

BATES 20-22
FLOWLINE RELEASE
API #: 05-123-24849
Remediation #: 9872
Form 27 Document #: 200440424

FOURTH QUARTER 2016
Analytical Tables, Figures,
and Laboratory Reports

October 25, 2016



Image: Google

PREPARED ON BEHALF OF

Noble Energy, Inc.
1600 Broadway
Denver, CO 80202



PREPARED BY

Tasman Geosciences, Inc.
6899 Pecos Street, Unit C
Denver, CO 80221



TABLE 1
SOIL ANALYTICAL DATA
NOBLE ENERGY, INC. - BATES 20-22 FLOWLINE RELEASE

Soil Sample ID	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	Naphthalene (mg/kg)
COGCC Standard		0.17	85	100	175	500		23
BH01@2-4'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH02@1-2.5'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH03@1-2'	03/22/16	0.11	1.6	0.68	4.5	170	420	0.22
BH04@1-3'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	0.015
BH05@0-2'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH06@1-2.5'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH07@2-3'	03/22/16	0.16	2.3	2.0	14	720	1,200	0.23
BH08@0-1.5'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH10@6-7'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH11@4-5'	03/22/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH12@1-2'	07/15/16	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010

COGCC = Colorado Oil and Gas Conservation Commission

TPH-GRO = Total petroleum hydrocarbons - gasoline range organics

TPH-DRO = Total petroleum hydrocarbons - diesel range organics

mg/kg = Milligrams per kilogram

< = Analytical result is less than the indicated laboratory reporting limit

Soil standards referenced from COGCC Table 910-1

Highlighted results exceed the COGCC Table 910-1 standard

TABLE 2
GROUNDWATER ANALYTICAL DATA
NOBLE ENERGY, INC. - BATES 20-22 FLOWLINE RELEASE

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Standard		5	560	700	1,400
BH01	03/22/16	<1.0	<1.0	<1.0	<1.0
BH01	07/13/16	<1.0	<1.0	<1.0	<1.0
BH01	10/03/16	<1.0	<1.0	<1.0	<1.0
BH02	03/22/16	<1.0	<1.0	<1.0	<1.0
BH02	07/13/16	<1.0	<1.0	<1.0	<1.0
BH02	10/03/16	<1.0	<1.0	<1.0	<1.0
BH03	03/22/16	92	210	66	470
BH03	07/13/16	<1.0	<1.0	<1.0	<1.0
BH03	10/03/16	<1.0	<1.0	<1.0	<1.0
BH04	03/22/16	<1.0	<1.0	<1.0	<1.0
BH04	07/13/16	<1.0	<1.0	<1.0	<1.0
BH04	10/03/16	<1.0	<1.0	<1.0	<1.0
BH05	03/22/16	<1.0	<1.0	<1.0	<1.0
BH05	07/13/16	<1.0	<1.0	<1.0	<1.0
BH05	10/03/16	<1.0	<1.0	<1.0	<1.0
BH06	03/22/16	<1.0	<1.0	<1.0	<1.0
BH06	07/13/16	<1.0	<1.0	<1.0	<1.0
BH06	10/03/16	<1.0	<1.0	<1.0	<1.0
BH07	03/22/16	62	170	24	150
BH07	07/13/16	Not Sampled - LNAPL Present			
BH07	10/03/16	<1.0	<1.0	<1.0	<1.0
BH08	03/22/16	<1.0	<1.0	<1.0	<1.0
BH08	07/13/16	<1.0	<1.0	<1.0	<1.0
BH08	10/03/16	<1.0	<1.0	<1.0	<1.0
BH12	07/15/16	<1.0	<1.0	<1.0	<1.0
BH12	10/03/16	<1.0	<1.0	<1.0	<1.0

