

FOURTH QUARTER 2022 SITE MONITORING DATA
HSR CHARLTON 08-20

COGCC SPILL TRACKING # 480746
COGCC REMEDIATION # 19600

Prepared for:



2115 117th Avenue
Greeley, CO 80631

Prepared by:



6855 W. 119th Ave
Broomfield, CO 80020

TABLE 1
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - HSR CHARLTON 08-20

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft.)	Depth to LNAPL (ft.)	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH01	10/27/21	4786.35	10.70	1.63	ND	ND	4785.04
BH01	03/08/22	4786.35	10.45	3.36	ND	ND	4783.31
BH01	06/14/22	4786.35	10.42	1.75	ND	ND	4784.92
BH01	09/23/22	Not Sampled - Well Covered by Equipment					
BH01	12/29/22	Not Sampled - Well Covered by Equipment					
BH02	10/27/21	4786.51	10.32	1.98	ND	ND	4784.82
BH02	03/08/22	4786.51	10.30	3.75	ND	ND	4783.05
BH02	06/14/22	4786.51	10.24	2.12	ND	ND	4784.68
BH02	09/23/22	4786.51	10.17	1.95	ND	ND	4784.85
BH02	12/29/22	4786.51	10.16	3.59	ND	ND	4783.21
BH03	10/27/21	4786.75	11.92	1.80	ND	ND	4785.36
BH03	03/08/22	4786.75	11.71	3.57	ND	ND	4783.59
BH03	06/14/22	4786.75	11.68	1.86	ND	ND	4785.30
BH03	09/23/22	4786.75	11.58	1.77	ND	ND	4785.39
BH03	12/29/22	4786.75	11.45	3.49	ND	ND	4783.67
BH04	10/27/21	4786.98	13.55	1.96	ND	ND	4785.26
BH04	03/08/22	4786.98	13.29	3.68	ND	ND	4783.54
BH04	06/14/22	4786.98	12.72	2.05	ND	ND	4785.17
BH04	09/23/22	4786.98	12.45	1.98	ND	ND	4785.24
BH04	12/29/22	4786.98	12.38	3.58	ND	ND	4783.64
BH05	10/27/21	4786.32	10.38	1.94	ND	ND	4784.57
BH05	03/08/22	4786.32	10.45	3.58	ND	ND	4782.93
BH05	06/14/22	4786.32	10.44	2.09	ND	ND	4784.42
BH05	09/23/22	4786.32	10.52	1.94	ND	ND	4784.57
BH05	12/29/22	4786.32	10.49	3.49	ND	ND	4783.02

Notes:

⁽¹⁾ Depth to water measurements were collected from top of casing and adjusted using survey data to reflect depth of water from ground surface.

* Groundwater elevation was corrected for product thickness (when present) using the following calculation:

Groundwater elevation = (TOC Elevation - Measured Depth to Water)+(LNAPL Thickness in Well x LNAPL Relative Density)

LNAPL relative density was estimated to be approximately 0.75

Definitions:

ft. = Feet
 AMSL = Above mean sea level
 BTOC = Below top of casing
 BGS = Below ground surface
 LNAPL = Light non-aqueous phase liquid
 ND = No LNAPL detected

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - HSR CHARLTON 08-20



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	1-M (µg/L)	2-M (µg/L)	TDS (mg/L)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)
COGCC Groundwater Standard ⁽¹⁾		5	560	700	1,400	140	67	67	1.1 ⁽³⁾	3.6 ⁽³⁾	<1.25 x Background	250 or <1.25 x Background	250 or <1.25 x Background
GW01	09/13/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	NA	NA	NA
BH01	10/27/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	728	203	273
BH01	03/08/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	664	93.8	29.8
BH01	06/14/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	1,920	416	467
BH01	09/23/22	Not Sampled - Well Covered by Equipment											
BH01	12/29/22												
BH02	10/27/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	1,280	348	634
BH02	03/08/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	945	192	93.6
BH02	06/14/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	2,220	540	644
BH02	09/23/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	1,080	374	641
BH02	12/29/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	596	98.6	72.8
BH03 ⁽²⁾	10/27/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	1,070	298	388
BH03 ⁽²⁾	03/08/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	1,370	292	314
BH03 ⁽²⁾	06/14/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	2,660	551	954
BH03 ⁽²⁾	09/23/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	688	189	280
BH03 ⁽²⁾	12/29/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	594	91.0	73.8
BH04	10/27/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	836	212	374
BH04	03/08/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	780	151	103
BH04	06/14/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	1,230	221	306
BH04	09/23/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	518	168	216
BH04	12/29/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	560	95.2	73.8
BH05	10/27/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	816	215	365
BH05	03/08/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	640	111	57.8
BH05	06/14/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	NA	NA	988	161	145
BH05	09/23/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	868	187	203
BH05	12/29/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.500	<0.500	518	72.2	76.2

