

February 9, 2018

Mr. David Castro
SRC Energy, Inc.
West 11th Street, Suite C
Greeley, CO 80634

Subject: **Sampling Summary Report**
 Sullivan 3-1
 Location ID: 323373
 Spill/Release Point ID #: 451307
 Remediation Project #: 12297
 SEW S3 T6N R66W 6PM
 Weld County, Colorado

Dear Mr. Castro:

Below please find a copy of the above referenced Sampling Summary Report (Report) for the Sullivan 3-1 site (Site) in Weld County, Colorado. The text below describes environmental assessment and associated soil and groundwater sampling activities conducted by Tasman Geosciences, Inc. (Tasman), on behalf of SRC Energy, Inc. (SRC) during January 2019.

Introduction

The purpose of this document is to describe the results of soil and groundwater sampling activities at the Site. The activities described below were performed in response to the discovery of a suspected release from a separator back pressure line on June 29, 2017 at the Site. The release was reported to the Colorado Oil and Gas Conservation Commission (COGCC) on June 30, 2017 by the former operator Noble Energy. The COGCC established Spill/Release Point ID No. 451307 for the project.

Facility Background

The Site is located approximately three (3) miles west of the town of Eaton in Weld County, Colorado, as shown on Figure 1. The legal description of the Site is the southeast $\frac{1}{4}$ of the northwest $\frac{1}{4}$ of Section 3, Township 6 North, Range 66 West, of the 6th Principal Meridian. The Site is approximately 1,850 ft. east of Weld County Road 31 and the spill release point has coordinates of 40.519461°, -104.767825°.

As reported on the initial Form 19, a release was discovered at the Site on June 29, 2017. The approximate release location is shown on Figure 2. During January 2018, Tasman completed Site assessment activities to determine the nature and extent of residual impacts. The Site assessment and sampling activities are documented in the Site Assessment Report (Doc #401897377) submitted

to the COGCC on January 8, 2019 with the Form 27 Remediation Work Plan. The COGCC assigned remediation project number 12297 to the Site on January 9, 2019.

Soil Sampling Activities

On January 10, 2019, Tasman was retained by SRC to complete a soil boring and collect a confirmation soil sample. The soil boring, BH06R, was completed adjacent to BH06 where sample BH06@4-6' was collected. During boring operations, soil samples were collected and field screened for the presence of volatile organic compounds (VOCs) using a photoionizing detector (PID) and standard headspace sampling techniques. A soil sample was collected from boring BH06R within the sample depth interval (4-6 feet below ground surface[bgs]) as was collected from boring BH06 in 2018. The soil sample was submitted to Origins Laboratory in Denver, Colorado (Origins) for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total petroleum hydrocarbons-gasoline range organics (TPH-GRO) using United States Environmental Protection Agency (USEPA) Method 8260B, as well as total petroleum hydrocarbons-diesel range organics (TPH-DRO) using USEPA Method 8015. The location of borehole BH06R is illustrated on Figure 2, and the boring log is included as Attachment A. Soil analytical results are summarized in Table 1 and illustrated on Figure 3. The complete laboratory analytical report is included in Attachment B.

Groundwater Sampling Activities

After the soil boring activities were completed, Tasman collected groundwater samples from the six monitoring wells (BH01 – BH06) that were previously installed at the Site in 2018. Groundwater was encountered at depths of approximately 5.5 to 6.9 ft. bgs. Groundwater samples collected from the six wells were submitted to Origins for laboratory analysis of BTEX by USEPA Method 8260B. Groundwater analytical results are summarized in Table 2 and illustrated on Figure 4. The complete laboratory analytical report is provided in Attachment B. Groundwater elevation data is summarized in Table 3 and a potentiometric surface map is provided as Figure 5.

Results

Laboratory analytical results for confirmation soil sample BH06R@4-5' collected during soil boring activities indicate that vadose zone soil impacts are below COGCC Table 910-1 soil standards.

Laboratory analytical results for the six groundwater samples collected indicate that dissolved phase petroleum hydrocarbon impacts to groundwater are below COGCC Table 910-1 groundwater standards.

Conclusions

Based on field and laboratory data collected during Site sampling activities, soil impacts previously detected in the area of BH06 have naturally attenuated.

Based on field and laboratory data for groundwater samples collected from the six monitoring wells, dissolved phase petroleum hydrocarbon impacts above COGCC Table 910-1 groundwater standards were not detected. Quarterly groundwater monitoring will continue until four consecutive quarters of compliant groundwater data are achieved.

Remarks

The discussion and conclusions contained in this report represent the professional opinions of Tasman Geosciences, Inc. These opinions are based on currently available information and are arrived at in accordance with currently accepted geologic and engineering practices.

Please contact me at (720) 431-1190 if you require additional information.

Sincerely,
Tasman Geosciences, Inc.