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

< = Analytical result is less than the indicated laboratory reporting limit

Groundwater standards referenced from COGCC Table 910-1

Highlighted results exceed the COGCC Table 910-1 standard

TABLE 3
GROUNDWATER ELEVATION DATA
NOBLE ENERGY, INC. - BATES 20-22 FLOWLINE RELEASE

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft. BTOC)	Depth to LNAPL (ft. BTOC)	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH01	03/22/16	4716.21	12.75	8.33	ND	ND	4707.88
BH01	07/13/16	4716.21	12.75	3.69	ND	ND	4712.52
BH01	10/03/16	4716.21	12.75	7.02	ND	ND	4709.19
BH02	03/22/16	4715.15	10.95	7.18	ND	ND	4707.97
BH02	07/13/16	4715.15	10.95	2.67	ND	ND	4712.48
BH02	10/03/16	4715.15	10.95	5.71	ND	ND	4709.44
BH03	03/22/16	4714.36	12.13	8.03	ND	ND	4706.33
BH03	07/13/16	4714.36	12.13	4.32	ND	ND	4710.04
BH03	10/03/16	4714.36	12.13	7.11	ND	ND	4707.25
BH04	03/22/16	4714.35	9.85	7.50	ND	ND	4706.85
BH04	07/13/16	4714.35	9.85	4.56	ND	ND	4709.79
BH04	10/03/16	4714.35	9.85	6.88	ND	ND	4707.47
BH05	03/22/16	4714.40	10.17	7.13	ND	ND	4707.27
BH05	07/13/16	4714.40	10.17	4.11	ND	ND	4710.29
BH05	10/03/16	4714.40	10.17	6.48	ND	ND	4707.92
BH06	03/22/16	4714.67	9.83	7.24	ND	ND	4707.43
BH06	07/13/16	4714.67	9.83	3.70	ND	ND	4710.97
BH06	10/03/16	4714.67	9.83	6.39	ND	ND	4708.28
BH07	03/22/16	4716.10	12.60	8.85	ND	ND	4707.25
BH07	07/13/16	4716.10	12.60	5.45	5.35	0.10	4710.73
BH07	10/03/16	4716.10	12.60	8.02	ND ¹	ND ¹	4708.08
BH08	03/22/16	4714.24	9.63	7.80	ND	ND	4706.44
BH08	07/13/16	4714.24	9.63	3.83	ND	ND	4710.41
BH08	10/03/16	4714.24	9.63	6.53	ND	ND	4707.71
BH12	07/15/16	4715.58	9.88	4.92	ND	ND	4710.66
BH12	10/03/16	4715.58	8.86	7.76	ND	ND	4707.82

ft. = Feet

AMSL = Above mean sea level

BTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

ND = No LNAPL detected

1. Sheen present on groundwater

* 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

TABLE 4
SURFACE WATER ANALYTICAL DATA
NOBLE ENERGY, INC. - BATES 20-22 FLOWLINE RELEASE

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Standard		5	560	700	1,400
SW01	03/22/16	<1.0	<1.0	<1.0	<1.0
SW02	03/22/16	<1.0	<1.0	<1.0	<1.0
SW03	03/22/16	<1.0	<1.0	<1.0	<1.0