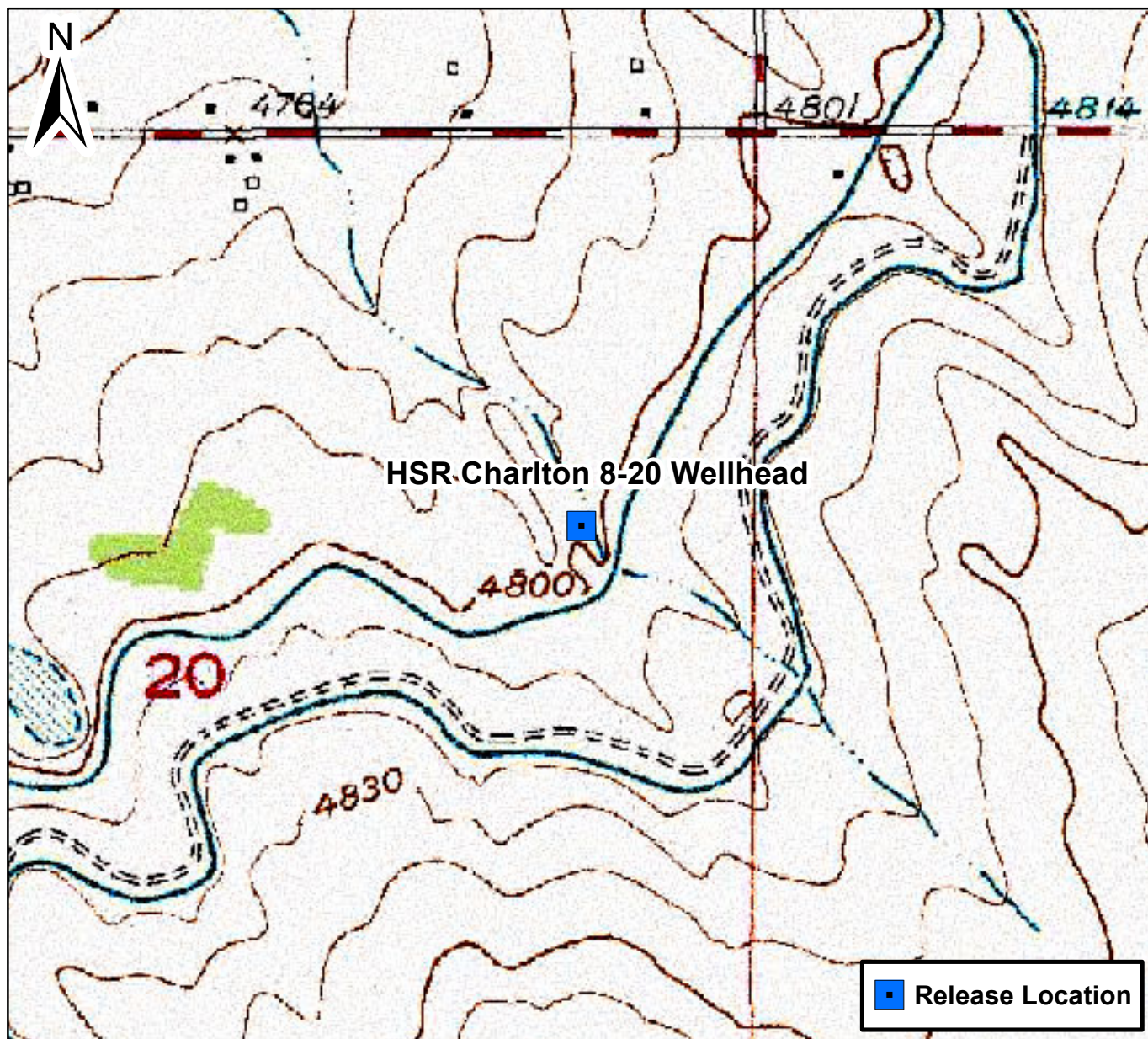
⁽¹⁾ Groundwater standards referenced from 2 CCR 404-1, Table 915-1 (January 15, 2021).
⁽²⁾ Monitoring well used to determine background concentration levels
⁽³⁾ Groundwater standards reference from USEPA Regional Screening Level (RSL) Resident Tapwater Table (TR=1E-06, HQ=0.1) November 2022

