Inorganic Carbon - Quad	47		50.1	99.7		mg/L		105	88 - 112	0	15

Method: SM 5310B - Organic Carbon, Dissolved (DOC)

Lab Sample ID: MB 280-562191/38
Matrix: Water
Analysis Batch: 562191

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon - Quad	0.35	U	1.0	0.35	mg/L			12/30/21 02:05	1

Lab Sample ID: MB 280-562191/4
Matrix: Water
Analysis Batch: 562191

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon - Quad	0.35	U	1.0	0.35	mg/L			12/29/21 16:32	1

Lab Sample ID: LCS 280-562191/36
Matrix: Water
Analysis Batch: 562191

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon - Quad	25.0	26.0		mg/L		104	88 - 112

Lab Sample ID: LCSD 280-562191/37
Matrix: Water
Analysis Batch: 562191

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon - Quad	25.0	26.1		mg/L		104	88 - 112	0	15

Lab Sample ID: 280-156786-1 MS
Matrix: Water
Analysis Batch: 562191

Client Sample ID: MW-2-20211213
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon - Quad	1.7		25.0	27.8		mg/L		104	88 - 112

Lab Sample ID: 280-156786-1 MSD
Matrix: Water
Analysis Batch: 562191

Client Sample ID: MW-2-20211213
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon - Quad	1.7		25.0	28.5		mg/L		107	88 - 112	3	15

QC Association Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156786-1

Metals

Prep Batch: 561285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156786-1	MW-2-20211213	Total/NA	Water	3010A	
280-156786-2	MW-3-20211213	Total/NA	Water	3010A	
280-156786-3	MW-5-20211213	Total/NA	Water	3010A	
280-156786-4	SW-DOWN-20211213	Total/NA	Water	3010A	
280-156786-5	SW-UP-20211213	Total/NA	Water	3010A	
280-156786-6	MW-4-20211213	Total/NA	Water	3010A	
MB 280-561285/1-A	Method Blank	Total/NA	Water	3010A	
LCS 280-561285/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 280-561285/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	

Analysis Batch: 561533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156786-1	MW-2-20211213	Total/NA	Water	6010C	561285
280-156786-2	MW-3-20211213	Total/NA	Water	6010C	561285
280-156786-3	MW-5-20211213	Total/NA	Water	6010C	561285
280-156786-4	SW-DOWN-20211213	Total/NA	Water	6010C	561285
280-156786-5	SW-UP-20211213	Total/NA	Water	6010C	561285
280-156786-6	MW-4-20211213	Total/NA	Water	6010C	561285
MB 280-561285/1-A	Method Blank	Total/NA	Water	6010C	561285
LCS 280-561285/2-A	Lab Control Sample	Total/NA	Water	6010C	561285
LCSD 280-561285/3-A	Lab Control Sample Dup	Total/NA	Water	6010C	561285

Analysis Batch: 561601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156786-1	MW-2-20211213	Total/NA	Water	6010C	561285
280-156786-2	MW-3-20211213	Total/NA	Water	6010C	561285
280-156786-3	MW-5-20211213	Total/NA	Water	6010C	561285
280-156786-4	SW-DOWN-20211213	Total/NA	Water	6010C	561285
280-156786-5	SW-UP-20211213	Total/NA	Water	6010C	561285
280-156786-6	MW-4-20211213	Total/NA	Water	6010C	561285
MB 280-561285/1-A	Method Blank	Total/NA	Water	6010C	561285
LCS 280-561285/2-A	Lab Control Sample	Total/NA	Water	6010C	561285
LCSD 280-561285/3-A	Lab Control Sample Dup	Total/NA	Water	6010C	561285

General Chemistry

Analysis Batch: 560574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156786-1	MW-2-20211213	Total/NA	Water	9056A	
280-156786-2	MW-3-20211213	Total/NA	Water	9056A	
280-156786-3	MW-5-20211213	Total/NA	Water	9056A	
280-156786-4	SW-DOWN-20211213	Total/NA	Water	9056A	
280-156786-5	SW-UP-20211213	Total/NA	Water	9056A	
280-156786-6	MW-4-20211213	Total/NA	Water	9056A	
MB 280-560574/39	Method Blank	Total/NA	Water	9056A	
LCS 280-560574/37	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-560574/38	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-560574/3	Lab Control Sample	Total/NA	Water	9056A	

General Chemistry

Analysis Batch: 560575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156786-1	MW-2-20211213	Total/NA	Water	9056A	
280-156786-2	MW-3-20211213	Total/NA	Water	9056A	
280-156786-2	MW-3-20211213	Total/NA	Water	9056A	
280-156786-3	MW-5-20211213	Total/NA	Water	9056A	
280-156786-3	MW-5-20211213	Total/NA	Water	9056A	
280-156786-4	SW-DOWN-20211213	Total/NA	Water	9056A	
280-156786-5	SW-UP-20211213	Total/NA	Water	9056A	
280-156786-6	MW-4-20211213	Total/NA	Water	9056A	
MB 280-560575/39	Method Blank	Total/NA	Water	9056A	
LCS 280-560575/37	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-560575/38	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-560575/3	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 561048

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156786-1	MW-2-20211213	Total/NA	Water	SM 2540C	
280-156786-2	MW-3-20211213	Total/NA	Water	SM 2540C	
280-156786-3	MW-5-20211213	Total/NA	Water	SM 2540C	
280-156786-4	SW-DOWN-20211213	Total/NA	Water	SM 2540C	
280-156786-5	SW-UP-20211213	Total/NA	Water	SM 2540C	
280-156786-6	MW-4-20211213	Total/NA	Water	SM 2540C	
MB 280-561048/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-561048/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-561048/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
280-156786-1 DU	MW-2-20211213	Total/NA	Water	SM 2540C	

Analysis Batch: 561526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156786-1	MW-2-20211213	Total/NA	Water	SM 5310B	
280-156786-3	MW-5-20211213	Total/NA	Water	SM 5310B	
280-156786-6	MW-4-20211213	Total/NA	Water	SM 5310B	
MB 280-561526/11	Method Blank	Total/NA	Water	SM 5310B	
MB 280-561526/7	Method Blank	Total/NA	Water	SM 5310B	
LCS 280-561526/9	Lab Control Sample	Total/NA	Water	SM 5310B	
LCSD 280-561526/10	Lab Control Sample Dup	Total/NA	Water	SM 5310B	

Analysis Batch: 561673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156786-2	MW-3-20211213	Total/NA	Water	SM 5310B	
MB 280-561673/5	Method Blank	Total/NA	Water	SM 5310B	
LCS 280-561673/3	Lab Control Sample	Total/NA	Water	SM 5310B	
LCSD 280-561673/4	Lab Control Sample Dup	Total/NA	Water	SM 5310B	
280-156786-2 MS	MW-3-20211213	Total/NA	Water	SM 5310B	
280-156786-2 MSD	MW-3-20211213	Total/NA	Water	SM 5310B	

Analysis Batch: 562191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156786-1	MW-2-20211213	Dissolved	Water	SM 5310B	
280-156786-2	MW-3-20211213	Dissolved	Water	SM 5310B	
280-156786-3	MW-5-20211213	Dissolved	Water	SM 5310B	
280-156786-6	MW-4-20211213	Dissolved	Water	SM 5310B	

General Chemistry (Continued)

Analysis Batch: 562191 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-562191/38	Method Blank	Dissolved	Water	SM 5310B	
MB 280-562191/4	Method Blank	Dissolved	Water	SM 5310B	
LCS 280-562191/36	Lab Control Sample	Dissolved	Water	SM 5310B	
LCSD 280-562191/37	Lab Control Sample Dup	Dissolved	Water	SM 5310B	
280-156786-1 MS	MW-2-20211213	Dissolved	Water	SM 5310B	
280-156786-1 MSD	MW-2-20211213	Dissolved	Water	SM 5310B	

Analysis Batch: 562555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156786-1	MW-2-20211213	Total/NA	Water	9056A	
MB 280-562555/6	Method Blank	Total/NA	Water	9056A	
LCS 280-562555/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-562555/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-562555/3	Lab Control Sample	Total/NA	Water	9056A	