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

< = Analytical result is less than the indicated laboratory reporting limit

Groundwater standards referenced from COGCC Table 910-1

Highlighted results exceed the COGCC Table 910-1 standard

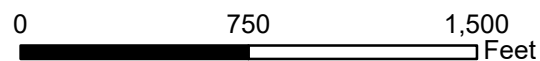
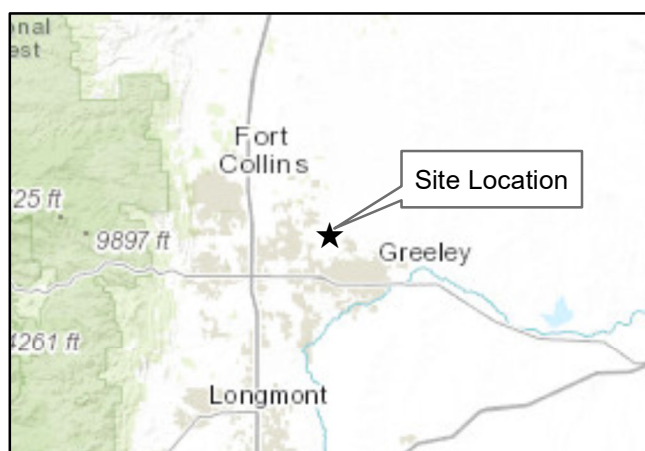
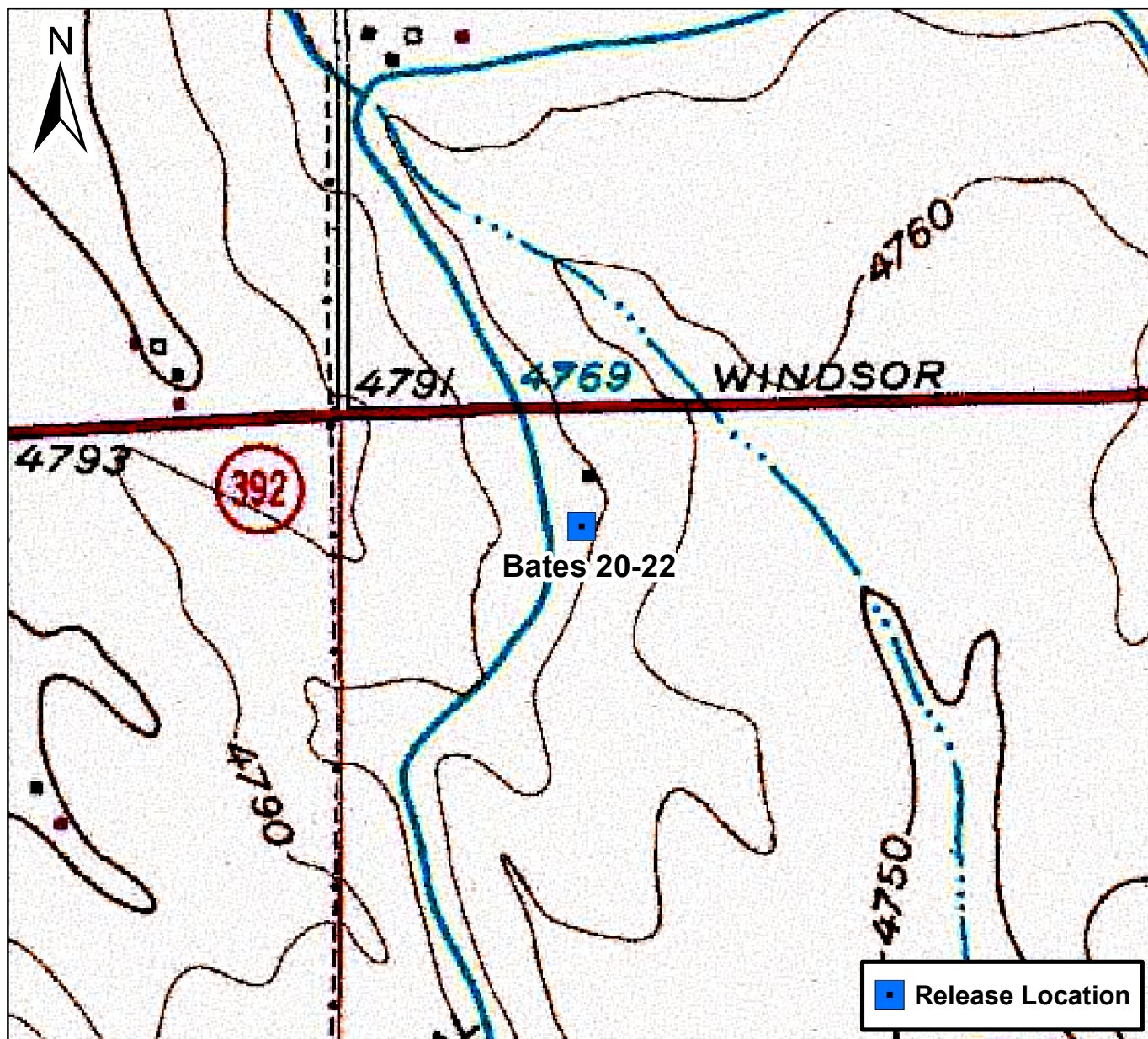