Definitions:

< = Analytical result is less than the indicated laboratory reporting limit
COGCC = Colorado Oil and Gas Conservation Commission
µg/L = Micrograms per liter
mg/L = Milligrams per liter
NA = Not analyzed
1,2,4 - TMB = 1,2,4 Trimethylbenzene
1,3,5 - TMB = 1,3,5 Trimethylbenzene
1-M = 1-Methylnaphthalene
2-M = 2-Methylnaphthalene
TDS = Total Dissolved Solids

Highlighted results are equal to or exceed the COGCC Table 915-1 standard

Bold results exceed the COGCC Table 915-1 standard for groundwater inorganic parameters, site-specific background assessment is on-going for groundwater inorganic constituents.




0 875 1,750 Feet

Figure 1


Site Location Map
 HSR Charlton 8-20 Wellhead
 SENE S20 T4N R65W
 Weld County, Colorado

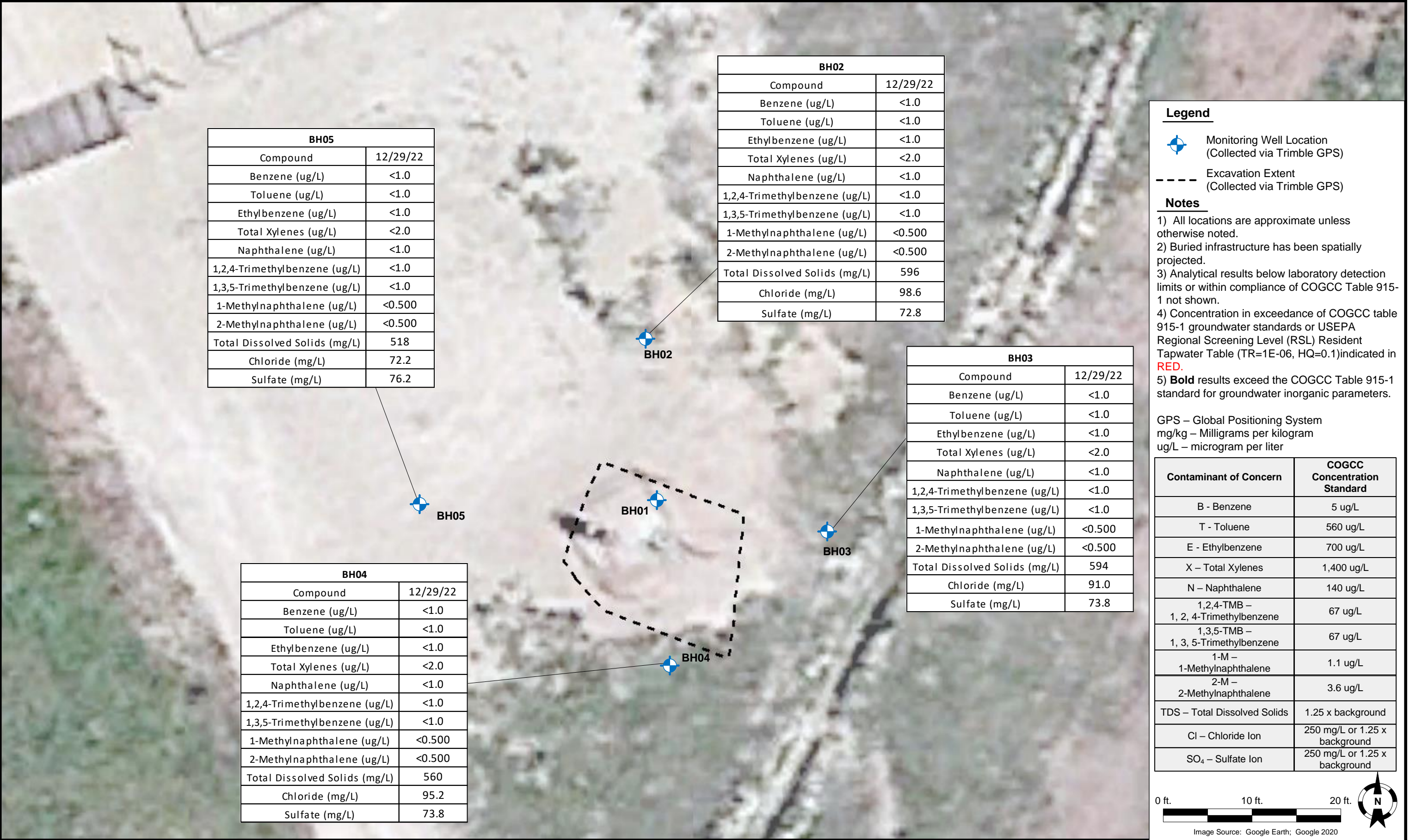




DATE: 07/20/2022	 TASMAN GEOSCIENCES	Tasman Geosciences, Inc. 6855 W 119 th Avenue Broomfield, CO 80020	Noble Energy, Inc. – DJ Basin HSR Charlton 08-20 Wellhead SENE, Section 20, Township 4 North, Range 65 West Weld County, Colorado	Site Overview Map	FIGURE 2
DESIGNED BY: JW					
DRAWN BY: CA					



