

**THIRD QUARTER 2019**

**SITE MONITORING &  
REMEDATION SUMMARY REPORT**

**STATE M36**

COGCC SPILL TRACKING # 447962  
COGCC REMEDIATION # 11432

Prepared for:



5400 West 11th  
Street, Suite C  
Greeley, CO 80634

Prepared by:



6855 W 119<sup>th</sup> Avenue  
Broomfield, CO 80020

October 28, 2019

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

Subject:       **Third Quarter 2019 Site Monitoring and Remediation Summary Report**  
                  ***State M36***  
                  Spill/Release Point ID #: 447962  
                  Remediation Project #: 11432  
                  SESE S36 T6N R67W  
                  Weld County, Colorado

Dear Mr. Castro:

Below please find a copy of the above referenced Third Quarter 2019 Site Monitoring and Remediation Summary Report (Report) for the State M36 site (Site) in Weld County, Colorado. The text below describes groundwater remediation and sampling activities conducted by Tasman Geosciences, Inc. (Tasman), on behalf of SRC Energy, Inc. (SRC), during the third quarter of 2019.

## **Introduction**

This Report presents the results of groundwater sampling performed at the Site. Field activities described in this Report were conducted by Tasman Geosciences, Inc. (Tasman) to further evaluate groundwater conditions and conduct remediation activities at the Site. The data collected were used to develop the analytical summary tables, groundwater elevation map, analytical data map, and evaluate remedial alternatives presented herein.

## **Third Quarter 2019 Groundwater Monitoring Activities**

Third Quarter 2019 groundwater monitoring activities were performed at the Site on September 26, 2019. The activities included measurement of groundwater levels from all 16 Site monitoring well locations and collection of groundwater samples for laboratory analysis.

## **Groundwater Level Measurements**

Groundwater and light non-aqueous phase liquid (LNAPL) levels were gauged in order to evaluate hydraulic characteristics and to provide information regarding seasonal and annual fluctuations in groundwater elevations at the Site. During the Third Quarter 2019 groundwater monitoring event, groundwater and LNAPL levels were gauged at all monitoring well locations in the Site monitoring network.

During the Third Quarter 2019 groundwater monitoring event, the groundwater elevation at the Site ranged from 4,711.43 feet above mean sea level (ft. amsl) in BH2 to 4,712.30 ft. amsl in BH13 (Table 1). The groundwater potentiometric surface at the site slopes to the north/northeast near the release location, with a hydraulic gradient of approximately 0.004 feet per foot between wells BH13 and BH25. Groundwater elevation contours and the inferred flow direction are illustrated on Figure 3 and groundwater and LNAPL elevation measurements are presented in Table 1. LNAPL was not measured in any of the Site monitoring wells during the Third Quarter 2019 monitoring event.

## **Groundwater Sampling Results**

This section presents the results of the Third Quarter 2019 groundwater sampling event. Groundwater laboratory analytical data is presented in Table 2 and illustrated on Figure 4. The laboratory analytical report is provided in Attachment A. A summary of the groundwater laboratory analytical data collected by Tasman is presented below:

- Benzene was detected above the COGCC Table 910-1 groundwater standard of 5 micrograms per liter ( $\mu\text{g/L}$ ) in two of the 16 Site monitoring wells sampled. The benzene concentrations associated with monitoring wells BH18 and BH20 were 99.3  $\mu\text{g/L}$  and 12.5  $\mu\text{g/L}$  respectively.
- Toluene was not detected above the COGCC Table 910-1 groundwater standard of 560  $\mu\text{g/L}$  in any of the 16 Site monitoring wells sampled.
- Ethylbenzene was not detected above the COGCC Table 910-1 groundwater standard of 700  $\mu\text{g/L}$  in any of the 16 monitoring wells sampled.
- Total xylenes were not detected above the COGCC Table 910-1 groundwater standard of 1,400  $\mu\text{g/L}$  in any of the 16 monitoring wells sampled.

## **Remediation Activities**

During the Third Quarter 2019, Tasman converted monitoring wells for dual purpose use to complete mobile air sparge (AS) and soil vapor extraction (SVE) events. These mobile AS/SVE events were conducted to address dissolved phase petroleum hydrocarbon impacts to groundwater that have been detected historically at concentrations above COGCC Table 910-1 standards. The mobile SVE/AS events are conducted on a bi-weekly basis using a mobile remediation unit consisting of a vacuum blower, air compressor, and system manifold. Operational parameters, including vacuum, pressure, air flow, and temperature, are collected during each mobile SVE/AS event to monitor remediation efficacy. During the third quarter 2019 Tasman completed two mobile AS/SVE utilizing dual purposed monitoring wells BH10R, BH14, BH16, BH17, BH18, BH19, and BH20. A summary of AS and SVE operational data is presented in Table 3.

## **Upcoming Activities**

Anticipated upcoming Site activities include the following:

- Perform fourth quarter 2019 quarterly sampling event in December
- Continue to perform Air Sparge / Soil Vapor Extraction events as scheduled.