Lab Chronicle

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156786-1

Client Sample ID: MW-2-20211213

Lab Sample ID: 280-156786-1

Date Collected: 12/13/21 10:55

Matrix: Water

Date Received: 12/14/21 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561533	12/22/21 02:57	LMT	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561601	12/22/21 14:48	LRD	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560574	12/15/21 02:02	CJ	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560575	12/15/21 02:02	CJ	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	562555	01/05/22 17:40	SPG	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	561048	12/17/21 09:58	ABW	TAL DEN
Dissolved	Analysis	SM 5310B		1	20 mL	20 mL	562191	12/30/21 03:14	RAF	TAL DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	561526	12/21/21 20:56	RAF	TAL DEN

Client Sample ID: MW-3-20211213

Lab Sample ID: 280-156786-2

Date Collected: 12/13/21 12:15

Matrix: Water

Date Received: 12/14/21 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561533	12/22/21 03:01	LMT	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561601	12/22/21 14:52	LRD	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560574	12/15/21 02:16	CJ	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560575	12/15/21 02:16	CJ	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	560575	12/15/21 02:30	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	561048	12/17/21 09:58	ABW	TAL DEN
Dissolved	Analysis	SM 5310B		1	20 mL	20 mL	562191	12/30/21 04:00	RAF	TAL DEN
Total/NA	Analysis	SM 5310B		2	20 mL	20 mL	561673	12/23/21 12:19	RAF	TAL DEN

Client Sample ID: MW-5-20211213

Lab Sample ID: 280-156786-3

Date Collected: 12/13/21 14:00

Matrix: Water

Date Received: 12/14/21 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561533	12/22/21 03:05	LMT	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561601	12/22/21 15:13	LRD	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560574	12/15/21 02:44	CJ	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560575	12/15/21 02:44	CJ	TAL DEN
Total/NA	Analysis	9056A		5	10 mL	10 mL	560575	12/15/21 02:58	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	561048	12/17/21 09:58	ABW	TAL DEN
Dissolved	Analysis	SM 5310B		1	20 mL	20 mL	562191	12/30/21 04:19	RAF	TAL DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	561526	12/21/21 21:22	RAF	TAL DEN

Lab Chronicle

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156786-1

Client Sample ID: SW-DOWN-20211213

Lab Sample ID: 280-156786-4

Date Collected: 12/13/21 14:10

Matrix: Water

Date Received: 12/14/21 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561533	12/22/21 03:09	LMT	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561601	12/22/21 15:17	LRD	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560574	12/15/21 03:12	CJ	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560575	12/15/21 03:12	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	561048	12/17/21 09:58	ABW	TAL DEN

Client Sample ID: SW-UP-20211213

Lab Sample ID: 280-156786-5

Date Collected: 12/13/21 14:15

Matrix: Water

Date Received: 12/14/21 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561533	12/22/21 03:13	LMT	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561601	12/22/21 15:21	LRD	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560574	12/15/21 03:26	CJ	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560575	12/15/21 03:26	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	561048	12/17/21 09:58	ABW	TAL DEN

Client Sample ID: MW-4-20211213

Lab Sample ID: 280-156786-6

Date Collected: 12/13/21 16:05

Matrix: Water

Date Received: 12/14/21 10:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561533	12/22/21 03:17	LMT	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561601	12/22/21 15:25	LRD	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560574	12/15/21 03:40	CJ	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560575	12/15/21 03:40	CJ	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	561048	12/17/21 09:58	ABW	TAL DEN
Dissolved	Analysis	SM 5310B		1	20 mL	20 mL	562191	12/30/21 04:38	RAF	TAL DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	561526	12/21/21 22:09	RAF	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Geosyntec Consultants, Inc.
Job ID: 280-156786-1
Project/Site: UNC Cogen

Laboratory: Eurofins TestAmerica, Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23
A2LA	ISO/IEC 17025	2907.01	10-31-23
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-28-22
Arizona	State	AZ0713	12-20-22
Arkansas DEQ	State	19-047-0	06-01-22
California	State	2513	01-08-22
Connecticut	State	PH-0686	09-30-22
Florida	NELAP	E87667-57	06-30-22
Georgia	State	4025-011	01-08-22
Illinois	NELAP	2000172019-1	04-30-22
Iowa	State	IA#370	12-02-22
Kansas	NELAP	E-10166	04-30-22
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-22
Minnesota	NELAP	1788752	12-31-22
Nevada	State	CO000262020-1	07-31-22
New Hampshire	NELAP	205319	04-29-22
New Jersey	NELAP	190002	06-30-22
New York	NELAP	59923	04-01-22
North Carolina (WW/SW)	State	358	12-31-22
North Dakota	State	R-034	01-08-22
Oklahoma	State	2018-006	08-31-22
Oregon	NELAP	4025-011	01-08-22
Pennsylvania	NELAP	013	07-31-22
South Carolina	State	72002001	01-08-22
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-21-19	10-01-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-20-00065	03-06-23
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-22
Virginia	NELAP	10490	06-14-22
Washington	State	C583-19	08-03-22
West Virginia DEP	State	354	01-31-22
Wisconsin	State	999615430	08-31-22
Wyoming (UST)	A2LA	2907.01	10-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: D. Vo/A. Haddon Moore	Lab PM: McEntee, Patrick J	Carrier Tracking No(s):	COC No: 280-114880-30944.1
Client Contact: Michael Schott	Phone: 919-424-1840	E-Mail: Patrick.McEntee@Eurofinset.com	State of Origin:	Page:
Company: Geosyntec Consultants, Inc.	PWSID:			Job #:
Address: 2501 Blue Ridge Road	Due Date Requested:			
City: Raleigh	TAT Requested (days): STANDARD			
State, Zip: NC, 27607	Compliance Project: Δ Yes Δ No			
Phone: 919.424.1824	PO #:			
Email: MSchott@Geosyntec.com	WO #:			
Project Name: UNC Cogen	Project #: 60606C0			
Site: Chapel Hill	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Preservation Code:	Ammonia (350.1)	DOC (SM5310B)	Total metals (6010C)	TDS	TOC (SM5310B)	Hardness (2340B)	Total Number of containers	Special Instructions/Note:
MW-2-~~12132021~~20211213	12/13/21	1055	G	Water	N	N		X	X	X	X	X			
MW-3-~~12132021~~20211213	12/13/21	1215	G	Water	N	N		X	X	X	X	X			
MW-5-20211213	12/13/21	1400	G	Water	N	N		X	X	X	X	X			
SW-DOWN-20211213	12/13/21	1910	G	Water	N	N		X		X	X				
SW-UP-20211213	12/13/21	1915	G	Water	N	N		X		X	X				
MW-4-20211213	12/13/21	1605	G	Water	N	N		X	X	X	X	X			Field Filtered
				Water											
				Water											
				Water											
				Water											
				Water											

280-156786 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
A. Haddon Moore	12/13/21 1745	Geosyntec	FEDEX		
FEDEX			A. Hall	12/14/2021 1040	EPA DEN

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.3, 4.3 CF -0.1 IR #9

Ver: 01/16/2019

280-156786 Waybill

ORIGIN ID:MXEA (919) 424-1840

GEOSYNTEC CONSULTANTS
STE 430
2501 BLUE RIDGE RD STE 430
RALEIGH, NC 27607
UNITED STATES US

SHIP DATE: 13DEC21
ACTWGT: 25.55 LB
CAD: 6572628/SSFE2220
DIMS: 21x14x14 IN

BILL THIRD PARTY

Part # 156297-488-ERF

TO ATTN: SAMPLE RECEIVING
EUROFINS TESTAMERICA
4955 YARROW STREET

ARVADA CO 80002
(303) 736-0100

INV:
PO:
REF:
DEPT:

rofins | Environment Testing TestAmerica

1773432

FedEx Express

1 of 2

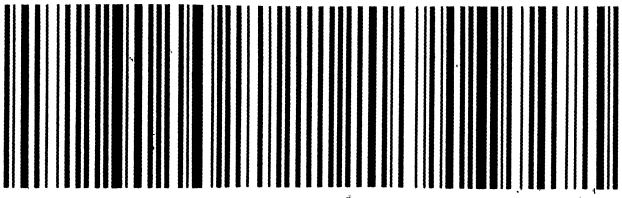
TRK# 0201 2875 1989 5413

MASTER

NL LAAA

TUE - 14 DEC 11:30A
PRIORITY OVERNIGHT

AHS
80002
CO-US DEN




ORIGIN ID:MXEA (919) 424-1840
GEOSYNTEC CONSULTANTS
STE 430
2501 BLUE RIDGE RD STE 430
RALEIGH, NC 27607
UNITED STATES US
SHIP DATE: 13DEC21
ACTWGT: 52.10 LB
CAD: 6572628/SSFE2220
DIMS: 24x13x14 IN
BILL THIRD PARTY
TO ATTN: SAMPLE RECEIVING
EUROFINS TESTAMERICA
4955 YARROW STREET
ARVADA CO 80002
(303) 736-0100
REF:
INV:
PO:
eurofins
Environment
TestAmerica
1773433
FedEx
Express
2 of 2
MPS# 0263 2875 1989 5424
Mstr# 2875 1989 5413
0201
TUE - 14 DEC 11:30A
PRIORITY OVERNIGHT
AHS
80002
CO-US DEN
NL LAAA

Login Sample Receipt Checklist

Client: Geosyntec Consultants, Inc.