DATE:	02/02/2022	 <div>Tasman Geosciences, Inc. 6855 W 119th Ave. Broomfield, CO 80020</div>	Noble Energy, Inc. – DJ Basin HSR Charlton 08-20 Wellhead SENE, Section 20, Township 4 North, Range 65 West Weld County, Colorado	Groundwater Potentiometric Surface Contour Map (12/29/2022)	FIGURE 3
DESIGNED BY:	JW				
DRAWN BY:	JC				



Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

January 11, 2023

Jacob Whritenour

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - HSR Charlton 08-20

Work Order #2212578

Enclosed are the results of analyses for samples received by Summit Scientific on 12/29/22 17:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Sheely".

Scott Sheely For Paul Shrewsbury
President



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH02	2212578-01	Water	12/29/22 12:34	12/29/22 17:45
BH03	2212578-02	Water	12/29/22 12:34	12/29/22 17:45
BH04	2212578-03	Water	12/29/22 12:30	12/29/22 17:45
BH05	2212578-04	Water	12/29/22 12:32	12/29/22 17:45

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Summit Scientific

S₂

2212578

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310 ♦ 303-374-5933 (f)

Page 1 of 1

Client: Noble / Tasman Geoscience

Project Manager: Jake Whritenour

Address: 6855 W. 119th Ave.