## **TABLES**

**TABLE 1**  
**GROUNDWATER ELEVATION DATA**  
**SRC ENERGY - STATE M36**

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft.) <sup>(1)</sup>	Depth to LNAPL (ft.) <sup>(1)</sup>	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH01	10/13/16	4721.54	12.19	5.35	ND	ND	4716.19
BH01	01/17/18	4721.54	11.84	5.60	ND	ND	4715.94
BH01	12/13/18	Monitoring Well Destroyed					
BH02	10/13/16	4721.45	12.26	5.40	ND	ND	4716.05
BH02	01/17/18	Monitoring Well Destroyed					
BH03	10/13/16	4721.29	12.53	5.23	5.22	0.01	4716.07
BH03	01/17/18	4721.29	12.43	5.00	ND	ND	4716.29
BH03	12/13/18	Monitoring Well Destroyed					
BH04	10/13/16	4723.16	14.21	7.00	ND	ND	4716.16
BH04	01/17/18	4723.16	13.92	7.25	ND	ND	4715.91
BH04	12/13/18	Monitoring Well Destroyed					
BH05	10/13/16	4722.62	14.47	6.01	ND	ND	4716.61
BH05	01/17/18	4722.62	14.34	6.54	ND	ND	4716.08
BH05	12/13/18	Monitoring Well Destroyed					
BH06	10/13/16	4722.39	14.12	6.11	ND	ND	4716.28
BH06	01/17/18	4722.39	13.99	6.36	ND	ND	4716.03
BH06	12/13/18	Monitoring Well Destroyed					
BH07	10/13/16	4722.28	14.46	5.99	ND	ND	4716.29
BH07	01/17/18	4722.28	14.28	6.20	ND	ND	4716.08
BH07	12/13/18	Monitoring Well Destroyed					
BH08	10/13/16	4721.35	NM	NM	NM	NM	NM
BH08	01/17/18	4721.35	12.58	5.35	ND	ND	4716.00
BH08	12/13/18	Monitoring Well Destroyed					
BH09	10/13/16	4721.77	NM	NM	NM	NM	NM
BH09	01/17/18	4721.77	13.58	5.96	ND	ND	4715.81
BH09	12/13/18	Monitoring Well Destroyed					
BH10	10/13/16	4721.80	NM	NM	NM	NM	NM
BH10	01/17/18	4721.80	13.70	6.08	ND	ND	4715.72
BH10	12/13/18	Monitoring Well Destroyed					
BH10R	12/13/18	4716.41	10.63	5.09	ND	ND	4711.32
BH10R	03/20/19	4716.41	10.50	5.21	ND	ND	4711.20
BH10R	06/28/19	4716.41	10.42	4.21	ND	ND	4712.20
BH10R	09/26/19	4716.41	10.44	4.36	ND	ND	4712.16
BH11	12/13/18	4716.76	10.68	5.40	ND	ND	4711.36
BH11	03/20/19	4716.76	10.49	5.62	ND	ND	4711.14
BH11	06/28/19	4716.76	10.03	4.59	ND	ND	4712.17
BH11	09/26/19	4716.55	40.02	4.78	ND	ND	4712.08
BH12	12/13/18	4716.86	10.01	5.33	ND	ND	4711.53
BH12	03/20/19	4716.86	10.57	5.62	ND	ND	4711.24
BH12	06/28/19	4716.86	10.46	4.67	ND	ND	4712.19
BH12	09/26/19	4716.89	10.36	4.80	ND	ND	4712.27
BH13	12/13/18	4716.92	10.25	5.31	ND	ND	4711.61

**TABLE 1**  
**GROUNDWATER ELEVATION DATA**  
**SRC ENERGY - STATE M36**

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft.) <sup>(1)</sup>	Depth to LNAPL (ft.) <sup>(1)</sup>	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH13	03/20/19	4716.92	10.25	5.59	ND	ND	4711.33
BH13	06/28/19	4716.92	10.21	4.65	ND	ND	4712.27
BH13	09/26/19	4716.70	10.06	4.69	ND	ND	4712.30
BH14	12/13/18	4716.61	10.75	5.06	ND	ND	4711.55
BH14	03/20/19	4716.61	10.78	5.34	ND	ND	4711.27
BH14	06/28/19	4716.61	10.70	4.43	ND	ND	4712.18
BH14	09/26/19	4716.61	10.69	4.55	ND	ND	4712.29
BH15	12/13/18	4716.88	10.13	5.39	ND	ND	4711.49
BH15	03/20/19	4716.88	10.15	5.67	ND	ND	4711.21
BH15	06/28/19	4716.88	10.13	4.75	ND	ND	4712.13
BH15	09/26/19	4716.88	10.10	4.91	ND	ND	4712.26
BH16	12/13/18	4716.75	10.30	5.45	ND	ND	4711.30
BH16	03/20/19	4716.75	10.08	5.54	ND	ND	4711.21
BH16	06/28/19	4716.75	10.00	4.58	ND	ND	4712.17
BH16	09/26/19	4716.75	10.22	4.63	ND	ND	4712.21
BH17	12/13/18	4716.42	10.67	4.96	ND	ND	4711.46
BH17	03/20/19	4716.42	10.65	5.22	ND	ND	4711.20
BH17	06/28/19	4716.42	10.59	4.26	ND	ND	4712.16
BH17	09/26/19	4716.42	10.83	4.42	ND	ND	4712.22
BH18	12/13/18	4716.57	10.38	5.31	ND	ND	4711.26
BH18	03/20/19	4716.57	10.37	5.52	ND	ND	4711.05
BH18	06/28/19	4716.57	10.26	4.49	ND	ND	4712.08
BH18	09/26/19	4716.57	10.20	4.86	ND	ND	4711.96
BH19	12/13/18	4716.78	11.10	5.47	ND	ND	4711.31
BH19	03/20/19	4716.78	11.09	5.67	ND	ND	4711.11
BH19	06/28/19	4716.78	10.98	4.68	ND	ND	4712.10
BH19	09/26/19	4716.78	11.22	5.12	ND	ND	4712.00
BH20	12/13/18	4718.22	11.22	7.10	ND	ND	4711.12
BH20	03/20/19	4718.22	11.26	7.29	ND	ND	4710.93
BH20	06/28/19	4718.22			Unable to Locate		
BH20	09/26/19	4718.58	11.82	6.94	ND	ND	4711.83
BH21	12/13/18	4718.23	12.89	7.00	ND	ND	4711.23
BH21	03/20/19	4718.23	13.08	7.21	ND	ND	4711.02
BH21	06/28/19	4718.23			Unable to Locate		
BH21	09/26/19	4718.55	13.32	6.94	ND	ND	4711.88
BH22	12/13/18	4716.39	11.03	5.31	ND	ND	4711.08
BH22	03/20/19	4716.39	11.05	5.46	ND	ND	4710.93
BH22	06/28/19	4716.39	10.99	4.28	ND	ND	4712.11
BH22	09/26/19	4716.39	10.96	4.84	ND	ND	4711.89
BH23	01/09/19	4716.82	11.63	6.16	ND	ND	4710.66
BH23	03/20/19	4716.82	11.60	6.07	ND	ND	4710.75
BH23	06/28/19	4716.82	11.44	4.83	ND	ND	4711.99