Job Number: 280-156786-1

Login Number: 156786
List Number: 1
Creator: Burke, Sophie G

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-156833-1
Client Project/Site: UNC Cogen

For:
Geosyntec Consultants, Inc.
2501 Blue Ridge Rd.
Suite 430
Raleigh, North Carolina 27607

Attn: Mr. Michael Schott

Authorized for release by:
1/6/2022 11:20:24 AM

Patrick McEntee, Client Service Manager
(303)736-0107
Patrick.McEntee@Eurofinset.com

Table of Contents

Definitions/Glossary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156833-1

Qualifiers

Metals

Qualifier	Qualifier Description
^6+	Interference Check Standard (ICSA and/or ICSAB) is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 280-156833-1

Laboratory: Eurofins TestAmerica, Denver

Narrative

CASE NARRATIVE

Client: Geosyntec Consultants, Inc.

Project: UNC Cogen

Report Number: 280-156833-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/15/2021 10:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.3º C.

Receipt Exceptions

The sample collection time for the MS and MSD samples do not match the parent sample collection time. Logged per the parent time on the COC. MW-1-20211214 (280-156833-1[MS]) and MW-1-20211214 (280-156833-1[MSD])

TOTAL METALS (ICP)

Sample MW-1-20211214 (280-156833-1) was analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 12/21/2021 and analyzed on 12/22/2021.

The interference check standard solution (ICSA) associated with batch 280-561487 had results for one or more elements at a level greater than the limit of detection (LOD). The initial ICSA result(s) was 24.9ppb which is greater than the LOD of 0.3ppb for Sr. This element has been shown to be a trace impurity by MS. These results are not indicative of a matrix interference.

The interference check standard solution (ICSA) associated with the following samples showed results for strontium (24.9 ppb) at a level greater than 2 times the reporting limit (10 ppb). It is believed that the solution contains trace impurities of this element / these elements and the results are not due to matrix interference. These results are consistent with those found by the manufacturer of the ICSA solution. MW-1-20211214 (280-156833-1), MW-1-20211214 (280-156833-1[MS]), MW-1-20211214 (280-156833-1[MSD]), (ICSA 280-561533/13), (LCS 280-561285/2-A), (LCSD 280-561285/3-A), (MB 280-561285/1-A), (280-156833-B-1-A PDS) and (280-156833-B-1-A SD ^5)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL DISSOLVED SOLIDS

Sample MW-1-20211214 (280-156833-1) was analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 12/20/2021.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS (28 DAYS)

Sample MW-1-20211214 (280-156833-1) was analyzed for anions (28 days) in accordance with EPA SW-846 Method 9056A (28 Days).

Job ID: 280-156833-1 (Continued)

Laboratory: Eurofins TestAmerica, Denver (Continued)

The samples were analyzed on 01/05/2022 and 12/15/2021.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ANIONS (48 HOURS)

Sample MW-1-20211214 (280-156833-1) was analyzed for anions (48 hours) in accordance with EPA SW-846 Method 9056A (48 Hours). The samples were analyzed on 12/15/2021.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

DISSOLVED ORGANIC CARBON

Sample MW-1-20211214 (280-156833-1) was analyzed for dissolved organic carbon in accordance with SM20 5310B. The samples were analyzed on 12/30/2021.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL ORGANIC CARBON

Sample MW-1-20211214 (280-156833-1) was analyzed for total organic carbon in accordance with SM20 5310B. The samples were analyzed on 12/21/2021.

Total Inorganic Carbon - Quad failed the recovery criteria high for the MS of sample MW-1-20211214MS (280-156833-1) in batch 280-561526. Total Inorganic Carbon - Quad failed the recovery criteria high for the MSD of sample MW-1-20211214MSD (280-156833-1) in batch 280-561526.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156833-1

Client Sample ID: MW-1-20211214

Lab Sample ID: 280-156833-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	4400		200	78	ug/L	1		6010C	Total/NA
Chromium	1.7	J	10	0.66	ug/L	1		6010C	Total/NA
Iron	37	J	100	22	ug/L	1		6010C	Total/NA
Magnesium	800		200	26	ug/L	1		6010C	Total/NA
Potassium	1600	J	3000	240	ug/L	1		6010C	Total/NA
Sodium	36000		1000	370	ug/L	1		6010C	Total/NA
Strontium	65	^6+	10	0.30	ug/L	1		6010C	Total/NA
Boron	32	J	100	4.4	ug/L	1		6010C	Total/NA
Nitrate as N	0.81		0.50	0.090	mg/L	1		9056A	Total/NA
Chloride	12		3.0	1.0	mg/L	1		9056A	Total/NA
Sulfate	63		5.0	1.0	mg/L	1		9056A	Total/NA
Total Dissolved Solids	140		10	4.7	mg/L	1		SM 2540C	Total/NA
Total Inorganic Carbon - Quad	3.7	F1	1.0	0.35	mg/L	1		SM 5310B	Total/NA
Dissolved Organic Carbon - Quad	0.63	J	1.0	0.35	mg/L	1		SM 5310B	Dissolved

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156833-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
9056A	Anions, Ion Chromatography	SW846	TAL DEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL DEN
SM 5310B	Organic Carbon, Dissolved (DOC)	SM	TAL DEN
SM 5310B	Organic Carbon, Total (TOC)	SM	TAL DEN
3010A	Preparation, Total Metals	SW846	TAL DEN

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156833-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-156833-1	MW-1-20211214	Water	12/14/21 11:25	12/15/21 10:30

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156833-1

Method: 6010C - Metals (ICP)

Client Sample ID: MW-1-20211214
Date Collected: 12/14/21 11:25
Date Received: 12/15/21 10:30

Lab Sample ID: 280-156833-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**4400**		200	78	ug/L		12/21/21 15:02	12/22/21 03:45	1
Chromium	**1.7**	**J**	10	0.66	ug/L		12/21/21 15:02	12/22/21 03:45	1
Cobalt	1.2	U	10	1.2	ug/L		12/21/21 15:02	12/22/21 03:45	1
Iron	**37**	**J**	100	22	ug/L		12/21/21 15:02	12/22/21 03:45	1
Magnesium	**800**		200	26	ug/L		12/21/21 15:02	12/22/21 03:45	1
Manganese	1.9	U	10	1.9	ug/L		12/21/21 15:02	12/22/21 03:45	1
Potassium	**1600**	**J**	3000	240	ug/L		12/21/21 15:02	12/22/21 03:45	1
Sodium	**36000**		1000	370	ug/L		12/21/21 15:02	12/22/21 03:45	1
Vanadium	1.1	U	10	1.1	ug/L		12/21/21 15:02	12/22/21 03:45	1
Lithium	9.1	U	20	9.1	ug/L		12/21/21 15:02	12/22/21 15:29	1
Thallium	4.9	U	15	4.9	ug/L		12/21/21 15:02	12/22/21 03:45	1
Molybdenum	1.0	U	20	1.0	ug/L		12/21/21 15:02	12/22/21 03:45	1
Strontium	**65**	**^6+**	10	0.30	ug/L		12/21/21 15:02	12/22/21 03:45	1
Arsenic	4.4	U	15	4.4	ug/L		12/21/21 15:02	12/22/21 03:45	1
Boron	**32**	**J**	100	4.4	ug/L		12/21/21 15:02	12/22/21 03:45	1