E-Mail: Jwhritenour@tasman-geo.com

City/State/Zip: Broomfield / CO / 80020


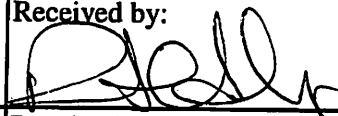
Phone: 303-487-1228

Project Name: HSR Charlton 08-20

Sampler Name: Patrick Kline

Project Number: N/A

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	BTEX	Naphthalene	1,2,4-TMB	1,3,5-TMB	TDS	Chloride	Sulfate	PMN, 2-MN	
1	BH02	12/29/22	1234	5	3		2		X					X	X	X	X	X	X	X	
2	BH03	I	1234	I	I		I		I					I	I	I	I	I	I	I	
3	BH04	I	1230	I	I		I		I					I	I	I	I	I	I	I	
4	BH05	I	1232	I	I		I		I					I	I	I	I	I	I	I	
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: 	Date/Time: 12/29/22 1600	Received by: Tasman's Lock Box	Date/Time: 12/29/22 1600	Turn Around Time (Check) Same Day <input type="checkbox"/> 24 hours <input type="checkbox"/> 48 hours <input type="checkbox"/>	72 hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/>	Notes:
Relinquished by: Tasman's Lock Box	Date/Time: 12/29/22 1745	Received by: 	Date/Time: 12/29/22 1745	Sample Integrity: Temperature Upon Receipt: 6.3		
Relinquished by:	Date/Time:	Received by:	Date/Time:	Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

S₂

2212578

Sample Receipt Checklist

S2 Work Order#

Client: Noble/Tasman Client Project ID: H5R Charton 08-20

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other _____ Airbill #: _____

	✓			
--	---	--	--	--

Matrix (Check all that apply) Air ☐ Soil/Solid ☐ Water ☒ Other ☐Temp (°C) 0.5Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? ⁽¹⁾ NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	✓			on ICE
If custody seals are present, are they intact? ⁽¹⁾	✓			
Are samples due within 48 hours present?		✓		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe ²⁺), Hexavalent Chromium (Cr ⁶⁺ , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen			✓	
Is a chain-of-custody (COC) form present and filled out Completely? ⁽¹⁾	✓			
Is the COC properly relinquished by the client w/ date and time recorded? ⁽¹⁾	✓			
Were all samples received intact? ⁽¹⁾	✓			
Was adequate sample volume provided? ⁽¹⁾	✓			
Does the COC agree with the number and type of sample bottles received? ⁽¹⁾	✓			
Do the sample IDs on the bottle labels match the COC? ⁽¹⁾	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		✓		
Are samples preserved that require preservation (excluding cooling)? ⁽¹⁾ Note the type of preservative in the comments column – HCl, H ₂ SO ₄ , NaOH, HNO ₃ , etc.	✓			HCl
If samples are acid preserved for metals, is the pH ≤ 2? ⁽¹⁾ Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	

Additional Comments (if any):

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.

Custodian Printed Name

Date/Time

12.29.22.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

BH02
2212578-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/29/22 12:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BGA0045	01/04/23	01/05/23	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **12/29/22 12:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	13.4	100 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	13.3	100 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.2	98.8 %		21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **12/29/22 12:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
1-Methylnaphthalene	ND	0.500		ug/l	1	BGA0065	01/05/23	01/05/23	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500		"	"	"	"	"	"	

Date Sampled: **12/29/22 12:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 2-Methylnaphthalene-d10	1.31	65.6 %		40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	1.52	75.9 %		40-150		"	"	"	"	

Anions by EPA Method 300.0

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

BH02
2212578-01 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **12/29/22 12:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	98.6	12.0		mg/L	200	BGA0164	01/09/23	01/09/23	EPA 300.0	
Sulfate	72.8	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **12/29/22 12:34**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	596	10.0		mg/L	1	BGA0012	01/03/23	01/03/23	SM2540C	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

BH03
2212578-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/29/22 12:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGA0045	01/04/23	01/05/23	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **12/29/22 12:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	13.2	99.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.9	96.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.2	99.3 %	21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **12/29/22 12:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
1-Methylnaphthalene	ND	0.500	ug/l	1	BGA0065	01/05/23	01/05/23	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500	"	"	"	"	"	"	

Date Sampled: **12/29/22 12:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	1.19	59.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	1.71	85.7 %	40-150		"	"	"	"	

Anions by EPA Method 300.0

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

BH03
2212578-02 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **12/29/22 12:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Chloride	91.0	12.0	mg/L	200	BGA0164	01/09/23	01/09/23	EPA 300.0	
Sulfate	73.8	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **12/29/22 12:34**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Total Dissolved Solids	594	10.0	mg/L	1	BGA0012	01/03/23	01/03/23	SM2540C	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