**TABLE 1**  
**GROUNDWATER ELEVATION DATA**  
**SRC ENERGY - STATE M36**

Monitoring Well ID	Date	Top of Casing Elevation (ft. AMSL)	Total Depth (ft. BTOC)	Depth to Water (ft.) <sup>(1)</sup>	Depth to LNAPL (ft.) <sup>(1)</sup>	LNAPL Thickness (ft.)	Groundwater Elevation* (ft. AMSL)
BH23	09/26/19	4716.82	11.56	5.34	ND	ND	4711.64
BH24	01/09/19	4716.39	11.84	5.71	ND	ND	4710.68
BH24	03/20/19	4716.39	11.75	5.60	ND	ND	4710.79
BH24	06/28/19	4716.39	11.60	4.41	ND	ND	4711.98
BH24	09/26/19	4716.39	11.72	4.97	ND	ND	4711.66
BH25	01/09/19	4718.64	13.82	8.15	ND	ND	4710.49
BH25	03/20/19	4718.64	13.85	8.04	ND	ND	4710.60
BH25	06/28/19	4718.64	13.84	6.72	ND	ND	4711.92
BH25	09/26/19	4718.64	13.82	5.41	ND	ND	4711.43

**Notes:**

ft. = Feet

AMSL = Above mean sea level

BTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

ND = No LNAPL detected

NM = Not measured

NS = Not Surveyed

1) Depth to water measurements collected prior to third quarter 2019 were measured from top of well casing. Subsequent 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



**TABLE 2**  
**GROUNDWATER ANALYTICAL DATA**  
**SRC ENERGY - STATE M36**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH01	10/13/16	410	11	9.1	53
BH01	01/17/18	15	<1.0	<1.0	<2.0
BH01	12/13/18	Monitoring Well Destroyed			
BH02	10/13/16	4,100	120	710	7,500
BH02	01/17/18	Monitoring Well Destroyed			
BH03	10/13/16	LNAPL Present - Not Sampled			
BH03	01/17/18	55	<1.0	8.2	69
BH03	12/13/18	Monitoring Well Destroyed			
BH04	10/13/16	1.1	2.5	<1.0	8.7
BH04	01/17/18	<1.0	<1.0	<1.0	<2.0
BH04	12/13/18	Monitoring Well Destroyed			
BH05	10/13/16	<1.0	1.4	<1.0	<1.0
BH05	01/17/18	<1.0	<1.0	<1.0	<2.0
BH05	12/13/18	Monitoring Well Destroyed			
BH06	10/13/16	<1.0	1.2	<1.0	<1.0
BH06	01/17/18	<1.0	<1.0	<1.0	<2.0
BH06	12/13/18	Monitoring Well Destroyed			
BH07	10/13/16	<1.0	<1.0	<1.0	<1.0
BH07	01/17/18	<1.0	<1.0	<1.0	<2.0
BH07	12/13/18	Monitoring Well Destroyed			
BH08	10/13/16	<1.0	<1.0	<1.0	<1.0
BH08	01/17/18	<1.0	<1.0	<1.0	<2.0
BH08	12/13/18	Monitoring Well Destroyed			
BH09	10/13/16	42	<1.0	2.1	18
BH09	01/17/18	3.8	<1.0	<1.0	<2.0
BH09	12/13/18	Monitoring Well Destroyed			
BH10	10/13/16	890	1,000	55	700
BH10	01/17/18	26	<1.0	<1.0	<2.0
BH10	12/13/18	Monitoring Well Destroyed			
BH10R	12/13/18	9.45	<1.00	8.09	91.6
BH10R	03/20/19	5.88	<1.00	<1.00	27.3
BH10R	06/28/19	55.1	<1.00	8.38	28.2
BH10R	09/26/19	<1.00	<1.00	<1.00	<1.00
BH11	12/13/18	<1.00	<1.00	<1.00	<1.00
BH11	03/20/19	<1.00	<1.00	<1.00	<1.00
BH11	06/28/19	<1.00	<1.00	<1.00	<1.00
BH11	09/26/19	<1.00	<1.00	<1.00	<1.00
BH12	12/13/18	<1.00	<1.00	<1.00	<1.00
BH12	03/20/19	<1.00	<1.00	<1.00	<1.00
BH12	06/28/19	<1.00	<1.00	<1.00	<1.00
BH12	09/26/19	<1.00	<1.00	<1.00	<1.00
BH13	12/13/18	<1.00	<1.00	<1.00	<1.00

**TABLE 2**  
**GROUNDWATER ANALYTICAL DATA**  
**SRC ENERGY - STATE M36**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH13	03/20/19	<1.00	<1.00	<1.00	<1.00
BH13	06/28/19	<1.00	<1.00	<1.00	<1.00
BH13	09/26/19	<1.00	<1.00	<1.00	<1.00
BH14	12/13/18	<1.00	<1.00	<1.00	<1.00
BH14	03/20/19	<1.00	<1.00	<1.00	<1.00
BH14	06/28/19	<1.00	<1.00	<1.00	<1.00
BH14	09/26/19	<1.00	<1.00	<1.00	<1.00
BH15	12/13/18	<1.00	<1.00	<1.00	<1.00
BH15	03/20/19	<1.00	<1.00	<1.00	<1.00
BH15	06/28/19	<1.00	<1.00	<1.00	<1.00
BH15	09/26/19	<1.00	<1.00	<1.00	<1.00
BH16	12/13/18	<1.00	<1.00	<1.00	4.53
BH16	03/20/19	<1.00	<1.00	<1.00	<1.00
BH16	06/28/19	<1.00	<1.00	<1.00	<1.00
BH16	09/26/19	<1.00	<1.00	<1.00	<1.00
BH17	12/13/18	17.1	<1.00	<1.00	2.21
BH17	03/20/19	35.3	<1.00	3.31	12.7
BH17	06/28/19	33.6	<1.00	2.78	8.53
BH17	09/26/19	3.61	<1.00	<1.00	2.30
BH18	12/13/18	34.5	10	12.0	94.2
BH18	03/20/19	184	<1.00	13.1	80.7
BH18	06/28/19	58.7	<1.00	<1.00	19.2
BH18	09/26/19	99.3	<1.00	6.67	28.6
BH19	12/13/18	<1.00	<1.00	<1.00	<1.00
BH19	03/20/19	<1.00	<1.00	<1.00	<1.00
BH19	06/28/19	<1.00	<1.00	<1.00	<1.00
BH19	09/26/19	<1.00	<1.00	<1.00	<1.00
BH20	12/13/18	28.9	10	13.3	8.68
BH20	03/20/19	17.8	10	17.8	16.3
BH20	06/28/19	Not Sampled - Unable to Locate			
BH20	09/26/19	12.5	<1.00	21.8	18.8
BH21	12/13/18	10	10	10	10
BH21	03/20/19	<1.00	<1.00	<1.00	<1.00
BH21	06/28/19	Not Sampled - Unable to Locate			
BH21	09/26/19	<1.00	<1.00	1.13	<1.00
BH22	12/13/18	<1.00	<1.00	<1.00	<1.00
BH22	03/20/19	<1.00	<1.00	<1.00	<1.00
BH22	06/28/19	<1.00	<1.00	<1.00	<1.00
BH22	09/26/19	<1.00	<1.00	<1.00	<1.00
BH23	01/09/19	<1.00	<1.00	<1.00	<1.00
BH23	03/20/19	<1.00	<1.00	<1.00	<1.00
BH23	06/28/19	<1.00	<1.00	<1.00	<1.00