Figure 1

Site Location Map
Bates 20-22
NWNW S20 T6N R66W
Weld County, Colorado





PROJECT NO:
 DRAWN BY: JW
 DATE: 07/21/16

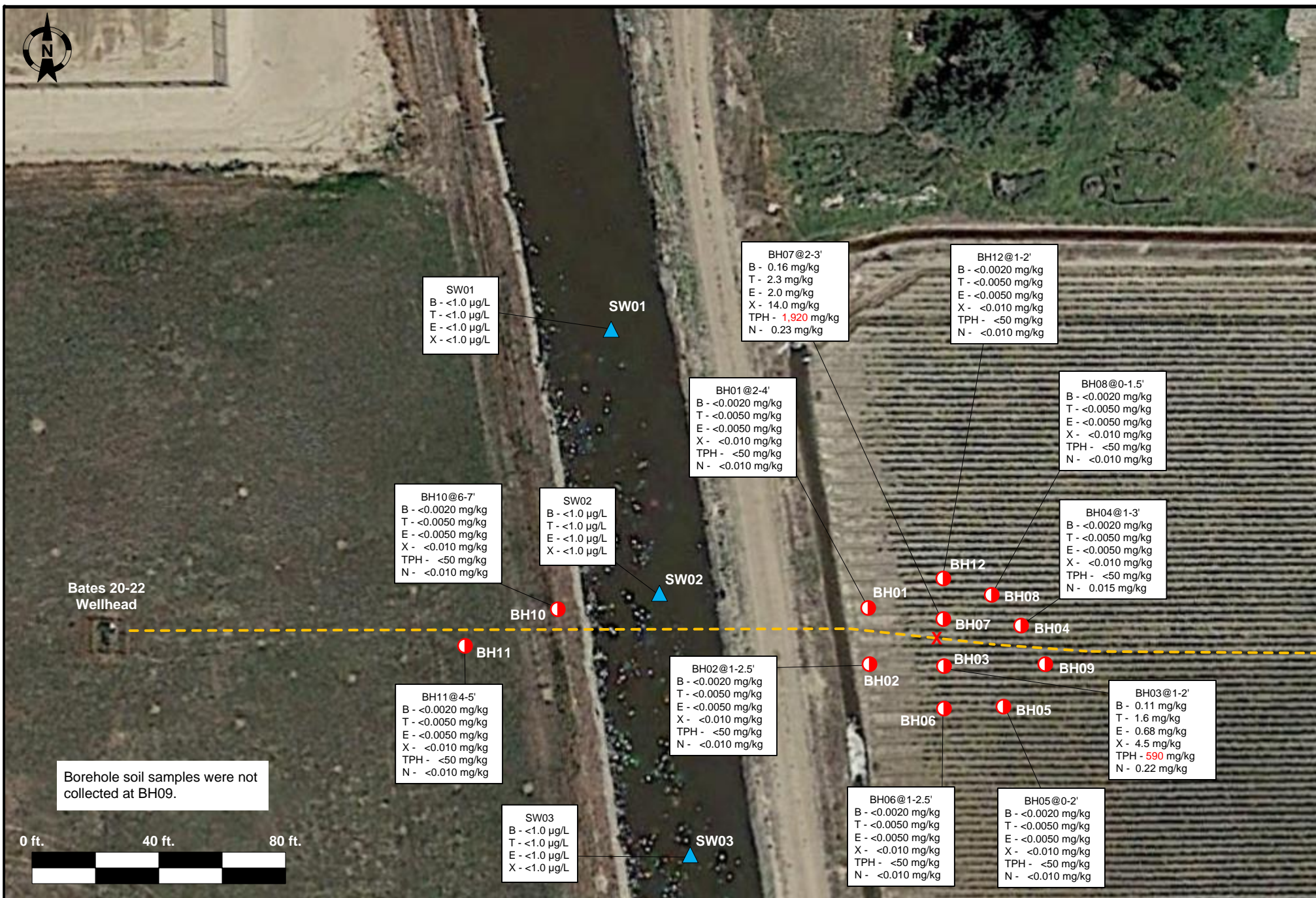


Facility
 Bates 20-22
 Flowline Release
 Weld County, CO

LEGEND:
 - - - Noble Flow Line
 ▲ Surface Water Sample Location

⬢ Soil Boring Location (No Monitoring Well Installed)
 ⬢ Groundwater Monitoring Well
 X Approximate Release Location

Site Overview
 Map
 Figure 2



PROJECT NO:

DRAWN BY: ESS

DATE: 07/19/16



Facility
Bates 20-22
Flowline Release
Weld County, CO

LEGEND:



Soil Boring and Sampling Location

µg/L

Micrograms Per Liter



Noble Flow Line

mg/kg

Milligrams Per Kilogram



Surface Water Sample Location

X







Approximate Release Location

B - Benzene
T - Toluene
E - Ethylbenzene
X - Total Xylenes
TPH - Total Petroleum Hydrocarbons
N - Naphthalene

Borehole Soil and
Surface Water Analytical
Results Map
(03/22/16 – 07/15/16)

Figure 3



PROJECT NO:		Facility Bates 20-22 Flowline Release Weld County, CO	LEGEND: <div>  Noble Flow Line </div> <div>  Approximate Area of Release </div> <div>  Groundwater Monitoring Well </div>	<div>  Groundwater Elevation Contour (Dashed where inferred) </div> <div> 4712.52 Measured Groundwater Elevation </div> <div>  Flow Direction </div>	Groundwater Potentiometric Surface Contour Map (10/03/16) Figure 4
DRAWN BY: JW					
DATE: 10/18/16					

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

October 10, 2016

Brandon Bruns
Tasman Geosciences
6899 Pecos Street
Denver, CO 80221
RE: Bates 20-22

Enclosed are the results of analyses for samples received by Summit Scientific on 10/03/16 16:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, flowing script.

Paul Shrewsbury
President



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	1610028-01	Water	10/03/16 12:09	10/03/16 16:35
BH02	1610028-02	Water	10/03/16 12:20	10/03/16 16:35
BH03	1610028-03	Water	10/03/16 12:28	10/03/16 16:35
BH04	1610028-04	Water	10/03/16 12:41	10/03/16 16:35
BH05	1610028-05	Water	10/03/16 12:48	10/03/16 16:35
BH06	1610028-06	Water	10/03/16 12:56	10/03/16 16:35
BH07	1610028-07	Water	10/03/16 13:18	10/03/16 16:35
BH08	1610028-08	Water	10/03/16 13:26	10/03/16 16:35
BH12	1610028-09	Water	10/03/16 14:10	10/03/16 16:35

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

741 Corporate Circle Suite 1 Golden, Colorado 80401
303-277-9310 303-374-5933 Fax

1610028

Client: Noble/Tasman
Address: _____
City/State/Zip: _____
Phone: 303-487-1228 Fax: _____
Sampler Name: Graham Bruns
Project Manager: Brandon Bruns, Invoice: Jacob Evans
E-Mail: BBruns@tasman-geo.com
Project Name: Bates 20-22
Project Number: _____

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix		Analyze For:				Special Instructions
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	
BH01	10-3-16	1209	3	X										
BH02	10-3-16	1220	3	X										
BH03	10-3-16	1228	3	X										
BH04	10-3-16	1241	3	X										
BH05	10-3-16	1248	3	X										
BH06	10-3-16	1256	3											
BH07	10-3-16	1318	3			X								
BH08	10-3-16	1326	3	X										
BH12	10-3-16	1410	3			X								

Relinquished by: _____ Date/Time: 10-3-16 1635
Received by: _____ Date/Time: 10/3/16 1635
Turn Around Time (Check):
Same Day ☒ 24 Hours ☐ 48 Hours ☐ 72 Hours ☐ Standard ☐
Sample Integrity:
Temperature Upon Receipt: 3.4°C
Intact: Yes ☒ No ☐
Notes: on ice

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

Sample Receipt Checklist

S2 Work Order: 11610028

Client: Tasman Geo.