Brandon Bruns, PE
Project Manager

Attachments:

Table 1 – Soil Analytical Data
Table 2 – Groundwater Analytical Data
Table 3 – Groundwater Elevation Data

Figure 1 – Site Location Map
Figure 2 – Site Overview Map
Figure 3 – Borehole Soil Analytical Results Map (1/23/18, 1/31/18, 1/10/19)
Figure 4 – Groundwater Potentiometric Surface Contour Map (1/10/19)
Figure 5 – Groundwater Analytical Results Map (1/10/19)

Attachment A – Boring Log
Attachment B – Laboratory Analytical Data Reports

TABLES

TABLE 1
SOIL ANALYTICAL DATA
SRC ENERGY, INC. - SULLIVAN 3-1

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@10-12'	01/23/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH02@10-12'	01/23/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH03@2-4'	01/23/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH04@2-4'	01/23/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH05@0-2'	01/23/18	<0.0020	<0.0050	<0.0050	<0.010	<50	<50	<0.010
BH06@4-6'	01/23/18	0.41	0.0051	3.5	1.9	81	220	0.30
BH06R@4-5'	01/10/19	<0.002	<0.002	<0.002	<0.002	0.696	<50	

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 are equal to or exceed the COGCC Table 910-1 standard

TABLE 2
GROUNDWATER ANALYTICAL DATA
SRC ENERGY - SULLIVAN 3-1

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	01/31/18	<1.0	<1.0	<1.0	<2.0
BH01	01/10/19	<1.00	<1.00	<1.00	<1.00
BH02	01/31/18	<1.0	<1.0	<1.0	<2.0
BH02	01/10/19	<1.00	<1.00	<1.00	<1.00
BH03	01/31/18	<1.0	<1.0	<1.0	<2.0
BH03	01/10/19	<1.00	<1.00	<1.00	<1.00
BH04	01/31/18	<1.0	<1.0	<1.0	<2.0
BH04	01/10/19	<1.00	<1.00	<1.00	<1.00
BH05	01/31/18	<1.0	<1.0	<1.0	<2.0
BH05	01/10/19	<1.00	<1.00	<1.00	<1.00
BH06	01/31/18	62	<1.0	5.0	7.3
BH06	01/10/19	<1.00	<1.00	<1.00	<1.00

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 are equal to or exceed the COGCC Table 910-1 standard

TABLE 3
GROUNDWATER ELEVATION DATA
SRC ENERGY - SULLIVAN 3-1

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	01/31/18	4887.25	18.16	7.70	ND	ND	4879.55
BH01	01/10/19	4887.25	18.20	8.41	ND	ND	4878.84
BH02	01/31/18	4887.34	18.15	7.69	ND	ND	4879.65
BH02	01/10/19	4887.34	18.18	8.33	ND	ND	4879.01
BH03	01/31/18	4887.83	18.15	8.27	ND	ND	4879.56
BH03	01/10/19	4887.83	18.12	9.00	ND	ND	4878.83
BH04	01/31/18	4888.13	17.76	8.22	ND	ND	4879.91
BH04	01/10/19	4888.13	17.81	8.06	ND	ND	4880.07
BH05	01/31/18	4888.51	18.42	8.65	ND	ND	4879.86
BH05	01/10/19	4888.51	18.47	9.37	ND	ND	4879.14
BH06	01/31/18	4887.70	14.85	8.05	ND	ND	4879.65
BH06	01/10/19	4887.70	14.81	8.74	ND	ND	4878.96