General Chemistry

Client Sample ID: MW-1-20211214
Date Collected: 12/14/21 11:25
Date Received: 12/15/21 10:30

Lab Sample ID: 280-156833-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	0.23	U	0.50	0.23	mg/L			12/15/21 13:06	1
Nitrate as N	**0.81**		0.50	0.090	mg/L			12/15/21 13:06	1
Chloride	**12**		3.0	1.0	mg/L			12/15/21 13:06	1
Nitrite as N	0.049	U	0.50	0.049	mg/L			12/15/21 13:06	1
Fluoride	0.17	U	0.50	0.17	mg/L			01/05/22 14:40	1
Orthophosphate as P	0.47	U	1.0	0.47	mg/L			12/15/21 13:06	1
Sulfate	**63**		5.0	1.0	mg/L			12/15/21 13:06	1
Total Dissolved Solids	**140**		10	4.7	mg/L			12/20/21 11:39	1
Total Inorganic Carbon - Quad	**3.7**	**F1**	1.0	0.35	mg/L			12/21/21 20:19	1

General Chemistry - Dissolved

Client Sample ID: MW-1-20211214
Date Collected: 12/14/21 11:25
Date Received: 12/15/21 10:30

Lab Sample ID: 280-156833-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon - Quad	**0.63**	**J**	1.0	0.35	mg/L			12/30/21 15:44	1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-561285/1-A
Matrix: Water
Analysis Batch: 561533

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 561285

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	78	U	200	78	ug/L		12/21/21 15:02	12/22/21 02:45	1
Chromium	0.66	U	10	0.66	ug/L		12/21/21 15:02	12/22/21 02:45	1
Cobalt	1.2	U	10	1.2	ug/L		12/21/21 15:02	12/22/21 02:45	1
Iron	22	U	100	22	ug/L		12/21/21 15:02	12/22/21 02:45	1
Magnesium	26	U	200	26	ug/L		12/21/21 15:02	12/22/21 02:45	1
Manganese	1.9	U	10	1.9	ug/L		12/21/21 15:02	12/22/21 02:45	1
Potassium	240	U	3000	240	ug/L		12/21/21 15:02	12/22/21 02:45	1
Sodium	370	U	1000	370	ug/L		12/21/21 15:02	12/22/21 02:45	1
Vanadium	1.1	U	10	1.1	ug/L		12/21/21 15:02	12/22/21 02:45	1
Thallium	4.9	U	15	4.9	ug/L		12/21/21 15:02	12/22/21 02:45	1
Molybdenum	1.0	U	20	1.0	ug/L		12/21/21 15:02	12/22/21 02:45	1
Strontium	0.30	U ^6+	10	0.30	ug/L		12/21/21 15:02	12/22/21 02:45	1
Arsenic	4.4	U	15	4.4	ug/L		12/21/21 15:02	12/22/21 02:45	1
Boron	4.4	U	100	4.4	ug/L		12/21/21 15:02	12/22/21 02:45	1

Lab Sample ID: MB 280-561285/1-A
Matrix: Water
Analysis Batch: 561601

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 561285

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	9.1	U	20	9.1	ug/L		12/21/21 15:02	12/22/21 14:28	1

Lab Sample ID: LCS 280-561285/2-A
Matrix: Water
Analysis Batch: 561533

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 561285

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	50000	50400		ug/L		101	90 - 111
Chromium	1000	985		ug/L		99	90 - 113
Cobalt	1000	1000		ug/L		100	89 - 111
Iron	10000	10100		ug/L		101	89 - 115
Magnesium	50000	48900		ug/L		98	90 - 113
Manganese	1000	1010		ug/L		101	90 - 110
Potassium	50000	50300		ug/L		101	89 - 114
Sodium	50000	51800		ug/L		104	90 - 115
Vanadium	1000	1000		ug/L		100	90 - 111
Thallium	2000	1940		ug/L		97	88 - 110
Molybdenum	1000	1010		ug/L		101	90 - 110
Strontium	1000	1030	^6+	ug/L		103	90 - 111
Arsenic	2000	2070		ug/L		104	88 - 110
Boron	1000	1030		ug/L		103	86 - 110

Lab Sample ID: LCS 280-561285/2-A
Matrix: Water
Analysis Batch: 561601

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 561285

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	1000	1020		ug/L		102	90 - 112

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 280-561285/3-A
Matrix: Water
Analysis Batch: 561533

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 561285

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium			50000	49900		ug/L		100	90 - 111	1	20
Chromium			1000	981		ug/L		98	90 - 113	0	20
Cobalt			1000	993		ug/L		99	89 - 111	1	20
Iron			10000	10000		ug/L		100	89 - 115	1	20
Magnesium			50000	48700		ug/L		97	90 - 113	0	20
Manganese			1000	1000		ug/L		100	90 - 110	1	20
Potassium			50000	49800		ug/L		100	89 - 114	1	20
Sodium			50000	51500		ug/L		103	90 - 115	1	20
Vanadium			1000	995		ug/L		99	90 - 111	1	20
Thallium			2000	1930		ug/L		96	88 - 110	1	20
Molybdenum			1000	1000		ug/L		100	90 - 110	1	20
Strontium			1000	1020	^6+	ug/L		102	90 - 111	1	20
Arsenic			2000	2050		ug/L		103	88 - 110	1	20
Boron			1000	1040		ug/L		104	86 - 110	0	20

Lab Sample ID: LCSD 280-561285/3-A
Matrix: Water
Analysis Batch: 561601

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 561285

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium			1000	1000		ug/L		100	90 - 112	1	20

Lab Sample ID: 280-156833-1 MS
Matrix: Water
Analysis Batch: 561533

Client Sample ID: MW-1-20211214
Prep Type: Total/NA
Prep Batch: 561285

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Calcium	4400		50000	54900		ug/L		101	48 - 153
Chromium	1.7	J	1000	998		ug/L		100	73 - 135
Cobalt	1.2	U	1000	1010		ug/L		101	82 - 119
Iron	37	J	10000	10100		ug/L		101	52 - 155
Magnesium	800		50000	50300		ug/L		99	62 - 146
Manganese	1.9	U	1000	1020		ug/L		102	79 - 121
Potassium	1600	J	50000	51600		ug/L		100	76 - 132
Sodium	36000		50000	86400		ug/L		100	70 - 203
Vanadium	1.1	U	1000	1010		ug/L		101	85 - 120
Thallium	4.9	U	2000	1950		ug/L		97	90 - 116
Molybdenum	1.0	U	1000	1010		ug/L		101	83 - 109
Strontium	65	^6+	1000	1090	^6+	ug/L		103	81 - 125
Arsenic	4.4	U	2000	2090		ug/L		104	84 - 124
Boron	32	J	1000	1070		ug/L		104	87 - 113

Lab Sample ID: 280-156833-1 MS
Matrix: Water
Analysis Batch: 561601

Client Sample ID: MW-1-20211214
Prep Type: Total/NA
Prep Batch: 561285

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	9.1	U	1000	1020		ug/L		102	89 - 114

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 280-156833-1 MSD
Matrix: Water
Analysis Batch: 561533

Client Sample ID: MW-1-20211214
Prep Type: Total/NA
Prep Batch: 561285

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Calcium	4400		50000	56200		ug/L		104	48 - 153	2	20
Chromium	1.7	J	1000	992		ug/L		99	73 - 135	1	20
Cobalt	1.2	U	1000	996		ug/L		100	82 - 119	2	20
Iron	37	J	10000	10400		ug/L		104	52 - 155	3	20
Magnesium	800		50000	51400		ug/L		101	62 - 146	2	20
Manganese	1.9	U	1000	1010		ug/L		101	79 - 121	1	20
Potassium	1600	J	50000	52400		ug/L		102	76 - 132	2	20
Sodium	36000		50000	88300		ug/L		104	70 - 203	2	20
Vanadium	1.1	U	1000	1000		ug/L		100	85 - 120	1	20
Thallium	4.9	U	2000	1930		ug/L		97	90 - 116	1	20
Molybdenum	1.0	U	1000	1010		ug/L		101	83 - 109	1	20
Strontium	65	^6+	1000	1090	^6+	ug/L		102	81 - 125	1	20
Arsenic	4.4	U	2000	2050		ug/L		102	84 - 124	2	20
Boron	32	J	1000	1090		ug/L		106	87 - 113	1	20