Client Project ID: Bates 20-22

Shipped Via: Pick up

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #:

Matrix (check all that apply): ☐ Air ☐ Soil/Solid ☒ Water ☐ Other:

(Describe)

Cooler ID					
Temp (°C)	<u>3.4</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		<input checked="" type="checkbox"/>		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Jacob Porter
Custodian Printed Name

Jmp
Signature or Initials of Custodian

10/4/16 905
Date/Time



Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22
Project Number: [none]
Project Manager: Brandon Brunns

Reported:
10/10/16 11:12

BH01
1610028-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/03/16 12:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1610048	10/07/16	10/07/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **10/03/16 12:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.2 %	45-146		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

BH02
1610028-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/03/16 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1610048	10/07/16	10/07/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **10/03/16 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.7 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	45-146		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

BH03
1610028-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/03/16 12:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1610048	10/07/16	10/07/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **10/03/16 12:28**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.3 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.1 %	45-146		"	"	"	"	

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

BH04
1610028-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/03/16 12:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1610048	10/07/16	10/07/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **10/03/16 12:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		93.8 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	45-146		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

BH05
1610028-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/03/16 12:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1610048	10/07/16	10/07/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **10/03/16 12:48**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		94.2 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	45-146		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

BH06
1610028-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/03/16 12:56**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1610048	10/07/16	10/07/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **10/03/16 12:56**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.5 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	45-146		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

BH07
1610028-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/03/16 13:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1610048	10/07/16	10/07/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **10/03/16 13:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		96.2 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.7 %	45-146		"	"	"	"	

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Project: Bates 20-22
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

BH08
1610028-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/03/16 13:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1610048	10/07/16	10/07/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **10/03/16 13:26**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.5 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	45-146		"	"	"	"	

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Project: Bates 20-22
Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

BH12
1610028-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/03/16 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1610048	10/07/16	10/07/16	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **10/03/16 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		96.1 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	45-146		"	"	"	"	

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Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

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 1610048 - EPA 5030 Water MS

Blank (1610048-BLK1)

Prepared & Analyzed: 10/07/16

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.6		"	13.3		102	37-154			
Surrogate: Toluene-d8	12.9		"	13.3		96.7	45-149			
Surrogate: 4-Bromofluorobenzene	13.4		"	13.3		101	45-146			

LCS (1610048-BS1)

Prepared & Analyzed: 10/07/16

Benzene	39.4	1.0	ug/l	33.3		118	51-132			
Toluene	39.6	1.0	"	33.3		119	51-138			
Ethylbenzene	42.0	1.0	"	33.1		127	58-146			
m,p-Xylene	75.7	2.0	"	66.5		114	57-144			
o-Xylene	39.6	1.0	"	32.7		121	53-146			
Surrogate: 1,2-Dichloroethane-d4	14.3		"	13.3		107	37-154			
Surrogate: Toluene-d8	13.4		"	13.3		100	45-149			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		99.7	45-146			

Matrix Spike (1610048-MS1)

Source: 1610011-01

Prepared & Analyzed: 10/07/16

Benzene	39.7	1.0	ug/l	33.3	ND	119	34-141			
Toluene	40.0	1.0	"	33.3	ND	120	27-151			
Ethylbenzene	43.6	1.0	"	33.1	ND	132	29-160			
m,p-Xylene	77.9	2.0	"	66.5	ND	117	20-166			
o-Xylene	40.7	1.0	"	32.7	ND	125	33-159			
Surrogate: 1,2-Dichloroethane-d4	14.6		"	13.3		110	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.5	45-149			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.4	45-146			

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Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

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 1610048 - EPA 5030 Water MS

Matrix Spike Dup (1610048-MSD1)	Source: 1610011-01			Prepared & Analyzed: 10/07/16						
Benzene	40.2	1.0	ug/l	33.3	ND	121	34-141	1.33	32	
Toluene	40.7	1.0	"	33.3	ND	122	27-151	1.56	25	
Ethylbenzene	44.6	1.0	"	33.1	ND	135	29-160	2.34	50	
m,p-Xylene	79.7	2.0	"	66.5	ND	120	20-166	2.34	36	
o-Xylene	41.9	1.0	"	32.7	ND	128	33-159	2.95	26	
Surrogate: 1,2-Dichloroethane-d4	14.7		"	13.3		110	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.4	45-149			
Surrogate: 4-Bromofluorobenzene	13.3		"	13.3		99.6	45-146			

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6899 Pecos Street
Denver CO, 80221

Project: Bates 20-22

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
10/10/16 11:12

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