ft. = Feet

AMSL = Above mean sea level

BTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

ND = No LNAPL detected

* 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

FIGURES

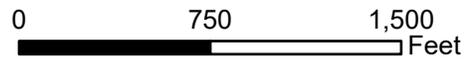
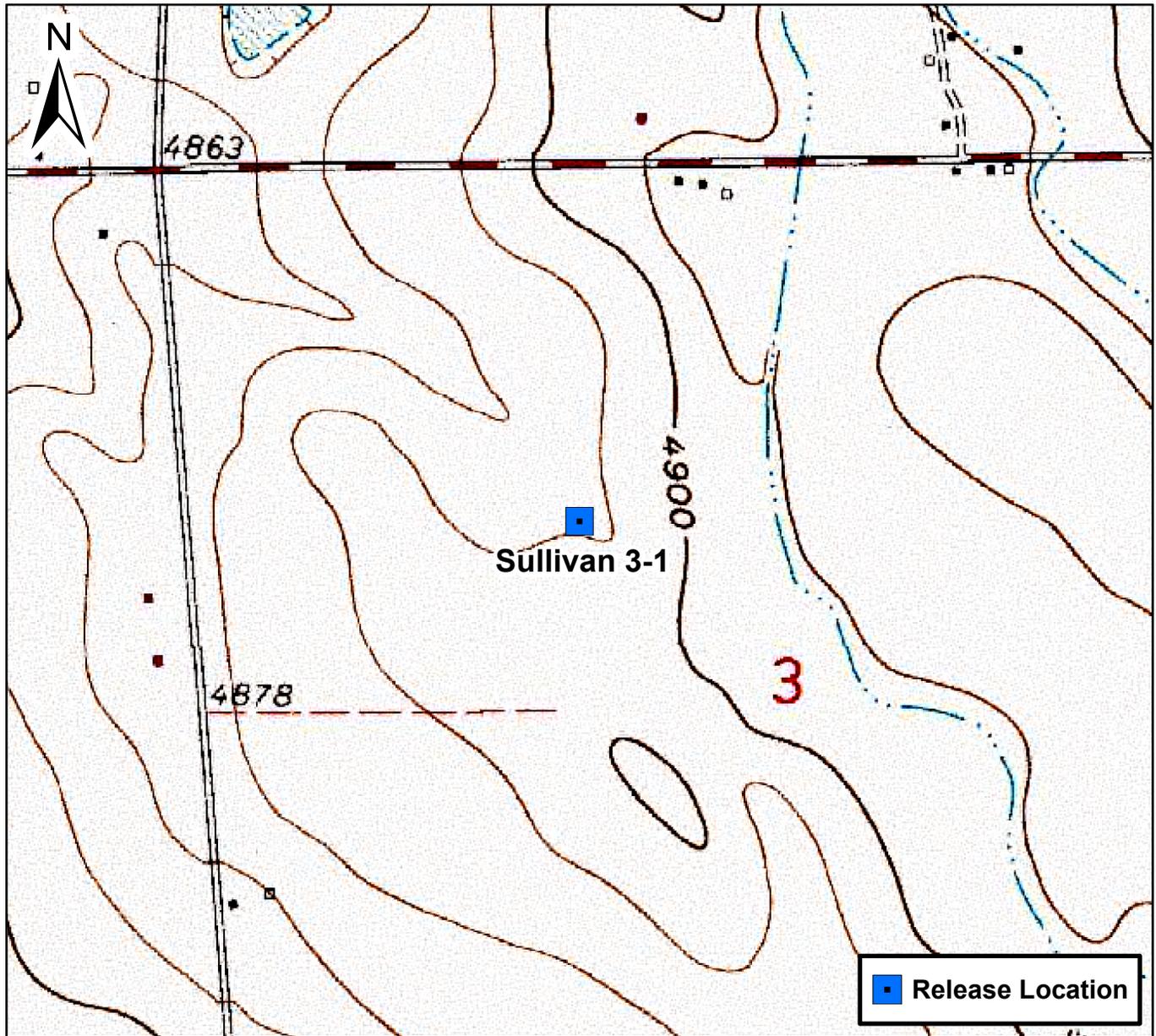
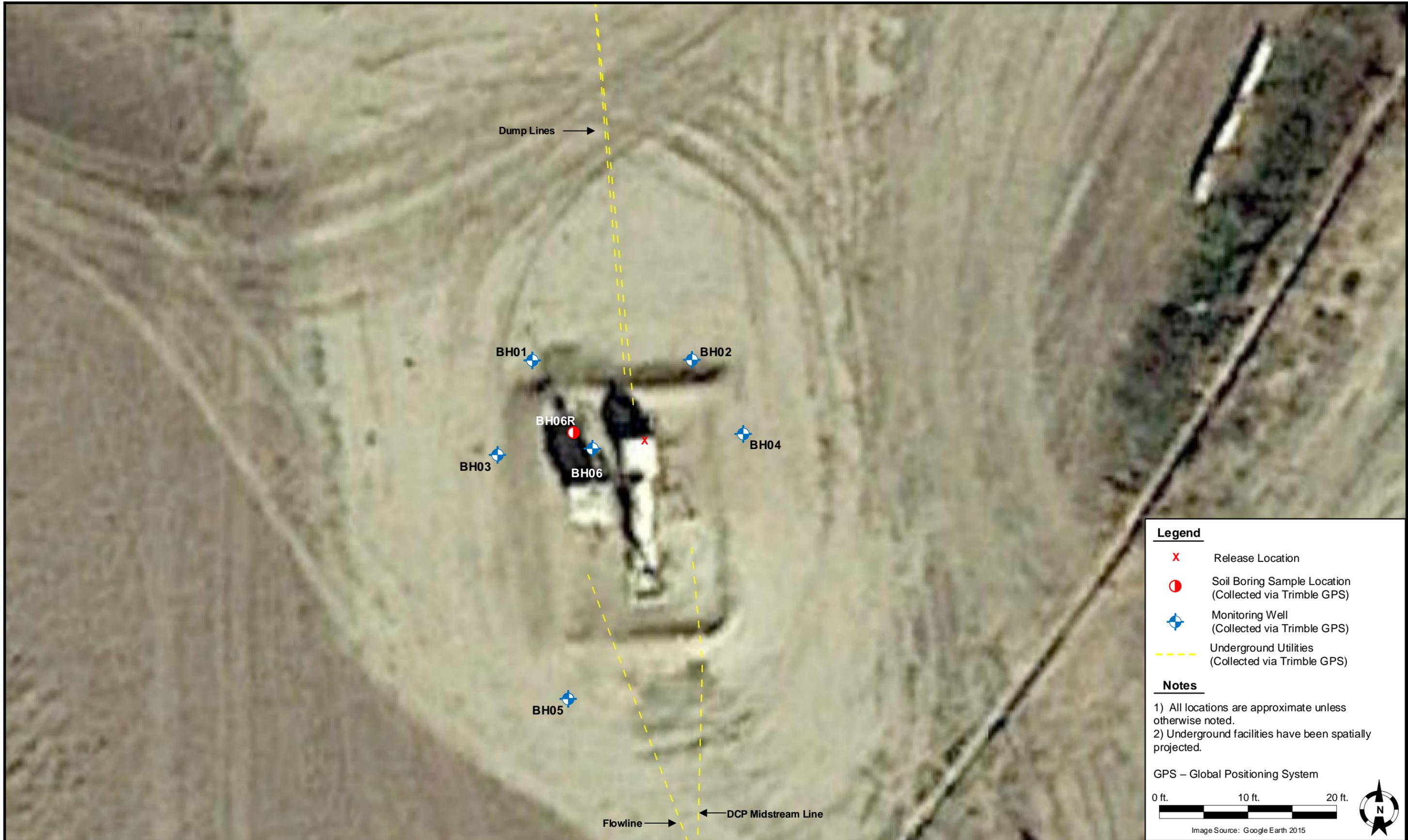