**TABLE 2**  
**GROUNDWATER ANALYTICAL DATA**  
**SRC ENERGY - STATE M36**

Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Groundwater Standard (ug/L)		5	560	700	1,400
BH23	09/26/19	<1.00	<1.00	<1.00	<1.00
BH24	01/09/19	<1.00	<1.00	<1.00	<1.00
BH24	03/20/19	<1.00	<1.00	<1.00	<1.00
BH24	06/28/19	<1.00	<1.00	<1.00	<1.00
BH24	09/26/19	<1.00	<1.00	<1.00	<1.00
BH25	01/09/19	<1.00	<1.00	<1.00	<1.00
BH25	03/20/19	4.64	<1.00	<1.00	<1.00
BH25	06/28/19	<1.00	<1.00	<1.00	<1.00
BH25	09/26/19	<1.00	<1.00	<1.00	<1.00

Notes:

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**  
**EFR/AS OPERATIONAL SUMMARY TABLE**  
**SRC ENERGY STATE M 36**

Date	EFR Wells	Total AS/EFR Duration (hours)	Approximate Gallons Extracted	AS Wells	Air Injection Pressure (psi)	Average Air Flow Rate (cfm)
Third Quarter 2019						
9/16/2019	BH10R, BH17, BH18, BH20	6	0	BH10R, BH14, BH16, BH17, BH18, BH19, BH20	10	9
9/19/2019		6	0		10	10.5
Quarterly Totals		12	0			

**Notes:**

EFR = Enhanced fluid recovery

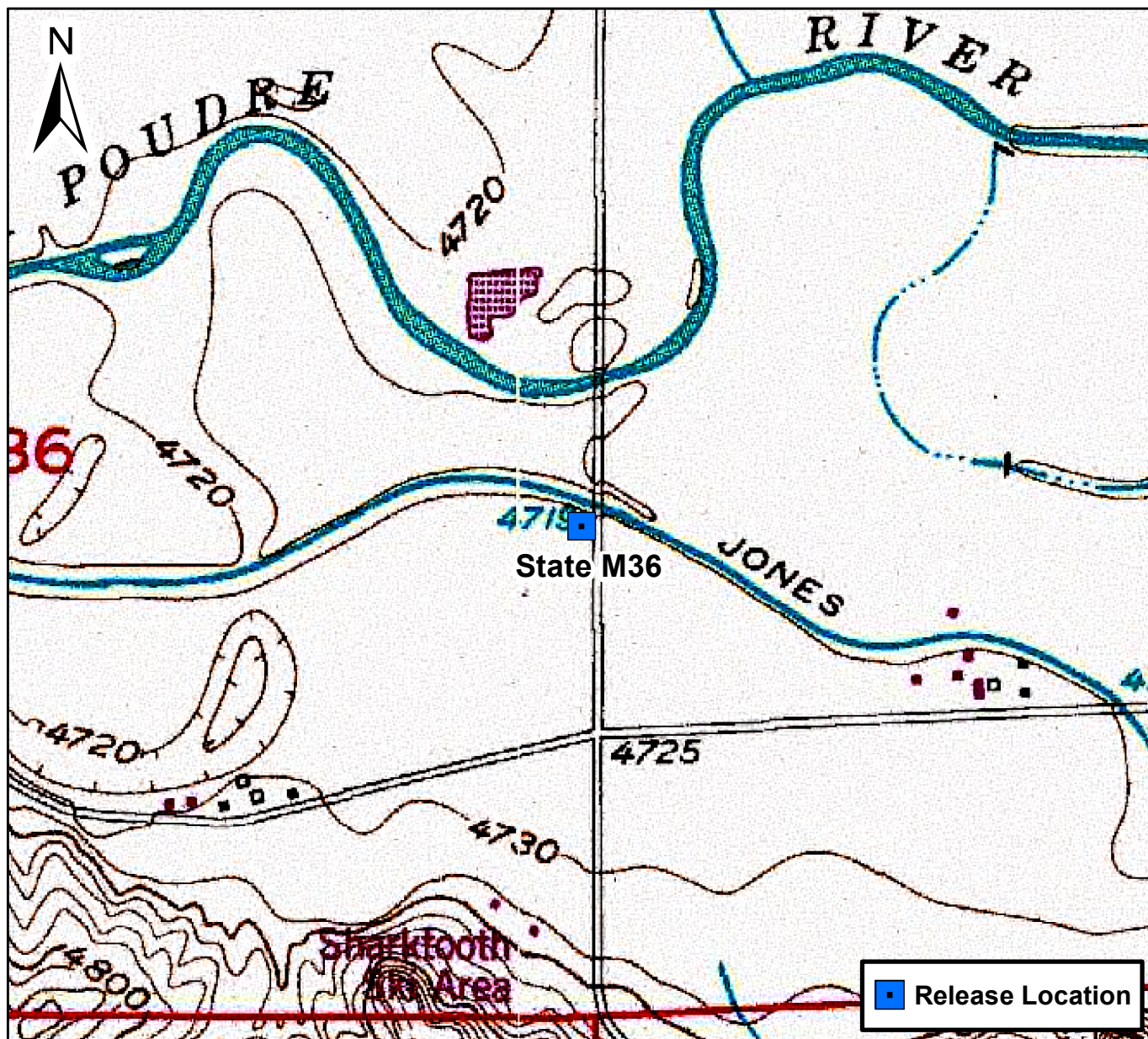
AS = Air sparge

psi = Pounds per square inch

cfm = cubic feet per minute

NR = Not recorded

## **FIGURES**



0 750 1,500 Feet

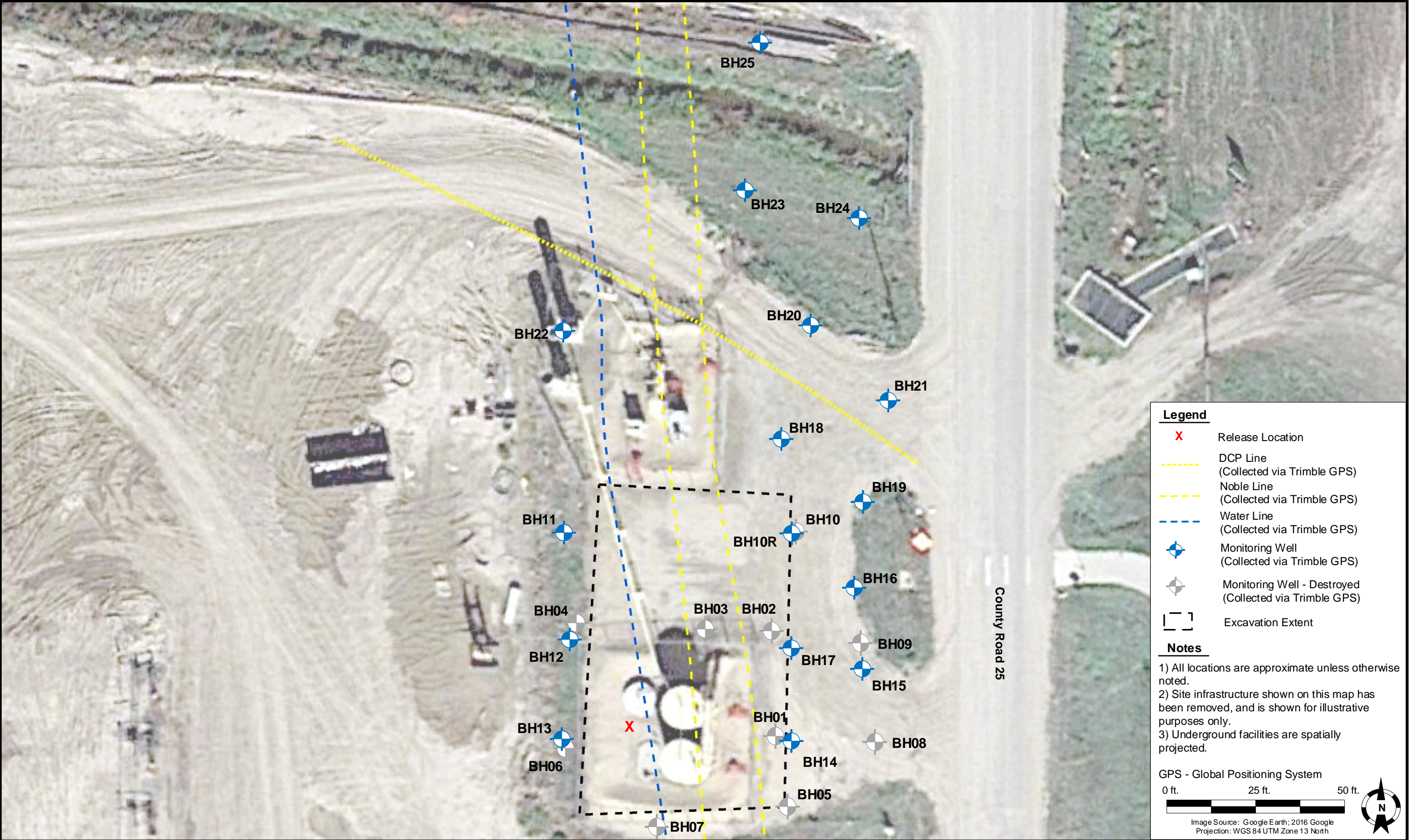
## Figure 1


Site Location Map  
State M36

NESE S36 T6N R67W  
Weld County, Colorado

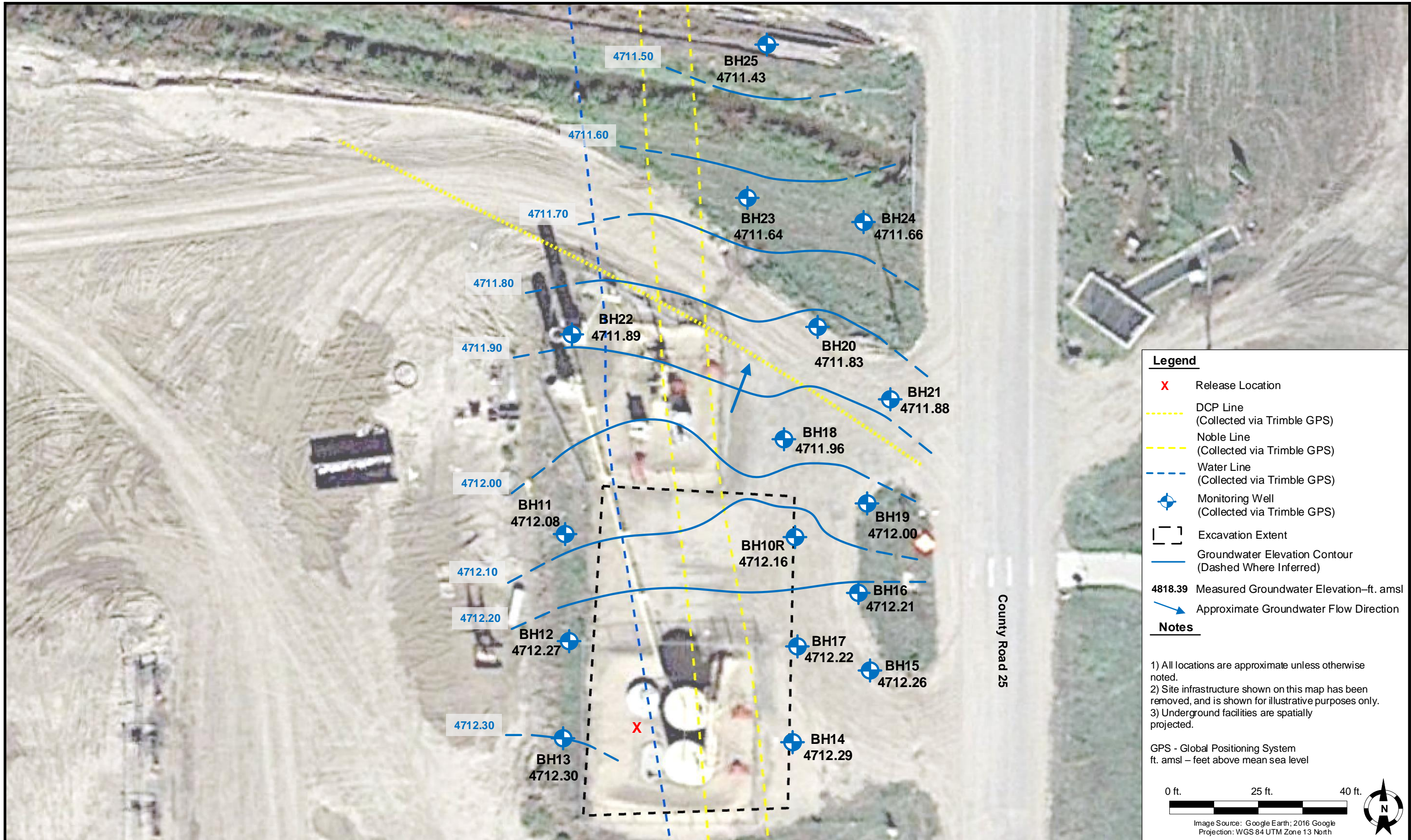




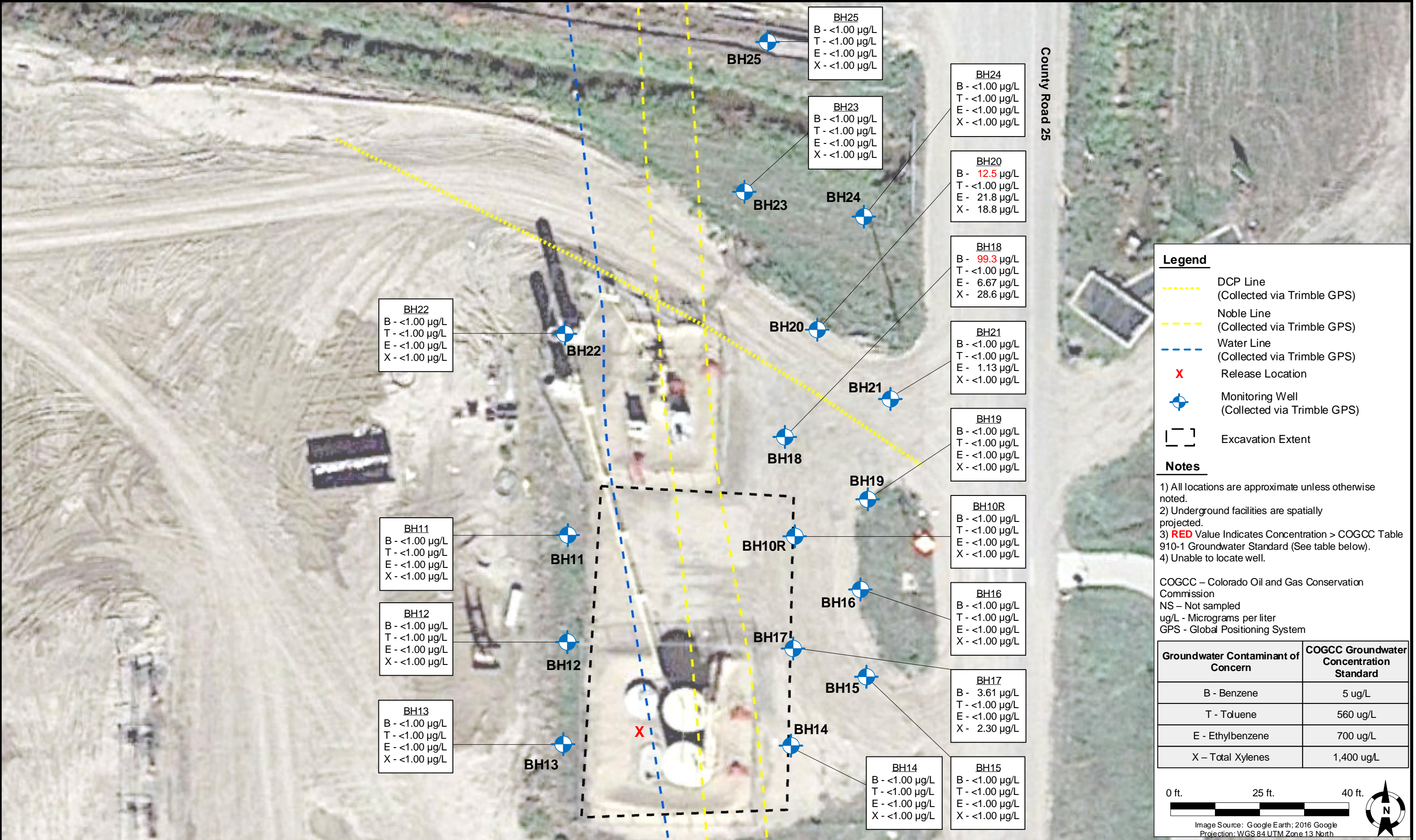


DATE: 10/15/2019	 <div>Tasman Geosciences, Inc. 6855 W 119<sup>th</sup> Avenue Broomfield, CO 80020</div>	SRC Energy State M 36 NESE, Section 36, Township 6 North, Range 67 West Weld County, Colorado	Site Overview Map	FIGURE 2
DESIGNED BY: JW				
DRAWN BY: KC				









DATE:	10/15/2019
DESIGNED BY:	JW
DRAWN BY:	KC



**TASMAN**  
GEOSCIENCES

Tasman Geosciences, Inc.  
6855 W 119<sup>th</sup> Avenue  
Broomfield, CO 80020

**SRC Energy**  
**State M 36**  
NESE, Section 36, Township 6 North, Range 67 West  
Weld County, Colorado

Groundwater Analytical  
Results Map  
(09/26/2019)

FIGURE  
4



**ATTACHMENT A**  
**LABORATORY ANALYTICAL DATA REPORT**



October 02, 2019

Tasman Geosciences

Brandon Bruns

6855 Wet 119th Avenue

Broomfield CO 80020

**Project Name - SRC - State M36**

**Project Number - [none]**

Attached are your analytical results for SRC - State M36 received by Origins Laboratory, Inc. September 26, 2019. This project is associated with Origins project number Y909451-01.

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH10R	Y909451-01	Water	September 26, 2019 14:30	09/26/2019 17:10
BH11	Y909451-02	Water	September 26, 2019 14:20	09/26/2019 17:10
BH12	Y909451-03	Water	September 26, 2019 14:00	09/26/2019 17:10
BH13	Y909451-04	Water	September 26, 2019 13:56	09/26/2019 17:10
BH14	Y909451-05	Water	September 26, 2019 13:13	09/26/2019 17:10
BH15	Y909451-06	Water	September 26, 2019 13:23	09/26/2019 17:10
BH16	Y909451-07	Water	September 26, 2019 13:33	09/26/2019 17:10
BH17	Y909451-08	Water	September 26, 2019 0:00	09/26/2019 17:10
BH18	Y909451-09	Water	September 26, 2019 14:15	09/26/2019 17:10
BH19	Y909451-10	Water	September 26, 2019 12:45	09/26/2019 17:10
BH20	Y909451-11	Water	September 26, 2019 13:55	09/26/2019 17:10
BH21	Y909451-12	Water	September 26, 2019 13:45	09/26/2019 17:10
BH22	Y909451-13	Water	September 26, 2019 14:05	09/26/2019 17:10
BH23	Y909451-14	Water	September 26, 2019 13:35	09/26/2019 17:10

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH24	Y909451-15	Water	September 26, 2019 13:25	09/26/2019 17:10
BH25	Y909451-16	Water	September 26, 2019 13:15	09/26/2019 17:10

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

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page 1 of 2

1909451

**ORIGINS**  
LABORATORY, INC

Client: SRC Energy/Tasman Geosciences  
Address: 6855 119th St. / Broomfield, CO/ 80020  
Telephone Number: (303) 261-2835  
Email Address: BBruns@tasman-geo.com

Project Manager: Brandon Bruns/Dave Castro  
Project Name: State M36  
Project Number:  
Samples Collected By: Tanner Cook

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #		
BH10R	9/26/19	1430	3	X				X			BZ60 BTEX	1
BH11		1420	1									2
BH12		1400										3
BH13		1356										4
BH14		1313										5
BH15		1323										6
BH16		1333										7
BH17		1415										8
BH18		1415										9
BH19		1245										10

Relinquished By: [Signature] Date: 9/26/19 Time: 1710  
Relinquished By: [Signature] Date: 9/26/19 Time: 1710

Turnaround Time: Same Day ☐ 24 Hr ☐ 48 Hr ☐ 72 Hr ☐ Standard ☒

Date Results Needed: 4.4

Origins Laboratory, Inc.

*Jefe Pellegrini*

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 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

www.originslaboratory.com

page 2 of 2

1909451

**ORIGINS**  
LABORATORY, INC

Client: SRC Energy/Tasman Geosciences  
Address: 6855 119th St. / Broomfield, CO/80020  
Telephone Number: (303) 261-2835  
Email Address: BBruns@tasman-geo.com

Project Manager: Brandon Bruns/Dave Castro  
Project Name: State M36  
Project Number: —  
Samples Collected By: Tanner Cook

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	As Summed		
BH20	9/26/19	1355	3	X				X			B260 BTEX	1
BH21		1345	1									2
BH22		1405	1									3
BH23		1335	1									4
BH24		1325	1									5
BH25		1315	1									6
												7
												8
												9
												10

Relinquished By: *Tanner Cook*

Relinquished By:

Date: 9/26/19

Date:

Time: 1710

Time:

Received By: *[Signature]*

Received By:

Date: 9/26/19

Date:

Time: 1710

Time:

Turnaround Time: Same Day ☐ 24 Hr ☐ 48 Hr ☐ 72 Hr ☐ Standard ☒



Tasman Geosciences  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: 1909451

Client: Tasman

Client Project ID: State M36

Checklist Completed by: JG

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

Date/time completed: 9/27/2019

Airbill #: N/A

Matrix(s) Received: (Check all that apply): Soil/Solid ☒ Water ☐ Other: (Describe)

Cooler Number/Temperature: 1 / 44 °C / °C / °C / °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 5°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	No sample time for sample - 0%
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water — is there headspace (> 1/4 inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (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 HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup>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) MD

Date/Time Reviewed 10/1/19

Origins Laboratory, Inc.

*Jefe Pellegrini*

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 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

BH10R  
9/26/2019 2:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
Y909451-01 (Water)

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	60.4 %	70-130			"	"	"	S-04
Surrogate: Toluene-d8	68.9 %	70-130			"	"	"	S-04
Surrogate: 4-Bromofluorobenzene	71.5 %	70-130			"	"	"	

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

## BH11

9/26/2019 2:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y909451-02 (Water)

### BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	95.4 %	70-130	"	"	"
Surrogate: Toluene-d8	103 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	70-130	"	"	"

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

## BH12

9/26/2019 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y909451-03 (Water)

### BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	92.9 %	70-130	"	"	"
Surrogate: Toluene-d8	103 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	103 %	70-130	"	"	"

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

**BH13**

**9/26/2019 1:56:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y909451-04 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	89.9 %	70-130	"	"	"
Surrogate: Toluene-d8	102 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	100 %	70-130	"	"	"

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

**BH14**

**9/26/2019 1:13:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y909451-05 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	89.2 %	70-130	"	"	"
Surrogate: Toluene-d8	106 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	99.5 %	70-130	"	"	"