Lab Sample ID: 280-156833-1 MSD
Matrix: Water
Analysis Batch: 561601

Client Sample ID: MW-1-20211214
Prep Type: Total/NA
Prep Batch: 561285

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	9.1	U	1000	1010		ug/L		101	89 - 114	1	20

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 280-560747/6
Matrix: Water
Analysis Batch: 560747

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.090	U	0.50	0.090	mg/L			12/15/21 11:56	1
Nitrite as N	0.049	U	0.50	0.049	mg/L			12/15/21 11:56	1
Orthophosphate as P	0.47	U	1.0	0.47	mg/L			12/15/21 11:56	1

Lab Sample ID: LCS 280-560747/4
Matrix: Water
Analysis Batch: 560747

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	5.00	4.93		mg/L		99	90 - 110
Nitrite as N	5.00	5.13		mg/L		103	90 - 110
Orthophosphate as P	5.00	4.75		mg/L		95	90 - 110

Lab Sample ID: LCSD 280-560747/5
Matrix: Water
Analysis Batch: 560747

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	5.00	4.92		mg/L		98	90 - 110	0	10
Nitrite as N	5.00	5.11		mg/L		102	90 - 110	0	10
Orthophosphate as P	5.00	4.74		mg/L		95	90 - 110	0	10

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MRL 280-560747/3
Matrix: Water
Analysis Batch: 560747

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.500	0.452	J	mg/L		90	50 - 150
Nitrite as N	0.500	0.452	J	mg/L		90	50 - 150
Orthophosphate as P	0.500	0.47	U	mg/L		54	50 - 150

Lab Sample ID: 280-156833-1 MS
Matrix: Water
Analysis Batch: 560747

Client Sample ID: MW-1-20211214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.81		5.00	5.64		mg/L		97	80 - 120
Nitrite as N	0.049	U	5.00	4.88		mg/L		98	80 - 120
Orthophosphate as P	0.47	U	5.00	4.48		mg/L		90	80 - 120

Lab Sample ID: 280-156833-1 MSD
Matrix: Water
Analysis Batch: 560747

Client Sample ID: MW-1-20211214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.81		5.00	5.77		mg/L		99	80 - 120	2	20
Nitrite as N	0.049	U	5.00	5.00		mg/L		100	80 - 120	2	20
Orthophosphate as P	0.47	U	5.00	4.59		mg/L		92	80 - 120	2	20

Lab Sample ID: 280-156833-1 DU
Matrix: Water
Analysis Batch: 560747

Client Sample ID: MW-1-20211214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	0.81		0.781		mg/L		3	15
Nitrite as N	0.049	U	0.049	U	mg/L		NC	15
Orthophosphate as P	0.47	U	0.47	U	mg/L		NC	15

Lab Sample ID: MB 280-560748/6
Matrix: Water
Analysis Batch: 560748

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	0.23	U	0.50	0.23	mg/L			12/15/21 11:56	1
Chloride	1.0	U	3.0	1.0	mg/L			12/15/21 11:56	1
Sulfate	1.0	U	5.0	1.0	mg/L			12/15/21 11:56	1

Lab Sample ID: LCS 280-560748/4
Matrix: Water
Analysis Batch: 560748

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	5.00	4.70		mg/L		94	90 - 110
Chloride	100	103		mg/L		103	90 - 110
Sulfate	100	103		mg/L		103	90 - 110

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 280-560748/5
Matrix: Water
Analysis Batch: 560748

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromide			5.00	4.65		mg/L		93	90 - 110	1	10
Chloride			100	103		mg/L		103	90 - 110	0	10
Sulfate			100	103		mg/L		103	90 - 110	0	10

Lab Sample ID: MRL 280-560748/3
Matrix: Water
Analysis Batch: 560748

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Bromide			0.500	0.425	J	mg/L		85	50 - 150		
Chloride			5.00	4.88		mg/L		98	50 - 150		
Sulfate			5.00	4.72	J	mg/L		94	50 - 150		

Lab Sample ID: 280-156833-1 MS
Matrix: Water
Analysis Batch: 560748

Client Sample ID: MW-1-20211214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bromide	0.23	U	5.00	4.65		mg/L		93	80 - 120		
Chloride	12		50.0	64.1		mg/L		104	80 - 120		
Sulfate	63		50.0	114		mg/L		102	80 - 120		

Lab Sample ID: 280-156833-1 MSD
Matrix: Water
Analysis Batch: 560748

Client Sample ID: MW-1-20211214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromide	0.23	U	5.00	4.73		mg/L		95	80 - 120	2	20
Chloride	12		50.0	65.6		mg/L		107	80 - 120	2	20
Sulfate	63		50.0	115		mg/L		105	80 - 120	1	20

Lab Sample ID: 280-156833-1 DU
Matrix: Water
Analysis Batch: 560748

Client Sample ID: MW-1-20211214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Bromide	0.23	U		0.23	U	mg/L				NC	15
Chloride	12			12.0		mg/L				2	15
Sulfate	63			61.6		mg/L				2	15

Lab Sample ID: MB 280-562555/6
Matrix: Water
Analysis Batch: 562555

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.17	U	0.50	0.17	mg/L			01/05/22 12:22	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 280-562555/4
Matrix: Water
Analysis Batch: 562555

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			5.00	4.84		mg/L		97	90 - 110		

Lab Sample ID: LCSD 280-562555/5
Matrix: Water
Analysis Batch: 562555

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride			5.00	4.83		mg/L		97	90 - 110	0	10

Lab Sample ID: MRL 280-562555/3
Matrix: Water
Analysis Batch: 562555

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride			0.500	0.481	J	mg/L		96	50 - 150		

Lab Sample ID: 280-156833-1 MS
Matrix: Water
Analysis Batch: 562555

Client Sample ID: MW-1-20211214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride	0.17	U	5.00	4.71		mg/L		94	80 - 120		

Lab Sample ID: 280-156833-1 MSD
Matrix: Water
Analysis Batch: 562555

Client Sample ID: MW-1-20211214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.17	U	5.00	4.37		mg/L		87	80 - 120	8	20

Lab Sample ID: 280-156833-1 DU
Matrix: Water
Analysis Batch: 562555

Client Sample ID: MW-1-20211214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Fluoride	0.17	U		0.17	U	mg/L				NC	15

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 280-561246/1
Matrix: Water
Analysis Batch: 561246

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	4.7	U	10	4.7	mg/L			12/20/21 10:38	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 280-561246/2
Matrix: Water
Analysis Batch: 561246

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			505	491		mg/L		97	88 - 114		

Lab Sample ID: LCSD 280-561246/3
Matrix: Water
Analysis Batch: 561246

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids			505	486		mg/L		96	88 - 114	1	20

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-561526/11
Matrix: Water
Analysis Batch: 561526

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Inorganic Carbon - Quad	0.35	U	1.0	0.35	mg/L			12/21/21 20:07	1

Lab Sample ID: MB 280-561526/7
Matrix: Water
Analysis Batch: 561526

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Inorganic Carbon - Quad	0.35	U	1.0	0.35	mg/L			12/21/21 19:17	1

Lab Sample ID: LCS 280-561526/9
Matrix: Water
Analysis Batch: 561526

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Inorganic Carbon - Quad			25.0	25.0		mg/L		100	88 - 112		

Lab Sample ID: LCSD 280-561526/10
Matrix: Water
Analysis Batch: 561526

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Inorganic Carbon - Quad			25.0	24.4		mg/L		97	88 - 112	3	15

Lab Sample ID: 280-156833-1 MS
Matrix: Water
Analysis Batch: 561526

Client Sample ID: MW-1-20211214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Inorganic Carbon - Quad	3.7	F1	25.0	36.3	F1	mg/L		130	88 - 112		

Method: SM 5310B - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 280-156833-1 MSD
Matrix: Water
Analysis Batch: 561526

Client Sample ID: MW-1-20211214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Inorganic Carbon - Quad	3.7	F1	25.0	35.4	F1	mg/L		127	88 - 112	2	15

Method: SM 5310B - Organic Carbon, Dissolved (DOC)

Lab Sample ID: MB 280-562238/5
Matrix: Water
Analysis Batch: 562238

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon - Quad	0.35	U	1.0	0.35	mg/L			12/30/21 15:05	1

Lab Sample ID: LCS 280-562238/3
Matrix: Water
Analysis Batch: 562238

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon - Quad	25.0	23.8		mg/L		95	88 - 112