Figure 1

Site Location Map
 Sullivan 3-1
 SENW S3 T6N R66W
 Weld County, Colorado





DATE:	01/28/19
DESIGNED BY:	JW
DRAWN BY:	TL



TASMAN
GEOSCIENCES

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

SRC Energy – DJ Basin
Sullivan 3-1
SENW, Section 3, Township 6 North, Range 66 West
Weld County, Colorado

Site Overview Map

FIGURE
2



BH06R@4-5'
(01/10/19)
B - <0.002 mg/kg
T - <0.002 mg/kg
E - <0.002 mg/kg
X - <0.002 mg/kg
TPH - 0.696 mg/kg

BH06@4-6'
(01/30/18)
B - 0.41 mg/kg
T - 0.0051 mg/kg
E - 3.5 mg/kg
X - 1.9 mg/kg
TPH - 301 mg/kg

Legend

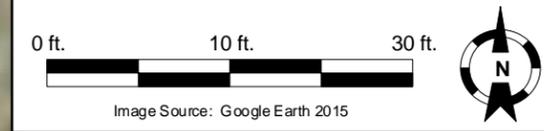
- X Release Location
- + Monitoring Well (Collected via Trimble GPS)
- Soil Boring Sample Location (Collected via Trimble GPS)
- - - - - Underground Utilities (Collected via Trimble GPS)

Notes

- 1) All locations are approximate unless otherwise noted.
- 2) Underground facilities have been spatially projected.
- 3) RED value indicates concentration greater than COGCC table 910-1 soil standard (see table below).

GPS – Global Positioning System
mg/kg – Milligrams Per Kilogram
COGCC – Colorado Oil and Gas Conservation Commission

Soil Contaminant of Concern	COGCC Concentration Standard
B - Benzene	0.17 mg/kg
T - Toluene	85 mg/kg
E - Ethylbenzene	100 mg/kg
X – Total Xylenes	175 mg/kg
TPH- Total Petroleum Hydrocarbons	500 mg/kg



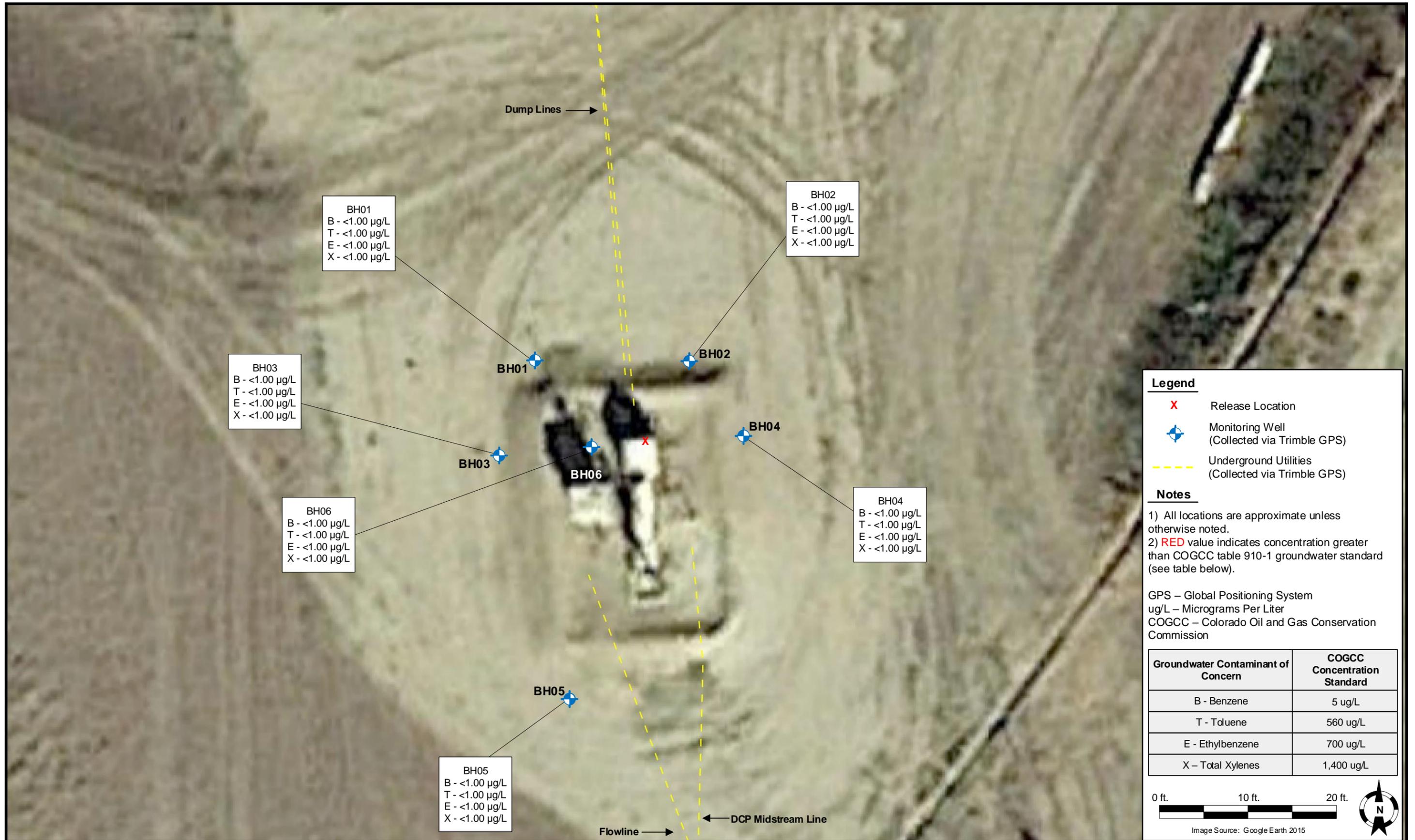
DATE:	01/28/19
DESIGNED BY:	JW
DRAWN BY:	TL