BH04
2212578-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/29/22 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGA0045	01/04/23	01/05/23	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **12/29/22 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	13.3	100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	13.0	97.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.2	99.3 %	21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **12/29/22 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
1-Methylnaphthalene	ND	0.500	ug/l	1	BGA0065	01/05/23	01/05/23	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500	"	"	"	"	"	"	

Date Sampled: **12/29/22 12:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	1.19	59.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	1.54	76.8 %	40-150		"	"	"	"	

Anions by EPA Method 300.0

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

BH04
2212578-03 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **12/29/22 12:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	95.2	12.0		mg/L	200	BGA0164	01/09/23	01/09/23	EPA 300.0	
Sulfate	73.8	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **12/29/22 12:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	560	10.0		mg/L	1	BGA0012	01/03/23	01/03/23	SM2540C	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

BH05
2212578-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **12/29/22 12:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	BGA0045	01/04/23	01/05/23	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **12/29/22 12:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	13.0	97.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.9	96.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.1	98.5 %	21-167		"	"	"	"	

PAH by EPA Method 8270D SIM

Date Sampled: **12/29/22 12:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
1-Methylnaphthalene	ND	0.500	ug/l	1	BGA0065	01/05/23	01/05/23	EPA 8270D SIM	
2-Methylnaphthalene	ND	0.500	"	"	"	"	"	"	

Date Sampled: **12/29/22 12:32**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	1.35	67.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	1.63	81.4 %	40-150		"	"	"	"	

Anions by EPA Method 300.0

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

BH05
2212578-04 (Water)

Summit Scientific

Anions by EPA Method 300.0

Date Sampled: **12/29/22 12:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Chloride	72.2	12.0		mg/L	200	BGA0164	01/09/23	01/09/23	EPA 300.0	
Sulfate	76.2	60.0		"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **12/29/22 12:32**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Total Dissolved Solids	518	10.0		mg/L	1	BGA0012	01/03/23	01/03/23	SM2540C	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGA0045 - EPA 5030 Water MS

Blank (BGA0045-BLK1)

Prepared: 01/04/23 Analyzed: 01/05/23

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Naphthalene	ND	1.0	"							
1,2,4-Trimethylbenzene	ND	1.0	"							
1,3,5-Trimethylbenzene	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.1		"	13.3		98.1	23-173			
Surrogate: Toluene-d8	13.0		"	13.3		97.3	20-170			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		98.9	21-167			

LCS (BGA0045-BS1)

Prepared: 01/04/23 Analyzed: 01/05/23

Benzene	38.0	1.0	ug/l	41.7		91.3	51-132			
Toluene	38.2	1.0	"	41.7		91.8	51-138			
Ethylbenzene	40.8	1.0	"	41.7		97.9	58-146			
m,p-Xylene	82.0	2.0	"	83.3		98.4	57-144			
o-Xylene	38.9	1.0	"	41.7		93.3	53-146			
Naphthalene	32.9	1.0	"	41.7		79.0	70-130			
1,2,4-Trimethylbenzene	42.6	1.0	"	41.7		102	70-130			
1,3,5-Trimethylbenzene	43.9	1.0	"	41.7		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.0		"	13.3		97.8	23-173			
Surrogate: Toluene-d8	13.0		"	13.3		97.8	20-170			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.5	21-167			

Matrix Spike (BGA0045-MS1)

Source: 2212578-01

Prepared: 01/04/23 Analyzed: 01/05/23

Benzene	38.2	1.0	ug/l	41.7	ND	91.6	34-141			
Toluene	37.8	1.0	"	41.7	ND	90.8	27-151			
Ethylbenzene	40.9	1.0	"	41.7	ND	98.1	29-160			
m,p-Xylene	81.6	2.0	"	83.3	ND	97.9	20-166			
o-Xylene	39.1	1.0	"	41.7	ND	93.8	33-159			
Naphthalene	35.7	1.0	"	41.7	ND	85.7	70-130			
1,2,4-Trimethylbenzene	42.7	1.0	"	41.7	ND	103	70-130			
1,3,5-Trimethylbenzene	43.8	1.0	"	41.7	ND	105	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.6		"	13.3		102	23-173			
Surrogate: Toluene-d8	12.9		"	13.3		97.1	20-170			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.4	21-167			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGA0045 - EPA 5030 Water MS