Lab Sample ID: LCSD 280-562238/4
Matrix: Water
Analysis Batch: 562238

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon - Quad	25.0	24.3		mg/L		97	88 - 112	2	15

Lab Sample ID: 280-156833-1 MS
Matrix: Water
Analysis Batch: 562238

Client Sample ID: MW-1-20211214
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon - Quad	0.63	J	25.0	24.7		mg/L		96	88 - 112

Lab Sample ID: 280-156833-1 MSD
Matrix: Water
Analysis Batch: 562238

Client Sample ID: MW-1-20211214
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon - Quad	0.63	J	25.0	24.5		mg/L		96	88 - 112	1	15

QC Association Summary

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156833-1

Metals

Prep Batch: 561285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156833-1	MW-1-20211214	Total/NA	Water	3010A	
MB 280-561285/1-A	Method Blank	Total/NA	Water	3010A	
LCS 280-561285/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 280-561285/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	
280-156833-1 MS	MW-1-20211214	Total/NA	Water	3010A	
280-156833-1 MSD	MW-1-20211214	Total/NA	Water	3010A	

Analysis Batch: 561533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156833-1	MW-1-20211214	Total/NA	Water	6010C	561285
MB 280-561285/1-A	Method Blank	Total/NA	Water	6010C	561285
LCS 280-561285/2-A	Lab Control Sample	Total/NA	Water	6010C	561285
LCSD 280-561285/3-A	Lab Control Sample Dup	Total/NA	Water	6010C	561285
280-156833-1 MS	MW-1-20211214	Total/NA	Water	6010C	561285
280-156833-1 MSD	MW-1-20211214	Total/NA	Water	6010C	561285

Analysis Batch: 561601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156833-1	MW-1-20211214	Total/NA	Water	6010C	561285
MB 280-561285/1-A	Method Blank	Total/NA	Water	6010C	561285
LCS 280-561285/2-A	Lab Control Sample	Total/NA	Water	6010C	561285
LCSD 280-561285/3-A	Lab Control Sample Dup	Total/NA	Water	6010C	561285
280-156833-1 MS	MW-1-20211214	Total/NA	Water	6010C	561285
280-156833-1 MSD	MW-1-20211214	Total/NA	Water	6010C	561285

General Chemistry

Analysis Batch: 560747

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156833-1	MW-1-20211214	Total/NA	Water	9056A	
MB 280-560747/6	Method Blank	Total/NA	Water	9056A	
LCS 280-560747/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-560747/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-560747/3	Lab Control Sample	Total/NA	Water	9056A	
280-156833-1 MS	MW-1-20211214	Total/NA	Water	9056A	
280-156833-1 MSD	MW-1-20211214	Total/NA	Water	9056A	
280-156833-1 DU	MW-1-20211214	Total/NA	Water	9056A	

Analysis Batch: 560748

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156833-1	MW-1-20211214	Total/NA	Water	9056A	
MB 280-560748/6	Method Blank	Total/NA	Water	9056A	
LCS 280-560748/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-560748/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-560748/3	Lab Control Sample	Total/NA	Water	9056A	
280-156833-1 MS	MW-1-20211214	Total/NA	Water	9056A	
280-156833-1 MSD	MW-1-20211214	Total/NA	Water	9056A	
280-156833-1 DU	MW-1-20211214	Total/NA	Water	9056A	

General Chemistry

Analysis Batch: 561246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156833-1	MW-1-20211214	Total/NA	Water	SM 2540C	
MB 280-561246/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 280-561246/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 280-561246/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	

Analysis Batch: 561526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156833-1	MW-1-20211214	Total/NA	Water	SM 5310B	
MB 280-561526/11	Method Blank	Total/NA	Water	SM 5310B	
MB 280-561526/7	Method Blank	Total/NA	Water	SM 5310B	
LCS 280-561526/9	Lab Control Sample	Total/NA	Water	SM 5310B	
LCSD 280-561526/10	Lab Control Sample Dup	Total/NA	Water	SM 5310B	
280-156833-1 MS	MW-1-20211214	Total/NA	Water	SM 5310B	
280-156833-1 MSD	MW-1-20211214	Total/NA	Water	SM 5310B	

Analysis Batch: 562238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156833-1	MW-1-20211214	Dissolved	Water	SM 5310B	
MB 280-562238/5	Method Blank	Dissolved	Water	SM 5310B	
LCS 280-562238/3	Lab Control Sample	Dissolved	Water	SM 5310B	
LCSD 280-562238/4	Lab Control Sample Dup	Dissolved	Water	SM 5310B	
280-156833-1 MS	MW-1-20211214	Dissolved	Water	SM 5310B	
280-156833-1 MSD	MW-1-20211214	Dissolved	Water	SM 5310B	

Analysis Batch: 562555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-156833-1	MW-1-20211214	Total/NA	Water	9056A	
MB 280-562555/6	Method Blank	Total/NA	Water	9056A	
LCS 280-562555/4	Lab Control Sample	Total/NA	Water	9056A	
LCSD 280-562555/5	Lab Control Sample Dup	Total/NA	Water	9056A	
MRL 280-562555/3	Lab Control Sample	Total/NA	Water	9056A	
280-156833-1 MS	MW-1-20211214	Total/NA	Water	9056A	
280-156833-1 MSD	MW-1-20211214	Total/NA	Water	9056A	
280-156833-1 DU	MW-1-20211214	Total/NA	Water	9056A	

Lab Chronicle

Client: Geosyntec Consultants, Inc.
Project/Site: UNC Cogen

Job ID: 280-156833-1

Client Sample ID: MW-1-20211214

Date Collected: 12/14/21 11:25
Date Received: 12/15/21 10:30

Lab Sample ID: 280-156833-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561533	12/22/21 03:45	LMT	TAL DEN
Total/NA	Prep	3010A			50 mL	50 mL	561285	12/21/21 15:02	CEH	TAL DEN
Total/NA	Analysis	6010C		1			561601	12/22/21 15:29	LRD	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560747	12/15/21 13:06	SPG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	560748	12/15/21 13:06	SPG	TAL DEN
Total/NA	Analysis	9056A		1	10 mL	10 mL	562555	01/05/22 14:40	SPG	TAL DEN
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	561246	12/20/21 11:39	ABW	TAL DEN
Dissolved	Analysis	SM 5310B		1	20 mL	20 mL	562238	12/30/21 15:44	RAF	TAL DEN
Total/NA	Analysis	SM 5310B		1	20 mL	20 mL	561526	12/21/21 20:19	RAF	TAL DEN

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: Geosyntec Consultants, Inc. Job ID: 280-156833-1
Project/Site: UNC Cogen

Laboratory: Eurofins TestAmerica, Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23
A2LA	ISO/IEC 17025	2907.01	10-31-23
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-28-22
Arizona	State	AZ0713	12-20-22
Arkansas DEQ	State	19-047-0	06-01-22
California	State	2513	01-08-22
Connecticut	State	PH-0686	09-30-22
Florida	NELAP	E87667-57	06-30-22
Georgia	State	4025-011	01-08-22
Illinois	NELAP	2000172019-1	04-30-22
Iowa	State	IA#370	12-02-22
Kansas	NELAP	E-10166	04-30-22
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-22
Minnesota	NELAP	1788752	12-31-22
Nevada	State	CO000262020-1	07-31-22
New Hampshire	NELAP	205319	04-29-22
New Jersey	NELAP	190002	06-30-22
New York	NELAP	59923	04-01-22
North Carolina (WW/SW)	State	358	12-31-22
North Dakota	State	R-034	01-08-22
Oklahoma	State	2018-006	08-31-22
Oregon	NELAP	4025-011	01-08-22
Pennsylvania	NELAP	013	07-31-22
South Carolina	State	72002001	01-08-22
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-21-19	10-01-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-20-00065	03-06-23
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-22
Virginia	NELAP	10490	06-14-22
Washington	State	C583-19	08-03-22
West Virginia DEP	State	354	01-31-22
Wisconsin	State	999615430	08-31-22
Wyoming (UST)	A2LA	2907.01	10-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Alli Vo	Lab PM: McEntee, Patrick J	Carrier Tracking No(s):	COC No: 280-114880-30944.1
Client Contact: Michael Schott	Phone: (919) 424-1840	E-Mail: Patrick.McEntee@Eurofinset.com	State of Origin:	Page: 1
Company: Geosyntec Consultants Inc	PWSID:			Job #: GN666666
Address: 2501 Blue Ridge Road	Due Date Requested:			
City: Raleigh	TAT Requested (days):			
State, Zip: NC 27607	Compliance Project: Δ Yes Δ No			
Phone: 919 424 1824	PO #:			
Email: MSchott@Geosyntec.com	WO #:			
Project Name: UNC Cogen Chapel Hill, NC	Project #:			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify), Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	TDS	TIC	DOC	Anions	Total Metals	Total Number of containers	Special Instructions/Note:
Preservation Code:													
MW-1-20211214	12/14/21	1125	G	Water		X	X	X	X	X	X		
MW-1-20211214-MS	12/14/21	1130	G	Water		X	X	X	X	X	X		
MW-1-20211214-MSD	12/14/21	1135	G	Water		X	X	X	X	X	X		
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									
				Water									