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

## BH15

9/26/2019 1:23:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y909451-06 (Water)

### BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	88.2 %	70-130	"	"	"
Surrogate: Toluene-d8	103 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	100 %	70-130	"	"	"

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

## BH16

9/26/2019 1:33:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y909451-07 (Water)

### BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	86.1 %	70-130	"	"	"
Surrogate: Toluene-d8	102 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	98.4 %	70-130	"	"	"

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

BH17

9/26/2019 12:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
Y909451-08 (Water)

**BTEX by EPA 8260D**

Benzene	3.61	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	2.30	1.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	84.3 %	70-130			"	"	"	
Surrogate: Toluene-d8	102 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.4 %	70-130			"	"	"	

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Brunns  
Project Number: [none]  
Project: SRC - State M36

BH18

9/26/2019 2:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
Y909451-09 (Water)

**BTEX by EPA 8260D**

Benzene	99.3	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	6.67	1.00	"	"	"	KDK	"	"	
Xylenes, total	28.6	1.00	"	"	"	KDK	"	"	

Surrogate: 1,2-Dichloroethane-d4	86.1 %	70-130			"	"	"	"
Surrogate: Toluene-d8	105 %	70-130			"	"	"	"
Surrogate: 4-Bromofluorobenzene	98.6 %	70-130			"	"	"	"

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

BH19

9/26/2019 12:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y909451-10 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	82.0 %	70-130	"	"	"
Surrogate: Toluene-d8	104 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	97.3 %	70-130	"	"	"

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

## BH20

9/26/2019 1:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y909451-11 (Water)

### BTEX by EPA 8260D

Benzene	12.5	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	21.8	1.00	"	"	"	KDK	"	"	
Xylenes, total	18.8	1.00	"	"	"	KDK	"	"	
Surrogate: 1,2-Dichloroethane-d4	82.0 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	103 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	98.1 %	70-130			"	"	"	"	

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

## BH21

9/26/2019 1:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y909451-12 (Water)

### BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	1.13	1.00	"	"	"	KDK	"	"	
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	82.2 %	70-130	"	"	"
Surrogate: Toluene-d8	102 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	98.3 %	70-130	"	"	"

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  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

## BH22

9/26/2019 2:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y909451-13 (Water)

### BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	83.3 %	70-130	"	"	"
Surrogate: Toluene-d8	103 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	98.9 %	70-130	"	"	"

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Tasman Geosciences  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

## BH23

9/26/2019 1:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y909451-14 (Water)

### BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	84.5 %	70-130	"	"	"
Surrogate: Toluene-d8	104 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	99.2 %	70-130	"	"	"

Origins Laboratory, Inc.



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Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

## BH24

9/26/2019 1:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y909451-15 (Water)

### BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	82.4 %	70-130	"	"	"
Surrogate: Toluene-d8	102 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	96.8 %	70-130	"	"	"

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Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

## BH25

9/26/2019 1:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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## Origins Laboratory, Inc. Y909451-16 (Water)

### BTEX by EPA 8260D

Benzene	ND	1.00	ug/L	1	B912710	KDK	09/27/2019	09/27/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	81.9 %	70-130	"	"	"
Surrogate: Toluene-d8	101 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	96.4 %	70-130	"	"	"

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Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9I2710 - EPA 5030B (Water)**

**Blank (B9I2710-BLK1)**

Prepared: 09/27/2019 Analyzed: 09/27/2019

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	55		"	62.5		87.9	70-130			
Surrogate: Toluene-d8	66		"	62.5		105	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.8	70-130			

Origins Laboratory, Inc.



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Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9I2710 - EPA 5030B (Water)**

**LCS (B9I2710-BS1)**

Prepared: 09/27/2019 Analyzed: 09/27/2019

Benzene	56.3	1.00	ug/L	50.0	113	70-130
Toluene	56.1	1.00	"	50.0	112	70-130
Ethylbenzene	51.1	1.00	"	50.0	102	70-130
m,p-Xylene	105	2.00	"	100	105	70-130
o-Xylene	50.7	1.00	"	50.0	101	70-130
Surrogate: 1,2-Dichloroethane-d4	49		"	62.5	78.5	70-130
Surrogate: Toluene-d8	65		"	62.5	104	70-130
Surrogate: 4-Bromofluorobenzene	63		"	62.5	100	70-130

Origins Laboratory, Inc.



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Broomfield CO 80020

Brandon Brunns  
Project Number: [none]  
Project: SRC - State M36

**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9I2710 - EPA 5030B (Water)**

Matrix Spike (B9I2710-MS1)		Source: Y909447-42			Prepared: 09/27/2019 Analyzed: 09/27/2019					
Benzene	57.4	1.00	ug/L	50.0	2.25	110	70-130			
Toluene	54.3	1.00	"	50.0	ND	109	70-130			
Ethylbenzene	46.9	1.00	"	50.0	0.130	93.6	70-130			
m,p-Xylene	96.8	2.00	"	100	0.290	96.5	70-130			
o-Xylene	48.9	1.00	"	50.0	ND	97.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	55		"	62.5		88.5	70-130			
Surrogate: Toluene-d8	65		"	62.5		104	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

**Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9I2710 - EPA 5030B (Water)**

Matrix Spike Dup (B9I2710-MSD1)		Source: Y909447-42			Prepared: 09/27/2019 Analyzed: 09/27/2019					
Benzene	64.2	1.00	ug/L	50.0	2.25	124	70-130	11.2	20	
Toluene	61.8	1.00	"	50.0	ND	124	70-130	13.0	20	
Ethylbenzene	56.2	1.00	"	50.0	0.130	112	70-130	17.9	20	
m,p-Xylene	114	2.00	"	100	0.290	114	70-130	16.4	20	
o-Xylene	55.1	1.00	"	50.0	ND	110	70-130	11.9	20	
Surrogate: 1,2-Dichloroethane-d4	55		"	62.5		88.0	70-130			
Surrogate: Toluene-d8	65		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
6855 Wet 119th Avenue  
Broomfield CO 80020

Brandon Bruns  
Project Number: [none]  
Project: SRC - State M36

### Notes and Definitions

U Sample is Non-Detect.

S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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