Matrix Spike Dup (BGA0045-MSD1)	Source: 2212578-01			Prepared: 01/04/23 Analyzed: 01/05/23						
Benzene	38.1	1.0	ug/l	41.7	ND	91.4	34-141	0.157	30	
Toluene	37.4	1.0	"	41.7	ND	89.7	27-151	1.25	30	
Ethylbenzene	40.8	1.0	"	41.7	ND	97.8	29-160	0.245	30	
m,p-Xylene	81.5	2.0	"	83.3	ND	97.8	20-166	0.172	30	
o-Xylene	39.3	1.0	"	41.7	ND	94.4	33-159	0.663	30	
Naphthalene	37.2	1.0	"	41.7	ND	89.4	70-130	4.22	30	
1,2,4-Trimethylbenzene	42.4	1.0	"	41.7	ND	102	70-130	0.705	30	
1,3,5-Trimethylbenzene	43.6	1.0	"	41.7	ND	105	70-130	0.549	30	
Surrogate: 1,2-Dichloroethane-d4	14.1		"	13.3		106	23-173			
Surrogate: Toluene-d8	12.8		"	13.3		96.4	20-170			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.0	21-167			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGA0065 - EPA 5030 Water MS

Blank (BGA0065-BLK1)

Prepared & Analyzed: 01/05/23

Acenaphthene	ND	0.500	ug/l							
Acenaphthylene	ND	0.200	"							
Anthracene	ND	0.200	"							
Benzo (a) anthracene	ND	0.100	"							
Benzo (b) fluoranthene	ND	0.200	"							
Benzo (k) fluoranthene	ND	0.200	"							
Benzo (g,h,i) perylene	ND	0.200	"							
Benzo (a) pyrene	ND	0.200	"							
Chrysene	ND	0.200	"							
Dibenz (a,h) anthracene	ND	0.200	"							
Fluoranthene	ND	2.00	"							
Fluorene	ND	0.200	"							
Indeno (1,2,3-cd) pyrene	ND	0.300	"							
Phenanthrene	ND	0.500	"							
Pyrene	ND	1.00	"							
1-Methylnaphthalene	ND	0.500	"							
2-Methylnaphthalene	ND	0.500	"							
Surrogate: 2-Methylnaphthalene-d10	2.02		"	2.00		101	40-150			
Surrogate: Fluoranthene-d10	2.11		"	2.00		105	40-150			

LCS (BGA0065-BS1)

Prepared & Analyzed: 01/05/23

Acenaphthene	1.82	0.500	ug/l	2.00		91.0	30-120			
Acenaphthylene	1.81	0.200	"	2.00		90.4	30-120			
Anthracene	1.80	0.200	"	2.00		90.2	30-120			
Benzo (a) anthracene	1.76	0.100	"	2.00		88.2	30-120			
Benzo (b) fluoranthene	1.74	0.200	"	2.00		87.1	30-120			
Benzo (k) fluoranthene	1.77	0.200	"	2.00		88.7	30-120			
Benzo (g,h,i) perylene	1.68	0.200	"	2.00		84.0	30-120			
Benzo (a) pyrene	1.73	0.200	"	2.00		86.6	30-120			
Chrysene	1.86	0.200	"	2.00		93.0	30-120			
Dibenz (a,h) anthracene	1.58	0.200	"	2.00		78.9	30-120			
Fluoranthene	1.81	2.00	"	2.00		90.4	30-120			
Fluorene	1.78	0.200	"	2.00		88.8	30-120			
Indeno (1,2,3-cd) pyrene	1.77	0.300	"	2.00		88.5	30-120			
Phenanthrene	1.81	0.500	"	2.00		90.6	30-120			
Pyrene	1.86	1.00	"	2.00		93.2	30-120			
1-Methylnaphthalene	1.89	0.500	"	2.00		94.5	30-120			
2-Methylnaphthalene	1.89	0.500	"	2.00		94.6	0-200			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGA0065 - EPA 5030 Water MS