280-156833 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

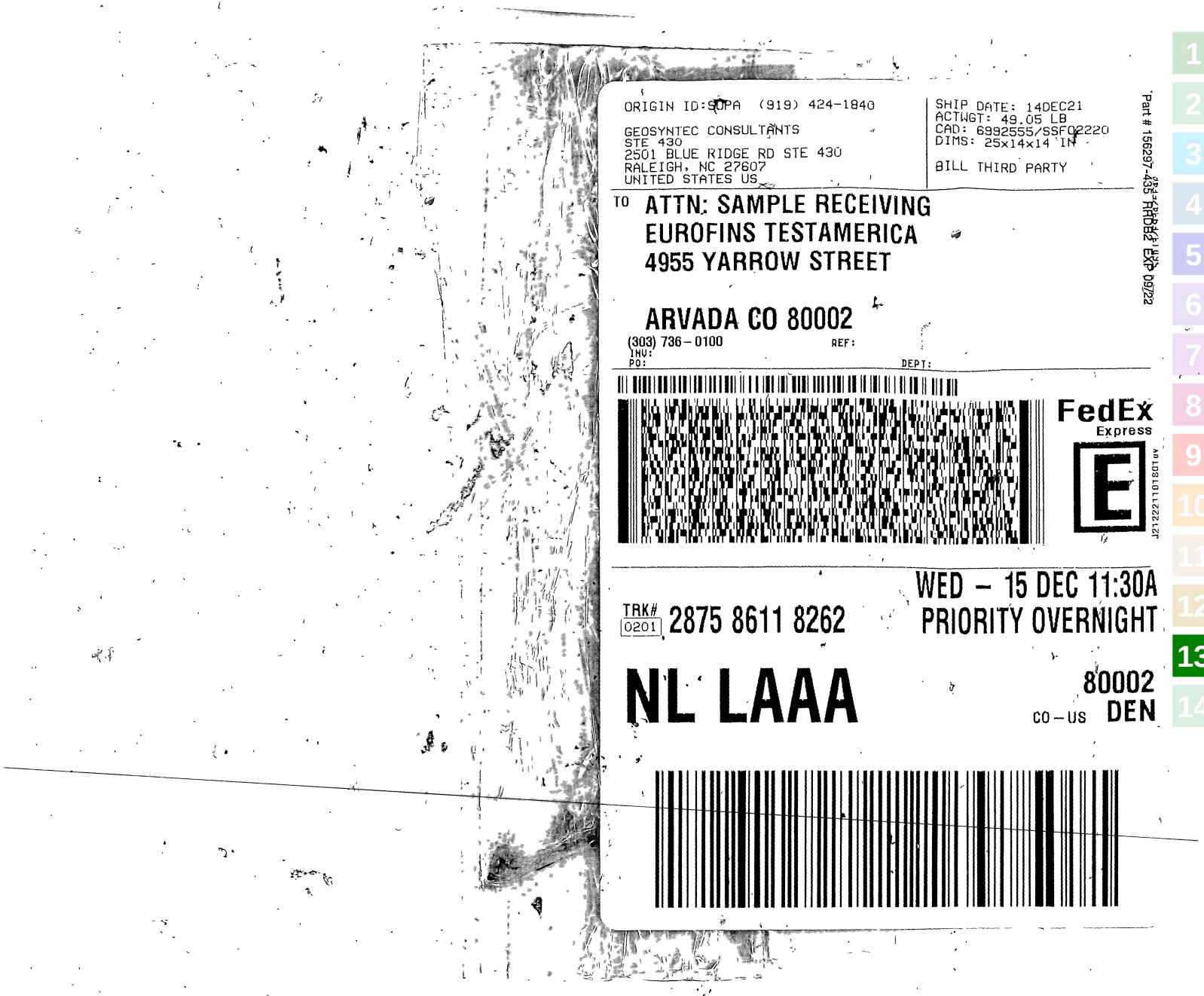
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	[signature]	12/14/21 1730	Geosyntec	[signature]	12/15/2021 1130	ETHDEN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: C-7 IR 11 CF-04

Ver: 01/16/2019



ORIGIN ID:SOPA (919) 424-1840

GEOSYNTEC CONSULTANTS
STE 430
2501 BLUE RIDGE RD STE 430
RALEIGH, NC 27607
UNITED STATES US

SHIP DATE: 14DEC21
ACTWGT: 49.05 LB
CAD: 6992555/SSFO2220
DIMS: 25x14x14 IN

BILL THIRD PARTY

TO ATTN: SAMPLE RECEIVING
EUROFINS TESTAMERICA
4955 YARROW STREET

ARVADA CO 80002
(303) 736-0100

INV:
PO:
REF:
DEPT:

FedEx Express

TRK# 0201 2875 8611 8262

WED - 15 DEC 11:30A
PRIORITY OVERNIGHT

NL LAAA

80002
CO-US DEN

Part # 156297-435 REV 0922 EXP 09/22

280-156833 Waybill

Login Sample Receipt Checklist

Client: Geosyntec Consultants, Inc.

Job Number: 280-156833-1

Login Number: 156833
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins TestAmerica, Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX B

Geosyntec consultants

180A Market Place Boulevard
Knoxville, TN 37922
PH 865.330.0037
www.geosyntec.com

Memorandum

Date:	12 January 2022
To:	Michael Schott
	Eric Nesbit
From:	Kristoffer Henderson
	Ashley Wilson
CC:	J. Caprio
Subject:	**Stage 2A Data Validation - Level II Data Deliverables – Eurofins TestAmerica Laboratory Job ID Numbers 280-156786-1, 280-156833-1 and 500-209718-1**

SITE: UNC Cogen

INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of eight water samples including one sample matrix spike/matrix spike duplicate (MS/MSD) collected from December 13-14, 2021 as part of the UNC Cogen sampling event. The analyses were performed at Eurofins TestAmerica (ETA) Denver, Arvada, Colorado, with the exception of the hexavalent chromium analyses which were performed by ETA Chicago, University Park, Illinois. The samples were analyzed for the following tests:

- United States Environmental Protection Agency (USEPA) Methods 3010A/6010C - Metals
- USEPA Method 9056A - Anions (Bromide, Chloride, Fluoride, Nitrate as N and Sulfate)
- Standard Method 2540C- Total Dissolved Solids (TDS)
- Standard Method 5310B – Total Inorganic Carbon (TIC) and Dissolved Organic Carbon (DOC)
- USEPA Method 218.6 – Hexavalent Chromium

Overall, based on this Stage 2A data validation covering the quality control (QC) parameters listed below and based on the information provided, the data as qualified are usable for supporting project objectives. Qualified data should be used within the limitations of the qualification.

The data were reviewed based on the pertinent methods referenced by the data package and professional and technical judgment and the following documents:

- Quality Assurance Project Plan (QAPP), UNC-CH Cogeneration Facility, Chapel Hill, North Carolina, Site ID # NCR000010272, Geosyntec Project Number GN5219, October 2013;
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, November 2020 (USEPA-542-R-20-006).

The following samples were analyzed and validated at a Stage 2A level in the data set:

Laboratory ID	Client ID
280-156786-1	MW-2-20211213
280-156786-2	MW-3-20211213
280-156786-3	MW-5-20211213
280-156786-4	SW-DOWN-20211213
280-156786-5	SW-UP-20211213

Laboratory ID	Client ID
280-156786-6	MW-4-20211213
280-156833-1	MW-1-20211214
280-156833-1 MS	MW-1-20211214
280-156833-1 MSD	MW-1-20211214
500-209718-1	MW-4-20211213

The samples were received at the laboratories at 0.2 degrees Celsius (ºC), 4.2ºC, 2.9ºC and 0.3ºC, both within and outside of the QAPP criteria of 4 ºC $\pm$ 2 ºC. However, since the samples were received below 6 ºC and above freezing, no qualifications were applied to the data, based on professional and technical judgment. No sample preservation issues were noted by the laboratory.

Incorrect error corrections were observed on the chain of custody (COC) in reports 280-156786-1 and 500-209718-1 instead of the proper procedure of a single strike through, correction, and initials and date of the person making the corrections.

The sample collections times on the COC in report 280-156833-1 did not match for the MS/MSD for sample MW-1-20211214. The MS/MSD samples were logged in to match the collection time of sample MW-1-12182020 at 11:25.

1.0 METALS

The samples were analyzed for metals per USEPA Methods 3010A/6010C.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Times
✓ Method Blank
✓ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample

- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

1.1 Overall Assessment

The metals data reported in this sample set are considered usable for supporting project objectives. The results are considered valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for the sample set is 100%.

1.1.1 Analysis Anomaly

The interference check standard solution (ICSA) associated with batches 561487 and 561533 had results for strontium at a level greater than the reporting limit (RL). The initial ICSA result(s) was 24.9ppb which is greater than the LOD of 0.3ppb for Sr. This element has been shown to be a trace impurity by mass spectrum. Therefore, based on professional and technical judgment, no qualifications were applied to the data.

1.2 Holding Times

The holding time for metals analyses of water samples is 180 days from sample collection to analysis. The holding time was met for the sample analyses.

1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 561285). Metals were not detected in the method blank above the method detection limits (MDLs).

1.4 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One sample set specific MS/MSD pair was reported using sample MW-1-20211214. The recovery and relative percent difference (RPD) results were within the laboratory specified acceptance criteria.

1.5 Laboratory Control Sample (LCS)

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS/LCS duplicate (LCSD) pair was reported. The recovery and RPD results were within the QAPP specified acceptance criteria.

1.6 Equipment Blank

An equipment blank was not collected with the sample set.

1.7 Field Duplicate

A field duplicate sample was not collected with the sample set.

1.8 Sensitivity

The samples were reported to the MDLs. Elevated non-detect results were not reported. The MDLs and RLs were similar to those listed in Table 6.2 of the QAPP.

1.9 Electronic Data Deliverables (EDDs) Review

Results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20%. The MDLs and RLs were reported in the level II reports; however, only the MDLs were reported in the EDDs. No other discrepancies were identified between the level II reports and the EDDs.

2.0 WET CHEMISTRY

The samples were analyzed for anions (bromide, chloride, fluoride, nitrate as N and sulfate) by USEPA Method 9056A, DOC and TIC by Standard Method 5310B, TDS by Standard Method 2540C and hexavalent chromium by USEPA method 218.6.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

✓ Overall Assessment
✓ Holding Times
✓ Method Blank
⊗ Matrix Spike/Matrix Spike Duplicate
✓ Laboratory Control Sample
✓ Laboratory Duplicate

- ✓ Equipment Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

2.1 Overall Assessment

2.1.1 Completeness

The wet chemistry data reported in this sample set are considered usable for supporting project objectives. The results are considered valid; the analytical completeness, defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for the sample set is 100%.

2.1.2 Analysis Anomaly

The fluoride results in samples MW-3-20211213, MW-5-20211213, SW-DOWN-20211213, SW-UP-20211213 and MW-4-20211213 were flagged ^1+ to indicate the initial calibration verification (ICV) result was high and outside of the control limits. Since fluoride was not detected in these samples, no qualifications were applied to the data.

2.2 Holding Times

The specified holding times are listed below.

Parameter	Holding Time
Bromide, Chloride, Fluoride And Sulfate by USEPA Method 9056A	28 days from sample collection to analysis
Nitrate and N by USEPA Method 9056A	48 hours from sample collection to analysis
DOC and TIC by SM 5310B	28 days from sample collection to analysis
TDS by Standard Method 2540C	7 days from sample collection to analysis
Hexavalent chromium by USEPA Method 218.6	24 hours from sample collection to analysis or 28 days for field filtered and preserved samples (pH 9.3-9.7)

The holding times were met for the sample analyses.

2.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two method blanks were reported for TDS (batches 561246 and 561048), five method blanks were reported for the anions (batches 560747, 560748, 562555, 560574 and 560575), two method blanks for DOC (batches 562238 and 562191), two method blanks for TIC (batches 561526 and 561673) and one method blank was reported for

hexavalent chromium (batch 634390). The wet chemistry parameters were not detected in the method blanks above the MDLs.

2.4 Matrix Spike/Matrix Spike Duplicate

One sample set specific MS/MSD pair was reported for the anions, using sample MW-1-20211214, two sample set specific MS/MSD pairs were reported for DOC using samples MW-1-20211214 and MW-2-20211213 and two sample set specific MS/MSD pairs were reported for TIC using samples MW-1-20211214 and MW-3-20211213. The recovery and RPD results were within the laboratory specified acceptance criteria, with the following exceptions.

The recoveries of TIC in the MS/MSD pair using sample MW-1-20211214 were high and outside the laboratory specified acceptance criteria. Therefore, the TIC concentration in sample MW-1-20211214 was J+ qualified as estimated with a high bias.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier*	Reason Code**
MW-1-20211214	TIC	3.7	F1	3.7	J+	4

mg/L-milligrams per liter
F1-laboratory flag indicating the MS and/or MSD recovery was outside the limits
* Validation qualifiers are defined in Attachment 1 at the end of this report
**Reason codes are defined in Attachment 2 at the end of this report

2.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs, LCS/LCSD pairs and method reporting limit (MRL) standards were reported for the anions, TDS, TIC, DOC and hexavalent chromium data. The recovery and RPD results were within the laboratory specified acceptance criteria.

2.6 Laboratory Duplicate

One sample set specific laboratory duplicate was reported for anions, using sample MW-1-20211214 and one sample set specific laboratory duplicate was reported for TDS using samples MW-2-20211213. The RPD results were within the laboratory specified acceptance criteria.

2.7 Equipment Blank

An equipment blank was not collected with the sample set.

2.8 Field Duplicate

A field duplicate sample was not collected with the sample set.

2.9 Sensitivity

The samples were reported to the MDLs. MDLs and RLs for the wet chemistry parameters were not listed in QAPP Table 6.2.

2.10 Electronic Data Deliverables Review

Results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20%. The MDLs and RLs were reported in the level II reports; however, only the MDLs were reported in the EDDs. No other discrepancies were identified between the level II reports and the EDDs.

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* * * * *

ATTACHMENT 1
DATA VALIDATION QUALIFIER DEFINITIONS AND INTERPRETATION KEY
Assigned by Geosyntec's Data Validation Team

DATA QUALIFIER DEFINITIONS

U The analyte was analyzed for but was not detected above the reported sample quantitation limit. Upon application of the U qualifier to a reported result, the definition changes to "not detected at or above the reported result".

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ The analyte was positively identified; however, the associated numerical value is likely to be higher that the concentration of the analyte in the sample due to positive bias of associated QC or calibration data or attributable to matrix interference.

J- The analyte was positively identified; however, the associated numerical value is likely to be lower that the concentration of the analyte in the sample due to negative bias of associated QC or calibration data or attributable to matrix interference.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

ATTACHMENT 2
DATA VALIDATION REASON CODES
Assigned by Geosyntec's Data Validation Team

Valid Value	Description
1	Preservation requirement not met
2	Analysis holding time exceeded
3	Blank contamination (i.e., method, trip, equipment, etc.)
4	Matrix spike/matrix spike duplicate recovery or RPD outside limits
5	LCS recovery outside limits
6	Surrogate recovery outside limits
7	Field Duplicate RPD exceeded
8	Serial dilution percent difference exceeded
9	Calibration criteria not met
10	Linear range exceeded
11	Internal standard criteria not met
12	Lab duplicates RPD exceeded
13	Other
14	Lab flag removed or modified: no validation qualification required

RPD-relative percent difference