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

**SRC Energy, Inc. – DJ Basin
Sullivan 3-1**
SENW, Section 3, Township 6 North, Range 66 West
Weld County, Colorado

Borehole Soil Analytical
Results Map
(01/30/18, 01/10/19)

**FIGURE
3**



Legend

- X Release Location
- ◆ Monitoring Well (Collected via Trimble GPS)
- Underground Utilities (Collected via Trimble GPS)

Notes

- 1) All locations are approximate unless otherwise noted.
- 2) **RED** value indicates concentration greater than COGCC table 910-1 groundwater standard (see table below).

GPS – Global Positioning System
 ug/L – Micrograms Per Liter
 COGCC – Colorado Oil and Gas Conservation Commission

Groundwater Contaminant of Concern	COGCC Concentration Standard
B - Benzene	5 ug/L
T - Toluene	560 ug/L
E - Ethylbenzene	700 ug/L
X – Total Xylenes	1,400 ug/L

0 ft. 10 ft. 20 ft.

Image Source: Google Earth 2015

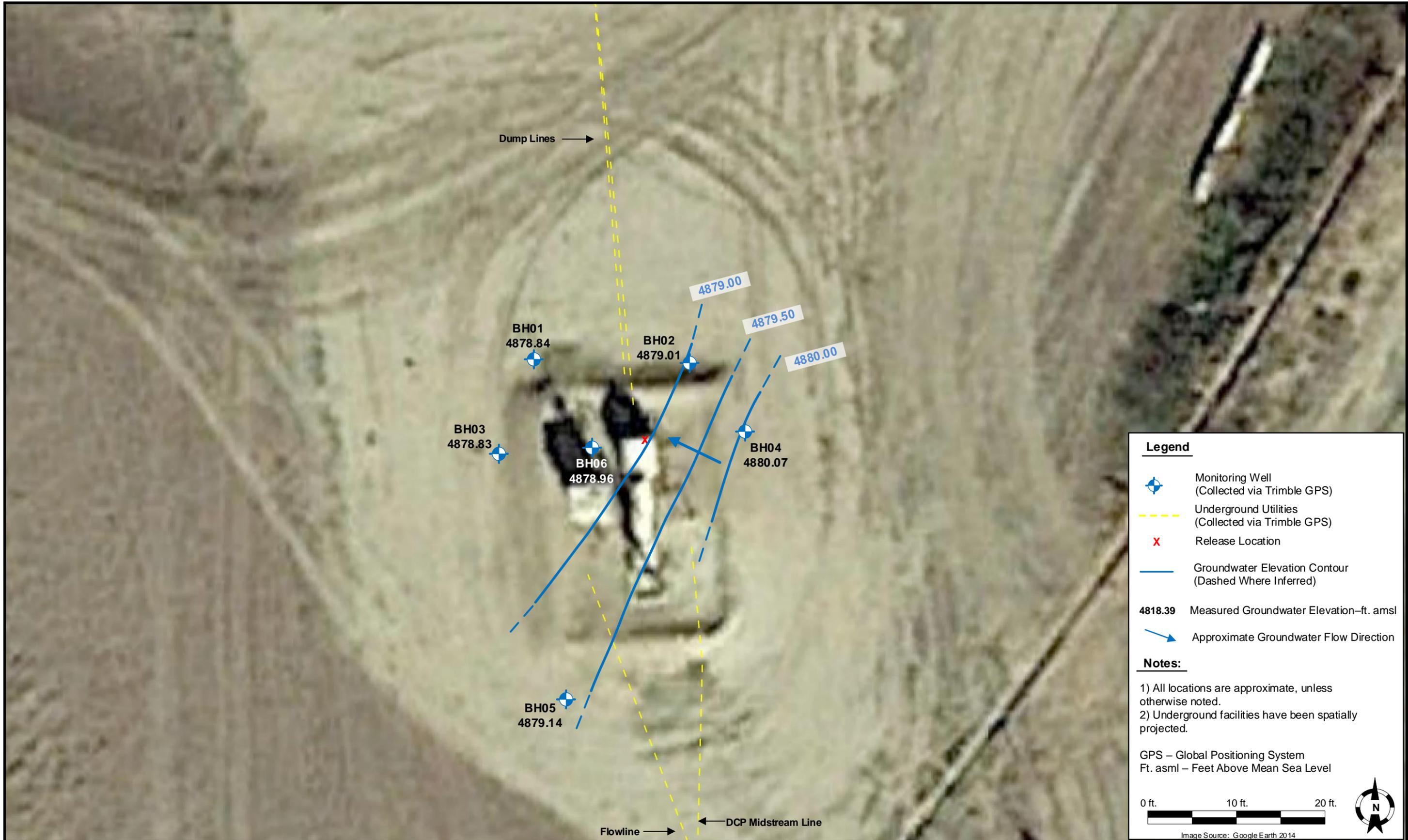
DATE:	01/28/19
DESIGNED BY:	JW
DRAWN BY:	TL

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

SRC Energy, Inc. – DJ Basin Sullivan 3-1
 SENW, Section 3, Township 6 North, Range 66 West
 Weld County, Colorado

Groundwater Analytical Results Map (01/10/19)

FIGURE 4



Legend

- Monitoring Well (Collected via Trimble GPS)
- Underground Utilities (Collected via Trimble GPS)
- Release Location
- Groundwater Elevation Contour (Dashed Where Inferred)

4818.39 Measured Groundwater Elevation—ft. amsl

Approximate Groundwater Flow Direction

Notes:

- 1) All locations are approximate, unless otherwise noted.
- 2) Underground facilities have been spatially projected.

GPS – Global Positioning System
Ft. asml – Feet Above Mean Sea Level

0 ft. 10 ft. 20 ft.

Image Source: Google Earth 2014

DATE:	01/28/19
DESIGNED BY:	JW
DRAWN BY:	TL

TASMAN
GEOSCIENCES

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

SRC Energy – DJ Basin
Sullivan 3-1
SENW, Section 3, Township 6 North, Range 66 West
Weld County, Colorado

Groundwater Potentiometric
Surface Contour Map
(01/10/19)

FIGURE
5

ATTACHMENT A

BORING LOG



6899 Pecos Street, Unit C
Denver, Colorado 80221

CLIENT: Tasman

LOGGED BY: Max Garza

PROJECT MANAGER: Brandon Bruns

DRILLING CONTRACTOR: Tasman Geosciences

DRILLING EQUIPMENT: Hand Auger

DRILL BIT SIZE (INCHES): 3.5

DATE STARTED - COMPLETED: 01/10/19-01/10/19

TOTAL WELL DEPTH (FT. BGS): 6

DEPTH WATER ENCOUNTERED (FT. BGS): NA

Sullivan 3-1

BORING ID: BH06R

LOCATION: Weld County, Colorado

NORTHING (CO STATE PLANE): 40.519467°

EASTING (CO STATE PLANE): -104.767851°

GROUND ELEVATION (FT. AMSL): Not Measured

ABANDONMENT METHOD: Bentonite

Depth (feet)	Drill Tooling	% Rec. 25 50 75	Lithologic Description	USCS	PID (ppm)		Lab	Depth (feet)
					100	1000		
0	Hand Auger		Brown clay, medium density, medium plasticity, dry, fine sand, small gravel	CL				0
			As above, no gravel					
			As above, stiff, caliche					
			Brown clay with grey hydrocarbon staining and a slight hydrocarbon odor, caliche, medium plasticity, medium density					
5	Hand Auger		Grey clay, moist, slight hydrocarbon odor, soft, medium plasticity					5

Drilling / Sample Method:

- Macro-Core
- Hand Auger
- HydroPunch Groundwater Sampler
- Expendable Well Tip

Laboratory Sample Types:

- Geotechnical Lab
- Analytical Chemistry Lab
- Geotechnical & Analytical Chemistry Lab

ATTACHMENT B

LABORATORY ANALYTICAL DATA REPORTS



February 06, 2019

Tasman Geosciences

Brandon Bruns

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - SRC - Sullivan 3-1

Project Number - [none]

Attached are your analytical results for SRC - Sullivan 3-1 received by Origins Laboratory, Inc. January 10, 2019. This project is associated with Origins project number Y901134-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Brandon Bruns
Project Number: [none]
Project: SRC - Sullivan 3-1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	Y901134-01	Water	January 10, 2019 14:10	01/10/2019 16:50
BH02	Y901134-02	Water	January 10, 2019 14:00	01/10/2019 16:50
BH03	Y901134-03	Water	January 10, 2019 13:45	01/10/2019 16:50
BH04	Y901134-04	Water	January 10, 2019 13:40	01/10/2019 16:50
BH05	Y901134-05	Water	January 10, 2019 13:15	01/10/2019 16:50
BH06	Y901134-06	Water	January 10, 2019 14:15	01/10/2019 16:50
BH06R@4-5'	Y901134-07	Soil	January 10, 2019 14:00	01/10/2019 16:50

Origins Laboratory, Inc.



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
 6899 Pecos Street, Unit C
 Denver CO 80211

Brandon Bruns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

Origins Laboratory

F-012207-01-R1
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: Y901134

Client: Tasman
 Client Project ID: SRC - Sullivan 3-1

Checklist Completed by: JG

Shipped Via: HD
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 1 / 11 / 2019

Airbill #: N/A

Matrix(s) Received. (Check all that apply): Soil/Solid Water _____ Other: _____

Cooler Number/Temperature: 1 / 5.3 °C _____ / _____ °C _____ / _____ °C (Describe)

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) 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 with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? if yes, contact client and note in narrative.		<input checked="" type="checkbox"/>		
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)		<input checked="" type="checkbox"/>		
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) JG

Date/Time Reviewed 1/14/19

Origins Laboratory, Inc.



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
 6899 Pecos Street, Unit C
 Denver CO 80211

Brandon Bruns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

BH01

1/10/2019 2:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	---------	----------	----------	-------

Origins Laboratory, Inc.
Y901134-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A1109	JTD	01/11/2019	01/11/2019	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	103 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	99.6 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	104 %	84-114			"	"	"	"	

Origins Laboratory, Inc.



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
 6899 Pecos Street, Unit C
 Denver CO 80211

Brandon Bruns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

BH02

1/10/2019 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	---------	----------	----------	-------

Origins Laboratory, Inc.
Y901134-02 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A1109	JTD	01/11/2019	01/11/2019	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	113 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	95.6 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	"	

Origins Laboratory, Inc.



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
 6899 Pecos Street, Unit C
 Denver CO 80211

Brandon Bruns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

BH03

1/10/2019 1:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	---------	----------	----------	-------

Origins Laboratory, Inc.
Y901134-03 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A1109	JTD	01/11/2019	01/11/2019	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	113 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	96.3 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	99.4 %	84-114			"	"	"	"	

Origins Laboratory, Inc.



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
 6899 Pecos Street, Unit C
 Denver CO 80211

Brandon Bruns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

BH04

1/10/2019 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901134-04 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A1109	JTD	01/11/2019	01/11/2019	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	102 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	100 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	84-114			"	"	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Brandon Bruns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

BH05

1/10/2019 1:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901134-05 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A1109	JTD	01/11/2019	01/11/2019	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	112 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	98.0 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	"	

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 6899 Pecos Street, Unit C
 Denver CO 80211

Brandon Bruns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

BH06

1/10/2019 2:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901134-06 (Water)

BTEX by EPA 8260C

Benzene	ND	1.00	ug/L	1	B9A1109	JTD	01/11/2019	01/11/2019	U
Toluene	ND	1.00	"	"	"	JTD	"	"	U
Ethylbenzene	ND	1.00	"	"	"	JTD	"	"	U
Xylenes, total	ND	1.00	"	"	"	JTD	"	"	U

Surrogate: 1,2-Dichloroethane-d4	100 %	84-121			"	"	"	"	
Surrogate: Toluene-d8	99.6 %	85-115			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %	84-114			"	"	"	"	

Origins Laboratory, Inc.



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 6899 Pecos Street, Unit C
 Denver CO 80211

Brandon Bruns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

BH06R@4-5'
1/10/2019 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
Y901134-07 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	B9A1102	JTD	01/11/2019	01/11/2019	U
Surrogate: o-Terphenyl	78.4 %	59-131			"	"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.696	0.200	mg/kg	1	B9A1101	KDK	01/11/2019	01/12/2019	
Benzene	ND	0.002	"	"	"	KDK	"	"	U
Toluene	ND	0.002	"	"	"	KDK	"	"	U
Ethylbenzene	ND	0.002	"	"	"	KDK	"	"	U
Xylenes, total	ND	0.002	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	107 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	96.7 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	99.0 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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 Project Number: [none]
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Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9A1101 - EPA 5030 (soil)

Blank (B9A1101-BLK1)

Prepared: 01/11/2019 Analyzed: 01/11/2019

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		94.9	70-130			

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Tasman Geosciences
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 Denver CO 80211

Brandon Brunns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9A1101 - EPA 5030 (soil)

LCS (B9A1101-BS1)

Prepared: 01/11/2019 Analyzed: 01/11/2019

Benzene	0.099	0.002	mg/kg				77.1-124			
Toluene	0.094	0.002	"				74.5-128			
Ethylbenzene	0.095	0.002	"				66.4-127			
m,p-Xylene	0.190	0.004	"				76.6-124			
o-Xylene	0.096	0.002	"				76.6-124			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		106	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	70-130			

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 Denver CO 80211

Brandon Brunns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9A1101 - EPA 5030 (soil)

Matrix Spike (B9A1101-MS1)	Source: Y901123-01			Prepared: 01/11/2019 Analyzed: 01/11/2019						
Benzene	0.096	0.002	mg/kg		ND		71.8-126			
Toluene	0.091	0.002	"		ND		65.1-130			
Ethylbenzene	0.092	0.002	"		ND		62.2-130			
m,p-Xylene	0.182	0.004	"		0.002		46.5-137			
o-Xylene	0.092	0.002	"		0.0005		54.2-134			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		100	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		98.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		102	70-130			

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Brandon Brunns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9A1101 - EPA 5030 (soil)

Matrix Spike Dup (B9A1101-MSD1)	Source: Y901123-01			Prepared: 01/11/2019 Analyzed: 01/11/2019						
Benzene	0.092	0.002	mg/kg		ND		71.8-126	3.38	11.3	
Toluene	0.087	0.002	"		ND		65.1-130	4.35	15.4	
Ethylbenzene	0.089	0.002	"		ND		62.2-130	3.70	19.6	
m,p-Xylene	0.176	0.004	"		0.002		46.5-137	3.59	19.2	
o-Xylene	0.089	0.002	"		0.0005		54.2-134	3.63	17.9	
Surrogate: 1,2-Dichloroethane-d4	0.12		"	0.125		98.5	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		99.8	70-130			
Surrogate: 4-Bromofluorobenzene	0.13		"	0.125		103	70-130			

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Brandon Brunns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9A1109 - EPA 5030B (Water)

Blank (B9A1109-BLK1)

Prepared: 01/11/2019 Analyzed: 01/11/2019

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	69		"	62.5	111		84-121			
Surrogate: Toluene-d8	61		"	62.5	96.9		85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5	101		84-114			

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Brandon Brunns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9A1109 - EPA 5030B (Water)

LCS (B9A1109-BS1)

Prepared: 01/11/2019 Analyzed: 01/11/2019

Benzene	58.8	1.00	ug/L	50.0		118	73.3-129			
Toluene	55.3	1.00	"	50.0		111	76.2-123			
Ethylbenzene	55.4	1.00	"	50.0		111	73.6-130			
m,p-Xylene	114	2.00	"	100		114	76.1-126			
o-Xylene	54.3	1.00	"	50.0		109	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		101	84-121			
Surrogate: Toluene-d8	61		"	62.5		97.2	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	84-114			

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Brandon Brunns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9A1109 - EPA 5030B (Water)

Matrix Spike (B9A1109-MS1)	Source: Y901134-01			Prepared: 01/11/2019 Analyzed: 01/11/2019						
Benzene	54.9	1.00	ug/L	50.0	ND	110	74-130			
Toluene	50.9	1.00	"	50.0	0.140	102	73-131			
Ethylbenzene	50.4	1.00	"	50.0	0.420	100	76-132			
m,p-Xylene	103	2.00	"	100	0.850	102	69-139			
o-Xylene	49.2	1.00	"	50.0	0.560	97.2	74-131			
Surrogate: 1,2-Dichloroethane-d4	68		"	62.5		108	84-121			
Surrogate: Toluene-d8	59		"	62.5		95.0	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	84-114			

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 Denver CO 80211

Brandon Brunns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9A1109 - EPA 5030B (Water)

Matrix Spike Dup (B9A1109-MSD1)	Source: Y901134-01			Prepared: 01/11/2019 Analyzed: 01/11/2019						
Benzene	55.1	1.00	ug/L	50.0	ND	110	74-130	0.273	20	
Toluene	51.9	1.00	"	50.0	0.140	104	73-131	1.93	20	
Ethylbenzene	51.2	1.00	"	50.0	0.420	102	76-132	1.51	20	
m,p-Xylene	106	2.00	"	100	0.850	106	69-139	3.24	20	
o-Xylene	50.4	1.00	"	50.0	0.560	99.6	74-131	2.41	20	
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	61		"	62.5		97.0	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.0	84-114			

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Brandon Brunns
 Project Number: [none]
 Project: SRC - Sullivan 3-1

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B9A1102 - EPA 3580

Blank (B9A1102-BLK1)

Prepared: 01/11/2019 Analyzed: 01/11/2019

Diesel (C10-C28)	ND	50.0	mg/kg							U
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Surrogate: o-Terphenyl

41			"	50.0		83.0	59-131			
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LCS (B9A1102-BS1)

Prepared: 01/11/2019 Analyzed: 01/11/2019

Diesel (C10-C28)	967	50.0	mg/kg	1000		96.7	64-121			
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Surrogate: o-Terphenyl

48			"	50.0		95.3	59-131			
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Matrix Spike (B9A1102-MS1)

Source: Y901123-01

Prepared: 01/11/2019 Analyzed: 01/11/2019

Diesel (C10-C28)	1060	50.0	mg/kg	1000	ND	106	53-125			
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Surrogate: o-Terphenyl

50			"	50.0		100	59-131			
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Matrix Spike Dup (B9A1102-MSD1)

Source: Y901123-01

Prepared: 01/11/2019 Analyzed: 01/11/2019

Diesel (C10-C28)	1040	50.0	mg/kg	1000	ND	104	53-125	1.76	20	
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Surrogate: o-Terphenyl

50			"	50.0		99.6	59-131			
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Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Brandon Bruns
Project Number: [none]
Project: SRC - Sullivan 3-1

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President