LCS (BGA0065-BS1)

Prepared & Analyzed: 01/05/23

Surrogate: 2-Methylnaphthalene-d10	1.83		ug/l	2.00		91.4	40-150		
Surrogate: Fluoranthene-d10	1.85		"	2.00		92.6	40-150		

LCS Dup (BGA0065-BSD1)

Prepared & Analyzed: 01/05/23

Acenaphthene	1.88	0.500	ug/l	2.00		93.8	30-120	2.99	30
Acenaphthylene	1.82	0.200	"	2.00		91.1	30-120	0.768	30
Anthracene	1.94	0.200	"	2.00		96.8	30-120	7.01	30
Benzo (a) anthracene	1.83	0.100	"	2.00		91.5	30-120	3.65	30
Benzo (b) fluoranthene	1.88	0.200	"	2.00		94.2	30-120	7.76	30
Benzo (k) fluoranthene	1.94	0.200	"	2.00		97.1	30-120	9.14	30
Benzo (g,h,i) perylene	1.84	0.200	"	2.00		91.9	30-120	9.02	30
Benzo (a) pyrene	1.87	0.200	"	2.00		93.3	30-120	7.39	30
Chrysene	1.91	0.200	"	2.00		95.4	30-120	2.61	30
Dibenz (a,h) anthracene	1.75	0.200	"	2.00		87.3	30-120	10.1	30
Fluoranthene	1.89	2.00	"	2.00		94.4	30-120	4.25	30
Fluorene	1.87	0.200	"	2.00		93.5	30-120	5.10	30
Indeno (1,2,3-cd) pyrene	2.02	0.300	"	2.00		101	30-120	13.0	30
Phenanthrene	1.89	0.500	"	2.00		94.7	30-120	4.40	30
Pyrene	1.91	1.00	"	2.00		95.7	30-120	2.62	30
1-Methylnaphthalene	1.73	0.500	"	2.00		86.4	30-120	8.93	30
2-Methylnaphthalene	1.71	0.500	"	2.00		85.6	0-200	10.1	200
Surrogate: 2-Methylnaphthalene-d10	1.70		"	2.00		84.8	40-150		
Surrogate: Fluoranthene-d10	1.98		"	2.00		98.8	40-150		

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

Anions by EPA Method 300.0 - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch BGA0164 - General Preparation

Blank (BGA0164-BLK1)

Prepared & Analyzed: 01/09/23

Chloride	ND	0.0600	mg/L
Sulfate	ND	0.300	"

LCS (BGA0164-BS1)

Prepared & Analyzed: 01/09/23

Chloride	3.08	0.0600	mg/L	3.00	103	90-110
Sulfate	16.1	0.300	"	15.0	107	90-110

Duplicate (BGA0164-DUP1)

Source: 2212578-01

Prepared & Analyzed: 01/09/23

Chloride	112	12.0	mg/L	98.6	12.9	20
Sulfate	71.6	60.0	"	72.8	1.66	20

Matrix Spike (BGA0164-MS1)

Source: 2212578-01

Prepared & Analyzed: 01/09/23

Chloride	656	12.0	mg/L	600	98.6	93.0	80-120
Sulfate	2570	60.0	"	3000	72.8	83.4	80-120

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

Total Dissolved Solids by SM2540C - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

Batch BGA0012 - General Preparation

Blank (BGA0012-BLK1)

Prepared & Analyzed: 01/03/23

Total Dissolved Solids ND 10.0 mg/L

Duplicate (BGA0012-DUP1)

Source: 2212571-01

Prepared & Analyzed: 01/03/23

Total Dissolved Solids 827 10.0 mg/L 821 0.704 20

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6855 W. 119th Ave.
Broomfield CO, 80020

Project: Noble - HSR Charlton 08-20

Project Number: [none]
Project Manager: Jacob Whritenour

Reported:
01/11/23 15:14

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference